Workflow Manager 2019

User Guide

Legal Information

Book Name: Workflow Manager 2019 User Guide

Part Number: WFM-2019-UG00

Product Release Date: June 2019

Copyright Notice

Intellectual Property

Restricted Rights Legend

1

Contents

2

Workflow Manager Workflow Manager 2019 / AdminStudio Enterprise Server 2019 Help Library

Workflow Manager helps enterprises efficiently manage the application readiness and software license optimization processes to streamline the procurement, preparation, deployment, and ongoing management of applications. Workflow Manager maximizes productivity of the IT team by automating change management, asset management, and other ITIL processes as part of the enterprise application lifecycle.

AdminStudio Enterprise Server consists of the Security Console and Report Center web tools, which are also included with Workflow Manager. You use the security console (user account and role management) to define the roles and privileges that users and groups will have on a given AdminStudio Application Catalog or Workflow Manager database. Report Center provides reporting capability for both AdminStudio and Workflow Manager.

Workflow Manager 2019 now officially supports Microsoft Edge Browser.

The Workflow Manager / AdminStudio Enterprise Server documentation is presented in the following sections:

Table 2-1 • Workflow Manager 2019 / AdminStudio Enterprise Server 2019 Help Library

Task	Content
Managing Roles and Permissions	Discusses AdminStudio and Workflow Manager roles, and how to set permissions to restrict or allow access to various application features.
Managing Accounts and Directory Services	Describes user accounts and how to create them both manually and by importing from a directory service.

Table 2-1 • Workflow Manager 2019 / AdminStudio Enterprise Server 2019 Help Library (cont.)

<table>
<tr><th>Task</th><th colspan="2">Content</th></tr>
<tr><td rowspan="6">Using Workflow Manager</td><td colspan="2">Information on using Workflow Manager is presented in the following sections:</td></tr>
<tr><td>Getting Started</td><td>Provides an overview of Workflow Manager and lists the steps you need to take before you can start using Workflow Manager.</td></tr>
<tr><td>About Workflow Manager</td><td>Introduces you to some key Workflow Manager concepts, explains how to customize Workflow Manager for your organization, and explains how to perform a search.</td></tr>
<tr><td>Submitting and Monitoring Workflow Requests</td><td>Includes procedures that are related to submitting, monitoring, and reporting on workflow requests.</td></tr>
<tr><td>Completing Workflow Requests</td><td>Includes procedures that are related to performing and completing workflow request tasks.</td></tr>
<tr><td>Performing Administrative Tasks</td><td>Discusses administrative procedures related to creating and managing workflow templates and projects, and managing email notifications, external data sources, and external web services.</td></tr>
<tr><td>Workflow Manager Reference</td><td colspan="2">Includes information on the Workflow Manager interface, organized by page and dialog box. Additional reference information on the Workflow Manager configuration file, extending Workflow Manager, and using custom plug-ins with Workflow Manager is also provided.</td></tr>
<tr><td>Generating and Viewing AdminStudio Reports</td><td colspan="2">Explains how to use the Report Center to generate reports on packages stored in the Application Catalog, and on Workflow Manager projects and workflow requests. You can generate standard reports or customized reports using SQL queries or stored procedures.</td></tr>
<tr><td>AdminStudio Configuration Wizard</td><td colspan="2">Explains how to use the AdminStudio Configuration Wizard to activate the product; connect to a Microsoft SQL Server database, System Center Configuration Manager, and the Flexera Service Gateway; and perform other configuration tasks.</td></tr>
</table>

This section of the help library includes the following topics:

- Activating Workflow Manager and AdminStudio Enterprise Server
- Starting the Product
- Overview of the Navigation Bar
- Using Lists
- Using Help

Activating Workflow Manager and AdminStudio Enterprise Server

Workflow Manager / AdminStudio Enterprise Server is activated by uploading a license file using the AdminStudio Configuration Wizard. The number of items listed in the Workflow Manager / AdminStudio Enterprise Server navigation bar depend upon which products are activated. When that license expires, or if you purchase additional functionality, you will need to upload an updated license file.

- Obtaining Your License File
- Uploading a License File Using the AdminStudio Configuration Wizard
- Uploading an Updated License File

Obtaining Your License File

License files are attached to your order confirmation email that you received from Flexera Orders Department. You can also obtain your license file from the Flexera Product and License Center. To obtain your Workflow Manager license file, perform the following steps:

Task ***To obtain a Workflow Manager license file:***

1. Log on to the **Flexera Product and License Center**:

   https://flexerasoftware.flexnetoperations.com

2. In the left navigation, under **Entitlements**, click **Product List**.

   - If you have access to multiple products, the **Product List** page opens and lists all of the product lines to which your account is entitled. Click the **Workflow Manager** link to proceed to the **Product Information** page.
   - If you do not have access to multiple products, clicking the **Product List** link opens the **Product Information** page directly.

3. In the **Product and File Downloads** column, click the Workflow Manager link for the version that you want to download a license file for. The **Product Download** page opens.
4. Open the **Licenses** tab.
5. Click the download button next to the license file.

Uploading a License File Using the AdminStudio Configuration Wizard

After installation, the AdminStudio Configuration Wizard opens and you are prompted to upload a license file. Until you upload the license file, you will be unable to open the Workflow Manager website.

Uploading an Updated License File

When your license file is nearing its expiration date, you will need to upload an updated license file.

Task ***To activate Workflow Manager:***

1. Launch the Configuration Wizard by opening the following file that is installed with Workflow Manager:

   `C:\AdminStudioWebComponents_2019\Support\Config\Config.exe`

2. Open the **Activation** panel.
3. Click the browse button and select the license file that you obtained from Flexera.
4. Finish the wizard to save your entry.

Starting the Product

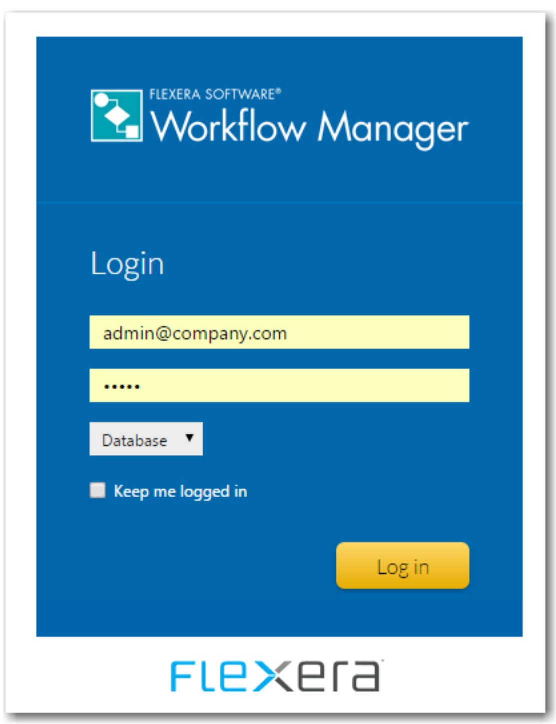
To begin exploring Workflow Manager / AdminStudio Enterprise Server, do the following.

Task ***To login to Workflow Manager:***

1. Using a compatible web browser, navigate to the login page. For a typical installation, this will be:

   `http://`*`<Your-Workflow-Server>`*`/Account/Login`

   where *`<Your-Workflow-Server>`* is the name or IP address of the web server where Workflow Manager is installed. The login page is displayed.



***Note** • If you are logging on to AdminStudio Enterprise Server, a different logo will be displayed on the Login page and throughout the product.*

2. Enter the account credentials that you have been provided and click **Log in**. One of the following pages will be displayed:

    - **Workflow Manager users**—The first time you login, the **Getting Started** page will be displayed. For more information, see Getting Started. After workflow requests have been submitted, the **Dashboard** tab is displayed. For more information, see Viewing Dashboard Reports.

        ***Note** • To return to these page at any time, select **Getting Started** or **Dashboard** on the **Home** menu.*

    - **AdminStudio Enterprise Server users**—The AdminStudio Application Catalog Reports page will be displayed. See Viewing AdminStudio Application Catalog Reports.

Overview of the Navigation Bar

You navigate through the screens of Workflow Manager / AdminStudio Enterprise Server by clicking on menu items in the navigation bar at the top of the page. The items which appear on the navigation bar menus vary according to the product you have purchased, your permissions, and whether you are a workflow administrator or consumer.

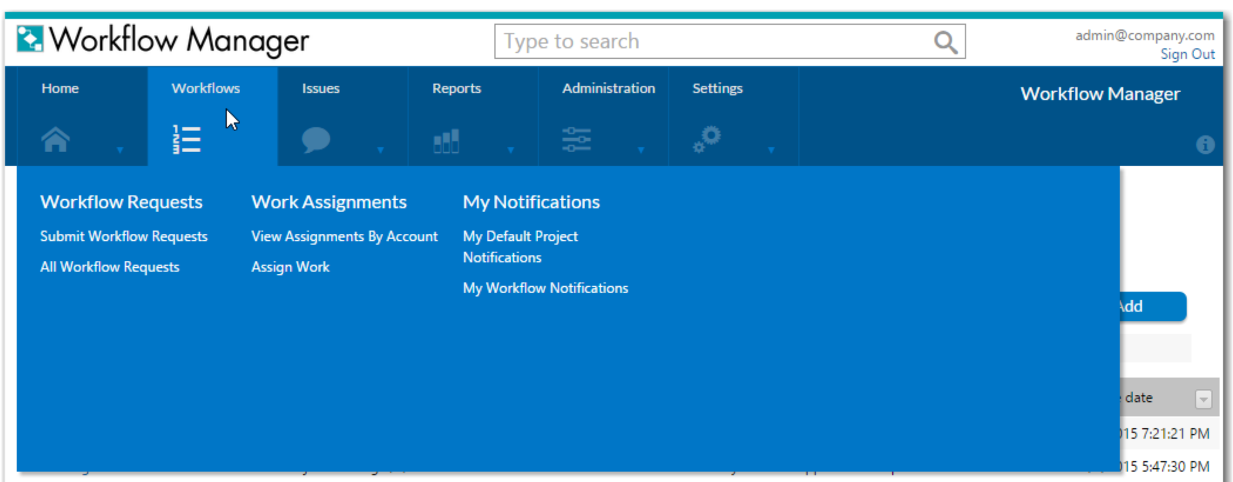


Figure 2-1: Workflow Manager / AdminStudio Enterprise Server Navigation Bar Menu

The Workflow Manager / AdminStudio Enterprise Server navigation bar menu contains the following selections:

Table 2-2 • Navigation Bar Selections

Menu	Heading	Menu Selection	Product	Description
Home	**Options**	Dashboard	WFM	See Viewing Dashboard Reports.
		Getting Started	WFM	See Getting Started.

Table 2-2 • Navigation Bar Selections (cont.)

Menu	Heading	Menu Selection	Product	Description
Workflows	**Workflow Requests**	Submit Workflow Requests	WFM	See Submitting a Workflow Request.
		All Workflow Requests	WFM	See All Workflow Requests Page.
		Workflow Requests Assigned to Me	WFM	See Workflow Requests Assigned To Me Page.
	Work Assignments	View Assignments By Account	WFM	See Assignments By Account Page
		Assign Work	WFM	See Work Assignment Listing Page.
	My Notifications	My Default Project Notifications	WFM	See My Default Project Notifications Page.
		My Workflow Notifications	WFM	See My Workflow Notifications Page.
Issues	**Open Issues**	All Open Issues	WFM	See Issues Pages.
		Recently Created Issues	WFM	See Issues Pages.
		Recently Created Critical Issues	WFM	See Issues Pages.
		Recently Responded Issues	WFM	See Issues Pages.
	Closed Issues	Recently Closed Issues	WFM	See Issues Pages.

Table 2-2 • Navigation Bar Selections (cont.)

Menu	Heading	Menu Selection	Product	Description
Reports	**Standard Reports**	All Reports	WFM	See All Reports Page.
		Request Detail Report	WFM	See Request Detail Report.
		Project SLA Report	WFM	See Project SLA Report.
		Projects Report	WFM	See Projects Report.
		Workflow Request Summary Report	WFM	See Workflow Requests Summary Report.
		Workflow Phases SLA Report	WFM	See Workflow Phases SLA Report.
		Workflow Steps SLA Report	WFM	See Workflow Steps SLA Report.
	Custom Reports	Create Custom Workflow Manager Report	WFM	See Creating a Custom Report.
		Create Workflow Manager Activity Report	WFM	See Creating an Activity Report.
		Create Custom SQL Query Report	WFM / ASES	See Generating a Custom SQL Query Report.
		Create Custom Stored Procedure Report	WFM / ASES	See Generating a Custom Stored Procedure Report.
	AdminStudio Reports	Search Packages	WFM / ASES	See Viewing Package Reports.
		Application Catalog Reports	WFM / ASES	See Viewing AdminStudio Application Catalog Reports.

Table 2-2 • Navigation Bar Selections (cont.)

Menu	Heading	Menu Selection	Product	Description
Administration	**Design**	Projects	WFM	See Project Administration Page.
		Templates	WFM	See Creating a New Template and Template Administration Page.
		Approvals	WFM	See Managing Approval Templates and Approval Administration Page.
	Configuration	Workflow Status	WFM	See Managing Workflow Status Values
		External Email Addresses	WFM	See External Email Address Administration Page.
		Calendar Settings	WFM	See Modifying Default SLA Calendar Settings.
Settings	**Configuration**	Accounts and Groups	WFM / ASES	See Account Administration Page.
		Roles	WFM / ASES	See Role Administration Page.
		Email Templates	WFM	See Email Template Administration Page.
		Companies	WFM	See Company/Business Unit Administration Page.
		Directory Services	WFM / ASES	See Directory Services Administration Page.
		External Web Services	WFM	See External Web Services Administration Page.
		External Data Sources	WFM	See External Data Sources Administration Page.
		Directory Service Attributes	WFM	See Directory Services Attributes Administration Page.
		Company Preferences	WFM	See Setting Preferences on the Company Preferences Page.

Icon-Only View

When you scroll down on a page, the Navigation bar remains visible, but only the icons are displayed. This helps you conserve vertical space in your browser window.

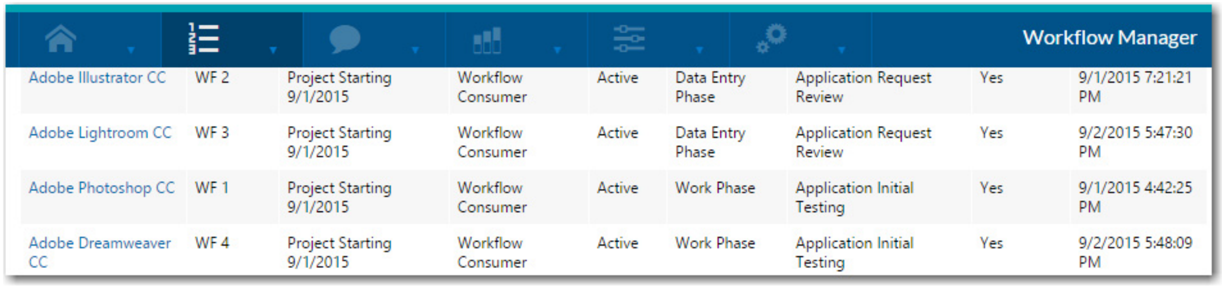


Figure 2-2: Icon Only View of Navigation Bar

Using Lists

Workflow Manager / AdminStudio Enterprise Server 2015 have a number of common features to help you manage the large amount of information that are displayed in lists.

Table 2-3 • Using Lists in Workflow Manager

Feature	Description
Pagination	Control the rows per page, and easily navigate through pages in a list.
Sorting Lists	Show data rows in the order you prefer, including sorts across multiple rows.
Managing Columns in a List	You can arrange the visibility and order of columns in a list to suit your preferences.
Grouping Items in Lists	You can easily create groups within existing lists.
Searching in Lists	A search is one way to limit the amount of data transferred from the central database to your browser.
Using Filters to Limit Data Size	Explains that there are several different ways to manage filters.
Exporting a List	Lists in the management view, configured to your taste, can be exported in several formats.

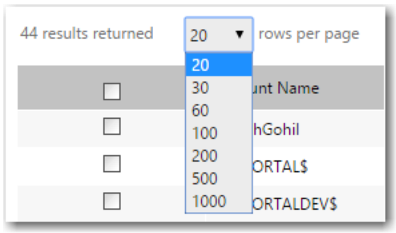
Pagination

In the web interface, long lists are divided into pages. You can easily navigate between the pages in a list, and you can control how many items appear in each page. Your preferred number of items per page is ‘sticky’ for each list: that is, each list independently remembers the setting that you most recently made.

Tip • *Every row in the list counts as one item for pagination. A group header counts as one item, as does each member of the group. This means, for example, that if you expand and collapse groups within a list (see Grouping Items in Lists), the total number of records visible in the list changes, and a particular record within a list may be displayed on a different page.*

Task ***To navigate through pages:***

1. To change the number of rows per page, select a number from the **rows per page** list.

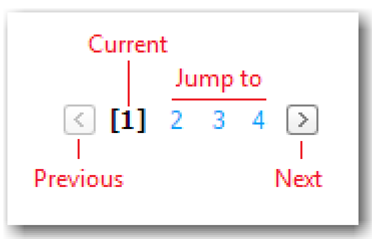


Tip • *Increasing the number of items per page may increase the time to load each page. Remember that you can also use the search facility to reduce the number of items in the list, which may improve performance.*

If you display more than 20 rows and the list is too long to fit in your browser window, as you scroll down the navigation area at the top of the page collapses to a small, icon-only row to maximize your reading area.

2. To navigate between pages of a list:

   a. If necessary, scroll to the bottom of the displayed list. The pagination control appears at the bottom left of the list.



The control includes:

- The current page number (highlighted in bold and in brackets)
- The next few page numbers, as buttons you can click to go to the page shown
- A small input field (by default showing Page) where you can type any page number you would like to jump to
- The last page number (that is, how many pages are in the entire list), which you can also click to jump there
- Arrows for the next and previous page, and one for return to the first page.

3. To move to the previous or next page of the list, click the appropriate (left or right) arrow in the pagination control.

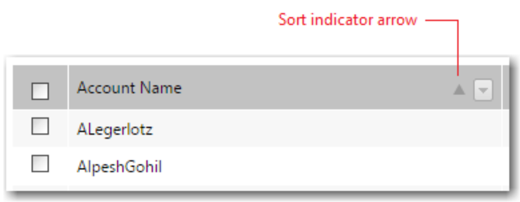
4. Click any other page number in the set displayed to navigate directly to that page; or enter your chosen page number in the field.

Sorting Lists

The sort order is unique to each operator, as you expect; and it is 'sticky' — even after you go away to view another page, the sort order for this page is the same when you come back to it again. A sort controls the full data set, not just the current page of data.

Task ***To control sorting:***

1. To sort a displayed list, click anywhere in the column header for the column you want to sort by.



The sorted column shows a small indicator arrow in the right end of its header. An up arrow means the column is now sorted in ascending order (so that a text column starts with a and ascends up to z).

Note • *After changing the sort order, you may see completely different items in your list. This is because the sort is applied to all the data in the database, and not just to the currently displayed page. You may also be partway through a sorted list if you were not looking at the first page of data when you changed the sort — re-sorting does not return you to the first page. If you were previously looking at page 3 of 10, and you change the sort, you are still looking at page 3 of 10, but this is now a 'window' onto the list that is in a completely different order.*

2. To reverse the sorted order of a list, click a second time on the column header of the sorted column.

   Each time you click the header of the same column, the sort order reverses. A down arrow means the column is now sorted in descending order (so that a text column starts with z and goes back to a).

3. You can also sort on multiple columns. For example, when viewing a grouped list, you can sort by the group, and then sort by the items within each group.

   a. Click on the column header of the most important column you want to sort by (the grouped by column) until it is in the ascending/descending order you want.

   b. Hold down the Shift key, and click the column header for the secondary sort column (for example, the Name column). You can repeat this for as many columns as you need.

   c. To reverse the order of any sorted column when there are multiple columns sorted, hold down the Shift key and click the sorted column header.

Managing Columns in a List

You can arrange the visibility and order of columns in a list to suit your preferences.

Most lists in the web interface show only a selection of the fields from the underlying database. You can configure these lists to show as many or as few of the available fields as you choose. One reason to change the displayed fields is to perform searches or filtering on the data — searches and header filters are limited to the fields currently displayed in the list.

Your choice of columns to display, and their positions in the list, are both ‘sticky’ (that is, persist when you go to look at a different page and then return to the one you modified). Of course, each person can set these preferences independently (they are maintained for each login account).

- Changing the Order of Visible Columns
- Adding a Column to the List
- Removing a Column From the List
- Resetting a List to Default Settings

Note • *You cannot change the width of individual columns. Column width re-sizes dynamically to suit the width of your browser window.*

Changing the Order of Visible Columns

To change the order of visible columns, perform the following steps.

Task ***To change the order of visible columns:***

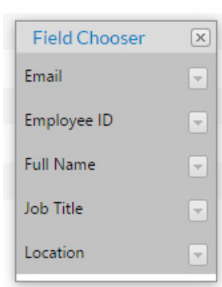
1. Choose which column you want to move.
2. Use your mouse to drag that column header left or right along the row of column headers. As you move far enough, a pair of small vertical arrows appear to indicate the current target gap between other columns.
3. When your preferred spot is highlighted by these arrows, drop the column header you are dragging. The list is redrawn with the column in your new position. You may repeat this process as often as required. The order you set is maintained for this list until you next change it.

Adding a Column to the List

To add a column to the list, perform the following steps.

Task ***To add a column to the list:***

1. From the set of icons above the right side of the list, click the column chooser icon: . The **Field Chooser** palette appears, floating over the list. You may drag the palette by its title bar to any convenient location.



2. In the palette, scroll to locate the desired column header, and drag it out of the palette to the header row on the list. As when you reorder the columns, the current target location for dropping the new column is indicated by two small vertical arrows highlighting the gap between existing column.

   Note • *If a database column is not listed in the **Field Chooser** palette, you cannot display it in a list in the Management view. For some lists, additional columns are available if you wish to prepare a custom report.*

3. Repeat for any additional columns you want to add.
4. When satisfied, you may close the **Field chooser** palette in either of these ways:
   - In the top right corner of the palette, click the **X** close icon.
   - Above the list, click the column chooser icon again.

Removing a Column From the List

To remove a column from the list, perform the following steps.

Task ***To hide a column, removing it from the list:***

1. From the set of icons above the right side of the list, click the column chooser icon: . The **Field Chooser** palette appears, floating over the list. You may drag the palette by its title bar to any convenient location.
2. Drag the chosen column header from the list and drop it anywhere within the **Field Chooser** palette. The column disappears from the list, and the column header is inserted in alphabetical order into the **Field Chooser** palette.
3. Repeat as required, and then close the palette as described above.

Resetting a List to Default Settings

To reset a list to default settings, perform the following steps.

Task ***To reset a list to its default settings:***

To reset a list to its original, factory-supplied configuration (including visibility and ordering of columns), click the restore defaults icon: .

Grouping Items in Lists

You can easily create groups within existing lists.

You create groups by choosing a visible column to group by. For example, you might decide to group a list of workflows by Current Phase. When you do this, the list changes to show a heading for each phase, with a count (in brackets) of how many records are inside the group. Using the + icon on the left of each group heading, you can expand each heading to list the individual rows within the group.

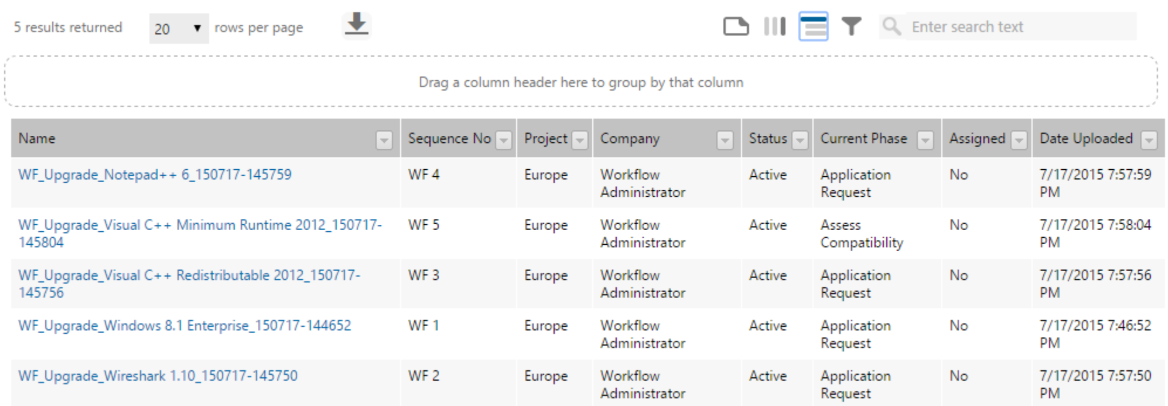
You can also create groups within groups, building up a hierarchy. In this case, expanding the first level heading exposes the second level headings, along with their counts. You can continue expanding until you get to the list of individual rows in each sub-group.

Groupings are 'sticky' — if you set up groups on a list, navigate away to another page and then come back to this list, your groupings are still visible. Of course, groupings are unique to each operator account.

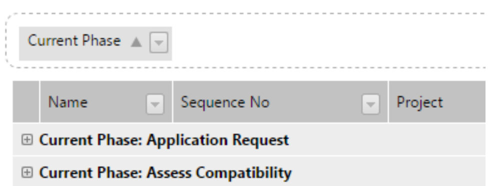
Task ***To manage groups:***

1. Above the list, towards the right, click the grouping icon: .

   A new grouping area appears above the column headers. It displays `Drag a column header here to group by that column`.



2. Using your chosen column header, click and drag into the grouping area. When two small arrows appear at the left end of the grouping area, you can drop the column header. The screen refreshes to show this column header in the grouping area, and the list is replaced with all the group headers.



   ***Tip** • You can reverse the sort order of the group headers by clicking on the column header shown inside the grouping area. (Independently, you can also sort the rows within each group using the other column headers that are not in the grouping area.)*

3. To add a sub-group, drag up a second column header. Drop the column header when the little arrows appear at the preferred left-to-right position in the grouping hierarchy. This means you can determine the order of your hierarchy as you go. For example, if you have already grouped by `Current Phase`, your next drag-and-drop can make the hierarchy `Current Phase` / `Assigned`, or `Assigned` / `Current Phase`, depending on where you drop the second `Assigned` column header.

***Tip** • You can also drag grouped column headers into a different order within the grouping area, switching the hierarchy around.*

4. To display the individual members of a group, click the + expander at the left end of the group heading. Click the same spot to hide the member rows again.

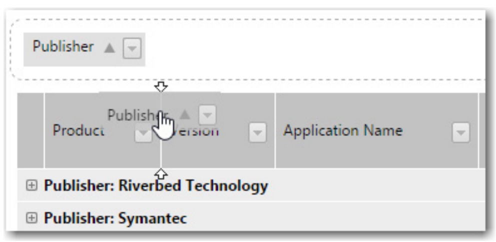
5. If space is at a premium in your display, you may hide the grouping area (control) by clicking its icon again. This icon shows and hides the grouping area control. It does not turn grouping on and off inside the list.

6. To remove grouping from a list:

    a. Ensure that the grouping area is visible (if not, click the grouping icon again).

    b. Drag a column header out of the grouping area, and drop it in the position in the table header row where you want this column to reappear.

    c. Indicator arrows appear to show where the column header will be inserted when you release the mouse button.

    d. If you have multiple groups, repeat this action for each column header until all are cleared out of the grouping area.

Searching in Lists

A search is one way to limit the amount of data transferred from the central database to your browser.

In the web interface for Workflow Manager, pages that show lists of data also have a search field above the list on the right.

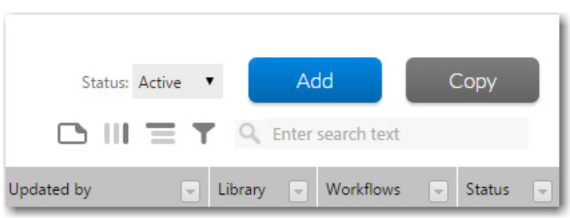


Figure 2-3: Search field above lists

This search applies to currently visible text fields in the data set:

- Fields hidden in the column chooser are not searched.
- Numeric fields, dates, and (generally) enumerated lists (predefined lists of acceptable values) are not searched. However, once you have used a text search to narrow down the data set, you can add filters on these other kinds of fields (see Using Filters to Limit Data Size).

Task ***To search for list contents:***

1. Ensure that the column(s) you want to search are visible in the list. Searching applies only to the columns currently displayed in a list.
2. On the right side, immediately above the list, enter the text to search for in the Search field. The following rules apply:

Rule	Example
Searching is always case insensitive.	Searching for **`acrolinx`** matches `acrolinx`, `Acrolinx`, and `AcroLinx`.
Word completion normally applies.	Searching for **`support`** returns results containing `supporting` and `supported`. It will not return anything containing only `unsupported` (because "`support`" is not at the start of that word). The search match is "begins with", but not "contains". ***Tip •*** *When you later add filters to your results, you can use other tests like Contains in the filters (see Using Filters to Limit Data Size).*
Multi-word searches apply word completion to each word, in any order.	Searching for **`off micro`** will return `Microsoft Office`, and would also return `Redmond offices of Microsoft`.
Multi-word searches apply to one column at a time.	Searching for **`off micro`** will return `Microsoft Office` provided that you are searching (say) a Product column that contains that complete text. However, it would not return a row that had **Publisher** set to `Microsoft` and **Name** set to just `Office`, because there is no single column that the search terms entirely match.
Multi-word searches must match every word.	Searching for **`mi off 2013`** will return a row where the **Name** is `Microsoft Office 2013`, but not one for `Microsoft Office` without the year attached, since not all the search words are matched in the latter case.
Double quotation marks make the match exact (without word completion or reordering), but still case insensitive.	Searching for "**`microsoft office`**" will return `Microsoft Office`, but not `Redmond offices of Microsoft` (ordering), and not `Microsoft Corp Office` (there must be nothing but white space between the matched words). ***Tip •*** *You can also enclose one search term in double quotes (this requires an exact match) and add more words outside the double quotes (word completion and reordering applies to these).*

3. Finish your input by typing Enter or Return, or by clicking the icon of the magnifying glass on the left end of the search field.

   After a short time, the list refreshes with the rows that match your search term. The total number of matching rows (across all pages of the list) is shown above the list on the left side.

4. To clear the search, and restore the original list with all possible values, delete the contents of the search field, and click the magnifying glass (in other words, searching for a blank clears the search).

Using Filters to Limit Data Size

When large amounts of information are available from your database, there are two quite similar approaches to reducing the amount of information shown in a list:

- **Searching**—When you search for a particular value in the search field above the list, the contents of your list are replaced with the values that match your search. Often you'll be looking for one, or a few records.
- **Filtering**—Filtering tends to be used to narrow down to a group of records. This section covers filtering.

You can use the search and filter controls in any combination you like.

Behind the scenes, there is just one filtering engine; but there are different ways you can control it, depending on how you prefer to work:

Table 2-4 • Types of Filters

Filter Type	Description
Using the Quick Filter Button	This extra button in the header row enables you to quickly filter the list by selecting one of the listed values.
Using the Header Filter	Using a header filter makes it easy to restrict the values in column you can see displayed. It constantly updates the list as you adjust the filter settings.

Of course, filters apply only to the list where you create them; and even if you navigate away to another page, they are still in place when you return, until you clear the filter.

Using the Header Filter

This filter constantly updates the list as you adjust the filter settings.

This filter displays a special row immediately under the header row in your list. In this row, you can choose values and tests, after which the list refreshes to show only those records that match your settings. For example, if you set the Consumed column of the All Licenses list to test for Equals 0, the list would show only licenses that were not yet recording consumption through matching installations (and so on).

The header filter is one way to control the filter engine that decides which rows to display. The same engine is also controlled by the simple filter. This means you can see the rules you apply using the header filter also displayed in the simple filter.

Task ***To use this filter control:***

1. Above the list on the right, click the header filter icon .

   A new row appears immediately below the headers in your list. For each column, the display in this row varies, depending on the kind of information:

- If the column displays a fixed set of values, the header filter for this column shows an option list where you can choose a value to match. The options may include the special value All, which is the same as not filtering on this column (since it means that all its possible values are allowed). This is handy for removing a particular choice you had made previously.
- If the column displays either text or numbers, the header filter for this column shows a field to enter/display values, and another blue filter icon that lets you choose what test to apply with the value.

Tip • *The content of the list is refreshed each time you change anything in this header filter.*

2. For columns where you can type in values, take these two actions in either order:

   a. Type a value into the field provided (the field is not case sensitive). You may finish with the Enter (or Return) key to apply this value (or simply move onto the next step). If you have not yet chosen a test to apply using this value, the default test is used. For text, the default is Contains. For numbers, the default test is Equals. If these defaults suit your purpose, you don't need to do anything further here.

   b. To change the test, click the blue filter icon immediately to the right of this data field. An option list appears, showing the various tests you can apply using this value. The current setting has a check mark (tick) beside it. Choose the test you want to use. (The current test is also displayed in the simple filter settings, under the page title.)

   Available tests depend on the kind of information. For example, tests for fields that accept text include Begins with and Contains, while tests for numeric fields include Is less than and Is greater than or equal to.

3. For columns with a fixed set of values, just choose a value from the option list in the header filter row. Remove this choice (when you want to) by choosing All.

4. You can repeat this process for any additional columns you want to include in your filter.

Tip • *Filtering on the columns in the header filter is always additive (logical AND) — a row of data must satisfy all of the tests you apply before it can be displayed in the list.*

5. To clear an individual column test, you can either:

   - Click the X icon at the right end of the appropriate condition where it is displayed in the simple filter (under the page title)
   - Deleting any value in the header filter row for this column.

Example

To show all licenses relating to Microsoft Visual Studio:

- In **Publisher** column, choose Begins with **`Mic`**
- In **Name** column, choose Contains **`Vis`**.

The values are visible in the header filter, and your chosen tests and values are visible in the simple filter.

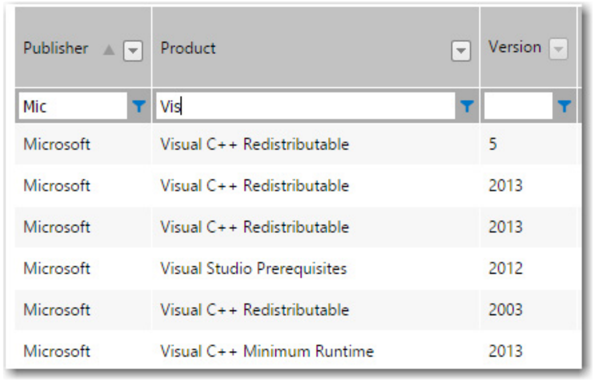


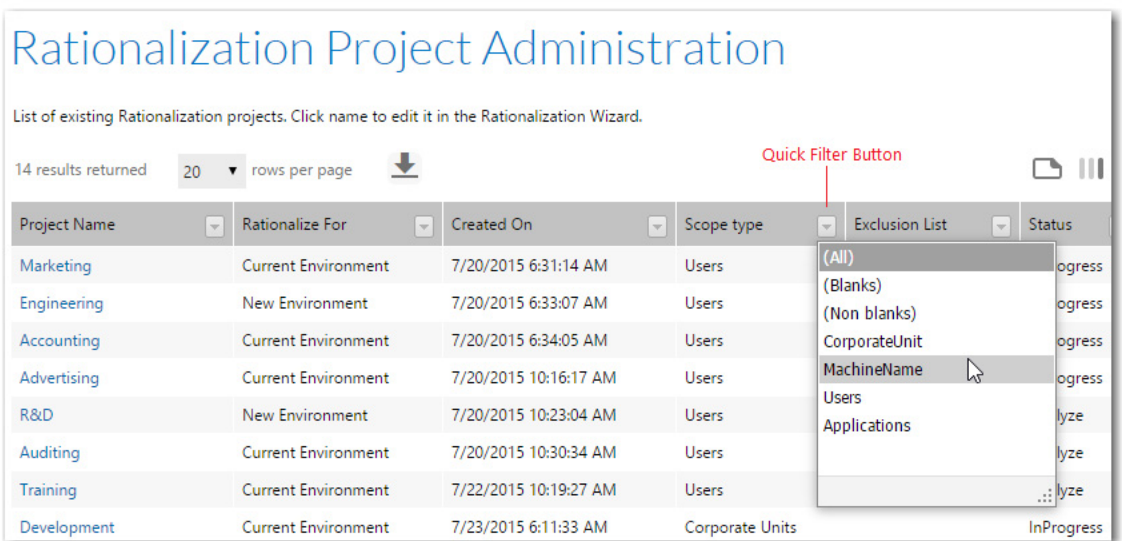
Figure 2-4: Example of Simple Filter

Using the Quick Filter Button

There is a quick filter button in the header row of all Rationalization Manager lists that enables you to quickly filter the list by selecting a column value.

Task ***To use the quick filter button:***

1. Click a quick filter button in a column header. A drop-down list of values in that column opens.



2. Select a value from the drop down list. The list is now filtered by that selection.

Exporting a List

You may wish to export the data in a list for distribution to other people, for printing, or for additional work. Lists can be exported to the following formats:

- **PDF**—These can be viewed in Adobe Reader, Apple Preview, and many other PDF readers and editors.

- **XLS** and **XLSX**—Excel files.
- **RTF**—Rich text format files can be opened and edited in many word processors, including Microsoft Word. There are some RTF-capable editors that do not support all the RTF features used in .rtf files exported from FlexNet Manager Suite.
- **CSV**—A plain text file of comma-separated values (.csv). These can be imported by many spreadsheet and other products.

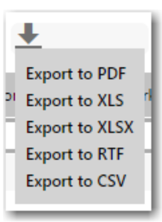
An exported list includes the same content as the list displays at the moment of export. Before exporting the list, you can:

- Use a search to focus the data set returned from the database.
- Add filters to further limit the results to exactly those you require.
- Sort the data in your preferred order down the list.
- Arrange columns in your preferred left-to-right order, showing or hiding your columns of choice using the column chooser.

***Tip** • If you do not get the results you expect, make sure you are the only person using your login account, and that you are working in only one browser window/tab for this list. Since the export uses the most recent settings made by each operator account (regardless of the browser tab or browser window), you might get confused if you have two tabs working on the same list.*

Task ***To export a list:***

3. Configure the list until it displays exactly the data you need in the format you prefer, using any of the options listed above.
4. Immediately above the list, click the export icon. A small option list appears, showing all the available export formats:



5. Select the appropriate format from the option list. After a moment, your web browser presents its **Save As** dialog.
6. Rename the file to suit your corporate standards, and use the dialog to navigate to a suitable location for saving the file. Click **OK** or **Save**.
7. When the download is complete, your web browser normally provides a method to open the downloaded file.

Using Help

When you have questions about your product, first consult the online help library. The help library is the complete user's guide for using AdminStudio Enterprise Server and Workflow Manager tools.

The Workflow Manager / AdminStudio Enterprise Server Help Library can be opened by clicking the **Help** button in the page banner. It will open to a section relevant to the page you are viewing.

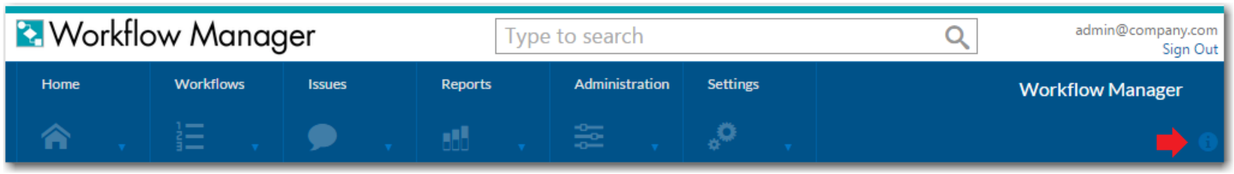


Figure 2-5: Help Button

You can also view the Workflow Manager / AdminStudio Enterprise Server Help Library at any time by visiting the Flexera HelpNet site:

http://helpnet.flexerasoftware.com

You can obtain PDFs versions of the online help, as well as release notes and installation guide, at the Flexera Documentation Center:

https://flexeracommunity.force.com/customer/CCDocumentation

Contacting Us

Flexera is headquartered in Itasca, Illinois, and has offices worldwide. To contact us or to learn more about our products, visit our website at:

http://www.flexera.com

3

Managing Roles and Permissions

All of the Workflow Manager / AdminStudio Enterprise Server permissions are related to roles. The people using and administering Workflow Manager / AdminStudio Enterprise Server are granted access based on the roles they belong to.

Information on using roles and permissions is presented in the following sections:

- AdminStudio and Workflow Manager Roles and Permissions
- Role Management
- Roles Reference

AdminStudio and Workflow Manager Roles and Permissions

Each role consists of a set of permissions to allow access to different features or areas of AdminStudio and Workflow Manager. Every person who needs to work with these applications or administer the system is then assigned to one or more roles, and the set of features he can access is a combination of the permissions supplied by all of his roles.

This section includes the following topics:

- Role Permission Lists
- System Roles

Role Permission Lists

Permissions to perform all AdminStudio and Workflow Manager functions are assigned using roles. A user has permission to perform only those tasks that are explicitly selected in the role(s) that the user is assigned to.

This section describes all of the AdminStudio and Workflow Manager permissions:

- Administration and Reports Permissions
- Workflow Manager Permissions

- AdminStudio Client Tools Permissions

Administration and Reports Permissions

AdminStudio Enterprise Server and Workflow Manager have the following permissions:

Table 3-1 • AdminStudio Enterprise Server and Workflow Manager Permissions

Feature	Right	This right grants permission to...
Approval	**View**	See the **Approval Administration** page.
	Edit	Modify an existing approval template, including adding or removing users.
	Add	Add/delete an approval template. ***Important*** • *After you create a template and add a new role, the check boxes for the new role are enabled by default in the Workflow Phase Permissions.*
Directory Services	**View**	See the **Administration/Directory Services** tab and view the **Directory Services** page, the **Directory Services List** page, and the **Directory Services Attributes Administration** page.
	Edit	Modify an existing directory service.
	Add	Create a new directory service.
	Delete	Remove an existing directory service.
Email Templates	**Edit**	Modify email templates.
External Data Sources	**Edit**	View and modify the settings on the **External Data Sources** tab.
Global Email Administration	**View**	See the **External Email Address Administration** page.
	Edit	Modify the settings on the **External Email Address Administration** page.
People	**View**	See the **Account Administration** and **Account Details** pages.
	Edit	Modify an existing account.
	Add	Create a new account and import accounts from a directory service.
	Delete	Remove an existing account.

Table 3-1 • AdminStudio Enterprise Server and Workflow Manager Permissions

Feature	Right	This right grants permission to...
Roles	**View**	See the **Role Administration** and **Role Details** pages.
	Edit	Modify an existing role.
	Copy	Duplicate an existing role.
	Add	Create an existing role. ***Note •*** *You must have this permission in order to be able to upgrade an existing Application Catalog.*
	Email Notify Enabled	Enable email notification.
System Settings	**View**	View system settings.
	Edit	Edit system settings.
Reports / All Reports	**Edit**	Modify an existing custom report.
	Add	Create a new custom report by making a selection under **Custom Reports** on the **Reports** menu.
	Delete	Remove an existing custom report.
Reports / Package Reports	**View**	See the **Search Packages** page and view Package Reports.

Workflow Manager Permissions

The Workflow Manager category covers general access to Workflow Manager, allowing you to specify precisely which areas of the product people may use.

Table 3-2 • Workflow Manager Permissions

Category	Right	This right grants permission to...
Workflow Request	**View**	See the **Properties** and **Issues** tabs on the **Workflow Request** page for an existing workflow request.
	Edit	Modify an existing workflow request.
	Copy	Duplicate an existing workflow request.
	Add	Create a new workflow request.
	Delete	Remove an existing workflow request.
	Monitor Workflow Progress	See the **Progress** tab of the **Workflow Request** page, and complete workflow steps and workflow phases.
	View Related Workflows	See the **Related Workflows** tab of the **Workflow Request** page.
	Add Related Workflows	Link one workflow request to another on the **Related Workflows** tab
	Deleted Related Workflow Links	Unlink related workflows.
	Edit Workflow Due Period	Modify the **Workflow due period** field on the **Properties** tab of the **Workflow Request** page.
	View Properties	See the **Properties** tab of the **Workflow Request** page.
	View Uploaded Files	See the **Uploaded Files** tab of the **Workflow Request** page.
	View Downloadable Files	See the **Downloadable Files** tab of the **Workflow Request** page.
Workflow Request (Continued)	**View Documents**	See the **Documents** tab of the **Workflow Request** page.
	Upload Documents	Upload documents on the **Documents** tab of the **Workflow Request** page.
	Delete Documents	Delete documents on the **Documents** tab of the **Workflow Request** page.
	Download Documents	Download documents on the **Documents** tab of the **Workflow Request** page.

Table 3-2 • Workflow Manager Permissions

Category	Right	This right grants permission to...
Calendar Settings	**View**	See the **Calendar Settings Administration** page.
	Edit	Modify calendar settings.
Consumer Company	**View**	See the list of existing consumer companies, and view their details.
	Edit	Update details of an existing consumer company.
	Add	Create a new consumer company.
	Delete	Remove an existing consumer company.
Issues	**View**	See the **Issues** tab of the **Workflow Requests** page, and drill through to see details of an individual issue.
	Respond	Respond to an existing issue.
	Add	Create a new **E-mail** or **Knowledge Base** issue.
	Close	Close an existing **E-mail** or **Knowledge Base** issue.
	Add/Close Critical Issue	Create and close **Critical** issues.
My Notifications	**View**	See the **My Notifications** pages: **My Default Project Notifications** and **My Workflow Notifications**.
	Edit	Modify settings on the **My Default Project Notifications** and **My Workflow Notifications** pages.
Workflow and Template Permissions	**View**	See the permission and email settings on the **Template Details** and **Project Details** pages.
	Edit	Modify the permission and email settings on the **Template Details** and **Project Details** pages.
Projects	**View**	See the **Project Administration** page, and see (but not update) project details on the **Project Details** page.
	Edit	Update details of an existing project.
	Add	Create a new project.
	Delete	Remove an existing project.

Table 3-2 • Workflow Manager Permissions

Category	Right	This right grants permission to...
Search	**Simple Search**	Enter keywords in search box on the **Home** page to search for a workflow request by name.
	Advanced Search	Search for workflow requests by specifying multiple criteria on the **Filter Your Search** menu.
Task Approval	**Approve on Behalf**	Enables user to approve a workflow step with a **Step Type** of **Approval Task** on behalf of any and all users.
Templates	**View**	See the **Template Administration** page, view template details on the **Template Details** page, and add an external data source by clicking **External Data Sources** on the **Settings** menu.
	Copy	Duplicate an existing template.
	Add	Modify an existing template and create a new one.
Terminology	**View**	See and modify system terminology.
Work Assignment	**View**	See a list of existing work assignments on the **View Assignments by Account** page.
	Assign	Assign work on the **Assign Work** page.
Workflow Administrator Company	**View**	See the list of existing administrator companies, and view and update administrator company details.
	Add	Create a new administrator company.
Workflow Status Management	**View**	See the **Workflow Status Administration** page and see (but not modify) workflow status details on the **Edit Workflow Status** page.
	Edit	Update workflow status details on the **Edit Workflow Status** page.
	Add	Create a new workflow status.
	Delete	Remove an existing workflow status.
Time Off Admin	**Admin**	Gives user permission to see time off records for all users who are members of the administrator company or one of its associated consumer companies. Without this role permission, a user can only see their own time off records.

AdminStudio Client Tools Permissions

The AdminStudio client tools have the following permissions:

Table 3-3 • AdminStudio Client Tools Permissions

Category	Right	This right grants permission to...
AdminStudio Client Interface Process Assistants Tab	**Edit**	View and edit the projects on the **Process Assistants** tab that are assigned to him.
	Create	Create new projects and assign them to users. Users with the **Create** permission see a list of all users and their associated Projects on the **Process Assistants** tab. Users with only the **Edit** permission cannot create new projects and can only view and edit projects that are assigned to him.
	Delete	Delete a project from the **Process Assistants** tab.
AdminStudio Client Interface Process Template Editor	**View**	View existing workflows using the **Process Template Editor**.
	Edit	Modify existing workflows using the **Process Template Editor**.
	Create	Create a new workflow using the **Process Template Editor**.
	Delete	Delete a workflow from the **Process Template Editor**.
AdminStudio Client Interface AdminStudio Tools button	**Add**	Add a new tool to the **AdminStudio Tools** button.
	Edit	Modify the properties of an existing tool on the **AdminStudio Tools** button.
	Delete	Delete an existing tool on the **AdminStudio Tools** button.
AdminStudio Client Interface General	**Modify Tools Options Dialog**	Set options on the **Locations**, **Updates** and **Quality** tabs of the AdminStudio **Options** dialog box. Users without this permission can view the **Options** dialog box but cannot make any changes.
	Change Default Application Catalog	Permits user to edit the **Make this the default shared Application Catalog** option on the **Connect Application Catalog** dialog box
Application Catalog / Conflict Solver	**Select Tests to Execute**	Permits user to edit the selections on the **Select Tests to Execute** dialog box.

Table 3-3 • AdminStudio Client Tools Permissions

Category	Right	This right grants permission to...
Application Catalog / Conflict Solver Conflicts	**Run Analysis**	Perform conflict analysis on a package.
	Resolve	Resolve any automatically resolvable conflicts found during conflict analysis on a package.
	Modify Rules	Open the **Rules Viewer** and create and edit new rules.
	Modify Data	Create new groups, rename existing groups, and modify group properties. • Permits user to cut and paste a group to a new location. • Permits user to copy/cut and paste a package into a new group. • Permits user to modify options on the **Resolution Options** dialog box. • Permits user to edit a package **Description** on the **Products View.**
Application Catalog / Conflict Solver Package	**Delete**	Delete a package from the Application Catalog.
	Import	Import a package into the Application Catalog.
	Modify Extended Attributes	Modify a package’s metadata on the Extended Attribute view.
	Delete History	Delete a package’s history log (which contains a record of any operation that materially changes a software package or the data associated with it).

Table 3-3 • AdminStudio Client Tools Permissions

Category	Right	This right grants permission to...
Application Catalog Other	**Run Merge Wizard**	No longer used.
	Run Validation	Validate a Windows Installer package against custom actions written by Microsoft which can be executed to determine if an installation package is built according to Windows Installer standards.
	Scan for Dependencies	Generate a list of all of a package's files that have dependencies with files used by other products or operating systems in the Application Catalog.
	Run Directory Monitoring	Use **Package Auto Import** to monitor a directory location on the network (or a local directory) and automatically import or re-import packages in that directory.
	Run Best Practices	Use Analyze to evaluate source packages to see if they meet Windows Installer best practices rules.
	Modify Tools Options Dialog	Open the Application Catalog **Options** dialog box and set options.
	Change Application Catalog	Connect to a different Application Catalogs by selecting **Connect** on the **Application Catalog** menu. Without this permission, this selection is disabled.
OS Security Patch Wizard	**Import Patch**	Use **Import Wizard** to import Windows operating system patches into the Application Catalog.
	Run Analysis	Use the **Patch Impact Analysis Wizard** to analyze the impact of installing an OS Security patch on user machines.
Software Repository	**Overwrite**	Import a duplicate package into the Software Repository, overwriting the existing version.

System Roles

Workflow Manager is installed with default **System Roles** which cannot be modified. These roles were created based upon the typical needs of people accessing the product, and have only the permissions that these people would require to perform their day-to-day tasks. You can assign these system roles to people within your enterprise, or can copy and then modify these roles to customize them for your organization.

Any new roles that you create, either manually or by copying and modifying system roles, are considered *user roles*. These can be freely modified.

Copied system roles or new roles that you create have a **Role Type** of **Account** (user roles), while default roles created during installation have a **Role Type** of **System** (system roles). A role's **Role Type** is listed on the **Role Administration** page and cannot be changed.

Information about system roles is organized in the following sections:

- Super User Role: AMSSuper
- Default System Roles
- Default System Accounts

Super User Role: AMSSuper

The default **AMSSuper** role has full rights to administer and use AdminStudio Enterprise Server and Workflow Manager. During installation, the following super user account is created and assigned the **AMSSuper** role:

- **User Name**: `suams`
- **Password**: `suams`

***Important** • Upon first login using the `suams` account, it is important that you change the password.*

This role is unique in that it allows the user to manage roles and accounts from all companies. All other roles are associated with a specific company within your organization, and so grant access only to roles, accounts and other entities belonging to that company.

An operator assigned the **AMSSuper** role can create administrator companies. All other tasks should be performed by a person belonging to a workflow administrator role.

***Note** • The **AMSSuper** role is not listed on the **Role Administration** page unless you are logged on using the `suams` account.*

Default System Roles

When Workflow Manager / AdminStudio Enterprise Server is installed, the following system roles are created:

Table 3-4 • Default System Roles

Role Name	Company Name	Description
Configuration Manager	**Workflow Consumer**	Use for people managing the software configuration of computers in the enterprise, whose responsibilities may include deployment of software.
License Manager	**Workflow Consumer**	Use for people managing the license compliance of software throughout the enterprise.
Consumer Project Manager	**Workflow Consumer**	Use for people managing the requests submitted by workflow consumers.
Workflow Project Manager	**Workflow Administrator**	Use for people managing the completion of the submitted requests.
Repackager	**Workflow Administrator**	Use for people performing software application repackaging in your organization.

Table 3-4 • Default System Roles

Role Name	Company Name	Description
System Administrator	**Workflow Administrator**	Use for people who configure Workflow Manager or take action on workflow requests submitted by workflow consumers.
Tech Lead	**Workflow Administrator**	Use for people performing technical infrastructure tasks in your organization.
UA Tester	**Workflow Consumer**	Use for people performing user acceptance testing in your organization.
User	**Workflow Consumer**	Use for general workflow consumers; employees in your organization who will submit workflow requests related, for example, to installation of new software.

Note • *If you did not purchase Workflow Manager, the roles associated with the workflow consumer company are not listed.*

You can view the permissions of each of these roles by selecting the role on the **Role Administration** page, and then expanding the **Role Permissions** list.

Default System Accounts

When Workflow Manager / AdminStudio Enterprise Server is installed, an account is created for each of the system roles.

To see what functionality one of these default system accounts has, select the associated role on the **Role Administration** page, and then expand the **Role Permissions** list.

Note • *By default, the password for each of these default system accounts is the same as the text prior to the @ sign (such as* **`lm`** *for* `lm@company.com`*).*

Role Management

This section describes how to review and manage the roles created for your organization.

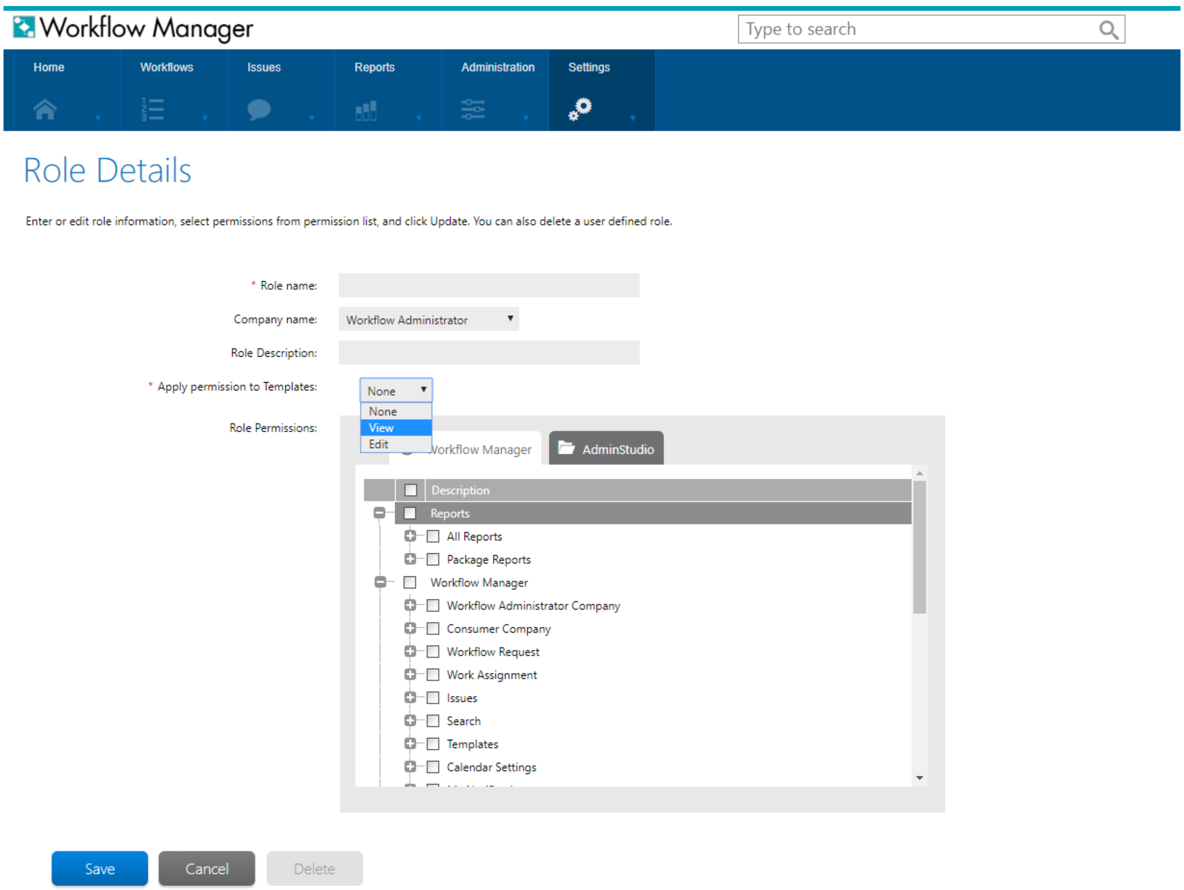
- Creating a New Role
- Viewing or Changing an Existing Role
- Copying an Existing Role
- Deleting a Role

Creating a New Role

If the default system roles aren't flexible enough to cover all security requirements in your enterprise, you may need to create new roles.

Task ***To create a new role:***

1. Click **Roles** on the **Settings** menu. The **Role Administration** page opens.
2. Click the **Add** button. The **Role Details** page opens.



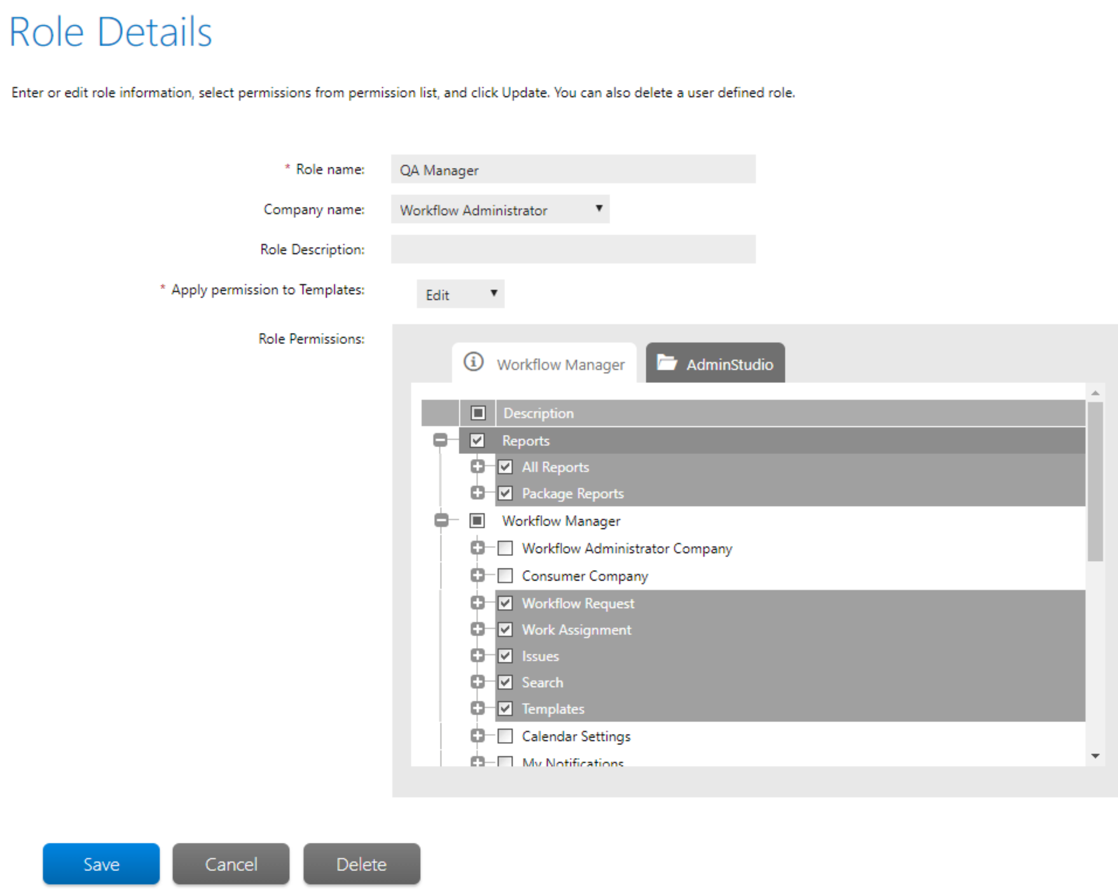
3. Enter details to identify the role, and assign appropriate permissions. For more information, see Role Details Page and Role Permission Lists.
4. Click the **Save** button. The **Role Details** page closes, and the new role now appears in the list on the **Role Administration** page.

Viewing or Changing an Existing Role

You may view the details of any role listed on the **Role Administration** page, but cannot update any of the default system roles.

Task ***To view or update an existing role:***

1. Click **Roles** on the **Settings** menu. The **Role Administration** page opens.
2. Locate the role that you want to work with.
3. Click role you want to edit. The **Role Details** page for that role opens.



4. View or update the role as required. For more information, see Role Details Page and Role Permission Lists.
5. Click **Save** to save your changes and return to the **Role Administration** page. To exit without making any changes, click **Cancel**.

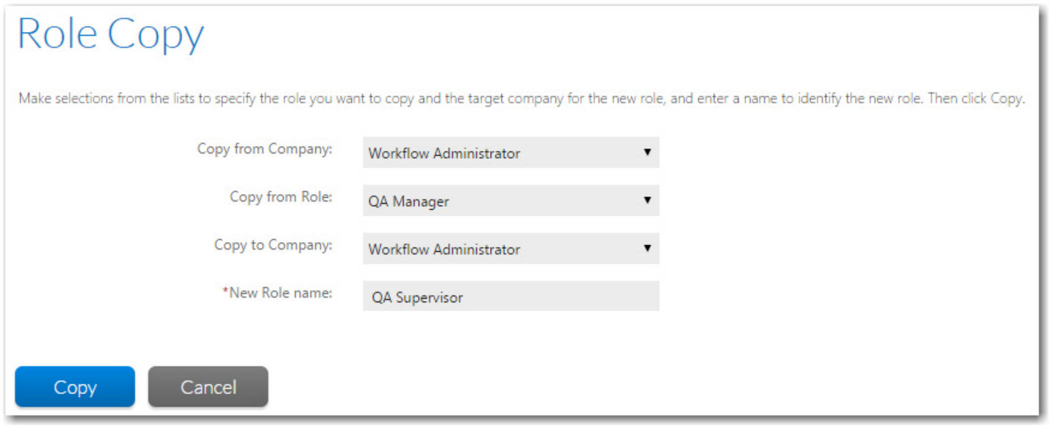
Tip • *The **Save** button will be disabled if you are viewing a system role.*

Copying an Existing Role

You can make a copy of any existing role, and then customize it for your organization. This is particularly useful for tweaking system roles, since you cannot modify them directly. Because people may only be assigned to roles created for their specific company, you may also want to copy roles if they are common to more than one of the companies defined in your organization.

Task ***To copy an existing role:***

1. Click **Roles** on the **Settings** menu. The **Role Administration** page opens.
2. Click the **Copy** button. The **Role Copy** page opens.



3. Select the name of the company whose roles you want to copy from the **Copy from Company** list.
4. Select the role you want to copy from the **Copy from Role** list.
5. Select the name of the company you are creating the new role for from the **Copy to Company** list. You may select the same company that your original role belongs to.
6. Enter a name in the **New Role Name** field to uniquely identify this role.

   Note • *You are not permitted to have two roles in the same company with the same name. You can, however, use the same role name in more than one company.*

7. Click the **Copy** button. The **Role Copy** page closes, and the new role appears in the list on the **Role Administration** page.
8. If you want to edit the new role's **Role Description** or modify its permissions, perform the steps listed in Viewing or Changing an Existing Role.

Deleting a Role

If a role is no longer relevant to your organization, you can choose to delete it. You cannot remove any of the default system roles.

Task ***To delete an existing role:***

1. Click **Roles** on the **Settings** menu. The **Role Administration** page opens.
2. Click the role that you want to delete. The **Role Details** page for that role opens.
3. Click **Delete**. You are prompted to confirm the deletion.

***Tip** • The **Delete** button will be disabled if you are viewing a system role.*

4. Click **OK**. The **Role Details** page closes and the role you deleted is no longer listed on the **Role Administration** page.

Roles Reference

Reference information for roles is presented in the following sections:

- Role Administration Page
- Role Copy Page
- Role Details Page

Role Administration Page

The **Role Administration** page lists roles defined in the system. You can view this page by clicking **Roles** in on the **Settings** menu.

Use this page to:

- Drill through to a page showing the details of and permissions associated with a single existing role, where you may either update (see Viewing or Changing an Existing Role) or delete (see Deleting a Role) that role.
- Create a new role (see Creating a New Role).
- Copy an existing role (see Copying an Existing Role).

***Tip** • This page will only list roles associated with your account's company. To view all roles, you will need to log in with the super user account, assigned the **AMSSuper** role.*

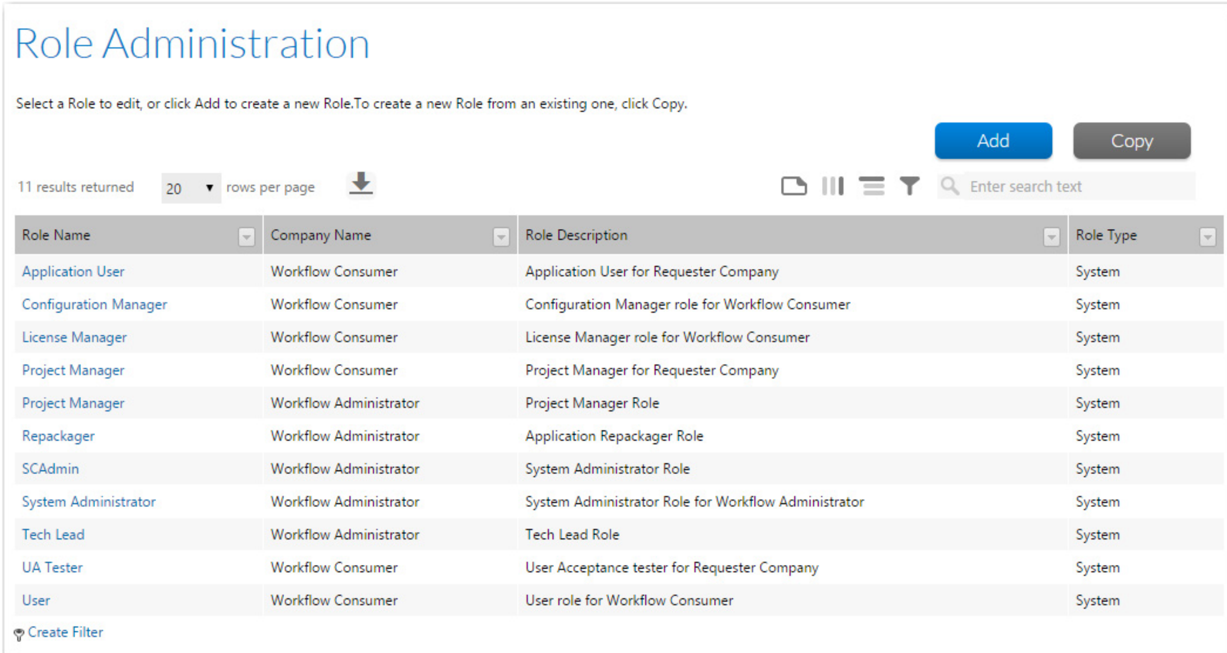


Figure 3-1: Role Administration Page

The **Role Administration** page lists the following role details, some of which are hidden by default:

Table 3-5 • Role Administration Page

Option	Description
Role Name	A brief identifier for the role.
Company Name	Only people belonging to this company can be assigned to this role.
Role Description	A more detailed description of the role's purpose.
Role Type	Identifies this role as one of the following: • **System**—Role was created during installation and cannot be deleted or modified. However, it can be copied and modified to create an **Account** role. • **Account**—Role created by an administrator either by copying an existing system role or by creating a new role. For more information, see System Roles.

Role Copy Page

Use the **Role Copy** page to copy an existing **System** or **Account** role.

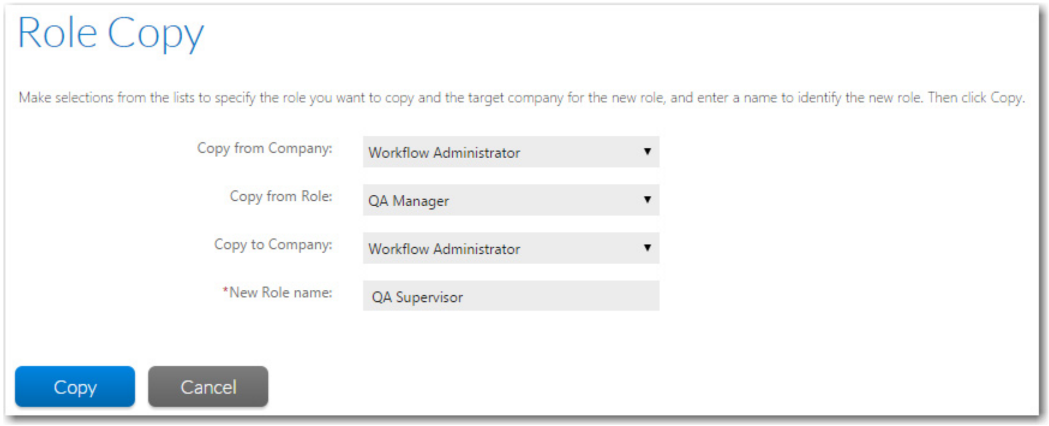


Figure 3-2: Role Copy Page

The following fields are available on the **Role Copy** page:

Table 3-6 • Fields on the Role Copy Page

Field	Description
Copy from Company	Select the name of the company that has a role that you want to copy.
Copy from Role	Select the name of the role that you want to copy. You can copy either System or Account roles.
Copy to Company	Select the name of the company that this new role is being created for.
New Role Name	Enter a name to identify this new role.

Role Details Page

The **Role Details** page allows you to view and update the details of an individual role, and to set the specific features in Workflow Manager / AdminStudio Enterprise Server that are accessible by people assigned the role. Also use this page to remove an existing role which is no longer required.

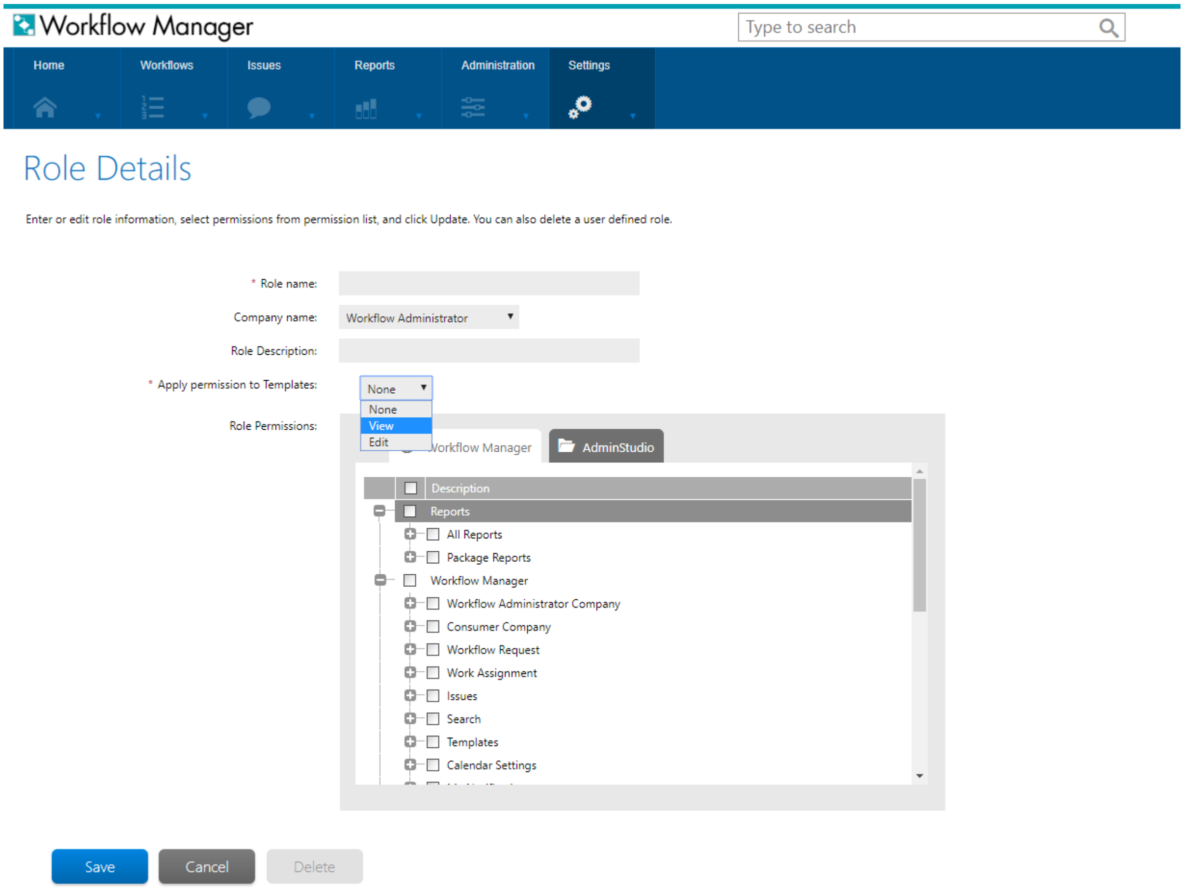


Figure 3-3: Role Details Page

The following fields are available on the **Role Details** page:

Table 3-7 • Fields on the Role Details Page

Field	Description
Role name	A brief description of the role. Roles belonging to a given company must all have distinct names.
Role company	The company that the role belongs to. This field is read-only except when you are creating a new role.
Role Description	Identify the purpose of the role.
Apply permission to Templates	Select the specific option that this role can apply on the Templates
Role Permissions list	Select the specific areas of the product that this role is to access. Expand out the tree for detailed information about the permissions available. ● Selecting a check-box automatically selects all child check-boxes. ● Similarly, deselecting any check-box automatically deselects all children. ● You can enable access to all features in the product by clicking the **Select All** button, or remove all access by clicking **Clear All**. For more information about available permissions, see Role Permission Lists.

4

Managing Accounts and Directory Services

You can create an account for each person that should have access to Workflow Manager / AdminStudio Enterprise Server, or you can import accounts from a Windows Active Directory or Novell eDirectory directory service.

You can also configure various login methods to best suit your needs: account login, domain account login, and single sign-on login.

Information is presented in the following main sections:

- Managing Accounts
- Managing Directory Services Connections
- Managing Account Logins
- Accounts and Directory Services Reference

Managing Accounts

There are several ways to grant people access to Workflow Manager / AdminStudio Enterprise Server. You can:

- **Create an account**—Manually create an account for each person. See Creating a New Account.
- **Import directory service accounts**—Set up a Windows Active Directory or Novell eDirectory directory service connection, and import accounts from that directory service. See Importing Directory Services Accounts and Groups.
- **Import directory service group**—Set up a Windows Active Directory or Novell eDirectory directory service connection and import a group from that directory service. This allows you to provide dynamic access to all of the members of that group as the membership changes. For more information, see Importing Directory Services Accounts and Groups.

***Note** • For more information on the methods for logging into Workflow Manager / AdminStudio Enterprise Server, and how authentication is performed, see Managing Account Logins.*

Sample Workflow Manager Users

There are two main categories of Workflow Manager users: *consumers*, who make requests; and *administrators*, who perform the tasks to complete those requests. Consumer and administrator companies group these users.

- **In an internal environment**, the administrator company may be the IT department of a corporation, and consumer companies may be departments within that corporation.
- **In a consulting environment**, the administrator company is the organization performing the requested tasks, and the consumer companies are its clinets that make requests.

One administrator company usually does work for multiple consumer companies (or internal departments).

A user's assigned roles determine how much functionality is available to that user. Permissions for all of Workflow Manager's functions are assigned to roles, as described in Managing Roles and Permissions, and roles are assigned to users. The tasks that administrators and consumers can perform depend upon the permissions of their assigned roles.

To help you get started using Workflow Manager, sample users are automatically created during installation. The names of the users along with their assigned roles demonstrate typical Workflow Manager users.

Table 4-1 • Sample Workflow Manager Users With Their Assigned Roles

User Type	User Name	Role	How They User Workflow Manager
Consumer Company Users	user@company.com user@requester.com	User Application User	• Submit workflow requests • Monitor the progress of their workflow requests
	lm@company.com	License Manager	• Manage a company's license compliance
	cm@company.com	Configuration Manager	• Manages a company's software distribution.
	pm@requester.com	Project Manager	• Monitor the progress of all of the workflow requests submitted by his company
	tester@requester.com	UA Tester	• User acceptance tester.

Table 4-1 • Sample Workflow Manager Users With Their Assigned Roles

User Type	User Name	Role	How They User Workflow Manager
Administrator Company Users	repackager@servicer.com	Repackager	• Perform workflow request tasks • Create and view reports • Create and view issues
	techlead@servicer.com	Tech Lead	• Same permissions as the **Repackager** role but also has the permission to assign work
	admin@servicer.com	SCAdmin	• Assign work • Monitor the progress of all of the workflow requests that his company is working on • Create new consumer companies, and create new consumer and administrator user accounts • Create roles, projects, and templates • Assign permissions to roles • Assign roles to consumers and administrators for each workflow request • Communicate with customers via Workflow Manager

Filtering by Account Status

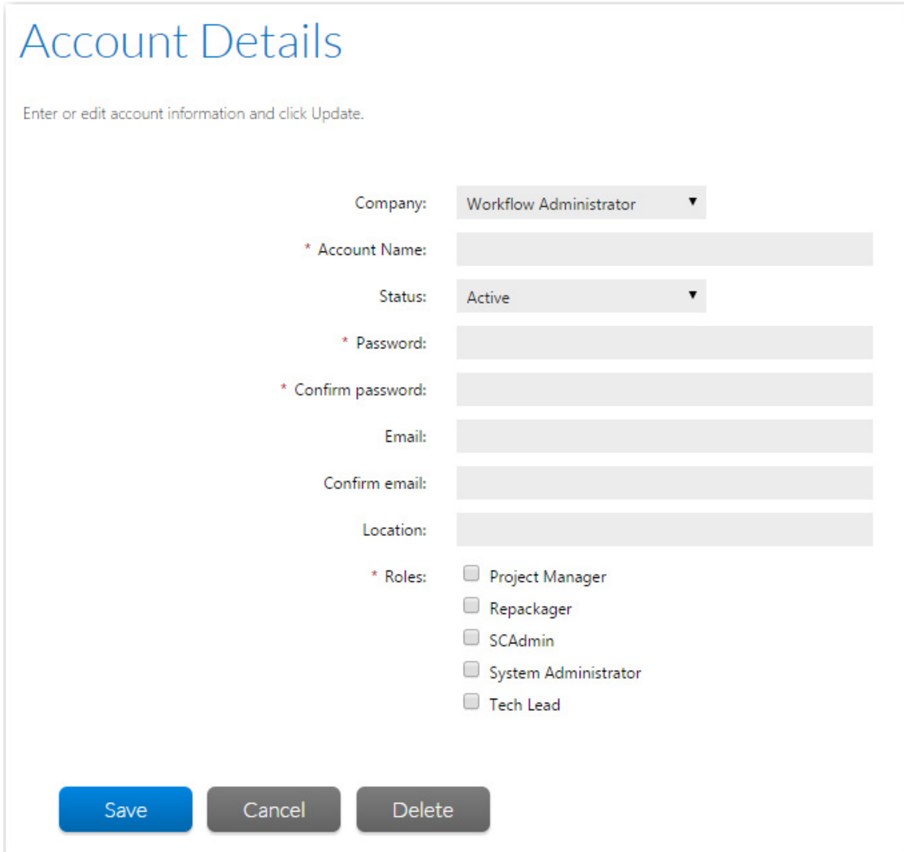
Some accounts may be disabled or inactive, meaning they can no longer access the system (see Disabling an Account). You may filter the **Account Administration** grid by this account status, by selecting either **Active**, **Inactive** or **All** (show all accounts, regardless of the status) from the **Status** list. The grid will automatically refresh once you make your choice.

Creating a New Account

If the people accessing Workflow Manager / AdminStudio Enterprise Server are not represented in a directory service, you will need to create login accounts for them manually.

Task ***To create a new account:***

1. On the **Settings** menu, click **Accounts and Groups**. The **Account Administration** page opens.
2. Click **Add**. The **Account Details** page opens.



3. Enter information to identify your new account as described on in Account Details Page.
4. Click **Save**.

Importing Directory Services Accounts and Groups

If you have defined a directory service connection, as described in Creating a New Directory Service Connection, you can choose to import accounts or groups from that directory service into Workflow Manager / AdminStudio Enterprise Server.

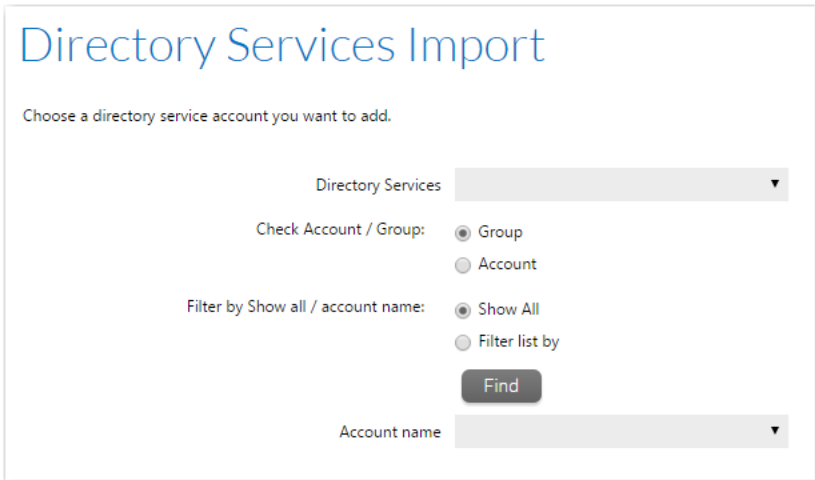
When an account is added to Workflow Manager / AdminStudio Enterprise Server from a directory service, only information that uniquely identifies the user in the directory service is stored. Information such as telephone number and email address will always be queried at run time, so that the most current details are obtained.

Workflow Manager / AdminStudio Enterprise Server supports Windows Active Directory and Novell eDirectory directory services.

***Note** • For more information on support for directory services, see Managing Directory Services Connections and Managing Account Logins.*

Task ***To import accounts or groups from a directory service:***

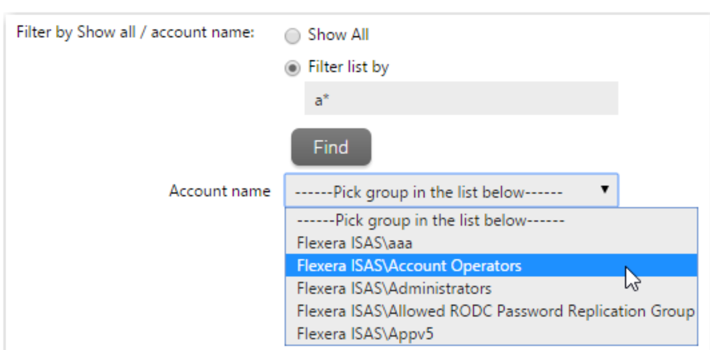
1. On the **Settings** menu, click **Accounts and Groups**. The **Account Administration** page opens.
2. Click the **Directory Service Import** button. The **Directory Services Import** page opens.



3. Choose the directory service containing the account or group you want to import from the **Directory Service** list.
4. Next to **Check Account / Group**, select the **Account** (to import a single account) or **Group** option.
5. Next to **Filter by Show all / account name** list, select one of the following:
   - **Show All**—Select this option to select your account from a list of all accounts and groups in the directory service.
   - **Filter list by**—Select this option to only return accounts and groups which match the criteria you specify, and enter your criteria in the associated text box.

     Click **Find** to filter the list of accounts and groups. For example, to search for all of the users that start with the letter P, use the asterisk wildcard character (*****) and enter **P*** in the **Filter list by** box.

   In either case, click **Find** to return your chosen list of accounts and groups.



6. From the **Pick group/user in the list below** list, select the group or account to import into Workflow Manager / AdminStudio Enterprise Server. The **Account Details** page opens, providing a read-only view of the imported account or group’s account name and password.

If you import an account that is a member of a previously-imported group, that account inherits its group's roles. You can then assign additional roles to that account.

See Account Details Page for more information about the **Account Details** page.

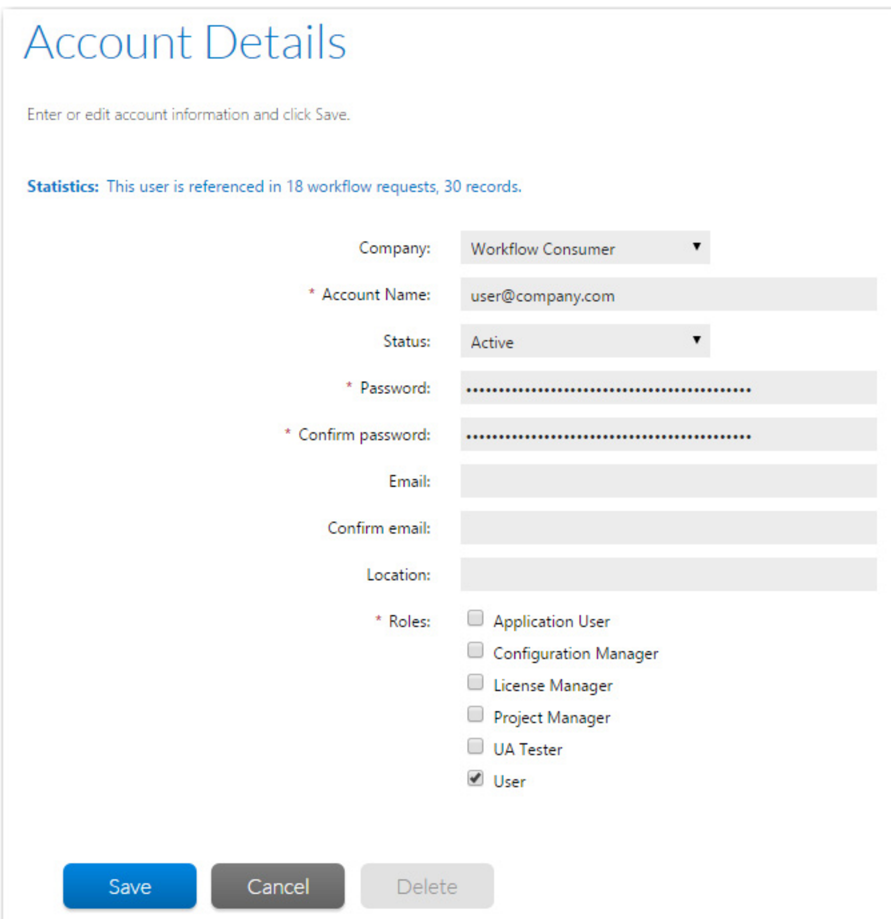
7. Click Save. The **Account Details** page closes and your new account or group appears in the list on the **Account Administration** page.

Viewing or Changing an Existing Account

You may view or update the details of any of the accounts visible on the **Account Administration** page.

Task ***To view or update an existing account:***

1. On the **Settings** menu, click **Accounts and Groups**. The **Account Administration** page opens.
2. Locate the account that you want to work with.
3. Click the user name to open the **Account Details** page.



4. View or update the account as required. See Account Details Page for more details.
5. Click **Save**.

Disabling an Account

Accounts may have a status of **Active** or **Inactive**. Inactive accounts:

- Cannot log in.
- Cannot be assigned any work.
- Are not listed on the **Account Administration** page.
- Do not get any email notifications.
- Cannot be selected as a **Consumer Contact** or **Administrator Contact** for a project.

Deleting vs. Disabling a User Account

If an account is not associated with a workflow request, you can delete that account. This means that if you create an account by accident, you can delete the account before it has a chance to interact with Workflow Manager / AdminStudio Enterprise Server. See Disabling an Account for details.

If a person is associated in any way with an open or completed workflow request, or with a project or workflow template, you cannot delete that person's account from the system. This is because Workflow Manager / AdminStudio Enterprise Server stores references to such accounts for historical, tracking and reporting purposes. If you no longer wanted this account to interact with the product, you would instead disable it by setting its **Status** to **Inactive**.

Task ***To disable a user account:***

1. Open the chosen account for editing, as described in Viewing or Changing an Existing Account.
2. On the **Account Details** page for that account, set the **Status** to **Inactive**, then click **Save**.

Deleting an Account

If an account is not referenced by any workflow requests or templates in the product, you can remove it from the system.

Task ***To delete an account:***

1. On the Settings menu, click **Accounts and Groups**. The **Account Administration** page opens.
2. Locate the account that you want to work with.
3. Click the user name to open the **Account Details** page.
4. Click **Delete**. You are prompted to confirm the deletion.

   Tip • *The **Delete** button will not be visible if the account is referenced by a workflow request or template.*

5. Click **SAve**. The **Account Details** page closes and the account you deleted is no longer listed on the **Account Administration** page.

Managing Directory Services Configuration

Workflow Manager / AdminStudio Enterprise Server can be integrated with Windows Active Directory and Novell eDirectory. This enables you to set up automatic login with the product based upon directory service authentication.

All directory service-related tasks can be managed starting from the **Directory Services** page, which you can access clicking **Directory Services** on the **Settings** menu.

Information about managing directory services is presented in the following sections:

- **Directory service connections**—If you import a directory services group, all members of that group can login to Workflow Manager / AdminStudio Enterprise Server without requiring you to import them individually. Workflow Manager / AdminStudio Enterprise Server can then retrieve attributes, such as email address or telephone number, from the directory service dynamically. For information on integrating with directory service users and groups, see Managing Directory Services Connections.
- **Directory service attributes**—[Workflow Manager only] You may add data elements to your workflow templates which, for accounts imported from directory services, will be directly populated from directory service attributes (such as account name, email address or location). For information on enabling the use of Directory Service Attributes, see Managing Directory Services Attributes.

***Note** • For more information about Directory Services and Lightweight Directory Access Protocol (LDAP), see Lightweight Directory Access Protocol (LDAP) Overview on the Microsoft TechNet website.*

Managing Directory Services Connections

Rather than manually creating an account for each person who will use Workflow Manager / AdminStudio Enterprise Server, you can import accounts from Windows Active Directory or Novell eDirectory directory services. To integrate Workflow Manager / AdminStudio Enterprise Server with a directory service individual account or group, you need to set up a directory service connection.

This section includes the following topics:

Creating a New Directory Service Connection

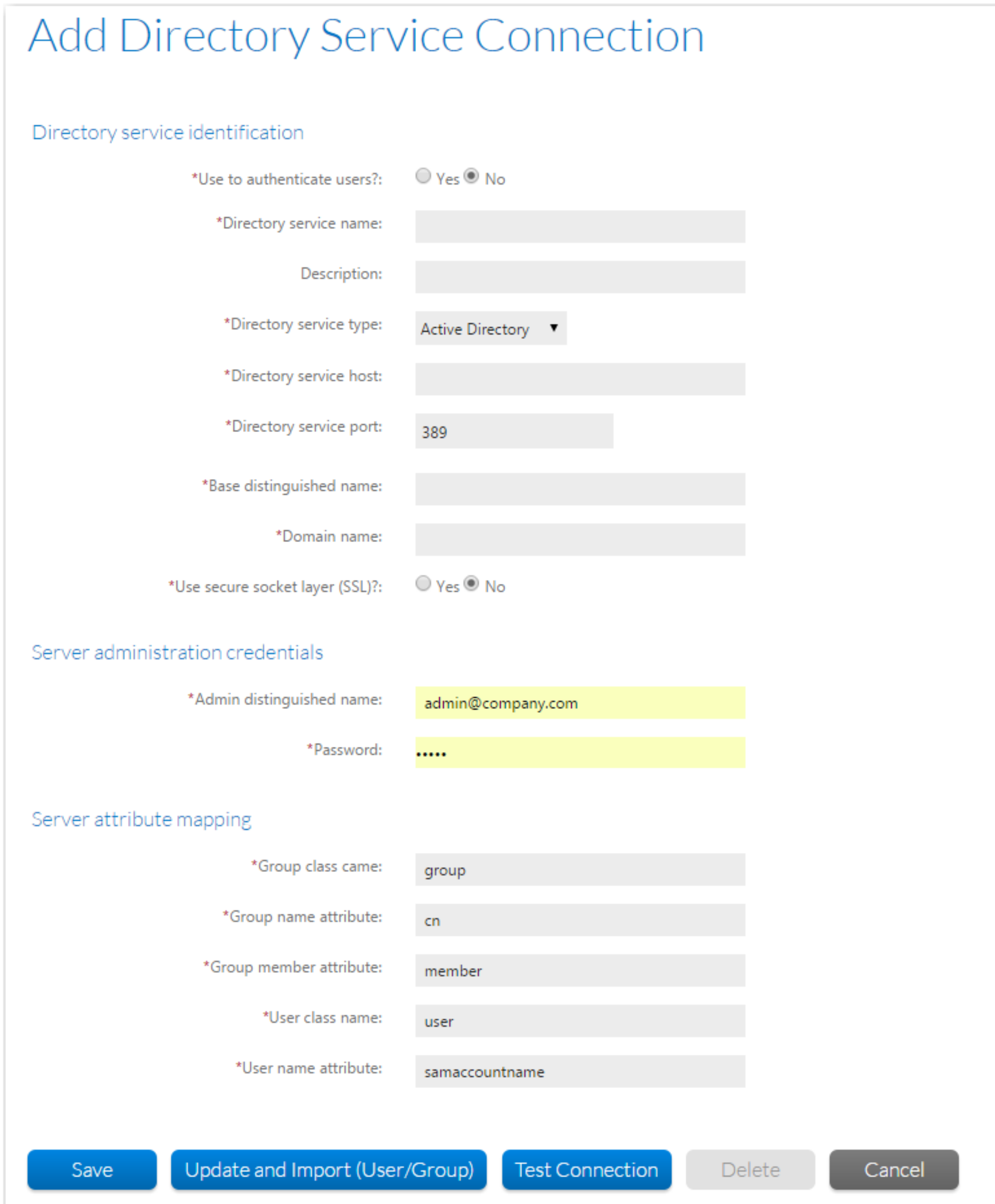
Directory services connections are used to import accounts into Workflow Manager / AdminStudio Enterprise Server, so as to authenticate Active Directory or eDirectory account-holders logging into Workflow Manager / AdminStudio Enterprise Server.

You can choose to have a directory service listed in the **Domain** list on the Workflow Manager / AdminStudio Enterprise Server login page. This enables people with accounts in the directory service to login to Workflow Manager / AdminStudio Enterprise Server using their enterprise network credentials

Task ***To add a Directory Service connection:***

1. On the **Settings** menu, click **Directory Services**. The **Directory Services Administration** page opens.

2. Click **Add**. The **Add Directory Service Connection** page opens.



3. Enter the relevant connection details. See Add Directory Service Connection Page for more information.

4. Click the **Test Connection** button to ensure the settings you entered can be used to successfully connect to this directory service.

5. Once your connection is successful, do one of the following:

- Click **Save** to save your new connection and return to the **Directory Services Administration** page
- Click **Update and Import (User/Group)** to save your new connection and open the **Directory Services Import** page, where you can immediately import an account for your connection. See Importing Directory Services Accounts and Groups for more information.

Viewing or Changing an Existing Directory Service Connection

You may view or update the details of any existing directory service connection.

Task ***To view or update an existing directory service connection:***

1. On the **Settings** menu, click **Directory Services**. The **Directory Services Administration** page opens.
2. Locate the directory service connection that you want to work with.
3. Click the directory service name to open the **Add Directory Service Connection** page opens.
4. View or update the connection as required. See Add Directory Service Connection Page for more information.
5. If you update the connection details, click the **Test Connection** button to ensure the settings you entered can still connect successfully to your directory service.
6. Do one of the following:
    - Click **Save** to save your new connection and return to the **Directory Services Administration** page.
    - Click **Update and Import (User/Group)** to save your new connection and open the **Directory Services Import** page, where you can immediately import an account for your connection. See Importing Directory Services Accounts and Groups for more information.
    - Click **Cancel** to close the **Add Directory Service Connection** page without saving your changes.

Deleting an Existing Directory Service Connection

In order to delete a directory service connection, all references to the directory service must be removed from Workflow Manager / AdminStudio Enterprise Server. If there are any accounts imported from the directory service or attributes associated with it, you will be unable to delete the connection.

Task ***To delete an existing directory service connection:***

1. Open the **Directory Service Administration** page by clicking **Directory Services** on the **Settings** menu.
2. Locate the directory service connection that you want to remove. The **Add/Edit Directory Service Connection** page opens.
3. Click **Delete**. You are prompted to confirm the deletion.

    Tip • *The **Delete** button will be disabled if your connection is referenced by an account or attribute.*

4. Click **OK**. The **Add/Edit Directory Service Connection** page closes, and the connection you deleted is no longer listed on the **Directory Services Administration** page.

Managing Directory Services Attributes

When creating a Workflow Manager template, you can assign a **Data Element** the **Data Type** of **Directory Service**. This means that when a directory service-authenticated account completes the workflow step requesting that particular data element, information is pulled from the directory service to automatically populate the field, such as that account's name, email address, or location.

Each piece of information that can be returned from the directory service is referred to as an attribute. Workflow Manager allows you to select which of the many directory service attributes you want available for use as data elements in workflow templates.

Figure 4-1: Example of Fields Populated With Directory Services Attributes

Note • *If a person is using Workflow Manager through an account not authenticated from a directory service, such fields will be enabled and left blank, ready for manual entry.*

Information about managing directory service attributes is organized in the following topics:

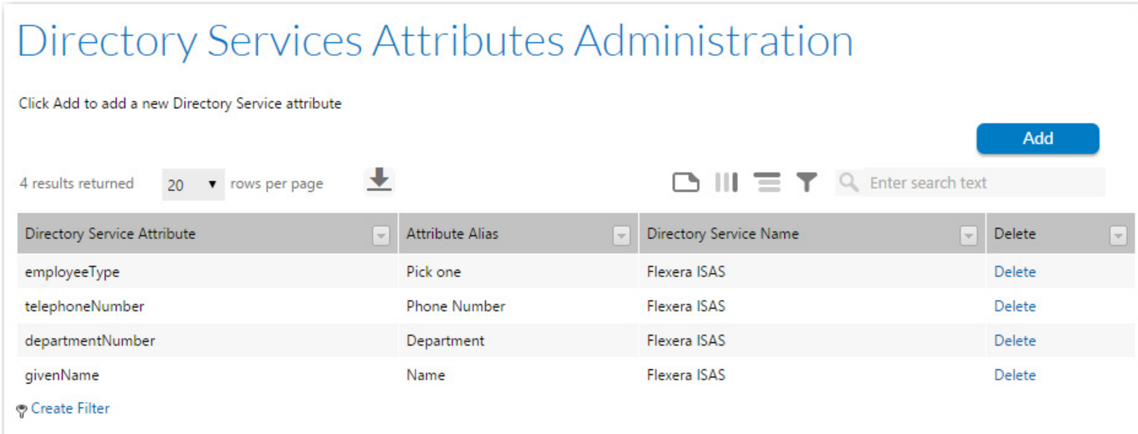
- Setting Up a New Directory Service Attribute
- Deleting an Existing Directory Service Attribute

Setting Up a New Directory Service Attribute

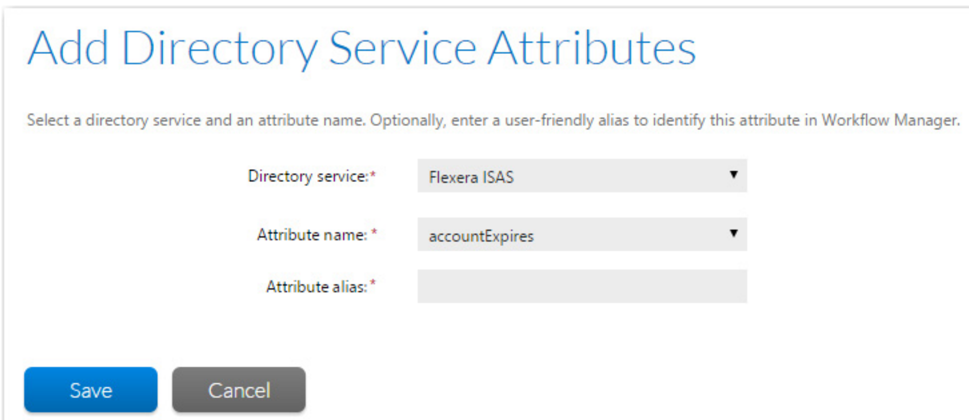
To make a new directory service attribute available for use in workflow templates, do the following.

Task ***To set up a new directory service attribute:***

1. Open the **Directory Service Attributes Administration** page by clicking **Directory Service Attributes** on the **Settings** menu. The **Directory Services Attributes Administration** page opens.



2. Click **Add**. The **Add Directory Service Attributes Page** page opens.



3. Select the directory service whose attribute you want to make available to workflow templates from the **Directory service** list. Refer to Creating a New Directory Service Connection for more information about setting up connections to your directory services.

4. The **Attribute name** field lists all of the directory service attributes from the chosen directory service. Select the one you want to add to the Workflow Manager database. An example of a directory service attribute might be `employeeNumber` or `documentAuthor`.

5. Enter a more user-friendly identifier for the attribute in the **Attribute alias** field. For example, you may want to identify the `documentAuthor` attribute as **`Author`** in Workflow Manager.

6. Click **Save** to register the attribute with Workflow Manager.

Tip • If Workflow Manager is unable to connect to the server (so no attributes can be retrieved), the ***Save*** *button is disabled.*

Deleting an Existing Directory Service Attribute

In order to delete a directory service attribute, all references to that directory service attribute must be removed from Workflow Manager. If there are any references to the directory services attribute, you will be unable to delete it.

Task ***To delete an existing directory service attribute:***

1. On the **Directory Services** page, click **Manage Directory Services Attributes**. The **Directory Services Attributes Administration** page opens
2. Locate the attribute that you want to remove.
3. Click the **Delete** hyperlink in the **Delete** column to the right of your chosen attribute. The attribute will be removed without prompting, so be sure you select the correct one.

Managing Account Logins

Workflow Manager / AdminStudio Enterprise Server allows you to login either with your domain account or with a different named account.

Each method is discussed in this section, as is how to set the session timeout value.

- Login Methods
- Using Account Login
- Using Domain Account Login
- Using Single Sign-On Login

Login Methods

There are multiple ways you can log in to the application:

Table 4-2 • Login Methods

Method	Description	Related Topics
Using Workflow Manager / AdminStudio Enterprise Server account	Login using an account created specifically for Workflow Manager / AdminStudio Enterprise Server.	• Using Account Login • Creating a New Account

Table 4-2 • Login Methods (cont.)

Method	Description	Related Topics
Using domain account credentials	Login using your domain account credentials. To set this up, you need to import accounts from a directory service (Active Directory or Novell eDirectory) into Workflow Manager/ AdminStudio Enterprise Server. ***Note •*** *To login using your domain account, ensure the* ***Anonymous Access*** *option on the IIS Manager* ***Authentication*** *view is set to* ***Enabled****. For more information, see Setting the Anonymous Authentication Option in IIS Manager to Enable Single Sign-On.*	• Using Domain Account Login • Creating a New Directory Service Connection • Importing Directory Services Accounts and Groups
Using single sign-on login	Be automatically logged in to Workflow Manager / AdminStudio Enterprise Server, based on your domain account credentials. This is referred to as *single sign-on* login. If you set up this option, IIS performs account authentication; in all other cases, authentication is the role of Workflow Manager / AdminStudio Enterprise Server itself. ***Note •*** *To login using the single sign-on method, ensure the* ***Enable anonymous access*** *option on the* ***IIS Authentication Methods*** *dialog box is not selected. For more information, see Setting the Anonymous Authentication Option in IIS Manager to Enable Single Sign-On.* ***Note •*** *Single sign-on is not supported for Novell eDirectory accounts.*	• Using Single Sign-On Login • Creating a New Directory Service Connection • Importing Directory Services Accounts and Groups
Using guest account login	Login using an anonymous guest account, set up to view a restricted set of Workflow Manager features – such as viewing reports or searching for a request.	• Using Guest Account Login • Setting Up a Guest Account • Logging in as a Guest

Setting the Anonymous Authentication Option in IIS Manager to Enable Single Sign-On

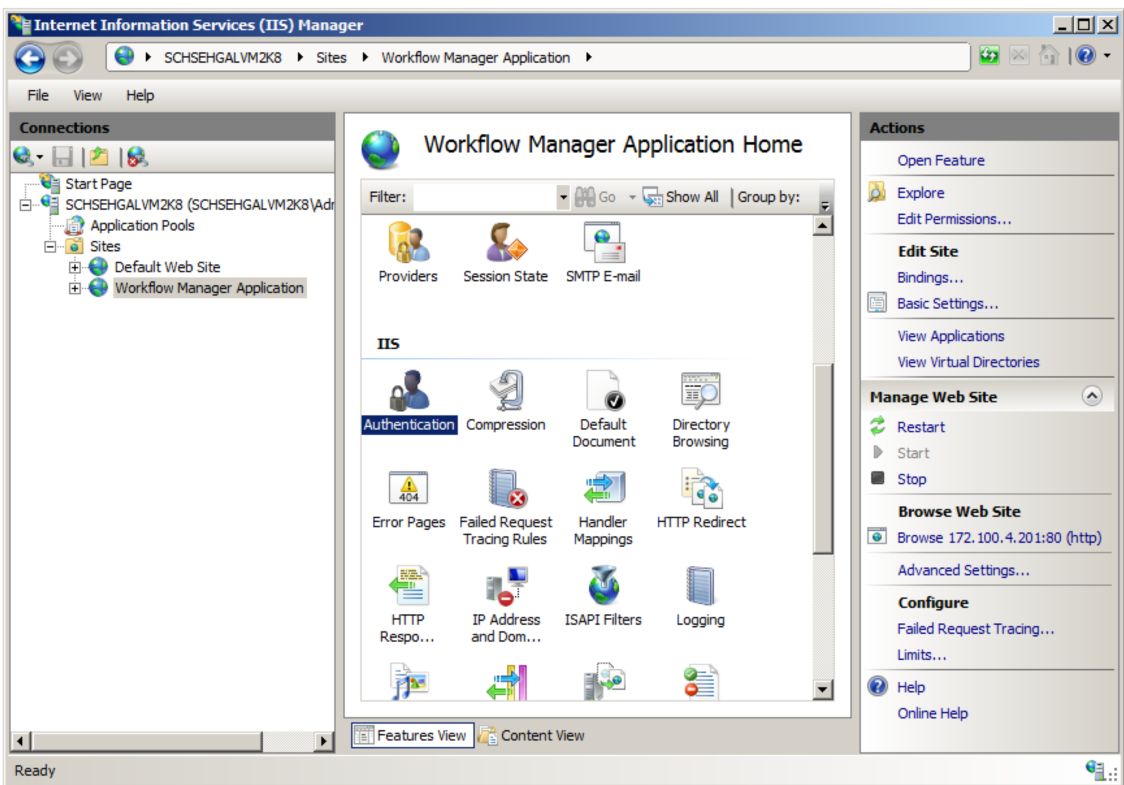
If you wish to login to Workflow Manager / AdminStudio Enterprise Server using your domain account or using the single sign-on method (as described in Login Methods), you may need to update the **Anonymous Authentication** option in IIS Manager.

Note • *The instructions in this topic explain how to set the **Anonymous Authentication** option in IIS 7. The instructions for setting this option in IIS 6 are slightly different. Refer to the Internet Information Services Manager 6 help for more information.*

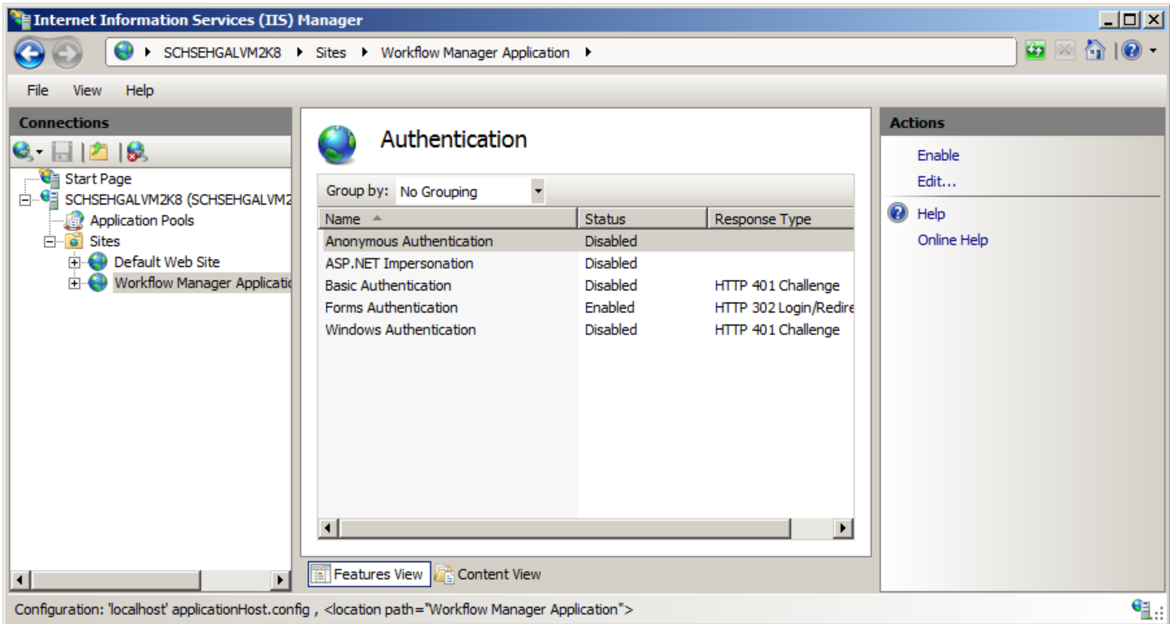
Important • *For single-sign on to work, In addition to performing these steps you must also select the Use to authenticate users? option on the **Add/Edit Directory Services Connection** page for that directory service.*

Task ***To set the Anonymous Authentication option in IIS Manager:***

1. Open the Internet Information Services (IIS) Manager. For instructions, refer to the following MSDN help topic, *Opening IIS Manager,* at http://msdn.microsoft.com/en-us/library/ms525920(v=vs.90).aspx
2. In the IIS tree view, select **Sites > Workflow Manager Application**. The **Workflow Manager Home** view opens.



3. Under **IIS**, double-click **Authentication**. The **Authentication** view opens.



4. Do one of the following:

    - **To login using your domain account**, set the **Anonymous Authentication** option to **Enabled** by selecting it and then clicking **Enable** in the **Actions** menu on the right.
    - **To login using the single sign-on method**, set the **Anonymous Authentication** option to **Disabled** by selecting it and then clicking **Disable** in the **Actions** menu on the right.

    Important • *If you disable the **Anonymous Authentication** option, make sure that the **Windows Authentication** option is set to **Enabled**.*

5. Make sure that the **Forms Authentication** option remains set to **Enabled**.

Using Account Login

You may wish to manually specify account names and passwords for all people logging in to Workflow Manager / AdminStudio Enterprise Server.

- **To set up account logins**—Follow the steps in Creating a New Account to manually create an account (**Account Name** and **Password**) for each person that you want to have access to Workflow Manager / AdminStudio Enterprise Server.
- **To login using an account login**—Once accounts have been created, people may login by entering their assigned **Account Name** and **Password** on the Workflow Manager / AdminStudio Enterprise Server login page. Workflow Manager / AdminStudio Enterprise Server will be responsible for authenticating the supplied details.

Using Domain Account Login

You may want to use your usual domain credentials to login to Workflow Manager / AdminStudio Enterprise Server.

Setting Up Workflow Manager / AdminStudio Enterprise Server to Use Domain Credentials

To set up Workflow Manager / AdminStudio Enterprise Server to use domain credentials, perform the following steps:

Task ***To set up Workflow Manager / AdminStudio Enterprise Server to use domain credentials:***

1. Set up a Windows Active Directory or Novell eDirectory directory service connection. See Creating a New Directory Service Connection for more information.
2. On your Workflow Manager / AdminStudio Enterprise Server server, open IIS Manager and enable the **Anonymous Authentication** option. This specifies that Workflow Manager / AdminStudio Enterprise Server will be responsible for authenticating login attempts. Refer to Setting the Anonymous Authentication Option in IIS Manager to Enable Single Sign-On for further details.
3. Import relevant accounts into Workflow Manager / AdminStudio Enterprise Server from your directory service. See Importing Directory Services Accounts and Groups for more information.

Logging in Using Your Domain Account Login

If your account has been imported from a directory service, or belongs to an imported group, you may then enter your usual domain account name and password on the Workflow Manager / AdminStudio Enterprise Server login page. Workflow Manager / AdminStudio Enterprise Server will connect to the relevant directory service, and pass through the supplied account name and password so that it can authenticate you.

Note • *When entering your account name, it is not necessary to specify the directory service domain name.*

Using Single Sign-On Login

With single sign-on, you will be automatically logged in to Workflow Manager / AdminStudio Enterprise Server using your domain credentials, as long as your domain account has been imported into the system.

Note • *Single sign-on is not supported for Novell eDirectory accounts.*

Setting Up Single Sign-On

To set up single sign-on for Workflow Manager / AdminStudio Enterprise Server, perform the following steps:

Task ***To set up single sign-on for Workflow Manager / AdminStudio Enterprise Server:***

1. Set up a Windows Active Directory directory service connection. See Creating a New Directory Service Connection for more information.
2. On your Workflow Manager / AdminStudio Enterprise Server server, open IIS Manager and disable the **Anonymous Authentication** option. This specifies that IIS will be responsible for authenticating login attempts. Refer to Setting the Anonymous Authentication Option in IIS Manager to Enable Single Sign-On for further details.

3. Import relevant accounts into Workflow Manager / AdminStudio Enterprise Server from your directory service. See Importing Directory Services Accounts and Groups for more information.

Logging in Using Single Sign-On

Once single sign-on has been set up and your account has been imported, when you next open Workflow Manager / AdminStudio Enterprise Server, the IIS web server checks to see if your domain credentials are valid in the Active Directory domain server. If they are, you will automatically be logged in to Workflow Manager / AdminStudio Enterprise Server. Workflow Manager / AdminStudio Enterprise Server does not need to directly connect to the Active Directory server.

Using Guest Account Login

Rather than creating an account for each person using Workflow Manager, you may instead choose to create a generic guest account, with restricted access to some lower-risk features.

This section describes how to setup a guest account and how to login using a guest account:

- Setting Up a Guest Account
- Logging in as a Guest

Setting Up a Guest Account

The Workflow Manager administrator can set up a guest account to permit people without login credentials to access features such as viewing a report or searching for a workflow request. By using a guest account, administrators do not have to create separate accounts for people who only need very limited functionality.

Task ***To configure a guest account:***

1. Manually create a new account in Workflow Manager to use as the guest account. See Creating a New Account for further information.

2. Assign your new account to roles with limited permissions. See Managing Roles and Permissions for more information.

   ***Tip** • Be very careful about assigning your account to roles with access to advanced features, since these features will then be available to every person who logs in as a guest.*

3. Update the `web.config` file, located in the Workflow Manager web application `wwwroot` directory. Enter the name of the your new account in the following location of the `web.config` file:

```
<!-- Guest System Access -->
<add key="GuestAccount" value="username@companyname.com" />
```

   After a guest account key is added to the `web.config` file, the **Guest Access** option will appear on the Login page.

   ***Note** • If the account name specified in the `GuestAccount` key does not exist in the Workflow Manager database, Workflow Manager will display an error when an operator tries to log in as a guest. A `GuestAccount` key with a blank value (that is, with `value = “”`) will be ignored.*

Note • *Every Workflow Manager portal has its own* `web.config` *file. You may update a different* `GuestAccount` *key for each portal by updating its local* `web.config` *file. Workflow Manager portals will use the* `GuestAccount` *key configured at the portal site to log in guests. If a* `GuestAccount` *value is not configured (the key is missing, or has blank value), Workflow Manager will instead use the* `GuestAccount` *key from the parent site.*

Logging in as a Guest

Before anyone can log on to Workflow Manager anonymously, a guest account needs to be configured, as described in Setting Up a Guest Account. If a guest account is set up, and if single-sign on authentication is not configured, users can log on to your Workflow Manager site as a guest. When the Workflow Manager **Login** page opens, a user would select the **Guest Access** option to log in anonymously.

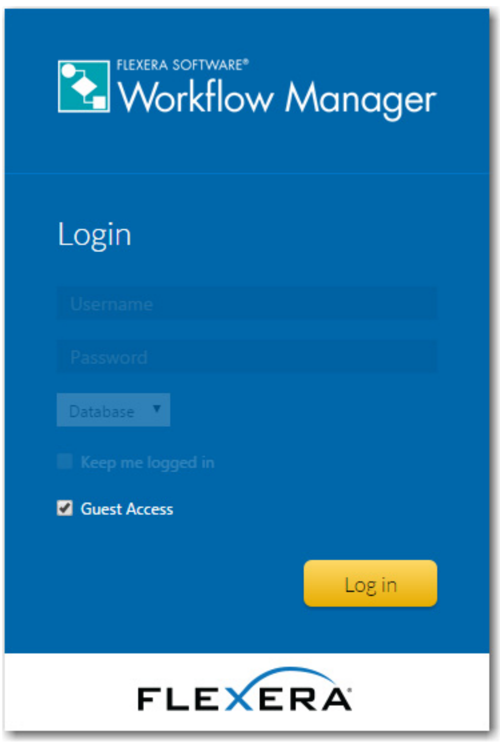


Figure 4-2: Logging in Using Guest Access Option

Important • *If single-sign on authentication is configured, the* ***Guest Access*** *option is not available.*

Tip • *The* ***Guest Access*** *option will not be available on the login page unless the* `GuestAccount` *key is present in the* `web.config` *file, with a non-empty* `value` *(that is, the key does not have* `value =` *“”). See Setting Up a Guest Account for more information.*

Accounts and Directory Services Reference

This section details the contents of the Workflow Manager / AdminStudio Enterprise Server pages that are used to manage users and directory services:

Table 4-3 • Accounts and Directory Services Reference

Page	Subpages
Account Administration Page	• Account Details Page • Directory Services Import Page
Directory Services Administration Page	• Add Directory Service Connection Page
Directory Services Attributes Administration Page	• Add Directory Service Attributes Page

Account Administration Page

The **Account Administration** page lists the accounts defined in Workflow Manager / AdminStudio Enterprise Server. You can view this page by clicking **Accounts and Groups** in the **Settings** menu.

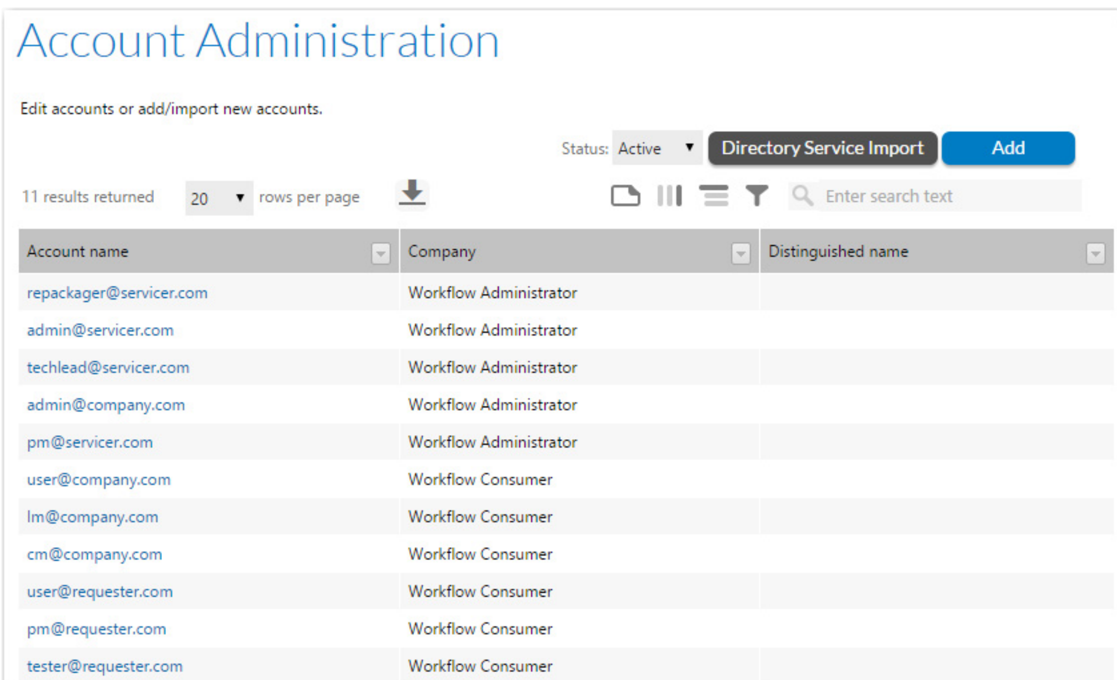


Figure 4-3: Account Administration Page

Tip • *This page will only list accounts associated with the company that your own login account belongs to. To view accounts belonging to all companies (and also to view the* `suams` *super user account), you will need to log in with a super user account, assigned the* ***System Administrator*** *role. For more information, see*

Use the **Account Administration** page to:

- Drill through to a page showing the details of a single existing account, where you may either update (see Viewing or Changing an Existing Account), disable (see Disabling an Account) or delete (see Deleting an Account) that account.
- Create a new account (see Creating a New Account).
- Import accounts or groups from a directory service (see Importing Directory Services Accounts and Groups).
- Filter the lists of visible accounts by status (see Filtering by Account Status).

Note • *For more information on the methods for logging into Workflow Manager / AdminStudio Enterprise Server and how authentication is performed, see Managing Account Logins.*

The **Account Administration** page lists the following account details, some of which are hidden by default:.

Table 4-4 • Account Administration Page Options

Option	Description
Add	Click to access the Account Details Page, where you can add a new account.
Directory Service Account/Group Import	Click to access the Directory Services Import Page, where you can import an account or group from a directory service.
Account Name	The login name that will be used to access Workflow Manager / AdminStudio Enterprise Server. Typically, account names are in the format of `accountname@companyname.com`. If the account represents a directory services group, the group’s name will instead be listed in this column.
Company	The company within your organization which this account belongs to.

Account Details Page

The **Account Details** page allows you to view and update the details of an individual account, either manually created or imported from a directory service. The **Account Details** page is opened by either clicking a user name or the **Add** button on the **Account Administration** page.

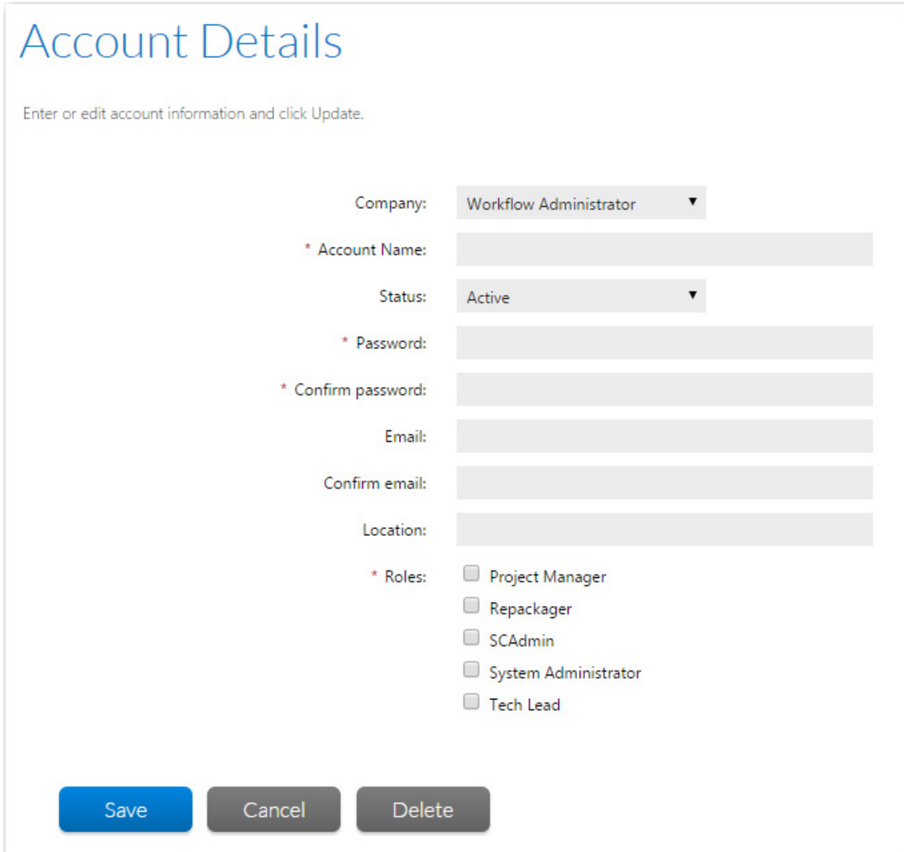


Figure 4-4: Account Details Page

***Tip** • You may not delete an account which is referenced by any workflow requests or templates. Instead, you may disable such an account if it is no longer required. See Filtering by Account Status for details.*

The following fields are available on the **Account Details** page:

Table 4-5 • Account Details Page Fields

Field	Description
Company	[Workflow Manager only] Select the company that this account belongs to. If you update this field, the list of roles at the bottom of this page will dynamically update to show only those belonging to the selected company.
Account Name	Enter a unique login name to identify this account. You will use this account name to login to Workflow Manager / AdminStudio Enterprise Server. To ensure that you can easily identify which company your account belongs to, it is good practice to create an account name of the form: `username@companyname.com`. ***Note** • This field will be disabled for any account or group imported from a directory service.*

Table 4-5 • Account Details Page Fields

Field	Description
Status	If you wish this account to interact with Workflow Manager / AdminStudio Enterprise Server, select **Active**. The **Inactive** option disables this account. See Disabling an Account for further information.
Password	Enter a password for this account.
Confirm password	To ensure you did not misspell the password you entered in the **Password** field, re-enter it in the **Confirm password** field. You will be unable to save your changes unless you enter matching passwords in the **Password** and **Confirm Password** fields. ***Note •*** *This field will be disabled for any account or group imported from a directory service.*
Email **Confirm email**	If the person using this account is to receive notifications when his input is required to complete a workflow, enter a valid email address in this field, and reenter it in the **Confirm email** field. ***Note •*** *This field only does not appear for an account or group imported from a directory service, because this information is retrieved dynamically when needed.*
Location	Optionally, enter a geographic location that you can use to group accounts together, such as **`New York Office`** or **`Midwest Region`**.
Roles	Select the roles you wish this account to belong to. These roles will determine how the account may interact with Workflow Manager / AdminStudio Enterprise Server. Only those roles belonging to the selected company are displayed. See Role Permission Lists for more information.

Directory Services Import Page

If you have defined a directory service connection, as described in Creating a New Directory Service Connection, you can choose to import accounts or groups from that directory service into Workflow Manager / AdminStudio Enterprise Server. You import those accounts or groups using the **Directory Services Import** page, which is opened by clicking **Directory Service Account/Group Import** on the **Account Administration** page.

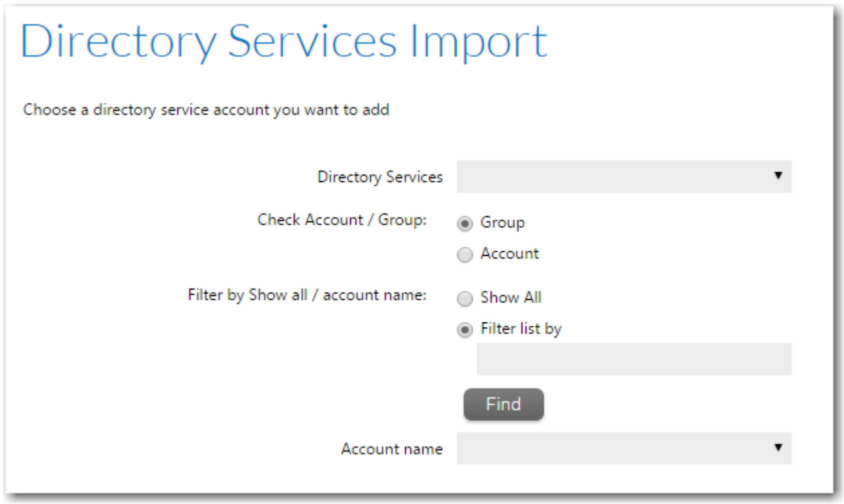


Figure 4-5: Directory Services Import Page

***Note** • Workflow Manager / AdminStudio Enterprise Server supports Windows Active Directory and Novell eDirectory directory services.*

The following options are included:

Table 4-6 • Directory Services Account/Group Add View

Option	Description
Select a Directory Service	Choose the directory service containing the account or group you want to import. ***Note** • For information on defining a Directory Service Connection, see Creating a New Directory Service Connection.*
Select Group or User	Specify whether you are importing a **User** (a single account) or a **Group**.
Filter Directory Service List	Select one of the following: • **Show All**—Select this option to select your account from a list of all accounts and groups in the directory service. • **Filter list by**—Select this option to only return accounts and groups which match the criteria you specify, and enter your criteria in the associated text box. For example, to search for all of the users that start with the letter `P`, use the asterisk wildcard character (**`*`**) and enter **`P*`** in the **Filter list by** box. In either case, click **Find** to return your chosen list of accounts and groups.

Table 4-6 • Directory Services Account/Group Add View (cont.)

Option	Description
Pick group/user in the list below	Select the group or account to import into Workflow Manager / AdminStudio Enterprise Server. The **Account Details** page opens, providing a read-only view of the imported account or group's account name and password. ***Note •*** *If you import an account that is a member of a previously-imported group, that account inherits its group's roles. You can then assign additional roles to that account.*

The selected user or group is then opened in the Account Details Page.

Directory Services Administration Page

Workflow Manager / AdminStudio Enterprise Server can be integrated with Windows Active Directory and Novell eDirectory. This enables you to set up automatic login with Workflow Manager / AdminStudio Enterprise Server based upon directory service authentication.

Directory services connections are used to import users and groups into Workflow Manager / AdminStudio Enterprise Server, and to authenticate Active Directory or Novell eDirectory users logging into Workflow Manager / AdminStudio Enterprise Server. If you import a group, all members of that group can then login to Workflow Manager / AdminStudio Enterprise Server without requiring you to import them individually. Workflow Manager / AdminStudio Enterprise Server can then retrieve attributes, such as email address or telephone number, from the directory service dynamically.

You can choose to have a directory service listed in the **Domain** list on the Workflow Manager / AdminStudio Enterprise Server login page. This enables users in this directory service to login using their enterprise network credentials.

You may also add data elements to your workflow templates which, for accounts imported from directory services, will be directly populated from directory service attributes (such as account name, email address or location).

Directory Services tasks can be managed starting from the **Directory Services Administration** page, which you can open by clicking **Directory Services** on the **Settings** menu.

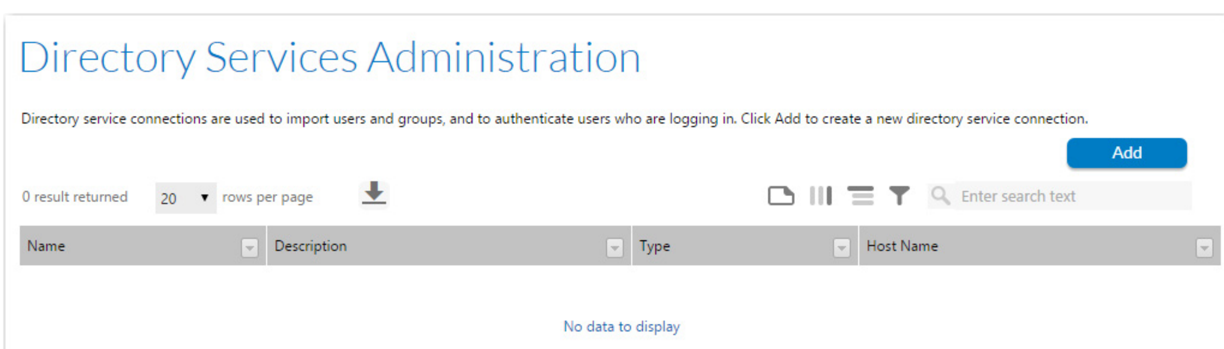


Figure 4-6: Directory Services Administration Page

The **Directory Services Administration** page lists the following information about each connection:

Table 4-7 • Directory Services Administration Page Options

Option	Description
Name	A unique identifier for the directory service connection. You might like to enter the domain name as the description, since that should be unique for your organization.
Description	A more detailed description of the directory service.
Type	Identifies this directory service as either Windows Active Directory or Novell eDirectory.
Host Name	The name or IP address of the server on which this directory service is running.

Note • *For more information about Directory Services and Lightweight Directory Access Protocol (LDAP), see Lightweight Directory Access Protocol (LDAP) Overview on the Microsoft TechNet website.*

Add Directory Service Connection Page

The **Add Directory Service Connection** page allows you to view and update the settings required to connect to a directory service. You can also use this page to remove a connection which is no longer required.

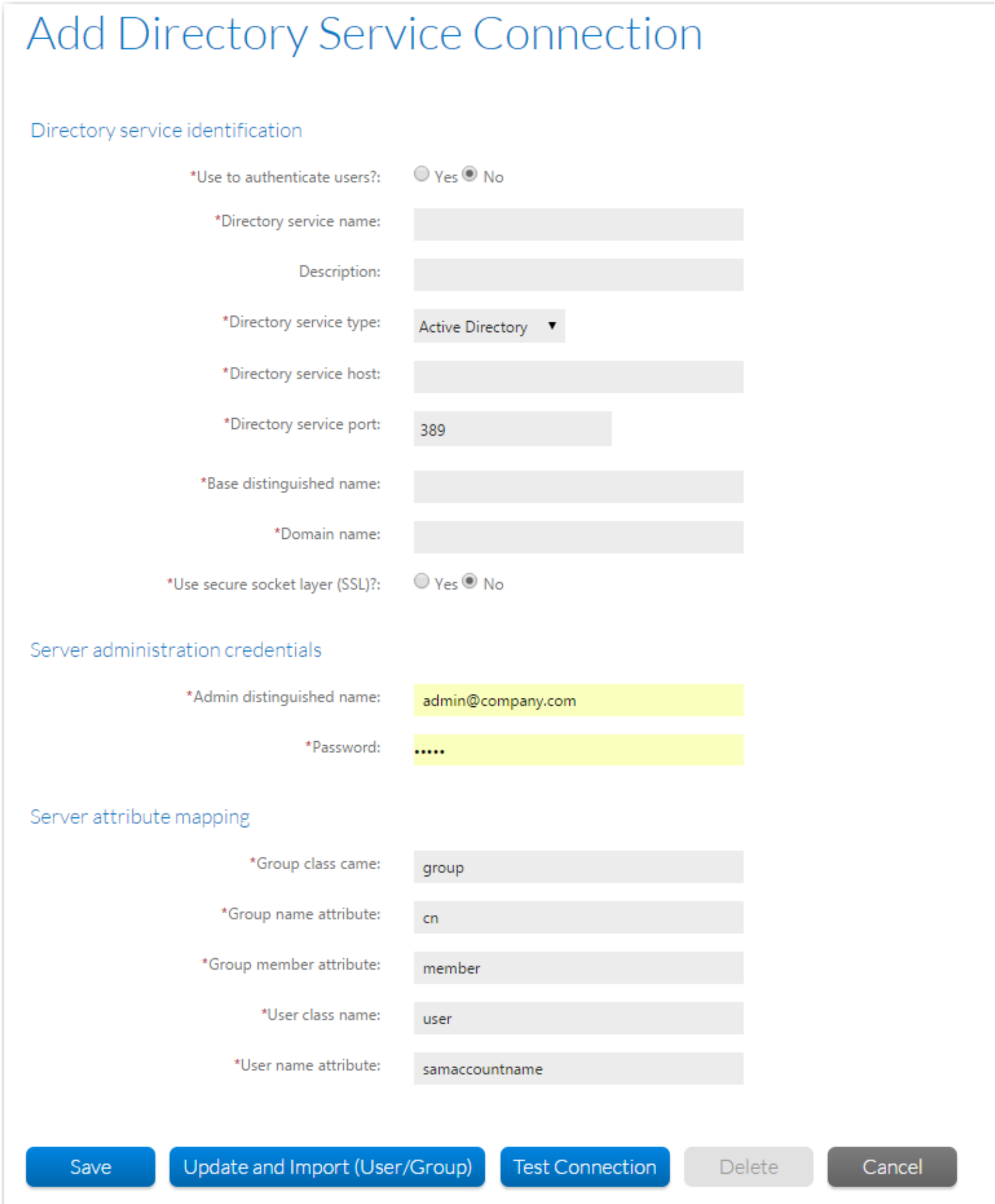


Figure 4-7: Edit Directory Service Connection Page

The following fields are available on the **Add/Edit Directory Service Connection** page:

Table 4-8 • Add/Edit Directory Service Connection Page Fields

Option	Description
Use to authenticate users?	Select **Yes** to include this directory service in the **Domain** list on the Workflow Manager / AdminStudio Enterprise Server login page. This enables people to login to Workflow Manager / AdminStudio Enterprise Server using their enterprise network credentials. You can create multiple directory service connections, but only those connections that have this field set to **Yes** will be listed in the **Domain** list. ***Note •*** *This option must be selected in order to enable single sign-on, which means that users are automatically logged on to Workflow Manager using their enterprise network credentials, bypassing the Login screen. However, to enable single sign-on, you must also perform the steps listed in Setting the Anonymous Authentication Option in IIS Manager to Enable Single Sign-On.* ***Note •*** *In an enterprise, there is usually only one directory service that is responsible for authenticating accounts. However, you can create additional directory service connections to import accounts and groups.*
Directory service name	Enter a name to identify this directory service in the domain list on the Workflow Manager / AdminStudio Enterprise Server login page. You may wish to use the domain name associated with the directory service.
Description	Some further information about this directory service. You may wish to identify which parts of the organization use this directory service for authentication, for example.
Directory service type	Select the type of directory service you are integrating with. The following options are available. • Active Directory • Novell eDirectory
Directory service host	The name or IP address of the server on which this directory service is running.
Directory service port	Enter the port number of the server on which the directory service is running, to which Workflow Manager / AdminStudio Enterprise Server should connect in order to send LDAP queries. The default port number is **389**.
Base distinguished name	Enter the base distinguished name (DN) to identify the root node of this directory service. For example, for MyCompany, the base DN could be: `dc="MyCompany", dc="com"`
Domain name	Enter the domain name of this directory service.

Table 4-8 • Add/Edit Directory Service Connection Page Fields (cont.)

Option	Description
Use secure socket layer (SSL)?	Select **Yes** if this directory service is configured to use Secure Socket Layer (SSL).
Connect anonymously?	Select **No** if you do not want to permit anonymous connections. If you select **Yes** to permit anonymous connections, Workflow Manager / AdminStudio Enterprise Server may not be able to authenticate directory service users and may not be able to add directory service users/groups into Workflow Manager / AdminStudio Enterprise Server.
Admin distinguished name	Enter the distinguished name of an operator who has permission to retrieve account/group information and authenticate an account against this directory service, in the **domainName\userName** format.
Password	The password associated with the credentials specified in **Admin Distinguished Name**.
Group class name	Enter the object class name used to identify groups in this directory service. Default values are: • For Active Directory: **group** • For Novell eDirectory: **groupofnames**
Group name attribute	Enter an attribute used by this directory service to name groups. The default value for both Active Directory and Novell eDirectory is **cn**.
Group member attribute	Enter an attribute used by this directory service to define member groups. Default values are: • For Active Directory: **member** • For Novell eDirectory: **uniquemember**
User class name	Enter the object class name used by this directory service for user accounts. Default values are: • For Active Directory: **user** • For Novell eDirectory: **inetorgperson**
User name attribute	Enter the attribute used by this directory service to identify user accounts. Default values are: • For Active Directory: **samaccountname** • For Novell eDirectory: **uid**
Save	Click to save your entries and return to the Directory Services Administration Page.
Update and import (User/Group)	Click to save your entries and open the Directory Services Import Page.

Table 4-8 • Add/Edit Directory Service Connection Page Fields (cont.)

Option	Description
Test Connection	Click to test to see if the settings that you entered can be used to successfully connect to this directory service.

Directory Services Attributes Administration Page

Edition • *This feature applies to Workflow Manager only.*

The **Directory Services Attributes Administration** page lists all attributes which you have chosen to make available in workflow templates. You can view this page by clicking **Manage Directory Services Attributes** on the **Directory Services** page.

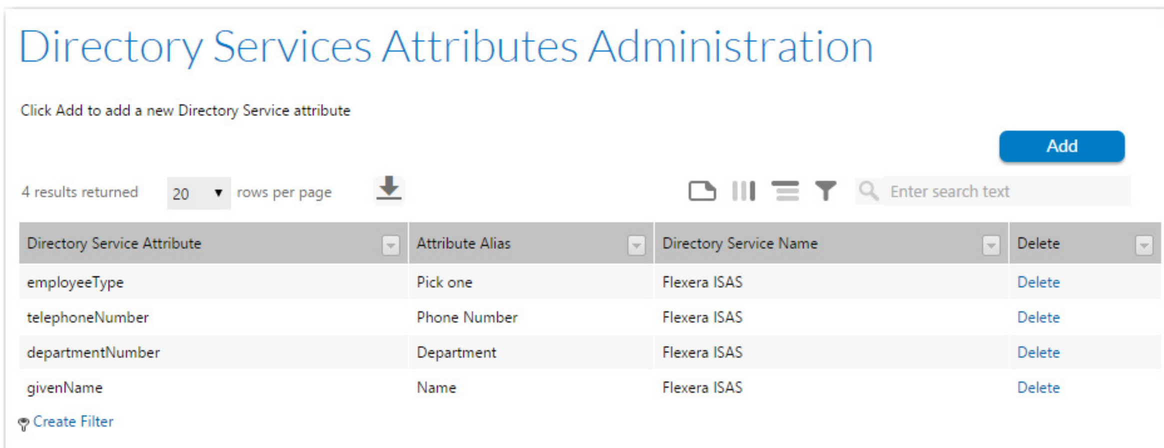


Figure 4-8: Directory Services Attributes Administration Page

Directory service attributes can be used when defining data elements. When a data element is defined as a directory service attribute, when this data element appears during a data entry step in a workflow, information about the logged in user will be pulled from the directory service to populate those fields, such as: department, location, employee number, etc.

The **Directory Services Attributes Administration** page lists the following information about each attribute:

Table 4-9 • Directory Services Attributes Administration Page Options

Option	Description
Directory Service Attribute	The name of an attribute available from one of your defined directory services. Attributes are used in directory services protocol to access information directories, such as `employeeNumber` or `documentAuthor`.
Attribute Alias	A more user-friendly name for a directory service attribute. For example, you may choose to give a directory service called homePhone the friendly name **`Home telephone number`**.

Table 4-9 • Directory Services Attributes Administration Page Options (cont.)

Option	Description
Directory Service Name	The directory service this attribute belongs to.

Add Directory Service Attributes Page

Edition • *This feature applies to Workflow Manager only.*

When you click **Add** on the **Directory Services Attributes Administration** page to add a new directory service attribute into the database, the **Add Directory Service Attributes** page opens.

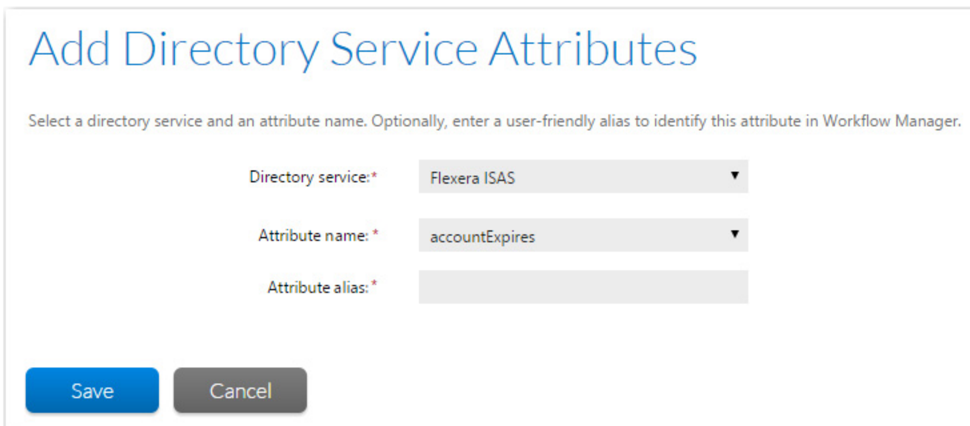


Figure 4-9: Add Directory Service Attributes Page

The **Add Directory Service Attributes** page includes the following options:

Table 4-10 • Add Directory Service Attributes Page Options

Option	Description
Directory service	Select the directory service whose attribute you want to make available to workflow templates from the **Directory Servic**e list. Refer to Creating a New Directory Service Connection for more information about setting up connections to your directory services.
Attribute name	Lists all of the directory service attributes from the chosen directory service. Select the one you want to add to the Workflow Manager database. An example of a directory service attribute might be `employeeNumber` or `documentAuthor`.
Attribute alias	Enter a more user-friendly identifier for the attribute in the **Attribute Name** field. For example, you may want to identify the `documentAuthor` attribute as **`Author`** in Workflow Manager.

Table 4-10 • Add Directory Service Attributes Page Options (cont.)

Option	Description
Save	Click to register the defined directory service attribute. ***Tip •*** *If Workflow Manager is unable to connect to the server (and no attributes are retrieved), the* ***Save*** *button is disabled.*

When a data element is defined as a directory service attribute during Workflow Manager template creation, when this data element appears in the workflow, information will be pulled from the directory service to populate those fields, such as:

Figure 4-10: Example of Fields Populated With Directory Services Attributes

However, if the user is not connected using Directory Service authentication, then the fields will be left blank and will be enabled.

5

Using Workflow Manager

Workflow Manager helps enterprises efficiently manage and automate the application readiness and software license optimization processes to streamline the preparation, deployment, and license management of applications. Template driven workflow maximizes productivity of the IT team by standardizing and automating change management, asset management, and other ITIL processes related to the enterprise application lifecycle. It increases data accuracy through real time updates to the AdminStudio and FlexNet Manager Suite repositories as well as CMDBs and ITSM systems. It also tracks projects against service level agreements (SLA) and generates reports on the status of projects, resources and SLAs.

The Workflow Manager user documentation is presented in the following section

Table 5-1 • Workflow Manager User Documentation

Topic	Content
Getting Started	Lists Workflow Manager System Requirements, describes the steps you need to start using Workflow Manager, and explains how to customize Workflow Manager for your organization.
About Workflow Manager	Explains Workflow Manager concepts.

Table 5-1 • Workflow Manager User Documentation (cont.)

Topic	Content
Using Workflow Manager	Includes how to perform the following tasks: • **Submitting and Monitoring Requests**—Includes procedures that are related to submitting, monitoring, and reporting on Requests. See Submitting and Monitoring Workflow Requests. • **Completing Requests**—Includes procedures that are related to performing Request tasks. See Completing Workflow Requests. • **Generating and Viewing Workflow Manager Reports**—Explains how to view existing reports or create custom reports, and how to export report data. See Generating and Viewing Workflow Manager Reports. • **Performing Administrative Tasks**—Includes administrative procedures such as creating users and groups, defining roles and permissions, directory services configuration, creating templates and projects. See Performing Administrative Tasks.
Workflow Manager Reference	Includes information on the Workflow Manager interface, organized by page and dialog box. Additional reference information on the Workflow Manager configuration file, extending Workflow Manager, and using custom plug-ins with Workflow Manager is also provided.

Getting Started

Edition • *This feature applies to Workflow Manager only.*

You can use the information on the Workflow Manager **Getting Started** page, which is opened by selecting **Getting Started** on the **Home** menu, to help you quickly get started using Workflow Manager.

The **Process Overview** tab provides a diagram that illustrates how users interact with Workflow Manager. The **First Use Tasks** tab lists the steps you may need to take before starting to use Workflow Manager for the first time. And the **Help** tab lists available help resources.

- Workflow Manager Process Overview
- First Use Tasks
- Getting Help
- Viewing Dashboard Reports

Workflow Manager Process Overview

Workflow Manager gives application owners (consumers) an easy way to submit workflow requests to IT management, who can then approve and assign the request to the most available software packager (administrators). Software packagers receiving a request see at a glance each process step and the tasks that they need to complete. As they complete their tasks, Workflow Manager automatically routes the request on to the next process step, improving efficiency while ensuring steps are never overlooked.

The following diagram illustrates how you can use Workflow Manager to connect IT management, software packagers, and application owners to streamline the packaging process:

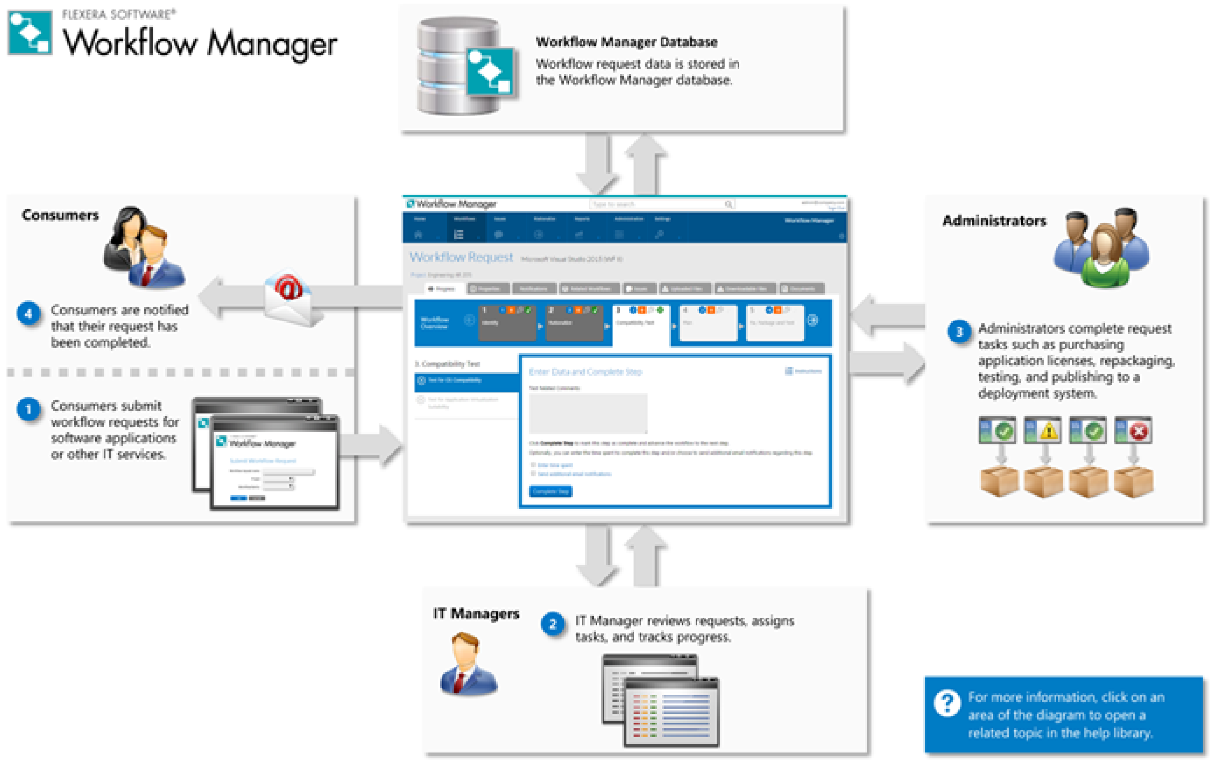


Figure 5-1: Workflow Manager Process Overview

The Workflow Manager workflow request lifecycle consists of the following steps:

- Step 1: End User Submits a Workflow Request
- Step 2: IT Manager Reviews Request and Assigns Tasks
- Step 3: Packagers Repackage Application and Perform Testing
- Step 4: End User is Notified that Application is Ready for Installation

Step 1: End User Submits a Workflow Request

An end user, defined as a consumer in the Workflow Manager system, could be a person in your Accounting department who wants a copy of Excel installed, or a System Administrator at one of your client companies who wants a copy of Photoshop repackaged and ready for distribution.

When submitting a request, the user is prompted to enter data required by the specified workflow template that was used to create this request. When the workflow request has been submitted, Workflow Manager automatically sends an email to the workflow administrator.

The following topics cover tasks that an end user might perform:

- Submitting a Workflow Request
- Working With Issues

- Monitoring the Progress of a Workflow Request

Step 2: IT Manager Reviews Request and Assigns Tasks

The IT manager, defined as a workflow administrator in the Workflow Manager system, reviews the application-related data that was submitted by the consumer.

- **If the submitted data is satisfactory**, the administrator advances the workflow and assigns people to act in the various roles that have been defined. See Updating a Workflow Request and Assigning Users to Workflow Requests.
- **If the submitted data is not satisfactory or incomplete**, the administrator clicks **Reject Data** to unlock the submitted data for editing. Workflow Manager automatically sends an email to the consumer, who can then modify and resubmit the data.

The IT Manager then tracks the progress of workflow requests to see if they are being completed on time.

The following topics cover tasks that an IT manager might perform:

- Initiating Work on a Workflow Request
- Monitoring the Progress of a Workflow Request
- Tracking a Workflow Request or Workflow Step’s SLA Status
- Viewing Dashboard Reports

Step 3: Packagers Repackage Application and Perform Testing

Software packagers at the administrator company perform the tasks detailed on the workflow. As they perform each step, the appropriate personnel at both the consumer and administrator company are informed.

- Completing Workflow Requests
- Viewing Your Workflow Request Assignments
- Monitoring the Progress of a Workflow Request
- Working With Issues

Step 4: End User is Notified that Application is Ready for Installation

When all phases of the workflow have been completed, the person who originally submitted the request is informed that his application is ready for his use.

First Use Tasks

Before you get started using Workflow Manager for the very first time, there are a few steps you need to take to set up Workflow Manager for your organization.

- Login Using Super User Account and Change Password
- Create an Administrator Company and System Administrator Account
- Create Administrator Roles and Administrator User Accounts
- Create a Consumer Company, Consumer Roles, and Consumer User Accounts
- Create a Workflow Template

- Create a Project
- Assign Permissions and Notification Settings to the Workflow Template

Login Using Super User Account and Change Password

The default **AMSSuper** role has full rights to administer and use AdminStudio Enterprise Server and Workflow Manager. During installation, the following super user account is created and assigned the **AMSSuper** role:

- **User Name**: `suams`
- **Password**: `suams`

When you are logged in to Workflow Manager under the Super User account (which has the AMSSuper role), you can manage roles and accounts from all companies. All other roles are associated with a specific company within your organization, and so grant access only to roles, accounts and other entities belonging to that company.

Only an operator assigned the **AMSSuper** role can create administrator companies. All other tasks should be performed by a person belonging to a workflow administrator role.

Note • *The **AMSSuper** role is not listed on the **Role Administration** page unless you are logged on using the* `suams` *account.*

Upon first login using the `suams` account, it is important that you change the password.

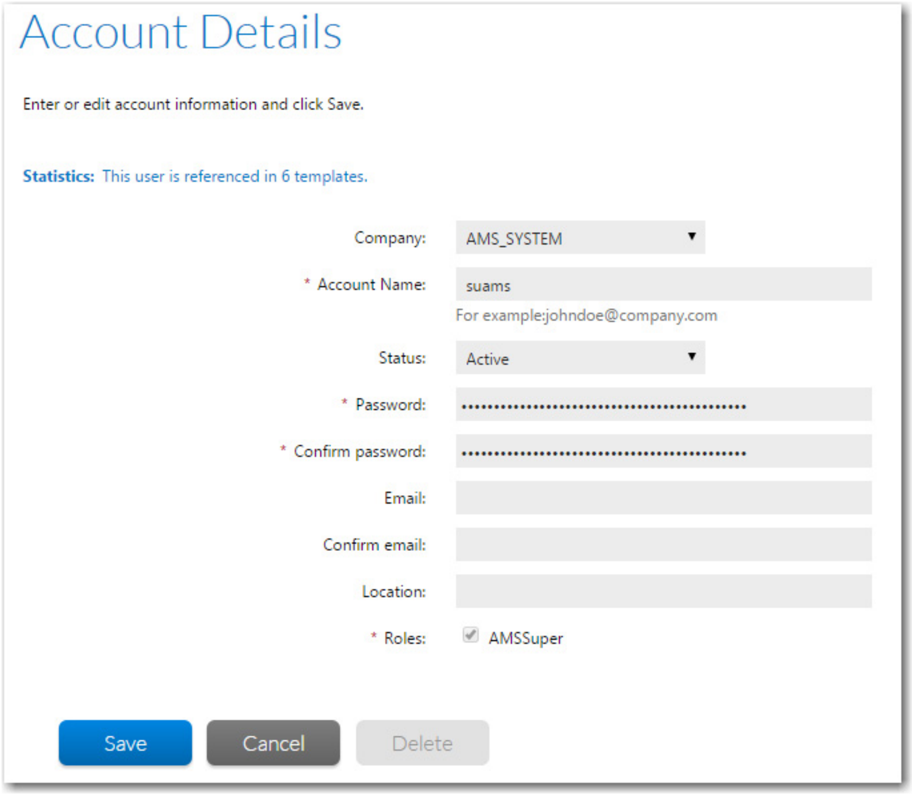
Task ***To login to Super User account and change password:***

1. Login to Workflow Manager using the following credentials:

   User Name: `suams`

   Password: `suams`

2. On the **Settings** menu, click **Accounts and Groups**. The **Account Administration** page opens.
3. Click on `suams`. The **Account Details** page opens.



4. Use the **Password** and **Confirm password** fields to change the password.

5. Click **Save**.

Create an Administrator Company and System Administrator Account

When Workflow Manager is installed, two sample companies are created: Workflow Administrator and Workflow Consumer.

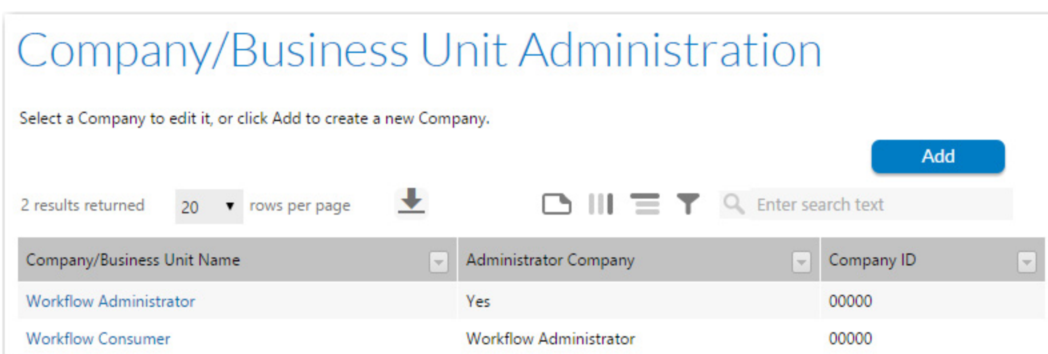


Figure 5-2: Sample Workflow Manager Companies

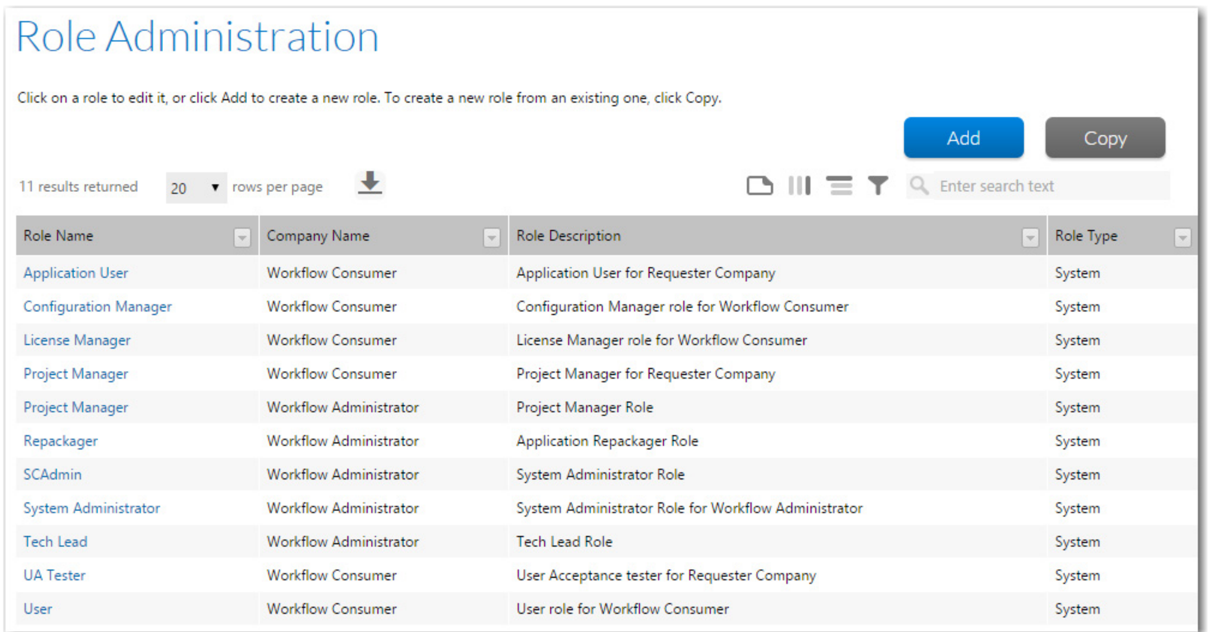
Rather than use the sample Workflow Administrator company, It is best practices to create your own administrator company customized for your organization.

Only an operator assigned the **AMSSuper** role can create administrator companies. Therefore, after you have logged in using the Super User account, as described in Login Using Super User Account and Change Password, you should to create a new administrator company.

For more information, see Creating a New Company.

Create Administrator Roles and Administrator User Accounts

Workflow Manager is installed with default **System Roles** which cannot be modified. These roles were created based upon the typical needs of people accessing the product, and have only the permissions that these people would require to perform their day-to-day tasks. You can assign these system roles to people within your enterprise, or can copy and then modify these roles to customize them for your organization.



Role Name	Company Name	Role Description	Role Type
Application User	Workflow Consumer	Application User for Requester Company	System
Configuration Manager	Workflow Consumer	Configuration Manager role for Workflow Consumer	System
License Manager	Workflow Consumer	License Manager role for Workflow Consumer	System
Project Manager	Workflow Consumer	Project Manager for Requester Company	System
Project Manager	Workflow Administrator	Project Manager Role	System
Repackager	Workflow Administrator	Application Repackager Role	System
SCAdmin	Workflow Administrator	System Administrator Role	System
System Administrator	Workflow Administrator	System Administrator Role for Workflow Administrator	System
Tech Lead	Workflow Administrator	Tech Lead Role	System
UA Tester	Workflow Consumer	User Acceptance tester for Requester Company	System
User	Workflow Consumer	User role for Workflow Consumer	System

Figure 5-3: System Roles

Any new roles that you create, either manually or by copying and modifying system roles, are considered *user roles*. These can be freely modified.

You also need to create administrator accounts for your new administrator company.

Task ***To create administrator roles and administrator user accounts:***

1. Log in to Workflow Manager using an account belonging to the default `System Administrator` role for the *Workflow Administrator* company. The default account created for this role is called `admin@company.com` and has the password `admin`. See Default System Accounts for more information.

2. Review the default system roles for the administrator company, and copy and customize them for your organization. You should create new roles if required. For information, see:

    - Creating a New Role
    - Copying an Existing Role

- Viewing or Changing an Existing Role

3. Create new administrator user accounts and assign them the roles you have just customized. For more information, see Creating a New Account.

Create a Consumer Company, Consumer Roles, and Consumer User Accounts

A default *Workflow Consumer* company is created to group together roles and accounts for all those people who need to submit workflow requests. If you would prefer to further differentiate between your workflow consumers, you may wish to create additional companies. For example, you could create a **`Sales Department`** company to hold accounts for all consumers in your sales team.

Task ***To create a consumer company, consumer roles, and consumer user accounts:***

1. Log in to Workflow Manager using an account belonging to the default `System Administrator` role for the *Workflow Administrator* company. The default account created for this role is called `admin@company.com` and has the password `admin`.
2. Create a consumer company or companies, as described in Creating a New Company.
3. Review the default system roles for the consumer company, and copy and customize them for your organization. You should create new roles if required. For information, see:
   - Creating a New Role
   - Copying an Existing Role
   - Viewing or Changing an Existing Role
4. Create new consumer user accounts and assign them the roles you have just customized. For more information, see Creating a New Account.

   Note • *You also have the option of importing users and groups from a directory service. For more information, Importing Directory Services Accounts and Groups*

Create a Workflow Template

A workflow template is an ordered set of steps, grouped into workflow phases, that a workflow administrator company follows to complete a task. For example, the process your company uses to approve a software request and deploy some software could be represented by a workflow template. When a project is created, it is associated with one workflow template, and when a workflow request is created for the project, it uses that workflow template, essentially putting the template into action.

A workflow template typically includes multiple workflow phases, each with one or more workflow steps. In the image below, showing the **Workflow Request** page of a software request workflow, there are six phases:

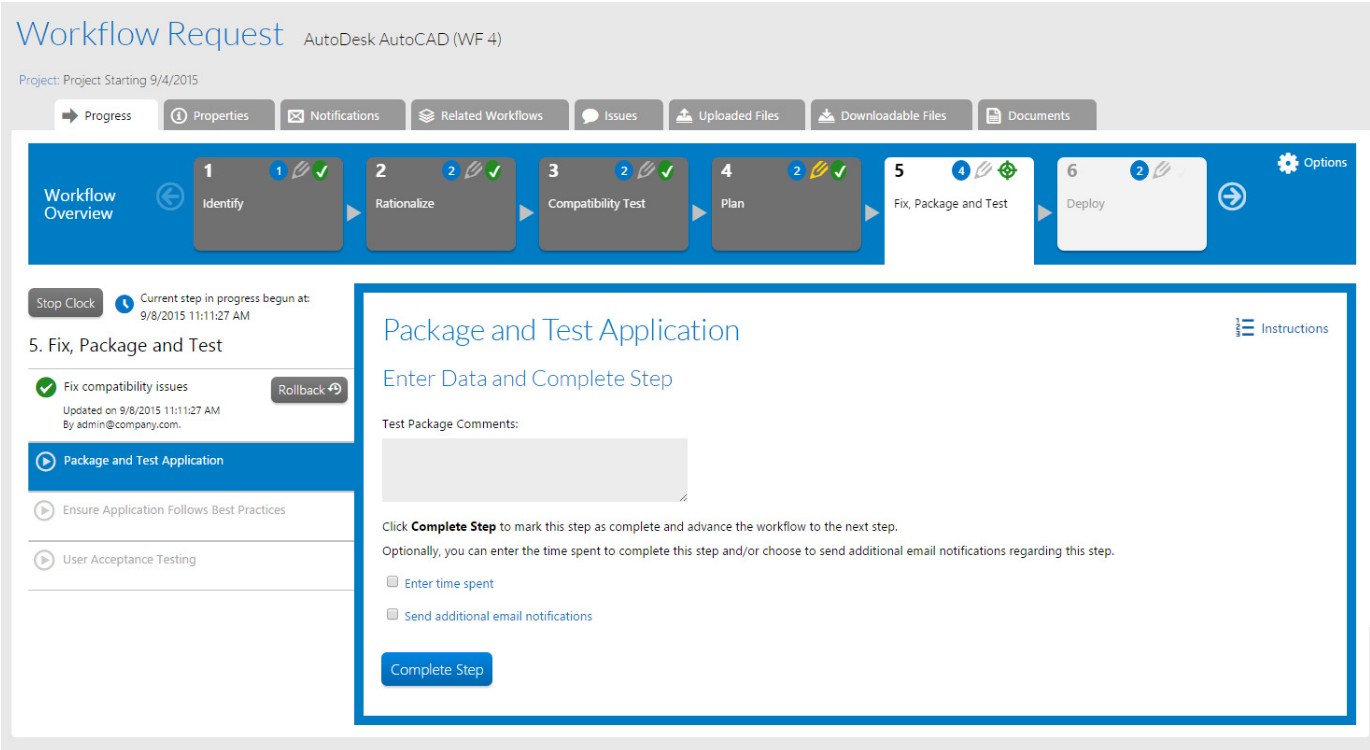


Figure 5-4: Sample Workflow Template

Workflow Manager comes pre-installed with a set of global workflow templates. You can copy these and modify them as required, if they are relevant to your enterprise. Or you can create new templates from scratch.

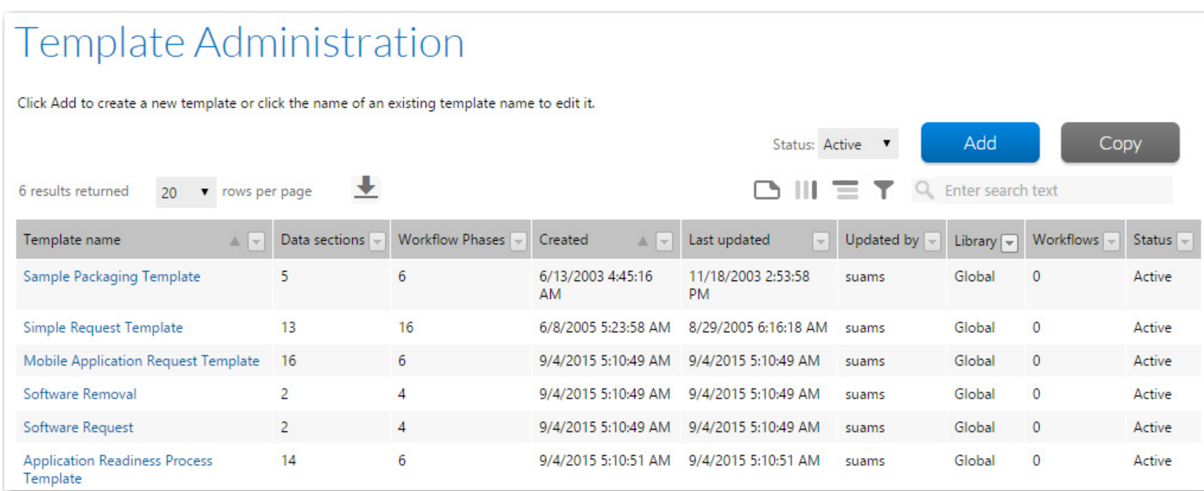


Figure 5-5: Default Templates

Before you can submit a workflow request, you must create a workflow template by either copying a global template or creating a new template.

Task ***To create a new template:***

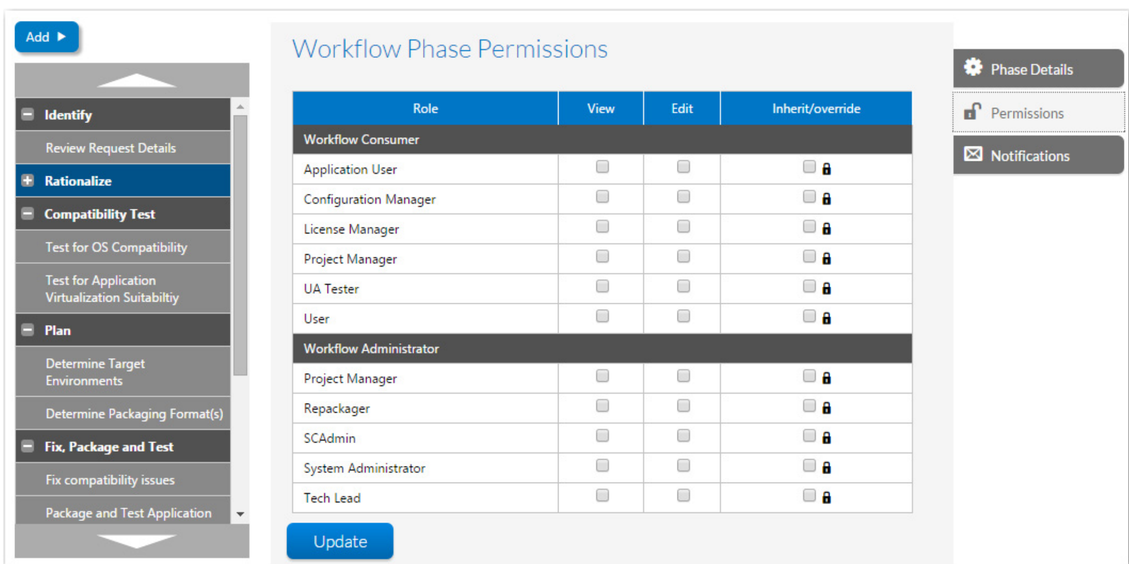
Create one or more templates to base your workflow requests by either copying and editing an existing template or creating new ones. For more information, see the following topics:

- About the Default Workflow Templates
- Copying a Template
- Creating a New Template
- Updating a Template

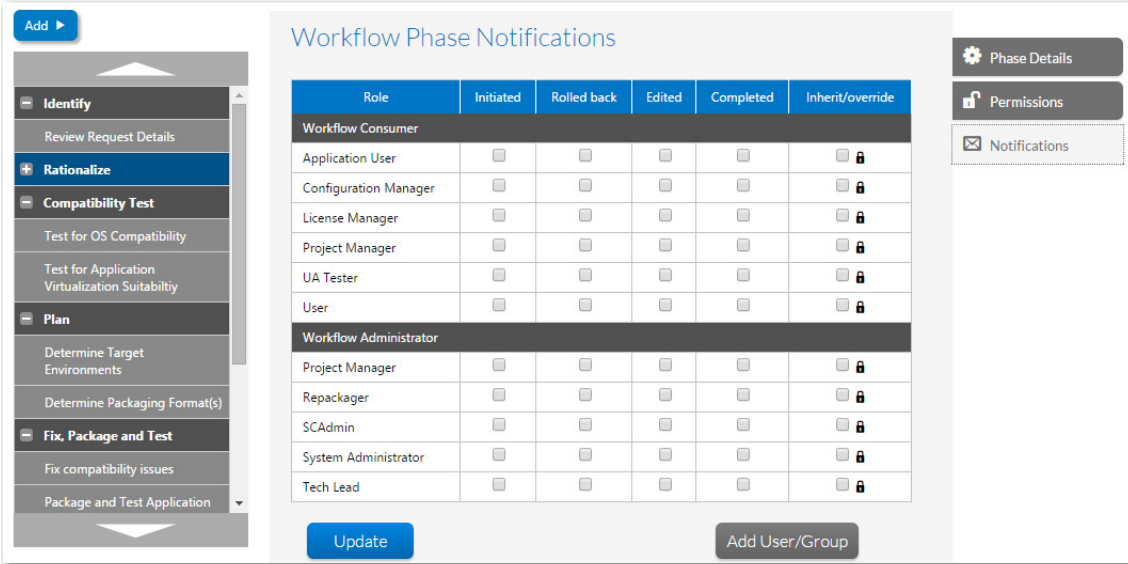
Assign Permissions and Notification Settings to the Workflow Template

You need to assign permissions and email notification settings on a workflow template and its individual workflow phases and steps. These settings determine who can view and/or work on the workflow request, and who is notified when workflow-related events occur. When a project is created using a workflow template, the settings from the template are copied to the project.

- **Permissions**—Permission settings on a workflow template determine which users are able to view and edit each workflow phase/step. Permission settings are assigned to roles.



- **Email notifications**—Workflow Manager sends notification emails when certain events occur, such as when a workflow step is advanced, edited, completed, or rolled back; when an issue is created or responded to; or when a workflow request is past due. Notification settings that are set on a workflow template determine which users are sent these email notifications. For some events, email notification settings are set on an entire workflow, but for other events, they are set on individual phases and steps.



You specify notification and permissions settings on subtabs of the **Template Details** page.

- Notification settings can be made on an entire template, a workflow phase, or a workflow step.
- Permission settings can be made on a workflow phase, workflow step, data group, or data element.

For instructions on how to assign permission notification settings on a workflow template, see Assigning Permissions and Notification Settings on a Workflow Template.

Note • *You can also override the default email notification settings for an individual workflow request, as described in Overriding Default Email Notification Settings for an Individual Workflow Request.*

Create a Project

The last step you need to take before you are ready to create workflow requests is to create a project.

A project specifies the terms under which the workflow administrators will complete requests for the workflow consumers. It includes Service Level Agreement (SLA) information to enforce project and workflow request deadlines.

A project is always associated with only one workflow template. These templates define the steps that workflow administrators must carry out when completing a workflow request.

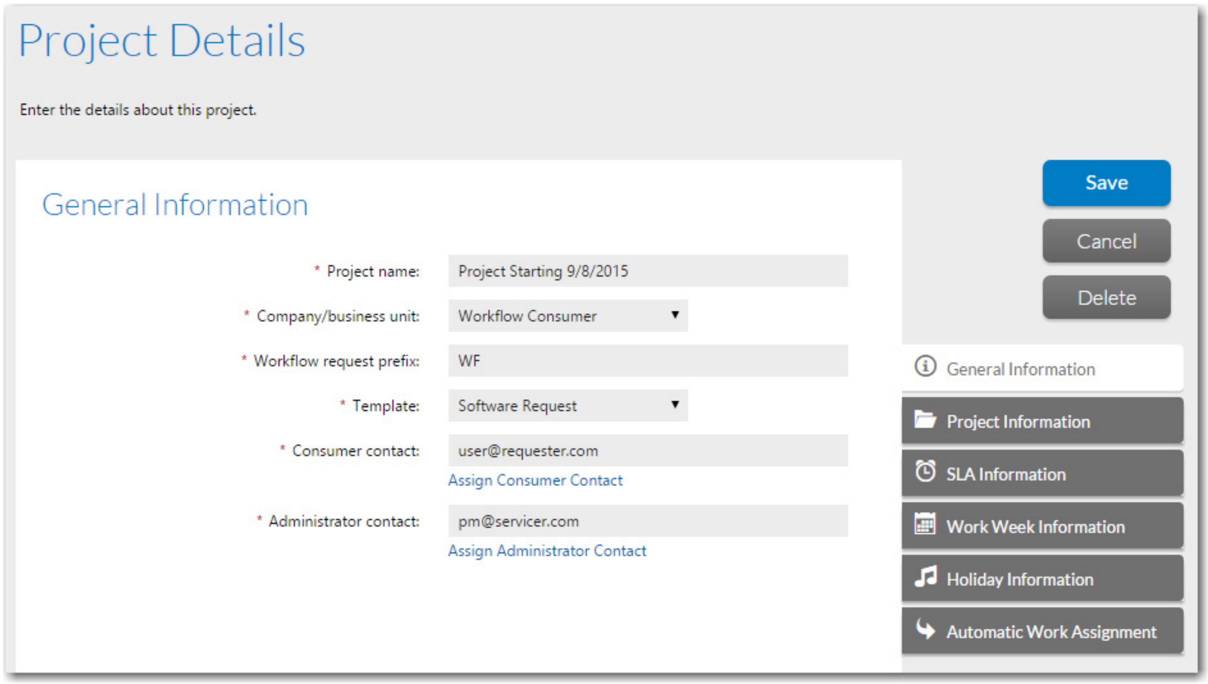


Figure 5-6: Project Details Page / General Information Tab

When you create a project, you must select a workflow template in the **Template** field of the **Project Details** page. Global templates cannot be selected. Therefore, before you can create a project, you need to have completed the steps in Create a Workflow Template.

For information on creating a project, see Creating a New Project.

Getting Help

There are several ways to obtain help on using Workflow Manager.

Online Help Library

You can access the Workflow Manager online help by clicking the help icon in the navigation bar the Workflow Manager interface.

You can also view the Workflow Manager help library at any time by visiting Flexera HelpNet, an online library of Flexera product documentation:

https://helpnet.flexerasoftware.com/workflowmanager2019/default.htm

PDFs

You can download the Workflow Manager Installation and User Guide PDFs from the Flexera Documentation Center:

https://flexeracommunity.force.com/customer/CCDocumentation

Knowledge Base

Additional help may be available by searching the Flexera Knowledge Base:

https://flexeracommunity.force.com/customer/CCKnowledgeBase

Viewing Dashboard Reports

The Dashboard view of Workflow Manager provides bar and line charts that provide summary information about your workflow requests.

- Viewing a Summary Dashboard Report of All Workflow Requests
- Viewing Dashboard Reports for an Individual Project
- Modifying Dashboard Queries

Viewing a Summary Dashboard Report of All Workflow Requests

On the **Dashboard** page of the Home menu, a bar and line chart are displayed that, by default, provides status summary information for all of workflow requests.

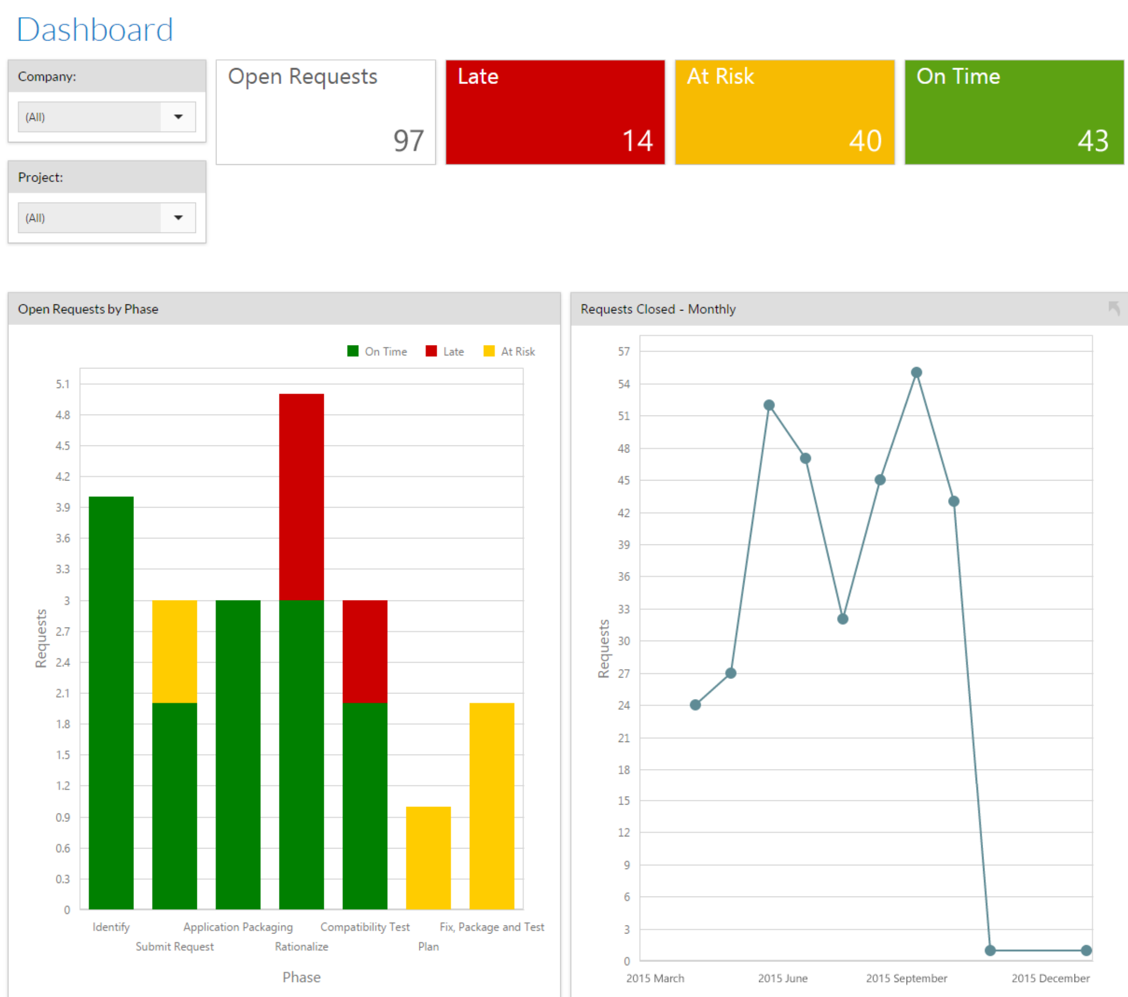
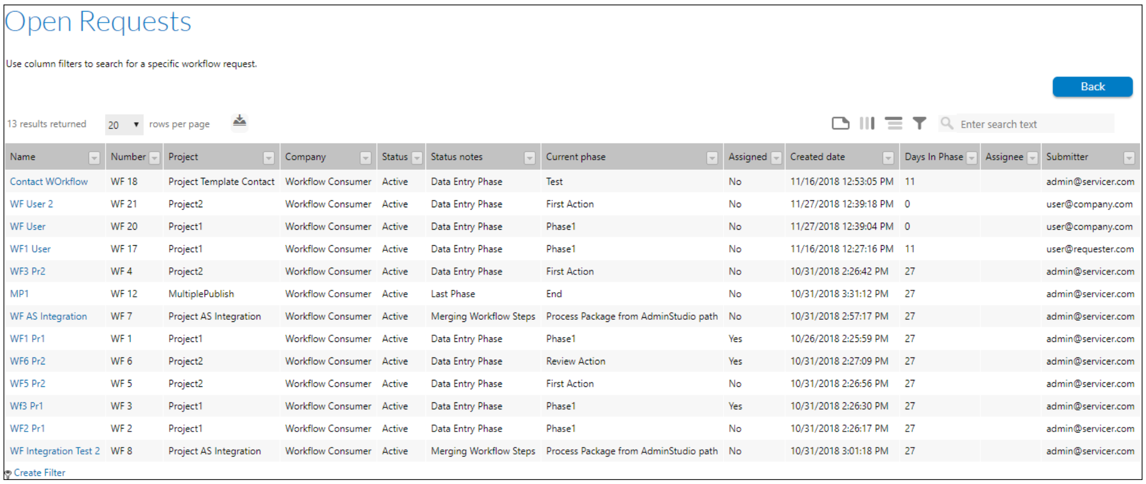


Figure 5-7: Dashboard Report

It lists the total number of workflow requests that are open, and also breaks down the total number by current SLA status: Late, At Risk, or On Time.

Task ***To view the Open Requests:***

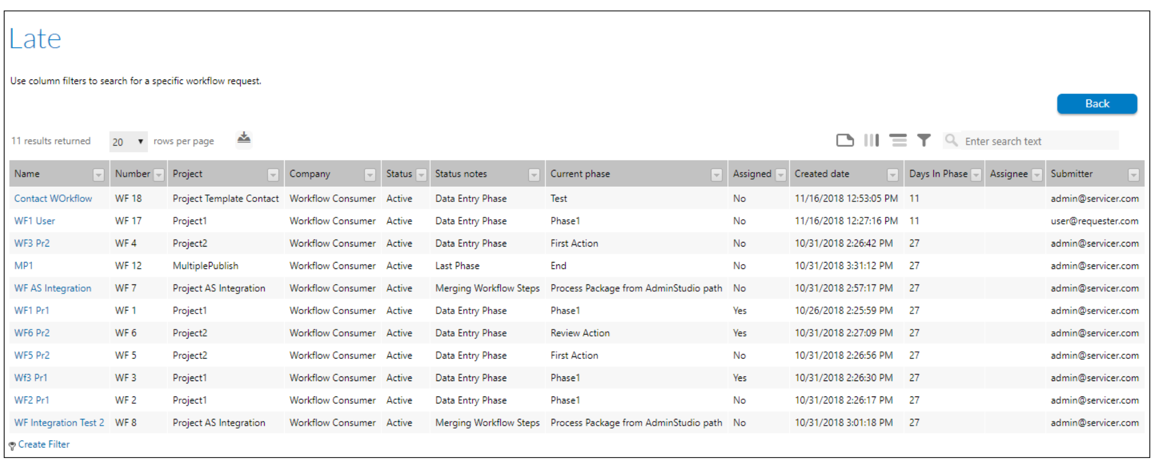
1. Click **Open Requests** on the dashboard.
2. Click the required user to view/modify the Open Workflow Requests.



Name	Number	Project	Company	Status	Status notes	Current phase	Assigned	Created date	Days In Phase	Assignee	Submitter
Contact WOrkflow	WF 18	Project Template Contact	Workflow Consumer	Active	Data Entry Phase	Test	No	11/16/2018 12:53:05 PM	11		admin@servicer.com
WF User 2	WF 21	Project2	Workflow Consumer	Active	Data Entry Phase	First Action	No	11/27/2018 12:39:18 PM	0		user@company.com
WF User	WF 20	Project1	Workflow Consumer	Active	Data Entry Phase	Phase1	No	11/27/2018 12:39:04 PM	0		user@company.com
WF1 User	WF 17	Project1	Workflow Consumer	Active	Data Entry Phase	Phase1	No	11/16/2018 12:27:16 PM	11		user@requester.com
WF3 Pr2	WF 4	Project2	Workflow Consumer	Active	Data Entry Phase	First Action	No	10/31/2018 2:26:42 PM	27		admin@servicer.com
MP1	WF 12	MultiplePublish	Workflow Consumer	Active	Last Phase	End	No	10/31/2018 3:31:12 PM	27		admin@servicer.com
WF AS Integration	WF 7	Project AS Integration	Workflow Consumer	Active	Merging Workflow Steps	Process Package from AdminStudio path	No	10/31/2018 2:57:17 PM	27		admin@servicer.com
WF1 Pr1	WF 1	Project1	Workflow Consumer	Active	Data Entry Phase	Phase1	Yes	10/26/2018 2:25:59 PM	27		admin@servicer.com
WF6 Pr2	WF 6	Project2	Workflow Consumer	Active	Data Entry Phase	Review Action	Yes	10/31/2018 2:27:09 PM	27		admin@servicer.com
WF5 Pr2	WF 5	Project2	Workflow Consumer	Active	Data Entry Phase	First Action	No	10/31/2018 2:26:56 PM	27		admin@servicer.com
Wf3 Pr1	WF 3	Project1	Workflow Consumer	Active	Data Entry Phase	Phase1	Yes	10/31/2018 2:26:30 PM	27		admin@servicer.com
WF2 Pr1	WF 2	Project1	Workflow Consumer	Active	Data Entry Phase	Phase1	No	10/31/2018 2:26:17 PM	27		admin@servicer.com
WF Integration Test 2	WF 8	Project AS Integration	Workflow Consumer	Active	Merging Workflow Steps	Process Package from AdminStudio path	No	10/31/2018 3:01:18 PM	27		admin@servicer.com

Task ***To view the Late workflow requests:***

1. Click ***Late*** on the dashboard.
2. Click the required user to view/modify the Late Workflow Requests.

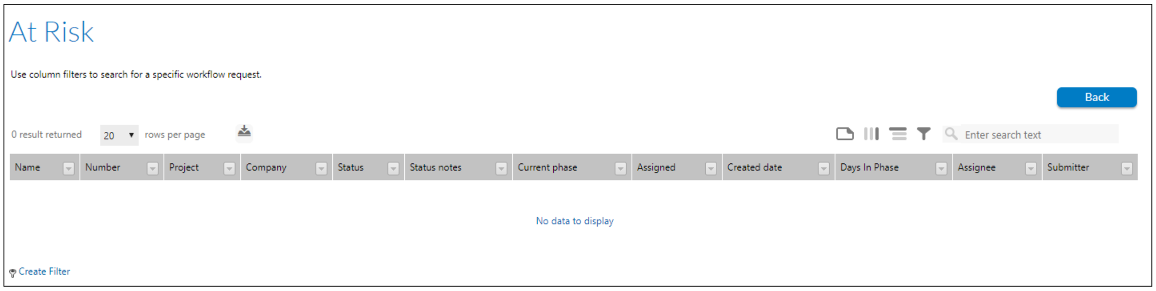


Name	Number	Project	Company	Status	Status notes	Current phase	Assigned	Created date	Days In Phase	Assignee	Submitter
Contact WOrkflow	WF 18	Project Template Contact	Workflow Consumer	Active	Data Entry Phase	Test	No	11/16/2018 12:53:05 PM	11		admin@servicer.com
WF1 User	WF 17	Project1	Workflow Consumer	Active	Data Entry Phase	Phase1	No	11/16/2018 12:27:16 PM	11		user@requester.com
WF3 Pr2	WF 4	Project2	Workflow Consumer	Active	Data Entry Phase	First Action	No	10/31/2018 2:26:42 PM	27		admin@servicer.com
MP1	WF 12	MultiplePublish	Workflow Consumer	Active	Last Phase	End	No	10/31/2018 3:31:12 PM	27		admin@servicer.com
WF AS Integration	WF 7	Project AS Integration	Workflow Consumer	Active	Merging Workflow Steps	Process Package from AdminStudio path	No	10/31/2018 2:57:17 PM	27		admin@servicer.com
WF1 Pr1	WF 1	Project1	Workflow Consumer	Active	Data Entry Phase	Phase1	Yes	10/26/2018 2:25:59 PM	27		admin@servicer.com
WF6 Pr2	WF 6	Project2	Workflow Consumer	Active	Data Entry Phase	Review Action	Yes	10/31/2018 2:27:09 PM	27		admin@servicer.com
WF5 Pr2	WF 5	Project2	Workflow Consumer	Active	Data Entry Phase	First Action	No	10/31/2018 2:26:56 PM	27		admin@servicer.com
Wf3 Pr1	WF 3	Project1	Workflow Consumer	Active	Data Entry Phase	Phase1	Yes	10/31/2018 2:26:30 PM	27		admin@servicer.com
WF2 Pr1	WF 2	Project1	Workflow Consumer	Active	Data Entry Phase	Phase1	No	10/31/2018 2:26:17 PM	27		admin@servicer.com
WF Integration Test 2	WF 8	Project AS Integration	Workflow Consumer	Active	Merging Workflow Steps	Process Package from AdminStudio path	No	10/31/2018 3:01:18 PM	27		admin@servicer.com

Task ***To view the At Risk Workflow Requests:***

1. Click ***At Risk*** on the dashboard.

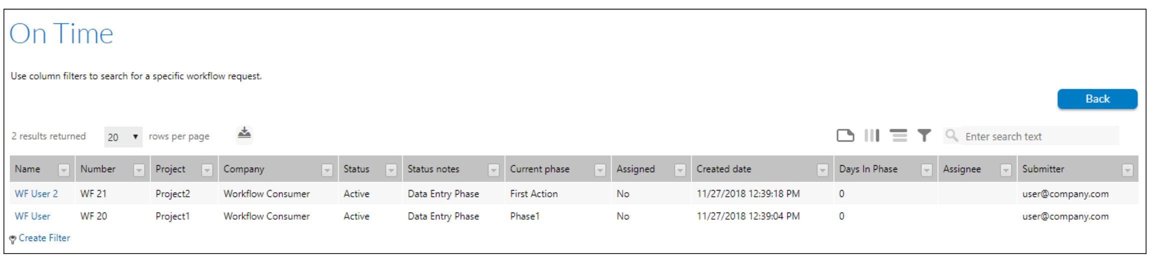
2. Click the required user to view/modify the At Risk Workflow Requests.



Task ***To view the On Time workflow requests:***

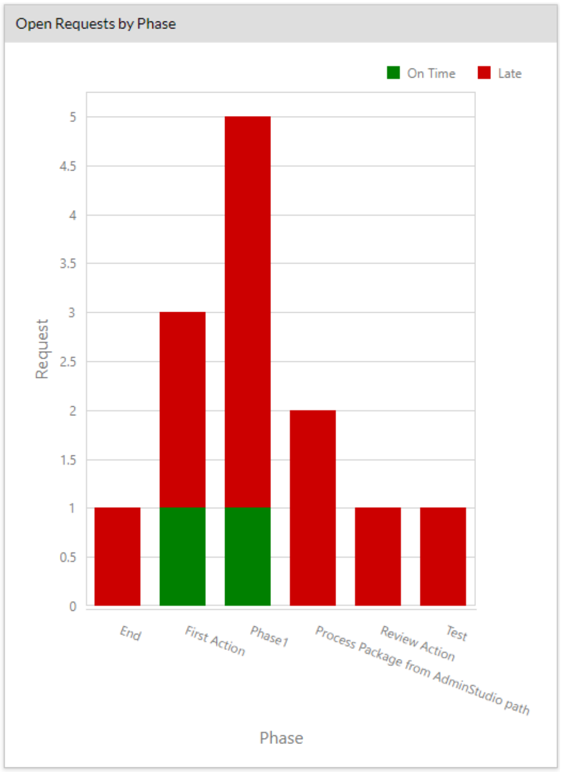
1. Click ***On Time*** on the dashboard.

2. Click the required user to view/modify the On Time Workflow Requests.

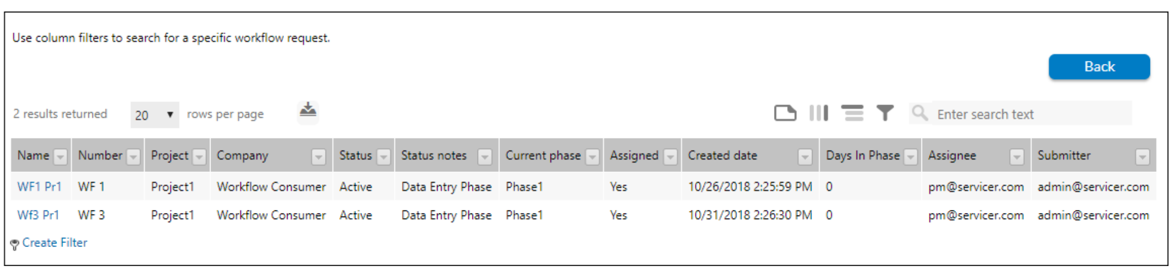


Task ***To view the Open Requests by Phase:***

1. On the bar chart, click on the required phase.



2. Click the required user to view/modify the phase.



Use column filters to search for a specific workflow request.

Back

2 results returned 20 rows per page

Enter search text

Name	Number	Project	Company	Status	Status notes	Current phase	Assigned	Created date	Days In Phase	Assignee	Submitter
WF1 Pr1	WF 1	Project1	Workflow Consumer	Active	Data Entry Phase	Phase1	Yes	10/26/2018 2:25:59 PM	0	pm@servicer.com	admin@servicer.com
Wf3 Pr1	WF 3	Project1	Workflow Consumer	Active	Data Entry Phase	Phase1	Yes	10/31/2018 2:26:30 PM	0	pm@servicer.com	admin@servicer.com

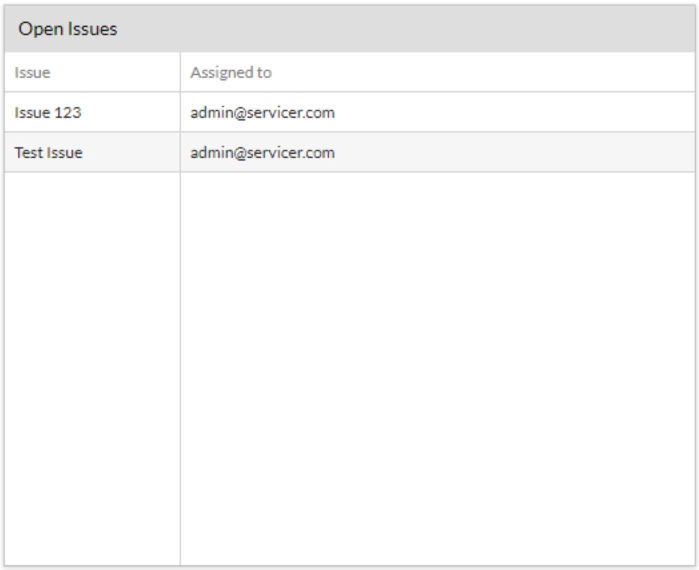
Create Filter

The lower portion of the dashboard report includes the following additional information:

- **Open Issues**—List of all open issues.

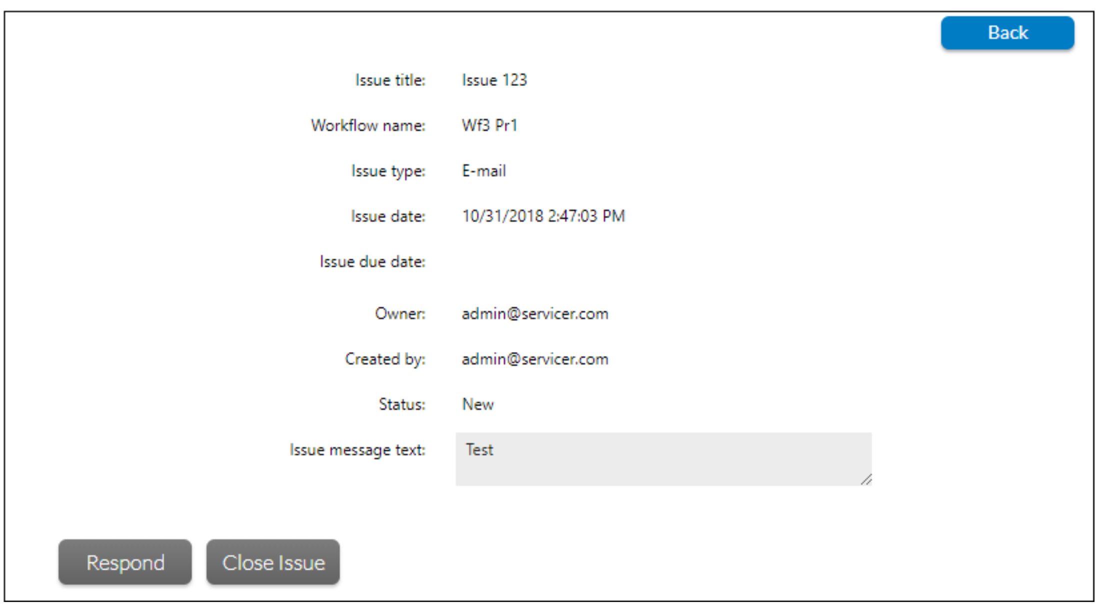
Task ***To respond/close the Open Issue:***

1. Click on the required open issue.



2. Click any of the below options:

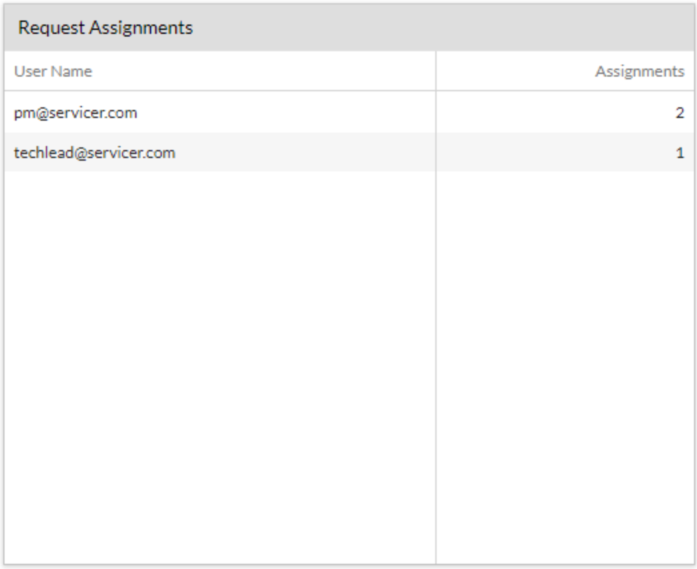
- **Respond** - Respond to the open issue
- **Close Issue** - Without responding, close the open issue



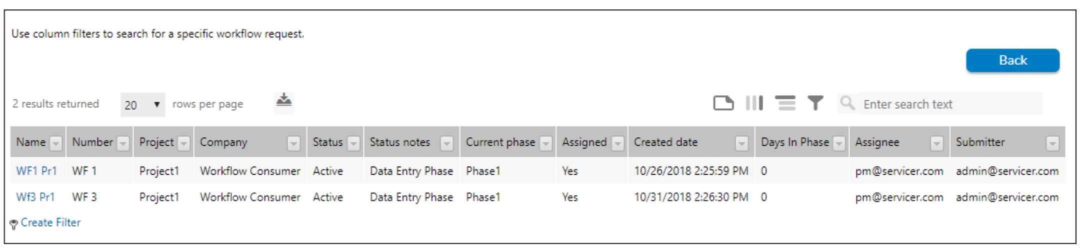
- **Request Assignments**—Total number of workflow request assignments broken down by user.

Task ***To view the Request Assignments for a user:***

1. Click on the required User Name.



2. Click on the required Name to view that particular request assignments of a user.



Task ***To view your Open Requests as a Consumer Company User:***

1. Click on your required request.

My Open Requests

Request	Status	Phase
WF User	On Time	Phase1
WF User 2	On Time	First Action

Note • *In order to view your Open Requests, you need to log in to view the below.*

The workflow request opens.

Viewing Dashboard Reports for an Individual Project

If you make a selection from the Company and Project list, the report will be filtered to display information only about the selected product.

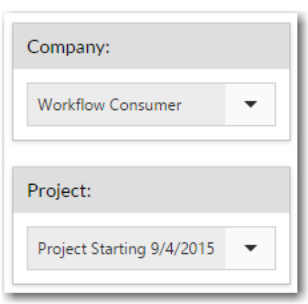


Figure 5-8: Company and Project Selection List

Modifying Dashboard Queries

You can modify dashboard queries to control the projects that are listed in the **Project** list on the **Dashboard** page.

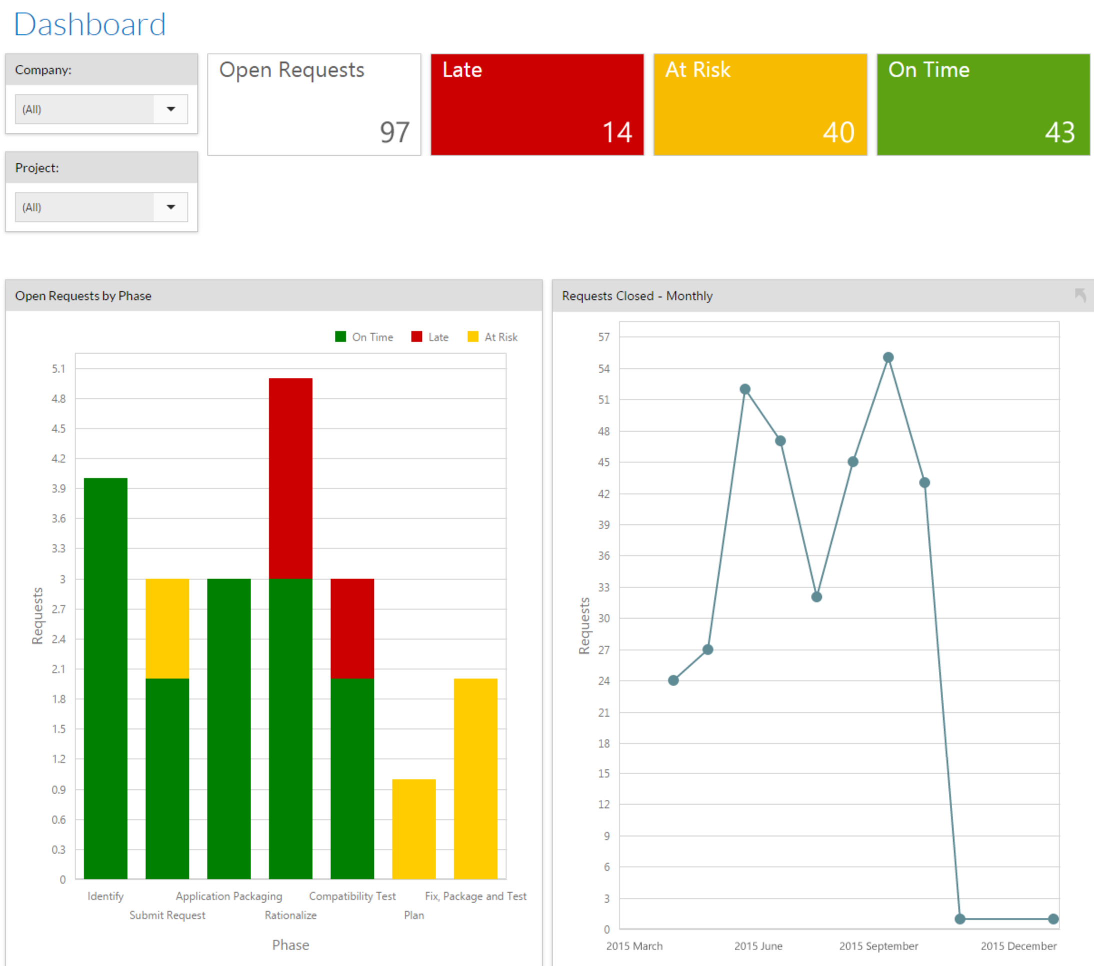


Figure 5-9: Workflow Manager Dashboard Page

You can control the projects that are listed, and also make other modifications to the data displayed on the Dashboard page, by editing the queries in the `XMLQuery.xml` file:

`C:\AdminStudioWebComponents_2019\wwwroot\App_Data\XMLQuery.xml`

In this XML file, nodes that have an ID that begins with `Dashboard_` contain specific SQL queries that Workflow Manager uses to create the Dashboard, such as:

```
<Query id="DashBoard_GetCompanyProjectAdmin">
```

***Important** • You can modify the WHERE conditions of the SQL queries but, do not change the name or number of columns returned by the query.*

About Workflow Manager

In this section, information about Workflow Manager is presented in the following topics:

Table 5-2 • About AdminStudio Workflow Manager Topics

Topic	Description
Benefits of Using Workflow Manager	Lists the many benefits of using Workflow Manager to monitor and control the software packaging, deployment, and management process across your enterprise.
Workflow Manager Concepts	Familiarizes you with the following Workflow Manager concepts: • Workflow Templates • Projects • Workflow Requests • Companies • Workflow Families • About FlexNet Manager Suite
About the Default Workflow Templates	Describes each of the default workflow templates that are installed with the application.
Customizing Workflow Manager for Your Organization	Lists the way that you can customize Workflow Manager to communicate with users, both administrators and consumers.
Searching for Accounts	Explains how the account search controls work throughout Workflow Manager.
How Dates and Times are Displayed	Explains how Workflow Manager displays dates and times in different time zones and languages.
Performing a Search	Explains how to use the search engine to search for workflow requests, projects, or issues.

Benefits of Using Workflow Manager

Workflow Manager is a Web-based workflow-management system. It works in partnership with FlexNet Manager Suite®, giving you a powerful, structured way to process the financial, hardware asset and software asset data in that system.

You can use Workflow Manager to monitor and control the software packaging, deployment, and management process across your enterprise. Workflow Manager enables your IT department to follow a single efficient process when preparing applications for deployment. Using Workflow Manager enables you to:

- Enable consumer self-service through a web-based interface.
- Centrally track and manage the software packaging process across your enterprise.
- Enforce packaging standards and processes.

- Enable IT management to assign requests to the most available packager.
- Automatically route packages on to the next process step after tasks are completed.
- Monitor progress through the migration life cycle and provides real-time status reporting.
- Create a centralized repository of critical package metadata.
- Keep an audit trail of critical consumer and packager communications, both internal and external.
- Generate reports from extensive application data captured by Workflow Manager.

While Workflow Manager can be used to manage the tasks of any type of workflow, it is especially suited to managing software management.

Workflow Manager Concepts

This section familiarizes you with the following Workflow Manager concepts:

Table 5-3 • Workflow Manager Concepts

Concept	Description
Workflow Templates	A Workflow Manager Workflow is an ordered series of phases and steps that an administrator company follows. The sequence of phases and steps is determined by a Template.
Projects	Defined for a specific consumer company using a specific workflow template, which determines the steps that the administrator company carries out in preparing the application for deployment to end users' computers.
Workflow Requests	A record, associated with a project, requesting that a workflow administrator perform a series of steps, typically, to prepare an application for deployment to end user computers or to deploy the prepared application to end user computers.
Companies	Describes the two types of Workflow Manager users: workflow consumers and workflow administrators.
Workflow Families	User-defined categories, such as manufacturer or type of software, that you can set up to group workflow requests.

Workflow Templates

A workflow template is an ordered set of steps, grouped into workflow phases, that a workflow administrator company follows to complete a task. For example, the process your company uses to approve a software request and deploy some software could be represented by a workflow template. When a project is created, it is associated with one workflow template, and when a workflow request is created for the project, it uses that workflow template, essentially putting the template into action.

Workflow Template Example

A workflow template typically includes multiple workflow phases, each with one or more workflow steps. In the image below, showing the **Workflow Request** page of a software request workflow, there are three phases:

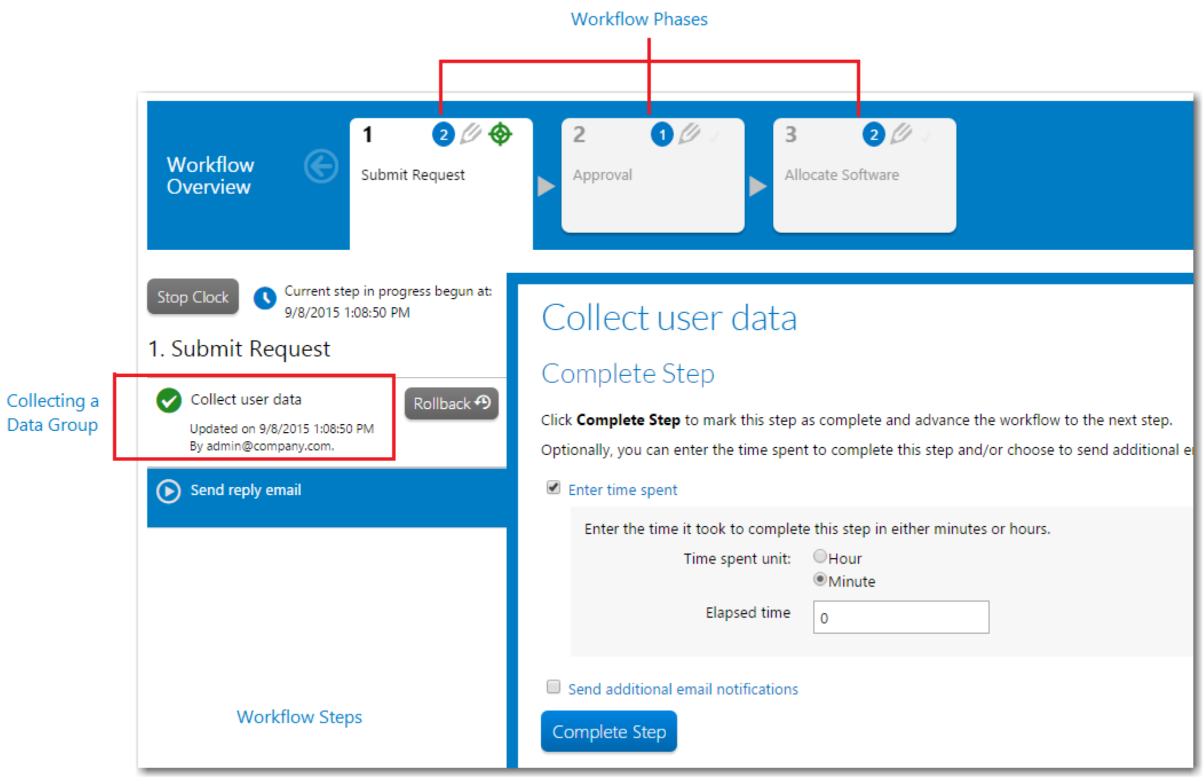


Figure 5-10: The Elements of a Workflow Template

The first workflow step in the first phase is always a data entry step, requiring the person who submitted the workflow request to enter relevant supporting information. In the scenario above, for example, the consumer needs to specify which application they wish to install and on which of their computers, as well as providing a reason for installation and how soon they need the installation done. You can also add extra data collection steps later in the workflow, if required.

Template with Conditions and Branching

A Workflow Manager template can employ conditional branching, meaning the workflow phase which is displayed next can depend on information provided by the consumer. You can also create a template which conditionally shows or hides data groups, data elements or workflow steps depending on consumer input. When a template includes a phase where a branching question is collected, that phase is displayed with a yellow background in the Phase navigation area of the **Progress** tab of the **Workflow Request** page:

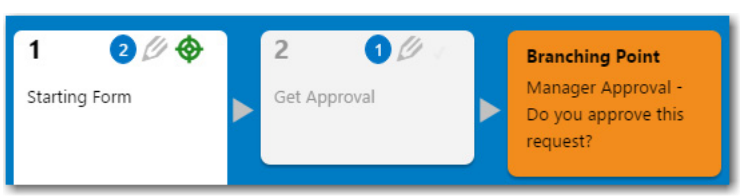


Figure 5-11: Phase Which is a Branching Point

For more information, see Creating Templates That Use Conditions.

Projects

A project specifies the terms under which the workflow administrators will complete requests for the workflow consumers. It includes Service Level Agreement (SLA) information to enforce project and workflow request deadlines.

A project is always associated with one workflow template. These templates define the steps that workflow administrators must carry out when completing a workflow request.

Workflow requests are assigned the role permission and email notification settings of its project's associated workflow template. Role permissions and email notification settings for a workflow template are defined on the **Template Details** page, as described in Assigning Permissions and Notification Settings on a Workflow Template. When a project is created using that workflow template, the workflow template's permissions and notification settings are copied to the project.

***Note** • You can customize the notification settings for an individual workflow request on the **Notifications** tab of the **Workflow Request** page.*

Workflow Requests

A workflow request, associated with a project, is typically generated by a workflow consumer, and asks that a workflow administrator complete a task represented by a workflow template.

A workflow consumer could be a person in your accounting department who wants a copy of Microsoft Excel installed, or the manager of your marketing department, who wants authorization to purchase a copy of Adobe Photoshop for one of their personnel. Such consumers need to submit a workflow request, and will be prompted to provide the information necessary for the request to be completed, as defined in the workflow template.

Then, an appropriate workflow administrator (the IT manager or a person in the accounting department, for example) reviews the workflow request. If everything is in order, he will assign the request to other employees (also defined as workflow administrators, but possibly with limited rights to configure Workflow Manager itself) and they will perform the requested tasks.

Companies

There are two main categories of people who use Workflow Manager:

- *Workflow consumers*, who submit workflow requests using existing workflow templates
- *Workflow administrators*, who action consumer requests, and are also responsible for creating workflow templates and managing roles and permissions (see Managing Roles and Permissions for more information).

In Workflow Manager, we call these categories of people *companies*.

In a typical enterprise, the workflow consumer company will consist of regular employees, responsible for manufacturing the products or delivering the services which that organization specializes in. These are the people who are likely to request hardware and software so that they can complete their tasks.

The workflow administrator company, in contrast, will consist of those people who can authorize such purchasing requests, and deliver or install the items when they arrive. Your finance department, for example, will receive requests to purchase a new software title, while your IT department will need to ensure it is deployed on the relevant workstations. Both these departments are likely to be set up as workflow administrators of Workflow Manager.

Workflow Families

To help your enterprise organize its workflow requests, Workflow Manager allows you to group similar requests into families. A workflow request is assigned to a family by the person who submits it. You can filter by workflow family in searches and various lists.

For example, suppose that there were a large number of requests in your organization for the installation of Various Adobe products, such as Adobe Photoshop and Adobe Dreamweaver. You typically ask one particular employee, Anne, to be responsible for such installations, because she has a lot of experience with the deployment of Adobe applications. You create an `Adobe Installation` family, and ask all employees submitting installation requests for Adobe products to assign their requests to that family. Then, you can quickly identify such workflow requests and assign them all to Anne.

The list of available workflow families can be added to when a workflow request is submitted. The ability to create new workflow families typically rests with the workflow administrators, but may also be granted to certain workflow consumer roles (such as project managers) if desired.

About FlexNet Manager Suite

Edition • *This feature is available for users who have purchased Workflow Manager in conjunction with the FlexNet Manager Suite.*

Software is now used ubiquitously throughout the workplace, and the installation and usage of applications varies constantly and rapidly. Moreover, software vendors are ever more insistent that use of their applications complies with the licensing agreements they have in place. Increasingly, enterprises are looking for a way to compile data from many different business systems, while also dynamically tracking and monitoring the use of hardware assets.

FlexNet Manager Suite forms the cornerstone of your IT compliance initiative. It integrates with strategic business systems to reconcile the software you own against what is installed and used, on what hardware, and subject to what contracts and agreements. This allows you to optimize your software investment and ensure enterprise-wide license compliance. For more information about FlexNet Manager Suite, refer to the *FlexNet Manager Suite Operations Guide*.

What is a FlexNet Manager Suite Workflow?

FlexNet Manager Suite is a complex product, which frequently offers you a number of different ways to perform your daily work. In some cases, it might be of benefit if there was a known method for you to follow to achieve a goal, so that you can guarantee a reliable outcome. A Workflow Manager workflow is precisely that - it is an ordered series of steps, grouped into phases, that a person using Workflow Manager follows to complete a task. Because the phases and steps are defined using a template, workflows are completely configurable by an administrator of Workflow Manager. And as a workflow can be set up to manipulate most of the common entities in FlexNet Manager Suite (such as contracts, end-users, computers, and so on), you should find it possible to define workflows for all of the major processes in your company.

Consider the following scenario. Sally is a salesperson in your organization. She owns both a desktop computer and a laptop, and would like to install an expensive piece of software, *SalesPro*, on her laptop, which she will need to present her sales pitch at client sites. She sends a request through to Lucy, the license manager, specifying the software that she needs and why she needs it. Lucy logs in to FlexNet Manager Suite and checks the available licenses for SalesPro, discovering they are all assigned to other employees. However, she also notices that one of the other salespeople, Sam, has not used SalesPro for several months. Lucy decides to ask Sam if she can harvest his license and assign it to Sally, rather than needing to purchase an extra entitlement. Sam realizes that his role in the company has changed in recent months to be less client-facing, so he tells Lucy to go ahead. Lucy then contacts Colin, the configuration manager, passing on Sam's license key and asking him to transfer the installation to Sally's laptop. Once Colin is done, he informs Lucy, who ensures that the *SalesPro* license now correctly records Sally's installation in FlexNet Manager Suite.

This process is one that will be repeated many times throughout your enterprise, particularly if you employ a large number of people. As you can see, a significant amount of manual intervention is required, to find the relevant information in FlexNet Manager Suite and ensure all people involved are notified and complete their assignments. Using Workflow Manager, you can create a software request workflow template to model this process. Then, whenever an employee submits a new software request, each person in the chain knows at a glance what he or she should be doing, and will be automatically notified by email when new actions are required. As each person completes their tasks, Workflow Manager routes the software request on to the next step in the process, improving efficiency while ensuring that no step is overlooked.

About the Default Workflow Templates

Workflow Manager comes pre-installed with the following global workflow templates. Copy these and modify them as required, if they are relevant to your enterprise.

- Software Request Template [For use with the FlexNet Manager Suite]
- Software Removal Template [For use with the FlexNet Manager Suite]
- Sample Packaging Template and Simple Request Template
- Application Readiness Process Template
- Mobile Application Request Template

Software Request Template

Many organizations have a process which employees must follow when they wish to install new software on their workstations. Workflow Manager provides you with a default **Software Request** template which captures some of the typical steps involved in this task.

Table 5-4 • Steps Involved in the Software Request Template

#	Task	Description
1	**Consumer requests an application**	A workflow consumer wants to install a new application. He either submits a request himself, or asks his manager to do so on his behalf. The submitted request must identify the consumer, which of his computers the application should be installed on, which application is being requested, how urgently the software is required, and what it will be used for. The consumer may choose to install any licensed, authorized application, but only on computers assigned to him.

Table 5-4 • Steps Involved in the Software Request Template

#	Task	Description
2	**Administrator reviews the application request**	Once the consumer submits his request, a workflow administrator must review it. If appropriate information has been provided, the administrator advances the workflow. Otherwise, the consumer is asked to update their request, with appropriate feedback so they know what was missing from their first attempt.
3	**Acknowledgment sent to consumer**	Once the workflow administrator is satisfied with the request, an acknowledgment is sent to the consumer. The acknowledgment will include information to allow the consumer to keep track of his request in Workflow Manager.
4	**License manager reviews the application request**	The license manager is now notified. Her role is to review the consumer's request, and approve or deny the installation. A license manager may deny the request if, for example, there are no free software licenses available to cover a new installation. If she approves the request, she may also choose, from the set of licenses to which the application is linked, a software license to cover the installation. The number of available entitlements for each license is displayed to help her make her choice. Since a license may not yet have been purchased for the consumer's installation, it is not mandatory that she selects one at this stage.
5	**Administrator assigns someone to install the application**	If the license manager approves the request, the workflow administrator must assign someone to install the application. Typically, this task would be given to someone from the workflow administrator group, such as a configuration manager. Alternatively, you may wish to create a new company to cover the people responsible for software installations. See Creating a New Company for details.
6	**Installation is allocated to the license**	If the license manager selected a software license while approving the installation, she will now be required to complete a step which approves the allocation of the consumer's computer or the consumer himself (depending on the license type) to that license in FlexNet Manager Suite.
7	**Consumer is notified**	The last step of the workflow, whether the license manager denies the request (because, perhaps, there are no free licenses available and no budget in the company to purchase any new ones) or not, involves a notification being sent to the original consumer, telling him the outcome of his request. In addition, he can check the status of the workflow at any time. See Tracking a Workflow Request or Workflow Step's SLA Status for details.

Software Removal Template

Software licenses can be expensive, and spending can often be reduced by identifying software which is licensed to an employee, but does not seem to be in use. Unused software can be identified using FlexNet Manager Suite. Once identified, the **Software Removal** workflow template in Workflow Manager defines a set of common steps which your organization might follow to contact the owner of the software, asking them whether it can be uninstalled.

Table 5-5 • Steps Involved in the Software Removal Template

#	Task	Description
1	**License manager checks for an unused application**	The license manager identifies an installation of some expensive software on a computer, for which no usage is reported in FlexNet Manager Suite. She submits a workflow request, asking that the application be uninstalled, so she can harvest the license.
2	**Administrator reviews the request**	A workflow administrator reviews the license manager's request. If he is happy with the information she provided, he advances the workflow by sending a message to the person assigned to the computer, requesting that he uninstall the software.
3	**Software owner reviews the request**	Upon receiving the request, the person with the installed software considers whether he still needs to use the software. If so, he denies the request, explaining why the application is still important for him to complete his work. Otherwise, he can authorize the removal of the software from his machine.
4	**License manager is notified**	Whether the software own approves the request or not, the license manager is notified. As well, she can check the status of the workflow at any time. Refer to Tracking a Workflow Request or Workflow Step's SLA Status for details.
5	**Installation is deallocated from the license**	If the application is to be uninstalled, the license manager is now required to complete a step which deallocates the consumer's computer or the consumer himself (depending on the license type) from whichever software license covers the installation in FlexNet Manager Suite.
6	**Configuration manager is notified**	Finally, if required, the workflow administrator can send a notification to the configuration manager, so the uninstallation of the unused software can be organized.

Sample Packaging Template and Simple Request Template

The **Sample Packaging Template** and **Simple Request Template** are provided as examples of the procedures you could follow to monitor and control the software packaging, deployment, and management process across your enterprise.

These sample templates include tasks for application packaging, discovery, test script development, installation testing, certification procedures, application compatibility testing (conflict analysis and resolution), and user acceptance testing.

Application Readiness Process Template

***Note** • For users who are upgrading from a previous release of Workflow Manager, this template will be named Application Readiness Process Template.*

This template was upgraded in AdminStudio to incorporate the new AdminStudio API web services integration features throughout, and includes suggested phases and steps that take you through application readiness standard practices for desktop applications:

- Importing packages to the Application Catalog
- Gathering application rationalization data
- Testing and reviewing test results
- Performing application rationalization planning
- Repackaging and testing
- Deploying

For more information on the automated AdminStudio integration workflow steps used in this template, see Defining Automated AdminStudio Integration Workflow Steps.

Mobile Application Request Template

***Note** • For users who are upgrading from a previous release of Workflow Manager, this template will be named Mobile Application Request Template.*

This template was upgraded in AdminStudio to incorporate the new AdminStudio API web services integration features throughout, and includes suggested phases and steps to prepare a mobile app for deployment:

- Importing mobile packages to the Application Catalog
- Gathering application rationalization data
- Testing and reviewing test results
- Performing application rationalization planning
- Deploying

For more information on the automated AdminStudio integration workflow steps used in this template, see Defining Automated AdminStudio Integration Workflow Steps.

Customizing Workflow Manager for Your Organization

You can customize the following aspects of Workflow Manager for your enterprise:

- **References panel**—You can add custom links to the Workflow Manager user interface, which are accessible to users from any Workflow Manager page on a slide-out panel. See Adding Custom Links to References Panel.

- **Step completion dialog boxes**—You can display your company's logo on the completion dialog boxes that appear when workflow steps are completed. See Changing the Instruction Tab of the Step Completion Dialog Boxes.
- **Email templates**—You can customize the email templates that are used whenever Workflow Manager sends a notification email. See Customizing Email Templates.
- **Navigation bar**—You can add custom menu items to the main Workflow Manager navigation bar. See Adding Menu Items to the Workflow Manager Navigation Bar.
- **Options menu on Progress tab of Workflow Request page**—You can add custom menu items to the **Options** menu on the **Progress** tab of the **Workflow Request** page. See Adding Menu Items to the Workflow Progress Options Menu.

***Note** • Any modifications that you make to Workflow Manager files could be overwritten if you upgrade or reinstall Workflow Manager. Make notes of any changes that you make so that you can customize Workflow Manager again if necessary.*

Adding Custom Links to References Panel

You can add custom links to the Workflow Manager user interface, which are accessible to users from any Workflow Manager page. To view these custom links, click the References icon in the navigation menu.

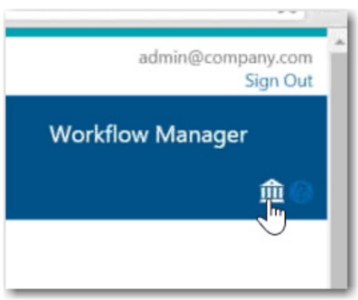


Figure 5-12: References Icon

When you click this link, your custom links appear in a slide-out **References** panel.

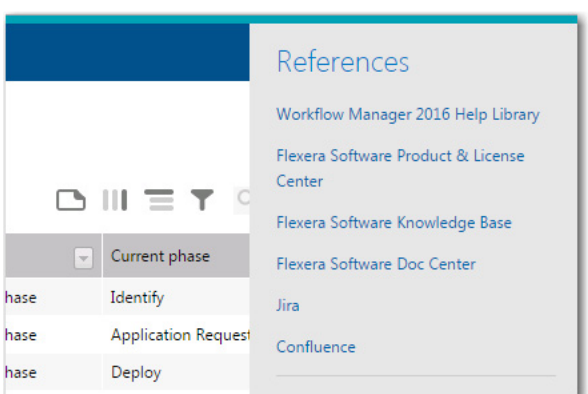


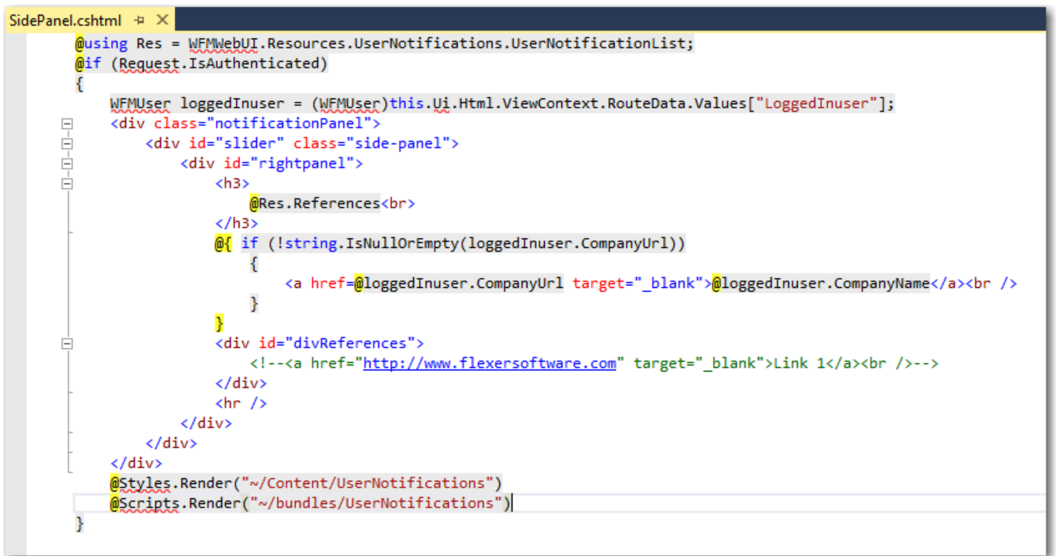
Figure 5-13: References Panel

To add custom links to the **References** panel, perform the following steps.

Task ***To add links to the References panel:***

1. In the Workflow Manager installation directory, open the following file in a text editor:

   `C:\AdminStudioWebComponents_2019\wwwroot\Views\Shared\SidePanel.cshtml`



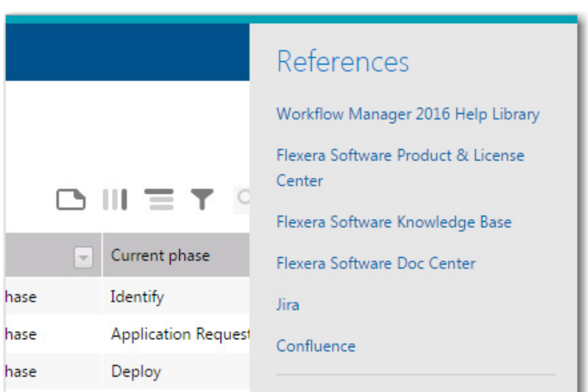
2. Locate the `<div id=”divReferences”>` section.

3. Enter URLs using the following format:

```
<p><a href="http://www.site1.com" target="_blank">Link to Site 1</a></p>
<p><a href="http://www.site2.com" target="_blank">Link to Site 2</a></p>
```

4. Save the file (which will require administrator permission).

5. Relaunch Workflow Manager and click the **References** link in the navigation menu. The new links appear in a slide-out **References** panel.



Changing the Instruction Tab of the Step Completion Dialog Boxes

When you complete a workflow step, if you click the **Instructions** icon, Workflow Manager will display a dialog box containing a customizable workflow step completion dialog box, similar to the following:

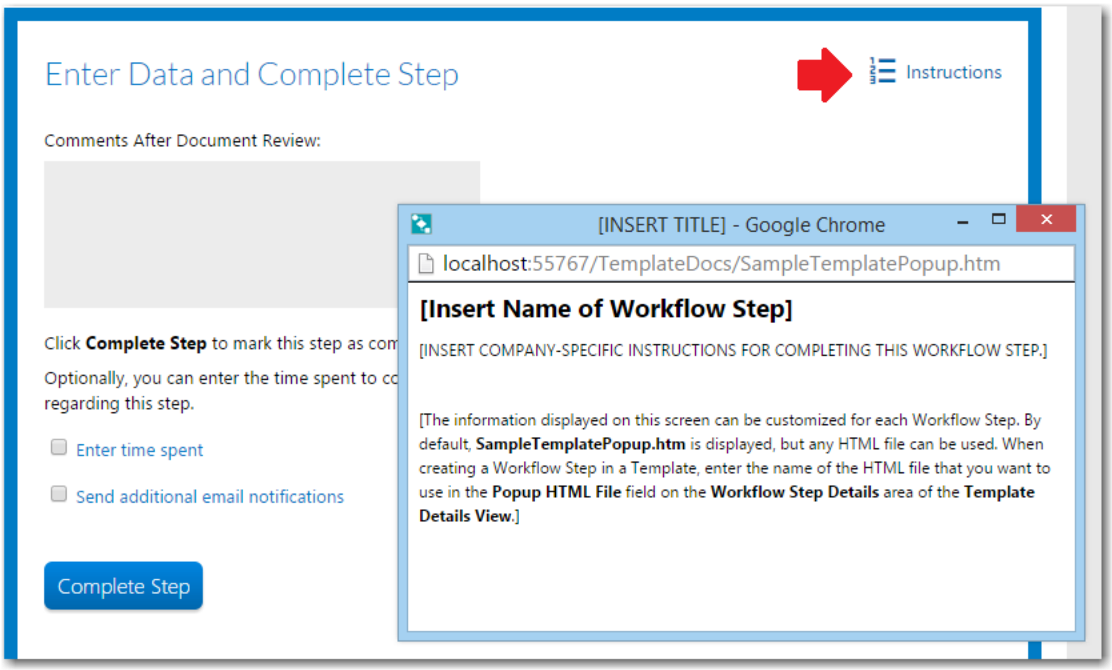


Figure 5-14: Customizable Workflow Step Completion Dialog Box

The text in the **Instruction** tab should be changed to display information that is specific to completing this workflow step. The text comes from an HTML page that you are free to create and modify.

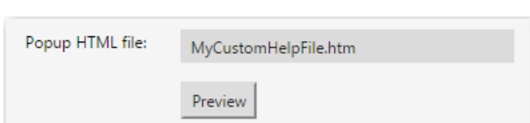
To insert your own custom text into the **Instruction** tab of a workflow step completion dialog box, perform the following steps:

Task ***To customize a workflow step completion dialog box:***

1. Create a formatted HTML page with the text you would like to display.
2. Using Windows Explorer, copy this HTML file to the following directory on the machine where Workflow Manager is installed:

   `C:\AdminStudioWebComponents_2019\wwwroot\TemplateDocs`

3. In Workflow Manager, open the template in the Template Details page.
4. On the **Workflow Phases** tab, select the desired workflow step to open the **Workflow Step Details** subtab.
5. Enter the name of your custom HTML page from the **Popup HTML File** field.



6. Click **Preview** to preview the HTML page.

7. Click **Update** to save your edits.

Customizing Email Templates

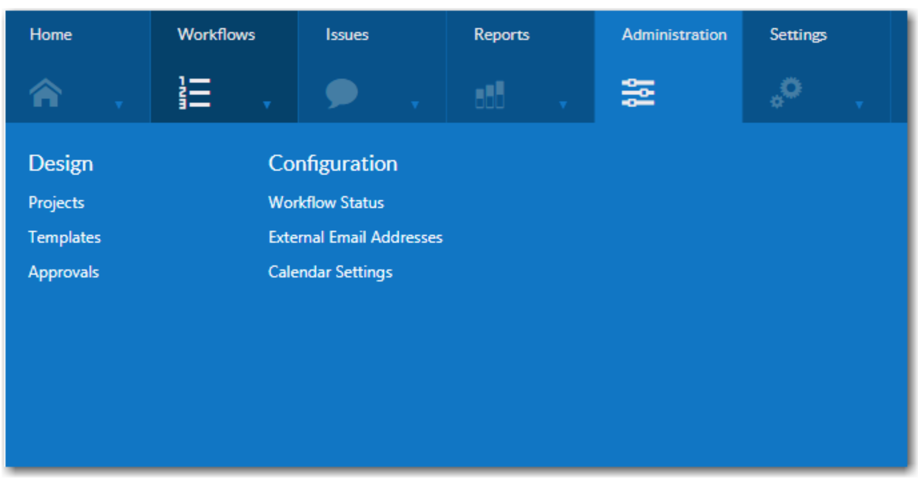
Workflow Manager sends notification emails when certain events occur, such as when a workflow step is advanced, edited, completed, or rolled back; when an issue is created or responded to; or when a workflow request is past due.

You can customize the content and design of these email notification messages by opening them in the **Email Template Details** page.

For instructions on how to customize existing email templates and how to create new ones, see Managing Email Templates.

Adding Menu Items to the Workflow Manager Navigation Bar

To customize Workflow Manager for your organization, you can add new menu items to the Workflow Manager navigation bar that will open a URL that you specify. You can add new items to any of the navigation bar tabs, such as **Workflows**, **Administration**, **Settings**, etc.



To add a menu item to the Workflow Manager navigation bar, you need to edit a file named `NavExtension.xml` file and specify the following information:

- Name of the top-level tab, such as **Administration**.
- Name of the heading of the menu group, such as **View Tables**.
- Name of the menu item, such as **Custom SQL Tables**.
- A URL link for the menu item.

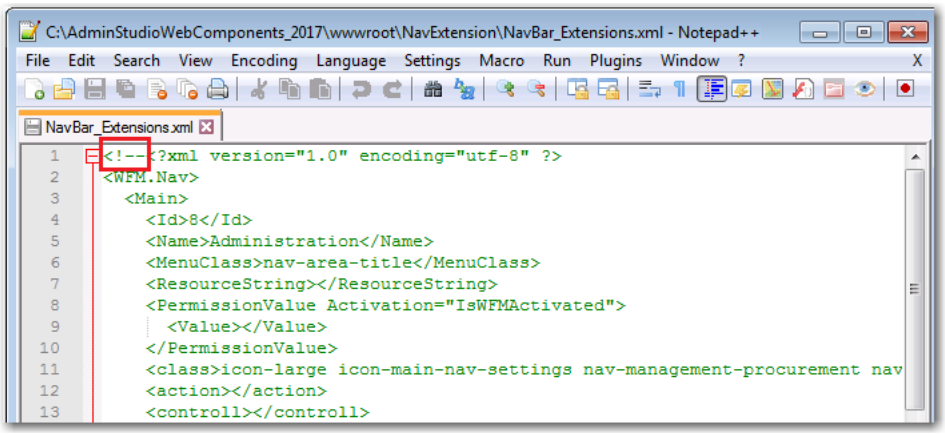
To add a custom menu item to the main Workflow Manager navigation bar, perform the following steps.

Task ***To add a custom menu item to the Workflow Manager navigation bar:***

1. On the server where Workflow Manager is installed, locate and open the following file in a text editor (running it as an Administrator):

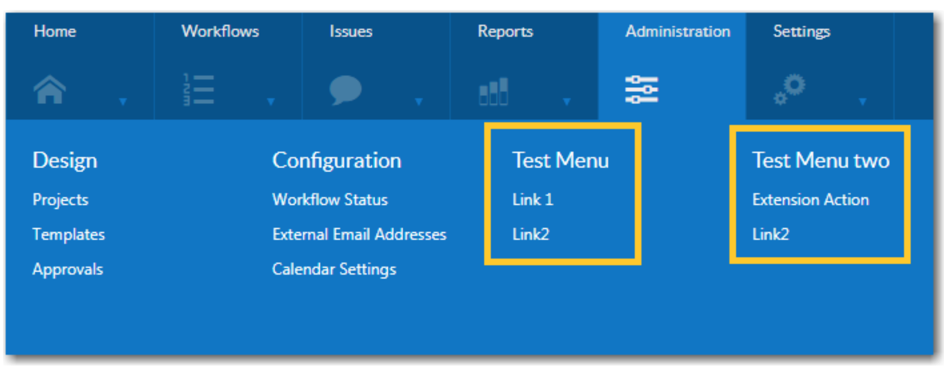
   `C:\AdminStudioWebComponents_2019\wwwroot\NavExtension\NavBar_Extensions.xml`

   By default, the code in this file is “commented out” so that it is not applied to Workflow Manager.



2. Remove the `<!--` characters at the very beginning of the XML file, and the `-->` characters at the very end of the file and save the file.

   After you save this file and open Workflow Manager in a new browser window, you will notice that several new workflow items are added to the **Administration** tab: **Test Menu** and **Test Menu two**.



3. Locate the `<Name>` element under `<Main>`. By default, `<Name>` is set to `Administration`.

```
<WFM.Nav>
   <Main>
      <Id>8</Id>
         <Name>Administration</Name>
```

4. Set the `<Name>` element to the name of the main tab that you want to add a menu item to: **`Home`**, **`Workflows`**, **`Issues`**, **`Reports`**, **`Administration`**, or **`Settings`**.

5. Under the `<Name>` element, locate the `<SubItem>` element. By default. this element is set to `Test Menu`.

```
<SubItem>
```

```
    <Name>Test Menu</Name>
```

6. Change the value of the <SubItem> element to the name of the new menu heading that you want to add, such as **View Tables**.

7. Under that <SubItem> element, locate the first <ItemList> element.

```
<ItemList>
   <Name>Link 1</Name>
   <ResourceString></ResourceString>
   <PermissionValue Activation="IsWFMActivated">
      <Value></Value>
   </PermissionValue>
   <class>nav-item</class>
   <action>ActionLink1</action>
   <controll>Test</controll>
   <Actiondata>
      <data>
         <key>id</key>
         <value>1</value>
      </data>
   </Actiondata>
</ItemList>
```

8. Change the value of the <Name> element to the name of the menu item you want to add, such as **Custom SQL Tables**.

9. Specify the relative URL of the page that you want to open when this menu item is clicked by setting values for the following elements:

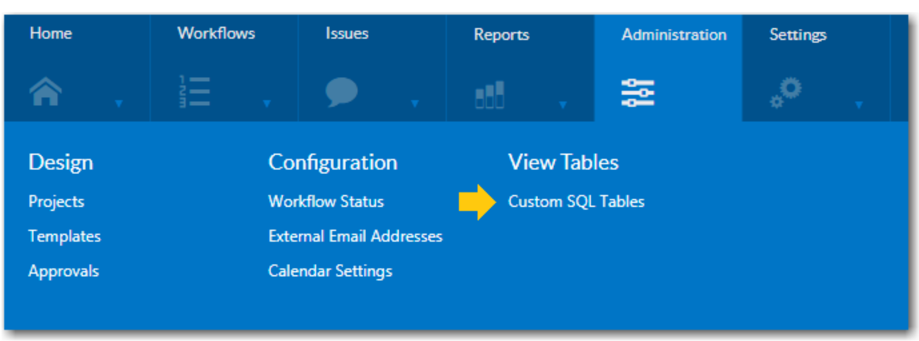
```
<action>ActionLink1</action>
<controll>Test</controll>
<Actiondata>
   <data>
      <key>id</key>
         <value>1</value>
   </data>
<Actiondata>
```

For example, if the menu item is configured with the above values, the URL that would be opened when the menu item was selected would be the following:

```
http://localhost:81/Test/ActionLink1/1
```

10. To add another item to the menu list, duplicate and edit the entire <ItemList> element.

11. Save the NavBar_Extensions.xml file, and then open Workflow Manager in a new browser window. The new menu item will now be listed in the menu.



12. To add custom menu items to *second* main tab of the navigation menu, make a copy of the entire `<Main>` element in the `NavBar_Extensions.xml` file, change the `<Name>` element to another one of the main menu tabs (such as **Reports**) and then specify the `<SubItem>` and `<ItemList>` elements as described above.

Adding Menu Items to the Workflow Progress Options Menu

You can now add custom menu items to the **Options** menu on the **Progress** tab of the **Workflow Request** page.

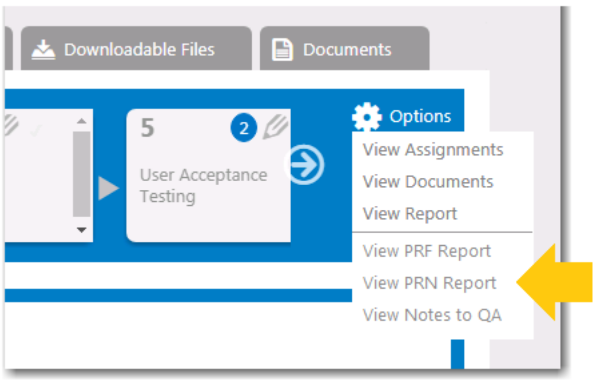


Figure 5-15: Custom Items on Options Menu of Progress Tab of Workflow Request View

To create custom menu items on the **Options** menu, you need to add records to the `AMS_CustomWorkFlowLink` table in the database. The menu items can link to general URLs (using the **LinkUrl** field) or they can link to MVC controllers and actions in Workflow Manager (using the **ActionName** and **ControllName** fields).

- Record Fields in AMS_CustomWorkflowLink Table
- Using the LinkUrl Field to Specify Menu Item URLs
- Using the ControllName and ActionName Fields to Specify Menu Item URLs

Record Fields in AMS_CustomWorkflowLink Table

The following table lists the fields in the `AMS_CustomWorkFlowLink` table that need to added for each record.

Table 5-6 • Fields in the AMS_CustomWorkFlowLink table

Field	Description
linkId	A unique identifier (GUID) that uniquely identifies the record in the table.
CompanyID	A foreign key from the `AMS_Company` table. Workflow Manager only shows menu items associated with the current user's company.
LinkText	The text that Workflow Manager will show on the **Options** menu.

Table 5-6 • Fields in the AMS_CustomWorkFlowLink table

Field	Description
LinkUrl	The URL to which Workflow Manager will navigate. This URL can be either of the following: • **Absolute URL**, such as `http://www.server.com` • **Relative URL**, such as `/CustomWorkflow/Report.aspx` ***Note •** Leave this field blank if you are using the **ActionName** and **ControllName** fields.*
LinkTarget	The value for the target attribute on the link. Valid values include: `_blank` `_self` `_parent` `_top`
LinkParameter	Unused
ActionName	The MVC action name. ***Note •** Leave this field blank if you are using the **LinkUrl** field.*
ControllName	The MVC controller name. ***Note •** Leave this field blank if you are using the **LinkUrl** field.*

The following table shows example records.

Table 5-7 • Example Records for the AMS_CustomWorkflowLink Table

linkId	CompanyID	LinkText	LinkUrl	Link Target	Link Parameter	Action Name	ControllName
23383ff4-8d9f-48ac-b57e-8cfeff5640b9	879373fe-2322-43d1-8596-789aded5d6bb	Notes to QA	/ASReports/ApplicationReports	_blank	NULL	NULL	NULL
625deb46-fa7e-429b-8378-bdf821a3f99a	879373fe-2322-43d1-8596-789aded5d6bb	Hardware Tracking	/CustomWorkflow/HardwareTracking.aspx	_blank	NULL	NULL	NULL
879373fe-2322-43d1-8596-789aded5d6bc	879373fe-2322-43d1-8596-789aded5d6bb	Copy this Request	NULL	_self	NULL	copy	WFProgress

Using the LinkUrl Field to Specify Menu Item URLs

When using the **LinkUrl** field, Workflow Manager adds several arguments to the URL. The following table describes the arguments.

Table 5-8 • Arguments Added to a URL

Argument Name	Value
A	The `ApplicationID` for the current request, represented as a string GUID, such as: `ee278931-b80c-4c48-a6bf-ad39411dc9e1`
cid	The `ProjectID` (a.k.a. the `ContractID`) for the current request, represented as a string GUID, such as: `06d14575-fb0c-40e4-9d94-1a0129e08692`
pid	The `PersonID` for the currently logged-in user, represented as a string GUID, such as: `ed7aa499-4b72-4617-934b-76ce8ae69b53`

The resulting URL will be similar to this one:

http://MyServer:81/CustomWorkflow/HardwareTracking.aspx?A=ee278931-b80c-4c48-a6bf-ad39411dc9e1&cid06d14575-fb0c-40e4-9d94-1a0129e08692&pided7aa499-4b72-4617-934b-76ce8ae69b53

Using the ControllName and ActionName Fields to Specify Menu Item URLs

When using the **ControllName** and **ActionName** fields, Workflow Manager appends a different set of arguments to the final URL, as show in the

Table 5-9 • Arguments Added to an MVC URL

Argument Name	Value
a	The `ApplicationID` for the current request, represented as a string GUID, such as: `ee278931-b80c-4c48-a6bf-ad39411dc9e1`
cid	The `ProjectID` (such as the `ContractID`) for the current request, represented as a string GUID, such as: `06d14575-fb0c-40e4-9d94-1a0129e08692`
pid	The `PersonID` for the currently logged-in user, represented as a string GUID, such as: `ed7aa499-4b72-4617-934b-76ce8ae69b53`

The resulting MVC URL will be similar to this one:

http://MyServer:81/WFProgress/copy?a=ee278931-b80c-4c48-a6bf-ad39411dc9e1&cid=06d14575-fb0c-40e4-9d94-1a0129e08692&pid=ed7aa499-4b72-4617-934b-76ce8ae69b53

Searching for Accounts

While working with workflows, you will frequently need to identify a specific person to send a notification email to, assign to an issue, assign some work to, designate as a company contact, and so on. Often, this means that you need to look through a large list of names to select the person you are looking for.

Workflow Manager makes this task easier by allowing you to search a comprehensive list, containing all Workflow Manager accounts, and also all the users, groups, and subgroups belonging to any directory service registered with Workflow Manager.

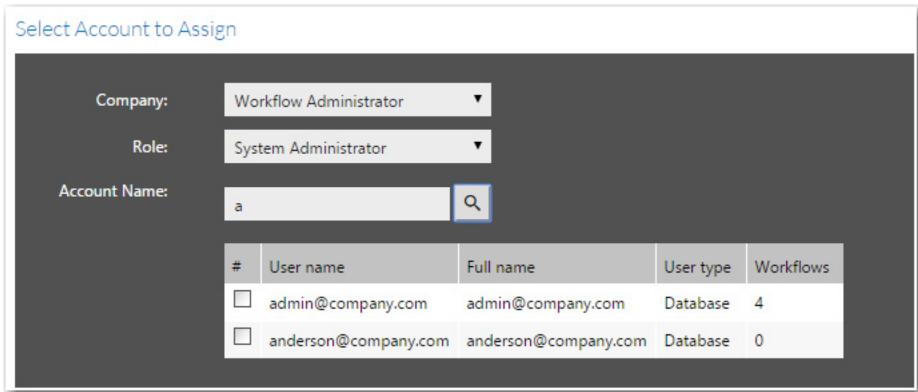


Figure 5-16: Typical Workflow Manager Search Interface

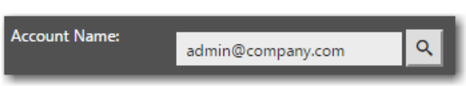
When one account is found matching the search criteria you specify, that account will automatically be assigned to the task you are completing. If multiple results are located, these are all conveniently displayed in a **Search Results** list, allowing you to easily choose the appropriate account.

Task ***To search for an account using a Workflow Manager account search interface:***

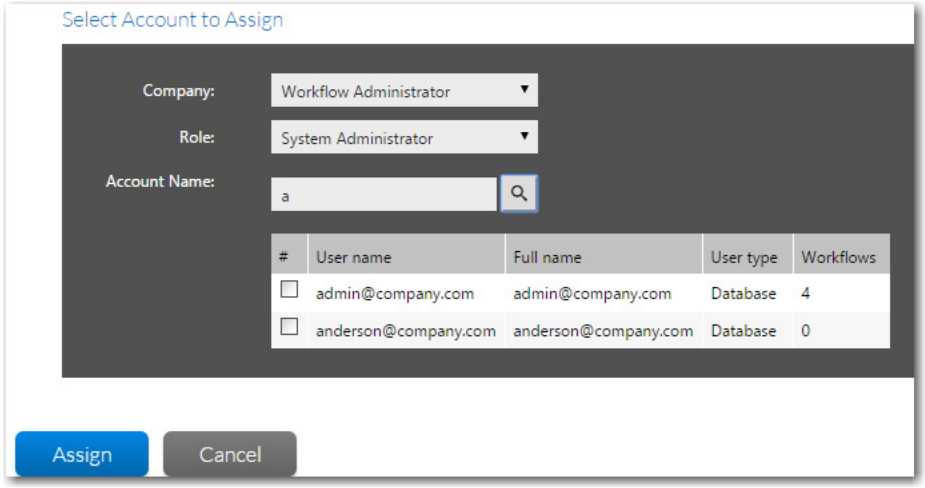
1. Enter the first few letters of the account name in the **Account Name** field and click Search button (magnifying glass icon).

One of the following happens:

- If there is only one account whose name begins with the characters you entered, that account is automatically selected, and its name will be automatically listed in its entirety in the **Account Name** field.



- If more than one account has a name beginning with the characters you entered, a list of all matching accounts is displayed.



Locate the account you want to select and click its checkbox, and then click **Assign** (or another similar button). The chosen account is then listed in the **Account Name** field and the **Search Results** list disappears. For details about sorting or filtering the **Search Results** list, see Using Lists.

2. Click **Save** or **Update** to save your edits to the current page.

***Tip** • If you would prefer to scroll through a complete list of accounts in Workflow Manager, simply click Search button without entering anything in the **Account Name** field.*

About Unimported Directory Service Accounts

When Workflow Manager performs an account search, it looks through all accounts, groups, and subgroups in any directory service registered with Workflow Manager, even if those accounts have not yet been imported into the Workflow Manager database. If you select an unimported account, one of the following will occur:

- If you are assigning an account to receive email notifications, its email address will be recorded, but that account will not be imported into Workflow Manager.
- For any other type of assignment (such as an issue assignment, a work assignment or a project contact assignment), that account is automatically imported into the Workflow Manager database, and you will be able to manage it as you do all other accounts. See Importing Directory Services Accounts and Groups for more information.

How Dates and Times are Displayed

Workflow Manager displays all dates as per the time zone and language defined in your web browser (which need not be the same as the time zone and language of the Workflow Manager server).

Workflow Manager saves date and time information in UTC (Coordinated Universal Time) format and converts it to the local date time format, based on the browser settings, for display.

***Note** • UTC format was formerly referred to as GMT or Greenwich Mean Time.*

United States Example

The date and time for a standard United States customer is displayed in `MM/DD/YYYY` format with a 12-hour clock and an `AM` or `PM` designation:

```
05/23/2016 02:32:00 PM
```

United Kingdom Example

The date and time for a United Kingdom customer is displayed in `DD/MM/YYYY` format with a 24-hour clock (with no `AM` or `PM` designation):

```
23/05/2016 14:32:00
```

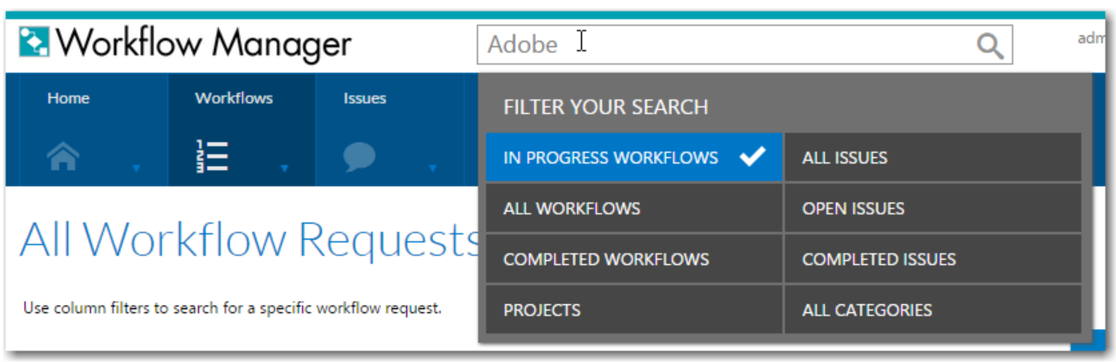
Performing a Search

To perform a search for a workflow request, project, or issue, perform the following steps.

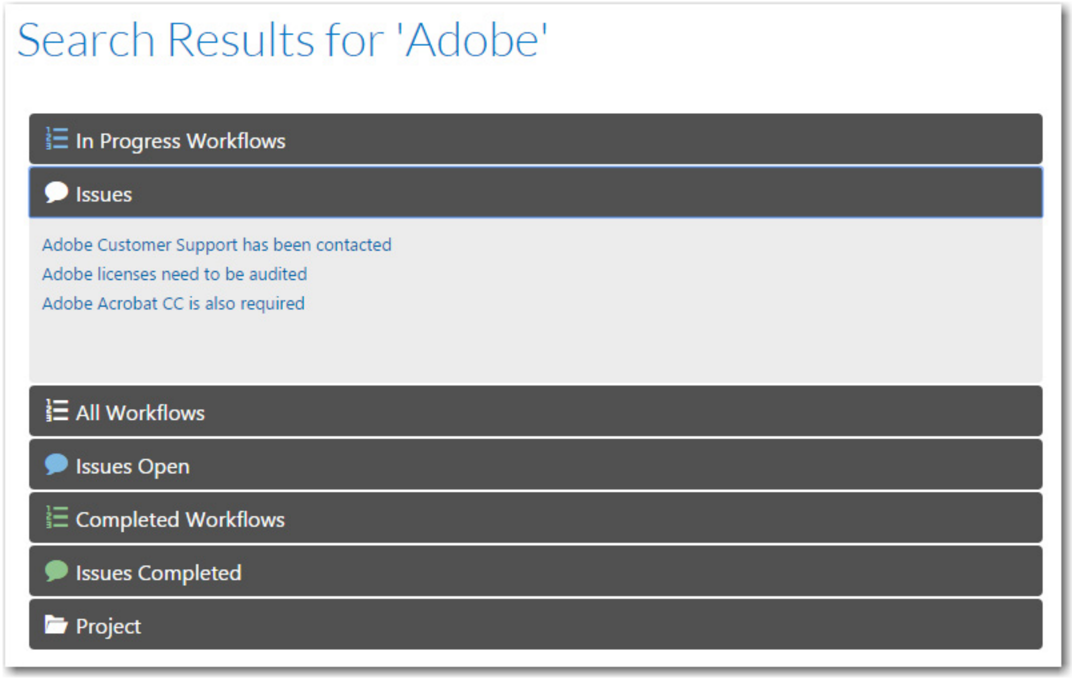
Task ***To perform a search:***

1. Enter a search term in the search box above the navigation bar.

   When you put your cursor in the Search box, the **Filter Your Search** menu opens to enable you to only search through portions of the available data.



2. Select the categories that you want to include in the search, and click enter. The results are listed by category.



3. Click on a category name to expand/collapse the listing.
4. Click on a result link to open that page.

Submitting and Monitoring Workflow Requests

This section explains how to submit a workflow request, and summarizes the various methods you can use to monitor its progress.

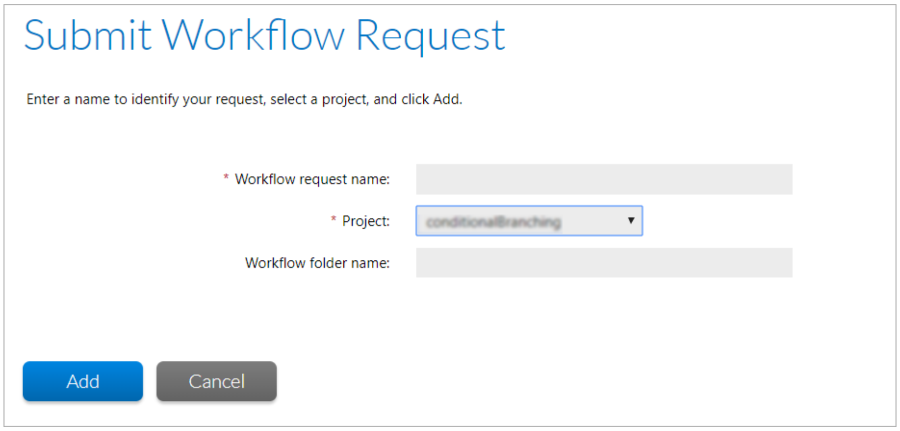
- Submitting a Workflow Request
- Copying an Existing Workflow Request
- Deleting a Workflow Request
- Monitoring the Progress of a Workflow Request
- Tracking a Workflow Request or Workflow Step's SLA Status

Submitting a Workflow Request

To enable consumers to quickly and easily submit a workflow request, a **Submit Request** button is available on their home page. As well, workflow consumers and administrators can both submit a workflow from by selecting **Submit Workflow Requests** on the **Workflows** menu of the navigation bar.

Task ***To submit a workflow request:***

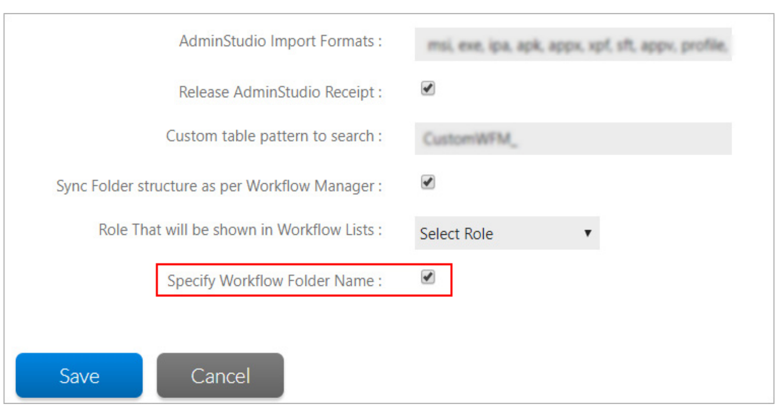
1. Click Submit Workflow Requests on the **Workflows** menu of the navigation bar. The **Submit Workflow Request** page opens.



2. Enter a descriptive name for your request in the **Workflow request name** field.
3. Select the name of the project your workflow request will be associated with from the **Project** field.
4. If you know your workflow request belongs to a specific family of requests, select the appropriate option from the **Workflow Family** field, or click **Create New** to create a new workflow family. Refer to Managing Workflow Families for further information about creating new families.

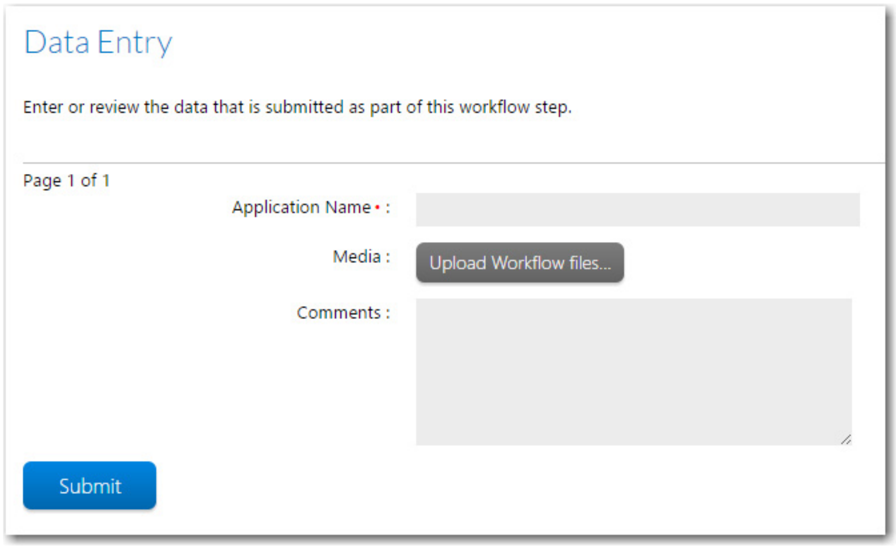
***Note** • If you are a workflow consumer and the company associated with this project was created with the **Is a Workflow Family Owner?** option selected, the **Create New** button will not appear. It will be available only when a workflow administrator is submitting a workflow request against the project. See Creating a New Company for more information about this option.*

5. Enter a descriptive name for your folder in the **Workflow folder name**. A folder will be created in the folder path "C:\AdminStudioWebComponents_2019\SHAREPATH\" with a name given in the workflow folder name field.
6. You can see the **Workflow folder name** field, if you select the check box **Specify Workflow Folder Name**, in the **Settings > Company Preferences**, see Setting Preferences on the Company Preferences Page.



7. Click **Add**. The **Workflow Request** page opens and you are prompted to specify some information.

Important • *if you haven't selected the check box* ***Specify Workflow Folder Name****, in the* ***Settings > Company Preferences****, a folder will be created in the folder path "C:\AdminStudioWebComponents_2019\SHAREPATH\UNCPath" with the Workflow request name.*



Note • *The first workflow step of all workflow requests always prompts the requester to provide some information. The information requested upon submission of a workflow request is defined during creation of the workflow template, and can include as many or as few questions as the workflow administrator desires.*

8. Enter the requested information and click **Submit**.

Tip • *Questions with a red asterisk are mandatory, meaning you will be unable to proceed until you answer them. Questions without a red asterisk are optional.*

9. Continue with the steps in Monitoring the Progress of a Workflow Request.

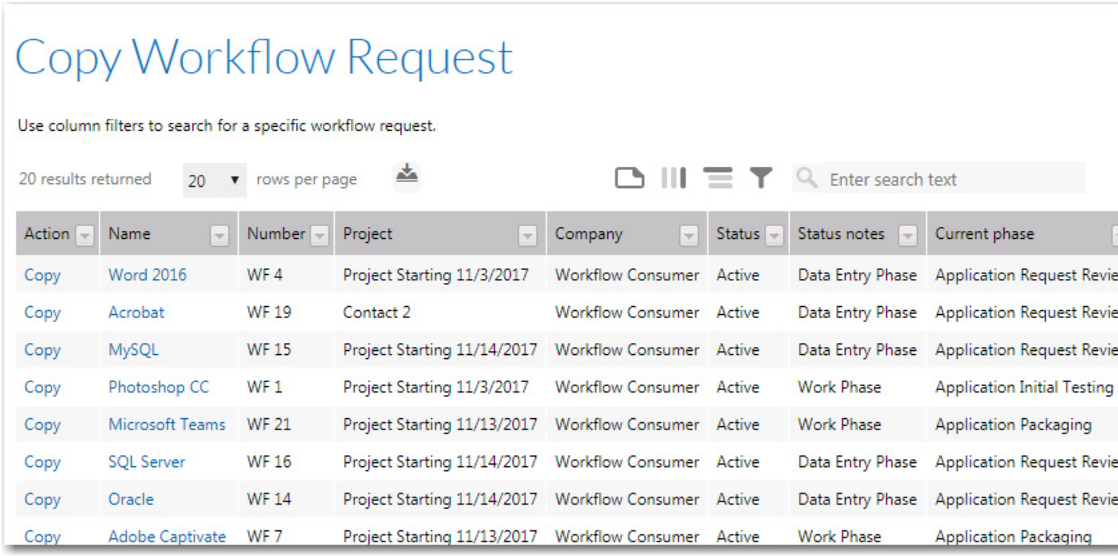
Copying an Existing Workflow Request

If you want to create a new workflow request which is very similar to an existing workflow request, you can copy the existing one, rather than re-entering all of the requested data. The amount of data that is copied to the new workflow request depends upon whether you are a consumer or an administrator:

- **For consumers**, only data submitted in the initial data step are copied to the new workflow. Any data submitted in later steps will need to be re-entered.
- **For administrators**, you can choose to just copy the data entered in the initial date entry step, or the current workflow state (all the data items and the state of each workflow step). You can also link the copy to the original workflow request.

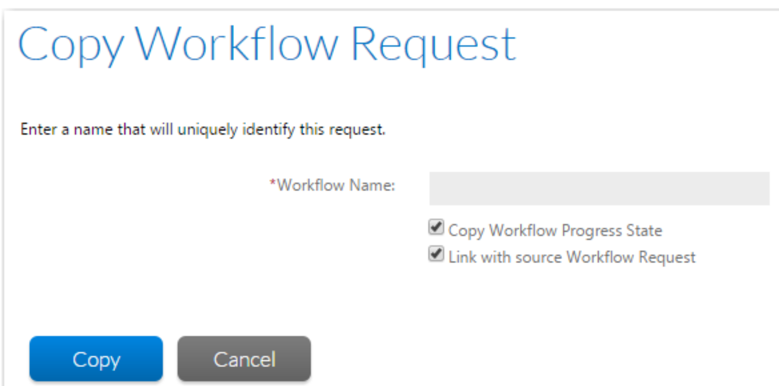
Task ***To copy an existing workflow request:***

1. Select **Copy an Existing Workflow Request** in the **Workflows** menu of the navigation bar. The initial view of the **Copy Workflow Request** page opens, listing all workflow requests.



Action	Name	Number	Project	Company	Status	Status notes	Current phase
Copy	Word 2016	WF 4	Project Starting 11/3/2017	Workflow Consumer	Active	Data Entry Phase	Application Request Revie
Copy	Acrobat	WF 19	Contact 2	Workflow Consumer	Active	Data Entry Phase	Application Request Revie
Copy	MySQL	WF 15	Project Starting 11/14/2017	Workflow Consumer	Active	Data Entry Phase	Application Request Revie
Copy	Photoshop CC	WF 1	Project Starting 11/3/2017	Workflow Consumer	Active	Work Phase	Application Initial Testing
Copy	Microsoft Teams	WF 21	Project Starting 11/13/2017	Workflow Consumer	Active	Work Phase	Application Packaging
Copy	SQL Server	WF 16	Project Starting 11/14/2017	Workflow Consumer	Active	Data Entry Phase	Application Request Revie
Copy	Oracle	WF 14	Project Starting 11/14/2017	Workflow Consumer	Active	Data Entry Phase	Application Request Revie
Copy	Adobe Captivate	WF 7	Project Starting 11/13/2017	Workflow Consumer	Active	Work Phase	Application Packaging

2. Click **Copy** next to the name of the workflow request that you want to copy. The **Copy Workflow Request** page opens.



3. In the **Workflow Name** field, enter a name to uniquely identify this new workflow request.
4. [Administrators only] Optionally, select the **Copy Workflow Progress State** field. If you select this option, the data items and state of each workflow step will be copied from the source workflow request. If you don't, only the initial data entry step is copied.
5. [Administrators only] If you want to link the new workflow request to the original, select the **Link with source Workflow Request** option. Refer to Related Workflows Tab for more information.
6. Click **Copy**. The **Workflow Request** page appears for your new workflow request.
   - If you selected the **Copy Workflow Progress State** option, the **Workflow Request** page opens and the progress displayed on this page will be identical to that of the source workflow request, because the data items and state of each workflow state have been copied across.

- Otherwise, the workflow will begin in the first data entry step.

Deleting a Workflow Request

Only workflow administrators with the **Delete Workflow Request** permission can delete a workflow request. Refer to Role Permission Lists for more information about permissions.

Task ***To delete a workflow request:***

1. Select **All Workflows** in the **Workflows** menu of the navigation bar. The **All Workflow Requests** page opens.
2. Click on the workflow request that you want to delete. The **Workflow Requests** page opens.
3. Open the **Properties** tab.
4. Click the **Delete** button and agree to the confirmation message which appears. The workflow is removed.

Monitoring the Progress of a Workflow Request

Although you will be notified if you are required to update complete a step in a workflow request, you may still want to check on its progress. This section describes different ways to do that.

- Searching for Workflow Requests
- Opening a Workflow Request's Workflow Request Page
- Viewing a Workflow Report
- Viewing All Workflow Requests

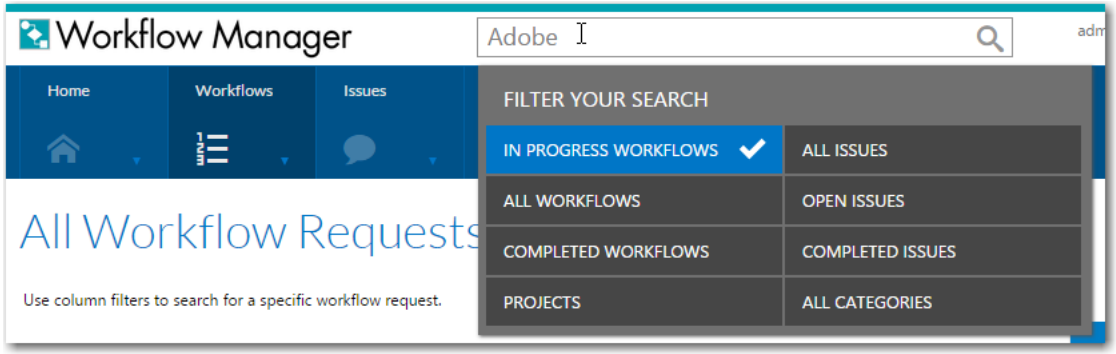
Searching for Workflow Requests

To perform a search for a workflow request, project, or issue, perform the following steps.

Task ***To perform a search:***

1. Enter a search term in the search box above the navigation bar.

   When you put your cursor in the search box, the **Filter Your Search** menu opens to enable you to only search through portions of the available data.



2. Select the categories that you want to include in the search, and click enter. The results are listed by category.

3. Click on a category name to expand/collapse the listing.

4. Click on a result link to open that page.

Opening a Workflow Request’s Workflow Request Page

The progress of a workflow request is displayed on the **Progress** tab of the workflow request’s **Workflow Request.** This tab lists all the workflow phases in the template that this request was based on.

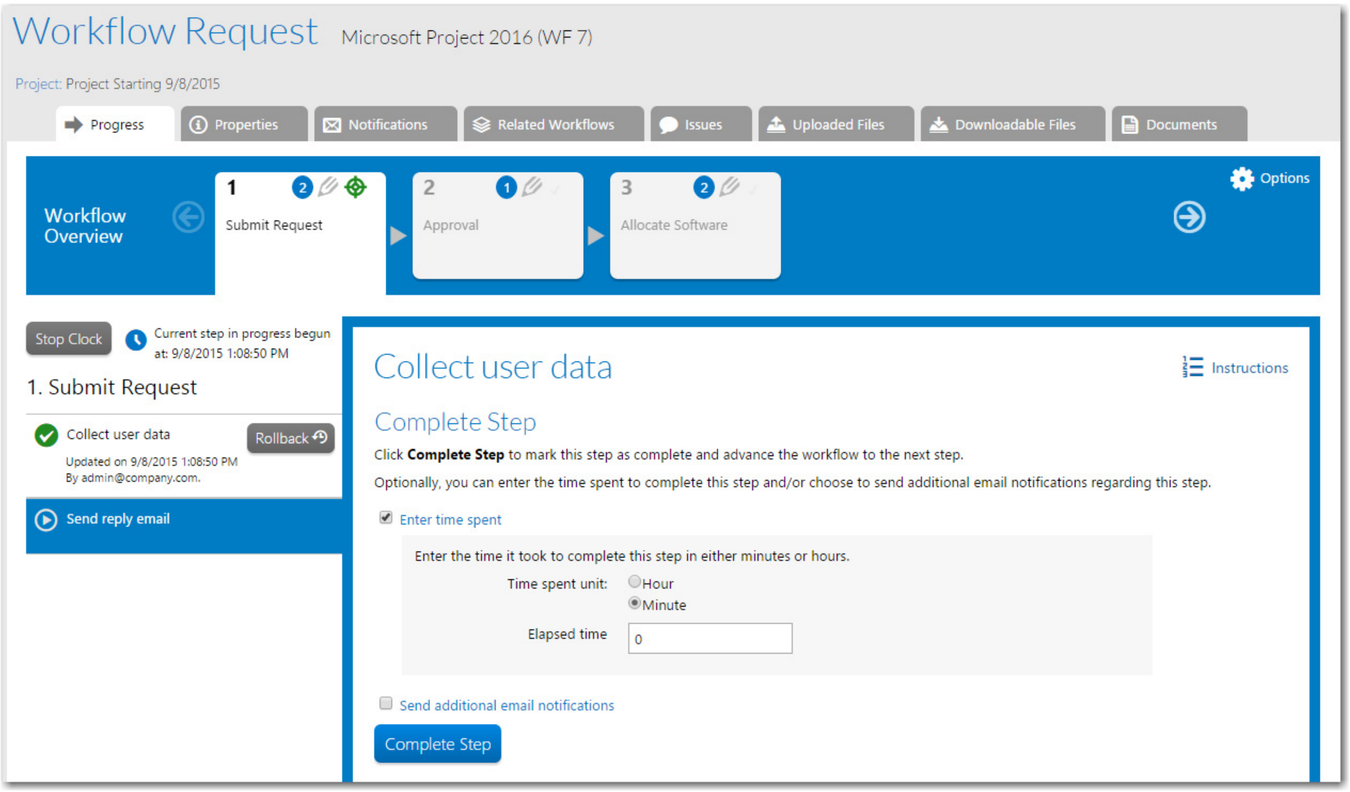


Figure 5-17: Workflow Request Page

To view the progress of a workflow request, perform the following steps:

Task ***To view the progress of a workflow request:***

1. In the navigation bar, click **All Workflow Requests** on the **Workflows** menu. The **All Workflow Requests** page opens.
2. Click on the workflow request you want to view. The **Workflow Request** page opens.

   Note • *For details about sorting or filtering the workflow list, see Using Lists.*

3. If not already selected, open the **Progress** tab and review the following areas:
   - Phase Navigation Bar
   - Workflow Step Area
   - Workflow Step Panel
   - Icons Used in on Workflow Progress Tab
   - Options Menu
   - Start/Stop SLA Clock Button

   For more information, see Progress Tab.

Viewing a Workflow Report

Detailed information about the progress of a workflow request can be seen using the **Workflow Report**.

Task ***To open a Workflow Report:***

1. Open a workflow request's **Workflow Request** page, as described in Opening a Workflow Request's Workflow Request Page.

2. Click the **View Workflow Report** link in the **Action** menu. The **Workflow Report** opens. For more information about the information displayed on the **Workflow Report**, see Workflow Report.

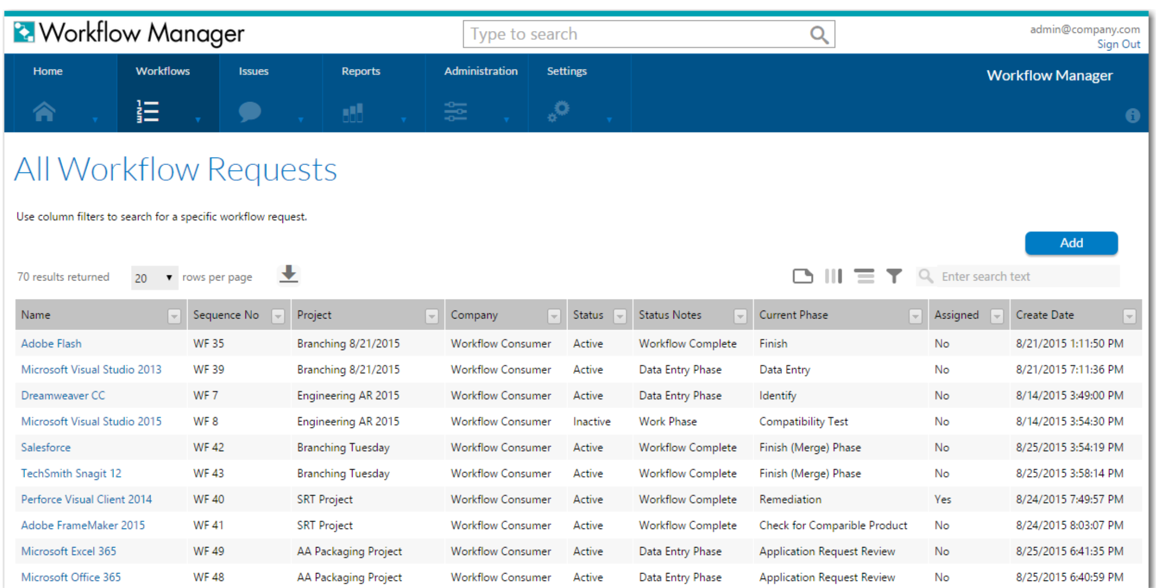
Viewing All Workflow Requests

Consumers can quickly view the status of all of the workflow requests for their company. Administrators can view workflow requests for all of their consumer companies.

Task ***To view the status of all workflow requests for your company:***

1. In the navigation bar, open the **Workflows** group and click on **View Workflow Requests** in the **Workflow Requests** subgroup.

   The **All Workflow(s)** page opens, listing all of the workflow requests. Refer to All Workflow Requests Page for further details.



Name	Sequence No	Project	Company	Status	Status Notes	Current Phase	Assigned	Create Date
Adobe Flash	WF 35	Branching 8/21/2015	Workflow Consumer	Active	Workflow Complete	Finish	No	8/21/2015 1:11:50 PM
Microsoft Visual Studio 2013	WF 39	Branching 8/21/2015	Workflow Consumer	Active	Data Entry Phase	Data Entry	No	8/21/2015 7:11:36 PM
Dreamweaver CC	WF 7	Engineering AR 2015	Workflow Consumer	Active	Data Entry Phase	Identify	No	8/14/2015 3:49:00 PM
Microsoft Visual Studio 2015	WF 8	Engineering AR 2015	Workflow Consumer	Inactive	Work Phase	Compatibility Test	No	8/14/2015 3:54:30 PM
Salesforce	WF 42	Branching Tuesday	Workflow Consumer	Active	Workflow Complete	Finish (Merge) Phase	No	8/25/2015 3:54:19 PM
TechSmith Snagit 12	WF 43	Branching Tuesday	Workflow Consumer	Active	Workflow Complete	Finish (Merge) Phase	No	8/25/2015 3:58:14 PM
Perforce Visual Client 2014	WF 40	SRT Project	Workflow Consumer	Active	Workflow Complete	Remediation	Yes	8/24/2015 7:49:57 PM
Adobe FrameMaker 2015	WF 41	SRT Project	Workflow Consumer	Active	Workflow Complete	Check for Comparible Product	No	8/24/2015 8:03:07 PM
Microsoft Excel 365	WF 49	AA Packaging Project	Workflow Consumer	Active	Data Entry Phase	Application Request Review	No	8/25/2015 6:41:35 PM
Microsoft Office 365	WF 48	AA Packaging Project	Workflow Consumer	Active	Data Entry Phase	Application Request Review	No	8/25/2015 6:40:59 PM

2. Optionally, filter this list using filter controls, as described in Using Lists.

3. To drill through to the **Workflow Request** page for a specific workflow, click on the workflow request name. See Workflow Request Page for more information.

Tracking a Workflow Request or Workflow Step's SLA Status

You can track the SLA (Service Level Agreement) status of workflow requests and individual workflow steps, so that you know which ones are proceeding on schedule (as per their service level agreement), and which ones are late or at risk of being late.

- Calculating SLA Status
- Stopping and Restarting the SLA Clock
- Generating SLA Status Reports

***Note** • See also Managing SLA Settings.*

Calculating SLA Status

SLA (Service Level Agreement) time tracking is used to report the status of a workflow request and/or a single workflow step with respect to its SLA due date, as one of: On Time, At Risk, Late, Completed on Time, or Completed Late.

- Project SLA Settings and the Due Date
- SLA Settings on a Workflow Phase
- SLA Settings on a Workflow Step

Project SLA Settings and the Due Date

Each time a project is created, the following SLA settings are defined:

- **Workflow Due Period**—Number of days after its submission date that a workflow request should be completed, in order to be SLA compliant.
- **Workflow at Risk Period**—Number of days prior to a workflow request's due date that the workflow request will be considered "at risk" of not meeting that date, if it not yet completed (corresponds to SLA status `At Risk`).
- **Length of a Work Day**—Number of hours in a day that are considered work hours, when monitoring elapsed time for SLA calculations.
- **Exclude Weekends**—Specifies whether to exclude weekend days when calculating a workflow request's SLA status.
- **Holiday Information**—Identifies the holidays to exclude from SLA calculations.

A workflow request's due date is automatically calculated by adding the number of business days in the **Workflow Due Period** field to the date that the request was submitted.

***Note** • The **Workflow Due Period** and **Workflow at Risk Period** values specified for a project can be overridden at the workflow request level on the **Properties** tab of the **Workflow Request** page. See Properties Tab for more information. Also refer to Project Details Page for more information about defining the SLA settings.*

SLA Settings on a Workflow Phase

When defining a workflow step on the **Workflow Phase Details** view, you have several options regarding tracking a workflow step for SLA:

- Enable Time Tracking Alerts on a Workflow Phase
- Include the Time Spent on a Workflow Phase in the Workflow Request's Overall SLA Calculation

Enable Time Tracking Alerts on a Workflow Phase

Select the **Track for Workflow Step SLA** option and enter a numeric value in the **Due period** and **Risk period** fields to instruct Workflow Manager to send out an email alert and change the workflow phase's **SLA Status** when a duration threshold is reached.

Important • *It is recommended that this option should be selected only for tasks that are critical for the completion of the workflow for which immediate notification of a delay is important.*

If the **Track for Workflow Phase SLA** option is not selected, no email alerts will be sent out regarding this workflow phase and it will not be listed on the Workflow Phase SLA Report.

Include the Time Spent on a Workflow Phase in the Workflow Request's Overall SLA Calculation

Select the **Track for Workflow SLA** option to instruct Workflow Manager to include the time spent to perform this workflow phase in the overall SLA calculations for the entire workflow request.

For example, if a workflow phase included a workflow phase such as "Receive Customer Approval"—which does require any work to be performed by the administrator— you may want to clear this option so that the time spent waiting for approval would not be included in SLA calculations for this workflow request.

SLA Settings on a Workflow Step

When defining a workflow step on the **Workflow Step Details** view, you have several options regarding tracking a workflow step for SLA:

- Enable Time Tracking Alerts on a Workflow Step
- Include the Time Spent on a Workflow Step in the Workflow Request's Overall SLA Calculation

Enable Time Tracking Alerts on a Workflow Step

Select the **Track for Workflow Step SLA** option and enter a numeric value in the **Due period** and **Risk period** fields to instruct Workflow Manager to send out an email alert and change the workflow step's **SLA Status** (shown in the **Workflow Steps SLA Report**) when a duration threshold is reached.

Important • *It is recommended that this option should be selected only for tasks that are critical for the completion of the workflow for which immediate notification of a delay is important.*

If the **Track for Workflow Step SLA** option is not selected, no email alerts will be sent out regarding this workflow step and it will not be listed on the Workflow Steps SLA Report.

Include the Time Spent on a Workflow Step in the Workflow Request's Overall SLA Calculation

Select the **Track for Workflow SLA** option to instruct Workflow Manager to include the time spent to perform this workflow step in the overall SLA calculations for the entire workflow request (shown on the **Projects Report**).

For example, if a workflow phase included a workflow step such as "Receive Customer Approval"—which does require any work to be performed by the administrator— you may want to clear this option so that the time spent waiting for approval would not be included in SLA calculations for this workflow request

Example of a Workflow Request's SLA Status Path

The following diagram illustrates the SLA status path of a workflow request with a **Workflow Due Period** of 5 days and a **Workflow at Risk Period** of 2 days, with weekends excluded from the calculations:

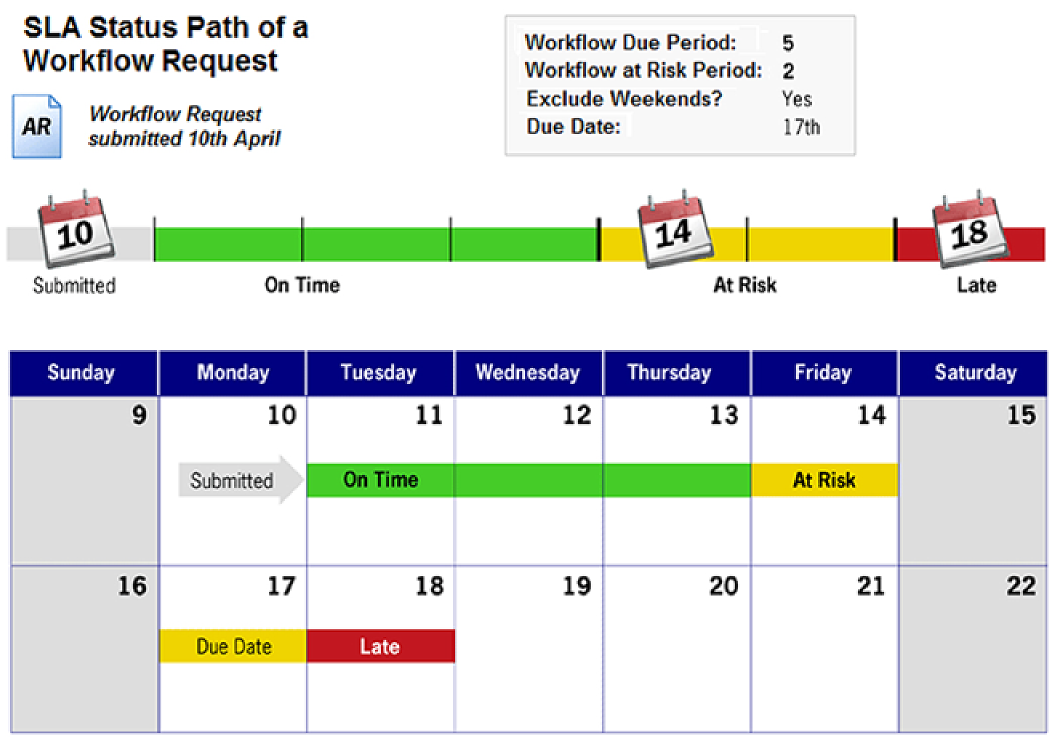


Figure 5-18: Example SLA Status Path for a Workflow Request

Stopping and Restarting the SLA Clock

You can click the **Stop Clock** button on the **Workflow Request** page to stop the monitoring of elapsed time for the current workflow step.

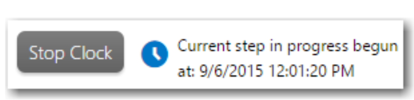


Figure 5-19: Stop Clock Button on the Workflow Request Page

You might want to stop the SLA clock if work on a workflow request has been interrupted, so that the workflow request is not inaccurately being listed in SLA reports as `At Risk` or `Late`.

When the **Stop Clock** button is clicked, its name changes to **Start Clock**, and the date and time that the clock was stopped is listed. Click the **Start Clock** button once work resumes on the workflow request, to begin monitoring elapsed time again.

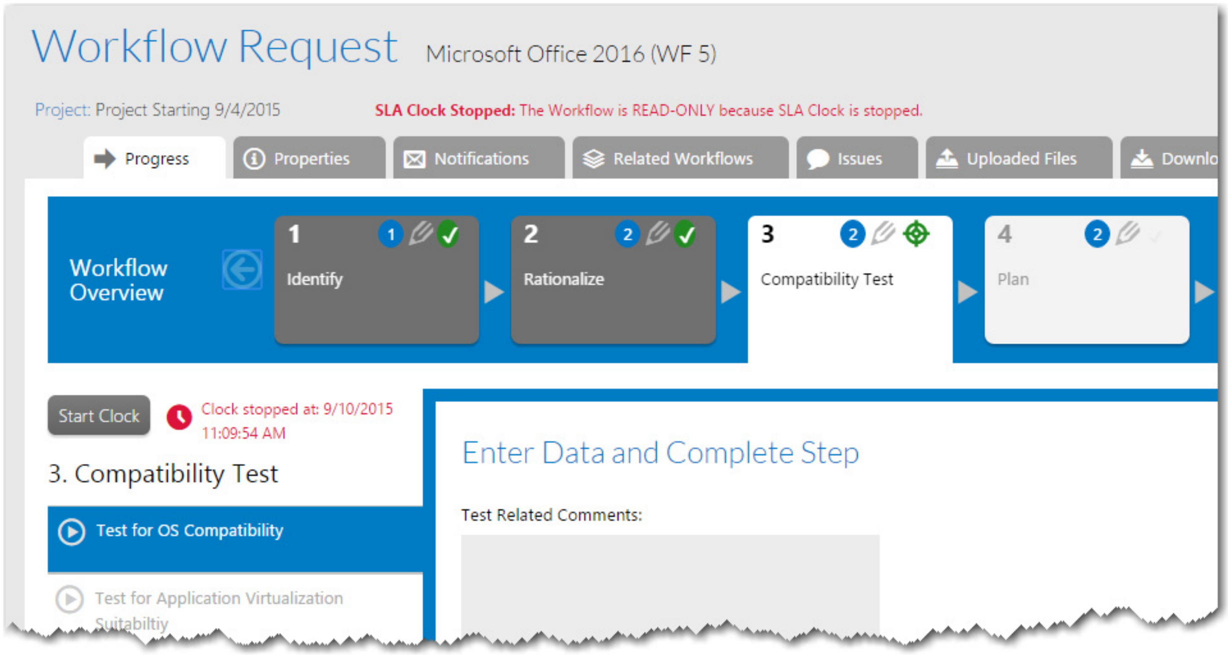


Figure 5-20: Workflow With Stopped SLA Clock

Generating SLA Status Reports

You can view the SLA status of a workflow request on the **Projects Report** and the **Workflow Requests Summary Report**. See Generating a Projects Report and Generating a Workflow Requests Summary Report for more information.

You can also view the following reports that offer detailed SLA status by project, workflow request, phase, or step, and you can filter some of these reports by a specified date range:

- Generating a Workflow Steps SLA Report
- Generating a Project SLA Report

Completing Workflow Requests

This section describes how to complete a workflow request.

- Initiating Work on a Workflow Request
- Updating a Workflow Request
- Working With Issues
- Associating Files with a Workflow Request
- Linking Related Workflow Requests

Initiating Work on a Workflow Request

When a workflow request is first submitted, a workflow administrator will need to accept the request, and then assign people to complete the various tasks associated with it.

- Accepting a Workflow Request
- Assigning Users to Workflow Requests
- Viewing All Workflow Request Assignments
- Viewing Your Workflow Request Assignments

Accepting a Workflow Request

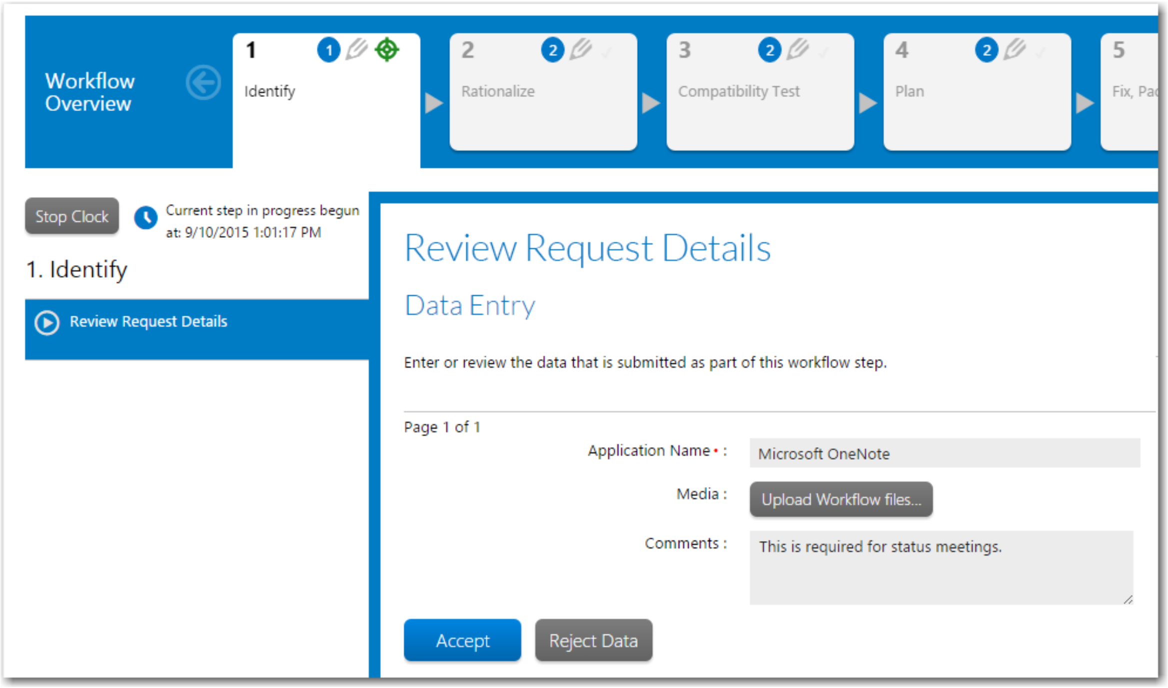
The first step of any workflow request is a data entry step, which the consumer submitting the request is required to fill in. The data submitted during this initial step must be reviewed and approved before work can begin. When the workflow request is viewed on the **Workflow Request** page, the first workflow step highlighted in blue, indicating it is the active step.

A workflow administrator accepts a workflow request by viewing the submitted data and clicking the **Accept** button.

Task ***To accept a workflow request (workflow administrators):***

1. Open a workflow request's **Workflow Request** page, as described in Opening a Workflow Request's Workflow Request Page. If no users have been assigned to work on this workflow request, the **Assignment Details** page opens, prompting you to make the assignments.
2. Assign users to role, as described in Assigning Users to Workflow Requests, or click **Workflow Progress** to temporarily bypass this step.

   The **Progress** tab opens, and the name of the first step in the first workflow phase will be highlighted in blue, and the data entry fields displayed in the pane on the right.



3. Review the submitted data. If the data takes up more than one screen, click **Next** and **Back** to see all of the submission.

4. Do one of the following:

- If the data provided by the consumer is incomplete, click **Reject Data**, and agree to the confirmation dialog which appears. The workflow request is rolled back, and the data elements in the initial entry step are unlocked for editing.

  Tip • *Typically, you would not be the person who updates the information. Instead, if you have correctly set up email notifications, the consumer will be notified that their workflow request has been rejected, and will then go and amend his submission data himself.*

- If the data provided by the consumer is complete, click **Accept Data**. The **Progress** tab reopens, and the first step of the first phase is now marked complete.

5. After you have accepted a workflow request, you need to assign people to complete the tasks associated with it if you have not already done so. See Assigning Users to Workflow Requests for more information.

Assigning Users to Workflow Requests

Every workflow request has a series of roles associated with it that have permission to complete the workflow's tasks. To initiate work on a workflow request, workflow administrators assign one person from each of these roles to the request.

You can assign users to roles for a workflow request either on the **Assignment Details** page or as part of a workflow step with a step type of **Work Assignment**.

- Assigning Users to a Workflow Request on the Assignment Details Page
- Assigning Users to a Workflow Request as Part of a Workflow Step

Assigning Users to a Workflow Request on the Assignment Details Page

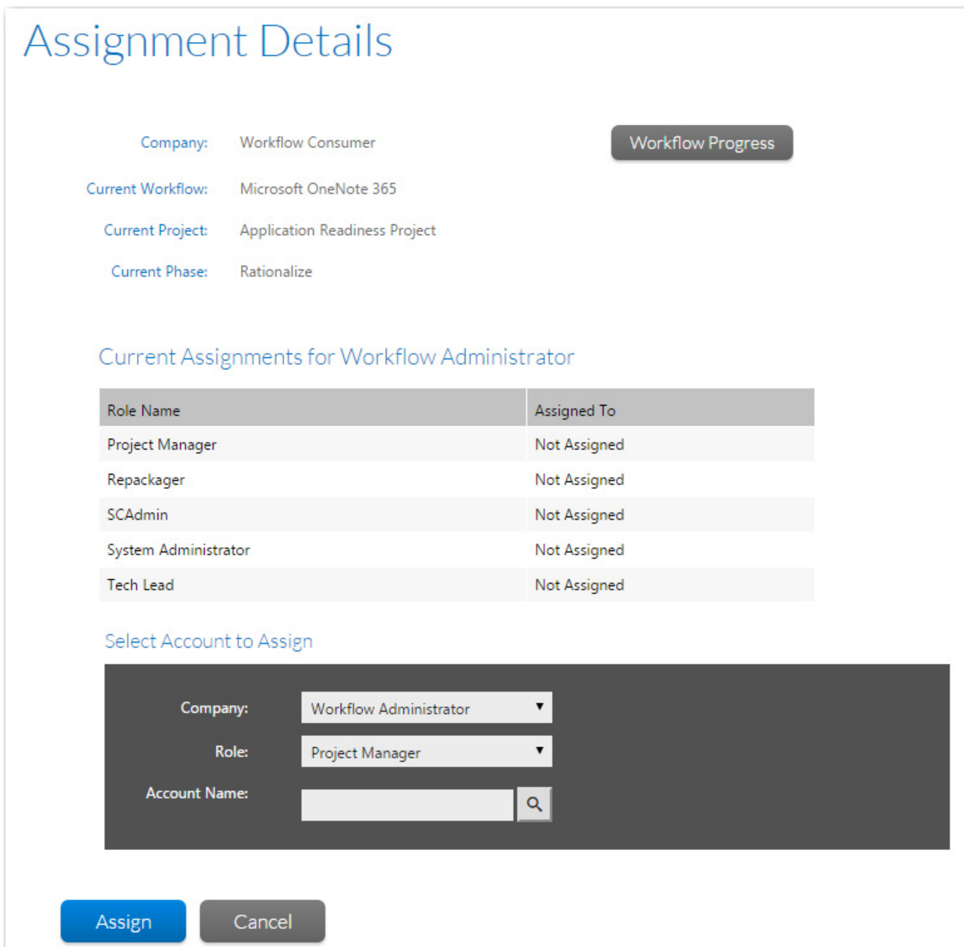
Every workflow request has a series of roles associated with it that have permission to complete the workflow's tasks. To initiate work on a workflow request, workflow administrators assign one person from each of these roles to the request.

You can assign users to roles for a workflow request on the **Assignment Details** page.

Note • *You can assign a person to work on more than one workflow request at a time.*

Task ***To assign a person to a workflow request (workflow administrators):***

1. In the navigation bar, click **Assign Work** on the **Workflows** menu. The **Work Assignment Listing** page opens.
2. Select the workflow that you want to assign users to. The **Assignment Details** page opens.



Note • *If a workflow request does not have any users assigned to it, the* ***Assignment Details*** *page will open when an administrator clicks on the workflow request name on the* ***All Requests*** *page instead of the* ***Workflow Request*** *page. As soon as users are assigned to the workflow request, the* ***Workflow Request*** *page opens directly.*

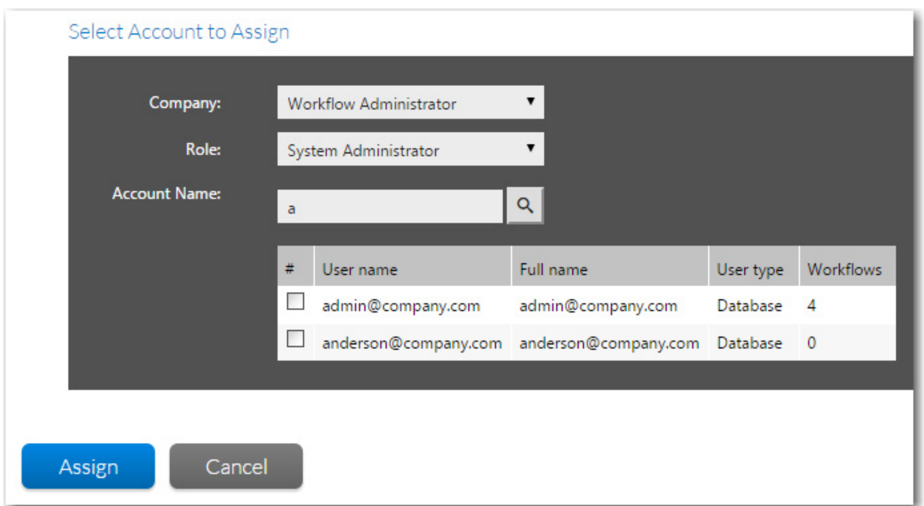
The **Current Assignments** list contains a list of roles, with the following fields:

- **Role Name**—The name of a role with rights to complete tasks related to this workflow request.
- **Assigned To**—The account name of a specific person belonging to this role. If the role has not yet been assigned to a person, `Not Assigned` is displayed.

3. To begin making assignments, in the **Select Account to Assign** box, select a company from the **Company** field that contains the users that you want to assign to this workflow request. The list will automatically update to display roles belonging only to the chosen company that have rights to complete this workflow request's tasks.
4. From the **Role** list, select the first role that you want to assign a user to.
5. Search for a user belonging to the chosen role by entering search criteria in the **Account Name** field and clicking the search button:

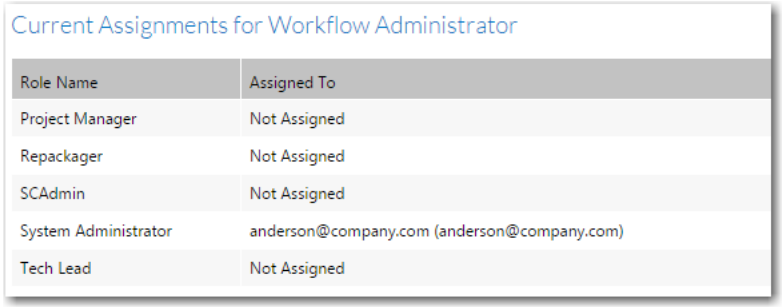
One of the following occurs:

- **If your search criteria matches one account**, it will be automatically entered in the **Account Name** field.
- **If your search criteria returns multiple accounts**, each account will be listed along with the number of workflow requests that user is currently assigned to.
- **If you do not enter any search criteria** and click the search button, a list of all available users will be listed.



***Note** • See Searching for Accounts for more information about searching the list of Workflow Manager accounts.*

6. Select an account and click **Assign**. The selected account is now displayed in the **Assigned To** column of the **Current Assignments** list, next to the name of the selected role.



Current Assignments for Workflow Administrator

Role Name	Assigned To
Project Manager	Not Assigned
Repackager	Not Assigned
SCAdmin	Not Assigned
System Administrator	anderson@company.com (anderson@company.com)
Tech Lead	Not Assigned

7. Repeat for all desired roles for both the consumer and administrator company.

Tip • *To remove an existing assignment, assign a different user to the role.*

Assigning Users to a Workflow Request as Part of a Workflow Step

Every workflow request has a series of roles associated with it that have permission to complete the workflow's tasks. To initiate work on a workflow request, workflow administrators assign one person from each of these roles to the request.

You can assign users to roles for a workflow request as part of a workflow step by adding a workflow step with a step type of **Work Assignment** to the workflow template. For these workflow steps, the administrator is prompted to assign users to roles on the workflow step details area of the **Progress** tab of the **Workflow Request** page.

When you set up a **Work Assignment** workflow step, you can also choose to select which of the roles you want to display in the workflow step details area. Instead of listing all roles, you can choose to only list the roles that apply to the current workflow step.

Specifying Roles to Display for a Work Assignment Workflow Step

When you create a workflow step with a step type of **Work Assignment**, as described in Creating a New Template, you can select the roles that you want to display for that workflow step in the **Please Select a Role** field.

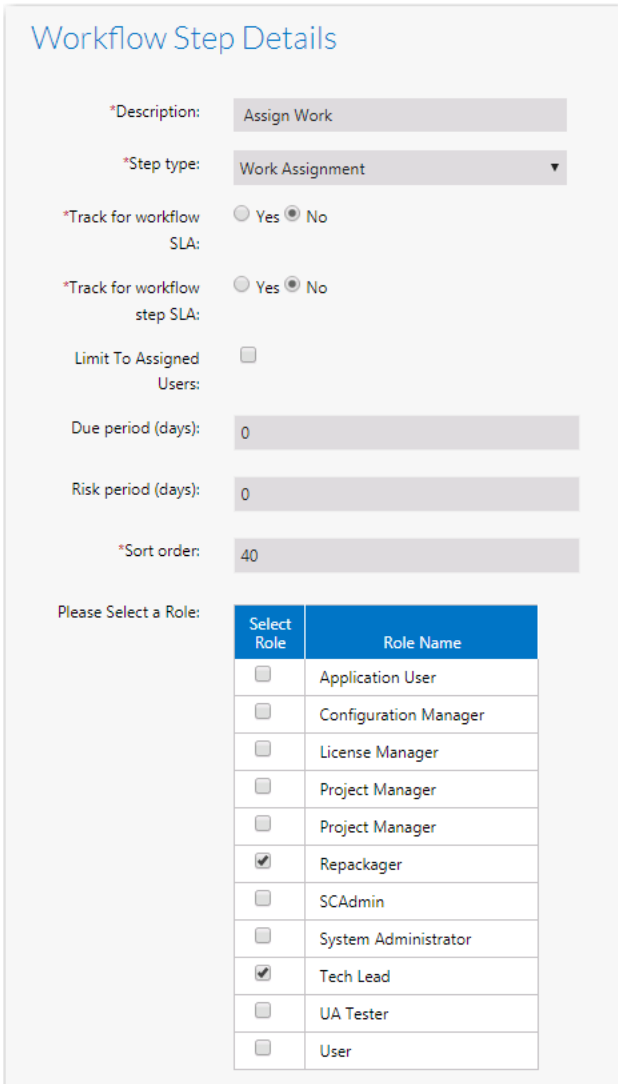


Figure 5-21: Selecting Roles for a Work Assignment Workflow Step

When a **Work Assignment** workflow step is displayed in a workflow request, only the roles that you selected for that workflow step will be listed.

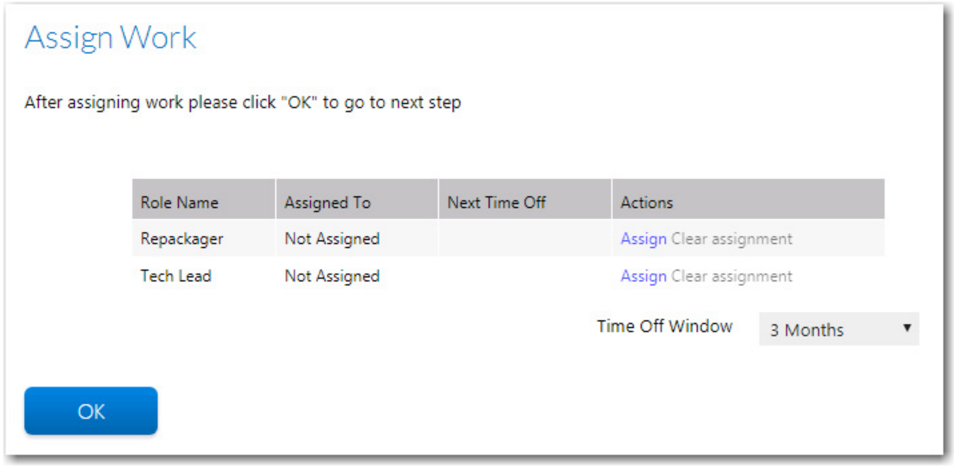


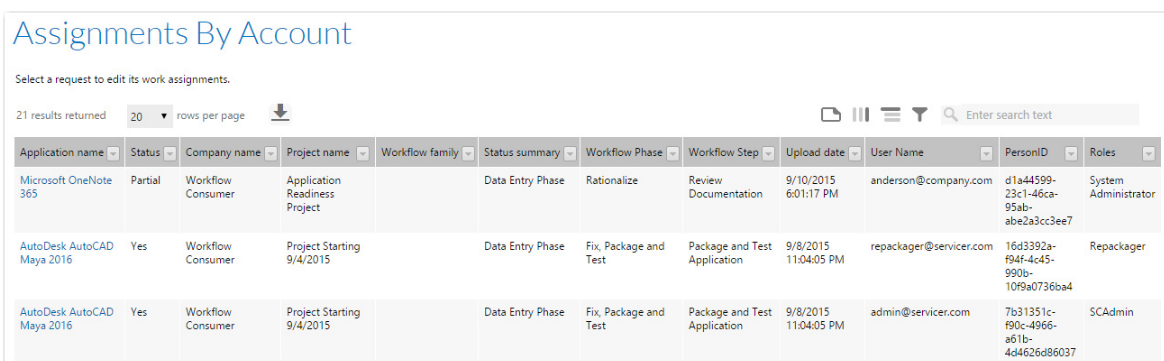
Figure 5-22: Selected Roles Listed for a Work Assignment Workflow Step

Viewing All Workflow Request Assignments

To review the user accounts assigned to your company's workflow requests, perform the following steps:

Task ***To view workflow request assignments:***

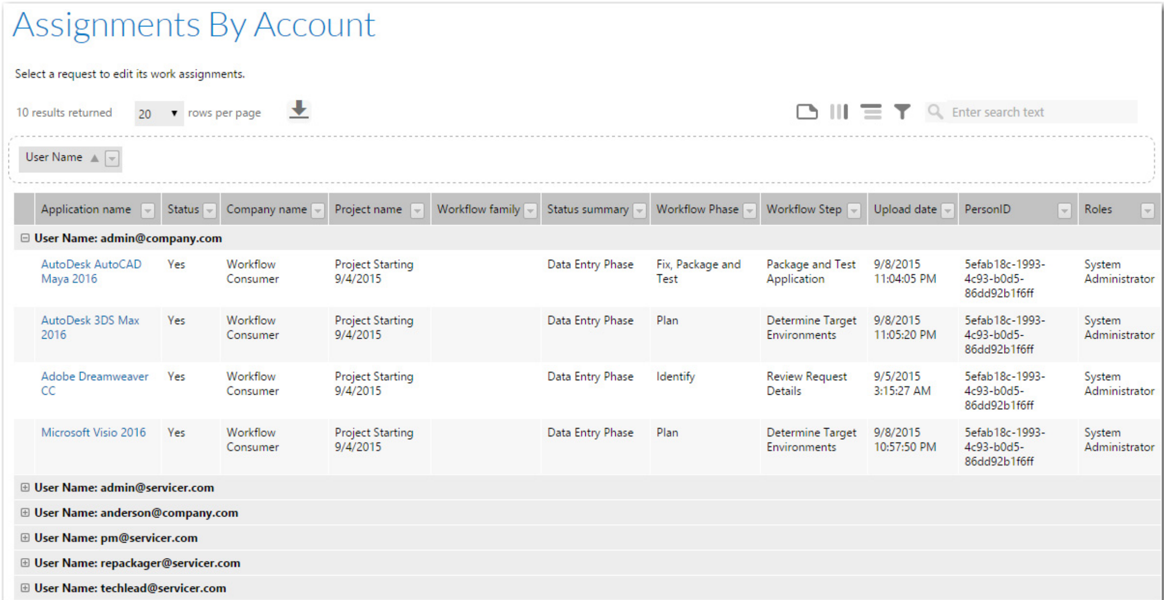
1. In the navigation bar, click **View Assignments By Account** in the **Workflows** group. The **Assignments By Account** page opens, and lists current workflow requests.



Regarding the records in this list:

- If you do not have permission to view assignments for all user accounts, you will only see a list of workflow requests assigned to you.
- If a workflow request is assigned to multiple accounts, there will be multiple records listed for that request, one for each account.
- Unassigned workflow requests are not listed on this page.

2. If you want to view a list of assignments by user account, group this listing by the **User Name** column, as described in Grouping Items in Lists.



3. Click on the name of the workflow request that you want to view the assignments for. The **Assign Details** page opens and lists all user accounts assigned to this workflow request.

4. If you want to update the user accounts assigned to a workflow request, perform the steps listed in Assigning Users to Workflow Requests.

Viewing Your Workflow Request Assignments

You may wish to view the workflow requests which you are assigned to and which are currently in progress. There are two methods for viewing your workflow request assignments.

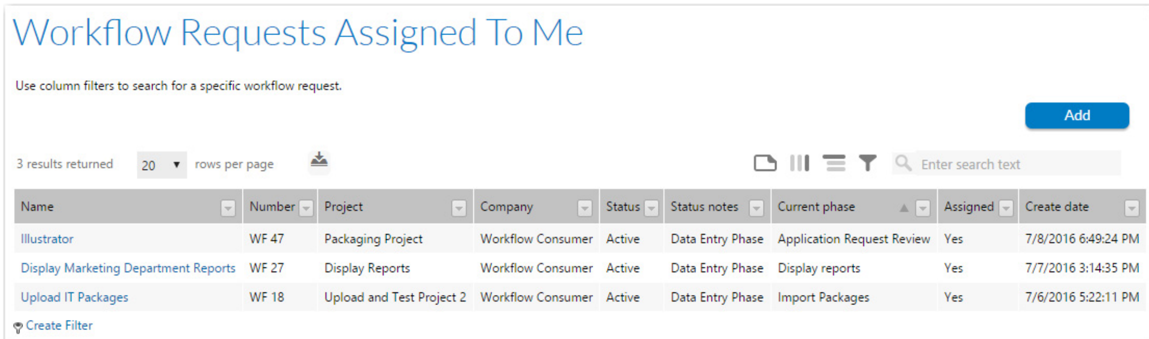
- Opening the Workflow Requests Assigned To Me Page
- Opening the View Assignments By Account Page

Opening the Workflow Requests Assigned To Me Page

The **Workflow Requests Assigned to Me** page lists those workflow requests whose current workflow step is assigned to you. It does not list a workflow request if you are only assigned to a future workflow step or a workflow step that is already completed.

Task ***To open the Workflow Requests Assigned to Me Page:***

1. In the navigation bar, click **Workflow Requests Assigned To Me** under **Workflow Requests** on the **Workflows** menu. The **Workflow Requests Assigned To Me** page opens, listing those workflow requests whose current workflow step is assigned to you.



2. Sort or filter the list to locate the workflow requests assigned to you. See Using Lists for more information.

3. To review one of these workflows, click on its name. The **Workflow Request** page will open for that workflow request, which you may use to update the workflow request as you complete your assigned task. See Completing Workflow Requests for details.

Opening the View Assignments By Account Page

The **View Assignments By Account** page returns a list of all workflow assignments which are currently in progress. You can find your assignments by filtering the **User Name** column. Use this page to drill through to the **Workflow Request** page for a specific workflow request, where you may update the request as you complete your assigned tasks.

Task ***To view a list of your workflow request assignments:***

1. In the navigation bar, click **View Assignments By Account** under **Work Assignments** in the **Workflows** menu. The **Assignments By Account** page opens, listing all active workflow requests.

2. Sort or filter the **User Name** column of the list to locate the workflow requests assigned to you. See Using Lists for more information.

3. To review one of these workflows, click on its name. The **Workflow Request** page will open for that workflow request, which you may use to update the workflow request as you complete your assigned task. See Completing Workflow Requests for details.

Updating a Workflow Request

You can update a workflow request by either completing tasks associated with it, or updating its general information.

Table 5-10 • Methods of Updating a Request

Task	Description
Completing a Workflow Step	The tasks that you perform to complete a workflow step vary depending on its type. You may be prompted to enter information, comments or the time spent on the task, or alternatively will need to launch a script or custom web page.
Sending Additional Email Notifications	Add comments and/or additional recipients to email notifications for a workflow step.
Rolling Back to a Previous Workflow Step	Roll back to a previous workflow step, so that this step (and all subsequent steps) must be repeated.
Editing a Completed Workflow Step	Update the information entered in a data entry step.

Completing a Workflow Step

When you have finished working on a workflow step and want to mark it as complete, perform the following steps.

Task ***To complete a workflow request workflow step:***

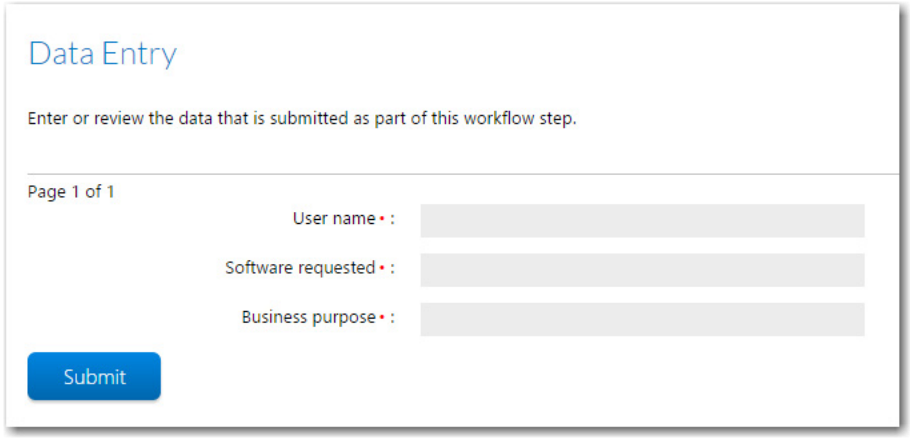
1. Open the **Workflow Request** page.

   Important • *Instead of requiring workflow administrators to open the **Workflow Request** page and locate the current workflow step, you can set up Workflow Manager so that clicking the provided link in the workflow step notification email will open the current workflow task. See Enabling the Ability to Open the Current Workflow Task Directly from Notification Email.*

2. Select the current workflow step. One of the following happens, depending on the step type:

   Tip • *You can also optionally add additional email recipients and comments when completing most of these types of workflow steps, as described in Sending Additional Email Notifications.*

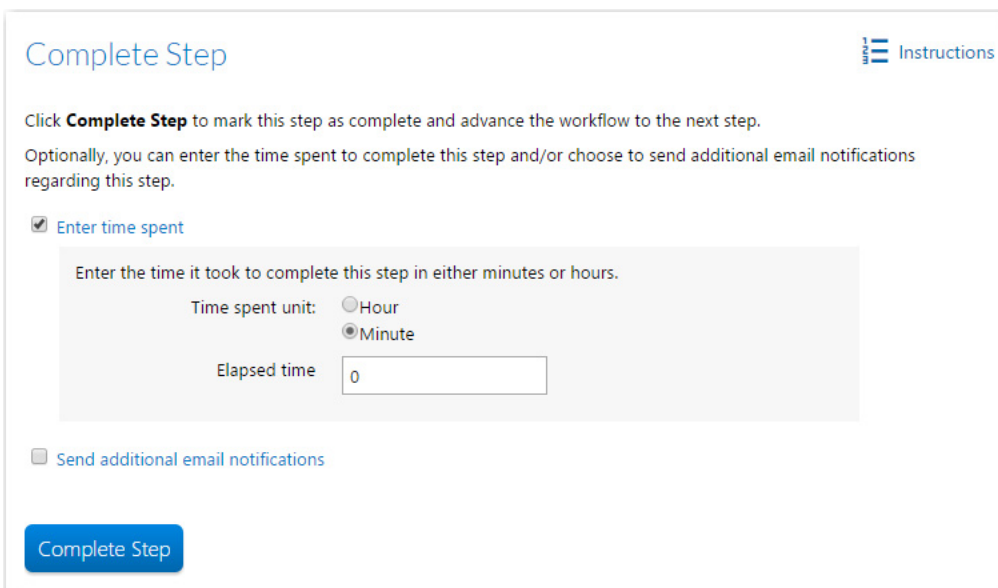
   - **Data Entry**—You are prompted to enter data. Enter the data and click **Submit**.



Important • *When completing a multi-page data entry workflow step, you are permitted to scroll through all of the data entry pages before answering the required questions. For more information, see Viewing All Pages of Data Entry Workflow Step Before Answering "Required" Questions.*

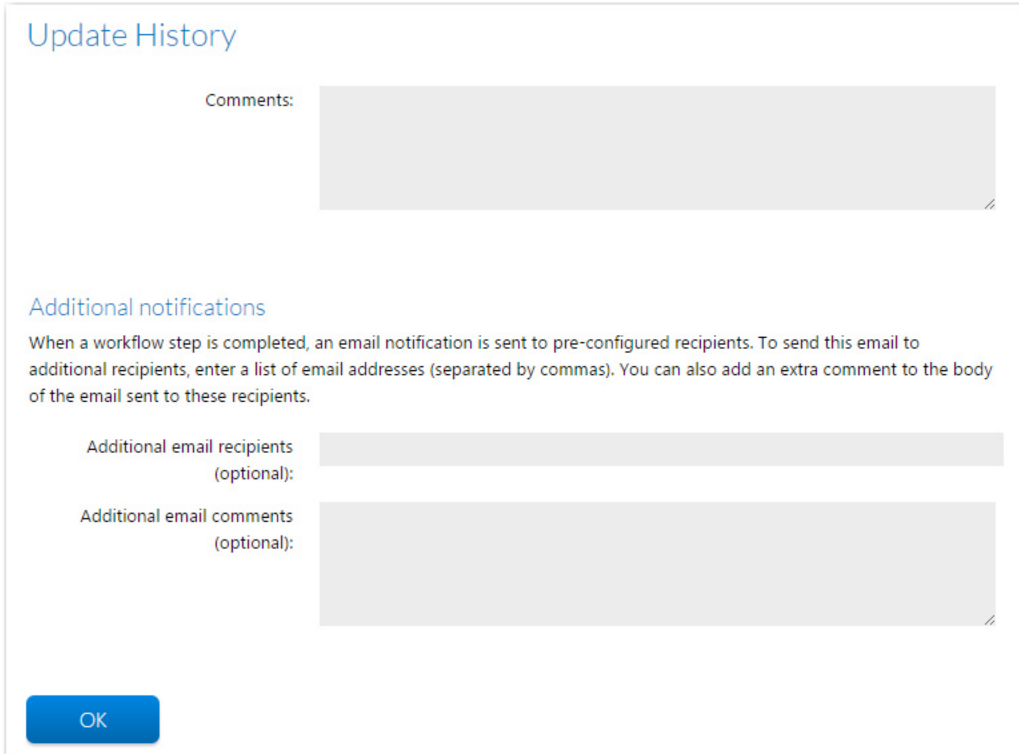
Note • *Refer to the Web Service Results Dialog Box for information about entering data using a data element of type **Web Service Call.***

- **Normal**—You are prompted to enter the total time spent to complete this workflow step. If you do not enter anything, zero minutes will be recorded.



Note • *You can also advance a **Normal** workflow step by clicking on a link in a notification email; you are not required to open the **Workflow Request** page. For more information, see Advancing a "Normal" Workflow Step Directly From a Notification Email.*

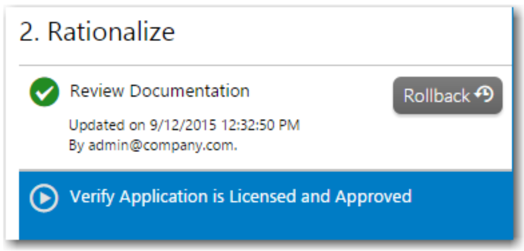
- **Work Assignment**—When this workflow step is performed, the workflow administrator is prompted to assign a users to the listed roles associated with this workflow request. For more information, see Assigning Users to Workflow Requests.
- **Update History**—You are prompted to enter information to document this workflow phase.



- **Script Execution**—You are prompted to enter comments and then click **Run** to launch an operator-specified executable file.
- **Custom Web Page**—An operator-specified URL address is opened in a new browser window. You need to follow the instructions on the custom web page to complete the step.
- **Automated Import**—A user-specified URL address is opened in a new browser window and Workflow Manager runs a user-supplied IPlugin assembly that will programmatically import a package that was uploaded in a previous workflow step into the Application Catalog. After the IPlugin assembly completes, data will be sent back to Workflow Manager that will automatically mark this step complete and advance the workflow.
- **Automated Validation**—A user-specified URL address is opened in a new browser window and Workflow Manager runs a user-supplied IPlugin assembly that will programmatically validate a package that was imported into the Application Catalog in a previous workflow step. After the IPlugin assembly completes, data will be sent back to Workflow Manager that will automatically mark this step complete and advance the workflow.
- **Automated Conflict Analysis**—A user-specified URL address is opened in a new browser window and Workflow Manager runs a user-supplied IPlugin assembly that will programmatically perform conflict analysis on a package that was imported into the Application Catalog in a previous workflow step. After the IPlugin assembly completes, data will be sent back to Workflow Manager that will automatically mark this step complete and advance the workflow.
- **Approval Task**—The Approval Dialog Box opens, prompting you to approve this workflow step. For more information, see Completing an Approval Type Workflow Step.

- **Allocate Software License** —You are prompted to click an **Allocate** button to allocate a computer or end-user (as specified in an earlier step) to a software license.
- **Deallocate Software License**—You are prompted to click a **Deallocate** button to deallocate a computer or end-user from a software license.
- **Custom Automated Task**—Allows you to run your own custom code using the iPlugin infrastructure and advance the workflow to the next step, all without manual intervention. See Defining a Custom Automated Task Workflow Step for detailed information.

3. Once completed, the workflow step is displayed with a green check mark and the next step becomes active.



Viewing All Pages of Data Entry Workflow Step Before Answering “Required” Questions

When a workflow request collects data in the first workflow step or in subsequent workflow steps, sometimes the user needs to answer questions on multiple pages (each defined in a separate data group) before submitting the data to complete the step. Some of these pages may include questions specified as required.

The user can click **Next** to scroll through all of the pages in a data entry workflow step even if required questions on one or more pages have not been answered.

When the user clicks **Submit** on the last data entry page, if there are any unanswered “required” questions, an error message will appear, listing the questions that need to be answered. The user can then click the page name to return to that page and answer those questions.

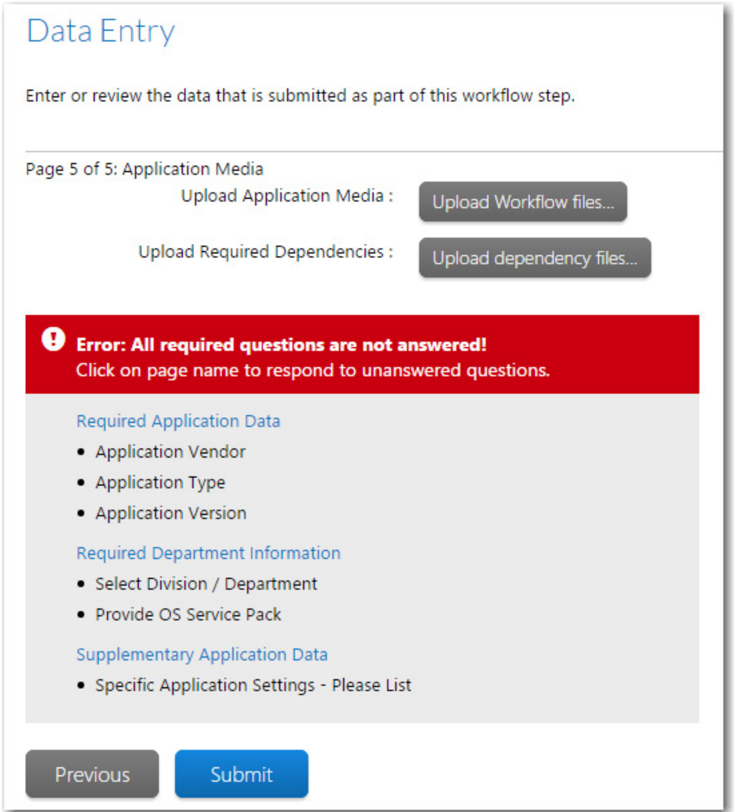


Figure 5-23: Error Message Listing Unanswered “Required” Questions on Submit Page

“Skip Required Entries for Now” Option

Regarding postponing the answering of required questions, you have two options:

- **User is required to select the “Skip required entries for now” option**—You can configure Workflow Manager so that the user is required to select the **Skip required entries for now** option in order to be able to proceed to the next page when required questions have not been answered.

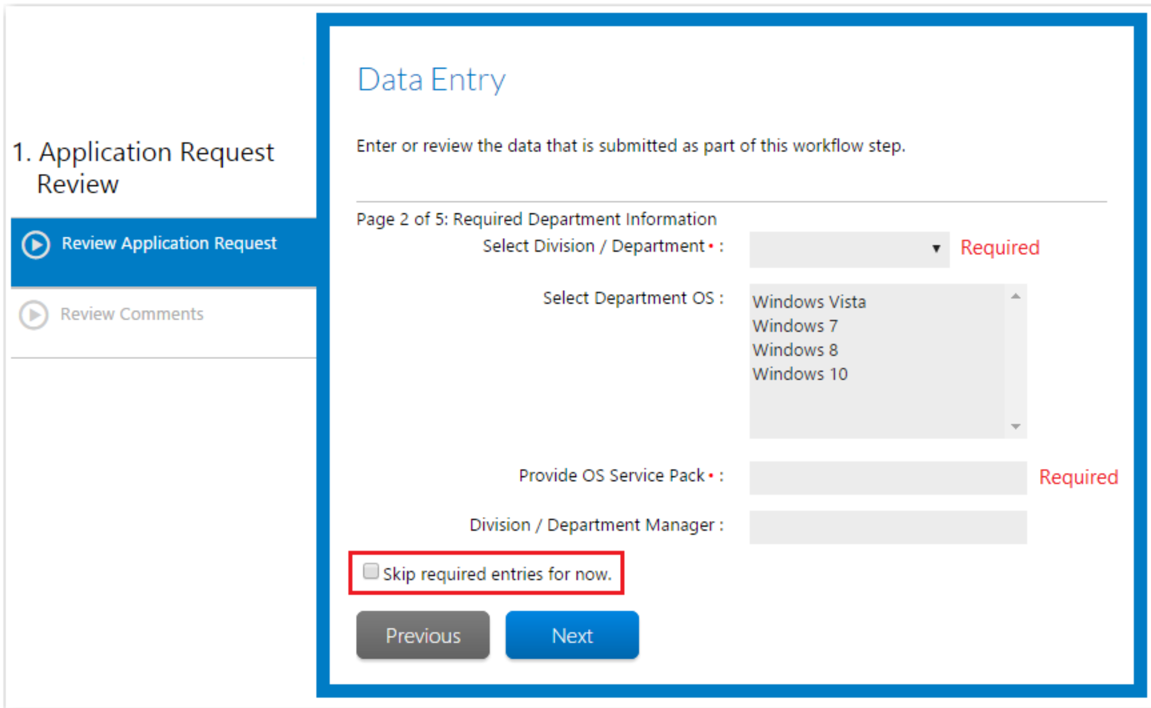


Figure 5-24: "Skip required entries for now" Option

- **Automatically enable ability to skip required entries**—You can configure Workflow Manager so that the **Skip required entries for now** option is not displayed, and the user is automatically permitted to proceed to the next page of questions even though "required" questions remain unanswered.

The `SkipRequiredElements` setting in the `appSettings` section of the `web.config` file determines whether or not the **Skip required entries for now** option is displayed. For more information, see Display of "Skip Required Entries for Now" Option.

Completing an Approval Type Workflow Step

There are two ways to take action on an **Approval Type** workflow step:

- On the Workflow Request Page
- From an Email

On the Workflow Request Page

When you open the **Workflow Request** page and click on the hyperlinked name of a workflow step with the **Step Type** of **Approval Type**, the Approval Dialog Box opens, prompting you to approve this workflow step.

If you are one of users listed in the **Approver** column of an active **Level**, or if you belong to a group or role that is listed, you can click **Approve** or **Reject** to take action on this workflow step.

Whether a workflow step advances when you take action depends upon the **Approval Type** of the workflow step:

- **Linear**—Approvals need to take place sequentially, one after the other, according to assigned **Level**.

  - If there is more than one user assigned to a level, then everyone in that level must approve the workflow step before it can proceed to the next level of approvers, but they can approve it in any order.
  - If an LDAP group or a role is specified as the **Approver**, everyone in that group/role has to approve the workflow step before it can proceed to the next level, but the members of that group/role can approve it in any order.
- **Pool**—Only one approver is required, even if multiple approvers are listed. Anyone (or any member of a listed group/role) can approve the workflow step. The **Level** field is ignored.
- **Linear In Pool**—Approvals need to take place sequentially, one after the other, according to assigned **Level**, but if there is more than one user assigned to a level or if there is a group assigned to a level, only one user of the assigned users (or only one member of the group/role) needs to approve it.
- **Parallel**—All listed users (and all users in listed groups/roles) must approve the workflow step before it can proceed, but not in any specific order. The **Level** field is ignored.

From an Email

When a workflow step with a **Step Type** of **Approval Type** becomes the current step, the users defined as approvers on the step, or users belonging to a group or role that is defined as an approver on the step, are informed via email that they need to approve this task. Therefore, instead of opening the **Workflow Request** page and clicking on the name of the workflow step to open the **Approval** dialog box, they can instead click the **Approve** or **Reject** buttons in their notification email.

Figure 5-25: Approval Task Notification Email

You would then receive a message stating that your action was either successful or unsuccessful.

Successful Action

When you click **Approve** or **Reject**, you will receive a message stating that your action was successfully submitted.

Unsuccessful Action

In certain situations, your action would not be successfully submitted because of one of the following reasons.

- **Approval/rejection action has already been taken**—Either you or someone else who has been defined as an approver at the appropriate level has already taken action on this step.

- **Workflow step no longer active**—This approval workflow step is no longer the current step, possibly due to a rollback.
- **Workflow has been deleted**—After the approval email was sent to you, the workflow was deleted.

Enabling the Ability to Open the Current Workflow Task Directly from Notification Email

When a workflow step is assigned to a user, an email is sent to alert him. For workflow steps with a **Step Type** of **Normal**, **Work Assignment**, and **Update History**, you can configure Workflow Manager so that the assigned user can click a link in the notification email to directly open the web page containing the detail of the assigned workflow step, rather than opening the **Workflow Request** page first. This is especially helpful for approval steps.

After the user marks the workflow step complete, he will be prompted to choose whether he wants to close the page or proceed to the Workflow Request page.

To enable this option, perform the following steps:

Task ***To enable ability to open workflow task from notification email:***

1. Open the `wwwroot` directory of the Workflow Manager installation and open `web.config` in a text editor.
2. Locate the `OpenCurrentWFStepFromEmail` portion of this file:

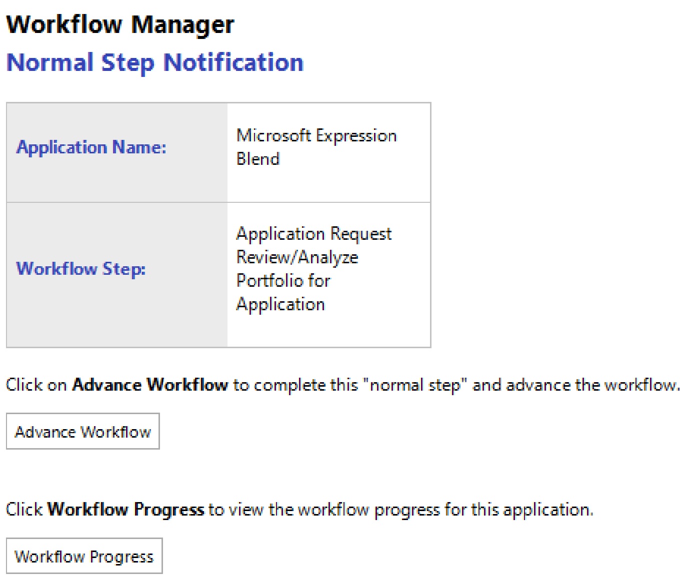
   ```
   <add key="OpenCurrentWFStepFromEmail" value="0"></add>
   ```

3. To enable the opening of the current workflow step from the link in the notification email, change the value of this entry to **1**. By default, it is set to **0**.

Note • *If Workflow Manager is set up to use domain account or single-sign on authentication, users will be automatically logged in when they click the link in the notification email, and no login page will open. However, if account login is being used, the user will be prompted to log in before the workflow step detail page will open.*

Advancing a “Normal” Workflow Step Directly From a Notification Email

When a workflow step with a **Step Type** of **Normal** becomes the current step, if you have enabled email notification (as described in Assigning Permissions and Notification Settings on a Workflow Template), the following **Normal Step Notification** email will be sent to all users belonging to roles assigned to this step to inform them that they need to complete this task.



Workflow Manager

Normal Step Notification

Application Name:	Microsoft Expression Blend
Workflow Step:	Application Request Review/Analyze Portfolio for Application

Click on **Advance Workflow** to complete this "normal step" and advance the workflow.

Advance Workflow

Click **Workflow Progress** to view the workflow progress for this application.

Workflow Progress

Figure 5-26: Normal Step Notification Email

This email provides them with two options:

- **Advance Workflow**—Click to mark the workflow step as complete.
- **Workflow Progress**—Click to open the **Workflow Request** page of this workflow request.

Therefore, instead of opening the **Workflow Request** page and clicking on the name of the workflow step to open the **Step Completion** dialog box, they can instead click the **Advance Workflow** button in their notification email.

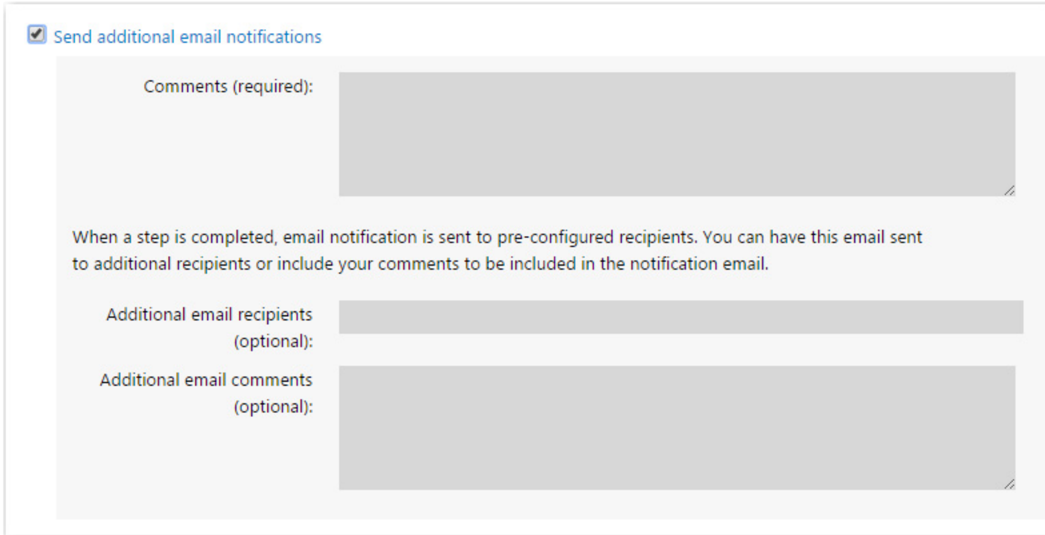
Sending Additional Email Notifications

When completing a workflow step, you can choose to send additional custom email notifications to individuals that you specify. These email notifications will be sent in addition to those already configured to be automatically sent.

You can also choose to add additional comments to the email notifications that are automatically sent.

Task ***To send additional email notifications:***

1. Open the **Workflow Request** page.
2. Click on the workflow step name. The workflow step details are displayed.
3. Fill in the information required to complete the step.
4. Select the **Send additional email notifications** option.



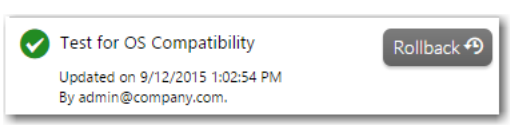
5. In the **Comments** field, enter comments that will be added to text that is already sent from the standard email template.
6. In the **Additional email recipients** field, enter email addresses of individuals who are not already configured to receive email notifications on this workflow step. If you enter more than one email address, separate them using a semi-colon.
7. In the **Additional email comments** field, enter comments that will be sent only to the individuals listed in the **Additional email recipients** field.
8. Click **Complete Step**.

Rolling Back to a Previous Workflow Step

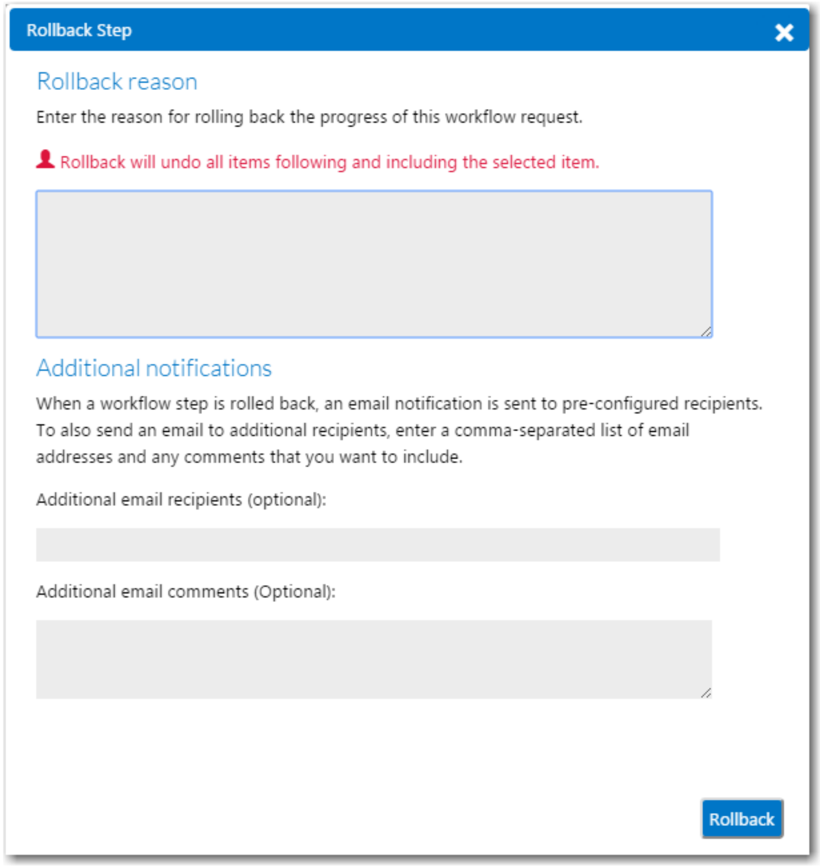
As you progress through a workflow, you may find that circumstances change, and you need to roll back to an earlier workflow step.

Task ***To roll back a workflow request:***

1. Open a workflow request's **Workflow Request** page as described in Opening a Workflow Request's Workflow Request Page.
2. Click the **Rollback** button next to the name of the workflow step you want to roll back to.



The **Rollback Step** dialog box opens.



*Note • If you perform a rollback, all of the data associated with the selected workflow step and all subsequent steps is removed, and all of those steps must be repeated. It is not possible to roll back to the initial data entry step, so you will not see a **Rollback** button if you click on the name of this workflow step. It is also not possible to roll back to an **Allocate Software License** or **Deallocate Software License** step.*

Tip • If you do not have permission to edit a step, you will be unable to perform a rollback. See Workflow Manager Permissions for details.

3. Indicate the reason for the rollback in the appropriate text field, and also specify the email address of any additional people who need to be notified in the **Additional email recipients** field. If you want to customize the message sent to these additional people, enter your extra text in the **Additional email comments** field.

   *Note • If you enter more than one email address in the **Additional email recipients** field, separate them using a semi-colon.*

4. Click the **Rollback** button.

When rolling back and repeating typical workflow steps, Workflow Manager keeps a running total of the time spent on each attempt. This time is usually recorded when submitting a workflow step, in the **Time spent** field. If you a submit a workflow step for a second time, a new text box, named **Additional time spent**, appears. This allows you to record any extra time that you spend on the task, above and beyond the time entered in the **Initial time spent** field.

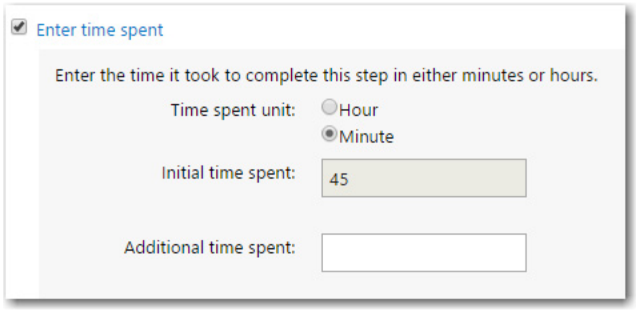


Figure 5-27: Additional Time Spent Field

Editing a Completed Workflow Step

In most instances, if a workflow step has a data group associated with it, you can go back and edit the data you supplied for that workflow step when it was submitted without rolling back. In other cases, it might be necessary to roll back to that workflow step before you will be allowed to update your information. See Rolling Back to a Previous Workflow Step for more information.

To update a previously completed workflow step (after rolling back to it, if required), you will need to select the workflow step name on the **Progress** tab of the **Workflow Request** page.

Please note the following regarding editing previously submitted workflow data:

- **Can edit all submitted data throughout the workflow**—You can update data collected during any data collection step (including the initial submission step), as well as generic supplementary information entered while completing a step (like the time taken or comments made).
- **Cannot edit branching data**—If a workflow step includes a data item used to make a branching decision (that is, the data entered in that data item decides which course the workflow will follow), that data item will not be updatable. You will need to roll back to the workflow step to edit that data item.
- **Data editing information is logged**—Every time you edit a data item on a completed workflow step, the change is logged in the Workflow Manager database for auditing purposes, and this change history, along with rollback information, appears on the **Workflow Report**.
- **Comments are required**—If you update previously submitted data, you are required to add a comment indicating the reason for the change.
- **Triggers email notification**—Updating previously submitted data may cause an email notification to be sent to the people specified on the workflow template's **Notifications** tabs. See Assigning Permissions and Notification Settings on a Workflow Template for more information.
- **Cannot update software allocation/deallocation data**—You cannot update **Allocate Software License** and **Deallocate Software License** steps. Once such steps are completed, clicking the step name opens the **Allocate Software To Computer** or **Deallocate Software From User/Computer** dialogs in read-only mode. You can review the details of the allocation or deallocation, but cannot make any changes.

For information about editing a completed workflow step, see the following topics:

- Editing Data Collected During Initial Workflow Step
- Editing Data Collected During Data Entry Steps
- Editing Time Spent Information for Normal Workflow Steps
- Editing Update History Workflow Steps
- Editing Work Assignment Workflow Steps
- Relaunching Script Execution and Custom Web Page Workflow Steps

Editing Data Collected During Initial Workflow Step

You can modify all of the initial data you provided when a workflow request is submitted, except when a data item is used to determine workflow branching.

Task ***To update data collected during the initial workflow step:***

1. Open a workflow request's **Workflow Request** page as described in Opening a Workflow Request's Workflow Request Page.
2. Click on the name of the initial workflow step. The first data submission screen opens, providing you with a read-only view of the data that was initially submitted, along with an **Update Data** button.
3. Click **Update Data**. A dialog box opens, prompting you to explain why you need to update the information.
4. Enter the reason for the change, along with any desired additional email recipients and additional email messages, and then click **Continue Edit** to close the dialog box and return to the **Progress** tab. All of the data fields (except those used in branching) will now be editable.

   Note • *Data fields that are used for branching are read-only and labeled* ***Rollback to edit this data item****.*
5. Proceed through all the data submission screens, making any desired updates.
6. On the last data submission screen, click the **Update** button to save your changes.
7. Click the **Return to workflow** hyperlink to return to the **Progress** tab.

Editing Data Collected During Data Entry Steps

You can also update any data that was entered as part of any later workflow step.

Task ***To update data collected during later workflow steps:***

1. Open a workflow request's **Workflow Request** page as described in Opening a Workflow Request's Workflow Request Page.
2. Click the name of a previously submitted workflow step which contains data that you want to edit. The data entry fields associated with that step are displayed, as well as an **Update Step** button.

3. Update the data as required. You can also edit the **Enter Time Spent** field.

4. Enter a reason for the changes in the **Comments** text box and click **Update Step**. You are returned to the **Workflow Request** page, and the workflow step that you just edited is still marked as complete.

Editing Time Spent Information for Normal Workflow Steps

You can update the time that was spent completing a **Normal** workflow step without rolling back to that step.

Task ***To update time spent completing Normal workflow steps:***

1. Open a workflow request's **Workflow Request** page as described in Opening a Workflow Request's Workflow Request Page.

2. Click the name of the **Normal** workflow step you want to update. The step completion area opens, displaying an **Update Step** button.

3. Click **Enter time spent**. The time entry fields are available to record the amount of time spent completing this task. The **Initial time spent** field displays the value you entered in the **Total time spent** text box when you first submitted the step, while the **Additional time spent** field can be used to record any extra elapsed time.

4. Update the **Additional time spent** field as required.

   ***Note** • Workflow Manager keeps a running total of the amount of time entered initially in the **Total time spent** field and time entered later, when updating or rolling back a workflow step.*

5. Optionally, select **Send additional email notifications** and then, in the **Comments** text box, enter a description of why the task took longer than originally specified.

6. Click **Update Step**. The workflow step you just updated is still marked as complete.

Editing Update History Workflow Steps

You can modify the comments were entered in the **Update History** dialog box for workflow steps of type **Update History** without rolling back to that step.

Task ***To update comments on Update History workflow steps:***

1. Open a workflow request's **Workflow Request** page as described in Opening a Workflow Request's Workflow Request Page.

2. Click the name of the **Update History** workflow step which you want to update. The step completion area for that step opens.

3. Edit the text in the **Comments** text box and click **Update Step**. The workflow step that you just edited is still marked complete.

Editing Work Assignment Workflow Steps

If you are a workflow consumer, you can update the work assignments that were made when completing a workflow step of type **Work Assignment** without rolling back to that step.

Task ***To update Work Assignment steps:***

1. If you are a workflow administrator, open a workflow request's **Workflow Request** page as described in Opening a Workflow Request's Workflow Request Page.
2. Click the name of the **Work Assignment** workflow step you want to modify. The step completion area for that workflow step opens.
3. Update the set of people assigned to this workflow. See Assigning Users to Workflow Requests for more information about the work assignment list.
4. Click the **Update Step** button once you are done. The workflow step that you just updated is still marked as complete.

Relaunching Script Execution and Custom Web Page Workflow Steps

You can relaunch a script or a custom web page associated with **Script Execution** or **Custom Web Page** workflow steps without rolling back to those steps.

Task ***To relaunch Script Execution and Custom Web Page workflow steps:***

1. Open a workflow request's **Workflow Request** page as described in Opening a Workflow Request's Workflow Request Page.
2. Click on the name of the **Script Execution** or **Custom Web Page** workflow step that you want to relaunch. The custom web page or script are passed a parameter which launches it in edit mode, if it is configured to do so.
3. Complete the script or web page as instructed. Once done, the workflow step that you just edited is still marked as complete.

Working With Issues

You can create three types of issues for a workflow request:

- **Knowledge Base**—A **Knowledge Base** issue is used to share information with people in a discussion board forum. You would create a **Knowledge Base** issue when you want to post an issue on the **Issues** tab, but do not want to notify anyone via email.
- **Email**—An **Email** issue is used for issues that you do not consider critical, but which require that people associated with this project be notified.
- **Critical**—A **Critical** issue is used to stop all work on a workflow request until the issue is resolved.

This section contains information on the following tasks:

- Creating a New Issue
- Uploading Files to an Issue

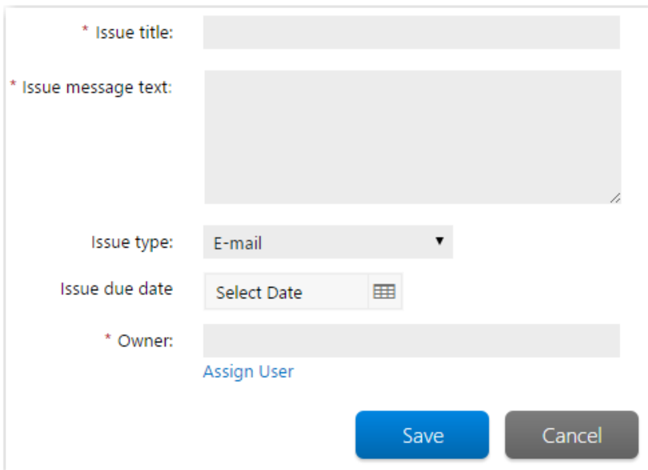
- Responding to or Closing an Issue

Creating a New Issue

You create new issues on the **Issues** tab of a workflow request's **Workflow Request** page.

Task ***To create a new issue:***

1. Open a workflow request's **Workflow Request** page as described in Opening a Workflow Request's Workflow Request Page, and then select the **Issues** tab.
2. Click the **Create New** button. An issue details area appears above the list of existing issues.



3. In the **Issue title** box, enter a short description for the issue so it can be readily identified in lists.
4. In the **Issue message text** field, provide enough information to describe or reproduce the issue.
5. Select an **Issue type** from the list. You may choose one of the following:
    - **Knowledge Base**—Choose this option if you want to post this issue on the **Issues** tab but do not want to notify anyone by email. A **Knowledge Base** issue is used to share information between several people in a discussion board forum. Other people must open the **Issues** tab for the workflow request in order to read the issue, and any responses made are listed below the original issue.
    - **E-mail**—Use the **E-mail** type for issues that you do not consider critical, but which require that people associated with the project be notified. Such issues appear on the **Issues** tab once they are raised, and also notification emails are sent to every person belonging to a role with the **Issue Submitted** right turned on for the project.
    - **Critical**—Use this option if you want to stop all work on this workflow request until the issue is resolved. Whenever a workflow request has an open **Critical** issue, the request becomes read-only until the issue is resolved. Only people with the right to edit workflows will be able to raise or close critical issues. When a critical issue is open, the following conditions apply:
        - The note `Open Critical issue present in Workflow` appears near the top of the **Issues** tab
        - The note `The Workflow is READ-ONLY because of Critical issues` appears at the top of the **Progress** tab.

- Every time a person opens the **Issues** tab of a workflow request with an open **Critical** issue, the **Issue Details** section automatically appears below the list of issues, showing you the details of the critical issue.

***Note •** The amount of time taken to close a critical issue is tracked and listed on the **Workflow Report**.*

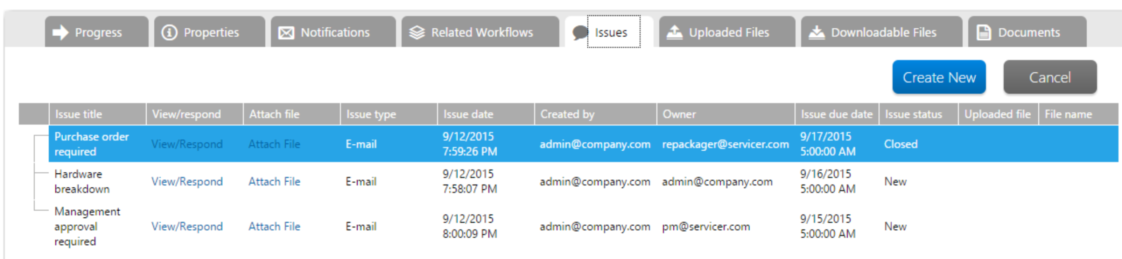
6. Use the calendar icon next to the **Issue due date** field to choose a target due date for issue.
7. Specify someone as the owner of this Issue by clicking the **Assign User** button and selecting an account from the list. Refer to Searching for Accounts for more information about finding an appropriate account.
8. Click the **Save** button to create the issue. The issue is raised and automatically included in the list on the **Issues** tab. Any other actions that need to be taken, as described above, are also completed at this time.

Uploading Files to an Issue

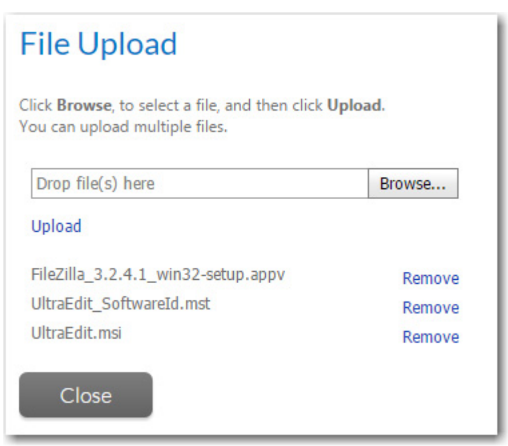
You can upload and attach a file to an issue on any of the pages available on the **Issues** menu or on the **Issues** tab for a workflow request.

Task ***To upload a file to an issue dialog:***

1. On one of the pages on the Issues menu or on the **Issues** tab of a workflow request, click **Attach File** in the **Attach File** column next to an issue.



The **File Upload** dialog box opens.



2. Click the **Browse** button. The standard system file upload dialog opens, allowing you to choose the file you wish to upload. After you select the file, it will be added to the list. At this stage, the file has not yet been uploaded.

3. Repeat if you wish to upload multiple files.

   Tip • *If you change your mind, click the **Remove** button to remove a file you have added to the list.*

4. Click **Upload** to upload your file(s). The files are uploaded, and a confirmation dialog appears once the upload is finished.

   Note • *You can upload files of any size without causing a timeout error. When uploading a file, Workflow Manager streams the data into a disk file instead of receiving the entire upload request in memory, so the only limitation to file size would be the amount of free disk space at the location of the uploaded files.*

Responding to or Closing an Issue

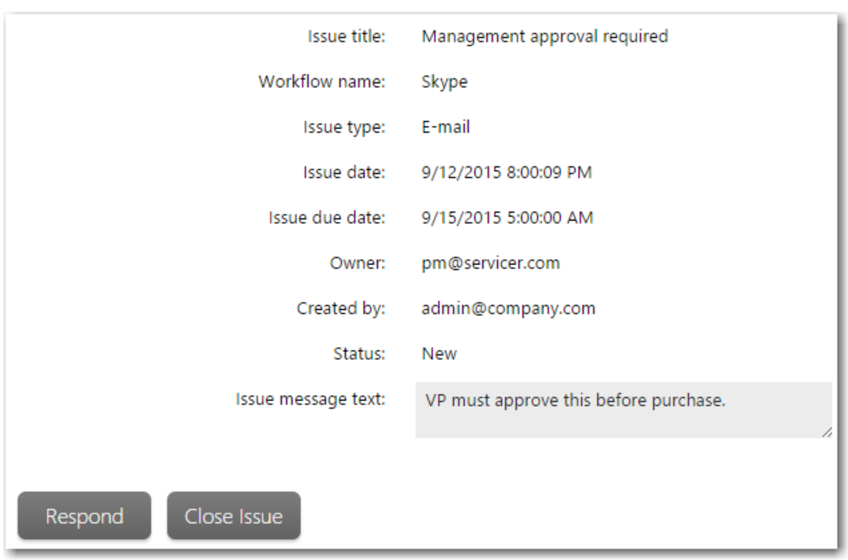
If you take action on an issue raised by someone else, you may respond to that issue, indicating what work has been done. Once that person is satisfied that the issue has been resolved, they may close their issue. To respond to or close an issue, do the following:

Task ***To respond to or close an issue:***

1. Open a workflow request’s **Workflow Request** page as described in Opening a Workflow Request’s Workflow Request Page, and select the **Issues** tab.

2. Locate the issue you want to respond to or close in the list of issues. For details about sorting or filtering the issues list, see Using Lists.

3. Click the **View/Respond** hyperlink in the **View/respond** column of the chosen issue. An issue details area opens for your issue, along with a **Respond** and **Close Issue** button.

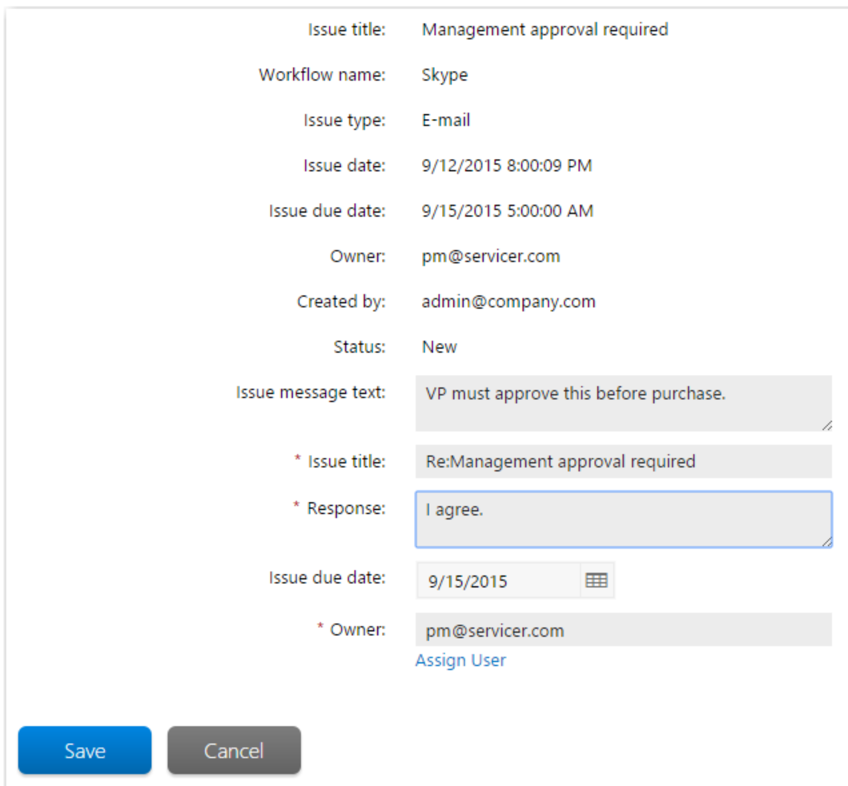


***Note** • You may only respond to or close open issues.*

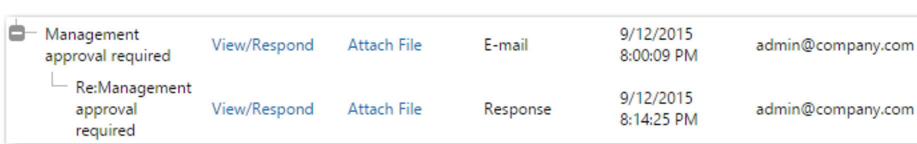
***Tip** • If there have been other responses to an issue, these are all listed below the main issue in a hierarchy. You may need to click the **+** next to an issue (or response) name to see all child responses, if the list is not expanded. To respond to someone else's response, simply click the **View/Respond** hyperlink associated with that response.*

4. Do one of the following:

- To respond to the issue, click **Respond**, and enter your message in the **Response** text box which appears. Click **Save** to post your response.



The response will appear below the issue or response you are responding to in the issues list, with issue type Response.



- To close the issue, click the **Close Issue** button. The issue is closed, and its status is automatically updated in the issues list.

***Note** • A workflow administrator cannot close an issue that was created by a workflow consumer, and vice versa.*

Note • *The **Close Issue** button is not displayed for responses to issues. To close a response, you must close the original item; doing so automatically closes all responses.*

Associating Files with a Workflow Request

Files are associated with workflow requests in two ways:

- **Downloadable Files tab**—The files listed on the **Downloadable Files** tab of the **Workflow Request** page have been associated with this workflow request in one of two ways:
    - A requester completed a step that collected a data that was defined with a **Data Type** of **Downloadable File Upload**.
    - An administrator copied a file directly to the Workflow Manager **Downloadable Files Directory**.

  See Viewing Files Uploaded to the File Share Location.
- **Documents tab**—Users with permission to upload files to the Workflow Manager database can upload files by clicking **Upload** on the **Documents** tab of the **Workflow Request page**. See Adding and Viewing Documents on the Documents Tab.

Adding and Viewing Documents on the Documents Tab

On the **Documents** tab of the **Workflow Request** page, you can access documents that are stored in the Workflow Manager database, and upload documents to store in the database.

Documents attached to a workflow request on the **Downloadable Files** tab are stored in an external directory on the Workflow Manager file server that was set up by the Workflow Manager administrator, and includes the documents that are added when a user completes a workflow step that collects a data element with the data type of **Downloadable File Upload**.

However, documents such as draft contracts, addenda, ratings of vendors responding to RFPs, etc. need to be more securely stored than on a file server. Historical versions of each document, especially contracts, need to be recorded. Documents stored using the **Documents** tab are securely stored in the Workflow Manager database and document versioning is available.

On the **Documents** tab, you can perform the following tasks:

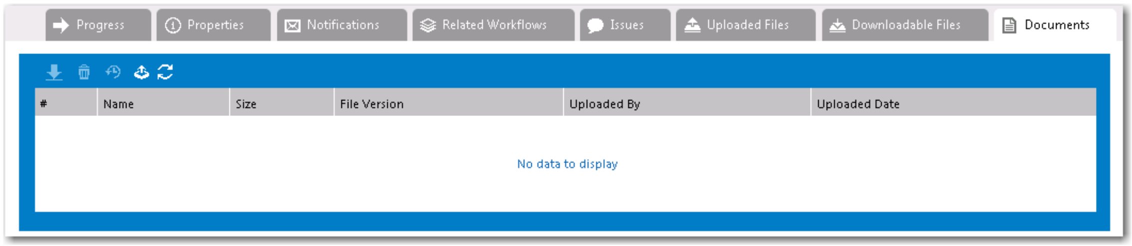
- Uploading a New File to the Documents Tab
- Uploading a New Version of an Existing File to the Documents Tab
- Viewing a File on the Documents Tab
- Viewing a Previous Version of a File on the Documents Tab

Uploading a New File to the Documents Tab

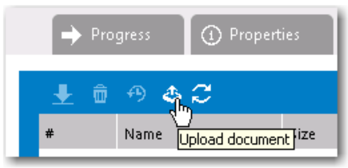
To upload a new file to the **Documents** tab, perform the following steps:

Task ***To upload a new file to the Documents tab:***

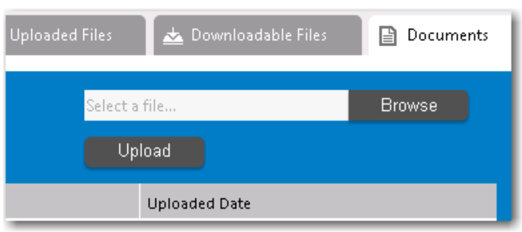
1. Open the **Workflow Request** page as described in Opening a Workflow Request’s Workflow Request Page.
2. Click the **Documents** tab. A list of all of this workflow request’s managed documents is displayed, if any.



3. Click the **Upload document** button in the toolbar:



An upload fields area appears above the right side of the list.



4. Click **Browse** and select a file to upload. The file name is now listed in the **Select a file** box.
5. Click **Upload**. The file is uploaded and now appears in the list.

Note • *If you attempt to upload a file with the same name as an existing file, you will receive an error message stating that the file already exists.*

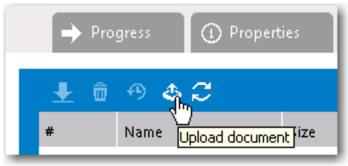
Uploading a New Version of an Existing File to the Documents Tab

To upload a new version of an existing file to the **Documents** tab, perform the following steps:

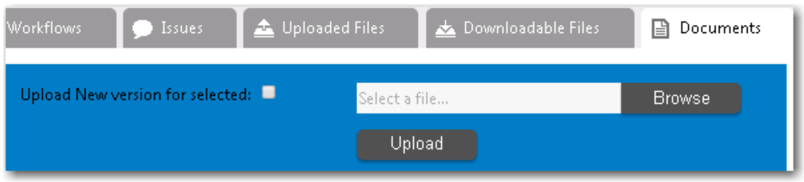
Task ***To upload a new version of an existing to the Documents tab:***

1. Open the **Workflow Request** page as described in Opening a Workflow Request’s Workflow Request Page.
2. Click the **Documents** tab. A list of all of this workflow request’s managed documents is displayed.
3. Select the file for which you want to upload a new version.

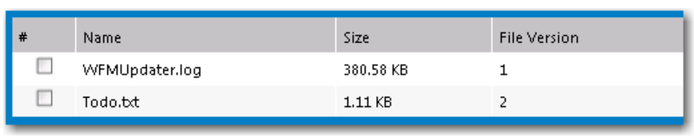
4. Click the **Upload document** button in the toolbar:



An upload fields area appears above the right side of the list, and, because you had an existing file selected, the **Upload New version for selected** option appears.



5. Select the **Upload New version for selected** option.
6. Click **Browse** and select a file to upload. The file name is now listed in the **Select a file** box.
7. Click **Upload**. The file is uploaded and now appears in the list on the **Documents** tab, and the **File Version** of the selected file is incremented by 1.



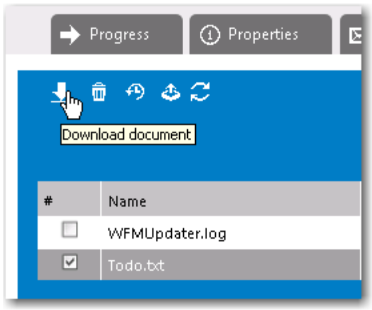
Note • *The file you upload will be saved as a new version of the selected file, even if it does not have the exact same name.*

Viewing a File on the Documents Tab

To view a document on the **Documents** tab, perform the following steps:

Task ***To view a file on the Documents tab:***

1. Open the **Workflow Request** page as described in Opening a Workflow Request’s Workflow Request Page.
2. Click the **Documents** tab. A list of all of this workflow request’s managed documents is displayed.
3. Select the file that you want to view and click the **Download** button in the toolbar.



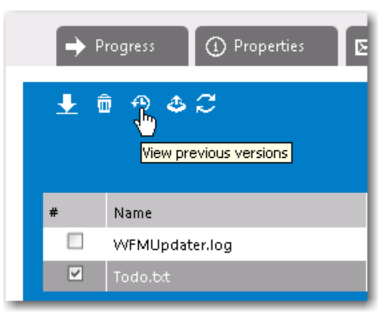
4. Take the appropriate action required by your browser to open and view the file. You may be prompted to open it in an appropriate application or save it to your local drive.

Viewing a Previous Version of a File on the Documents Tab

To view a previous version of a document on the **Documents** tab, perform the following steps:

Task ***To view a previous version of a file on the Documents tab:***

1. Open the **Workflow Request** page, as described in Opening a Workflow Request's Workflow Request Page.
2. Click the **Documents** tab. A list of all of this workflow request's managed documents is displayed.
3. Select the file that you want to view a previous version of.
4. In the toolbar, click the **View Previous Versions** button.



The **Document history** area opens.

5. In the **Document history** area, select the file that you want to view and click the **Download** button in the toolbar.
6. Take the appropriate action required by your browser to open and view the file. You may be prompted to open it in an appropriate application or save it to your local drive.

Viewing Files Uploaded to the File Share Location

The files listed on the **Downloadable Files** tab have been associated with this workflow request in one of two ways:

- A requester completed a step that collected a data that was defined with a **Data Type** of **Downloadable File Upload**.
- An administrator copied a file directly to the Workflow Manager **Downloadable Files Directory**.

To view files that were uploaded during the completion of a workflow step, perform the following steps:

Task ***To view a workflow request's uploaded files:***

1. Open the **Workflow Request** page, as described in Opening a Workflow Request's Workflow Request Page.
2. Click the **Downloadable Files** tab to display a list of any and all uploaded files for the workflow request.

3. To view an uploaded file, click the file name in the **Download** column.

Location of the Downloadable Files Directory

The location of the downloadable files directory for a workflow request is, by default, in a workflow-request-specific subfolder of the following location (assuming that Workflow Manager was installed on the C:\ drive):

`C:\AdminStudioWebComponents_2019\SHAREPATH`

This location is specified on the **Configuration Settings: Network Share** panel of the AdminStudio Configuration Wizard. For more information, see the *Workflow Manager Installation Guide*.

Linking Related Workflow Requests

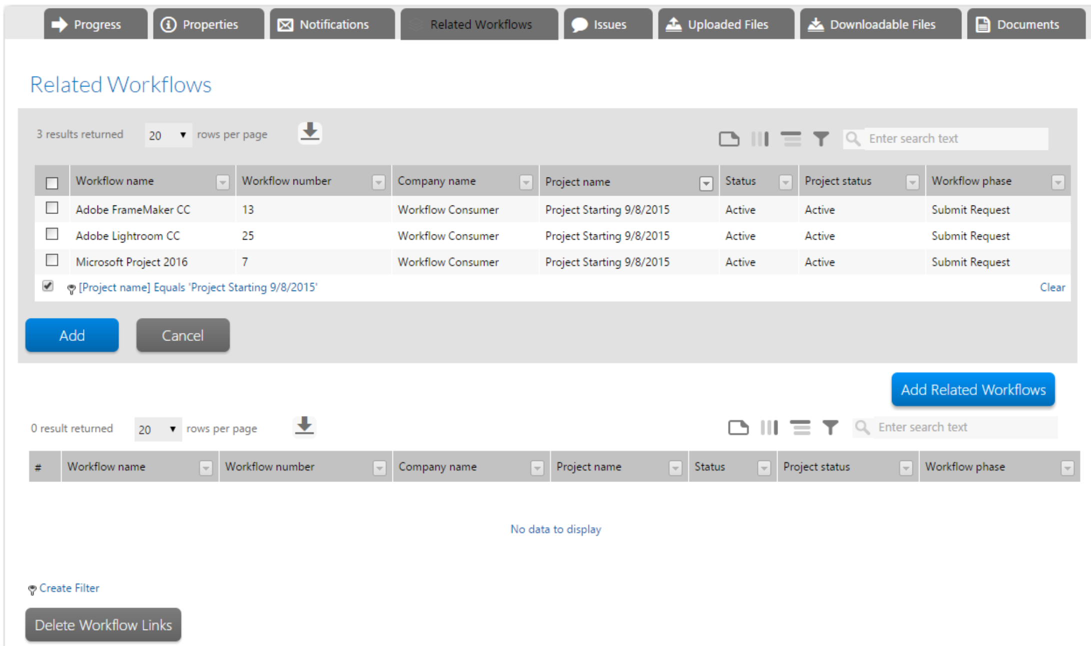
Workflow Administrators can use the **Related Workflows** tab of the **Workflow Request** page to link workflow requests together or to remove links. By linking related workflow requests to each other, you can track related requests by easily navigating to the **Workflow Request** page of these related requests, performing searches, and producing reports that use this information.

Linking a New Workflow Request

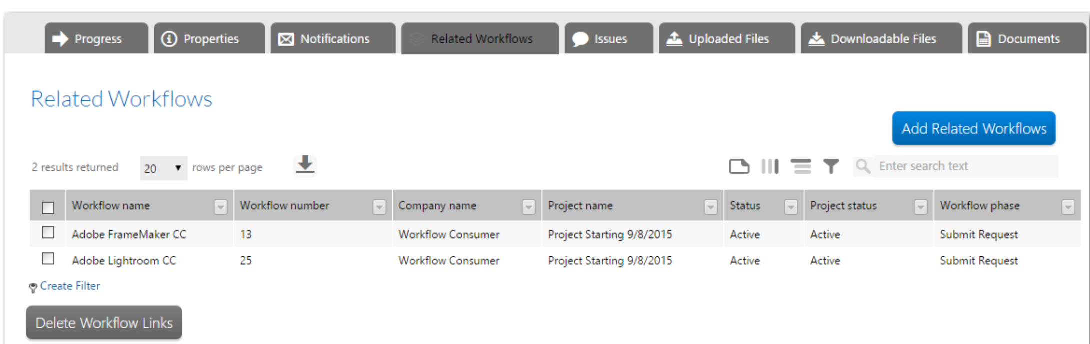
To link a new workflow request, perform the following steps.

Task ***To link a new workflow request:***

1. Open the **Workflow Request** page of the request that you want to link other requests to.
2. Open the **Related Workflows** tab.
3. Click **Add Related Workflows**. A list of available workflows appears above the **Add Related Workflows** button.



4. Select the requests that you want to link to the current request and click **Add**. The list closes and the requests that you had selected are then listed on the current request's **Related Workflows** list.



Unlinking a Workflow Request

To unlink a related workflow request, perform the following steps.

Task ***To unlink a related workflow request:***

1. Open the **Workflow Request** page of the request that you want to unlink a workflow request from.
2. Open the **Related Workflows** tab.
3. Select the check box to the left of the workflow request(s) that you want to unlink.
4. Click the **Delete Workflow Links** button and agree to the confirmation message. The workflow requests you selected are unlinked from the current workflow, and automatically removed from the list on the **Related Workflows** tab.

Performing Administrative Tasks

When a workflow administrator that is assigned to the appropriate roles logs in to Workflow Manager, the **Administration** menu appears in their navigation bar, which provides links to perform Workflow Manager administrative tasks. Administrative tasks are grouped into the following categories:

- Managing Companies
- Managing Projects
- Managing Workflow Templates
- Managing Approval Templates
- Setting Up Automatic Work Assignment
- Managing Email Notifications
- Managing Email Templates
- Managing SLA Settings
- Managing Workflow Status Values
- Managing Workflow Families
- Managing External Data Sources
- Managing External Web Services
- Performing Configuration Tasks
- Integrating AdminStudio and Workflow Manager

Managing Companies

There are two main categories of people using Workflow Manager

- Workflow consumers, who submit workflow requests.
- Workflow administrators, who create workflow templates and perform tasks to complete workflow requests.

These categories are referred to as *companies*. A workflow administrator can do work for multiple workflow consumer companies. Each time a workflow administrator company starts work for a new consumer, a new workflow consumer company needs to be created.

Workflow Manager accounts are associated with one company, as are templates, projects, and workflow requests. A consumer can only see review workflow requests associated with their company, but a consumer can see information for workflow requests submitted by all of their consumer companies.

By default, two companies are provided with Workflow Manager: the `Workflow Consumer` company and the `Workflow Administrator` company.

Information on managing Workflow Manager companies includes the following topics:

- Creating a New Company
- Viewing or Changing an Existing Company
- Deleting an Existing Company

Creating a New Company

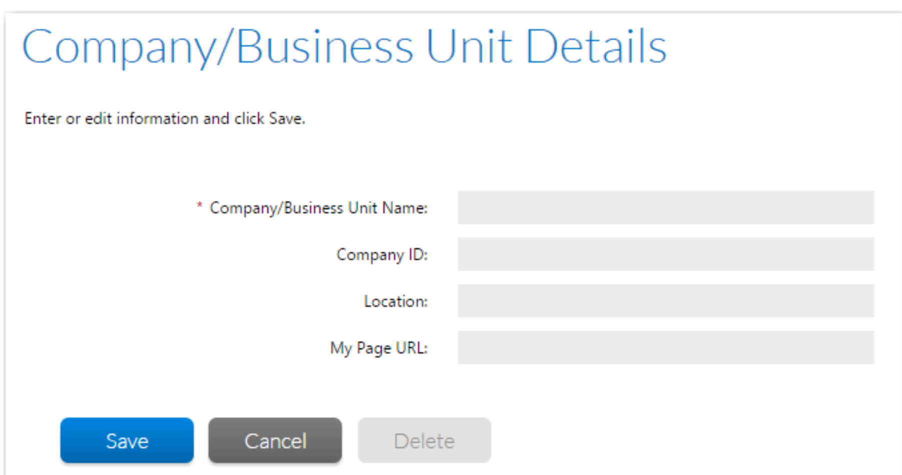
By default, two companies are provided with Workflow Manager: the `Workflow Consumer` company and the `Workflow Administrator` company. If required, you may create extra consumer companies to model the structure of your organization.

For some enterprises, consumer companies may be departments within their corporation, while the administrator companies may include the IT and finance departments, who typically approve and act upon requests.

***Tip** • You can only create a workflow administrator company if you are logged in using the Super User account, as described in Create an Administrator Company and System Administrator Account.*

Task ***To create a new company:***

1. In the navigation bar, click **Companies** in the **Administration** menu. The **Company/Business Unit Administration** page appears.
2. Click the **Add** button. The **Company/Business Unit Details** page opens.



3. Enter the details of your new consumer company, as described in Company/Business Unit Details Page.

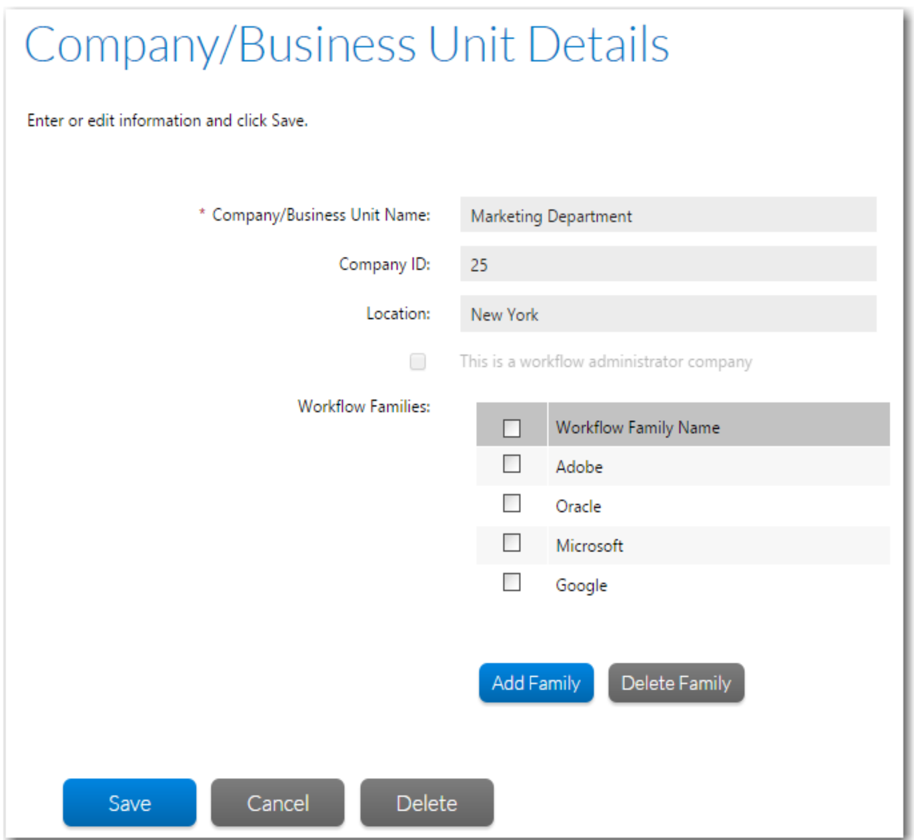
4. Click the **Save** button. The new company now appears in the list on the **Company/Business Unit Administration** page.

Viewing or Changing an Existing Company

You may view the details of any company listed on the **Company/Business Unit Administration** page. The details you see will vary depending on whether you are looking at a workflow administrator or consumer company.

Task ***To view or update an existing company:***

1. In the navigation bar, click **Companies** in the **Administration** menu. The **Company/Business Unit Administration** page appears.
2. Click on the company that you want to edit. The **Company/Business Unit Details** page opens.



3. View or update the company details as required. See Company/Business Unit Details Page for more information.
4. Click the **Save** button.

Deleting an Existing Company

You can remove any company in your organization, except for the default Workflow Administrator company. Be aware that removing a company also removes any workflows, accounts and projects associated with that company.

Task ***To delete a company:***

1. In the navigation bar, click **Companies** in the **Administration** menu. The **Company/Business Unit Administration** page appears.
2. Click on the company that you want to delete. The **Company/Business Unit Details** page opens.
3. Click **Delete**. You are prompted to confirm the deletion.

   Tip • *The **Delete** button will be disabled if are viewing the default Workflow Administrator company.*

4. Click **OK**. The **Company/Business Unit Details** page closes and the company you deleted is no longer listed on the **Company/Business Unit Administration** page.

Managing Projects

A project specifies the terms under which a workflow administrator company will complete workflow requests for their consumer companies. This section contains information on the following tasks:

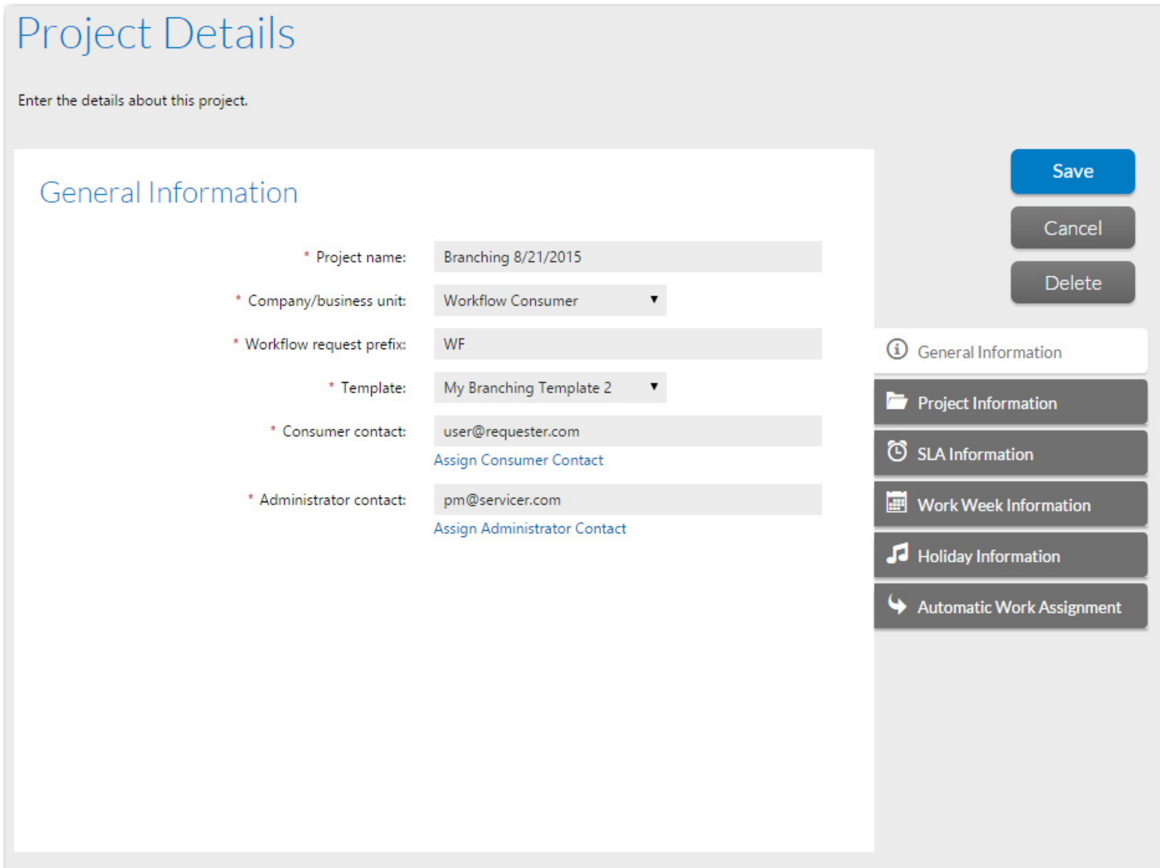
- Creating a New Project
- Viewing or Changing an Existing Project
- Deleting an Existing Project
- Flagging a Project as Inactive

Creating a New Project

Create projects for sets of workflow requests with the same SLA (service level agreement) conditions. Each project must be associated with a workflow template, a workflow administrator company and a consumer company. You may also want to revisit email notification settings, since the default values defined for your project will be applied to each new workflow request.

Task ***To create a new project:***

1. In the navigation bar, click **Projects** in the **Administration** menu. The **Project Administration** page opens.
2. Click **Add**. The **Project Details** page opens.



***Tip** • The **Add** button will be disabled if there are only global workflow templates available for your company. Such templates are identified by the word* `Global` *in the **Library** field of the **Template Administration** page. Before proceeding, ensure you have created at least one private template for your company, perhaps by copying an existing global template if there is one appropriate to your project. See Creating a New Template or Copying a Template for details.*

3. Enter the details of your new project, as described in Project Details Page. You will need to assign a template, a consumer company, and a contact from both your workflow administrator company and the consumer company you have selected. See the following for more information:

4. Click the **Save** button. The **Project Details** page closes, and the new project appears in the list on the **Project Administration** page.

***Note** • A project is assigned the permissions and notification settings that were defined in its associated workflow template. However, you can override a workflow request's notifications settings on the **Workflow Request Notifications Override** page, as described in Overriding Default Email Notification Settings for an Individual Workflow Request.*

Viewing or Changing an Existing Project

You may review and update the details of any project listed on the **Project Administration** page.

Task ***To view or update an existing project:***

1. In the navigation bar, click **Projects** in the **Administration** menu. The **Project Administration** page opens.
2. Click on the name of the project that you want to edit. The **Project Details** page for that project opens.

   Tip • *For details about sorting or filtering the project list, see Using Lists.*

3. View or update the project details as required. See Project Details Page for more information.
4. Click **Save** to save your edits.

Deleting an Existing Project

If a project is no longer relevant to your organization, you can choose to delete it. Be aware that deleting a project also removes all of its associated workflow requests. If you would prefer to keep a record of completed requests for auditing purposes, you may instead prefer to mark the project as **Inactive**. Workflow requests cannot be associated with an **Inactive** project, but a history of all its workflow requests remains. See Flagging a Project as Inactive for details.

Task ***To delete an existing project:***

1. In the navigation bar, click **Projects** in the **Administration** menu. The **Project Administration** page opens.
2. Click on the name of the project that you want to delete. The **Project Details** page for that project opens.

   Tip • *For details about sorting or filtering the project list, see Using Lists.*

3. Click **Delete**. You are prompted to confirm the deletion.
4. Click **OK**. The **Project Details** page closes, and the project is no longer listed in the **Project Administration** list.

Flagging a Project as Inactive

Once a project is completed, you may want to mark it as **Inactive** so that workflow requests can no longer be associated with it.

Task ***To mark a project as inactive:***

1. In the navigation bar, click **Projects** in the **Administration** menu. The **Project Administration** page opens.
2. Click on the name of the project that you want to delete. The **Project Details** page for that project opens.

   Tip • *For details about sorting or filtering the project list, see Using Lists.*

3. Open the **Project Information** tab.
4. Set the **Status** field to **Inactive**. A message will appear warning you that all workflow requests associated with your project will also have their status set to **Inactive**.
5. Click **OK** to acknowledge the message.
6. Click **Save**. Your modification is saved, and the **Project Details** page closes.
    - If the **Status** field on the **Project Administration** page is set to **Active**, the project will no longer be listed.
    - If the **Status** field is set to **All**, Inactive will be listed in the **Status** column for this project.

Managing Workflow Templates

This section describes how workflow administrators can create and manage workflow templates.

- About Workflow Templates
- Creating a New Template
- Creating Templates That Use Conditions
- Deleting Components of a Workflow Template
- Defining Specialized Data Elements, Workflow Phases, and Workflow Steps
- Defining Automated AdminStudio Integration Workflow Steps
- Selecting the Email Templates to Send at Step Initiation, Completion, Update or Rollback
- Assigning Permissions and Notification Settings on a Workflow Template
- Previewing a Template
- Validating a Template
- Viewing the Template Report
- Viewing a Summary of the Template
- Updating a Template
- Editing a Template That is in Use
- Copying a Template
- Deleting a Template

About Workflow Templates

A workflow template is an ordered series of steps that a template administrator creates to define a task, and which other workflow administrators follow to complete that task. Templates have the following properties:

- **Comprised of phases and steps**—They are comprised of a series of workflow phases, each containing one or more workflow steps
- **Projects are associated with one workflow template**—Each project is associated with one workflow template (but templates can be assigned to multiple projects)

- **Request puts workflow into action**—When a workflow request is generated for a project, it uses that project's workflow template, in effect putting the workflow into action.

Sample Workflow Template

A workflow template typically includes multiple workflow phases, each with one or more workflow steps. In the image below, showing the **Workflow Request** page of a software request workflow, there are three phases:

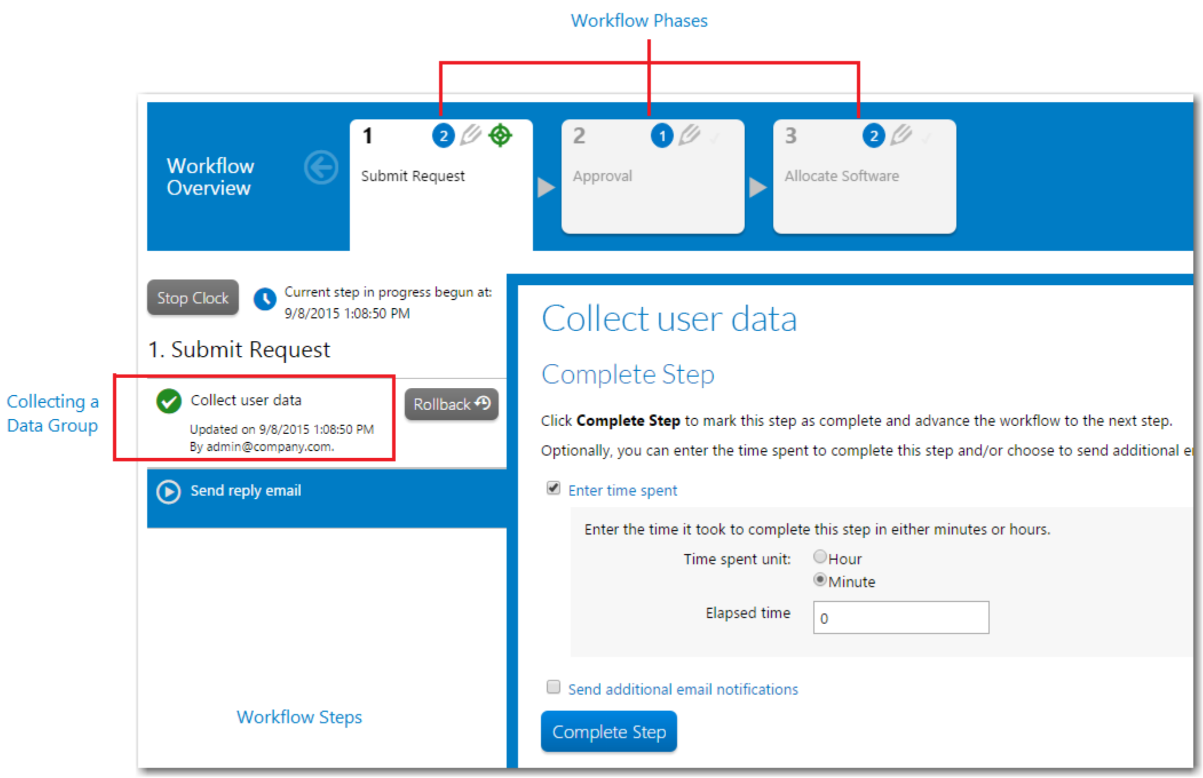


Figure 5-28: The Elements of a Workflow Template

The first workflow step in the first phase is always a data entry step, requiring the person who submitted the workflow request to enter relevant supporting information. For example, the consumer might be requested to specify which application they wish to install and on which of their computers, as well as providing a reason for installation and how soon they need the installation done. You can also add extra data collection steps later in the workflow, if required.

Template with Conditions and Branching

A Workflow Manager template can employ conditional branching, meaning the workflow phase which is displayed next can depend on information provided by the consumer. You can also create a template which conditionally shows or hides data groups, data elements or workflow steps depending on consumer input. When a template includes a phase where a branching question is collected, that phase is displayed with a yellow background in the Phase navigation area of the **Progress** tab of the **Workflow Request** page:

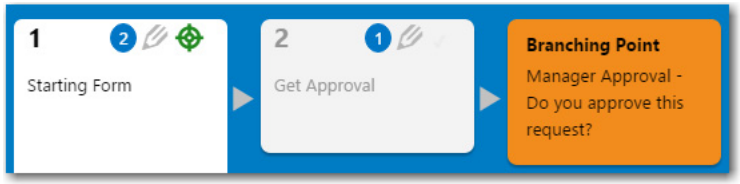


Figure 5-29: Phase Which is a Branching Point

Template Library Types: Global, Private, In Use Via Project, and In Use

The state of a workflow template, which is listed in the **Library** column on the **Template Administration** page, can be one of the following:

- **Global**—Global templates are those installed with Workflow Manager to serve as examples for you to copy and use. They cannot be modified, and you cannot assign a **Global** template to a project.
- **Private**—A **Private** template is one that a template administrator created, either starting from scratch or by copying and modifying a **Global** template. **Private** templates have not yet been assigned to a project or used to create a workflow request. You can assign a **Private** template to a project, and it is fully editable.
- **In Use Via Project**—An **In Use Via Project** template is a **Private** template that has been assigned to a project, but which has not yet been used to create any workflow requests. You can update some of the template properties, but not all. See Editing a Template That is in Use for a description of what can and cannot be edited.
- **In Use**—The status of an **In Use Via Project** template changes to **In Use** as soon as a workflow request is submitted for one of the template's projects. You can update some of the template fields for such templates, but cannot edit others. See Editing a Template That is in Use for a description of what can and cannot be edited.

Creating a New Template

A workflow template is made up of workflow phases, which themselves are comprised of workflow steps. For a workflow template to be usable by projects, it must include *at least one* data group, to be displayed when the workflow request is first submitted. Each data group represents a screen of questions used to collect data from workflow consumers, and the questions are defined using the data elements which make up the data group.

The first step of the first phase of a template is *always* associated with a data group, and this workflow step must be completed when the workflow request is submitted. However, you can define additional data groups throughout the workflow to prompt for data collection, and you can use this data for conditional branching—meaning that the workflow phase that is displayed next can depend on the workflow consumer's input. See Creating Templates That Use Conditions.

To define a new template, perform the following tasks:

- **Create new template**—Create a new, empty template, as described in Initiating the Template.
- **Create data groups**—Create the data groups which will be used to collect information, as described in Creating Data Groups.
- **Create first phase**—Create the first workflow phase, which always includes a data collection step, as described in Creating the First Workflow Phase.
- **Create subsequent phases**—Create all the other workflow phases, as described in Creating Subsequent Workflow Phases.

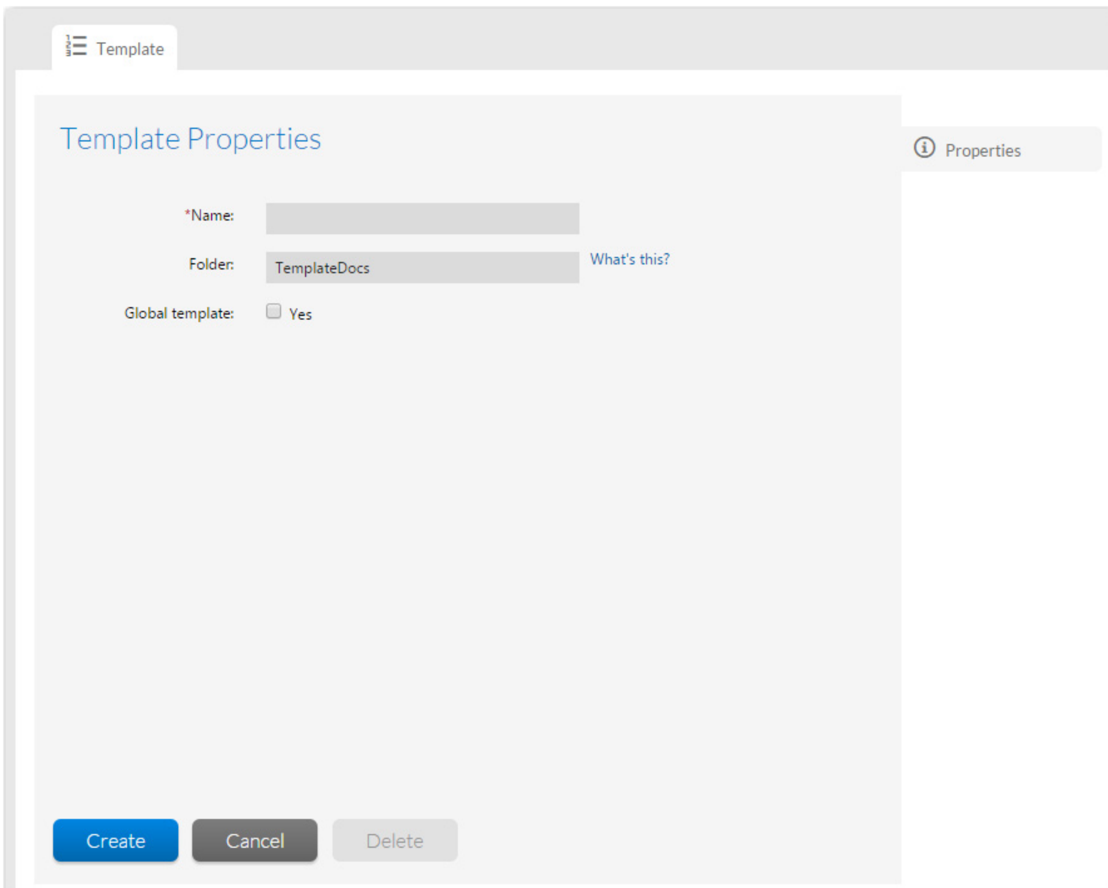
Initiating the Template

The first step in creating a new template is to click **Add** on the **Template Administration** page, and then assign the template a name, folder, and template type.

Note • *Instead of creating a new template from scratch, you can copy an existing template. See Copying an Existing Template for more information.*

Task ***To initiate a new template:***

1. In the navigation bar, click Templates on the **Administration** menu. The **Template Administration** page opens.
2. Click the **Add** button. The **Template Details** page opens, displaying the **Template > Properties** subtab.



3. Enter a unique name for the template in the **Name** field.
4. In the **Folder** field, enter the name of a directory on the Workflow Manager web server that will contain the Workflow Manager data help files and instruction files for this template. Specify the directory location relative to the `wwwroot` subfolder of the folder in which Workflow Manager is installed. For a typical install, this directory is `C:\AdminStudioWebComponents_2019\TemplateDocs`.

5. If you are creating a template to serve as example for your organization to copy and use, select the **Global Template** option. Note that:
    - Global templates cannot be modified directly; they must be copied first.
    - Global templates have the word **Global** listed in the **Library** column on the **Template Administration** page.
    - You cannot assign a **Global** template to a **Project**.
6. Click the **Create** button. The **Workflow Phases** and **Data Groups** tabs are now activated.
7. Proceed with Creating Data Groups.

Creating Data Groups

The questions that are asked in order to gather information during a workflow are defined as data elements in one or more template data groups. Each data group represents one screen of questions presented while a workflow is being completed.

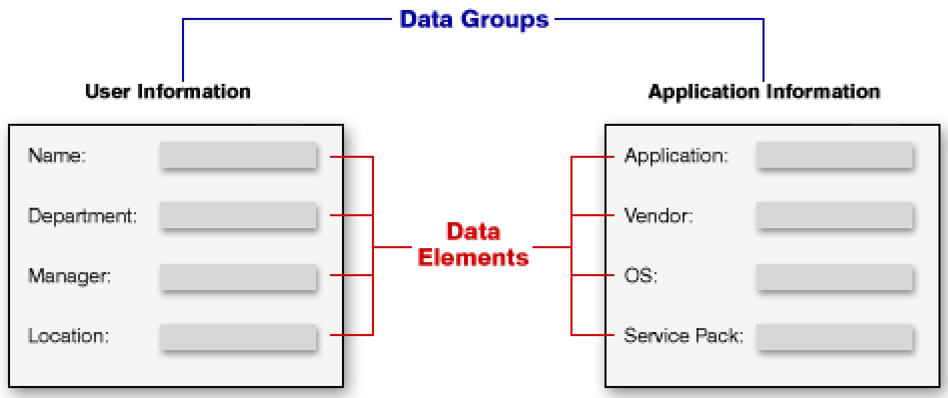


Figure 5-30: Diagram Demonstrating Data Groups and Data Elements

A template must include at least one data group that is collected upon initial submission of a workflow request, but it can also contain additional data groups, collected later in the workflow.

When you define a data group, you specify when it will be displayed by setting the **When collected?** option to one of the following:

- **At initial submission**—The data group will be collected when the workflow request is first submitted.
- **Later in the workflow**—The data group will be available to be collected during any workflow step you define in any of the phases of this workflow.

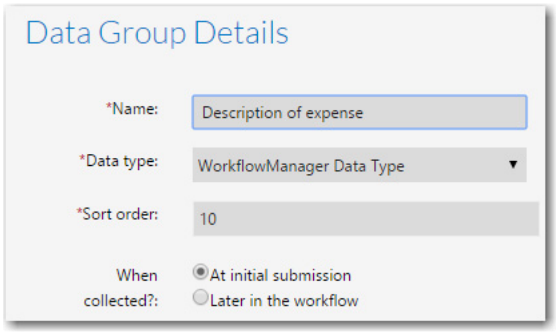


Figure 5-31: "When collected?" Option

To define a new data group, do the following:

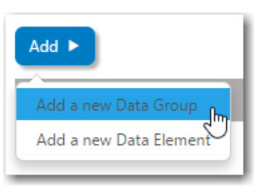
- Create a new, empty data group, as described in Creating a New Data Group.
- Define the data elements to be displayed in your data group, as described in Defining Data Elements.

Creating a New Data Group

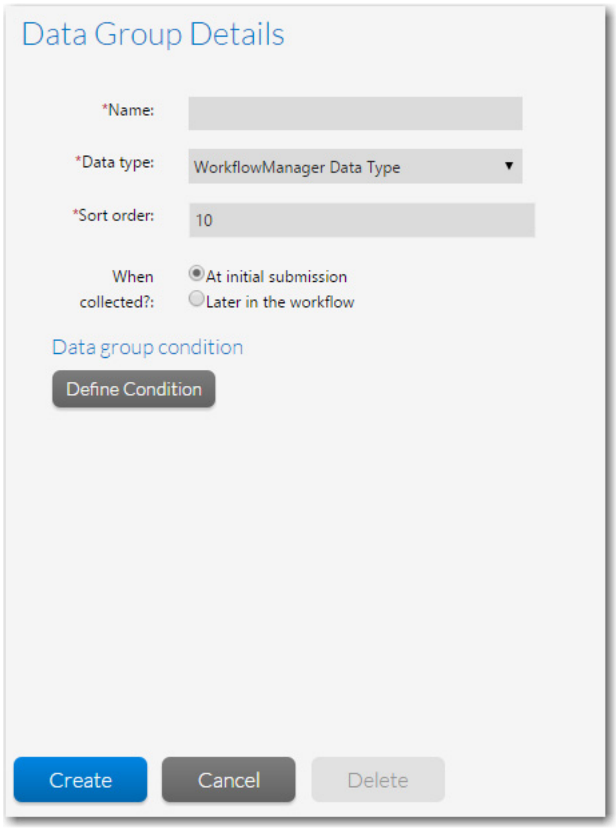
When a workflow request is submitted, each data group is displayed as a new screen of questions, with each question being represented by a data element. All data elements must belong to a data group.

Task ***To create a data group:***

1. First, create a blank template, as described in Initiating the Template.
2. Before you can define the first phase of this workflow, you need to create a data group that defines the data a workflow consumer will be asked for after they first submit a workflow request. You may also want to define extra data groups to collect data later in the workflow. To create a data group, open the **Data Groups > Group Details** tab of the **Template Details** page and click **Add > Add a new Data Group**.

   The **Data Group Details** view opens.



***Tip** • Because this is the first data group in the template, the **Data Group Details** view is open by default.*

3. In the **Name** field, enter a name to identify this group of questions.

4. From the **Data type** list, select one of the following:

Data Type	Description
Workflow Manager Data Type	If this is a standard data group, meaning that you are going to define its data elements in Workflow Manager, select this option.

Data Type	Description
AdminStudio Data Type	Select to create a data group whose data elements are automatically created and populated by the fields defined in the currently selected AdminStudio Extended Attributes description file. • Selecting the **AdminStudio Data Type** enables you to share application-related data between AdminStudio and Workflow Manager. • If the Extended Attribute data for this package is already entered in the AdminStudio Application Catalog, the corresponding fields that appear during the data collection task during a workflow request will be populated with the information in the AdminStudio Application Catalog. • When you change the data in the AdminStudio Application Catalog, it will automatically be changed for that package when submitting a Workflow Manager workflow request, and vice versa. ***Note** • The default Extended Attributes Description File is: C:\AdminStudio Shared\EA_Default.xml.*

5. If you will have more than one data group defined in a single step, use the **Sort Order** field to define the order in which they will be presented to the workflow consumer. Screens are displayed from lowest **Sort Order** number to highest.
6. Set the **When collected?** option to either **At initial submission**, if you want this data group to be presented to the consumer after they first submit their workflow, or **Later in the workflow**, if you want to select the step where it should be displayed.

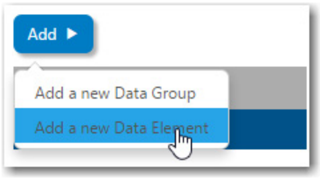
   ***Tip** • If this is the first data group you are creating, the **When collected?** field will be read-only and set to **At initial submission**.*
7. The **Data group condition** area is used to conditionally hide or display a data group based upon consumer input. See Setting Up Conditional Display of Data Groups, Data Elements, or Workflow Steps.
8. Click the **Create** button to add the data group to the **Data** tree.
9. You are now ready to add data elements to your group. Proceed with Defining Data Elements.

Defining Data Elements

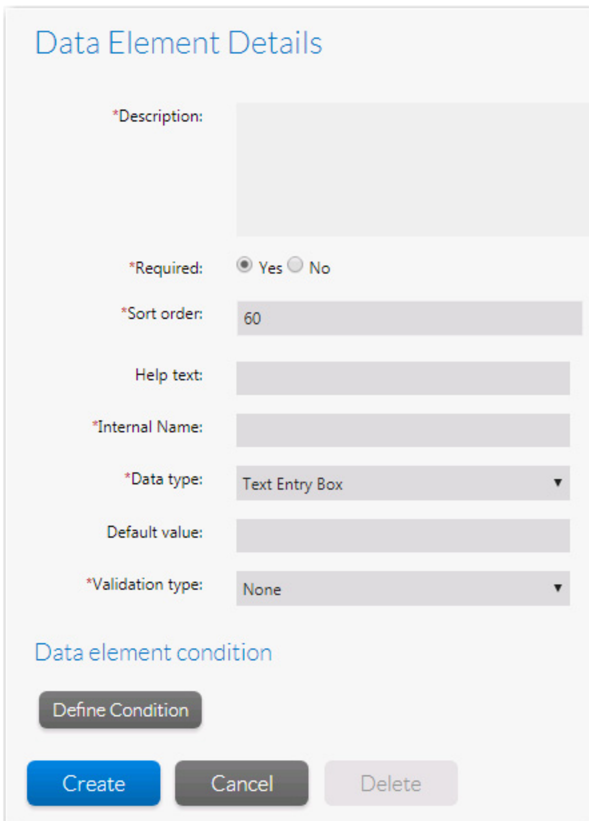
By default, a new data group is created without any data elements, or questions. You will need to add at least one data element for the template to be usable.

Task ***To define data elements:***

1. Each question on a data collection screen of a workflow is represented by a data element. To add a data element to a data group, select a data group in the tree and then click **Add > Add a new Data Element**.



The **Data Element Details** view opens.



2. Enter the text of the question in the **Description** field.

3. Set the **Required** field to **Yes** or **No** to indicate whether the requested data must be provided before this data group can be submitted.

4. In the **Sort Order** field, enter a number to specify the order that this question will be presented to the consumer (like data groups, data elements are displayed from lowest **Sort Order** number to the highest).

5. Optionally, enter a message in the **Help Text** field. This will cause a help icon to appear to the right of the field when it is displayed in a workflow, and the text you enter will be visible when the consumer hovers over that icon.

6. In the **Internal Name** field, enter an permanent name for this data element. The **Internal Name** value should be used to refer to this data element when writing custom reports.

> ***Note*** • *If you reference a data element in a custom report using the **Internal Name**—instead of its **Description** or GUID (`DataMinorItemID`)—that report will continue to work even if the **Description** of this data element changes or if the template is copied.*

> ***Note*** • *The value entered into the Internal Name field is stored in the `DataMinorItemInternalDesc` column of the `AMS_DataMinorItemTpl` table.*

7. From the **Data Type** list box, select the type of data entry field you want to add. You have the following options:

Data Type	Description
Text Entry Box	A single-line, editable text box. To validate the data that a consumer enters into this field, set the **Validation Type** option to **Mask** or **Regular Expression**. When you do this, two additional fields appear for you to fill in: **Validation Expression** and **Validation Message**. Refer to Text Entry Box Data Type Validation Options for more information about setting up text validation.
Text Area	A multi-line, scrollable, and editable text box.
Single Selection	A drop-down list, prompting the consumer to select one value from a list of values. When this option is selected, the **Selection list items** field appears and you may enter your list values, one per line. ***Important*** • *Because a consumer can only select one value, **Single Selection** fields can be used to control workflow branching.*
Multiple Selection	A list in which the consumer is permitted to select more than one value. When this option is selected, the **Selection list items** field appears and you may enter your list values, one value per line.
Check Box	One or more check boxes, which may be selected or cleared to turn an option on or off. When this option is chosen, the **Selection list items** field appears and you enter labels for your check boxes, one label per line.

Data Type	Description
Radio Button	A group of radio buttons, used to select one option from a group of mutually exclusive options. When this option is selected, the **Selection list items** field appears and you may enter labels for each radio button in the group, one label per line. ***Important** • Because a consumer can only select one value, **Radio Button** fields can be used to control branching.*
Date	A text box where the consumer is only permitted to either enter a date in a specified format (such as *MM/DD/YYYY*), or select a date by clicking on the field's associated calendar icon.
Document Upload, Application Upload, Dependency Upload	A field allowing a consumer to upload documentation, an application or a dependency file, respectively, to a specific location on the Workflow Manager file server.
Downloadable File Upload	A field, available only after the initial data entry step, allowing the consumer to upload files which are stored in the Workflow Manager downloadable files directory. Files uploaded using this field are listed on the **Downloadable Files** tab for the given workflow request.
Directory Service	If you choose this option, the data element will be mapped to an attribute in a directory service. When this field is presented to a consumer, its value will be pre-populated by the value of that consumer's associated directory service attribute (if the consumer's account was imported from a directory service). When **Directory Service** is selected in the **Data Type** field, two additional fields appear: the **Directory Services** list, where you pick the directory service that contains the attribute that you want to use, and the **Data Element** list, where you select the attribute that you want to map to. ***Tip** • If you have not yet defined any directory service attributes, you will instead see an **Add New** hyperlink. Click this to go to the **Directory Services Attributes Administration** page, where you may define some new attributes. See Managing Directory Services Attributes for more information.*
Dynamic Pick List	A selection list which is populated with values from an operator-supplied XML file. When this option is selected, the **Data Source File** field appears, and you can specify the XML file that you want to use. After you select this file, choose the column in the XML file whose value will be passed to Workflow Manager from the **Column Value to Submit** field. By default, the first column is selected. When a data element with a data type of **Dynamic Pick List** is displayed in a workflow request, the consumer is prompted to click a link to make a selection. When the consumer clicks the **Click to Select** link, the **Dynamic Pick List** dialog box opens, listing the data defined in the selected XML file. After the consumer selects one or more items in the list and clicks **OK**, the selected values populate the field, with distinct values separated by pipes. See Dynamic Pick List Data Type Options for more information.

Data Type	Description
DB Driven Type	Select this option to populate a single-selection list with real time data values obtained from an associated SQL Server or Oracle database. When you select **DB Driven Type** from the **Data Type** list, three new fields appear: • **External Datasource**—Select a database connection that was defined on the **External Data Sources Administration** page. See Managing External Data Sources for more information. • **SQL Query**—Enter an SQL query in this field to return the data which you want to display to the consumer. For example, if you want to display the `LastName`, `JobTitle` and `EmployeeID` for all salespeople in the Midwest region, craft a query that would return those rows and columns. • **Persisted Column**—Enter the name of the column containing the value you want to store in the database. In the previous example, you would probably want to store the `EmployeeID` column as the persisted column because it uniquely identifies the person that will be selected. See DB-Driven Type Data Type Options for more information. ***Tip** • If you have not yet defined any connections to an external database, you will instead see an **Add New** hyperlink. Click this to go to the **Add External Data Source** page, where you may create a new database connection. See Managing External Data Sources for more information.*

Data Type	Description
Web Service Call	Select this option to populate a combo box or grid with data values obtained using a web service call. When you select **Web Service Call** from the **Data Type** list, up to five new fields appear: • **Web Service Name**—Select a web service that was defined on the **External Web Service Administration** page. See Managing External Web Services for more information. • **Web Method**—Once you choose a web service, the set of all available web methods automatically populates the **Web Method** field. Choose the method which will return the data you want to display. • **UI Type**—Determine whether the data you are returning should be displayed in a grid or in a combo box. • **Parameters**—If the web method takes parameters, the **Parameters** field will appear, listing the parameters which need to be supplied. Specify a value for each parameter, or indicate where the value will come from, if you want to provide a dynamic value, specified while the workflow request is being completed. • **Web Method Details URL**—Enter a URL which will display more information about the items returned by your web method. The URL must include a placeholder which will be replaced by the ID of the item chosen by the consumer. ***Tip •*** *The first field returned by the web method will be used to uniquely identify each record presented in either the grid or the combo box. Ensure the data in this field is unique.*

8. If you selected **Single Selection** or **Radio Button**, set the **Use to define conditions/branching** option to **Yes** or **No**, to determine whether the value specified for this data element will affect the course of the workflow. For information on conditional branching and the conditional display of data groups, data elements, and workflow steps, see Creating Templates That Use Conditions.

9. If you selected **Single Selection**, **Multiple Selection**, **Check Box**, or **Radio Button**, enter the labels or list values for these controls in the **Selection list items** box. Place each item on a single line, such as:

```
Microsoft Windows XP
Macintosh OSX
UNIX
```

10. If you selected **Text Entry Box**, **Text Area**, **Single Selection**, **Multiple Selection**, **Check Box**, or **Radio Button**, enter or select a default value for the field into or from the **Default value** field, if required.

11. If you selected **Dynamic Pick List**, choose the XML data source for your pick list from the **Data Source File** field. This field lists of all of the XML source files that have been copied to the `C:\AdminStudioWebComponents_2019\wwwroot\DataSourceFiles` location on your Workflow Manager web server.

***Important** • These XML data source files must adhere to the Microsoft Excel XML spreadsheet schema. To ensure that your XML file is in the correct format, open your XML file in Microsoft Excel, and save it in XML Spreadsheet 2003 (*.xml) format.*

12. If you selected **Dynamic Pick List**, select the name of the column in your XML data source file which contains the value you want to pass to Workflow Manager when an item is selected from the **Column Value to Submit** list.

    An XML data source file can have multiple columns, but only one column value is passed to Workflow Manager. By default, the first column in the XML file is selected. If no column names are listed in this field, it means that the selected XML data source file either contains no data or was not saved in Microsoft Excel **XML Spreadsheet 2003 (*.xml)** format.

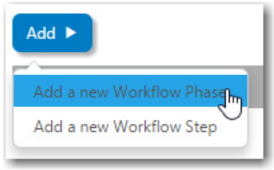
13. If you selected **DB Driven Type**, fill in the **External Data Source**, **SQL Query**, and **Persisted Column** fields, as described in the table above.
14. If you selected **Text Entry Box**, the **Validation Type** field appears. To validate the data that a consumer enters into this text box, set this **Validation Type** field to either **Mask** or **Regular Expression**. When you do this, two additional options appear: **Validation Expression** and **Validation Message**. See Text Entry Box Data Type Validation Options for more information about filling out these fields.
15. If you selected **Directory Service**, use the **Directory Service** field to select the directory service from which you want to import an attribute from, and then choose the attribute from the **Attribute** field. Directory service attributes are configured in Workflow Manager on the **Directory Service Attributes Administration** page. See Directory Services Attributes Administration Page for more information.
16. The **Data Element Condition** area is used to conditionally hide or display a data element based upon consumer input. See Setting Up Conditional Display of Data Groups, Data Elements, or Workflow Steps for more information.
17. Finally, click the **Create** button to add the data element to the **Data Group** tree.
18. Repeat the above steps to add more data elements to the data group.
19. Repeat the steps outlined in Creating a New Data Group if you want to add more data groups.
20. Once you have created your data groups and data elements, proceed with Creating the First Workflow Phase.

Creating the First Workflow Phase

The first workflow step of the first workflow phase in a template is a data collection phase, and the questions asked of the person submitting the workflow are defined using a data group. Each template must have at least one such data group associated with it (as described in Creating Data Groups). To integrate your data group with the first workflow step, you must create a workflow phase of type **Data Entry Phase**, as described below.

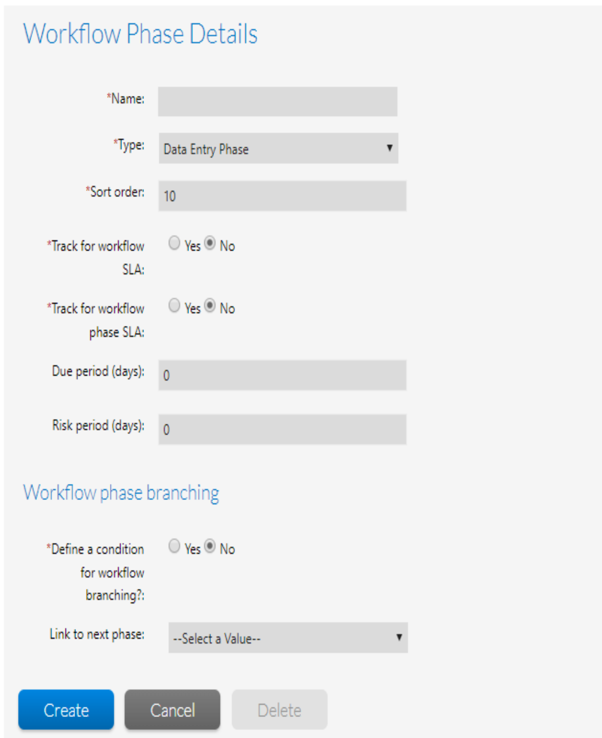
Task ***To create the first workflow phase of a template:***

1. Complete the steps described in Initiating the Template and Creating Data Groups, and then open that template in the **Template Details** page.
2. Open the **Workflow Phases > Phase Details** tab.
3. Click **Add > Add a new Workflow Phase**.



The **Workflow Phase Details** view opens.

Tip • *Because this is the first workflow phase in the template, the* ***Workflow Phase Details*** *view is open by default.*



4. In the **Name** field, enter a name to identify this phase.
5. Select **Data Entry Phase** from the **Phase Type** list.

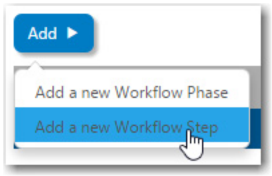
Tip • *Since this is the first phase,* ***Data Entry/Edit*** *should be the only available option.*

6. If you want to exclude the time it takes to complete this data entry workflow step from the workflow request's SLA (Service Level Agreement) calculations, clear the **Track for workflow SLA** option. If this option is selected, the time is tracked from the moment the request is submitted.
7. If you want to instruct Workflow Manager to send out an email alert and change the workflow step's **SLA Status** when a duration threshold is reached, select the **Track for workflow phase SLA** option and enter a value in the **Due period** and **Risk period** fields.

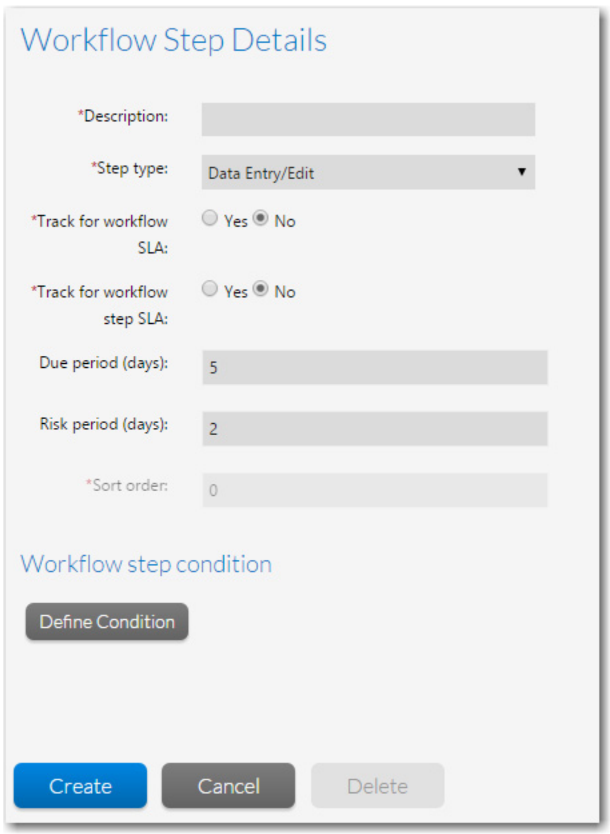
Note • *For more information on SLA tracking of a workflow phase, see* *SLA Settings on a Workflow Phase**.*

8. Click the **Create** button. The workflow phase name is added to the **Workflow Phase** tree.

9. Your next task is to create a workflow step to associate with your data group. To do this, click **Add > Add a new Workflow Step**.



The **Workflow Step Details** view opens.



10. Enter a name for your workflow step in the **Description** field.

11. Select **Data Entry/Edit** from the **Step type** list.

***Tip** • Since this is the first phase and first workflow step, **Data Entry/Edit** should be the only available option.*

12. If you want to exclude the time it takes to complete this data entry workflow step from the workflow request's SLA (Service Level Agreement) calculations, clear the **Track for workflow SLA** option. If this option is selected, the time is tracked from the moment the request is submitted.

13. If you want to instruct Workflow Manager to send out an email alert and change the workflow step's **SLA Status** when a duration threshold is reached, select the **Track for workflow step SLA** option and enter a value in the **Due period** and **Risk period** fields.

***Note** • For more information on SLA tracking of a workflow step, see SLA Settings on a Workflow Step.*

14. Click **Create**. The new workflow step is now listed as a child of your workflow phase in the **Workflow Phase** tree.
15. To add additional workflow steps to this workflow phase, or to add more workflow phases, proceed with Creating Subsequent Workflow Phases.

Creating Subsequent Workflow Phases

The first workflow phase in a template must have a type of **Data Entry Phase**, but subsequent phases present you with more options. Follow the instructions below to create subsequent workflow phases. Also look below to find out how to add additional workflow steps to a workflow phase (including the first workflow phase, described in Creating the First Workflow Phase).

Task ***To create subsequent workflow phases:***

1. Complete the steps described in Initiating the Template, Creating Data Groups, and Creating the First Workflow Phase, and then open that template in the **Template Details** page.
2. Open the **Workflow Phases > Phase Details** tab.
3. To add an additional workflow phase, click **Add > Add a new Workflow Phase**. The **Workflow Phase Details** view opens.
4. Identify your workflow phase by entering a name In the **Name** field.
5. Select one of the following from the **Phase type** list.
    - **Data Entry Phase**—The workflow consumer will be required to provide information during this phase
    - **Work Phase**—A standard phase with no restrictions.
    - **Customer Acceptance Phase**—Consumer approval must be provided for this phase to be completed.
    - **Last Phase**—A phase including administrative tasks which must be performed after the project is completed.
    - **AdminStudio Phase**—Phase is performed in its entirety as an AdminStudio Project. If you select this option, the **AdminStudio WF** list appears, and you select the AdminStudio Workflow that you want to use.
6. Enter a number in the **Sort Order** field to specify in what order your workflow phase will be displayed. Workflow phases are presented to the consumer from lowest **Sort Order** number to highest.
7. If you want to exclude the time it takes to complete this data entry workflow phase from the workflow request’s overall SLA (Service Level Agreement) calculations (shown on the **Projects Report**), clear the **Track for workflow SLA** option. For example, if this workflow phase was one which asks a consumer to approve completed work, you may want to clear this option, so that the time you spend waiting for the consumer to get back to your administrators is not included in the SLA calculations for this request.

    If this option is selected, the time is tracked from the moment the request is submitted.
8. If you want to instruct Workflow Manager to send out an email alert and change the workflow phase’s **SLA Status** shown in the **Workflow Phases SLA Report**) when a duration threshold is reached, select the **Track for workflow phase SLA** option and enter a value in the **Due period** and **Risk period** fields.

Note • *For more information on SLA tracking of a workflow phase, see SLA Settings on a Workflow Phase.*

9. Leave the **Define a condition for workflow branching?** option set to **No**.

Note • *For information on defining conditional workflow branching, see Setting Up Conditional Branching of Workflow Phases.*

10. If you are creating your phases out of order, and have already created the workflow phase which you want to display after this new phase, select that follow-on phase from the **Link to next phase** list. Otherwise, leave the default option of **---Select a Value---**.

11. Click the **Create** button to add your new workflow phase to the **Workflow Phase** tree.

12. You must now add at least one step to this new workflow phase. Click click **Add > Add a new Workflow Step**. The **Workflow Step Details** view opens.

13. Enter a name for your step in the **Description** field.

14. From the **Step type** list, select one of the following options:

Option	Description
Normal	After completing a workflow step of this type, the workflow administrator will be prompted to record the amount of time the step took in the **Step Validation** dialog. This dialog will display the HTML file you specify in the **Popup HTML File** field, which can be customized with whatever message you wish to show, along with fields to record how long it took to complete the step.
Update History	To complete this step, the workflow administrator will need to enter a comment in the **Update History** dialog box. This step is typically used as the last on a workflow phase, to document the completion of the phase.
Work Assignment	This step prompts the workflow administrator to assign users to roles associated with this workflow request. For more information, see Assigning Users to Workflow Requests.
Script Execution	When a workflow administrator clicks the name of this workflow step on the **Workflow Request** page, an operator-specified executable file is launched. This executable could be a batch file, an `.exe` file, a VB Script file, or any other type of executable that will run on the Workflow Manager server. Selecting this option causes, the **Script Path** combo box to appear, which lists all script files that have been uploaded to the Workflow Manager script location. On a typical install, this would be `C:\AdminStudioWebComponents_2019\\wwwroot\ScriptFiles`. If there are no appropriate executable files in this directory, you will be prompted to upload one. ***Note*** • *When a Script Execution workflow step is initiated, Workflow Manager launches the executable and advances the workflow. The person running the step is not prompted to enter any comments, and nothing is logged in the Workflow Manager database.*

<table>
<tr><th>Option</th><th>Description</th></tr>
<tr><td>Custom Web Page</td><td>When a workflow administrator or consumer clicks the name of this workflow step name on the Workflow Request page, Workflow Manager will open a new browser window, displaying an operator-specified URL address. Once the person completing the workflow provides or processes information using this page, data will be sent back to Workflow Manager and it will automatically mark this step as complete.

When you create your custom web page, you are responsible for ensuring that it implements the methods necessary to pass data back to Workflow Manager:
The AdvanceWFMinorStep method is used to mark the workflow step as complete.
The EditWFMinorStep method is used if you want to be able to update data collected during this step without having to roll the step back.
The RollbackWFMinorStep method defines the actions which need to be taken to roll back the step.
See Configuring a Custom Web Page for detailed instructions.

If you select this option from the Step Type field, a Custom Site URL text field appears where you may enter the URL of your web page. The URL must be absolute (that is, must begin with <code>http://</code> or <code>https://</code>). By default, Custom Site URL is set to a custom web page that is shipped with Workflow Manager:

<code>http://<yourWorkflowManagerWebServer>/CustomWorkflow/TestCustomWorkflow.aspx</code>

Use this page for testing prior to entering the URL of your own custom web page.

Important • By default, the value of the Custom Site URL field begins with either <code>localhost</code> or an IP address. In order for this workflow step to work, this value must be modified to point to your Workflow Manager server.</td></tr>
<tr><td>Allocate Software License</td><td>This step will allocate a computer or end-user to a software license in FlexNet Manager Suite.

Important • In order for this step to work correctly, it is important that your workflow template also contains Web Service Call data elements which return end-user, computer and software license for the workflow consumer to select. These elements must be named and configured the same way as in the default Software Request global template installed with Workflow Manager. You might find it helpful to copy the Software Request global template and modify it, if you want to use the Allocate Software License step in your own templates.</td></tr>
</table>

Option	Description
Deallocate Software License	This step will deallocate a computer or end-user from a software license in FlexNet Manager Suite. ***Important •*** *In order for this step to work correctly, it is important that your workflow template also contains a Web Service Call data element which returns unused software license allocations for the workflow consumer to select. This element must be named and configured the same way as in the default Software Removal global template installed with Workflow Manager. You might find it helpful to copy the Software Removal global template and modify it, if you want to use the Deallocate Software License step in your own templates.*
Automated Import	When a user clicks this workflow step name on the **Workflow Request** page, Workflow Manager will run a user-supplied IPlugin assembly that will programmatically import a package that was uploaded in a previous workflow step into the AdminStudio Application Catalog. After the IPlugin assembly completes, data will be sent back to Workflow Manager that will automatically mark this step complete and advance the workflow. For more information, see Defining an Automated Workflow Step.
Automated Validation	When a user clicks this workflow step name on the **Workflow Request** page, Workflow Manager will run a user-supplied IPlugin assembly that will programmatically validate a package that was imported in a previous workflow step. After the IPlugin assembly completes, data will be sent back to Workflow Manager that will automatically mark this step complete and advance the workflow. For more information, see Defining an Automated Workflow Step.
Automated Conflict Analysis	When a user clicks this workflow step name on the **Workflow Request** page, Workflow Manager will run a user-supplied IPlugin assembly that will programmatically perform conflict analysis on a package that was imported in a previous workflow step. After the IPlugin assembly completes, data will be sent back to Workflow Manager that will automatically mark this step complete and advance the workflow. For more information, see Defining an Automated Workflow Step.
Allocate Software License	A workflow step of type **Allocate Software License** involves a web service call to FlexNet Manager Suite. Such a step can be included in a workflow after a software license and computer or end-user are selected in an earlier data entry step; completing the step then involves allocating the chosen computer or end-user to the selected software license. For more information, see Defining an Allocate Software License Workflow Step.
Deallocate Software License	A workflow step of type **Deallocate Software License** involves a web service call to FlexNet Manager Suite. Such a step can be included in a workflow after a software license allocated to a computer or end-user is selected in an earlier data entry step. Completing the step then involves deallocating the chosen computer or end-user from the selected software license. For more information, see Defining a Deallocate Software License Workflow Step.

Option	Description
Custom Automated Task	Workflow tasks often require you to launch other executables or tasks which are performed outside of Workflow Manager itself. Using a **Custom Automated Task** workflow step, you can instruct Workflow Manager to automatically execute a task outside of Workflow Manager and advance the workflow to the next step, all without manual intervention. For detailed instructions on setting up a workflow step with a **Step Type** of **Custom Automated Task**, see Defining a Custom Automated Task Workflow Step.

15. If you want to exclude the time it takes to complete this data entry workflow step from the workflow request's overall SLA (Service Level Agreement) calculations (shown on the **Projects Report**), clear the **Track for workflow SLA** option. For example, if this workflow step was one which asks a consumer to approve completed work, you may want to clear this option, so that the time you spend waiting for the consumer to get back to your administrators is not included in the SLA calculations for this request.

    If this option is selected, the time is tracked from the moment the request is submitted.

16. If you want to instruct Workflow Manager to send out an email alert and change the workflow step's **SLA Status** shown in the **Workflow Steps SLA Report**) when a duration threshold is reached, select the **Track for workflow step SLA** option and enter a value in the **Due period** and **Risk period** fields.

    Note • *For more information on SLA tracking of a workflow step, see SLA Settings on a Workflow Step.*

17. Enter a number in the **Sort order** field to specify in what order your workflow step will be displayed. Workflow steps are presented to the consumer from lowest sort order number to highest.

18. If you selected the **Normal** step type, you need to specify the name of the HTML file that you want to display when a user clicks the **Instructions** icon in the workflow step completion area. Enter the name of this HTML file in the **Popup HTML file** field. This file must be located in the directory specified in the **Folder** field on the **Template > Properties** tab of the **Template Details** page. See Creating a New Template for details.

19. If you selected the **Script Execution** step type, select the name of an executable file from the **Script path** field.

20. If you selected the **Custom Web Page** step type, enter the absolute URL of a custom web page which you want the people using this workflow to complete in the **Custom site URL** field.

    Important • *By default, the value of the **Custom Site URL** field begins with either* `localhost` *or an IP address. In order for this workflow step to work, this value must be modified to point to your Workflow Manager server.*

21. From the **Email Templates** lists, select the email templates which will be used to notify the workflow administrator, his company and/or the workflow consumer when this workflow step is initiated, rolled back, updated, or completed. See Customizing Email Templates for more information about the default email templates and how you can customize them.

22. If a data group was created with the **When collected?** option set to **Later in the workflow**, the **Collect a data group in this workflow step?** option is enabled. To prompt the consumer to enter data during this workflow step, set this option to **Yes**, and then choose a data group from the **Select the data group** list.

    Note • *If there are no data groups available, the **Collect a data group in this workflow step** option is disabled.*

23. Optionally, provide information to conditionally display this workflow step. See Setting Up Conditional Display of Data Groups, Data Elements, or Workflow Steps for details.
24. Click **Create**. The new workflow step is now listed in the **Workflow Phase** tree, as a child of your new workflow phase.
25. To add more workflow phases, or to add more workflow steps to an existing phase, repeat the steps above.
26. The final step when creating a workflow template is to link the phases together, so that one is displayed following another. Do this as follows:
    a. Click the phase which you want to appear first in the **Workflow Phase** tree. The **Workflow Phase Details** view for that phase appears.
    b. From the **Link to next phase** list, choose the name of the workflow phase which you want to be displayed next.
    c. Save your changes by clicking the **Update** button.
    d. Repeat, clicking on each phase in turn until you have linked them in the desired order.
27. Test this new workflow template as described in Validating a Template.

Creating Templates That Use Conditions

When creating a workflow template, there may be workflow phases which you only want to display if your consumers provide you with certain pieces of information. For instance, you may want to run a consumer approval step only if your consumer tells you that they want to be notified when a particular job is completed. Conditionally displaying specific workflow phases based upon user input is referred to as *workflow branching*.

You can also choose to automatically roll a workflow back to specific workflow step based if a specific answer is provided to a question.

Data groups, elements, and workflow steps may also be displayed conditionally, depending on a consumer or administrator’s input.

- Setting Up Conditional Branching of Workflow Phases
- Setting Up Conditions to Perform Automatic Rollback to a Workflow Step
- Setting Up Conditional Display of Data Groups, Data Elements, or Workflow Steps

Setting Up Conditional Branching of Workflow Phases

A Workflow Manager template can employ conditional branching—which means that the workflow phase that is displayed next can depend on consumer input. For example, you may want to include a question such as if any licenses are available for a requested software application. If the answer is no, the next phase could be purchasing a license; if the answer is yes, the next phase could be installing the application.

Creating a Workflow Manager template with conditional branching of workflow phases involves the following steps:

Table 5-11 • Steps to Set Up Conditional Branching of Workflow Phases

Step	Description
Step 1: Create template	Create a workflow template with multiple workflow phases, as described in Creating a New Template.

Table 5-11 • Steps to Set Up Conditional Branching of Workflow Phases

Step	Description
Step 2: Create branching data element	Create the question (data element) whose answer will be used as the basis for deciding which phase should be displayed, as described in Creating a Data Element to Use for Branching.
Step 3: Collect branching data element	Create a workflow step to collect (display) this data element, as described in Collecting the Branching Data Element.
Step 4: Create workflow phase that branches	Create a workflow phase that branches, as described in Creating a Workflow Phase That Branches.

The branching data element is usually not collected in the first workflow phase. Also the branching data element does not need to be part of the initial required data group that is automatically collected in the first workflow step of the first workflow phase.

Creating a Data Element to Use for Branching

To create a data element to use for conditional branching of workflow phases, perform the following steps:

Task ***To create a data element to use for conditional branching:***

1. Begin creating a template as described in Creating a New Template.
2. Create at least one data group, as described in Creating Data Groups.
3. Begin creating a new data element for this data group, as described in Defining Data Elements, making the following choices:
    a. On the **Data Element Details** view for your new data element, set the **Data type** to either **Single Selection** or **Radio Button**. Enter list values or labels for each radio button in the **Selection list items** box, one value or label per line.
    b. Set the **Use to define conditions/branching** option to **Yes**.

    Important • *If you do not set the **Use to define conditions/branching** option to **Yes**, this data element will not be available when defining conditions.*

    c. If desired, enter a value in the **Default value** field. This must match one of the values you just entered in the **Selection list items** box, and the corresponding value will be the default one chosen when the person completing the workflow request first encounters this data item.
4. Click the **Create** button to create this new data element and add it to the data groups tree.

Next, proceed with Collecting the Branching Data Element.

Collecting the Branching Data Element

To collect the data element you created in Creating a Data Element to Use for Branching, do one of the following:

- If the data group containing this data element has its **When collected?** option set to **At initial submission**, follow the instructions in Creating the First Workflow Phase to create a workflow step that collects this data group.
- If the data group containing this data element has its **When collected?** option set to **Later in the workflow**, create a workflow step with its **Collect a data group in this workflow step?** option set to **Yes**, and then assign your data group to the step using the **Select the data group** list.

Proceed with Creating a Workflow Phase That Branches.

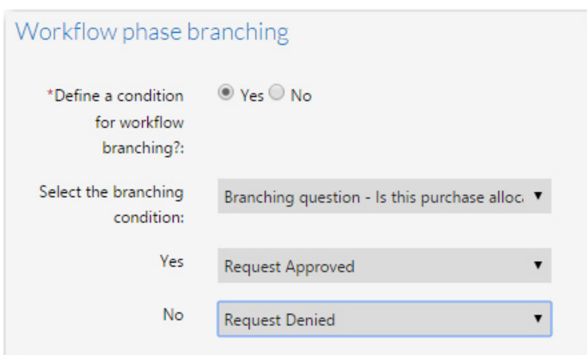
Creating a Workflow Phase That Branches

In this step, we will see how to create a workflow phase that branches, displaying a different workflow phase depending on the response given to a data element.

Before beginning, create all of the workflow phases you want to include in your workflow template, except for the branching phase. Do not link the phases together yet.

Task ***To create a workflow phase that branches conditionally depending upon user input:***

1. Complete the steps in Creating a Data Element to Use for Branching and Collecting the Branching Data Element.
2. Begin creating a workflow phase as described in Creating Subsequent Workflow Phases.
3. In the **Workflow Phase Details** view for your new phase, set the **Define a condition for workflow branching?** option to **Yes**. The **Select the branching condition** list appears, along with a table listing all possible values:



4. From the **Select the branching condition** list, choose the data element you want to use to control branching. The possible responses to the branching question are automatically listed.

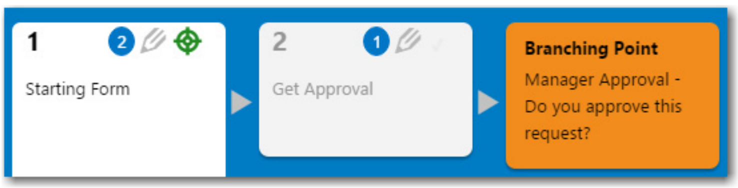
   Tip • *You will be able to select any element that has the **Use to define conditions/branching** option set to **Yes**.*

5. For each listed value, select a workflow phase from the list. If the person completing the workflow selects this value from your data element, this phase be the one displayed when the current phase is completed.

   Tip • *You can assign the workflow phase to more than one value, if you like.*

6. Click the **Create** button to add this workflow phase to the **Workflow Phase** tree.

7. If this branching phase is not the first phase in the workflow template, open the preceding workflow phase and link it to this new branching phase. Do this as follows:
    a. Click the phase which you want to appear first in the **Workflow Phase** tree. The **Workflow Phase Details** view for that phase appears.
    b. From the **Link to next phase** list, choose the name of the workflow phase which you want to be displayed next.
    c. Save your changes by clicking the **Update** button.
8. Open each of the workflow phases that were selected for each of the possible branching question answers, and link them to the workflow phase that you want to display next.
9. Also link together any other workflow phases which belong to the workflow template, as described earlier.
10. Test this new workflow template as described in Validating a Template.
11. Preview this new workflow template as described in Previewing a Template. In the preview, the workflow phase that collects the answer to the branching question will be displayed with yellow background:



Setting Up Conditions to Perform Automatic Rollback to a Workflow Step

A Workflow Manager template can employ automatic rollback—which means that the workflow can be automatically rolled back to a specific workflow step based upon administrator input.

Creating a Workflow Manager template with automatic rollback to a workflow step involves the following steps:

Table 5-12 • Steps to Set Up Automatic Rollback to a Workflow Step

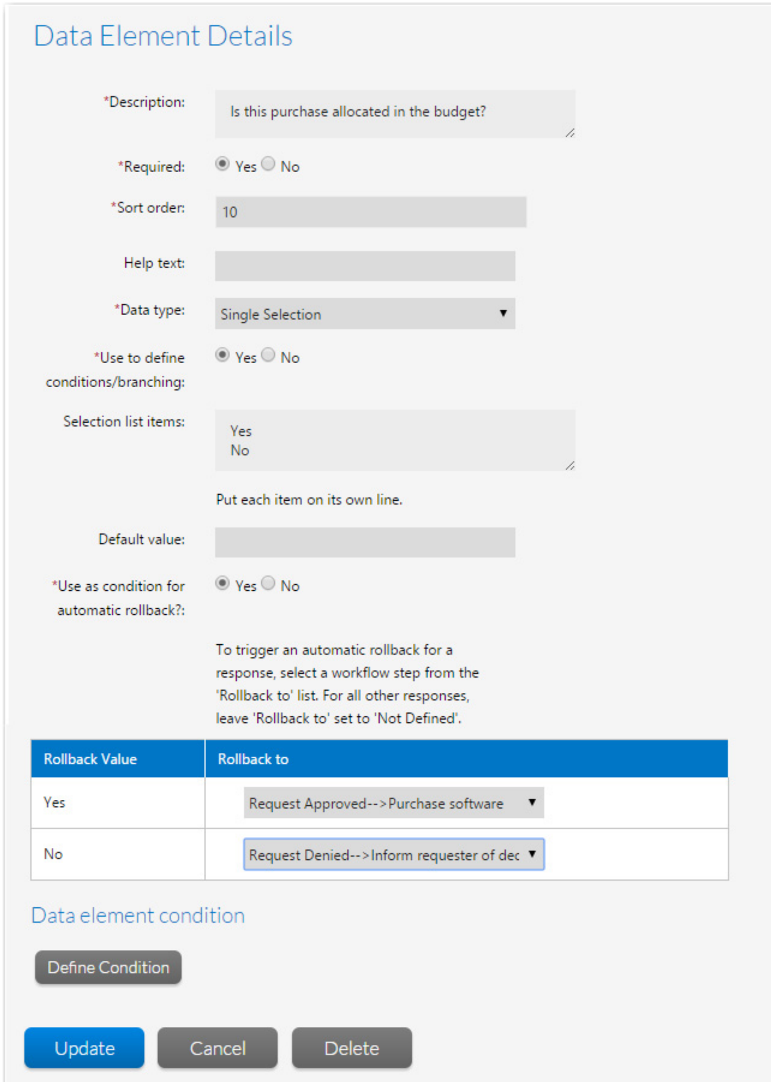
Step	Description
Step 1: Create template	Create a workflow template with multiple workflow phases and steps, as described in Creating a New Template.
Step 2: Create automatic rollback data element	Create a question (data element) with a single selection answer. The user's response to this question will determine whether to rollback the workflow. During setup on the **Data Element Properties** view, you need to specify which responses require rollback to a workflow step by selecting the workflow step that the workflow will be rolled back to. For more information, see Creating a Data Element to Use for Automatic Rollback.
Step 3: Create workflow step that asks "automatic rollback" question	Create a workflow step that collects the response to the "automatic rollback" question, as described in Creating a Workflow Step That Asks "Automatic Rollback" Question.

Creating a Data Element to Use for Automatic Rollback

To create a data element to use for automatic rollback to a workflow step, perform the following steps:

Task ***To create a data element to use for automatic rollback:***

1. Begin creating a template as described in Creating a New Template.
2. In addition to creating a data group with the **When collected?** option to **At initial submission** (which is required), create another data group, and set the **When collected?** option to **Later in the workflow**, as described in Creating Data Groups.
3. For this second data group, creating a new data element for this data group that asks a single-selection question, as described in Defining Data Elements, making the following choices:
    a. On the **Data Element Details** view for your new data element, set the **Data type** to either **Single Selection** or **Radio Button**. Enter list values or labels for each radio button in the **Selection list items** box, one value or label per line.
    b. If desired, enter a value in the **Default value** field. This must match one of the values you just entered in the **Selection list items** box, and the corresponding value will be the default one chosen when the person completing the workflow request first encounters this data item.
    c. Set the **Use to define conditions/branching** option to **Yes**.
    d. Set the **Define a condition for automatic rollback?** option to **Yes**. Additional fields are displayed: **Rollback Value** and **Rollback to**:



e. To trigger an automatic rollback for a response, select the workflow step that you want to roll back to from the **Rollback to** list. For all other responses, leave **Rollback to** set to **Not Defined**.

Note • *For responses that you want to result in the completion of a workflow step rather than a rollback, it is important that you do not make a selection in the* ***Rollback to*** *list and just leave it set to* ***Not Defined****. For example, if the question was* `Has package passed all critical tests?`*, for the* ***No*** *response, you would want to trigger a rollback to a testing workflow step, so you would select that workflow step from the* ***Rollback to*** *list. However, if the answer to the question was* ***Yes****, you would not want to perform a rollback, so you would leave* ***Rollback to*** *set to* ***Not Defined****; do* ***not*** *select a subsequent workflow step.*

4. Click the **Create** button to create this new data element and add it to the **Data** tree.

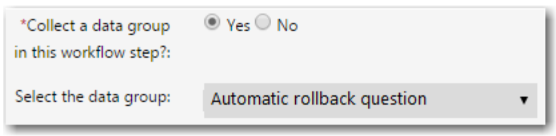
Next, proceed with Creating a Workflow Step That Asks “Automatic Rollback” Question.

Creating a Workflow Step That Asks “Automatic Rollback” Question

In this step, we will see how to create a workflow phase that collects the answer to the “automatic rollback” question and “rolls back” the workflow if the specified answer is provided.

Task ***To create a workflow step that asks the “automatic rollback” question:***

1. Complete the steps in Creating a Data Element to Use for Automatic Rollback.
2. Begin creating a workflow phase as described in Creating Subsequent Workflow Phases.
3. Add a workflow step to this workflow phase with a **Step type** of **Normal**.
4. Set the workflow step’s **Collect a data group in this workflow step?** option to **Yes**.
5. From the **Select the data group** list, select the data group that contains the “automatic rollback” question.



6. Click **Create** to create the workflow step.
7. Test this new workflow template as described in Validating a Template.

Setting Up Conditional Display of Data Groups, Data Elements, or Workflow Steps

You can create a template that will conditionally hide or display a data group (a screen of questions collected during a workflow step), a data element (one question in a data group), or a workflow step based on a user’s response to a question. To do this, you need to perform the following steps:

- Creating a Data Element to Use for Conditional Display
- Collecting the Conditional Data Element
- Applying the Conditional Display Condition to a Data Group, Data Element or Workflow Step

Creating a Data Element to Use for Conditional Display

To create a data element to use for the conditional display of a data group, data element, or workflow step, perform the same steps listed in Creating a Data Element to Use for Branching.

Next, proceed with Collecting the Conditional Data Element.

Collecting the Conditional Data Element

To collect the data element you created in Creating a Data Element to Use for Conditional Display, do one of the following:

- If the data group containing this data element has its **When collected?** option set to **At initial submission**, follow the instructions in Creating the First Workflow Phase to create a workflow step that collects this data group.
- If the data group containing this data element has its **When collected?** option set to **Later in the workflow**, first create a workflow step with its **Collect a data group in this workflow step?** option set to **Yes**, and then assign your data group to the step using the **Select the Data Group** list.

Proceed with Applying the Conditional Display Condition to a Data Group, Data Element or Workflow Step.

Applying the Conditional Display Condition to a Data Group, Data Element or Workflow Step

To conditionally display a data group, data element, or workflow step, based on the response given to a data element, do the following:

Task ***To apply the conditional display condition to a data group, data element, or workflow step:***

1. Complete the steps in Creating a Data Element to Use for Conditional Display and Collecting the Conditional Data Element.
2. Begin creating a workflow phase as described in Creating Subsequent Workflow Phases.
3. In the **Data group condition**, **Data element condition**, or **Workflow step condition** area of a data group, data element, or workflow step, respectively, click **Define Condition**.
4. From the **Condition Item** list which appears, select the conditional data element you defined earlier. The values of that data element are automatically displayed in the **Selections** list.
5. From the **Selections** list, select the value or values of the data element for which you want to display the current item. You can select multiple values by holding down the `Shift` or `Ctrl` key while clicking.
6. Click **Update** to save the data group, data element, or workflow step.

   Note • *To remove this defined condition, click the* ***Cancel*** *button.*
7. Test this new workflow template as described in Validating a Template.

Deleting Components of a Workflow Template

To delete a workflow phase, workflow step, data group or data item, perform the following steps:

Task ***To delete a workflow phase, workflow step, data group, or data element:***

1. Open the **Workflow Phases** or **Data Groups** tab of the **Template Details** page.
2. Select the item in the tree that you want to delete.
3. Click **Delete**.
4. Agree to the confirmation message.

Tip • *If you delete a data group, all of the data items associated with it will also be removed. Similarly, if you delete a workflow phase, all associated workflow steps will go, as well.*

Defining Specialized Data Elements, Workflow Phases, and Workflow Steps

In both templates that use conditions and conditional branching and in those that do not, you can incorporate specialized data elements, workflow phases, and workflow steps to achieve higher degrees of automation and customization.

- Defining a Contact Data Element to Enable Predictive Search
- Defining a Database-Driven Data Element
- Defining a Web Service Call Element
- Defining Automated AdminStudio Workflow Steps That Use the iPlugin Interface
- Defining an Allocate Software License Workflow Step
- Defining a Deallocate Software License Workflow Step
- Defining a Custom Automated Task Workflow Step
- Defining an Approval Task Workflow Step
- Defining a Custom Web Page Workflow Step
- Configuring a Custom Web Page
- Defining a Workflow Phase with a Phase Type of AdminStudio Phase
- Including a Customer Acceptance Phase or Last Phase
- Specifying Email Templates for Workflow Steps
- File Upload Considerations in Requests

Defining a Contact Data Element to Enable Predictive Search

When entering data for a workflow request, you are frequently prompted to specify one or more contacts that are related to the workflow request. These contacts will not participate in the workflow process, so it is not appropriate to assign them to roles.

To address this need, you can add contacts to workflow requests as data elements, using the data element data type of **Contact**. This enables you to store the contact's name, user name, e-mail address, and phone numbers in data element values.

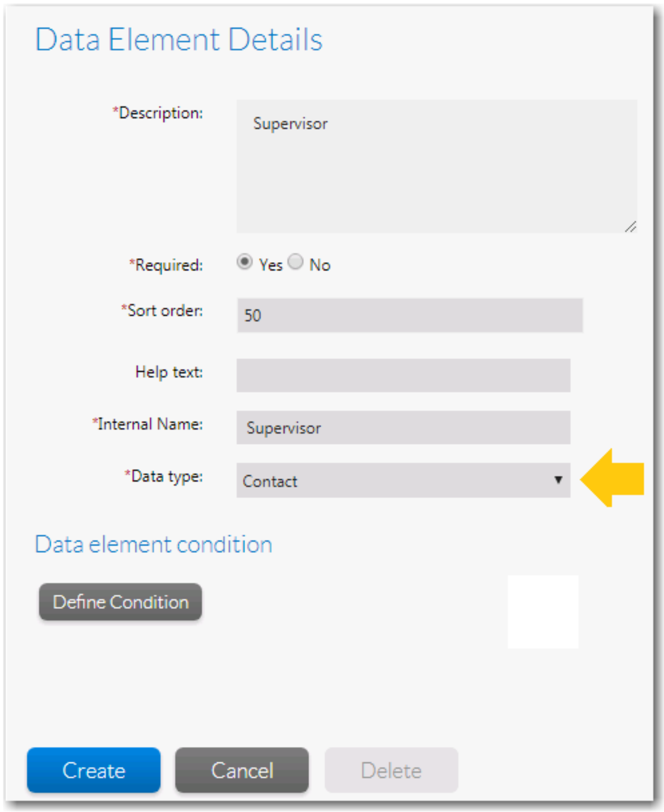


Figure 5-32: Contact Data Type

When you add a data element with the data type of **Contact**, the following fields are displayed in the data entry screen of the workflow request, prompting the requester to add contact information.

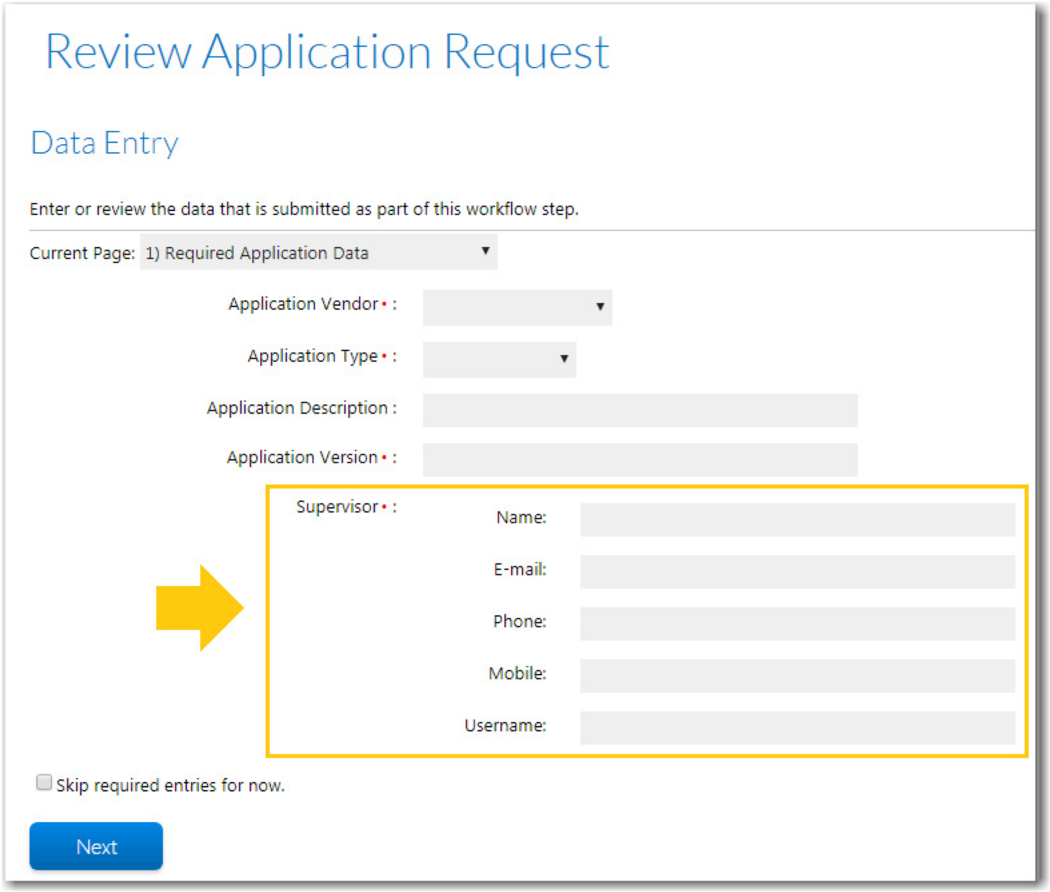


Figure 5-33: Contact Data Element / No Directory Services Connection

For a data element with a data type of **Contact**, Workflow Manager displays contact data fields (**Name**, **E-mail**, **Phone**, **Mobile**, and **Username**) as normal text fields, allowing users to edit their values.

***Note** • You need to specify the contact email and phone number data elements to be validated before submission.*

After you have submitted contact information in one or more workflow requests, the next time you submit a workflow request and enter a character in one of the "contact" fields (one based on a data element with the data type of **Contact**), a menu will appear prompting you to select previously-entered contact information that matches the text that you have entered.

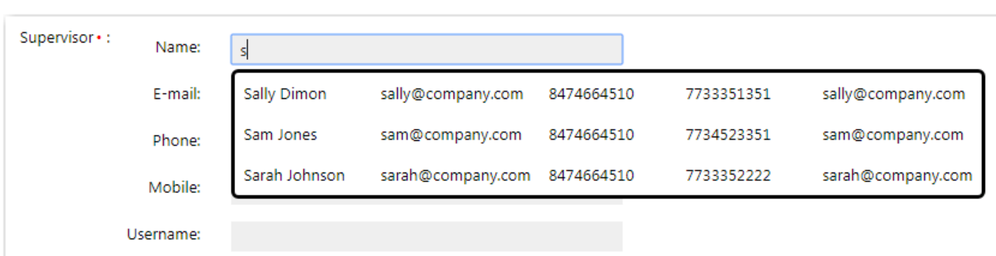


Figure 5-34: Predictive Search Menu

Defining a Database-Driven Data Element

If you first define a connection to an external SQL Server database, you can choose to populate a single-selection list for a workflow request with *real-time* data values, obtained from that database.

To do this, create a data element with the **Data Type** of **DB Driven Type**. When you select this option from the **Data Type** list, three new fields appear:

- **External Datasources**—Choose the database you want to pull information from, choosing a connection defined on the **External Data Sources Administration** page. See Managing External Data Sources.
- **SQL Query**—Define a query to return the data which you want to display to the workflow consumer. For example, if you want to display the `LastName` and `JobTitle` and `EmployeeID` of all salespeople in the Midwest region, craft a query that would return those rows and columns.
- **Persisted Column**—Enter the name of the column containing the value you want to store in the database. In the previous example, you would probably want to store the **EmployeeID** column, because it uniquely identifies the person that will be selected.

Defining a Web Service Call Element

If you first set up a web service connection to an external server, you may create a workflow step which populates a combo box or grid with data values obtained using a web service call. When you select **Web Service Call** from the **Data type** list on the **Data Element Details** view, up to five new fields appear:

- **Web service name**—Select a web service that was defined on the **External Web Service Administration** page. See Managing External Web Services for more information.
- **Web method**—Once you choose a web service, the set of all available web methods automatically populates the **Web Method** field. Choose the method which will return the data you want to display.
- **UI Type**—Determine whether the data you are returning should be displayed in a grid or in a combo box.
- **Persisted Column**—Enter a column name or names, separated using semicolon, which identifies a unique row item or record.

  For Example, in the below figure, columns like **Country** and **Sales Rep** have multiple entries with same values (USA and Fuller repectively). To identify and fetch a unique row item or record, you can enter one of these column names, **County ; Order No** or **Sales Rep ; Order No** or only **Order No** in the Persisted Column.

  By entering these column names in the Persisted Column, you are allowing **Web Service Call** data element to consider these column names as primary keys and fetches the unique row item or record based on the user selection.

  ***Important** • If you are not entering a column name or combination of column names, which doesn't have multiple entries with same value in the **Persisted Column** as explained in the above example, you might end up fetching a wrong row item or record.*

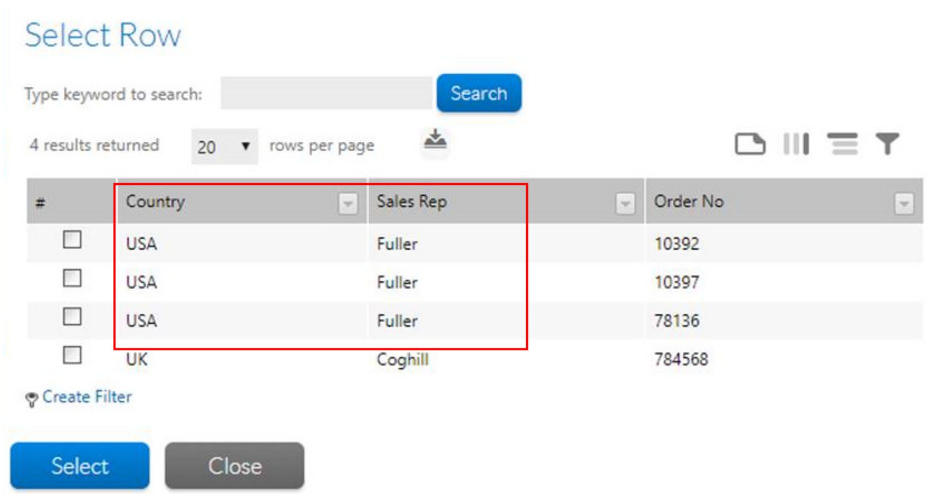


Figure 5-35: Sample Web Services Grid results

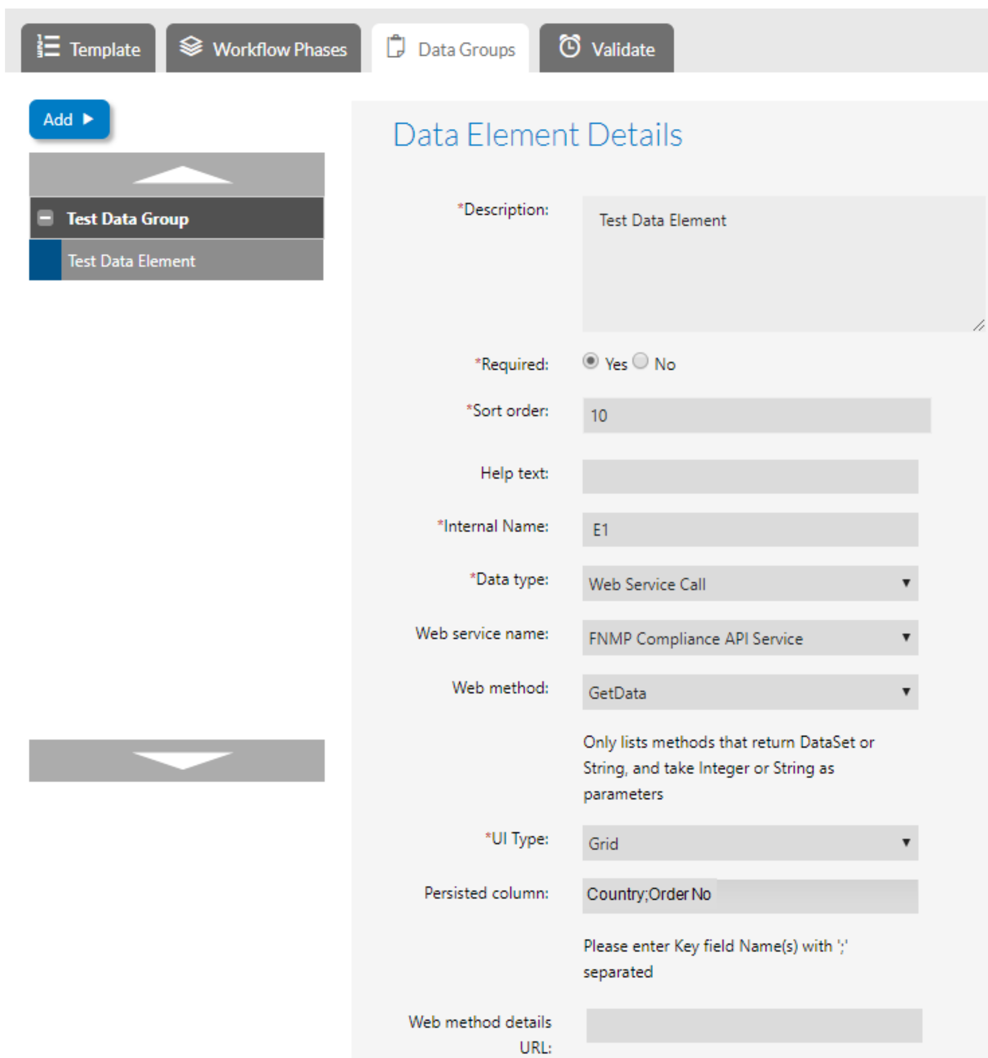


Figure 5-36: Persisted Column for UI Type-Grid

- **Parameters**—If the web method takes parameters, the **Parameters** field will appear, listing the parameters which need to be supplied.

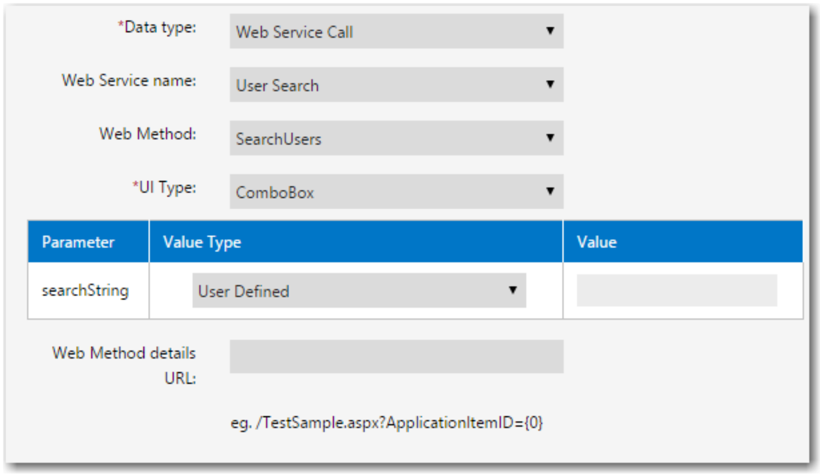


Figure 5-37: Parameters for a Web Service Call Data Type

For each parameter, choose an option from the **Value Type** field. You may select one of:

- **User Defined**—You will hard code a value for this parameter in the corresponding **Value** field.
- **Built-in: UserName**, **Built-in: Domain**, or **Built-in: Domain\UserName**—The value of the parameter will be set to the account name, domain or combination of the two, respectively, of the person completing the workflow.
- **Data element: *elementName***—The value of the parameter will be set to the value entered by the consumer in one of the other data elements defined in this template. Each of the data elements defined in template appears in the list for you to select.

Tip • *Be careful that the values you specify for your parameters have an appropriate type. For example, if the web service method expects an integer value for a parameter, but you supply a string value, you may cause an exception. This is particularly important if your parameter values will be specified by the consumer, in a different data element. In that instance, you may need to put a mask on that data element, to ensure that the consumer specifies data in the correct format.*

- **Web Method details URL**—Enter a URL which will display more information about the items returned by your web method. The URL must include a placeholder which will be replaced by the ID of the item chosen by the consumer.

  For example, assume this data element calls a web method which returns a list of end-users belonging to your organization and displays them in a grid. You want to display a window with more information about the end-users, such as their full name, contact details and job titles, when your workflow consumer clicks on one in the grid. You create an ASPX page called UserInfo.aspx to display this information, which takes the ID of the selected end-user in the database as a query string parameter. In this example, you would enter a value like http://<serverID>/UserInfo.aspx?UserID={0} into the **Web Method details URL** field, where the {0} placeholder would be replaced by the selected end-user ID at run time.

Tip • *The first field returned by the web method will be used to uniquely identify each record presented in either the grid or the combo box. Ensure the data in this field is unique.*

Defining an Allocate Software License Workflow Step

A workflow step of type **Allocate Software License** involves a web service call to FlexNet Manager Suite. Such a step can be included in a workflow after a software license and computer or end-user are selected in an earlier data entry step; completing the step then involves allocating the chosen computer or end-user to the selected software license.

When you are completing this step, you will be presented with a dialog detailing the proposed allocation. You need to approve the allocation by clicking the **Allocate** button, at which point the dialog closes.and the step is marked as complete. You will need a web service connection to FlexNet Manager Suite before you can complete this step.

For more information, see Default FlexNet Manager Suite Web Service Connection.

***Important** • In order for this step to work correctly, it is important that your workflow template also contains **Web Service Call** data elements which return end-user, computer and software license for the workflow consumer to select. These elements must be named and configured the same way as in the default **Software Request** global template installed with Workflow Manager. You might find it helpful to copy the **Software Request** global template and modify it, if you want to use the **Allocate Software License** step in your own templates.*

Defining a Deallocate Software License Workflow Step

A workflow step of type **Deallocate Software License** involves a web service call to FlexNet Manager Suite. Such a step can be included in a workflow after a software license allocated to a computer or end-user is selected in an earlier data entry step. Completing the step then involves deallocating the chosen computer or end-user from the selected software license.

When you are completing this step, you will be presented with a dialog detailing the proposed deallocation. You need to approve the deallocation by clicking the **Deallocate** button, at which point the dialog closes.and the step is marked as complete. You will need a web service connection to FlexNet Manager Suite before you can complete this step.

For more information, see Default FlexNet Manager Suite Web Service Connection.

***Important** • In order for this step to work correctly, it is important that your workflow template also contains a **Web Service Call** data element which returns unused software license allocations for the workflow consumer to select. This element must be named and configured the same way as in the default **Software Removal** global template installed with Workflow Manager. You might find it helpful to copy the **Software Removal** global template and modify it, if you want to use the **Deallocate Software License** step in your own templates.*

Defining a Custom Automated Task Workflow Step

Workflow tasks often require you to launch other executables or tasks which are performed outside of Workflow Manager itself. Using a **Custom Automated Task** workflow step, you can instruct Workflow Manager to automatically execute a task outside of Workflow Manager.

- About Custom Automated Tasks
- Defining a Custom Automated Task Workflow Step
- Sample iPlugin File: TestPlugin.cs

About Custom Automated Tasks

Using a **Custom Automated Task** workflow step enables you to run your own custom code using the iPlugin infrastructure and advance the workflow to the next step, all without manual intervention.

A workflow step of type **Custom Automated Task** prompts Workflow Manager to use the `AppWorkflowStepInitiated` method in the iPlugin infrastructure to automatically complete a task (by executing custom code) and to mark the workflow step as complete.

You could use a **Custom Automated Task** workflow step to execute some custom code that would update a third party database. But, even without writing any custom code, you can use the provided sample **Custom Automated Task** for a workflow step that would simply mark the step complete, which would trigger automatic email notification (if notification is configured to occur whenever a workflow step is completed).

By default, the **Custom Automated Task Status** dialog box, which opens after a **Custom Automated Task** workflow step has completed, notifies the user that the step was completed successfully. However, you can create your own ASPX page that would, for example, query a third party system and display results.

Defining a Custom Automated Task Workflow Step

To define a workflow step with a **Step Type** of **Custom Automated Task**, perform the following steps:

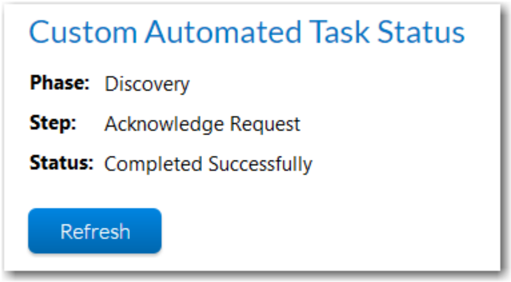
Task ***To define a Custom Automated Task workflow step:***

1. Open a workflow template on the **Template Details** page, as described in Creating a New Template.
2. Add a new workflow step.
3. Enter a name for this workflow step in the **Workflow Step Description** field.
4. Set **Step type** to **Custom Automated Task**.
5. In the **Custom Site URL** field, enter a URL to the page that you want to be displayed to show the results of the execution of the automated task. By default, the following ASPX page is provided:

   ```
   http://IPADDRESS/CustomWorkflow/CustomAutomatedTaskStatus.aspx
   ```

   Note • *By default, the value of the **Custom Site URL** field begins with either* `localhost` *or an IP address. In order for this workflow step to work, this value must be modified to point to your Workflow Manager server.*

   Note • *If you use this default ASPX page, the following page will open after this workflow step is automatically completed:*



6. Write the custom API code that you want to be executed when this task is performed. For instructions on writing this code, see Sample iPlugin File: TestPlugin.cs.

> ***Note** • If you just use the sample code that is provided for this Custom Automated Task workflow step, Workflow Manager would simply mark the step complete, which would trigger automatic email notification (if notification is configured to occur whenever a workflow step is completed).*

Sample iPlugin File: TestPlugin.cs

You can obtain a sample iPlugin file named `TestPlugin.cs` from Flexera Technical Support. This `TestPlugin.cs` file contains sample code to use when defining a **Custom Automated Task**. You need to add your code to the `DoCustomAutomatedTask` private method. Below is a sample of the code in the this file:

```
private void DoCustomAutomatedTask(string appXMLInfo, string ApplicationID, AesSession session)
    {
        try
        {
            string phaseID = GetValue(appXMLInfo, "PhaseID");
            TraceSink("DoSynchronousAutomatedTask Called for Application ID " + ApplicationID + "
                & PhaseID:" + phaseID);

            string stepID = GetValue(appXMLInfo, "StepID");
            TraceSink("DoSynchronousAutomatedTask Called for Application ID " + ApplicationID + "
                & StepID:" + stepID);

            string stepName = GetValue(appXMLInfo, "StepName");
            TraceSink("DoSynchronousAutomatedTask Called for Application ID " + ApplicationID + "
                & StepName:" + stepName);

            TraceSink("DoSynchronousAutomatedTask:: Getting a ApplicationRequest Object");
            AdminStudio.Public.WorkflowManager.ApplicationRequest AR =
                AdminStudio.Public.WorkflowManager.ApplicationRequest.Load(session, ApplicationID);

            if (null == AR)
            {
                TraceSink("DoSynchronousAutomatedTask:: Got a NULL ApplicationRequest Object");
                return;
            }

            //  Write your custom code here
            //  You can conditionally run the code based on the phaseId/stepID/stepName
            //  for a specific step
            //  You can also save the results in the DataText field for the WF Step that will be
```

```
            //  displayed in the custom edit page.
            //  A sample COMMENTED code is shown below how you would do a assignment
            /*
            if (stepName.Equals("Acknowledge Request", StringComparison.InvariantCultureIgnoreCase))
            {
                string userName = AR.GetDataItem("System Administrator", "Requester Details");
                if (!String.IsNullOrEmpty(userName))
                {
                    AR.SetWorkAssignments(CompanyType.Servicer, "System Administrator", userName);
                }
            }*/

            //  Any status text set here will be visible when the user selects the link on the
            //  custom automated step.
            string status = "Completed Successfully";
            AR.SetWorkflowItem(stepID, status);
            AR.Save();

            TraceSink("DoSynchronousAutomatedTask:: Advancing Workflow");
            AR.AdvanceWorkflow();
        }
        catch (Exception e)
        {
            TraceSink("DoSynchronousAutomatedTask threw Exception: " + e.Message);
            TraceSink("DoSynchronousAutomatedTask StackTrace: " + e.StackTrace);
        }
    }
```

***Note** • You can use the iPlugin architecture to write any custom code to associate with this automated task. You can write code to perform a task or just to display some information to the user. For more information, see Using the IPlugin Interface.*

Defining an Approval Task Workflow Step

An approval template can be associated to a workflow step that has a **Step type** of **Approval Task**. When a user clicks the name of this workflow step on the **Workflow Request** page, the **Approval** dialog box opens, prompting the user or a series of users to approve the workflow step. The approval template will be defined as one of the following types:

- **Linear**—Approvals need to take place sequentially, one after the other, according to assigned **Level**.
    - If there is more than one user assigned to a level, then everyone in that level must approve the workflow step before it can proceed to the next level of approvers, but they can approve it in any order.
    - If an LDAP group or a role is specified as the **Approver**, everyone in that group/role has to approve the workflow step before it can proceed to the next level, but the members of that group/role can approve it in any order.
- **Pool**—Only one approver is required, even if multiple approvers are listed. Anyone (or any member of a listed group/role) can approve the workflow step. The **Level** field is ignored.
- **Linear In Pool**—Approvals need to take place sequentially, one after the other, according to assigned **Level**, but if there is more than one user assigned to a level or if there is a group assigned to a level, only one user of the assigned users (or only one member of the group/role) needs to approve it.
- **Parallel**—All listed users (and all users in listed groups/roles) must approve the workflow step before it can proceed, but not in any specific order. The **Level** field is ignored.

***Note** • For information on approval templates, see Managing Approval Templates.*

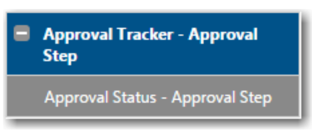
To define a workflow step with a **Step type** of **Approval Task**, perform the following steps:

Task ***To define a workflow step with Step Type of Approval Task:***

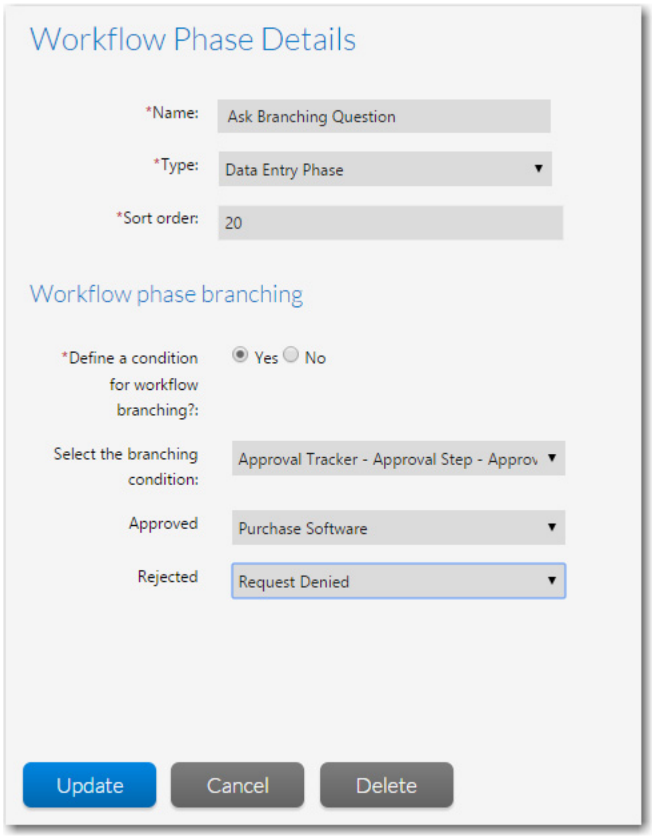
1. Create an approval template, as described in Creating an Approval Template.
2. Open a workflow template on the **Template Details** page, as described in Creating a New Template.
3. Add a new workflow step in the location in the workflow where you want the approval task to occur.
4. Enter a name for this workflow step in the **Description** field.
5. Set **Step type** to **Approval Task**.

   ***Note** • See also Restrictions Regarding Approval Tasks When Editing Workflow Templates That Have Existing Workflow Requests.*

6. From the **Approval Template** list, select an approval template.
7. Click **Create**. Workflow Manager automatically creates a new data group and data element to collect the approval information:

8. On the **Workflow Phase Details** view of the workflow phase that contains the approval workflow step, set the **Define a condition for workflow branching?** option to **Yes**.



9. In the **Select the branching condition** list, select the **Approval Status** data element that was created when you created the approval workflow step.

10. Select the next phase setting for the **Approved** and the **Rejected** values.

11. Click **Update** to save your edits on the **Workflow Phase Details** view.

***Note** • For more information on creating workflow templates that contain branching, see Creating Templates That Use Conditions.*

When a request is submitted using this workflow template, the **Approval** dialog box will open when a user clicks on this workflow step on the **Workflow Request** page. Users can also approve an approval workflow by clicking a link in an email that they receive when their approval level becomes active.

Defining a Custom Web Page Workflow Step

A workflow step with type **Custom Web Page** launches an operator-specified web page in a new browser window, where the person completing the workflow request needs to enter or process custom information. When you select this option, the **Custom Site URL** field appears, and you specify the URL of the custom web page.

***Note** • You must enter an absolute URL (beginning with* `http://` *or* `https://`*).*

Important • *By default, the value of the **Custom Site URL** field begins with either* `localhost` *or an IP address. In order for this workflow step to work, this value must be modified to point to your Workflow Manager server.*

When the person completing the workflow request has finished working with the custom web page, data will be sent back to Workflow Manager causing it to automatically mark the step as complete and advance the workflow.

Tip • *By default, the **Custom Site URL** field points to a custom web page shipped with Workflow Manager named* `TestCustomWorkflow.aspx`*. Use this page for testing, before providing the URL of your own web page:*

http://SITE_IP_ADDRESS/CustomWorkFlow/TestCustomWorkFlow.aspx

When you create your custom web page, you are responsible for ensuring that it implements the methods necessary to pass data back to Workflow Manager:

- The **AdvanceWFMinorStep** method is used to mark the workflow step as complete.
- The **EditWFMinorStep** method is used if you want to be able to update data collected during this step without having to roll the step back.
- The **RollbackWFMinorStep** defines the actions which need to be taken to roll back the step.

See Configuring a Custom Web Page for detailed instructions.

Configuring a Custom Web Page

There are a number of steps involved before a custom web page can be launched by a **Custom Web Page** workflow step. Information about configuring a Custom Web Page as a workflow step is presented in the following sections:

- Parameters
- Web Methods
- HTTP GET Protocol Example

Parameters

Workflow Manager sends the web service location and the web method in the query string to the external custom web page. The key value is `WebServiceURL`. This key has both the web service and the web method, in the format `webservicelocation/webMethod`. The following other parameters also need to be passed through the query string:

Table 5-13 • Custom Web Page Parameters

Parameter	Description
ApplicationID	The unique identifier for the workflow request in the Workflow Manager database.
WFMajorItemID	The unique identifier for the workflow phase in the Workflow Manager database.
WFMinorItemID	The unique identifier for the workflow step in the Workflow Manager database.

Table 5-13 • Custom Web Page Parameters

Parameter	Description
PersonID	The unique identifier in the Workflow Manager database for the account of the person currently completing the workflow request.
MinorType	The workflow step type, which always needs to be set to **10** (**Custom Step Type**).
EditType	Your custom web page may perform differently, depending on what mode it is called in. Choose one of the following modes: • **New**—The web page is being launched for the first time in this workflow request • **Edit**—The web page has been previously submitted, but the person completing the request needs to update some information • **Read Only**—Indicates a read only state.

Web Methods

When configuring a custom web page, you may need to implement the following Web methods:

- AdvanceWFMinorStep
- RollbackWFMinorStep
- EditWFMinorStep

AdvanceWFMinorStep

Once the consumer completes your custom web page, this method will be called to advance the workflow request to the next workflow step. If your web page is the last step in a workflow phase, this method also needs to advance the request to its next workflow phase.

Table 5-14 • Custom Web Page Web Method: AdvanceWFMinorStep

Parameter Type	Parameter	Description
Input	**strAppID**	The unique identifier for the workflow request in the Workflow Manager database.
	strWFMajorItemID	The unique identifier for the workflow phase in the Workflow Manager database, which contains the workflow step launching your web page.
	strWFMinorItemID	The unique identifier for the workflow step in the Workflow Manager database which launches your web page. This should be the current step in progress.
	strPersonID	The unique identifier in the Workflow Manager database for the account of the person currently completing the workflow request.
	nWFMinorType	The workflow step type - always needs to be set to **`10`** (**Custom Step Type**).
Output	**boolean**	The return value of `AdvanceWFMinorStep` should be: • **True** if the workflow step was advanced without error • **False** if the workflow step was not advanced, or the method threw an error.

RollbackWFMinorStep

This method rolls back the workflow request to the workflow step which launches your workflow request.

Table 5-15 • Custom Web Page Web Method: RollbackWFMinorStep

Parameter Type	Parameter	Description
Input	**strAppID**	The unique identifier for the workflow request in the Workflow Manager database.
	strWFMajorItemID	The unique identifier for the workflow phase in the Workflow Manager database, which contains the workflow step launching your web page.
	strWFMinorItemID	The unique identifier for the workflow step in the Workflow Manager database which launches your web page. The workflow request will be rolled back to this step.
	strPersonID	The unique identifier in the Workflow Manager database for the account of the person currently completing the workflow request.
	nWFMinorType	The workflow step type - always needs to be set to **`10`** (**Custom Step Type**).
Output	**boolean**	The return value of `RollbackWFMinorStep` should be: • **True** if the workflow request was rolled back without error • **False** if the workflow request was not able to be rolled back, or the method threw an error.

EditWFMinorStep

This method updates the workflow step (by launching your workflow request again) after it has already been completed. Implement this method if you want to be able to relaunch your web page after it has been completed without having to roll back to its workflow step.

Table 5-16 • Custom Web Page Web Method: EditWFMinorStep

Parameter Type	Parameter	Description
Input	**strAppID**	The unique identifier for the workflow request in the Workflow Manager database.
	strWFMajorItemID	The unique identifier for the workflow phase in the Workflow Manager database, which contains the workflow step launching your web page.
	strWFMinorItemID	The unique identifier for the workflow step in the Workflow Manager database which launches your web page.
	strPersonID	The unique identifier in the Workflow Manager database for the account of the person currently completing the workflow request.
	nWFMinorType	The workflow step type - always needs to be set to **`10`** (**Custom Step Type**).
Output	**boolean**	The return value of `EditWFMinorStep` should be: • **True** if the workflow step was updated without error • **False** if the workflow step was not able to be updated, or the method threw an error.

***Note** • When an action has been performed on a custom web page, you may need to manually refresh the Workflow Manager **Workflow Request** page to see any changes (such as completing or rolling back to the web page's workflow step).*

HTTP GET Protocol Example

The example below shows you how to create a custom web page using the `HTTP GET` protocol for consuming a web service. Other protocols can also be used, like `HTTP POST` and `SOAP`.

```
-------- Code Example for implementing the web service --------------

//This method is called when page is loaded

  void Page_Load(Object sender, EventArgs e)
  {
    //Displaying all the information received in the page from the Workflow Manager system through
    //the URL for consumption of web services

    //Web Service Location
    this.lblWebServLocTxt.Text = HttpContext.Current.Request.QueryString["WebServiceURL"];
```

```
    this.strWebServiceLoac = HttpContext.Current.Request.QueryString["WebServiceURL"];

    //Application ID
    this.lblAppIdTxt.Text = HttpContext.Current.Request.QueryString["ApplicationID"];
    this.strAppId = HttpContext.Current.Request.QueryString["ApplicationID"];

    //Major Item Id
    this.lblMajorItemIdTxt.Text = HttpContext.Current.Request.QueryString["WFMajorItemID"];
    this.strWFMajorItemID = HttpContext.Current.Request.QueryString["WFMajorItemID"];

    //Minor Item Id
    this.lblMinorItemTxt.Text = HttpContext.Current.Request.QueryString["WFMinorItemID"];
    this.strWFMinorItemID = HttpContext.Current.Request.QueryString["WFMinorItemID"];

    //Minor Type
    this.lblMinorTypeTxt.Text = HttpContext.Current.Request.QueryString["MinorType"];
    this.strWFMinorType = HttpContext.Current.Request.QueryString["MinorType"];

     //Person Id
    this.lblPersonIdTxt.Text = HttpContext.Current.Request.QueryString["PersonID"];
    this.strPersonID = HttpContext.Current.Request.QueryString["PersonID"];;

    //Mode (New:Advance work flow ; Edit:Editing the Step; Rollback:Rollback)
    this.lblModeTxt.Text =HttpContext.Current.Request.QueryString["EditType"];
    this.strEditType = HttpContext.Current.Request.QueryString["EditType"];

    //Clearing any previous error
    lblErr.Text = "";

    //Changing the name of the Submit button according to the edit mode
    if(strEditType == "New")
          this.btnSubmit.Text = "Advance WorkFlow";
    else if(strEditType == "Edit")
          this.btnSubmit.Text = "Edit Custom Step";
    else if(strEditType == "Rollback")
          this.btnSubmit.Text = "Rollback";
    }

//This method is called when Submit button is clicked
private void btnSubmit_Click(object sender, System.EventArgs e)
{

string retStr = "false";//String to hold return value of Web service called

/*
HTTP GET method is used for consuming the Web service
1. Query string containing all key value collection for the method signature of
   the web service's web method is created
2. The query string is concatenated with "webservicelocation/webMethod"
3. A web request is sent to the web service.
4. The response is stored in an XML document and, using XPath query, the result is found.
5. The result is checked for True value, and if True, the parent page is refreshed and the
   present page is closed.
*/

//Query String containing all key value collection for the method signature
```

```
// of the web service's webmethod is created
string querystring ="strAppID=" + this.strAppId + "&WFMajorItemID=" + this.strWFMajorItemID +
"&WFMinorItemID="+ this.strWFMinorItemID + "&PersonID="+ this.strPersonID +
"&nWFMinorType="+ this.strWFMinorType ;

//The query string is concatenated with "webservicelocation/webMethod"
string uri = this.strWebServiceLoac +"?"+ querystring;

try
{
//A web request of "GET" type is created.
System.Net.WebRequest newReq = WebRequest.Create(uri);
newReq.Method = "GET";

//A web request is send to the web service and the web response is stored in ReceiveStream.
WebResponse res = newReq.GetResponse();
Stream ReceiveStream = res.GetResponseStream();

//The response is converted into XML document
XPathDocument document = new XPathDocument(ReceiveStream);

//XML navigator is created for using XPath query in the XML document to find the result
XPathNavigator nav = document.CreateNavigator();

//XML document is queried for the result of the webmethod ("bool")
XPathNodeIterator nodes = nav.Select("//bool");

//Result is stored in the retStr string
retStr = nodes.Current.Value;

}
catch(Exception ex)
{
//Displaying the exception error
lblErr.Text = ex.Message;
}

//If the result of the web method of the web service is true, then do the follwing

  //1. Refresh the parent window of window.opener.location = window.opener.location.href
  //   refreshes the Workflow Manager page which opened the current page.
  //2. Close the present window (self.close()).
  //Note: If we do not refresh the parent window, then we will not be able to see
  //the changes of the web service in Workflow Manager.

  if(retStr.Trim() == "true")
  {
    StringBuilder sb = new StringBuilder();
    sb.Append("<SCRIPT>window.opener.location = window.opener.location.href;
    self.close();<" + "/SCRIPT>");
    this.Page.RegisterClientScriptBlock("customWebPageScript",sb.ToString());
      }
}
```

Defining a Workflow Phase with a Phase Type of AdminStudio Phase

You can define a Workflow Manager workflow phase so that it is performed in its entirety as an AdminStudio project. When the last task of an AdminStudio project is marked complete in AdminStudio, the Workflow Manager workflow phase is automatically marked **100%** complete on the Workflow Manager **Workflow Request** page and the workflow is advanced.

For detailed information, see Defining a Workflow Manager Phase as an AdminStudio Workflow Project.

Including a Customer Acceptance Phase or Last Phase

Before completing a phase or a workflow request, you may require a customer to approve some work done. Alternatively, you may need to ensure that certain administrative tasks get performed before a workflow request is marked as complete. There are two phase types you may use in these situations.

- **Customer Acceptance Phase**—Create a phase with this type if you require a customer to approve work done before the phase is marked as complete.
- **Last Phase**—Use this phase if certain administrative tasks need to be performed before a workflow request is marked complete.

Specifying Email Templates for Workflow Steps

When you create a template, you can specify which email template should be used when a workflow step is initiated, rolled back, edited or completed. Do this using the **Email Templates** fields provided with the **Workflow Step Details**. See Managing Email Notifications for more information.

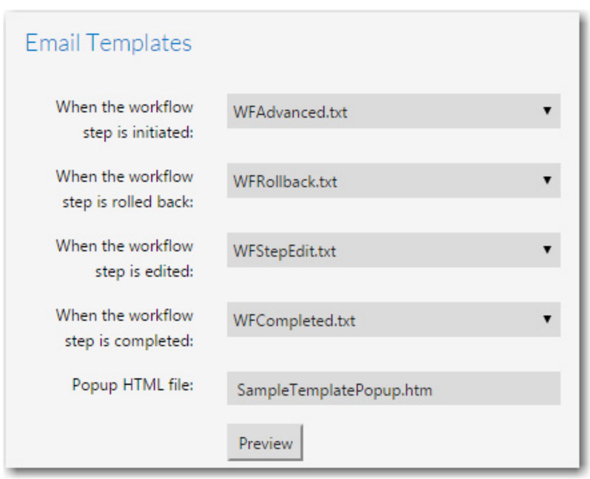


Figure 5-38: Email Template Options on Workflow Step Details View

File Upload Considerations in Requests

Workflow requests have two distinct components: the workflow component (where the workflow process is executed) and the data component (where information needed to complete the request is collected from the consumer). Workflow Manager allows data to be collected using a number of different methods, including free text entry, selecting one of many options, making multiple selections from a list, and so on. Workflow Manager also supports file uploads. People completing workflow requests can upload files, such as documents or executables, in support of their request or work they have done on the request, and the uploaded files are then saved to a predefined folder on the Workflow Manager server.

If a data collection step contains a data element of type **Document Upload**, **Application Upload**, **Upload Folder Content, Dependency Upload**, or **Downloadable File Upload**, the person completing the workflow request will be presented with an **Upload** button.

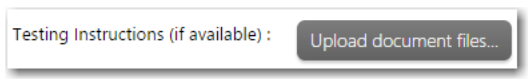


Figure 5-39: Upload Button

Clicking this button will open the **File Upload** dialog, where one or more files may be uploaded. See File Upload Dialog Box for more information.

Please note the following regarding Workflow Manager file upload support:

- **No file size restrictions**—There are no file restrictions. People can upload files of any size without causing a timeout error. When uploading a file, Workflow Manager streams the data into a disk file, instead of receiving the entire upload request in memory, so the only limitation to file size would be the amount of free disk space on the destination server.
- **No limit on number of uploaded files**—There is no limit to the number of files that can be uploaded.

Defining Automated AdminStudio Integration Workflow Steps

Edition • *This feature is available when you have purchased AdminStudio Enterprise Edition.*

Workflow Manager leverages AdminStudio's web services APIs to provide out-of-the-box support for enhanced automation data elements/workflow steps that make it possible to execute many AdminStudio tasks, such as:

- Importing a package into the Application Catalog and performing testing
- Viewing test results
- Setting the target environment
- Setting packaging formats
- Setting distribution points
- Publishing applications
- Viewing reports
- Viewing and setting application properties

This enhanced integration helps AdminStudio users leverage the built-in functionality of Workflow Manager, including approvals, email, issues, conditional logic, custom pages, reports, and integration with AdminStudio Inventory and Rationalization and FlexNet Manager Suite.

You can edit the out-of-the-box automation templates (Application Readiness Process Template or Mobile Application Request Template) or create new templates that incorporate these AdminStudio tasks by using the AdminStudio-related workflow step types and data element data types.

Important *• Please note the following before executing the workflow:*

- *AdminStudio does not need to be installed on the same machine as Workflow Manager to use this integration. The only requirement is that AdminStudio and Workflow Manager must be connected to the same Application Catalog database.*
- *Make sure the port 8086 is open for communication in the machine where AdminStudio is running.*
- *Make sure AdminStudio host process is running on the AdminStudio machine*
- *Enter the AdminStudio Url in your Workflow Manager **Settings >> Company Preferences >> Company Name >> AdminStudio Url,** See* *Setting Preferences on the Company Preferences Page*

Using Workflow Manager's automated AdminStudio integration features, you can perform the following tasks as part of a workflow request:

- Selecting Existing AdminStudio Packages
- Importing New Packages into AdminStudio
- Testing Packages and Viewing Test Results
- Distributing Packages
- Specifying Package Formats and Target Environments
- Adding Reports to Workflow Requests
- Displaying Package Properties in a Workflow Request
- Setting Package Properties in a Workflow Request

Selecting Existing AdminStudio Packages

You can create a workflow step that prompts the requester to select existing packages from the AdminStudio Application Catalog. Once you associate packages with a workflow request, you can perform other AdminStudio tasks on those packages as part of subsequent workflow steps such as performing testing in AdminStudio, viewing test results, and distributing packages to specified distribution systems such as System Center Configuration Manager.

To create a workflow step that prompts the requester to select existing packages from an Application Catalog, you first create a data element with a data type of **Existing AdminStudio Package**.

Next, you associate the data group containing that data element to a workflow step (either at initial submission or later in the workflow). When that workflow step is displayed to the requester, they will be prompted to click the **Click to select the package** button.

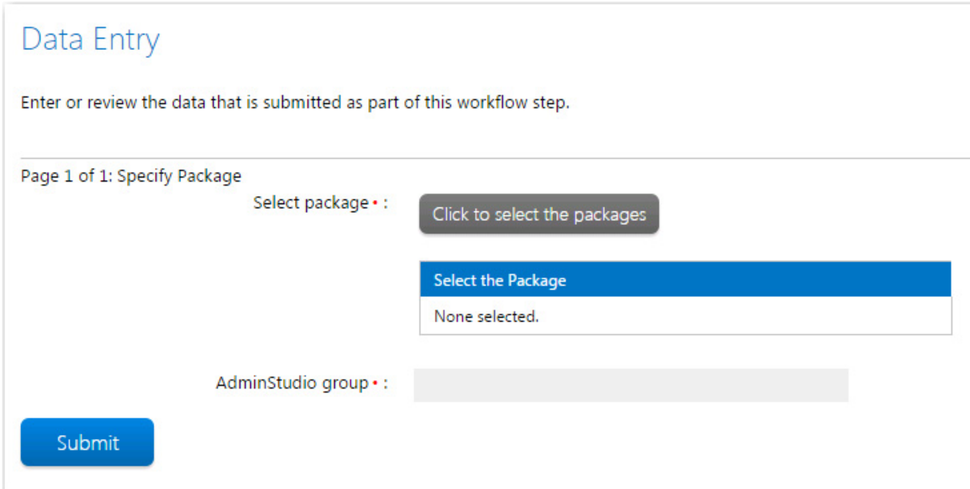


Figure 5-40: "Existing AdminStudio Package" Data Element in a Workflow Step / Initial View

When you click the **Click to select the package** button, the **Existing Packages in AdminStudio** page opens, which lists all packages in the AdminStudio Application Catalog.

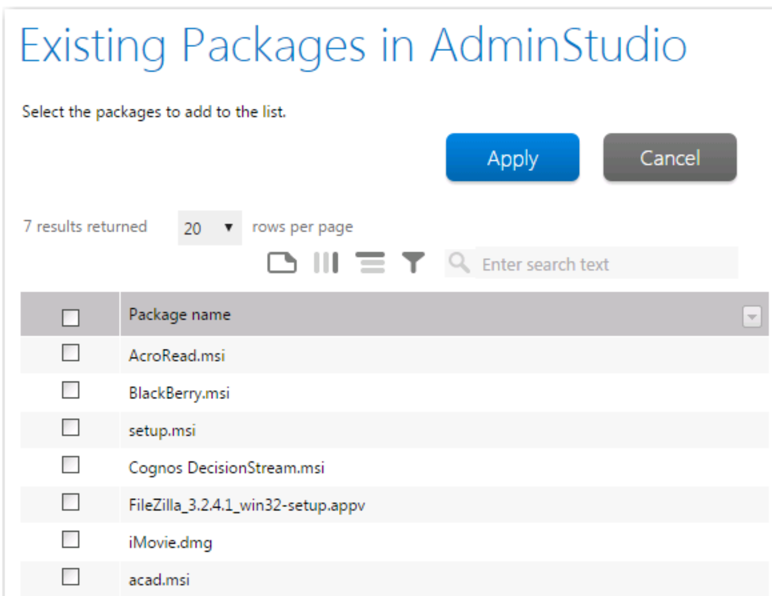


Figure 5-41: Existing Packages in AdminStudio Page

After you select the packages you want to attach to the workflow request and click **Apply**, the selected packages are listed in the **Select the Package** table.

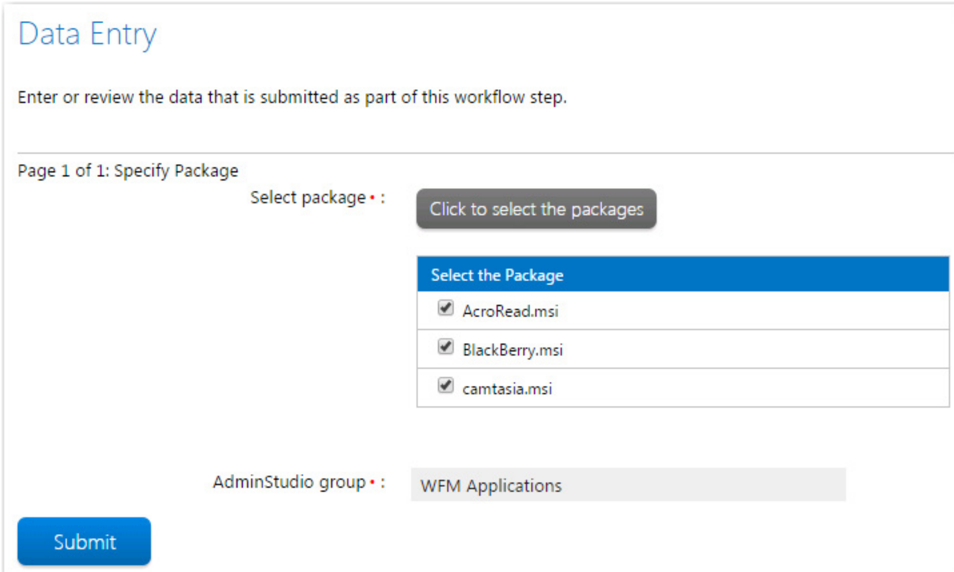


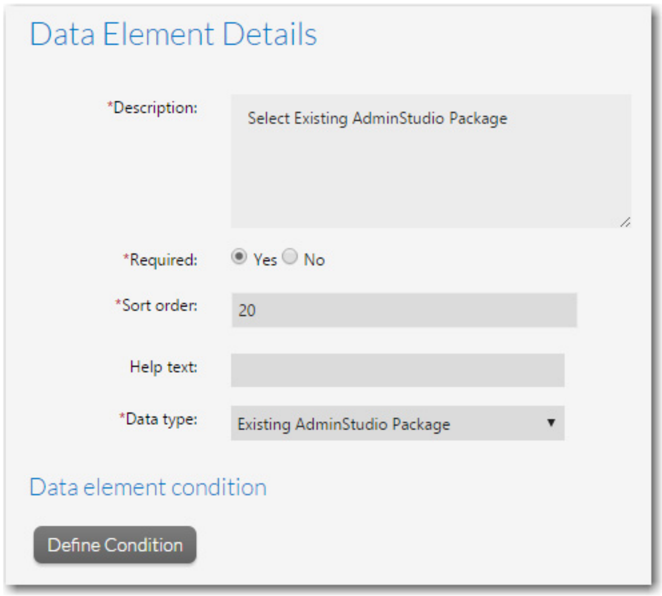
Figure 5-42: "Existing AdminStudio Package" Data Element in a Workflow Step / Packages Selected

When you click **Submit**, the packages are then associated with the workflow request and are available when invoking AdminStudio Integration tasks in subsequent workflow steps.

To create a workflow step that prompts the requester to select existing AdminStudio packages to associate to the workflow request, perform the following steps:

Task ***To create a workflow step to select existing AdminStudio packages:***

1. Open a workflow template on the **Template Details** page, as described in Creating a New Template.
2. Add a new data element to a data group, either one collected at initial submission or later in the workflow.
3. Enter a name for this data element in the **Description** field.
4. Set **Data type** to **Existing AdminStudio Package**.



5. Associate the data group containing that data element to a workflow step.

Importing New Packages into AdminStudio

***Note •** This feature requires that Workflow Manager be connected to the same Application Catalog database as AdminStudio.*

Workflow Manager includes data element data types and a workflow step type that enable you import new packages into the AdminStudio Application Catalog. Just like when existing AdminStudio packages are selected (as described in Selecting Existing AdminStudio Packages), once you import packages as part of a workflow step, you can perform other AdminStudio tasks on those packages as part of subsequent workflow steps such as performing testing in AdminStudio, viewing test results, and distributing packages to specified distribution systems such as System Center Configuration Manager.

This section describes the two methods of importing packages into AdminStudio, involving two data element data types and a workflow step type that processes the import.

- Supported Package Deployment Types for Import
- Uploading Individual Packages
- Uploading Uncompressed Setup Files
- Uploading Packages from a Directory
- Creating a Workflow Step to Process the Import

Supported Package Deployment Types for Import

Workflow Manager supports importing most of the deployment types that are supported by AdminStudio:

- Microsoft Windows Installer package (.msi)
- Installation package (.exe)

- Mac OS X disk image (.dmg)
- Mac OS X installer package (.pkg)
- Microsoft App-V virtual package (.sft, .appv)
- Symantec Workspace virtual package (.xpf)
- VMware ThinApp virtual package (.exe)
- Citrix XenApp virtual package (.profile)
- Apple iOS mobile application (.ipa)
- Microsoft Windows Store application (.appx)
- Google Android mobile application (.apk)

To specify the import formats you want to Workflow Manager to support, you can edit the **AdminStudio Import Formats** field on the new **Company Preferences** page. In this field, supported file extensions are listed, separated by commas.

Figure 5-43: AdminStudio Import Formats Field on Company Preferences Page

***Note** • For more information, see Setting Preferences on the Company Preferences Page.*

If you create a workflow step that includes the import of packages from a specified directory, Workflow Manager will only import the packages of the deployment types that are specified in the **AdminStudio Import Formats** field. By default, all supported deployment types are specified.

Uploading Individual Packages

When you add a data element with a data type of **AdminStudio Package Upload** to a workflow template, and associate that data element with a workflow step, the requester is prompted to click a button to upload packages from any accessible location.

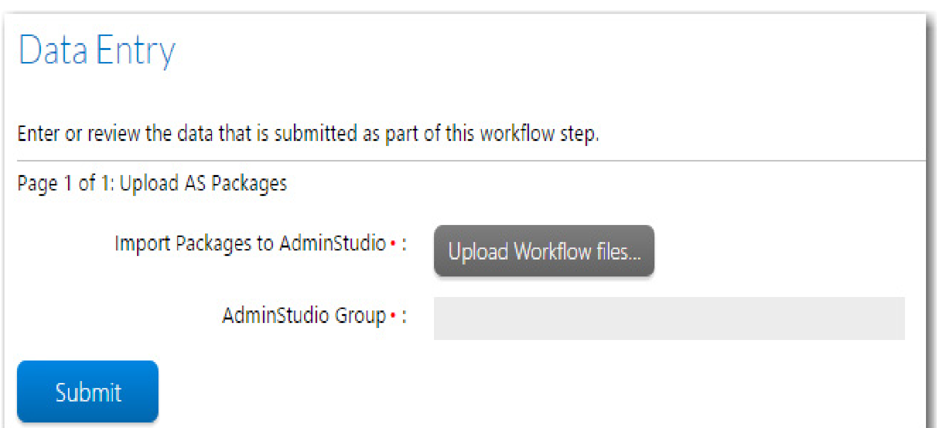


Figure 5-44: “AdminStudio Package Upload” Data Element in a Workflow Step

When the you click the **Upload Workflow files** button, the **File Upload** dialog box opens.

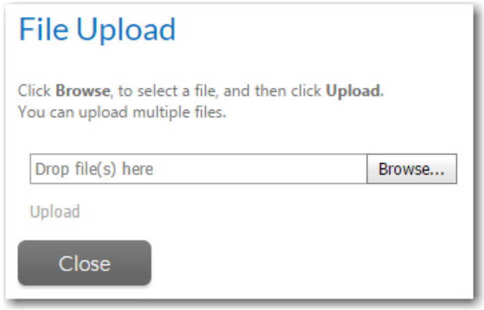


Figure 5-45: File Upload Dialog Box / No Files Selected

On the **File Upload** dialog box, you can select multiple files by clicking **Browse** multiple times. All selected files will be listed.

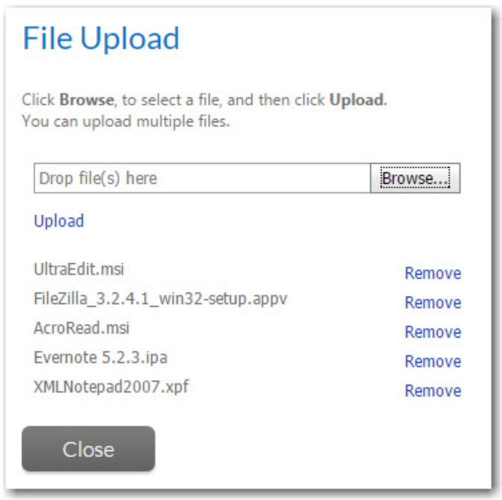


Figure 5-46: File Upload Dialog Box / Files Selected

When you have finished selecting files, click **Upload**. Progress messages will be listed.

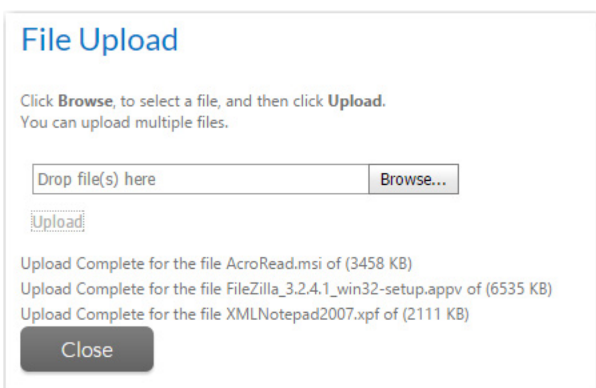


Figure 5-47: File Upload Dialog Box / Upload Complete

You then click **Close** to return to the workflow step.

On the transform files tab, click the **Upload** button to transform the files to support the MSI package.

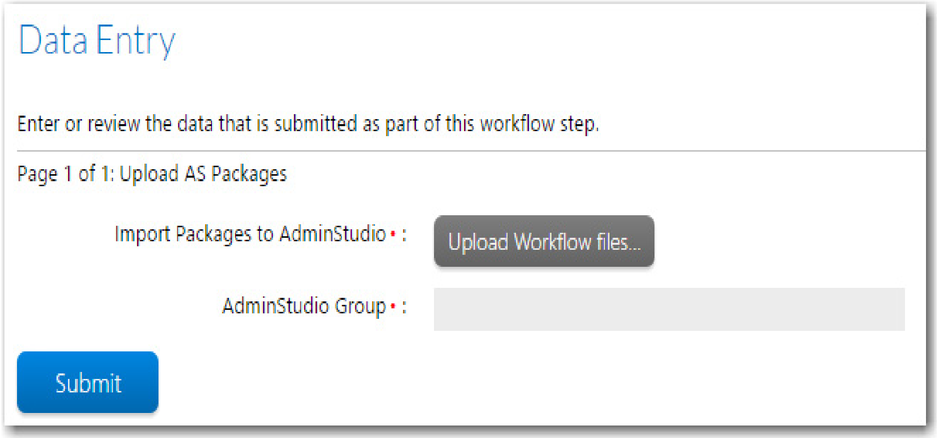


Figure 5-48: Transform Files with MSI Package

Once the transformed files are uploaded, then click **Submit** to complete the step. At that point, a subsequent workflow step begins processing the import, as described in Creating a Workflow Step to Process the Import.

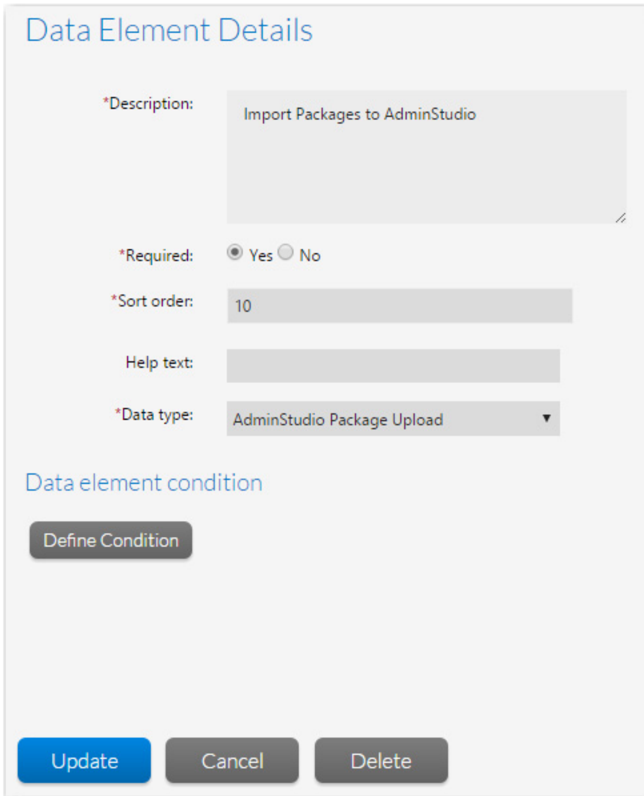
The **AdminStudio Package Upload** method is not recommended to import large packages because of the length of time it takes to upload and test, and also because it requires you to manually select all dependent files, such as `.mst` and `.cab` files. When importing larger files and files with dependent files, you should use the **AdminStudio Package Upload from Import Path** method, as described in Uploading Packages from a Directory.

Creating an “AdminStudio Package Upload” Data Element

To create a workflow step that prompts the requester to upload individual packages to the AdminStudio Application Catalog, perform the following steps:

Task ***To create a workflow step to upload individual packages:***

1. Open a workflow template on the **Template Details** page, as described in Creating a New Template.
2. Add a new data element to a data group, either one collected at initial submission or later in the workflow.
3. Enter a name for this data element in the **Description** field.
4. Set **Data type** to **AdminStudio Package Upload**.



5. Associate the data group containing that data element to a workflow step.
6. Add another subsequent workflow step to process the import, as described in Creating a Workflow Step to Process the Import.

Uploading Uncompressed Setup Files

When you add a data element with a data type of **AdminStudio Package Content Upload** to a workflow template, and associate that data element with a workflow step, the requester is prompted to click a button to create a folder structure, and upload an application and supporting files from any accessible location.

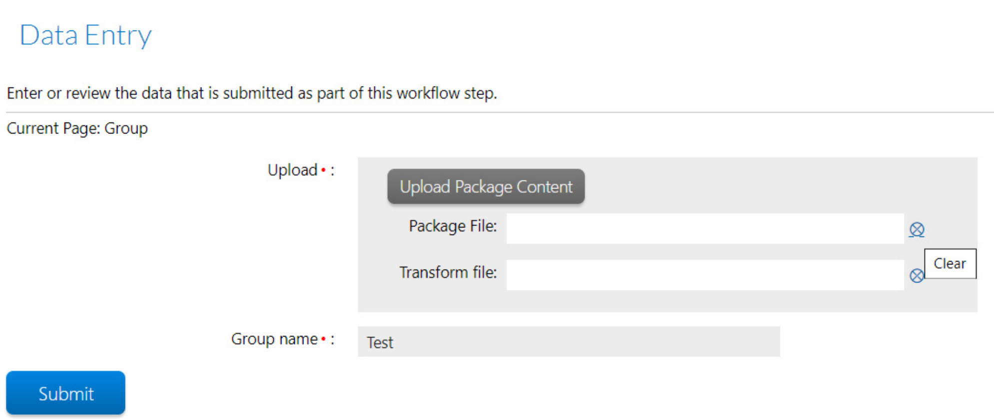


Figure 5-49: “AdminStudio Package Content Upload” Data Element in a Workflow Step

***Tip** • You can use clear button*  *to clear the selected Package File and Transform File.*

When the you click the **Upload Package Content** button, the **Upload** windows pane opens.

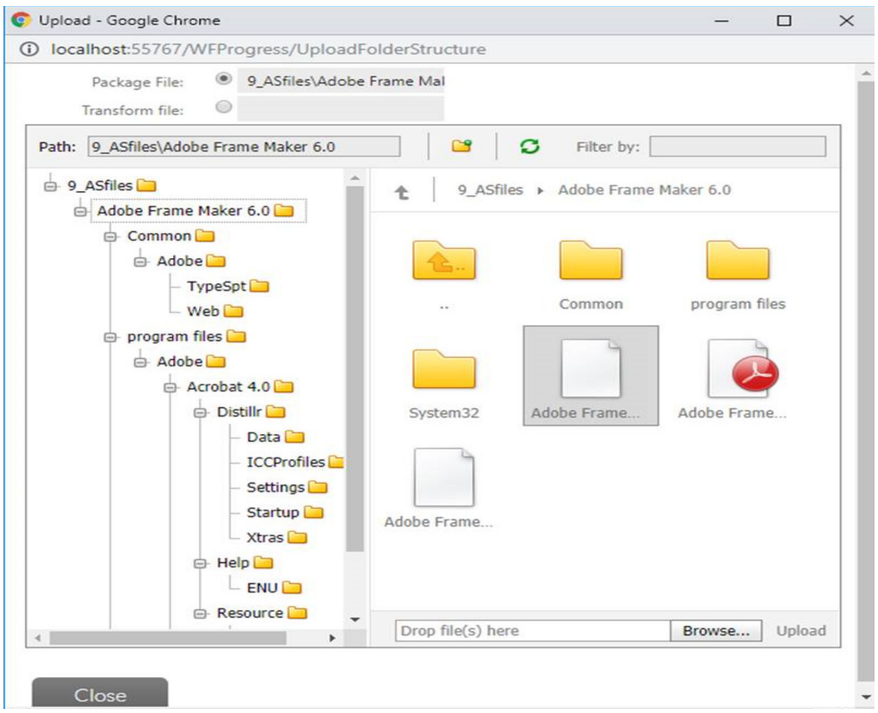


Figure 5-50: Upload windows pane

On the Upload windows pane, you can select multiple files using **Browse** option.

When you have finished selecting files, click **Upload**. Progress messages will be listed.

All uploaded files will be moved to the selected folder structure. Select the **Package File** radio button, and select an application file which you want to import into the AdminStudio catalog.

Select the Transform File radio button, and select the relevant supporting file which has to be imported along with a selected application file into the AdminStudio catalog.

You then click **Close** to return to the workflow step.

You can see the uploaded **Package File** and **Transform File**, then click **Submit** to complete the step.

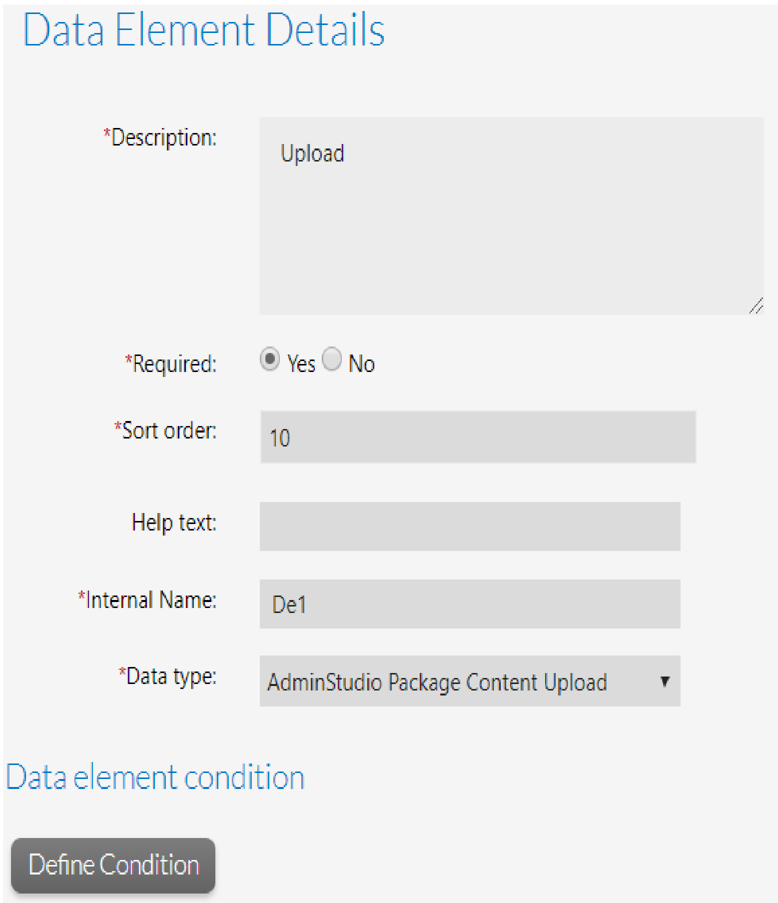
At that point, a subsequent workflow step begins processing the import, as described in Creating a Workflow Step to Process the Import.

Creating an “AdminStudio Package Content Upload” Data Element

To create a workflow step that prompts the requester to upload uncompressed setup files to the AdminStudio Application Catalog, perform the following steps:

Task ***To create a workflow step to upload individual packages:***

1. Open a workflow template on the **Template Details** page, as described in Creating a New Template.
2. Add a new data element to a data group, either one collected at initial submission or later in the workflow.
3. Enter a name for this data element in the **Description** field.
4. Set **Data type** to **AdminStudio Package Content Upload**.



5. Associate the data group containing that data element to a workflow step.
6. Add another subsequent workflow step to process the import, as described in Creating a Workflow Step to Process the Import.

Uploading Packages from a Directory

To solve the problems of importing large files and uploading all dependent files, you can instead add a data element with the data type of **AdminStudio Package Upload from Import Path** to a workflow template. When using this type of data element, dependent files are automatically imported along with the selected packages, and you are able to use Workflow Manager to perform other tasks while the files are being imported and tested. All packages of the specified deployment types in the selected directory will be imported.

With a data element with this data type, the requester is first prompted to copy the files that they want to upload into the workflow-request-specific subdirectory, which was created automatically when the workflow request was created.

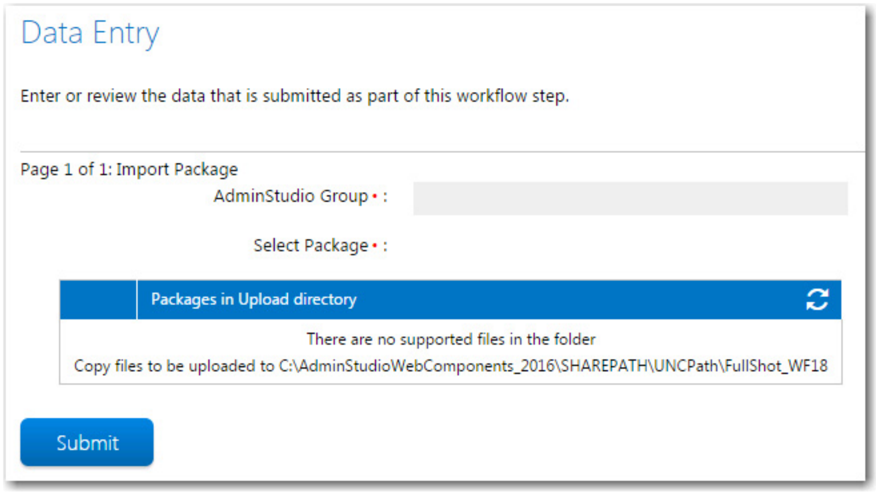


Figure 5-51: “AdminStudio Package Upload from Import Path” Data Element / Initial View

Note • *The root path to this import directory is specified in the* ***AdminStudio Import Base Directory*** *field on the new* ***Company Preferences*** *page. For more information, see Setting Preferences on the Company Preferences Page.*

After you copy the packages to the correct location and click the Refresh button in the table heading row, those packages will be listed in a selection table.

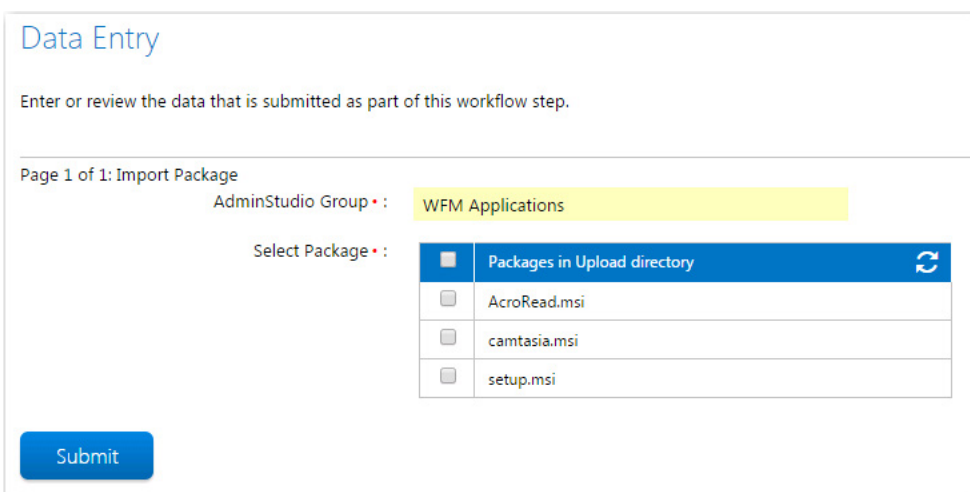


Figure 5-52: “AdminStudio Package Upload from Import Path” Data Element / Files Listed

The files of the selected deployment types will be listed in the **Packages in Upload Directory** column, but dependent files (`.mst`, `.cab`, etc.) will not be listed.

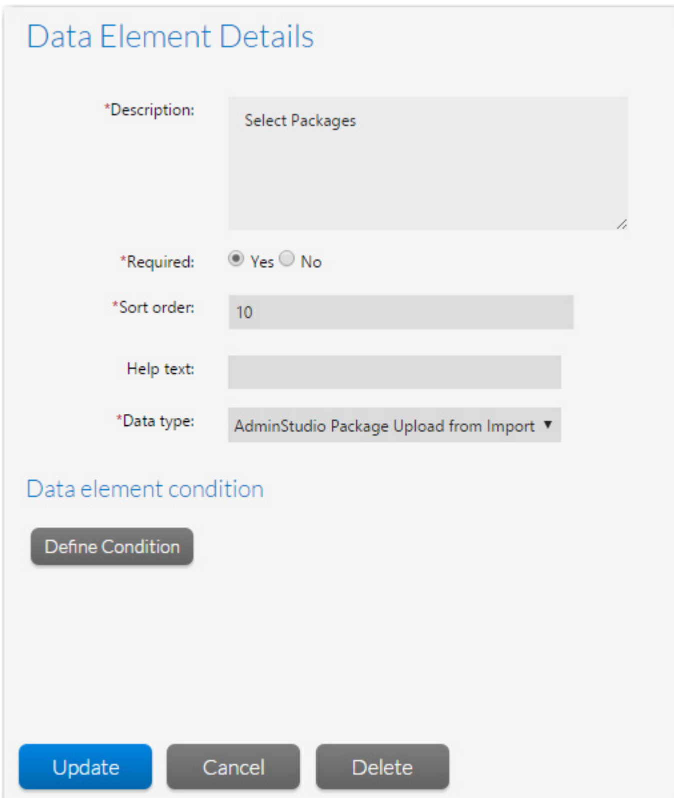
After you click **Submit** to complete the step, a subsequent workflow step begins processing the import, as described in Creating a Workflow Step to Process the Import.

Creating an “AdminStudio Package Upload from Import Path” Data Element

To create a workflow step that prompts the requester to upload a directory of packages in a specified path to the AdminStudio Application Catalog, perform the following steps:

Task ***To create a workflow step to upload a directory of packages:***

1. Open a workflow template on the **Template Details** page, as described in Creating a New Template.
2. Add a new data element to a data group, either one collected at initial submission or later in the workflow.
3. Enter a name for this data element in the **Description** field.
4. Set **Data type** to **AdminStudio Package Upload from Import Path**.



5. Associate the data group containing that data element to a workflow step.
6. Add another subsequent workflow step to process the import, as described in Creating a Workflow Step to Process the Import.

Creating a Workflow Step to Process the Import

After you create a data group containing a data element with a data type of **AdminStudio Package Upload, AdminStudio Package Content Upload** or **AdminStudio Package Upload from Import Path**, you need to first collect the data group in a workflow step. However, the actual import is automatically performed by a subsequent workflow step that references the “import” data element.

To create a workflow step to process the import of the specified packages, you need to create a subsequent workflow step with the new step type of **AdminStudio Integration** and the additional specification of **AdminStudio Task** of **Package Import**.

The **Package Import** task of an **AdminStudio Integration** workflow step type requires you to collect two parameters:

- **Group**—Select the data element that contains the name of the group in the Application Catalog into which to import the packages.
- **PackagePath**—Select the data element that instructed the user to select the packages to import.

When this workflow step is launched, packages are submitted for import one-by-one. This helps Workflow Manager support multiple users performing imports simultaneously and does not monopolize AdminStudio.

When the requester clicks **Submit**, the progress of the import is listed in the **Status** column.

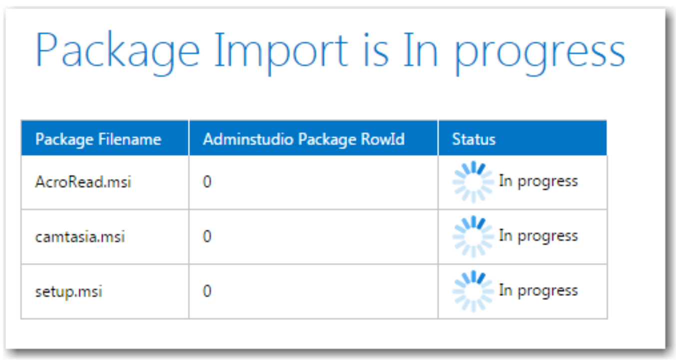


Figure 5-53: Package Import is In Progress Page

Because importing can take some time, you are permitted to exit from this screen while the import takes place. The import will continue in the background. You can return to the **Progress** tab of the **Workflow Request** page periodically to check on the progress of the import.

When the import is complete, **Completed** is listed in the **Status** column. You can then click the **Complete Step** button to complete this workflow step.

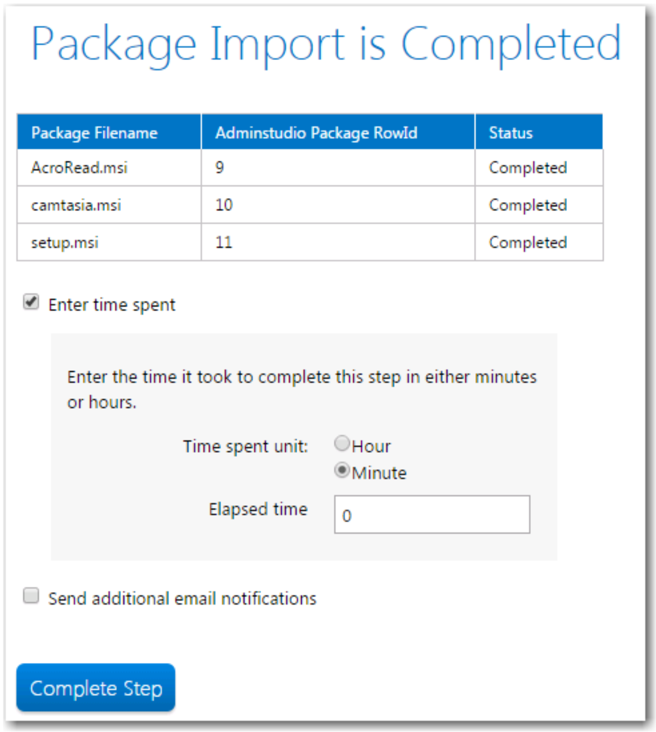


Figure 5-54: Package Import is Complete Page

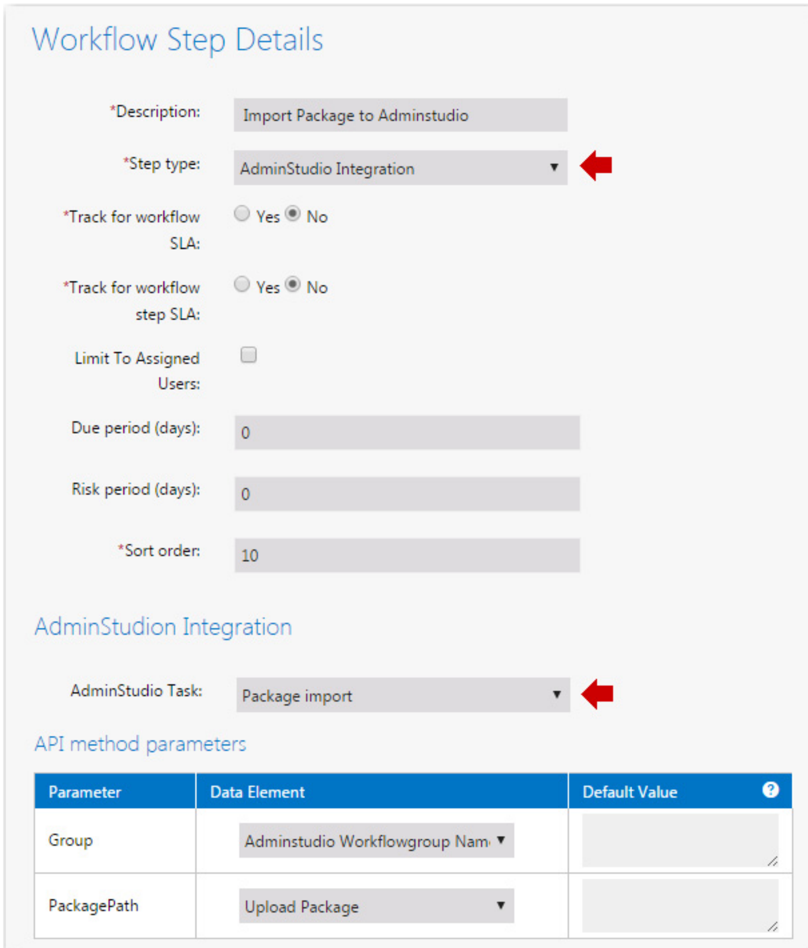
If there is an error during import, an error message will appear in **Status** column and you will be able to click on a link for more information.

Creating an “AdminStudio Integration > Package Import” Workflow Step

To create a workflow step that imports packages selected in previous workflow steps into the AdminStudio Application Catalog, perform the following steps:

Task ***To create a workflow step to upload a directory of packages:***

1. Open a workflow template on the **Template Details** page, as described in Creating a New Template.
2. Add a data element that prompts the requester to select packages to upload, as described in Uploading Individual Packages and Uploading Packages from a Directory) and associate that data element’s data group with a workflow step.
3. Create a subsequent workflow step with the step type of **AdminStudio Integration** and the additional specification of **AdminStudio Task** of **Package import**.



4. Set the **Group** parameter to the data element that contains the name of the group in the Application Catalog into which to import the packages.

***Note** • If a group name containing an underscore character is specified for the **Group** data element, AdminStudio will create an additional subdirectory for the portion of the name after the underscore. For example, if a group name of* **`WFMApplications`** *was entered, the packages would be imported into a group in the Application Catalog named* **`WFMApplications`**. *However, if* **`WFM_Applications`** *was specified, the packages would be imported into a subgroup named* **`Applications`** *in a group named* **`WFM`**.

5. Set the **PackagePath** parameter to the data element that instructed the user to select the packages to import.

Testing Packages and Viewing Test Results

You can create a workflow step that performs AdminStudio testing on packages associated with a workflow request in an earlier workflow step, as described in Selecting Existing AdminStudio Packages and Importing New Packages into AdminStudio. You can also add a subsequent workflow step that displays those test results.

- Running Package Tests
- Viewing Test Results

Running Package Tests

To add a workflow step to a workflow template that will run AdminStudio tests on packages associated with the workflow request, you select a **Step type** of **AdminStudio Integration** and select **Run package tests** from the **AdminStudio Task** list. You also set the **PackageID** parameter to the name of the data element that you have added to import packages or select existing packages.

When this workflow step becomes the active step, testing will automatically be initiated.

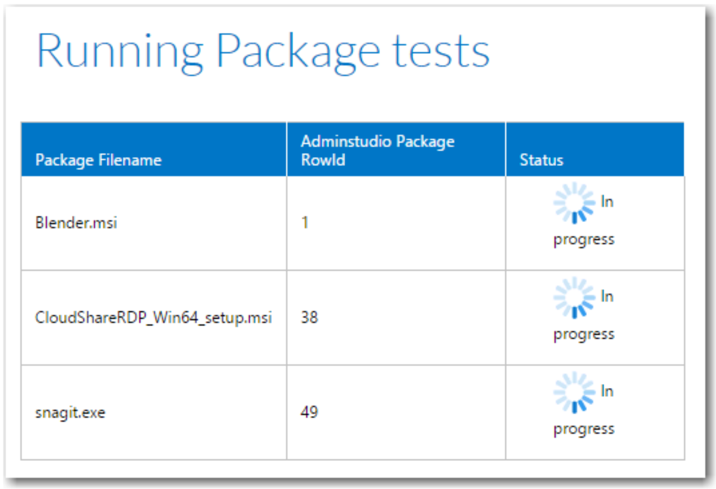


Figure 5-55: Package Testing In Progress

When testing is complete, the word `Completed` will appear in the **Status** column and you can click Complete Step to complete this workflow step.

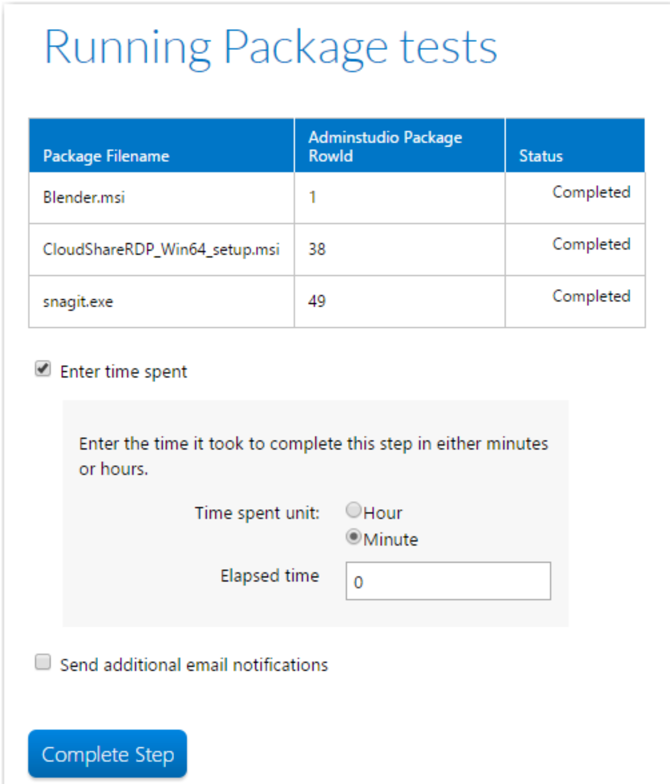


Figure 5-56: Package Testing Complete

Creating an "AdminStudio Integration > Run Package Tests" Workflow Step

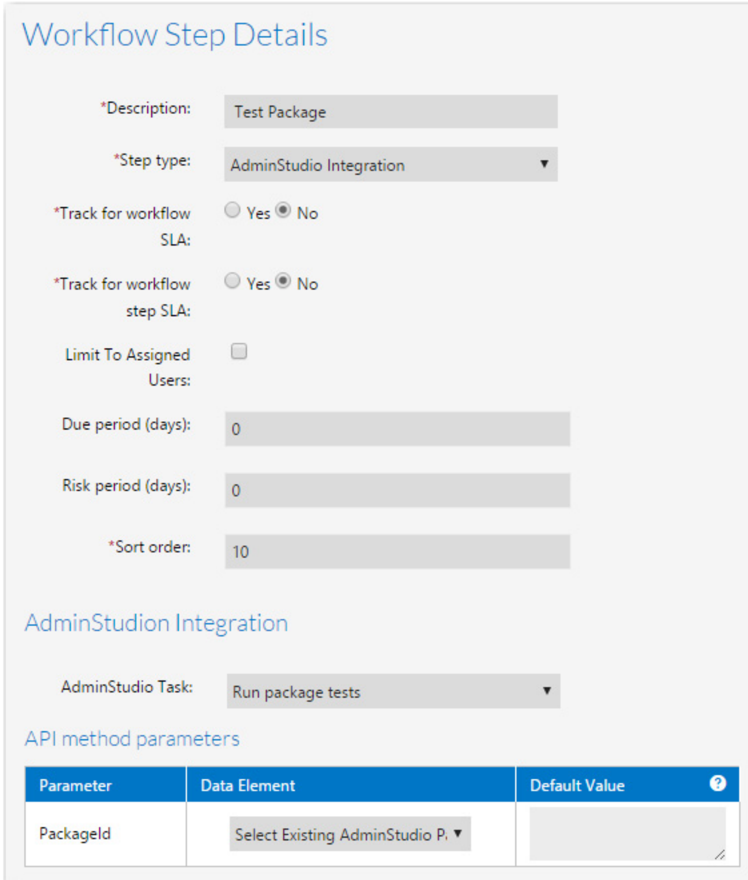
To create a workflow step that tests packages that were specified in previous workflow steps, perform the following steps:

Task ***To create a workflow step to run package tests:***

1. Open a workflow template on the **Template Details** page, as described in Creating a New Template.
2. Add a data element that prompts the requester to attach packages to the workflow request, as described in Selecting Existing AdminStudio Packages and Importing New Packages into AdminStudio, and associate that data element's data group with a workflow step.

   ***Note** • If importing new packages, you must also add a workflow step to process the import, as described in Creating a Workflow Step to Process the Import.*

3. Create a subsequent workflow step with the step type of **AdminStudio Integration** and the additional specification of **AdminStudio Task** of **Run package tests**.

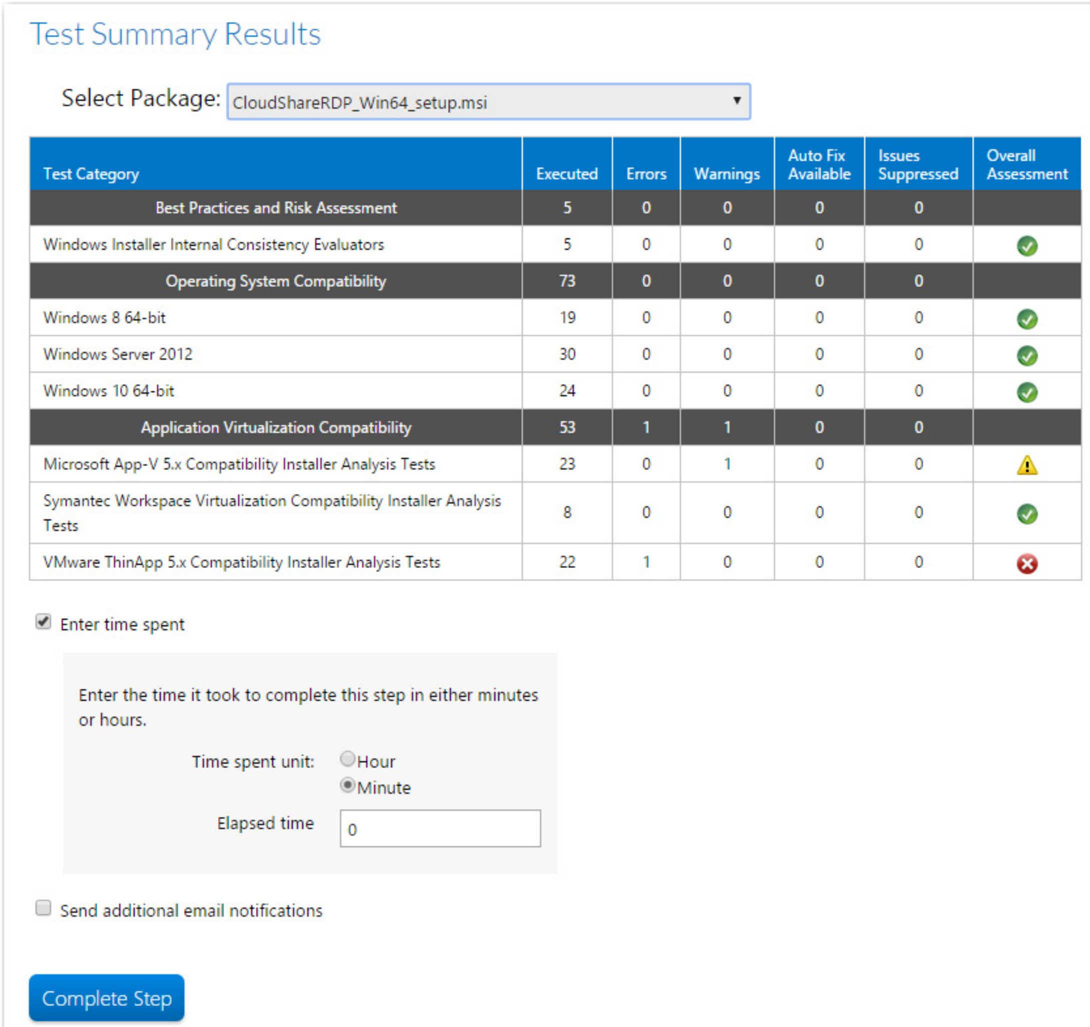


4. Set the **PackageId** parameter to the data element that instructed the user to specify packages.

Viewing Test Results

To add a workflow step to a workflow template that will display AdminStudio test results for packages that have been tested in a previous workflow step (as described in Running Package Tests), you select a **Step type** of **AdminStudio Integration** and select **Get test results** from the **AdminStudio Task** list. You also set the **PackageID** parameter to the name of the data element that you have added to import packages or select existing packages (the same data element you selected in the **AdminStudio Integration > Run package tests** workflow step).

When this workflow step becomes the active step, test results will automatically be displayed. The test results for the package selected in the **Select Package** list are displayed. Make selections from this list to display the test results for all tested packages.



Test Category	Executed	Errors	Warnings	Auto Fix Available	Issues Suppressed	Overall Assessment
Best Practices and Risk Assessment	5	0	0	0	0	
Windows Installer Internal Consistency Evaluators	5	0	0	0	0	
Operating System Compatibility	73	0	0	0	0	
Windows 8 64-bit	19	0	0	0	0	
Windows Server 2012	30	0	0	0	0	
Windows 10 64-bit	24	0	0	0	0	
Application Virtualization Compatibility	53	1	1	0	0	
Microsoft App-V 5.x Compatibility Installer Analysis Tests	23	0	1	0	0	
Symantec Workspace Virtualization Compatibility Installer Analysis Tests	8	0	0	0	0	
VMware ThinApp 5.x Compatibility Installer Analysis Tests	22	1	0	0	0	

Figure 5-57: Test Results

After viewing these test results, click **Complete Step** to complete this workflow step.

Creating an "AdminStudio Integration > Get Test Results" Workflow Step

To create a workflow step that displays test results of packages that were specified and tested in previous workflow steps, perform the following steps:

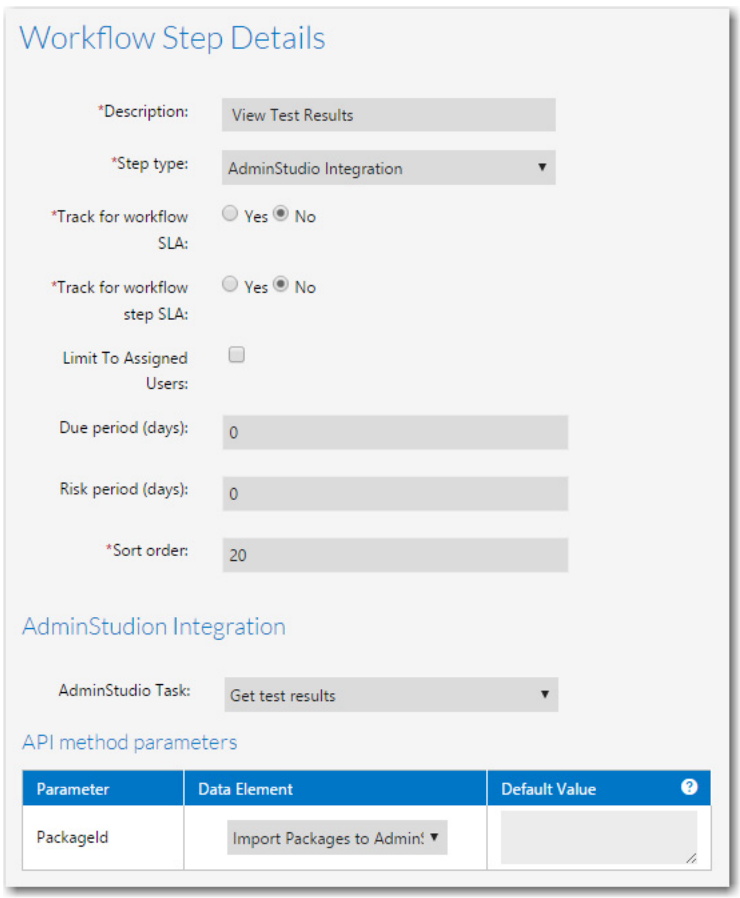
Task ***To create a workflow step to display test results:***

1. Open a workflow template on the **Template Details** page, as described in Creating a New Template.
2. Add a data element that prompts the requester to attach packages to the workflow request, as described in Selecting Existing AdminStudio Packages and Importing New Packages into AdminStudio, and associate that data element's data group with a workflow step.

Note • *If importing new packages, you must also add a workflow step to process the import, as described in Creating a Workflow Step to Process the Import.*

3. Add a workflow step that tests the specified packages, as described in Running Package Tests.

4. Create a subsequent workflow step with the step type of **AdminStudio Integration** and the additional specification of **AdminStudio Task** of **Get test results**.



5. Set the **PackageId** parameter to the data element that instructed the user to specify packages.

Distributing Packages

You can create a workflow step that will distribute packages associated with that workflow request to a distribution system that is configured in AdminStudio. To distribute packages using Workflow Manager, you first need to create a data element that identifies the named connection to the distribution system, and then you need to add a workflow step to perform the distribution.

- Setting Distribution System Connections
- Distributing Packages

Setting Distribution System Connections

Before you can distribute packages to a distribution system, you need to create a data element with the data type of **AdminStudio Distribution Connections**. In the **Select Options** field, select which of the named connections to distribution systems defined in AdminStudio that you want to provide as an option in this workflow.

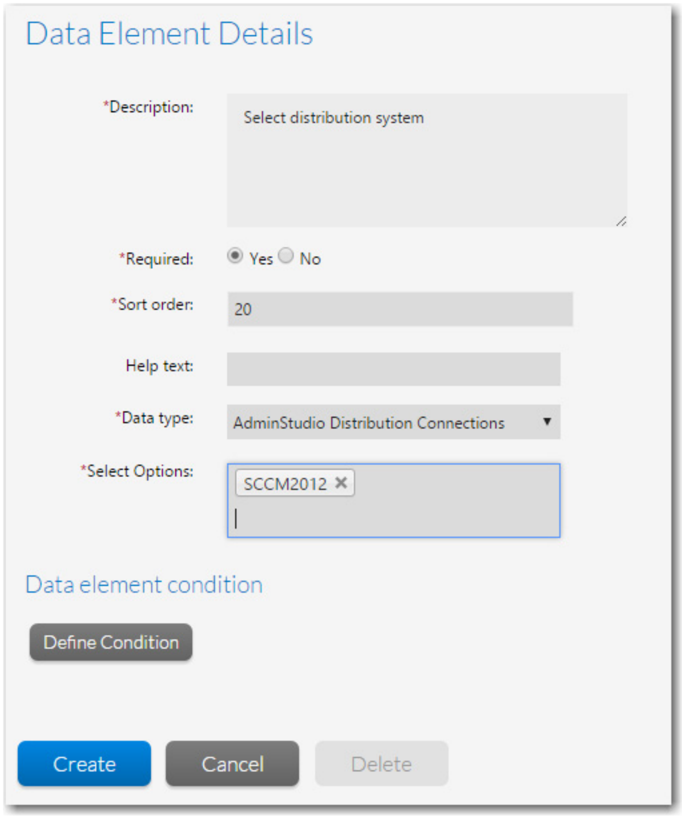


Figure 5-58: Creating a Distribution Connection Data Element

In addition to creating this data element, you need to also create a data element that prompts the user to specify the name of the group on the distribution system where you want to distribute the packages.

Distributing Packages

To add a workflow step to a workflow template that will distribute packages that have been associated with a workflow request in a previous workflow step (as described in Selecting Existing AdminStudio Packages and Importing New Packages into AdminStudio), you select a **Step type** of **AdminStudio Integration** and select **Publish application** from the **AdminStudio Task** list.

When this workflow step becomes the active step—after the user has associated packages, selected the distribution system, and specified the distribution system group in a previous workflow step—distribution begins and progress is displayed in the **Status** column. When distribution is complete, the word `Completed` appears in the **Status** column. If there was an error in distribution, there will be a **More Details** link you can click to get more information, and a Refresh button you can click to attempt distribution again.

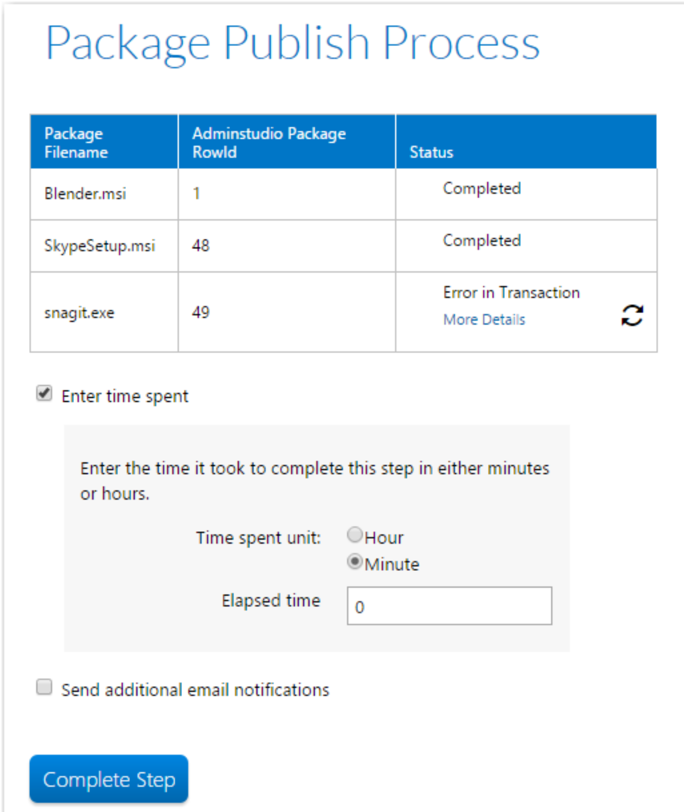


Figure 5-59: Distributing Packages

***Note** • When Workflow Manager uses AdminStudio to publish packages to System Center Configuration Manager, they are published as applications.*

Creating an "AdminStudio Integration > Publish Application" Workflow Step

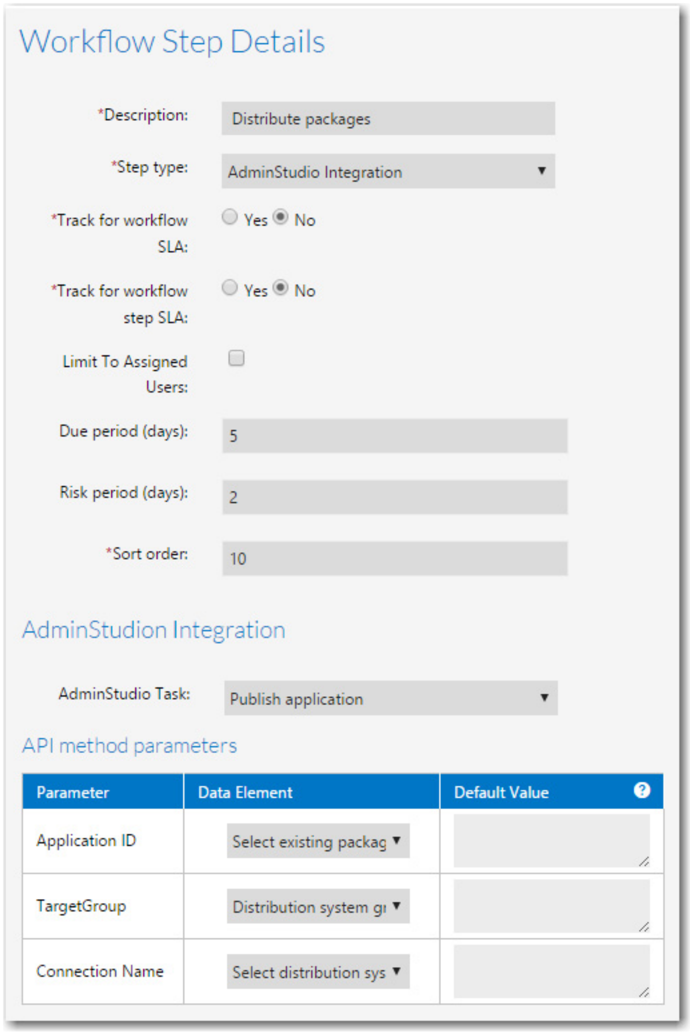
To create a workflow step that distributes packages that were specified in previous workflow steps to a selected distribution system, perform the following steps:

Task ***To create a workflow step to publish applications:***

1. Open a workflow template on the **Template Details** page, as described in Creating a New Template.
2. Add a data element that prompts the requester to attach packages to the workflow request, as described in Selecting Existing AdminStudio Packages and Importing New Packages into AdminStudio, and associate that data element's data group with a workflow step.

   ***Note** • If importing new packages, you must also add a workflow step to process the import, as described in Creating a Workflow Step to Process the Import.*

3. Create a subsequent workflow step with the step type of **AdminStudio Integration** and the additional specification of **AdminStudio Task** of **Publish application**.



4. Set the **Application ID** parameter to the name of the data element that you have added to import packages or select existing packages.
5. Set the **TargetGroup** parameter to the name of the data element that you have added to specify the distribution system group name.
6. Set the **Connection Name** parameter to the name of the data element that you have added to specify the distribution system connection, as described in Setting Distribution System Connections.

Specifying Package Formats and Target Environments

You can use Workflow Manager to specify data about applications as part of an application rationalization process. For example, after performing testing on an application, you may want to specify the supported target operating system for the package. Or you may want to specify that you want to distribute the package in a different package format than its current format, which may require application virtualization. You may also want to create workflow templates where package format or target environment could be used as a branching condition.

To perform this task, Workflow Manager includes two data element data types that provide built-in support for prompting the user to specify the package format or target operating system environment of a package.

- Creating an AdminStudio Package Format Data Element
- Creating an AdminStudio Target Environments Data Element

Creating an AdminStudio Package Format Data Element

To create a data element to specify AdminStudio package format, create a data element with a data type of **AdminStudio Package Formats**.

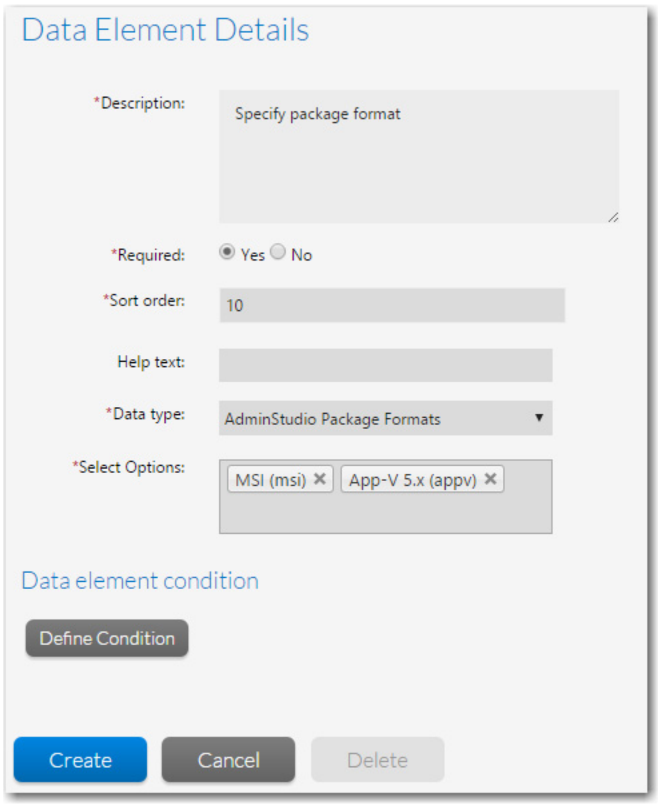


Figure 5-60: AdminStudio Package Formats Data Element

You also need to click in the **Select Options** field and select the package formats you want to include in the selection list. You can select multiple items from the list.

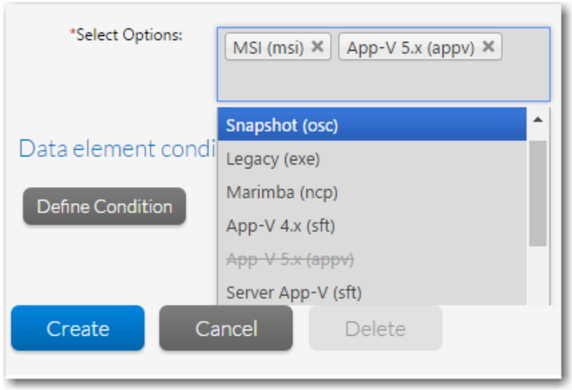


Figure 5-61: Adding Package Formats to the List

When this data element is displayed in a workflow request, the user will be able make selections from a drop down list.

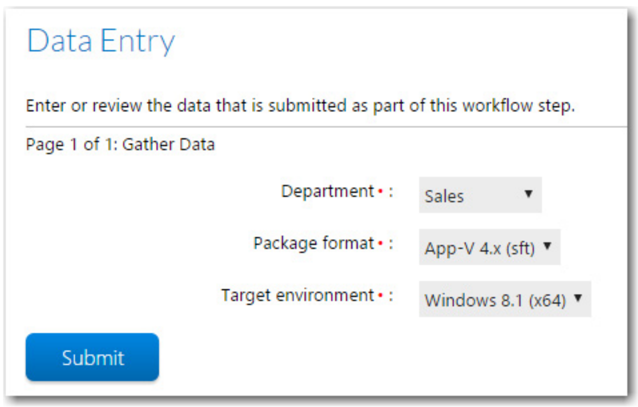


Figure 5-62: “AdminStudio Package Formats” Data Element

Creating an AdminStudio Target Environments Data Element

To create a data element to specify target environments, create a data element with a data type of **AdminStudio Target Environments**.

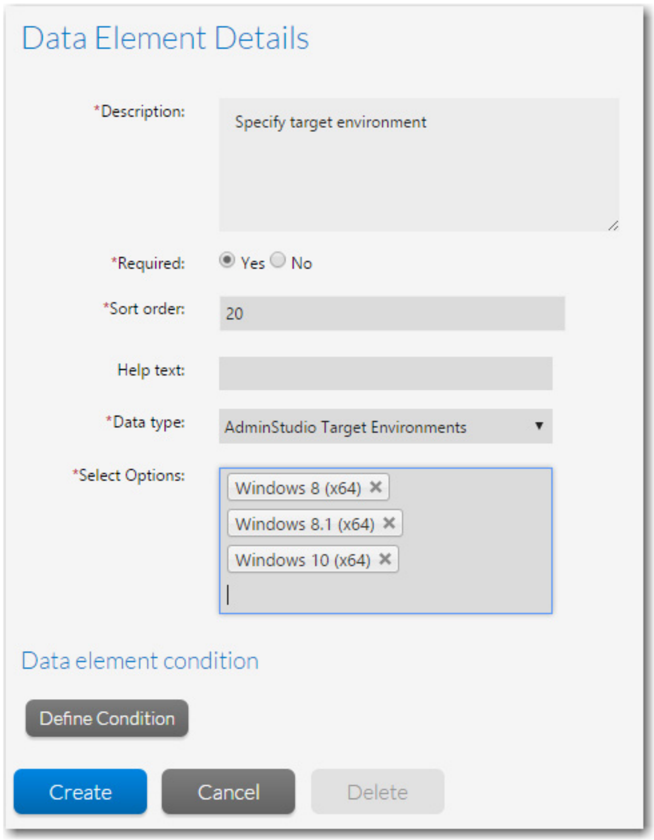


Figure 5-63: AdminStudio Package Formats Data Element

You also need to click in the **Select Options** field and select the target environments you want to include in the selection list. You can select multiple items from the list.

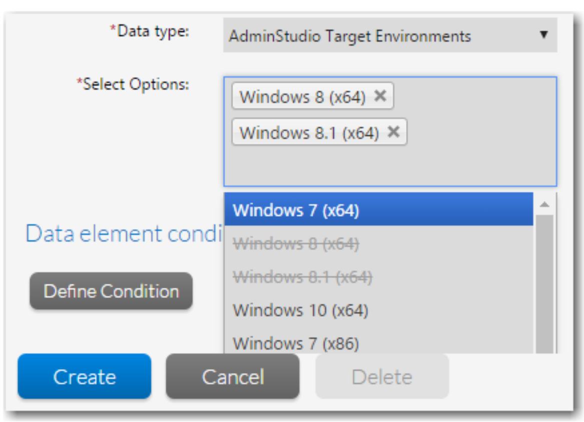


Figure 5-64: Adding Target Environments to the List

When this data element is displayed in a workflow request, the user will be able make a selection from a drop down list.

The user can select multiple environment to import the package.

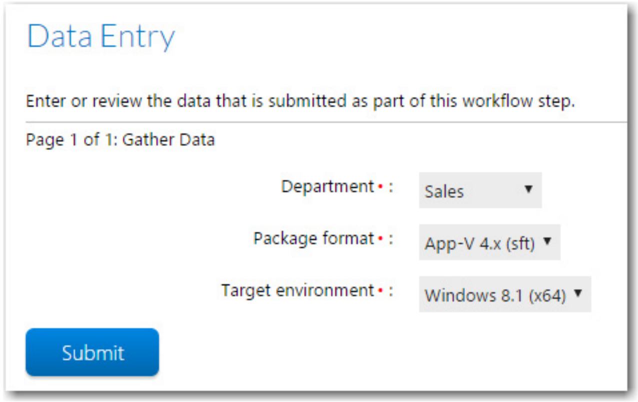


Figure 5-65: “AdminStudio Target Environments” Data Element

Adding Reports to Workflow Requests

You can choose to display in a workflow request both AdminStudio reports specific to the packages associated with the workflow request, and Application Catalog reports that display information on the entire Application Catalog.

- Showing AdminStudio Reports
- Showing Application Catalog Reports

Showing AdminStudio Reports

You can choose to display in a workflow request AdminStudio reports that are specific to the packages associated with the workflow request. These are the same reports that are displayed on the Workflow Manager **Application Catalog Reports** page.

To display AdminStudio reports in a workflow step, first associate packages with a workflow request, as described in Selecting Existing AdminStudio Packages or Importing New Packages into AdminStudio. Then create a workflow step with a step type of **AdminStudio Reports** and select the reports that you want to display from the **Select Report Type** list.

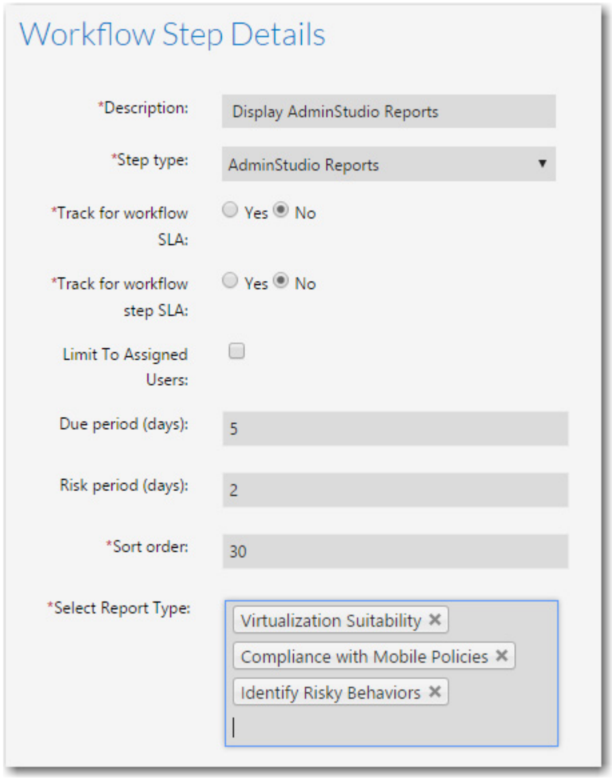


Figure 5-66: AdminStudio Reports Workflow Step

When an **AdminStudio Reports** workflow step is displayed in a workflow request, information specific to the packages associated with the workflow request is displayed. If multiple report types have been specified in this AdminStudio Reports workflow step, each report type is displayed in a new column.

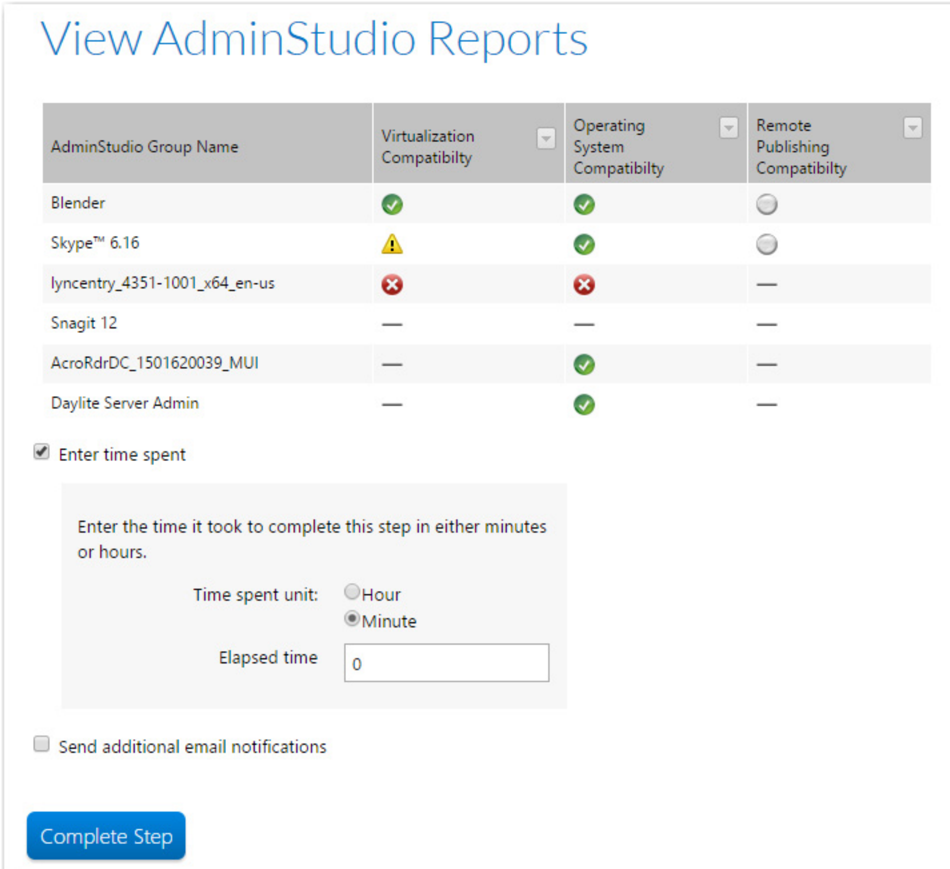


Figure 5-67: View Application Catalog Reports Workflow Step in a Workflow Request

Just as you can do in AdminStudio, you can click on an icon to see more detailed results.

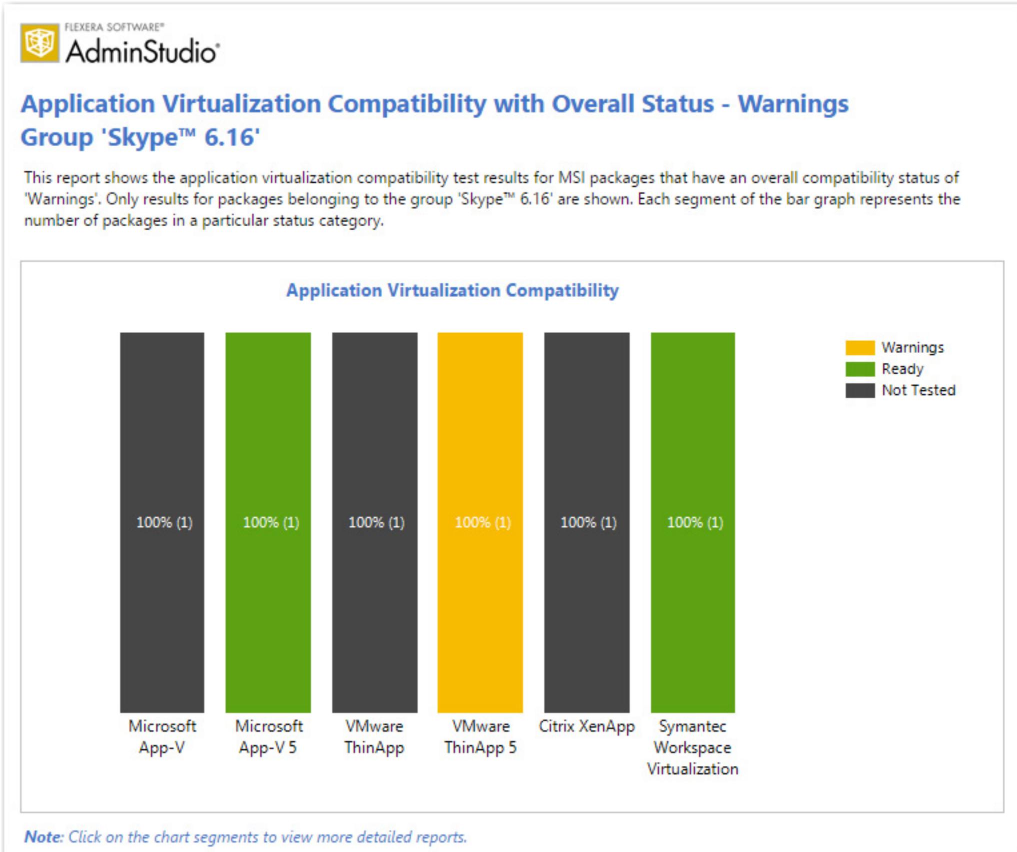


Figure 5-68: AdminStudio Report: Drill Down Report for Selected Package

Showing Application Catalog Reports

You can choose to display in a workflow request Application Catalog reports that display information on the entire Application Catalog. These are the same reports that are displayed on the Workflow Manager **Application Catalog Reports** page.

To display Application Catalog reports in a workflow step, create a workflow step with a step type of **Application Catalog Reports** and select the reports that you want to display from the **Select Report Type** list.

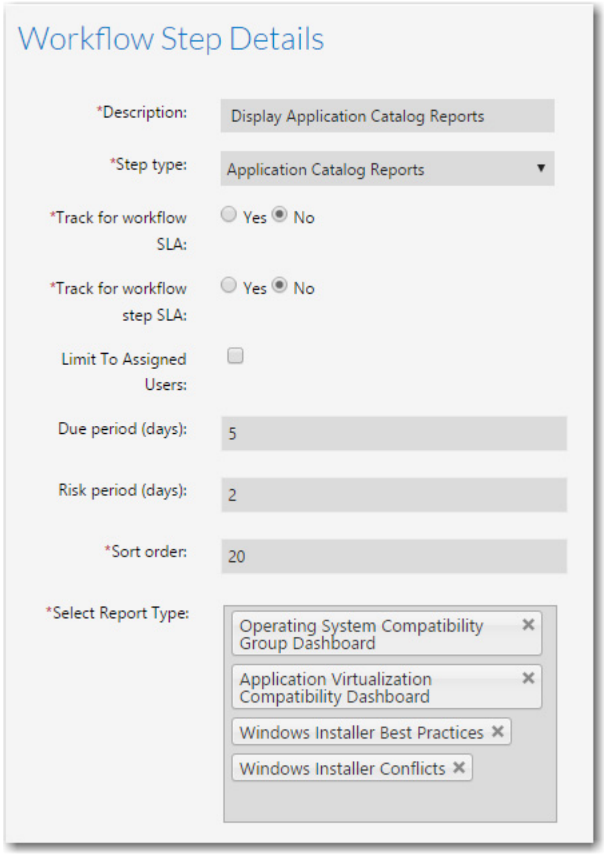


Figure 5-69: Application Catalog Reports Workflow Step

Note • *If you have added custom .rdlc reports to Workflow Manager, those reports would also be available for selection in the* ***Select Report Type*** *list.*

When an Application Catalog Reports workflow step is displayed in a workflow request, users are prompted to click links to open each of the selected reports.

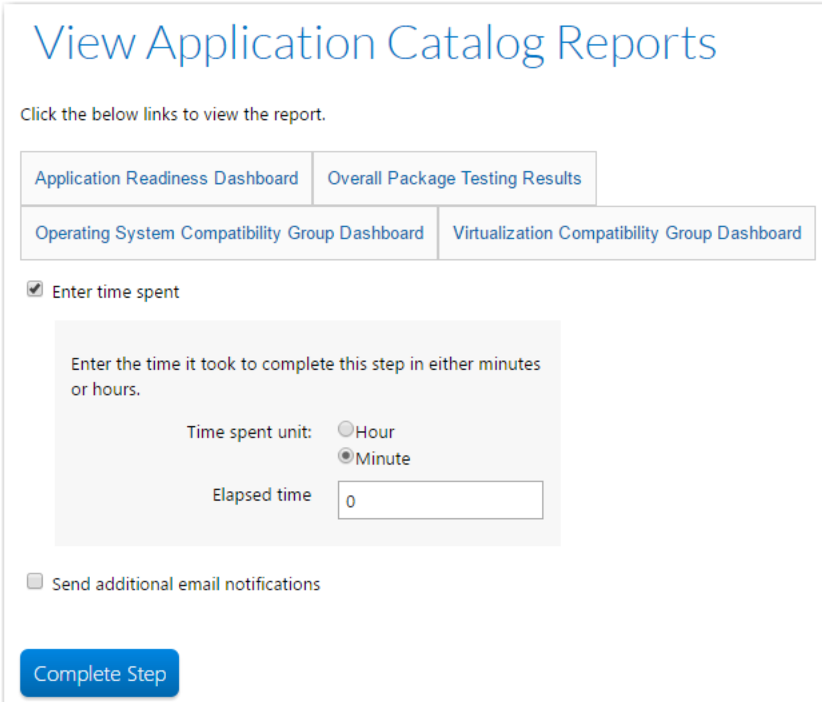


Figure 5-70: View Application Catalog Reports Workflow Step in a Workflow Request

When you click on one of the links, the reports opens in a new window.

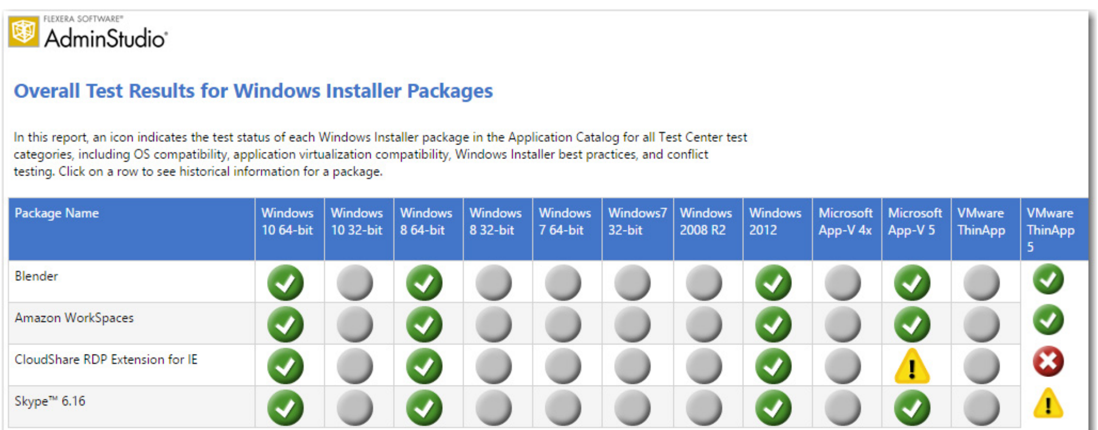


Figure 5-71: Application Catalog Report: Overall Package Testing Results

Displaying Package Properties in a Workflow Request

You can create a workflow step that displays selected properties for packages associated with a workflow request. The following package properties can be displayed:

- Product Name
- Manufacturer
- Comments

- Product Version
- Product Code
- Product Language
- Flexera Identifier
- Flags

To display package properties in a workflow step, first associate packages with a workflow request, as described in Selecting Existing AdminStudio Packages or Importing New Packages into AdminStudio. Then create a data element with a data type of **Get AdminStudio Property** and select the properties that you want to display from the **Select Options** list.

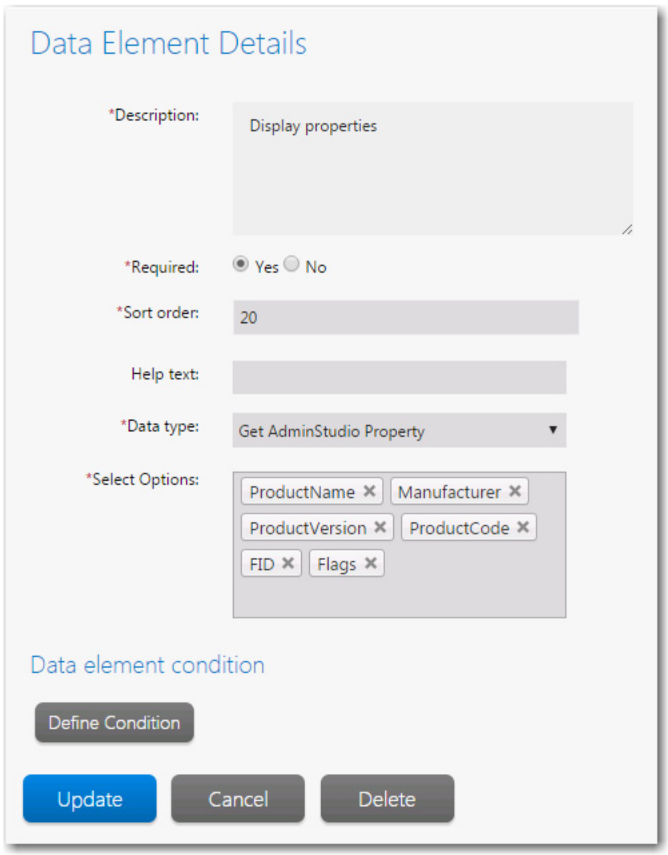


Figure 5-72: Get AdminStudio Property Data Element

When a **Get AdminStudio Property** data element is displayed in a workflow request, the properties you selected are listed in table format.

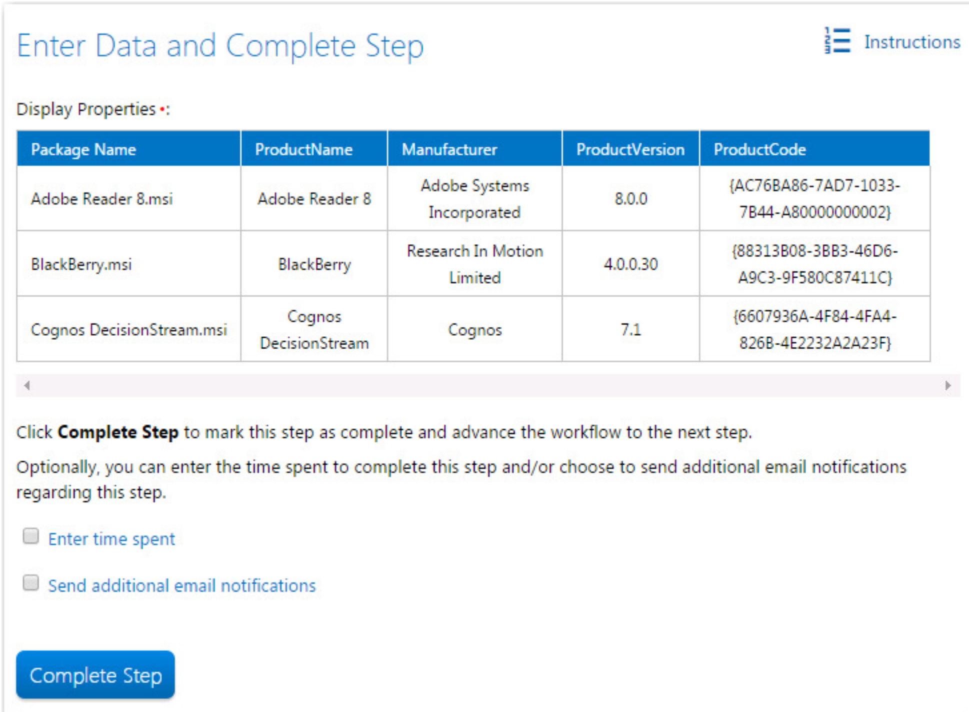


Figure 5-73: Get AdminStudio Property Data Element Displayed in a Workflow Request

Setting Package Properties in a Workflow Request

You can create a workflow step that enables users to set selected properties for packages associated with a workflow request. For all packages associated with the workflow request, you can set a package property to the same specified value. The following package properties, associated with publishing a package to App Portal, can be set:

- Categories
- Template
- Keywords
- Long Description
- Brief Description
- Manufacturer

To set a package property in a workflow step, first associate packages with a workflow request, as described in Selecting Existing AdminStudio Packages or Importing New Packages into AdminStudio. Then create a data element with a data type of **Set AdminStudio Property**, select the property that you want to set from the **Property name** list, and enter the **Property Value** that you want to set.

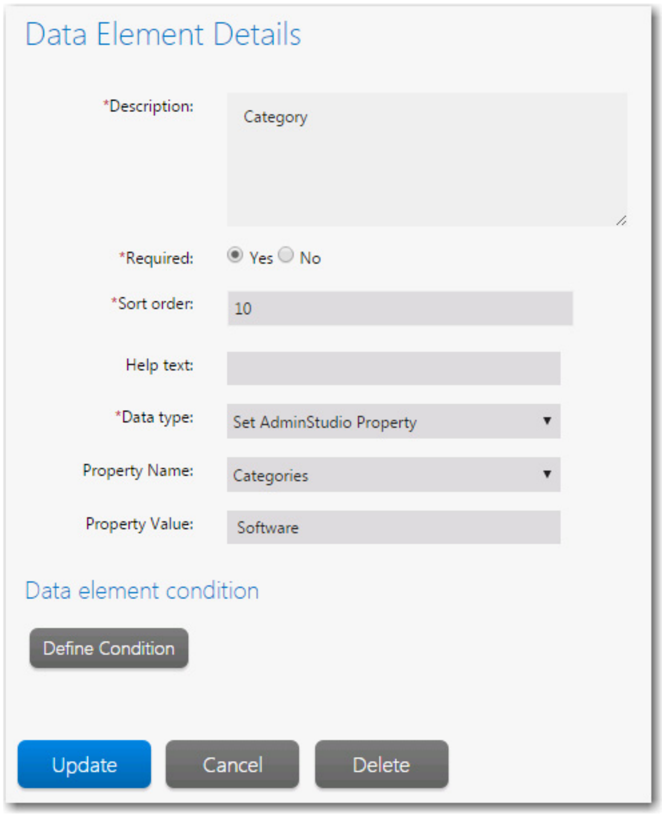


Figure 5-74: Set AdminStudio Property Data Element / Categories Property

For example, if you want to set the App Portal category of all of the packages associated to a Workflow Request to **Utilities**, you would select **Categories** from the **Property Name** list and enter `Utilities` in the **Property Value** list.

When a **Set AdminStudio Property** data element is displayed in a workflow request, the status of the property update is listed.

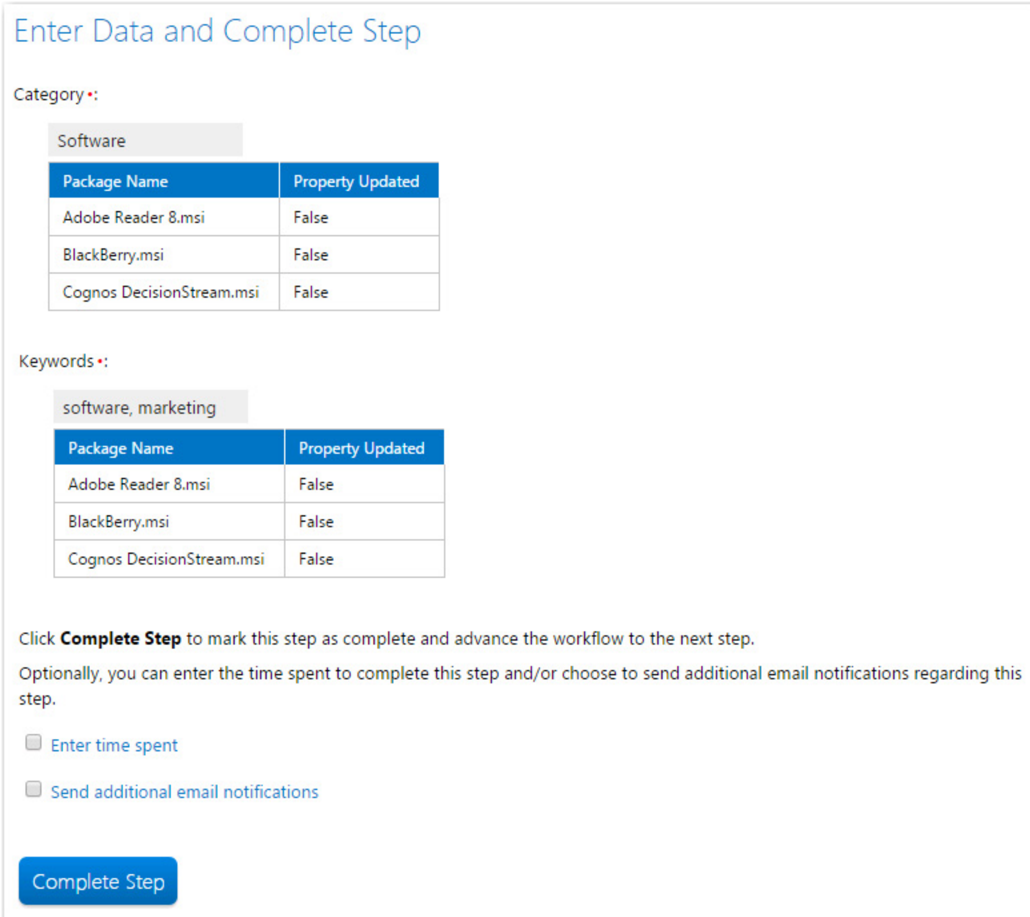


Figure 5-75: Set AdminStudio Property Data Element Displayed in a Workflow Request

Defining Automated AdminStudio Workflow Steps That Use the iPlugin Interface

You can use Workflow Manager's IPlugin interface to import packages into the Application Catalog and perform validation and conflict analysis as part of a Workflow Manager workflow step via command line using AdminStudio Application Manager. This feature enables Workflow Manager to provide a programmatic way to automate the performance of conflict detection and resolution on a Windows Installer package in a specific Application Catalog database.

- Defining an Automated Workflow Step
- About Custom Web Pages for Automated Workflow Steps
- Information on Using IPlugin

Defining an Automated Workflow Step

To define an automated import, validation or conflict analysis workflow step, you enter the following information in the **Workflow Step Details** view:

- Set the **Step type** to **Automated Import**, **Automated Validation**, or **Automated Conflict Analysis**.

- In the **Custom site URL** text box, enter the external URL address to a custom web page that provides the end-user instructions on how to complete this workflow step.

> ***Important*** • *By default, the value of the* ***Custom site URL*** *field begins with either* `localhost` *or an IP address. In order for this workflow step to work, this value must be modified to point to your Workflow Manager server.*

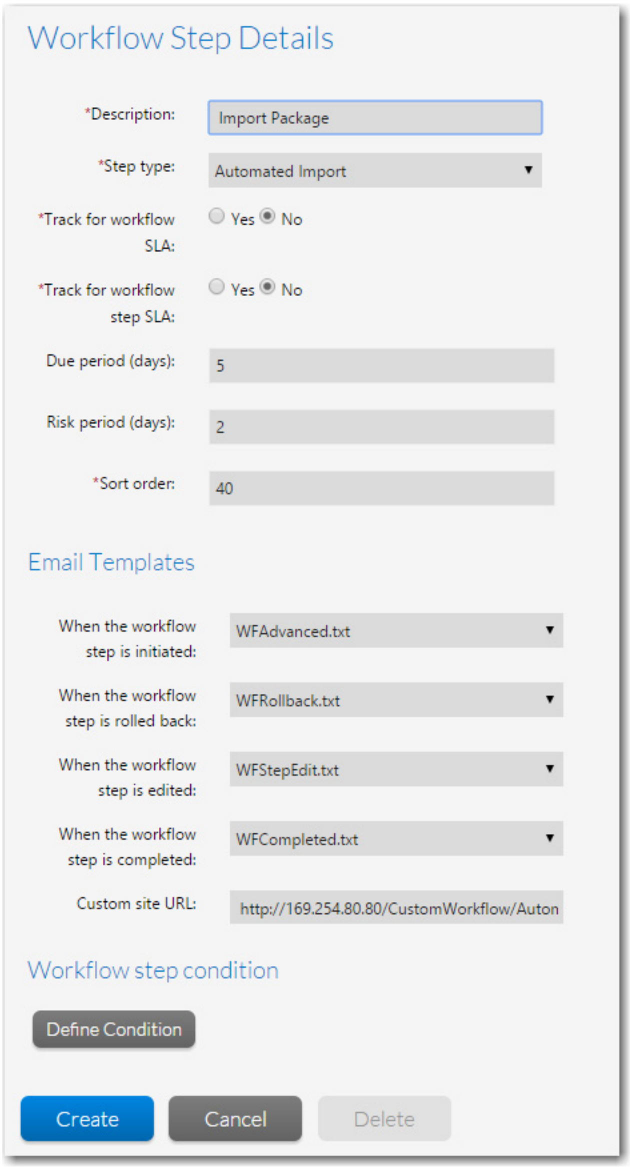


Figure 5-76: Workflow Step with the “Automated Import” Step Type

When a user clicks this workflow step name on the **Workflow Request** page, Workflow Manager will run a user-supplied IPlugin assembly that will programmatically do one of the following:

- **Import** a package that was uploaded in a previous workflow step into the Application Catalog.
- **Validate** a package that was imported in a previous workflow step.
- **Perform conflict analysis** on a package that was imported in a previous workflow step.

After the IPlugin assembly completes, data will be sent back to Workflow Manager that will automatically mark this step complete and advance the workflow.

About Custom Web Pages for Automated Workflow Steps

The custom web page that you specify needs to contain the code that runs your user-defined IPlugin assembly. By default, **Custom Site URL** is set to one of the following default pages that is shipped with Workflow Manager:

Table 5-17 • Default Custom Site URLs for Automated Workflow Steps

Step Type	Default Custom Site URL
Automated Import	`http://`*`SITE_IP_ADDRESS`*`/CustomWorkflow/AutomatedImportStep.aspx`
Automated Validation	`http://`*`SITE_IP_ADDRESS`*`/CustomWorkflow/AutomatedValidationStep.aspx`
Automated Conflict Analysis	`http://`*`SITE_IP_ADDRESS`*`/CustomWorkflow/AutomatedConflictCheckStep.aspx`

By default, **Custom Site URL** is set to a page that is shipped with Workflow Manager.

***Important** • By default, the value of the **Custom Site URL** field begins with either* `localhost` *or an IP address. In order for this workflow step to work, this value must be modified to point to your Workflow Manager server.*

Information on Using IPlugin

For additional information on setting up an Automated Import workflow step, see the following topics in the Using the IPlugin Interface section:

- How to Use the IPlugin Interface.
- IPlugin Methods
- Data Passed in XML to IPlugin Methods
- Setting Up IPlugin Automation in Workflow Manager

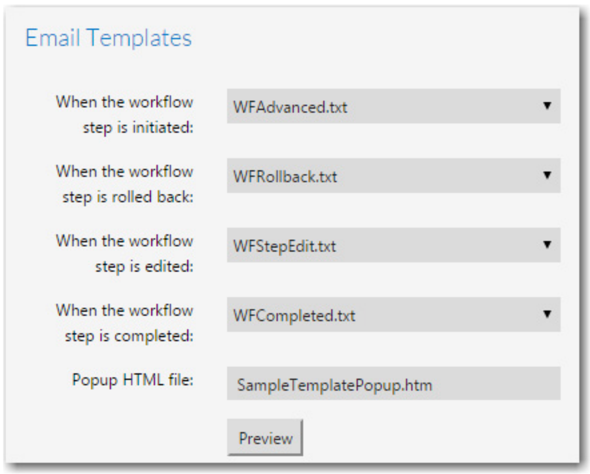
***Important** • In order for Workflow Manager to successfully perform an **Automated Import** Workflow Step, a Windows Installer package must have been uploaded to Workflow Manager in a previous workflow step in that Workflow.*

Selecting the Email Templates to Send at Step Initiation, Completion, Update or Rollback

When you create a template, you can use the **Email Templates** fields in the **Workflow Step Details** area of the **Template Details** page to select which email template to use when a workflow step is updated, completed, or rolled back.

Task ***To specify email templates:***

1. Open a workflow template on the **Template Details** page.
2. On the **Workflow Phases** tab, select a workflow step. The **Workflow Step Details** area opens.
3. In the **Email Templates** area, select a workflow template for each workflow step event:



4. Click **Preview** to preview the templates.
5. Click **Update** to save your edits.

Assigning Permissions and Notification Settings on a Workflow Template

You can assign permissions and email notification settings on a workflow template, and its individual workflow phases and steps, on the **Permission** and **Notification** tabs of the **Template Details** page. Then, when you create a project using that workflow template, the settings from the template would be copied to the project.

Note • *You can override the default email notification settings for an individual workflow request, as described in Overriding Default Email Notification Settings for an Individual Workflow Request.*

On the **Template Details** page, the permission and email notification settings are displayed on two separate tabs: **Permission** and **Notification**.

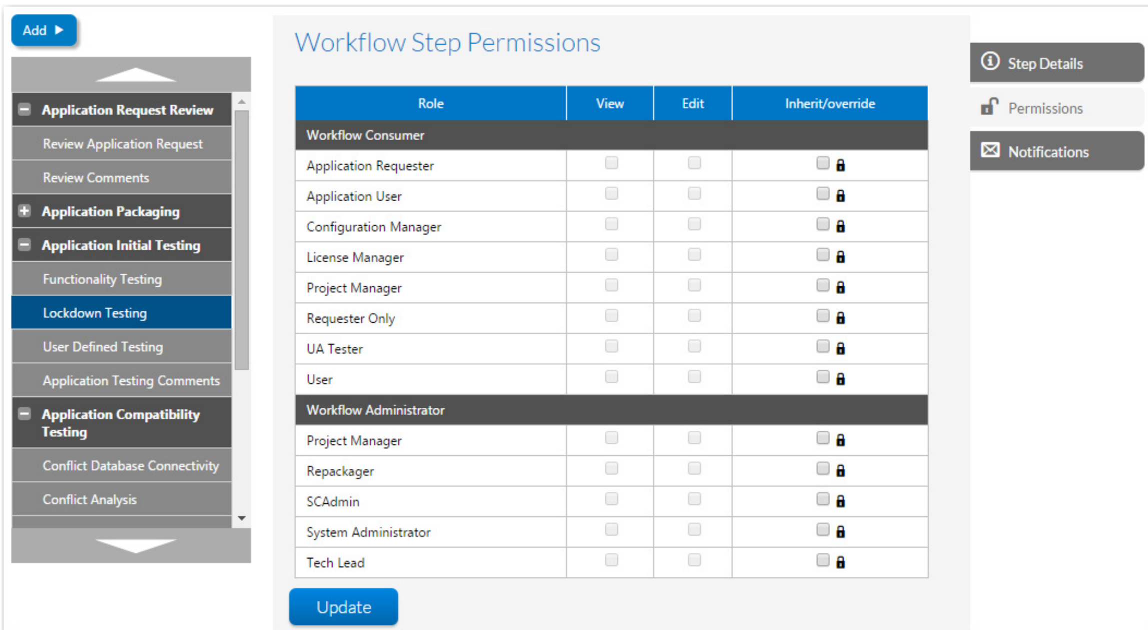
- Setting Permission Settings
- Setting Email Notification Settings

Setting Permission Settings

You specify permissions settings on the **Permission** tab of the **Template Details** page, which is available whenever a data group, data element, workflow phase, or workflow step is selected.

Task ***To set permission settings on a workflow template:***

1. Open a workflow template on the **Template Details** page.
2. Select a data group/element or workflow phase/step in the tree.
3. Open the **Permission** tab.



4. If you have a workflow phase or data group selected, use the checkboxes in the **Read** and **Write** columns for each role to specify permission settings.
5. Selections you make on a workflow phase/data group are inherited by their child workflow steps/data elements. Therefore, when you select a workflow step/data element, the checkboxes are disabled. However, you can override these settings.

   To set a permission for a data element/workflow step that is different from the permission for the associated data group/workflow phase, do the following:

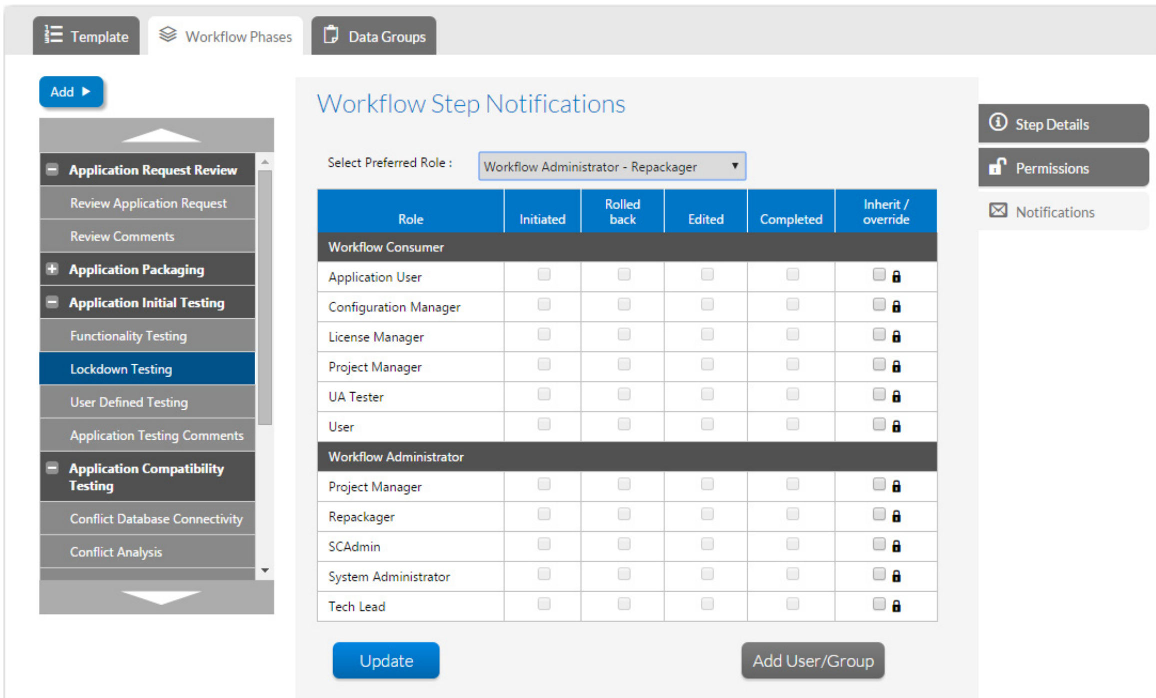
   a. Select the data element or workflow step in the tree control on the left. The check boxes in the **Read** and **Write** columns are disabled.
   b. Next to the **Role** that you want to edit, click the lock check box to unlock the check boxes. You are notified that the role permission is inherited from the parent item and asked to confirm that you wish to stop this inheritance.
   c. Click **OK**. The check boxes are now enabled.
   d. Make desired selections in the **Read** and **Write** columns.
6. Click **Update**.

Setting Email Notification Settings

You specify email notification settings on the **Notification** tab of the **Template Details** page, which is available whenever a workflow phase or workflow step is selected.

Task ***To set notification settings on a workflow template:***

1. Open a workflow template on the **Template Details** page.
2. Select a workflow phase or workflow step in the tree.
3. Open the **Notification** tab.



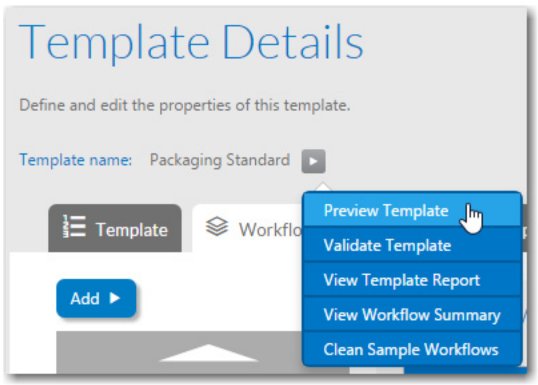
4. If you have a workflow phase selected, use the checkboxes in the **Initiated**, **Rolled Back**, **Edited**, and **Completed** columns for each role to specify notification settings.
5. Selections you make on a workflow phase are inherited its their child workflow steps. Therefore, when you select a workflow step, the checkboxes are disabled. However, you can override these settings. To set a notification setting for a workflow step that is different from the setting for its parent workflow phase, do the following:
    a. Select the workflow step in the tree control on the left. The check boxes in the **Initiated**, **Rolled Back**, **Edited**, and **Completed** columns are disabled.
    b. Next to the **Role** that you want to edit, click the lock check box to unlock the check boxes. You are notified that the role notification setting is inherited from the parent item and asked to confirm that you wish to stop this inheritance.
    c. Click **OK**. The check boxes are now enabled.
    d. Make desired selections in the **Initiated**, **Rolled Back**, **Edited**, and **Completed** columns.
6. Click **Update**.

Previewing a Template

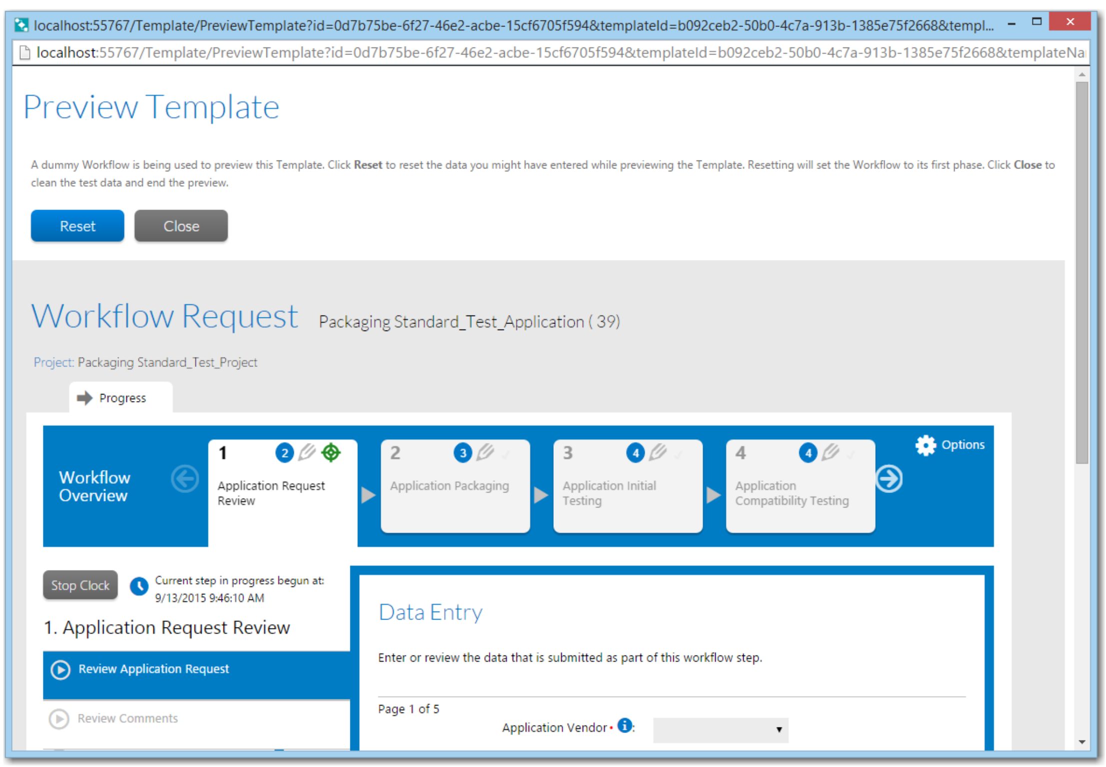
Use the **Preview Template** option on the **Template Details** page to create a test workflow request using your template. This enables you to view the workflow and test the workflow steps and branches while you are editing the template, instead of needing to create a new project and workflow request, and then testing the workflow on the **Workflow Request** page.

Task ***To preview a template:***

1. Hover over the arrow next to the template's name at the top of the **Template Details** page, and select **Preview Template** from the drop-down menu.



2. The **Preview Template** page opens in a new browser window, displaying a copy of the workflow exactly as it will appear on the **Workflow Request** page.



3. Work your way through the template as your consumers will, testing that it flows as you expect.
4. To return the test workflow to its original state so you can begin again, click the **Reset** button.
5. To close the **Preview Template** window and return to the **Template Details** page, click **Close**.

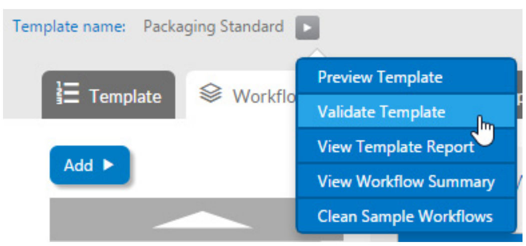
***Note** • When you click **Close** to close the **Preview Template** window, the test project and workflow request) that Workflow Manager created for you to check your template are deleted. If you close the window without clicking the **Close** button, the test data will not be deleted, and will be included in Workflow Manager listings. To delete such residual test data, click **Clean Sample Workflows** on the drop-down menu that appears when you hover over the blue arrow next to the template name on the **Template Details** page.*

Validating a Template

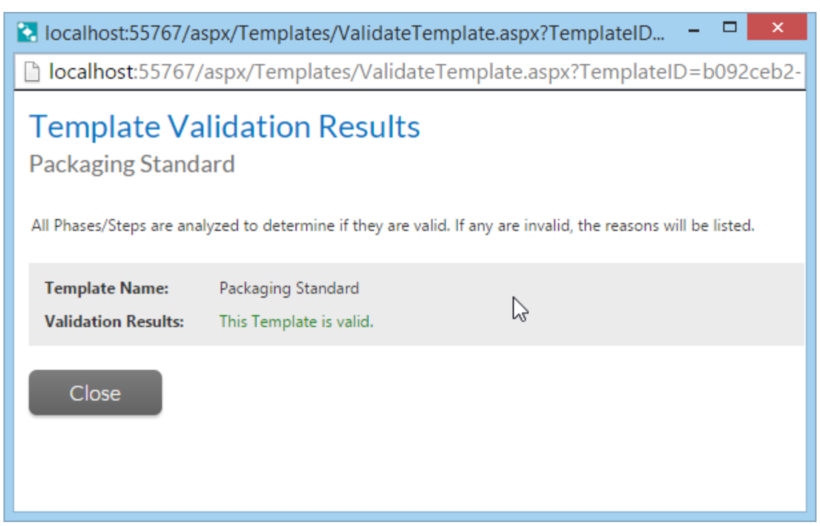
Use the **Validate Template** option on the **Template Details** page to analyze your current workflow for any obvious errors.

Task ***To validate a template:***

1. Hover over the blue arrow next to the template's name at the top of the **Template Details** page, and select **Validate Template** from the drop-down menu.



2. The **Template Validation Results** page appears in a new browser window, displaying the results of the analysis performed by Workflow Manager.



3. If your template is invalid, the problem areas will be listed. A template may be invalid, for instance, if it includes a workflow phase without any workflow steps, or a data group without any data elements.

4. Click **Close** to close the **Template Validation Results** page and return to the **Template Details** page.

Viewing the Template Report

The **Template Report** provides a summary of all information related to this template, including a listing of all data groups and workflow phases in the template.

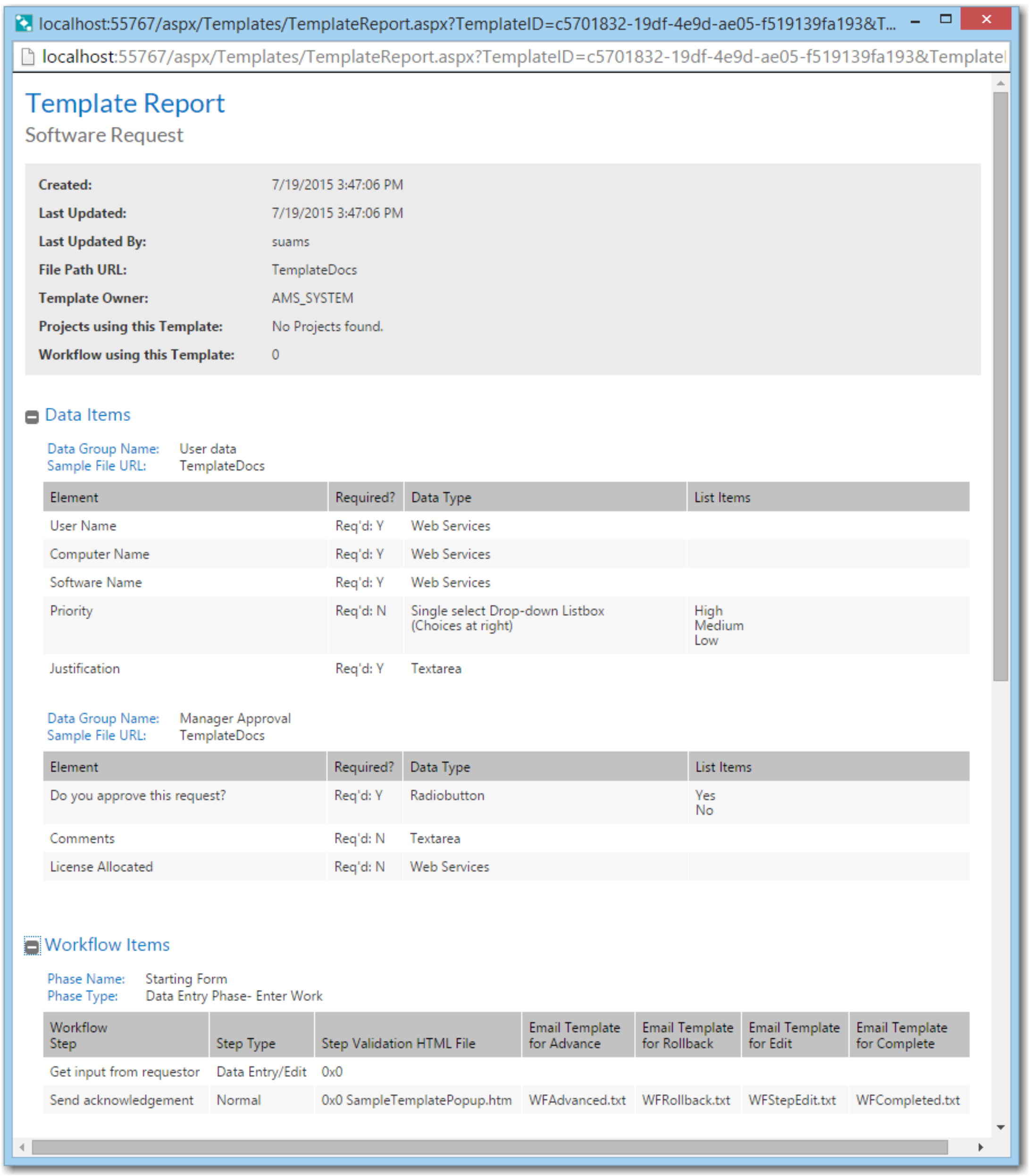


Figure 5-77: Template Report

Open the **Template Reports** window by hovering over the blue arrow next to the template's name at the top of the **Template Details** page, and selecting **View Template Report** from the drop-down menu.

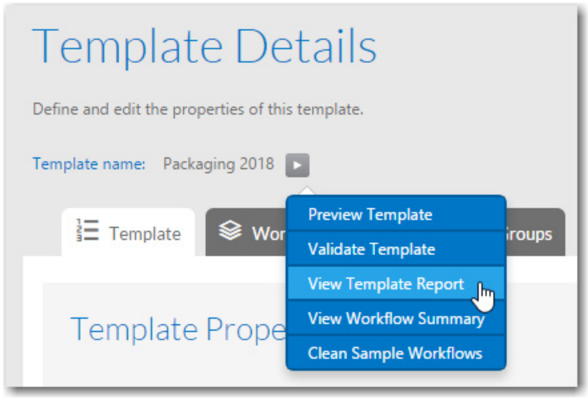


Figure 5-78: Selecting the View Template Report Option

Viewing a Summary of the Template

The **Workflow Summary** page lists all workflow phases defined in a template. On this page:

- Workflow phases are shown in the order they will appear to someone completing a workflow request.
- Conditional branch points and merge points are also shown in different colors. A legend at the top of the page differentiates between the two conditions.

  ***Tip** • In a branch phase, the workflow proceeds along different paths depending on data provided by the workflow consumer. In a merge phase, the branches of a workflow merge back together.*

- You can click on the hyperlinked name of a branch point condition to jump to the corresponding workflow phase.

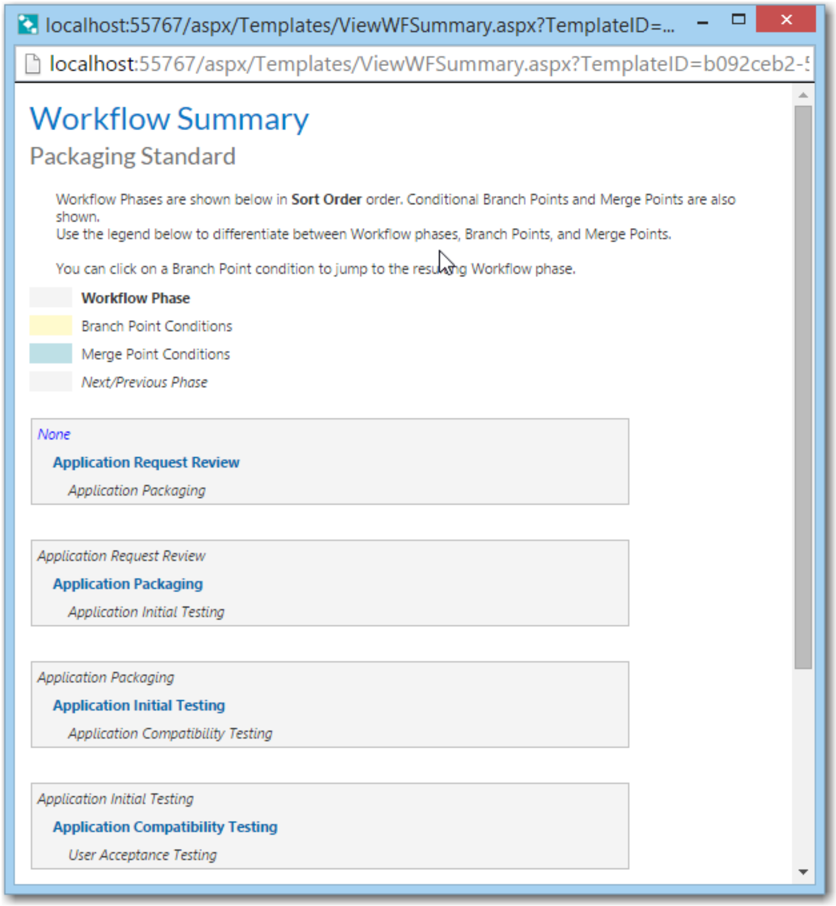


Figure 5-79: The **Workflow Summary Report**

Open the **Workflow Summary** window by hovering over the blue arrow next to the template's name at the top of the **Template Details** page, and selecting **Workflow Summary** from the drop-down menu.

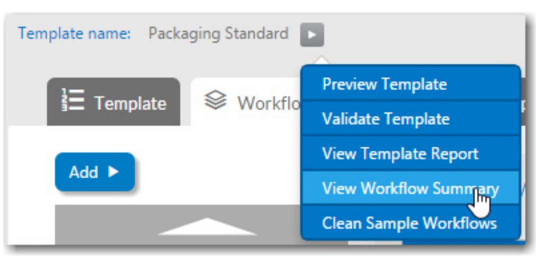


Figure 5-80: Selecting the View Workflow Summary Option

Updating a Template

After a template has been created, you may reopen and update it.

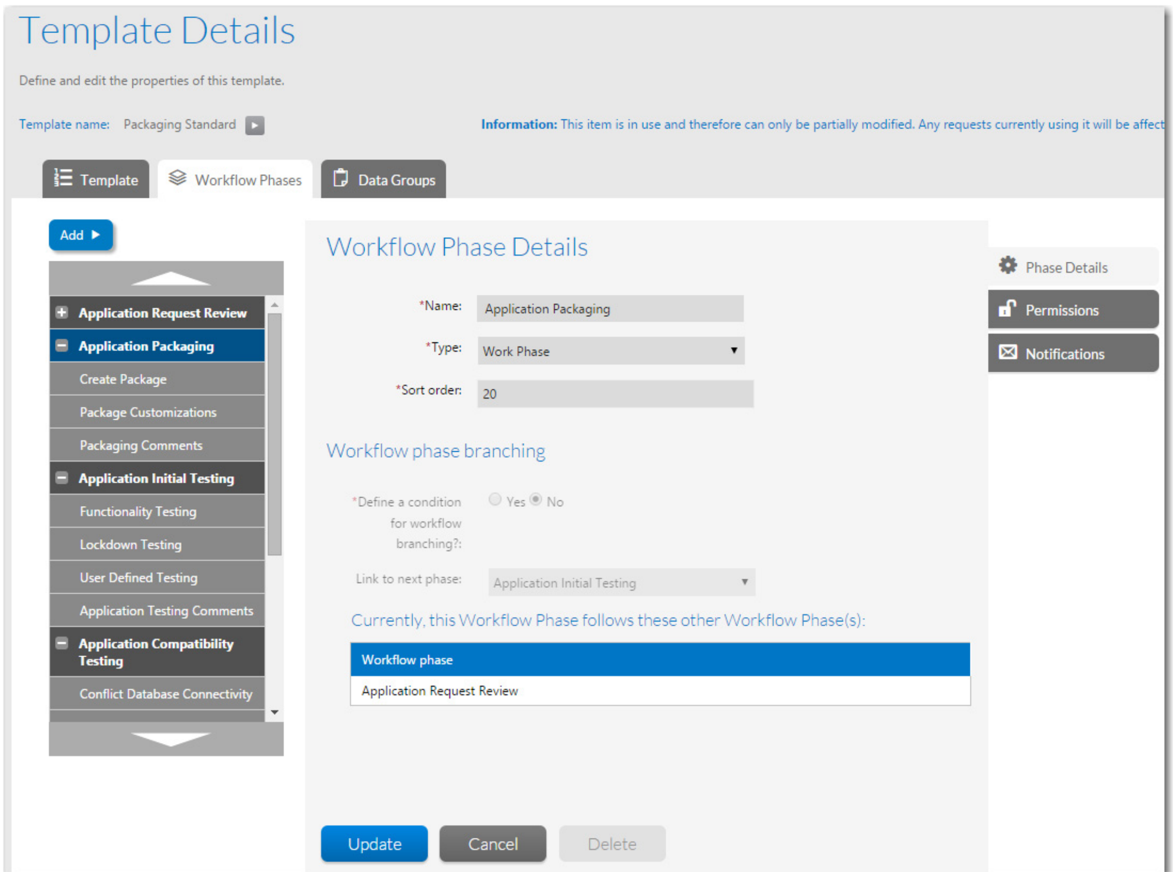
***Important** • There may be restrictions on the changes you can make if a template has already been used to create a workflow request. See Editing a Template That is in Use for details.*

Task ***To update a template:***

1. In the navigation bar, click Templates in the **Administration** menu. The **Template Administration** page opens.

   Note • *For details about sorting or filtering the template list, see Using Lists.*

2. Locate the template that you want to update and click on it. The **Template Details page** opens.



3. To update the general template details, click on the Template tab to open the **Template Properties** view. Update the **Name**, **Folder**, **Status** and **Global template** fields, as described in Creating a New Template.

4. To add new data elements, data groups, workflow phases or workflow steps, follow the instructions in Creating a New Template and subsequent sections.

5. To remove existing data elements, data groups, workflow phases or workflow steps, refer to Deleting Components of a Workflow Template.

6. To update an existing data element, data group, workflow phase or workflow step, open the **Workflow Phases** or **Data Groups** tabs and explore the tree until you can see the component you want to update, then click on its name. Refer back to Creating a New Template and subsequent sections for details about available fields which can be updated.

Editing a Template That is in Use

After a template has been used to create a workflow request, you are allowed to modify the template details, see Update - Template changes to In-Progress Workflows. The following table outlines what may and may not be updated.

***Note** • See also Restrictions Regarding Approval Tasks When Editing Workflow Templates That Have Existing Workflow Requests.*

Table 5-18 • Updating an In-Use Template

Component	Permitted to Add	Permitted to Change	Not Permitted to Change	Delete?
Template	**No**	**Name** text field **Folder** text field **Status** combo box **Global Template** check box	**Template Type** combo box	Yes
Data Group	**Add >>** Add a new Data Group	**Data Group Name** text field **Sort Order** text field	**Data Type** combo box **When collected?** radio buttons	Yes
Data Element (Standard)	**Add >>** Add a new Data Element	**Description** text field **Required** radio buttons **Sort Order** text field **Help Text** text field Additional fields specific to the element's data type	**Data Type** combo box	Yes
Data Element (Branching)	**Add >>** Add a new Data Element	**Description** text field **Required** radio buttons **Sort Order** text field **Help Text** text field Additional fields specific to the element's data type	**Data Type** combo box **Used to Define Conditions/Branching** radio buttons	Yes

Table 5-18 • Updating an In-Use Template

Component	Permitted to Add	Permitted to Change	Not Permitted to Change	Delete?
Workflow phase	**Add >>** Add a new Workflow Phase	**Workflow Phase Name** text field **Phase Type** combo box **Sort Order** text field **Track for Workflow SLA** check box **Track for Workflow Step SLA** check box **Define a condition for workflow branching?** radio button **Select the branching condition** combo box and associated grid **Link to next phase** combo box		Yes
Workflow Step	**Add >>** Add a new Workflow Step	**Workflow Step Description** text field **Step Type** combo box **Track for Workflow SLA** check box **Track for Workflow Step SLA** check box **Popup HTML File** text field **Email Templates to Use** combo boxes **Collect a data group in this workflow step** radio buttons **Select the Data Group** combo box	**Sort Order** text field (sometimes)	Yes

Restrictions Regarding Approval Tasks When Editing Workflow Templates That Have Existing Workflow Requests

There are special restrictions regarding **Approval Task** workflow steps when editing workflow templates that have existing workflow requests:

- You cannot change the **Step Type** of an existing non-approval workflow step to **Approval Task**.

- You cannot change the **Step Type** of an existing approval workflow step to something other than **Approval Task**.
- You cannot delete the **Template Components** which are currently **Active** in the In-Progress workflows.
- You cannot delete the **Phase Type** AdminStudio in the Template which has In-Progress workflows.

Update - Template changes to In-Progress Workflows

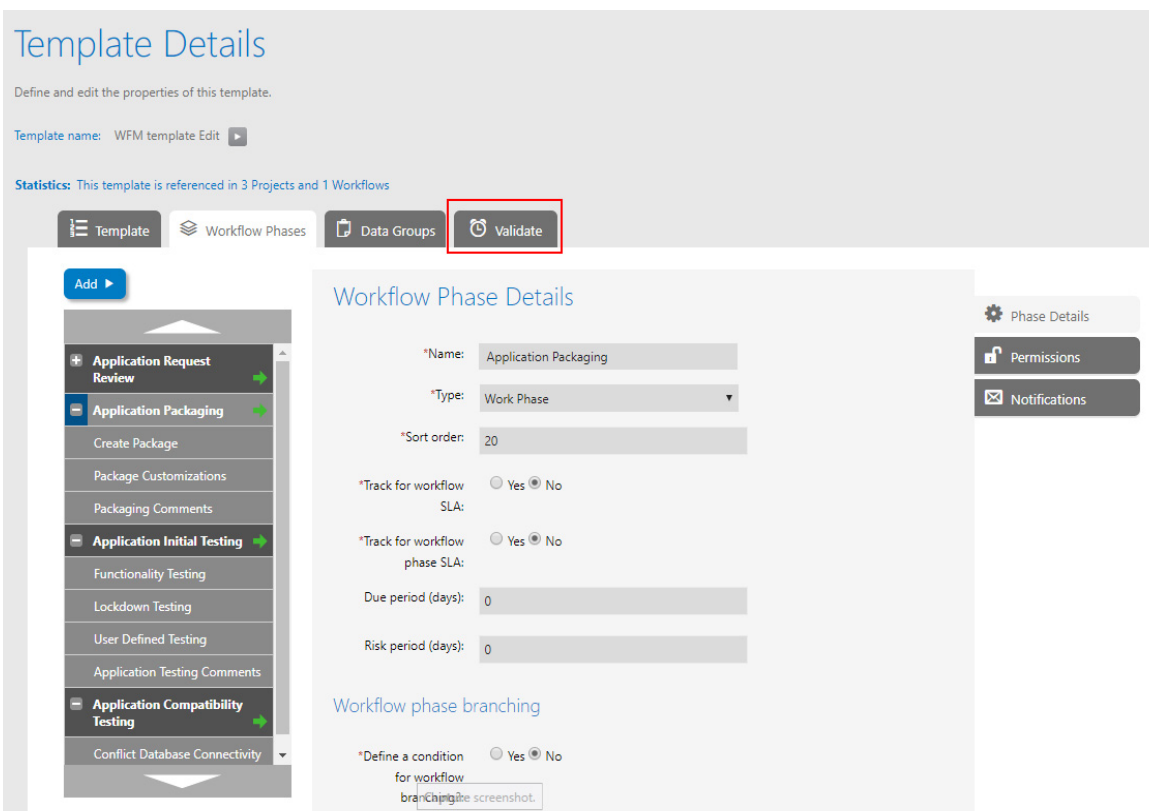
After a Template is updated and validated, you can synchronize the changes to a related In-Progress workflows

Task ***To Update a Template changes to Workflow In-Progress***

1. To update a Template which has been used to create a Workflow request, see Updating a Template and Editing a Template That is in Use.

   Note • *You cannot synchronize a changes made in the Template to a completed workflows*

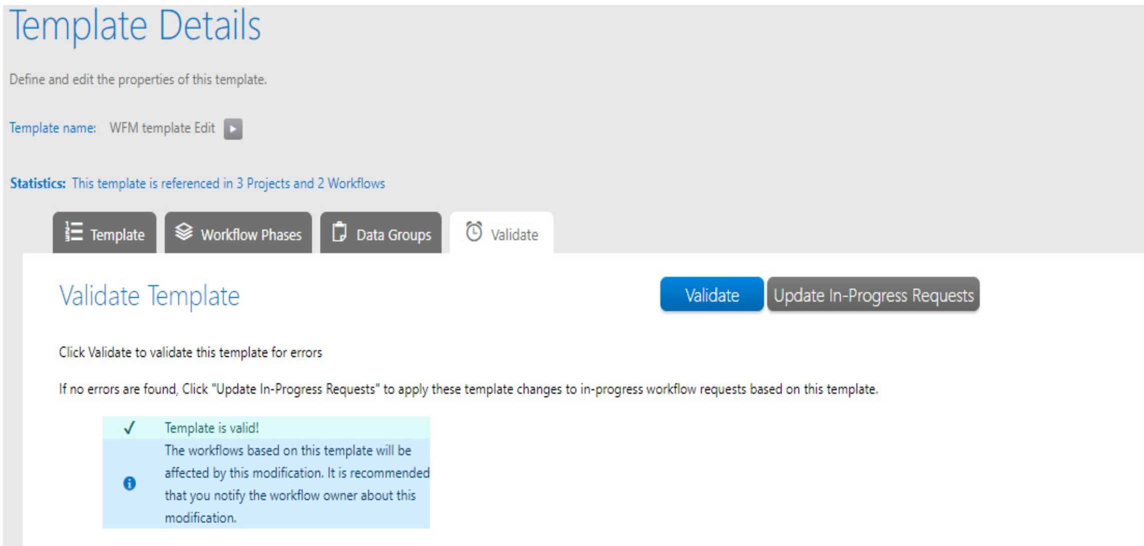
2. After the required changes made in the Template, You must Validate the template before synchronizing the changes to In-Progress workflows.
3. To Validate the template, click F5(Refresh). The **Validate** tab opens.



Note • Validate tab appears, when a Template has at least one In-Progress workflow

4. Select the Validate tab, you can see **Validate** and **Update In-Progress Requests** buttons. Click on the **Validate** button.

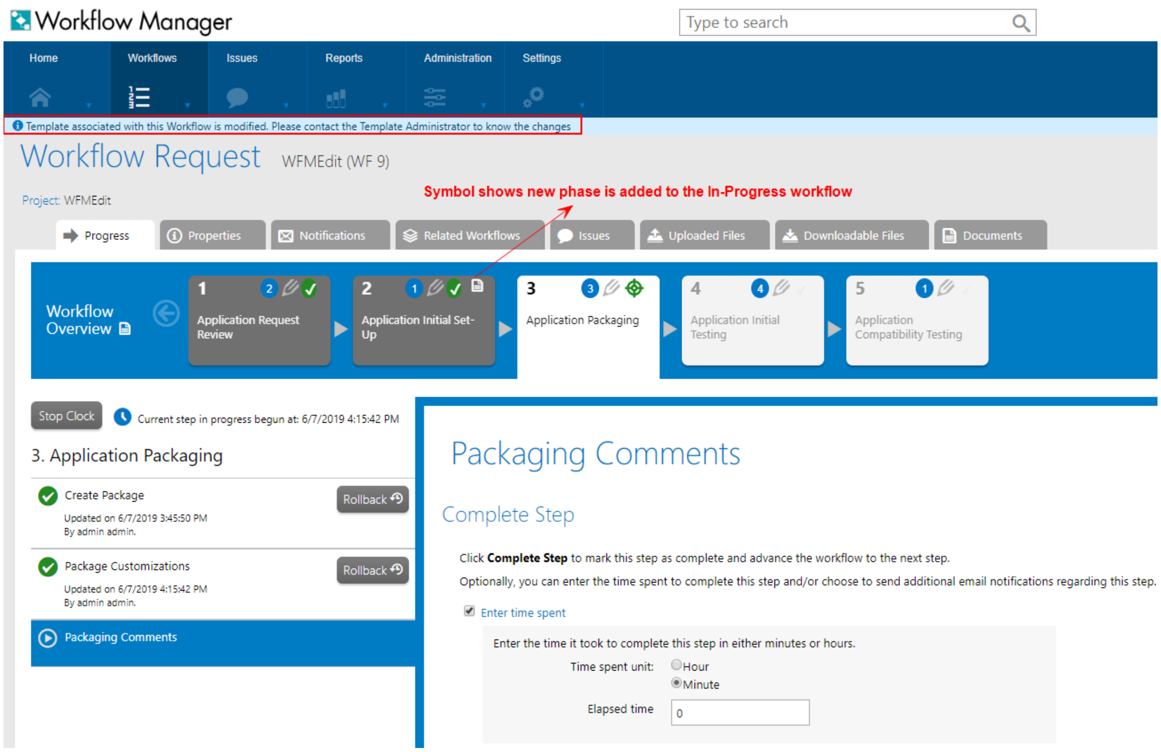
5. You will get the Valid or Error Messages, Make sure the Template is valid.**Update In-Progress Requests** button will get enable.



6. After a successful validation, click **Update In-Progress Requests** button to synchronize the changes to In-progress workflows.

*Note • Validated changes in the Template will not be synchronized to an In-Progress workflows until and unless you click on the **Update In-Progress Requests** button.*

7. Select a related In-Progress workflow, to see the changes updated in the workflow.



Tip • *When the changes are synchronized to an In-progress workflow, use the below tips:*

- *Notification message appears in the top of the screen when a changes made in the Template synchronized into a workflow*
- *You can see this symbol, when a new phase is added to an In-Progress workflow.*
- *You can use the* ***Roll back*** *button in the respective steps, to execute the synchronized changes in an In-Progess workflow, see Rolling Back to a Previous Workflow Step.*

Important • *Flexera highly recommends not to edit the* ***Third Party Templates****, however you are allowed to copy and edit the templates but may not achieve the required output.*

Copying a Template

If you want to create a new template that is very similar to an existing template, you can copy and then modify it, rather than re-building it from scratch.

You can make a copy of an existing template in your installation of Workflow Manager by using the **Copy** button on the **Template Administration** page. You can also copy an existing template to another instance of Workflow Manager by exporting the template to an external SQL Server script file, and then running that script against the other Workflow Manager database.

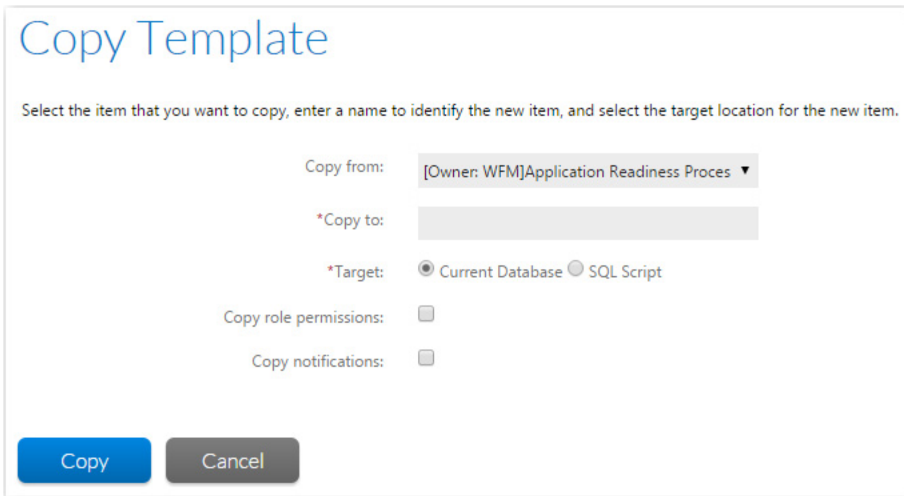
- Copying an Existing Template
- Copying an Existing Template to Another Database

Copying an Existing Template

To create a copy of the existing template in your current installation of Workflow Manager, do the following:

Task ***To copy an existing Template:***

1. In the navigation bar, click Templates in the **Administration** menu. The **Template Administration** page opens.
2. Click **Copy** to open the **Copy Template** page.



3. Select the template you want to replicate from the **Copy from** list.
4. In the **Copy to** field, enter a name to uniquely identify the new template.
5. Select the **Current Database** option from the **Target** field.
6. If you want to copy the workflow template’s role permission settings, select the **Copy role permissions** option. If this option is not selected, the default permission settings will be used.
7. If you want to copy the workflow template’s email notification settings, select the **Copy notifications** option. If this option is not selected, the default permission settings will be used.
8. Click **Copy** to copy the template and return to the **Template Administration** page, where the new template will be listed.

Copying an Existing Template to Another Database

If you want to copy an existing template to another instance of Workflow Manager, you can export the template to an external SQL Server script file, and then run that script against the other Workflow Manager database.

- Exporting a Template to an SQL Server Script
- Running a Template Script Against a Database

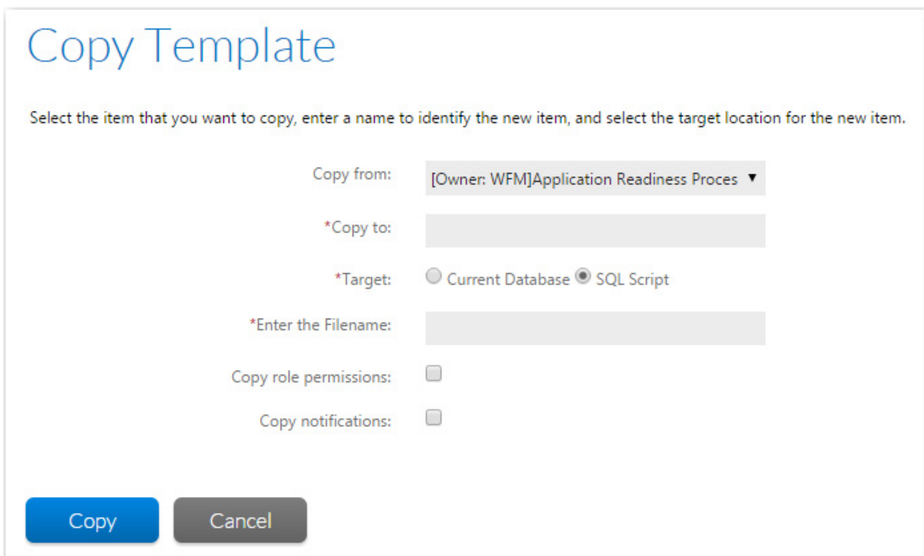
***Tip** • Another reason to export a workflow template to an external script file is to make a back-up copy of it, so that if it is accidentally deleted or modified, you would be able to quickly restore it.*

Exporting a Template to an SQL Server Script

To export a workflow template to an SQL Server script, so that it can be copied to a different Workflow Manager database, perform the following steps:

Task ***To export an existing template to an external script:***

1. In the navigation bar, click Templates in the **Administration** menu. The **Template Administration** page opens.
2. Click **Copy** to open the **Copy Template** page.
3. Select the template you want to replicate from the **Copy from** list.
4. In the **Copy to** field, enter a name to uniquely identify the new template.
5. Select the **SQL Script** option from the **Target** field. The **Enter the Filename** text field is displayed.



6. Enter a name for the SQL script file you are exporting to in the **Enter the Filename** text field, without specifying an extension. Script files will always be saved with an `.sql` extension.
7. Because you are copying this workflow template to another database, it is recommended that you clear the selection of the **Copy role permissions** and **Copy notifications** options. When these options are not selected, the default permission settings of the Workflow Manager database that you are copying the workflow template to will be assigned.
8. Click **Copy**. Your browser will prompt you to open or save the script file. Save your script file to an appropriate location on your local machine.
9. When the file download is complete, click **Cancel** on the **Copy Template** page to return to the **Template Administration** page.

Running a Template Script Against a Database

To copy an exported template to a different Workflow Manager database (or to recreate the template in the original database, if it got modified or removed accidentally), do the following:

Task ***To run a template script against a Workflow Manager database:***

1. Follow the steps in Exporting a Template to an SQL Server Script to export a template to an SQL Server script file.
2. Copy the script file to a location accessible to the Workflow Manager database that you want to copy the template into.
3. If you are running the script file against a different instance of Workflow Manager than the one it was exported from, perform the following steps:
   a. Open the script file in a text editor.
   b. Locate the `@updatedBy` parameter, which identifies the person that created the workflow. It will appear in a line similar to the following:

      ```
      set @updatedBy = '7b31351c-f90c-4966-a61b-4d4626d86037'
      ```

   c. Replace the identifier with the `PersonID` value from the `AMS_Person` table which represents your account (or the account of the person who you want to be registered as the creator of the template).
   d. Locate the `@servicerCompanyID` parameter, which identifies the workflow administrator company that you want this template to be associated with. It will appear in a line similar to the following:

      ```
      set @servicerCompanyID = '7fa01539-9fb6-4a68-a749-f71f92276869'
      ```

   e. Replace the identifier with the `servicerCompanyID` of the desired workflow administrator company from the `AMS_Company` table.
   f. Save the script file.

   Caution • *If you do not update these parameters, you will receive an error message when you run the script and the import will fail.*

4. Use an appropriate database utility to run the script against the Workflow Manager database.
5. When you open Workflow Manager, the imported template will be listed on the **Template Administration** page.

Deleting a Template

If a template is no longer useful for your organization, you may choose to remove it. Be careful doing this, however, as deleting a template will also remove any projects associated with the template, and any workflows created using that template.

Task ***To remove a template:***

1. In the navigation bar, click Templates in the **Administration** menu. The **Template Administration** page opens.
2. Locate the template that you want to update and click on it. The **Template Details** page opens.
3. Open the **Template** tab. The **Template Properties** tab opens.
4. Click the **Delete** button.
5. Agree to the confirmation message. Your template is removed and you are taken back to the **Template Administration** page, where the template no longer appears in the list.

Managing Approval Templates

An approval template can be associated to a workflow step that has a **Step type** of **Approval Task**. When a user clicks the name of this workflow step on the **Workflow Request** page, the **Approval** dialog box opens, prompting the user or a series of users to approve the workflow step. Additionally, email notifications are sent to listed approvers, enabling them to approve or reject the step via email.

The **Approval Administration** page lists all approval templates defined in the system. You can view this page by selecting the **Approval** subtab of the main **Administration** tab.

For information about managing approving templates, see the following topics:

- Creating an Approval Template
- Editing an Approval Template
- Deleting an Approval Template

Note • *For information on adding an approval template to a workflow step, see Defining an Approval Task Workflow Step.*

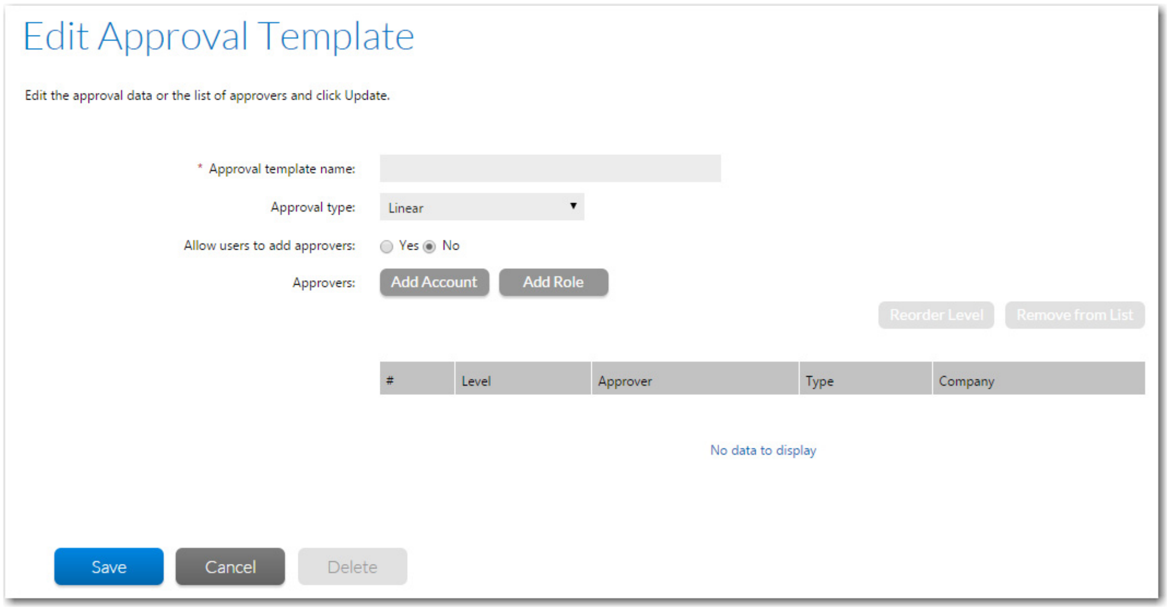
Creating an Approval Template

An approval template can be associated to a workflow step that has a **Step type** of **Approval Task**. When a user clicks the name of this workflow step on the **Workflow Request** page, the **Approval** dialog box opens, prompting the user or a series of users to approve the workflow step. Additionally, email notifications are sent to listed approvers, enabling them to approve or reject the step via email.

To create a new approval template, perform the following steps:

Task ***To create an approval template:***

1. In the navigation bar, Click **Approvals** on the **Administration** menu. The **Approval Administration** page opens.
2. Click **Add**. The **Edit Approval Template** page opens.



3. In the **Approval template name** field, enter a name to identify the template.
4. From the **Approval type** list, select one of the following options:
    - **Linear**—Approvals need to take place sequentially, one after the other, according to assigned **Level**.
        - If there is more than one user assigned to a level, then everyone in that level must approve the workflow step before it can proceed to the next level of approvers, but they can approve it in any order.
        - If an LDAP group or a role is specified as an **Approver**, everyone in that group/role has to approve the workflow step before it can proceed to the next level, but the members of that group/role can approve it in any order.
    - **Pool**—Only one approver is required, even if multiple approvers are listed. Anyone (or any member of a listed group/role) can approve the workflow step. The **Level** field is ignored.
    - **Linear In Pool**—Approvals need to take place sequentially, one after the other, according to assigned **Level**, but if there is more than one user assigned to a level or if there is a group assigned to a level, only one user of the assigned users (or only one member of the group/role) needs to approve it.
    - **Parallel**—All listed users (and all users in listed groups/roles) must approve the workflow step before it can proceed, but not in any specific order. The **Level** field is ignored.
5. To enable users to add a new user or group of users to the approval list on the **Approval** dialog box, select the **Allow users to add approvers** option.

    If this option is selected, when a user opens the **Approval** dialog box to approve this workflow step, that dialog box will include an **Add Approver** button. When the user clicks the **Add Approver** button, the **Add Account/Group** dialog box opens. New users can be added if there are already existing users listed and also if there are no users listed.
6. Click the **Add Account** button to open the **Add/Account Group** dialog box to add a database user, LDAP user, or LDAP group to the **Approvers** list. Click the **Add Role** button to open the **Select Role** dialog box to add a role to the **Approvers** list.
7. If the **Approval type** is **Linear** or **Linear in Pool** and there is more than one account/role/group listed in this list, the **Level** field is used to determine the order that the users must approve the workflow step. If multiple levels are defined

(such as 1, 2, 3), users at Level 2 are not permitted to approve the workflow step until a user from Level 1 has approved it. Specify the appropriate **Level** for each account/group/role in the list.

***Note** • If the **Approval type** is **Pool** or **Parallel**, this field is ignored.*

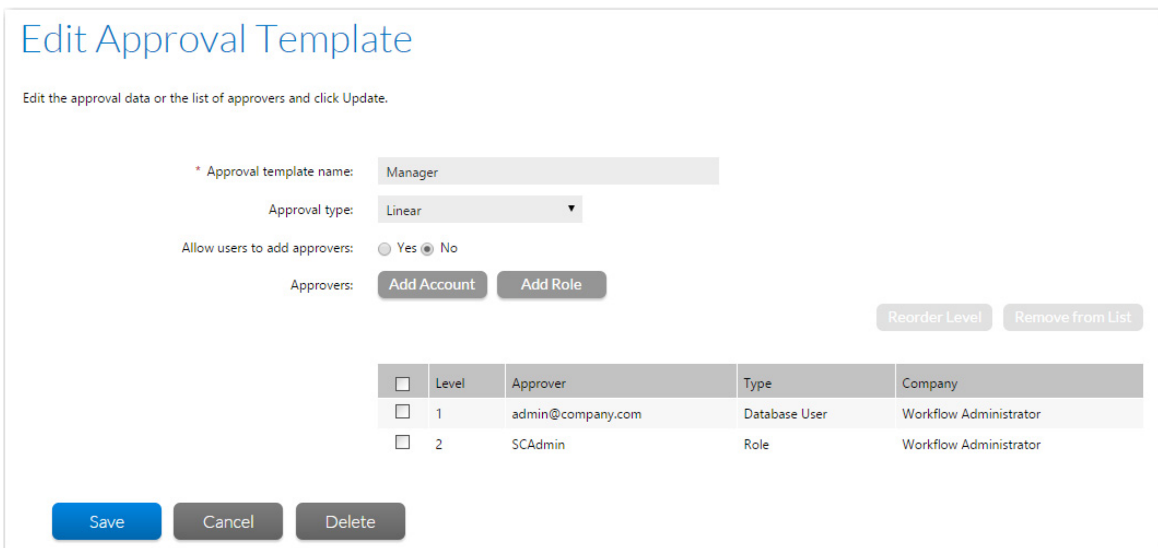
8. Click **Save** to create the approval template.

Editing an Approval Template

To edit an existing approval template, perform the following steps:

Task ***To edit an existing approval template:***

1. In the navigation bar, Click **Approvals** on the **Administration** menu. The **Approval Administration** page opens.
2. Click the name of the approval template that you want to edit. The **Edit Approval Template** page opens displaying the settings of that approval template.



3. Edit the settings, as described in Creating an Approval Template.
4. Click **Save** to save your edits.

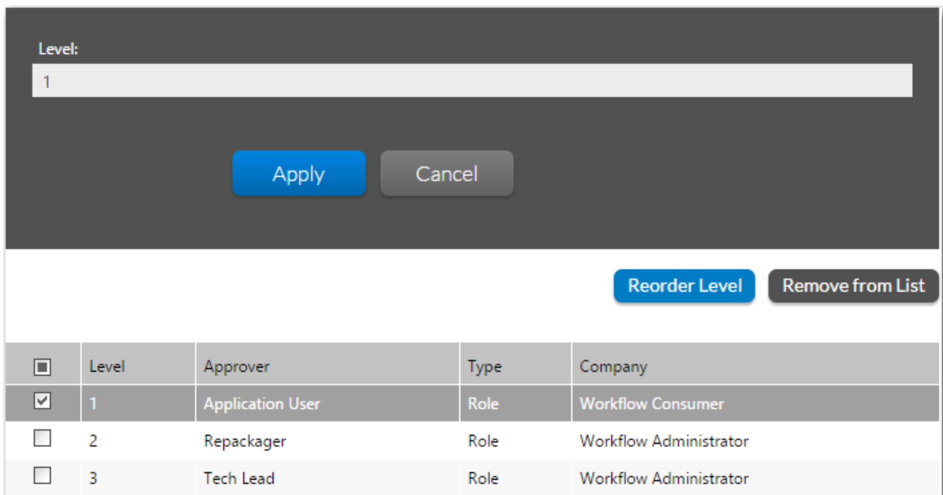
***Important** • If you edit an approval template that is already in use in an active workflow request, the changes made to the approval template affect only new workflow requests. For existing workflow requests, the approvers remain the same that existed when the step was first initiated.*

Reordering the Levels in an Approval Template

To reorder the levels of approvers listed in an approval template, perform the following steps:

Task ***To reorder the levels in an approval template:***

1. Click **Approvals** on the **Administration** menu of the navigation bar. The **Approval Administration** page opens, listing all existing approval templates.
2. Click the name of the approval template that you want to edit. The **Edit Approval Template** page opens displaying the settings of that approval template.
3. In the approvers list, select the checkbox of the name of the approver that you want to change the level of and click **Reorder Level**. A box opens containing the **Level** field.



4. Edit the number in the **Level** field and then click Apply. The box closes and the edited Level number is now listed in the approvers list.
5. Repeat editing the Level number of the items in the approvers list until you have them in the correct order.
6. Click **Save** to save your edits.

Important • *If you edit an approval template that is already in use in an active workflow request, the changes made to the approval template affect only new workflow requests. For existing workflow requests, the approvers remain the same that existed when the step was first initiated.*

Deleting an Approval Template

To delete an existing approval template, perform the following steps:

Task ***To delete an existing approval template:***

1. Click **Approvals** on the **Administration** menu of the navigation bar. The **Approval Administration** page opens, listing all existing approval templates.
2. Click the name of the approval template that you want to edit. The **Edit Approval Template** page opens displaying the settings of that approval template.
3. Click **Delete**. You are prompted to confirm the deletion.
4. Click **OK**. The approval template is deleted.

Important • *If an approval template is in use, then deletion is disabled. You are only permitted to add or remove users/groups/roles.*

Managing Time Off

You can use Workflow Manager's **Time Off** functionality to display future time off for administrator users on work assignment screens that are part of a workflow step. This enables managers to assign resources accordingly.

- Entering a Time Off Record
- Editing a Time Off Record
- Viewing a User's Scheduled Time Off on Work Assignment Screens

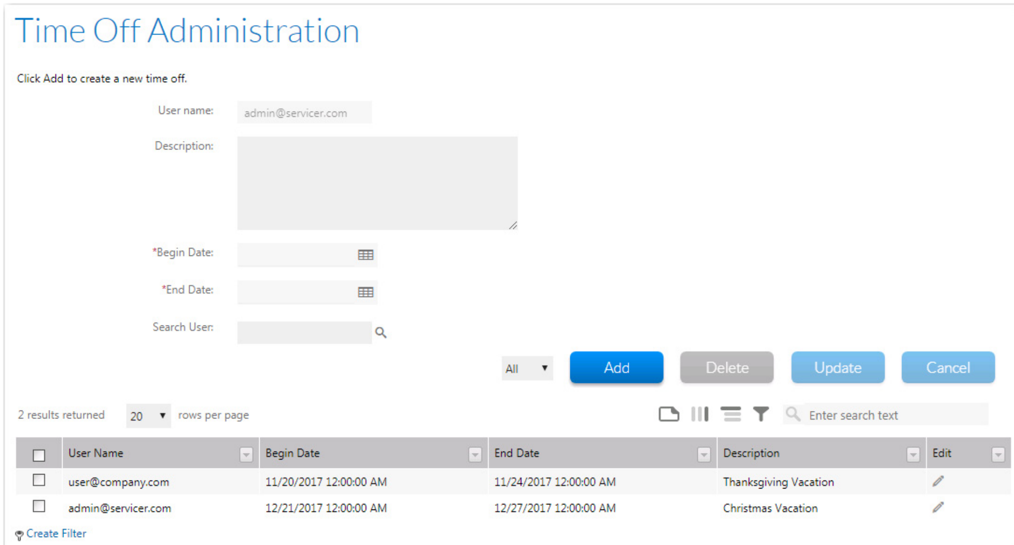
Entering a Time Off Record

Users enter time off records on the **Time Off Administration** page. Also, users with the **Time Off Admin** role permission can submit time off records for other users on this page.

To enter a time off record, perform the following steps.

Task ***To enter a time off record:***

1. On the **Settings** menu, select **Time Off**. The **Time Off Administration** page opens.



All users can create and view their own time off records. However, to see time off records for all users who are members of the administrator company or one of its associated consumer companies, the user must belong to a role that has the **Time Off Admin** role permission. For more information, see Workflow Manager Permissions.

- **Users without Time Off Admin role permission** can only submit a time off record for themselves. The logged in user's name appears in the **User name** field and is not editable.
- **Users with Time Off Admin role permission** can also submit time off records for other users, by searching for and selecting a user in using the **Search User** field.

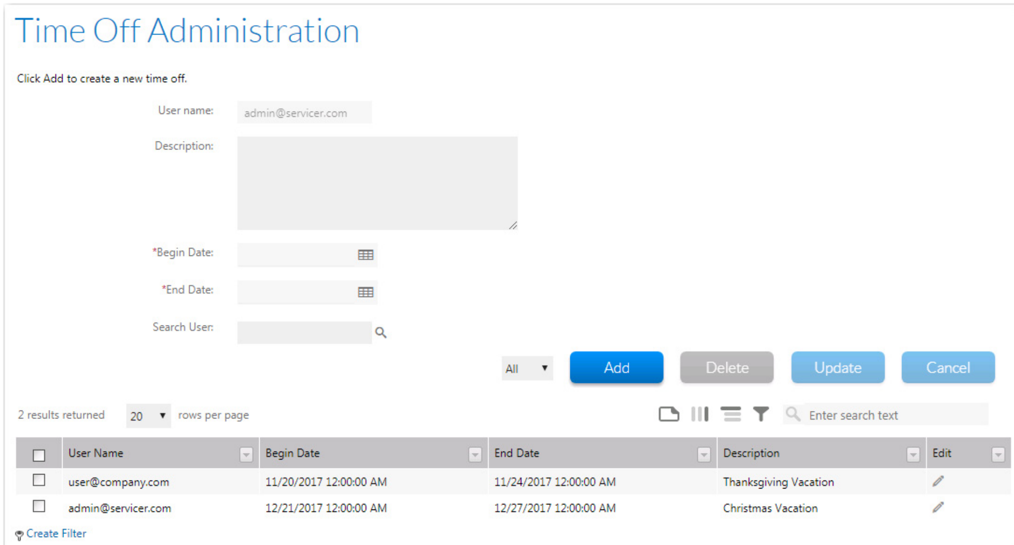
2. In the **Description** field, enter a description of the time off record that you are submitting, such as **Vacation**, **Jury Duty**, **Conference**, etc.
3. Use the **Begin Date** and **End Date** fields to specify the beginning and end date of the time off period.
4. To submit the time off record, click **Add**. The time off record will appear in the list on the lower portion of the page.

Editing a Time Off Record

To edit an existing time off record, perform the following steps.

Task ***To edit a time off record:***

1. On the **Settings** menu, select **Time Off**. The **Time Off Administration** page opens.



2. In the list at the bottom, click the icon in the **Edit** column of the time off record that you want to edit. The details of the time off record populate the fields.

3. Modify the details of the time off record and click **Update**.

Viewing a User's Scheduled Time Off on Work Assignment Screens

When completing a **Work Assignment** workflow step, after a user is assigned to a role, that user's scheduled time off for the selected **Time Off Window** is displayed in the in the **Next Time Off** column.

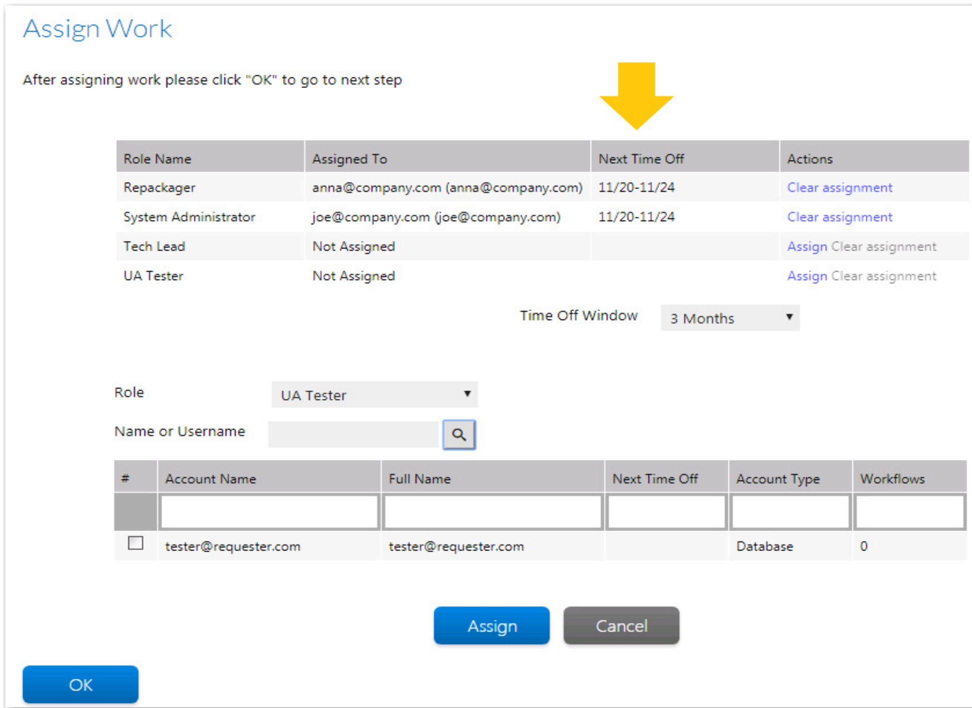


Figure 5-81: Assign Work Workflow Step With Next Time Off Displayed

If, after assigning a user to a role, the manager sees that the selected user has upcoming time off scheduled, the manager can choose to assign another user to the role who is available.

You can adjust the time period by making a selection from the **Time Off Window** menu.

Note • *You can also view a user's scheduled time off in the* ***Next Time Off*** *column in the search grid when searching for a user to assign to a role.*

Setting Up Automatic Work Assignment

Important • *To use the automatic work assignment feature, users must be logged in using Windows NT authentication.*

Instead of using the **Assignment Details** page to manually assign each existing role on a workflow request to a specific operator, you can set up automatic work assignment that will dynamically and automatically assign tasks to operators based on rules. When a template's associated project has **Automatic Work Assignment** configured, if the user (or users) captured during the submission of the workflow request have edit permission for a particular role which is assigned to any of the workflow steps in the template, he will automatically be assigned the task.

If you do not set up automatic work assignment, every user in the system who belongs to a role that has edit permission on that workflow step will receive a notification email at the initiation of that workflow step.

You could use automatic work assignment to create an “auto acknowledgment” workflow step that notifies the requester that his request has been received. Optionally, you can also use the AdminStudio.Public API to do automatic work assignment by searching Active Directory to determine the requester’s manager, and then assign the approval task of the workflow request to that manager.

You can set up automatic work assignment using several methods:

- Setting Up Automatic Work Assignment Using the Workflow Manager Interface
- Setting Up Automatic Work Assignment Using the iPlugin API

Setting Up Automatic Work Assignment Using the Workflow Manager Interface

To set up automatic work assignment using the Workflow Manager interface, perform the following steps.

Task ***To set up automatic work assignment for a project:***

1. First, make sure that you either have a directory services connection, as described in Creating a New Directory Service Connection, or a connection to the FNMP Compliance API Service.

   Note • *If you are a FlexNet Manager customer, Workflow Manager comes installed with a connection to the FlexNet Manager Suite Compliance API external web service named **FNMP Compliance API Service**.*

2. Perform one of the following set of steps to identify the data element that will capture user information:

   Directory Service Connection

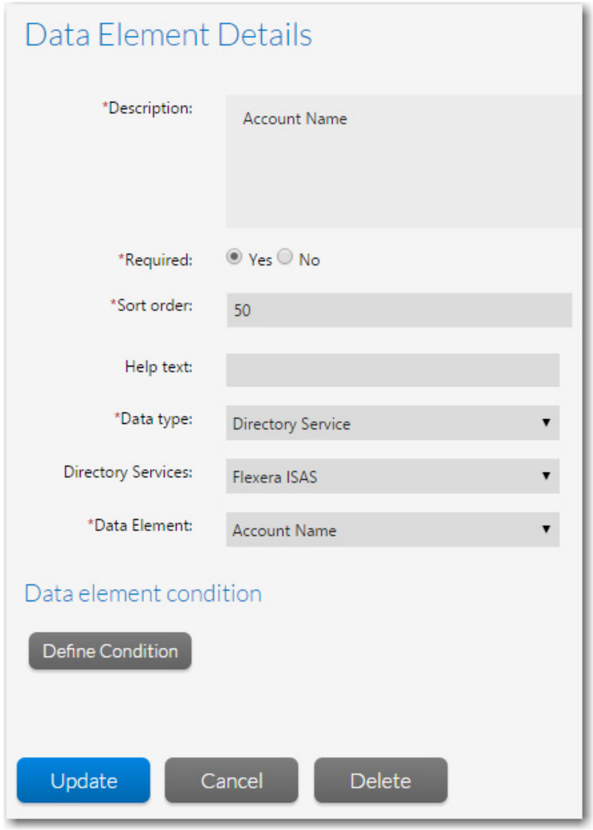
   a. Add a directory service attribute which has the **Attribute Name** of `SAMACCOUNTNAME`, as described in Setting Up a New Directory Service Attribute. The `SAMACCOUNTNAME` attribute identifies the logged in user.

   b. Open the workflow template that you want to use for this project.

   c. Add a data element with the **Data type** of **Directory Service**.

   d. From the **Directory Services** list, select the directory service that you want to use.

   e. From the **Data Element** list, select the name of the `SAMACCOUNTNAME` directory service attribute that you previously added.



f. Click **Create** to create the data element.

FNMP Compliance API Service Connection

a. Open the workflow template that you want to use for this project and add a data element that has a **Data Type** of **Web Service Call**.

b. In the **Description** field, enter **User Name**.

c. From the **Web Service name** list, select **FNMP Compliance API Service.**

d. From the **Web method** list, select **GetCustomView**.

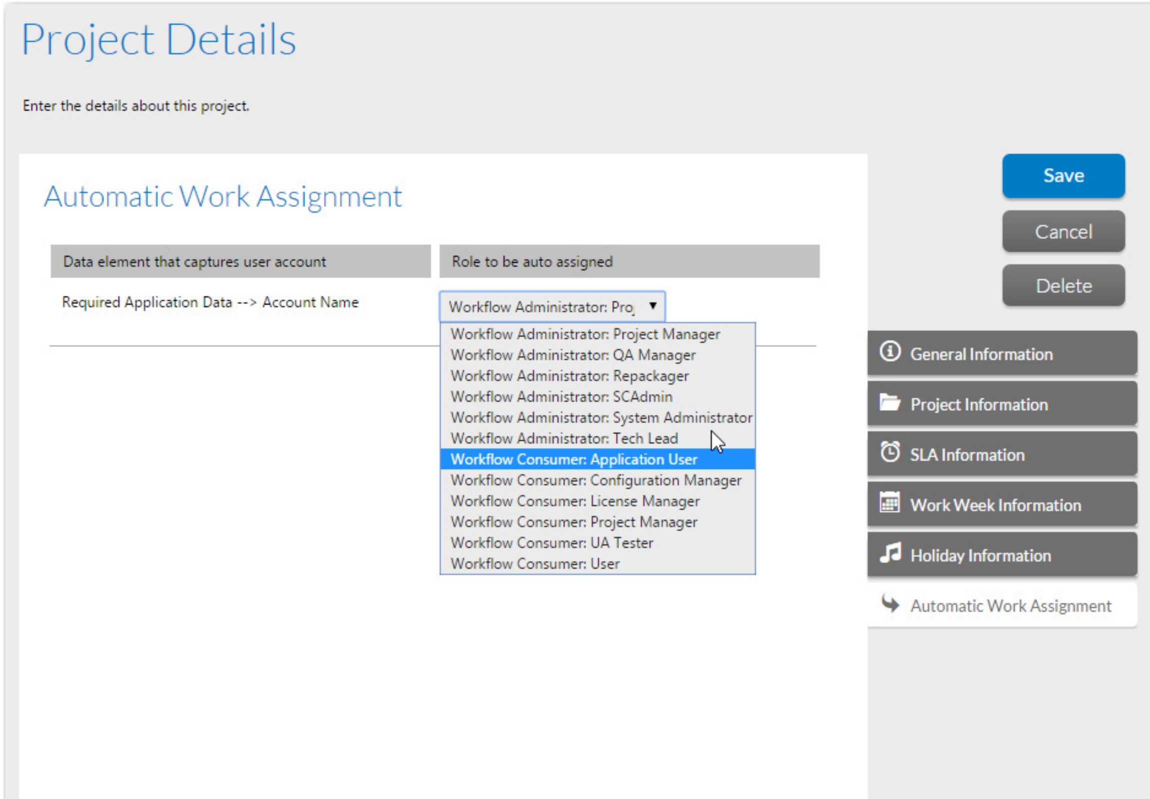
e. In the **Parameters** list, set **CustomViewID** to a **Value Type** of **User Defined** and a value of **`-40000`**.

Note • *If you are using the FNMP Compliance API Service and are using code to extract the user data, you would need to expose the web method GetCustomView. By default, Workflow Manager is set to search for the customViewID of -40000, To change that ID, you can edit the value of the FNMPUserIDCustomViews key in the web.config file. You can separate multiple values by a semicolon.*

<add key="FNMPUserIDCustomViews" value="-40000"></add>

3. Create a new project, as described in Creating a New Project, which uses that workflow template.

4. On the **Project Details** page, on the **Automatic Work Assignment** tab, the data element(s) you defined above (which will capture user information when the workflow request is submitted) are listed under **Available Users**.



For each data element, select a role from the **Role to be auto assigned** list. Select the role you want to assign to the user captured by that data element. That user can then be automatically assigned work in this project. The selection of this role determines which workflow steps will be automatically assigned.

5. Click **Save**.

Setting Up Automatic Work Assignment Using the iPlugin API

You can also use the iPlugin infrastructure to perform automatic work assignment by calling the AdminStudio.Public API method of `SetWorkAssignments`. To assist you, you can obtain a sample iPlugin file named `TestPlugin.cs` from Flexera Technical Support.

For a sample of the code in the **TestPlugin.cs** file, see Sample iPlugin File: TestPlugin.cs.

***Note** • For more information, see Using the IPlugin Interface.*

Managing Email Notifications

Workflow Manager sends emails to notify registered people when certain events occur, such as when a workflow step is advanced, edited, completed, or rolled back. You can configure notifications to be sent to individual Workflow Manager accounts, imported directory service accounts and groups, all people belonging to given roles, and external email addresses.

You can specify email notifications at not only a global and project level, but also at a workflow request and account level. Each person can access the **My Notifications** page, which lists all of email notifications that they are registered to receive. If a person belongs to a role with appropriate permissions, they may also subscribe to or unsubscribe from selected notification events.

Information about email notification is presented in the following sections:

Email Notification Events

In Workflow Manager, you can configure automatic and manual email notifications to be sent out as certain events occur during the completion of a project's workflow requests. The events which can trigger an email notification are listed by category in the following table:

Table 5-19 • Email Notification Events by Category

Event Category	Events
Workflow phase or step	Is initiated, rolled back to, updated, or completed.
Workflow request	Has its status changed.
Data	Is submitted, rejected, or updated.
Issue	Is submitted or rejected.
Project	Is nearing or passing its Service Level Agreement (SLA) due date.

You have extensive control over whether or not email notifications are sent when these events occur, and who the notifications are sent to. You can:

- Set project defaults, which are inherited by all new projects
- Set workflow request defaults for a project, which are inherited by all of its workflow requests
- Override settings on a per-workflow request basis
- Manually select recipients when a workflow step is completed or rolled back to.

The following table lists all of the email notification events, and where in Workflow Manager each can be configured:

Table 5-20 • Automatic and Manual Email Notification Events

Events	Automatic Project & Workflow Request Defaults	Automatic Workflow Request Overrides	Manual Notification During a Workflow Request
Data is submitted or rejected Issue is submitted or responded to Workflow status is changed Project is nearing or passing its SLA due date	**Notification** tab of **Template Details** page	**Workflow Request Notifications Override** page	N/A
Specific workflow phase or step is initiated	N/A	**Workflow Request Notifications Override** page	N/A
Rollback to a specific workflow phase or step	N/A	**Workflow Request Notifications Override** page	**Rollback Workflow Item** dialog
Specific workflow phase or step is edited	N/A	**Workflow Request Notifications Override** page	**Update History** dialog
Specific workflow phase or step is completed	N/A	**Workflow Request Notifications Override** page	**Workflow Request Notifications Override** page
Data group is edited	N/A	N/A	**Edit Data** dialog
Workflow phase or step is completed	N/A	N/A	**Update History** dialog **Workflow Step Completion** dialog

There are both automatic and manual types of email notifications:

- Emails are automatically sent to people whose roles or accounts are listed on the **Notification** tab of the **Template Details** or **Workflow Request Notifications Override** pages.
- Emails are also sent to those accounts manually specified on the **Update History** or **Workflow Step Completion** dialog that is displayed when a workflow step is completed, on the **Edit Data** dialog that is displayed when a data element is edited, or on the **Rollback Workflow Item** dialog which appears when a workflow step is rolled back to.

Setting Email Notification Defaults for Workflow Requests

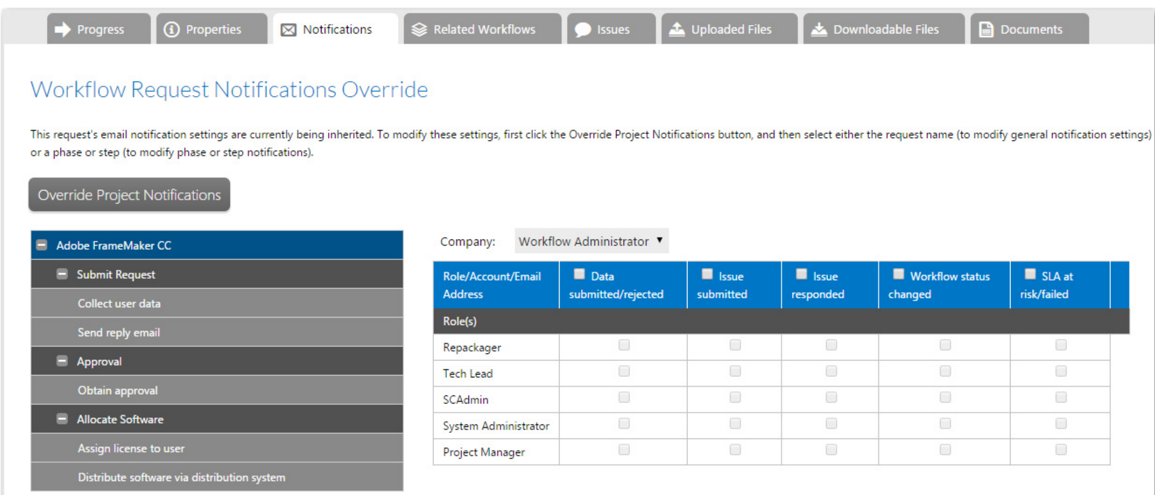
Each time a new workflow request is created, it is automatically configured with the email settings defined on the **Notification** tab of the **Template Details** page of its project's associated workflow template, as described in Assigning Permissions and Notification Settings on a Workflow Template.

Overriding Default Email Notification Settings for an Individual Workflow Request

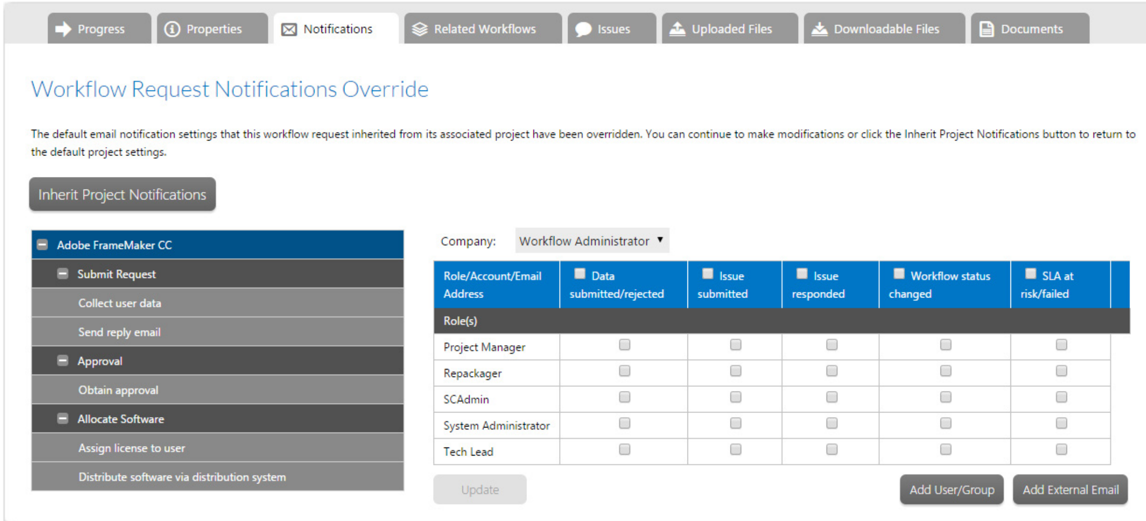
When a new workflow request is created, it inherits the email notification settings defined on the **Notification** tab of the **Workflow Details** page for its associated workflow template. You can, however, modify these notification settings as required on the **Workflow Request Notifications Override** page for an individual workflow request.

Task ***To override email notification defaults for a workflow request:***

1. If you are an administrator, open a workflow request's **Workflow Request** page.
2. Open the **Notifications** tab.



3. Initially, the email notification options are display-only. To unlock these settings so that you can override them, click the **Override Project Notifications** button. The notification options are unlocked and the name of the button changes to **Inherit Project Notifications**.



***Note** • If at any time after modifying these notification settings, you want to return to the project defaults, click the **Inherit Project Notifications** button.*

4. Select the consumer or administrator company associated with the project from the **Company** list, to display a list of roles and accounts associated with that company who are configured to receive email notifications for this project.

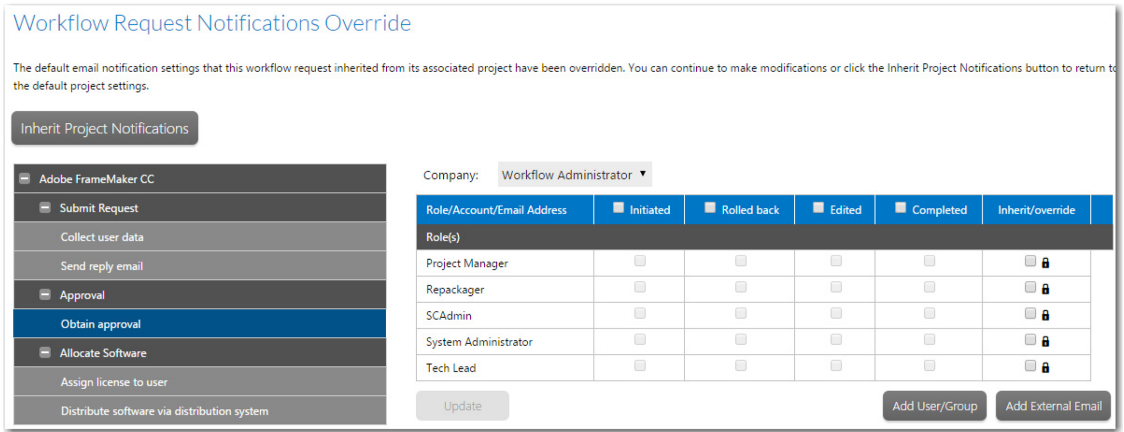
5. Select the root node of the **Workflow Phase/Step** tree control. The workflow request-level email notification options are displayed in the panel on the right.

6. Indicate whether the accounts or roles shown should receive an email notifications when each of the five listed workflow request events occur (**Data submitted or rejected**, **Issue submitted**, **Issue responded**, **Workflow status changed**, and **SLA at risk/failed**). Do this by selecting or deselecting the check box in the appropriate column, next to the relevant account name. Click the check box in the column header to select all check boxes in that column.

7. Select a workflow phase name in the tree. The phase/step level notification options are displayed: **Initiated**, **Rolled Back**, **Edited**, and **Completed**.

8. Make any desired updates to these notification settings at the phase level, and click **Update** to save your changes.

9. Workflow steps inherit email notification settings from their parent phase. To override these settings, select a workflow step in the tree.



10. If a workflow step is inheriting its settings from its parent phase, the settings are initially locked. Click the lock icon next to an account or role name to unlock the settings, and agree to the confirmation dialog that appears.

11. Make any desired updates, then click **Update** to save your changes.

12. If desired, click the **Add User/Group** or **Add External Email** buttons to add accounts, groups, or external email addresses to the **Role/User/Email Address** list, as described in Adding Accounts or Groups to an Email Notification List and Adding External Email Addresses to an Email Notification List.

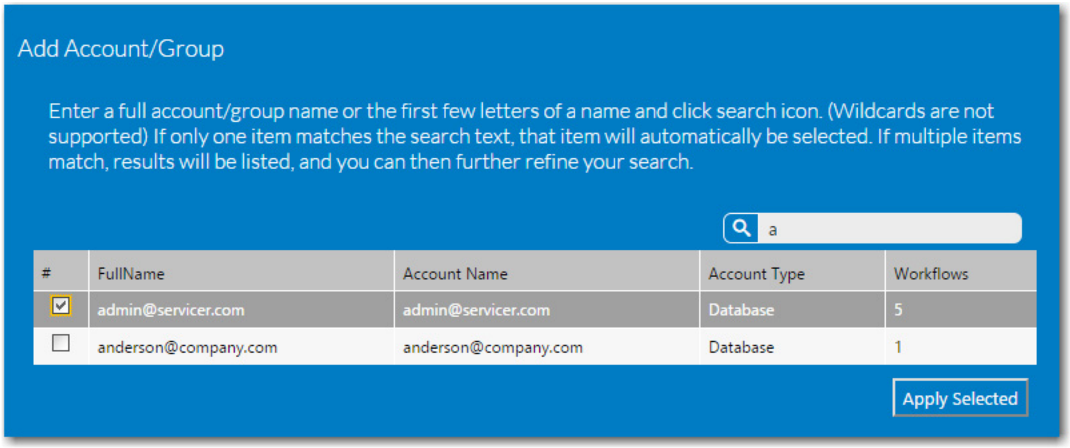
> ***Important*** • *Each time you add an account, group, or external email address and assign email notifications to it, remember to click **Update**. If you jump to another phase or step before you click **Update**, your changes will be lost.*

Adding Accounts or Groups to an Email Notification List

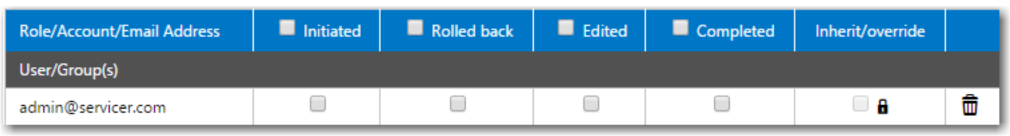
To add a specific Workflow Manager account or a directory service account or group to the **Role/Account/Email Address** list on the **Workflow Request Notifications Override** page or the **Notification** tab of the **Template Details** page, do the following:

Task ***To add accounts or groups to the default email notifications list:***

1. Do one of the following:
   - Open a workflow template in the **Template Details** page, and then open the **Template > Notifications** tab or **Workflow Phases > Notifications** tab.
   - Open a workflow request's **Workflow Request** page, open the **Notifications** tab, and click **Override Project Notifications**.
2. Click the **Add Account/Group** button. The **Add Account/Group** area opens.



3. Search for the account you are interested in, as described in Searching for Accounts, then click **Apply Selected**.
4. Specify which of the listed events should trigger a notification to be sent to your new account, by selecting the appropriate check box next to the account name.



5. Click **Update** to apply your changes.

***Caution •** When you click **Update**, any accounts or groups that you added but did not yet assign notification events to will be removed from the list. So, please make sure that you assign an email notification event to each account as soon as you add it.*

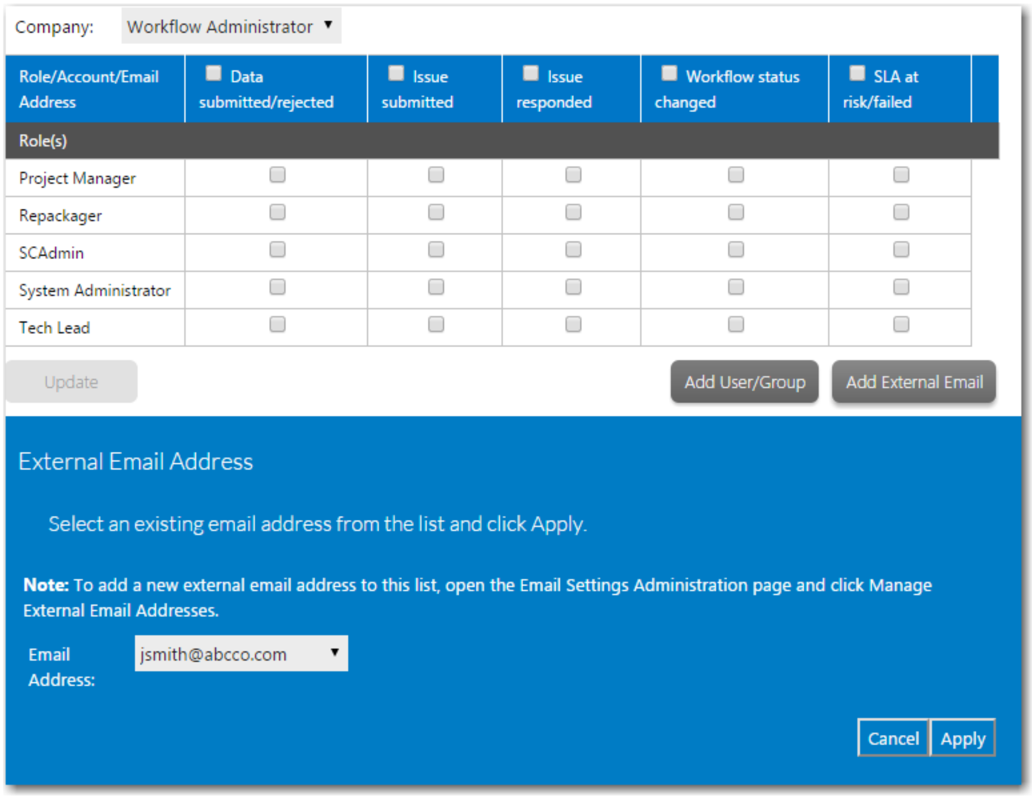
Adding External Email Addresses to an Email Notification List

To add external email addresses to the **Role/Account/Email Address** list on the **Notifications** tab of the **Workflow Request** page, perform the following steps.

***Note •** You can only add external email addresses to notification lists on the workflow request-level (on the **Notifications** tab of the **Workflow Request** page); it is not available on the **Notification** tab of the **Template Details** page.*

Task ***To add external email addresses to an email notification list:***

1. Open a workflow request's **Workflow Request** page and open the **Notifications** tab.
2. Click the **Override Project Notifications** button.
3. Click **Add External Email**. The **Select External Email Address** area opens, and lists all of the email addresses that have previously been added on the **External Email Address Administration** page (see External Email Address Administration Page for more information).



4. Select the email address that you want to add and then click **Apply**. The email address you selected is now listed in the **Role/Account/Email Address** list.
5. Specify which of the listed events should trigger a notification to be sent to your new email address, by selecting the appropriate check boxes next to the account.
6. Click **Update**.

> ***Caution** • When you click **Update**, any accounts or groups that you added but did not yet assign notification events to will be removed from the list. Make sure that you assign an email notification event to each address as soon as you add it.*

Deleting an Account, Group, or External Email Address From an Email Notification List

As described in Adding Accounts or Groups to an Email Notification List and Adding External Email Addresses to an Email Notification List, you can add additional accounts and email addresses to the email notifications lists, if you want people outside the usual roles to receive notifications after particular workflow events occur.

To later remove one of these accounts, groups, or external email addresses, do the following:

Task ***To remove an account, group, or external email address from an email notification list:***

1. Open a workflow request's **Workflow Request** page and open the **Notifications** tab.
2. Click the Delete icon next to the account, group, or external email address in the list that you want to delete.

   You are prompted to confirm the deletion.

3. Click **OK**.

Caution • *When you click the Delete button, you will be deleting not only the account you selected, but also any other additional accounts, groups, or external email addresses that you have recently added and that do not yet have any notification events assigned to them. (These unassigned accounts are also deleted when you click the* ***Update*** *button on these pages.) To avoid losing recently added accounts, groups, or external email addresses, make sure that you assign an email notification event to each of them as soon as you add them.*

Configuring Manual Email Notifications

In addition to the automatic email notifications that you can configure, you can also choose to send an email to additional people whenever you complete, edit, or roll back to a workflow step.

- Completing an Update History Workflow Step
- Completing a Normal Workflow Step
- Editing a Completed Workflow Step
- Rolling Back to a Workflow Step
- Editing Data

Completing an Update History Workflow Step

When you mark a workflow step of type `Update History` as complete, the **Update History** step completion area opens. Enter a list of email addresses (separated by commas) in the **Additional e-mail recipients** text field to send a notification email to people other than those specified in the automatic email notification lists. If you also want to add an extra comment to the body of the email sent to these people, enter your message in the **Additional email comments** field.

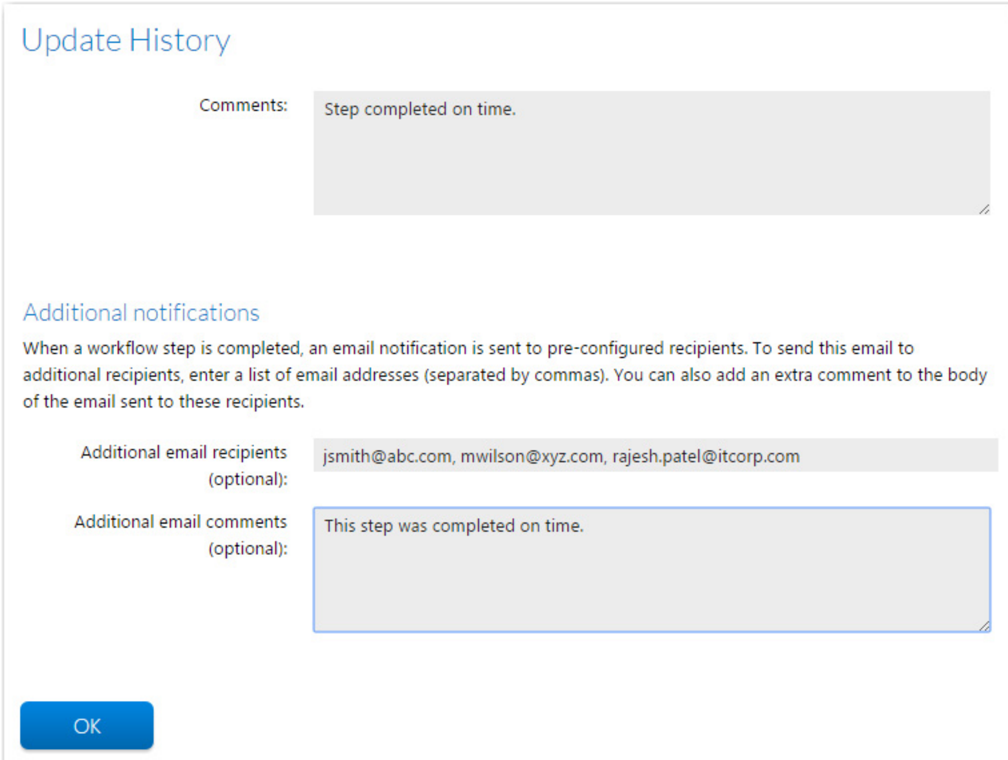


Figure 5-82: Update History Step Completion Area

Completing a Normal Workflow Step

Use the step completion area which appears when a `Normal` workflow step is marked as complete to send a notification email to additional people. Enter a list of email addresses (separated by commas) in the **Additional e-mail recipients** text field to send a notification email to people other than those specified in the automatic email notification lists. If you also want to add an extra comment to the body of the email sent to these people, enter your message in the **Additional email comments** field.

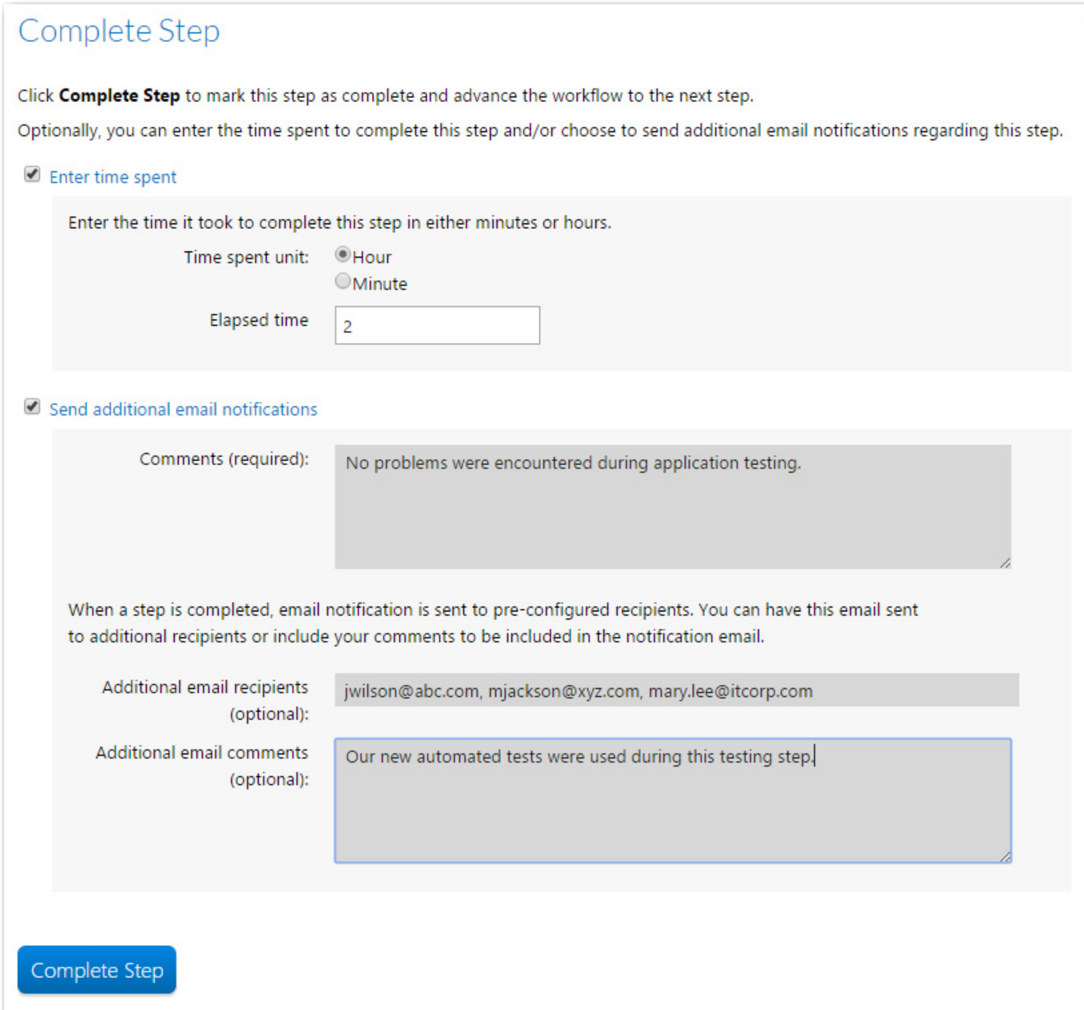


Figure 5-83: Completing a Normal Workflow Step

Editing a Completed Workflow Step

Email notifications are also sent when you update a previously completed workflow step. While doing so, a dialog box appears and you are prompted to fill in the **Edit comments** field to explain what you have changed, and why. As well, you can enter a list of email addresses (separated by commas) in the **Additional e-mail recipients** text field to send a notification email to people other than those specified in the automatic email notification lists. If you also want to add an extra comment to the body of the email sent to these people, enter your message in the **Additional email comments** field.

Rolling Back to a Workflow Step

When you choose to roll back to an earlier workflow step, the **Rollback Step** dialog box opens. You can enter a list of email addresses (separated by commas) in the **Additional E-mail recipients** text field on this dialog to send a notification email to people other than those specified in the automatic email notification lists. If you also want to add an extra comment to the body of the email sent to these people, enter your message in the **Additional email comments** field.

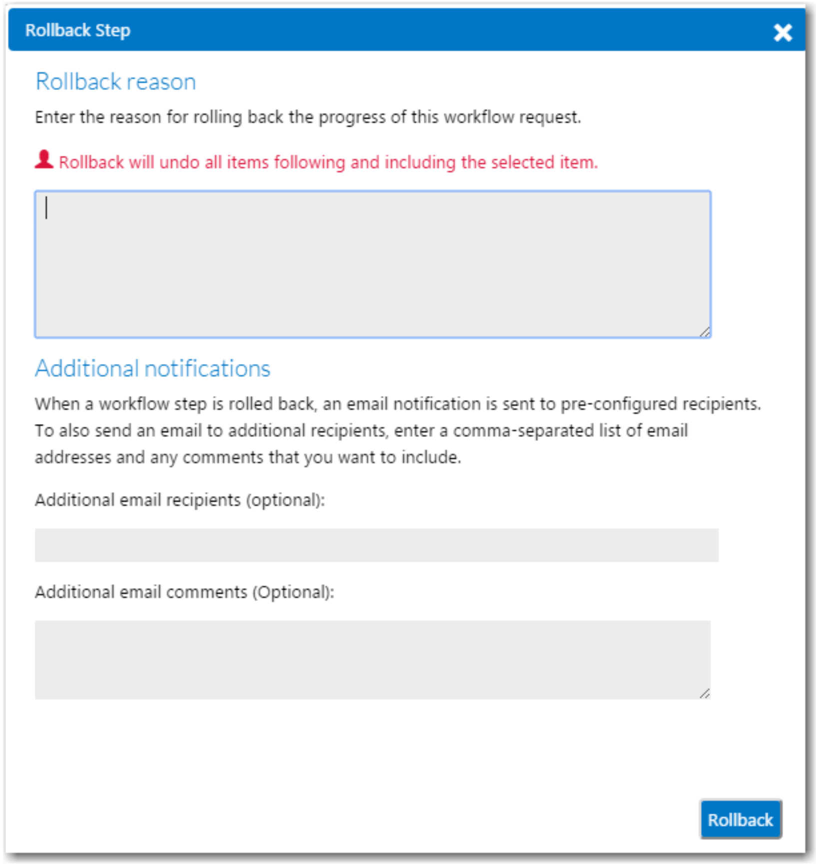


Figure 5-84: Rollback Step Dialog Box

Editing Data

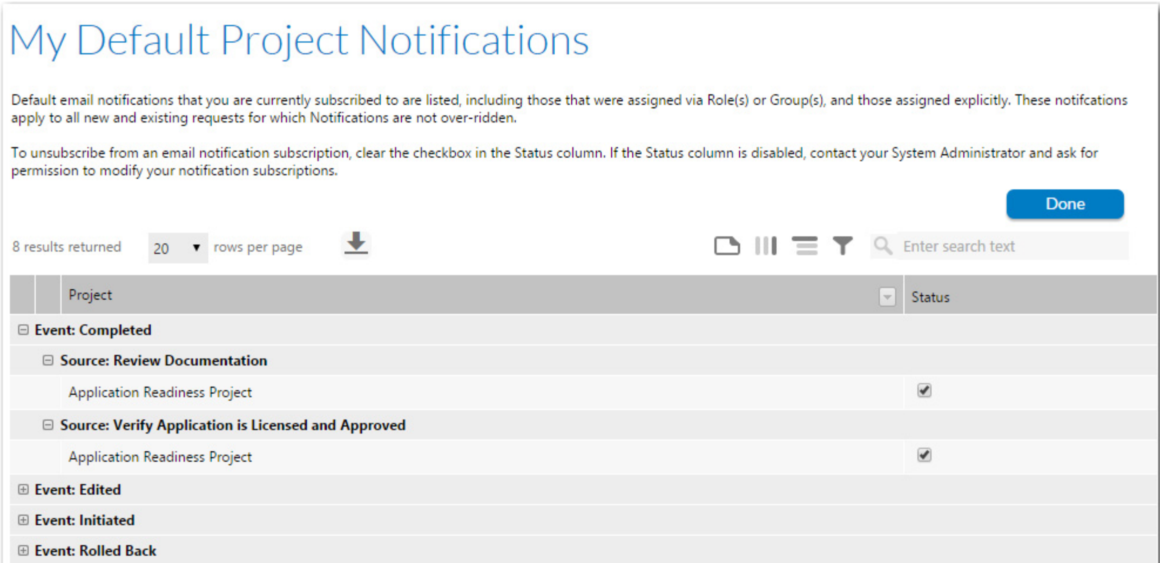
You can update previously submitted data. When you do this, you can enter a list of email addresses (separated by commas) in the **Additional e-mail recipients** text field in this step completion area to send a notification email to people other than those specified in the automatic email notification lists. If you also want to add an extra comment to the body of the email sent to these people, enter your message in the **Additional email comments** field.

Managing My Notifications

For your convenience, Workflow Manager provides you with a summary of all the email notifications you are registered to receive, if you are a workflow administrator. To view these notifications, perform the following steps:

Task ***To review and modify your email notification assignments:***

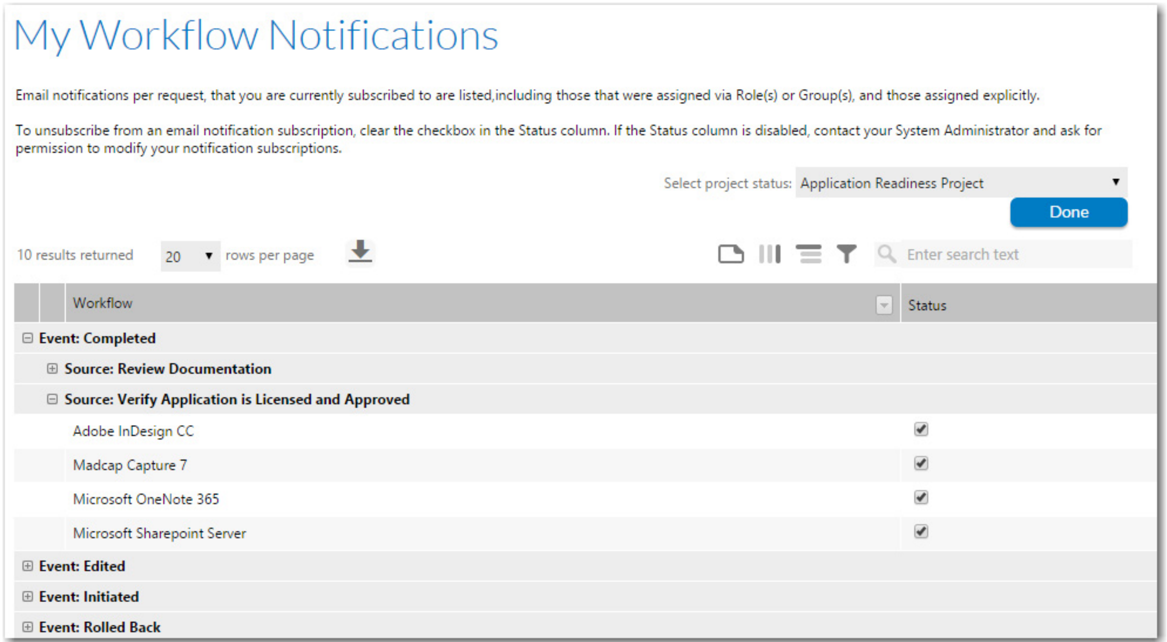
1. In the navigation bar, click **My Default Project Notifications** in the **Workflows** menu. The **My Default Project Notifications** page opens.



2. To unsubscribe from a notification event in this list, so that emails are not sent to you when the event occurs, select the event and clear the check box in the **Status** column.

***Note** • If the check box is disabled, you do not belong to a role with rights to modify the selected notification event. See Workflow Manager Permissions for details.*

3. In the navigation bar, click **My Workflow Notifications** in the **Workflows** menu. The **My Workflow Notifications** page opens, listing the workflow request notification settings that were assigned on your workflow request's **Notifications** tab.



4. To unsubscribe from a notification event in this list, so that emails are not sent to you when the event occurs, select the event and clear the check box in the **Status** column.

***Note** • If the check box is disabled, it means that you do not have permission to modify the selected notification event.*

Managing Email Templates

Workflow Manager sends notification emails when certain events occur, such as when a workflow step is advanced, edited, completed, or rolled back; when an issue is created or responded to; or when a workflow request is past due.

You can customize the content and design of these email notification messages using the **Email Template Administration** interface.

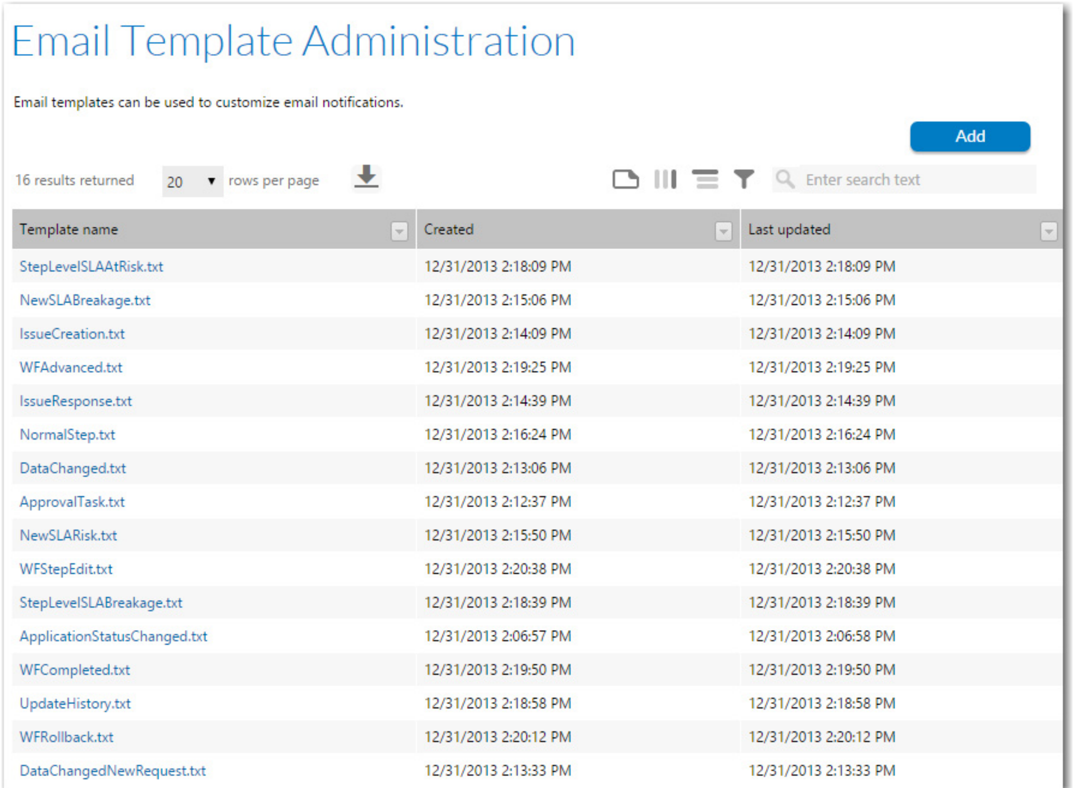


Figure 5-85: Email Template Administration Page

This section describes Workflow Manager's default email templates, explains how to customize existing email templates and how to create new ones, and explains how to use replaceable parameters in email templates.

- Default Email Templates
- Editing an Existing Email Template
- Creating a New Email Template
- Using Notification Variables in Email Templates
- Using Replaceable Parameters in Email Templates

***Note** • For information on how to configure which users receive email notifications, see Managing Email Notifications.*

Default Email Templates

Workflow Manager comes with a set of default email templates, which are used to determine the design and content of Workflow Manager's notification email. There are two basic types of email templates:

- **System email templates**—For some notification events—such as when a new issue is created or when a workflow request's status is changed—Workflow Manager will always use the same email template. However, you can edit these system templates in the Email Template Administration interface to customize them for your organization.

***Note** • For these system events, Workflow Manager will always use the email template that is specified for that event in the `web.config` file (as described in Specifying the Default Email Templates for Email Notifications).*

- **Workflow step email templates**—When defining a workflow step on the **Workflow Step Details** view, you are prompted to specify an email template to use when that step is initiated, rolled back, edited, and completed. A default email template is specified for each of these four events. However, you can create additional “workflow step” email templates, which will then be available for selection on the **Workflow Step Details** view.

The following table describes Workflow Manager's 16 default email templates:

Table 5-21 • Workflow Manager Default Email Templates

Category	Template Name	Description
System templates	`ApplicationStatusChanged.txt`	Sent when the **Status** of a workflow request has changed, such as from **Active** to **Inactive**.
	`ApprovalTask.txt`	Sent when a workflow step with a **Step Type** of **Approval Task** is initiated. The email recipient can either approve or reject this workflow step directly from this email—without being required to open the **Workflow Request** page of Workflow Manager—by clicking the **Approve** or **Reject** link.
	`DataChanged.txt`	Sent when someone edits a workflow request's previously submitted (and accepted) data.
	`DataChangedNewRequest.txt`	Sent when someone submits data for a new workflow request.
	`IssueCreation.txt`	Sent when a new issue has been created for a workflow request.
	`IssueResponse.txt`	Sent when a workflow request's existing issue has been responded to.
	`NewSLABreakage.txt`	Sent when a workflow request is past due the due date defined in the Service Level Agreement (SLA).
	`NewSLARisk.txt`	Sent when a workflow request is at risk of exceeding the due date defined in the Service Level Agreement (SLA).
	`StepLevelSLAAtRisk.txt`	Sent when a workflow step is at risk of exceeding the due date defined in the Service Level Agreement (SLA).
	`StepLevelSLABreakage.txt`	Sent when a workflow step is past due the due date defined in the Service Level Agreement (SLA).
	`NormalStep.txt`	Sent to assigned user assigned to a Normal step to enable them to advance the workflow the next workflow step by clicking the Advance Workflow button in this email.
	`UpdateHistory.txt`	Sent to assigned user assigned to an Update History step to enable them to advance the workflow the next workflow step by clicking the Advance Workflow button in this email.

Table 5-21 • Workflow Manager Default Email Templates

Category	Template Name	Description
Workflow step templates	`WFAdvanced.txt`	Default email template to send when a workflow step is advanced.
	`WFCompleted.txt`	Default email template to send when a workflow step is completed.
	`WFRollback.txt`	Default email template to send when a workflow step is rolled back.
	`WFStepEdit.txt`	Default email template to send when a workflow step is edited.

Editing an Existing Email Template

On the **Email Template Details** page, you can edit both email templates that were shipped with Workflow Manager and also new email templates that you have created.

Note *• In previous releases, email templates were stored on the Workflow Manager server in the* `Workflow Manager\wwwroot\EmailTemplate` *directory. Starting with Workflow Manager 2013 R2, the email template text files are stored in the Workflow Manager database. Any edits that you would like to make to the email templates must be made in the Workflow Manager interface on the* ***Email Template Details*** *page. The Workflow Manager server location, however, does include a backup copy of the default email template text files for your reference.*

You can edit the content of email templates on the **Email Template Details** page. While you are able to perform inline formatting on the **Email Template Details** page, it is recommended that you instead modify the email template's associated CSS file, as described in Formatting and Previewing Email Templates.

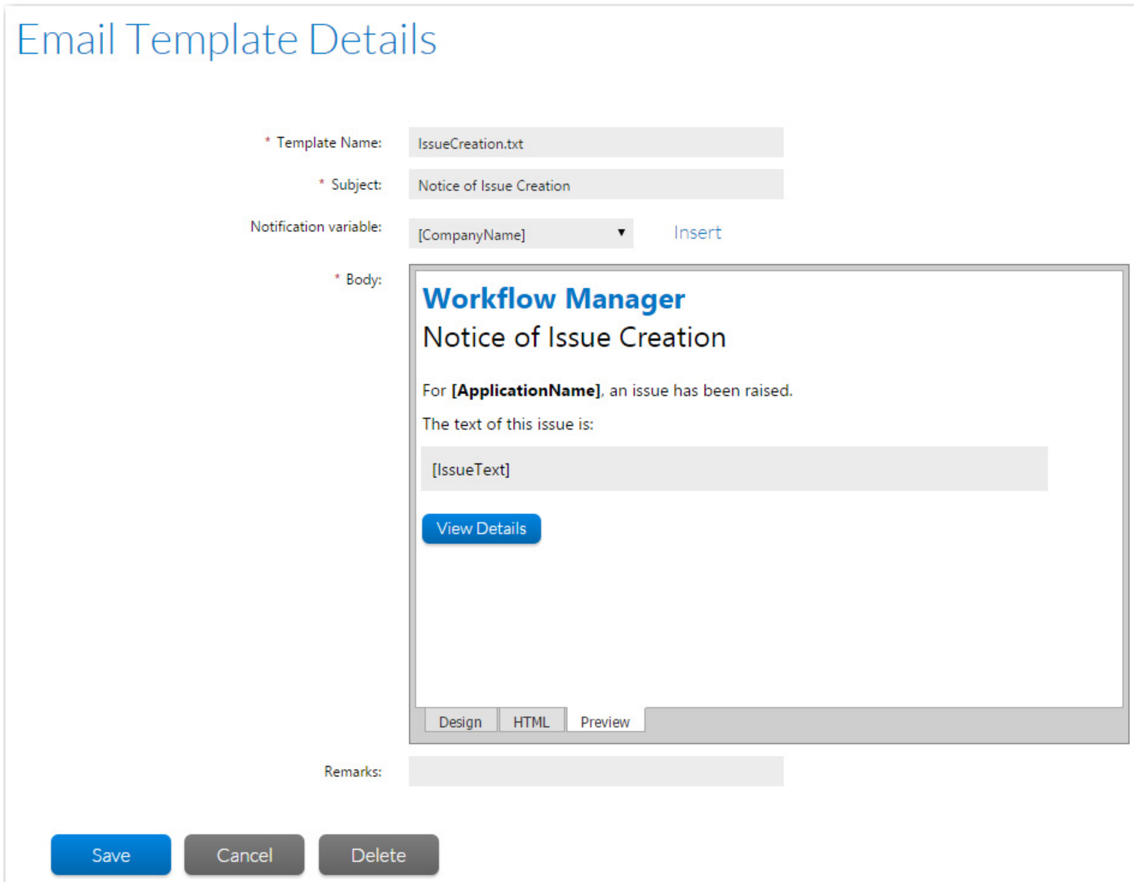
- Editing the Content of Email Templates
- Formatting and Previewing Email Templates

Editing the Content of Email Templates

To edit the content of an existing email template, perform the following steps:

Task ***To edit an email template:***

1. In the navigation bar, click **Email Templates** in the **Settings** menu. The **Email Template Administration** page opens, and lists all existing email templates.
2. Click the name of the email template that you want to edit. The **Email Template Details** page opens, displaying the selected email template in a text editor.



The text editor on the Email Template Details page provides the following views of the selected email template:

- **Design**—Displays an editable view of the text, tables, and images of the email template.
- **HTML**—Displays an editable view of the HTML code of the email template.
- **Preview**—Displays a non-editable preview of how an email created using this template will look when it is opened by the recipient. By default, a link to an external CSS file controls the styling of these email templates. To accurately view a preview of the email template, you first need to enter your local server address in the CSS link, as described in Formatting and Previewing Email Templates.

You switch between these three views by clicking on the tabs at the bottom of the window:

3. The **Template Name** field lists the name of the text file that identifies this email template.

Important • *When editing one of the default email templates (which were installed with Workflow Manager), it is recommended that you do not edit this field. If you do edit it, you will also need to update its associated entry in the* `web.config` *file, as described in Email Template Settings.*

4. The **Subject** field lists the contents of the email's Subject line. When editing this field, make sure that the final text describes the purpose of this email and prompts email recipients to take action.

5. Use the controls on the **Design** tab to modify the format of the text. However, it is recommended that you instead edit the external CSS file, as described in Formatting and Previewing Email Templates.

6. Use the **Notification Variable** list to insert replaceable parameters, if desired, as described in Using Notification Variables in Email Templates.

7. In the **Remarks** field, enter notes or comments to identify the purpose of this email template, if desired.

8. Click **Update** to save your edits.

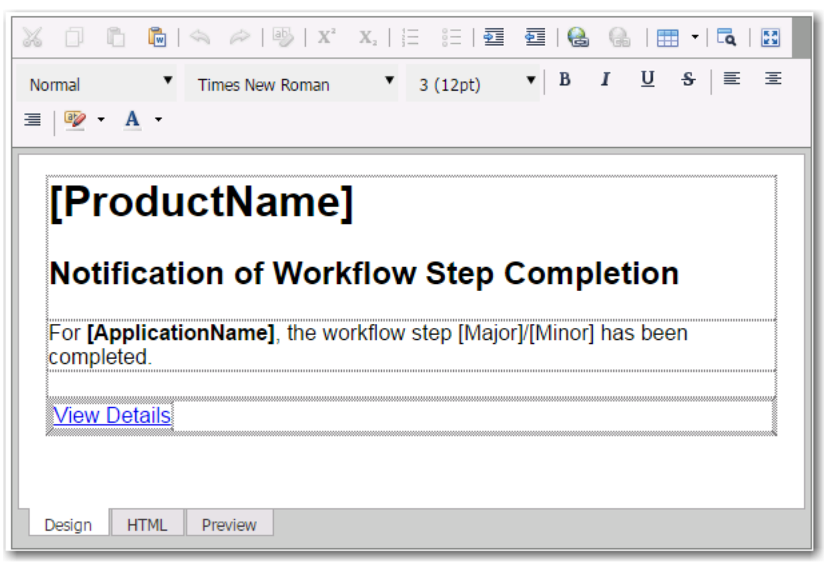
Formatting and Previewing Email Templates

Rather than using the controls on the **Design** tab of the **Email Template Details** page, it is recommended that you use CSS styles to format your email templates. That helps you use consistent formatting on all of your email templates.

By default, a link to an external CSS file controls the styling of these email templates. However, to accurately view a preview of the email template as it will appear to the email recipient in both the **Design** and **Preview** tabs of this editor, you first need to enter your local server address in the CSS link.

Task ***To connect an email template to the email.css file:***

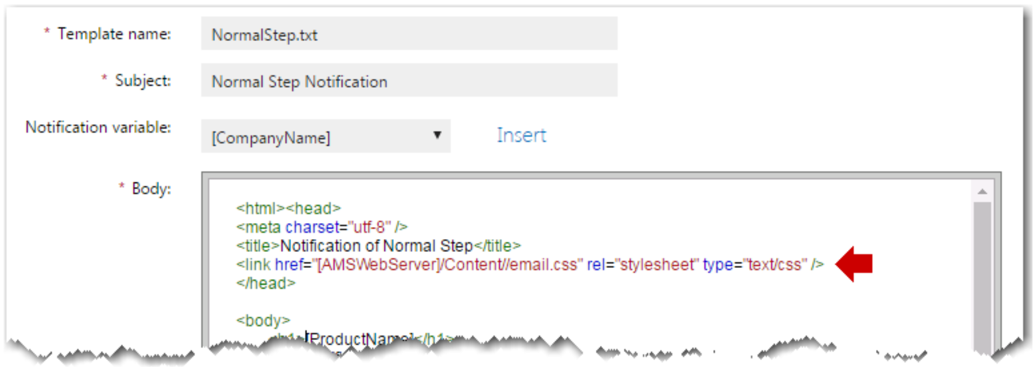
1. Open an email template on the **Email Template Details** page. You will see that on the **Design** tab (and the **Preview** tab) the browser default styles are being used to display the content of the template.



2. Open the **HTML** tab of the editor.

3. Locate the following line:

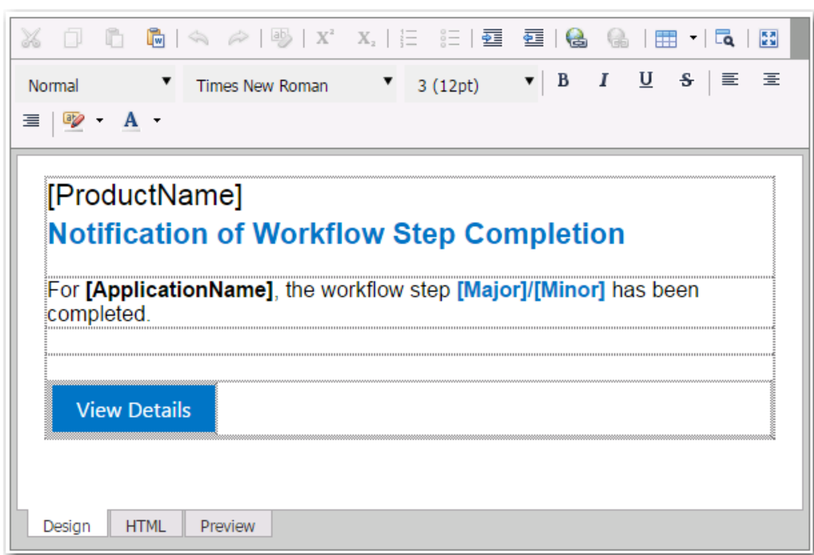
```
<link href="[AMSWebServer]/Content//email.css" rel="stylesheet" type="text/css" />
```



4. Replace `[AMSWebServer]` in that link with the name of your local server, such as:

```
<link href="http://localhost:81/Content//email.css" rel="stylesheet" type="text/css" />
```

5. Click **Save**. When you return to the **Design** or **Preview** tabs, the styles defined in the `email.css` file will be applied.



Creating a New Email Template

You can create a new email template by clicking **Add** on the **Email Template Administration** page.

The **Email Template Details** page, where you enter and format text, includes a text editor that features both a design view and an HTML code view.

***Note** • In previous releases, email templates were stored on the Workflow Manager server in the* `Workflow Manager\wwwroot\EmailTemplate` *directory, and to add a new email template, you would just copy and edit one of the existing text files in that directory. Starting with Workflow Manager 2013 R2, the email template text files are stored in the Workflow Manager database, and you must use the Workflow Manager interface to create a new email template, as described in this section.*

To create a new email template, perform the following steps:

Task ***To create a new email template:***

1. In the navigation bar, click **Email Templates** in the **Settings** menu. The **Email Template Administration** page opens, and lists all existing email templates.
2. Click **Add**. The **Email Template Details** page opens, displaying an empty text editor window.
3. Enter text as described in Editing an Existing Email Template
4. Use the **Notification Variable** list to insert replaceable parameters, if desired, as described in Using Notification Variables in Email Templates.
5. In the **Remarks** field, enter notes or comments to identify the purpose of this email template, if desired.
6. Click **Save** to create the new email template.

Using Notification Variables in Email Templates

When you create or edit email templates, you can insert notification variables in the **Subject** line and in the body of the email, and the values of those variables will be automatically entered when the email is sent, such as workflow request name, project name, etc. Many of the default email templates include notification variables, such as this Notice of Past Due Workflow Requests:

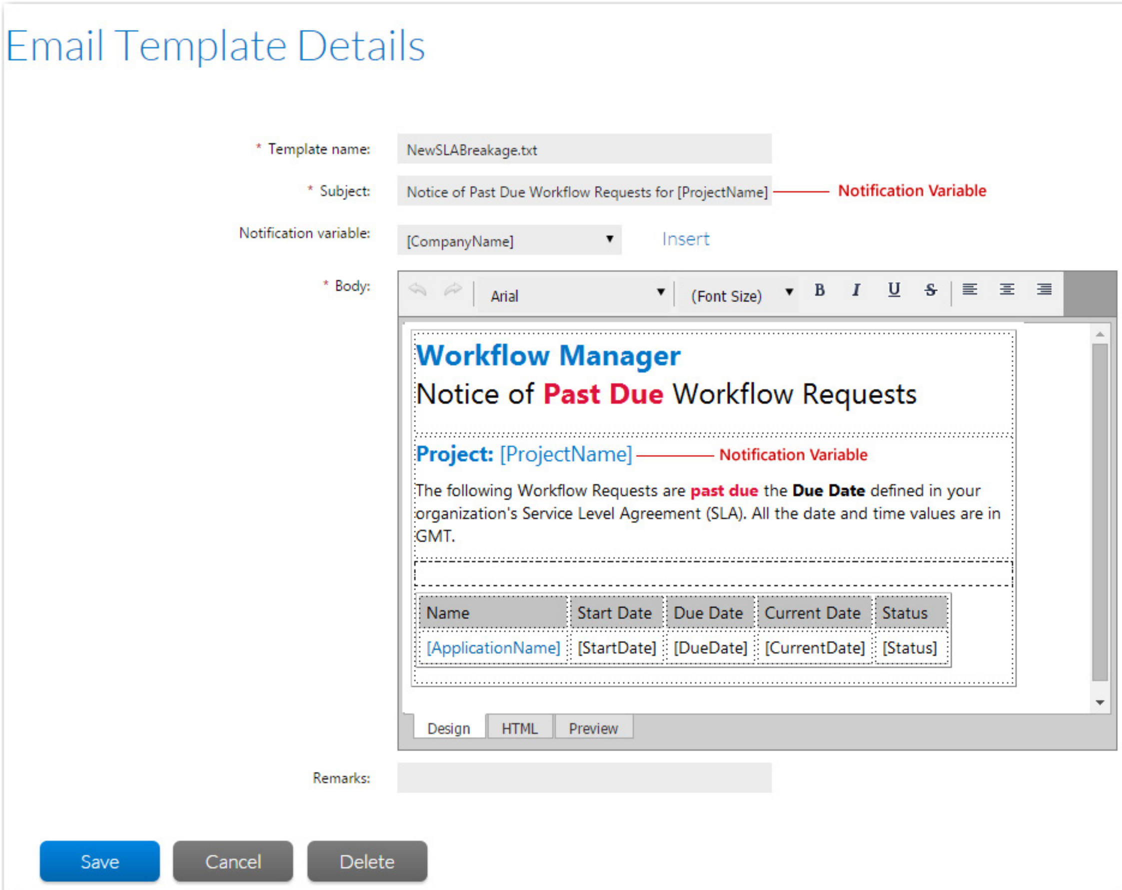


Figure 5-86: Notification Variable Used in Email Template

The notification variables that you can use in an email are listed in the **Notification Variable** list on the **Email Template Details** page.

To insert a notification variable into an email, perform the following steps:

Task ***To insert a notification variable into an email template:***

1. In the navigation bar, click **Email Templates** on the **Settings** menu. The **Email Template Administration** page appears, and lists all existing email templates.
2. Either click the name of the email template that you want to edit or click **Add** to create a new email template. The **Design** view of the **Email Template Details** page opens.
3. To insert a notification variable into the body of an email, place the cursor at the desired location in the body, then select a variable from the **Notification variable** list and click **Insert**.
4. To insert a notification variable into the **Subject** line of an email, enter the variable, enclosed in brackets, at the desired location in the **Subject** field, such as:

   ```
   [CompanyName]: Notice of Issue Response
   ```

Using Replaceable Parameters in Email Templates

In addition to adding notification variables to email templates, as described in Using Notification Variables in Email Templates, administrators also have the option of performing advanced customization by inserting replaceable parameters which will be replaced with data before an email is sent.

- Replaceable Field Delimiters
- Predefined Replaceable Values
- Using Data Items As Replaceable Values

Replaceable Field Delimiters

Replaceable parameters fields are delineated with the characters **%%#** and **#%%**. You need to surround both predefined replaceable parameters and data items from the template (as described in Using Data Items As Replaceable Values) with these delimiters.

Predefined Replaceable Values

The following items are predefined for use in email templates:

Table 5-22 • Email Template Predefined Values

Replaceable value	Replaced with...
AMS_Application.ApplicationLName	The name of the workflow request.
AMS_Application.DueDate	The date the workflow request is due to be completed.
AMS_Application.NewIssues	The number of issues raised for the workflow request which are not yet responded to.
AMS_Application.TotalIssues	The total number of issues raised for the workflow request.
AMS_Application.UploadBy	The account name of the person who submitted the workflow request.
AMS_Application.UploadDate	The date the workflow request was submitted.

If you are creating a notification message related, for example, to the installation of an application, and wish to show information specific to that application, follow the below example:

```
<html>
  <body>
    <table>
      <tr>
        <td>
        The application %%#AMS_Application.ApplicationLName#%%
        has been requested for installation by
        %%#AMS_Application.UploadBy#%%. Please note that the due
        date for this request to be completed is %%#AMS_Application.DueDate#%%.
        </td>
      </tr>
    </table>
```

```
  </body>
</html>
```

More predefined values can be made available by populating the `AMS_CViews_Fields` table. In particular, the `chEmailField` and `chEmailQuery` columns both need to be populated for a predefined value to work.

Using Data Items As Replaceable Values

All of the data items that are defined in a template are available for use in email notification messages. For these values, simply put the name of the data item between the delimiters `%%#` and `#%%`. The following example shows how to use some of these data fields:

```
<html>
   <body>
      <table>
         <tr>
            <td>
            Data Values for                    %%#AMS_Application.ApplicationLName#%%
            <br>
            Version Number:                    %%#Version (major.minor.patch)#%%
            Description:                       %%#Description#%%
            Application Type:                  %%#Application Type#%%
            Application Size (megabytes):      %%#Application Size (megabytes)#%%
            Is License Management Required?:   %%#Is License Management Required?#%%
            Media Type:                        %%#Media Type#%%
            Number of Users:                   %%#Number of Users#%%
            </td>
         </tr>
      </table>
   </body>
</html>
```

Managing SLA Settings

Workflow Manager uses SLA (Service Level Agreement) settings to determine a workflow request's SLA compliance status. The compliance status can be one of `On Time`, `At Risk`, `Late`, `Completed On Time`, or `Completed Late`.

SLA status is calculated by comparing the time taken to complete a workflow request with the number of days defined in the **Workflow Request Due Period** and **Workflow Request at Risk Period** fields. Any holidays that you define are always excluded from elapsed time calculations, and you can also choose to exclude weekends. The **Length of a Work Day** value is used to calculate the elapsed time in SLA reports.

The default SLA calendar settings that you define are automatically applied to all new projects. However, you can modify all settings at the project level, and, for some settings, at the workflow request level, as well.

This section includes the following SLA administrative tasks:

- Modifying Default SLA Calendar Settings
- Modifying Due/At Risk Period for a Specific Workflow Request
- Dynamically Updating a Workflow Request's Due Period

Modifying Default SLA Calendar Settings

When you create a new project, or update an existing project, you can specify the calendar settings to use when reporting on the workflow request's compliance with that project's associated Service Level Agreement due dates. The following information is important in elapsed time calculations:

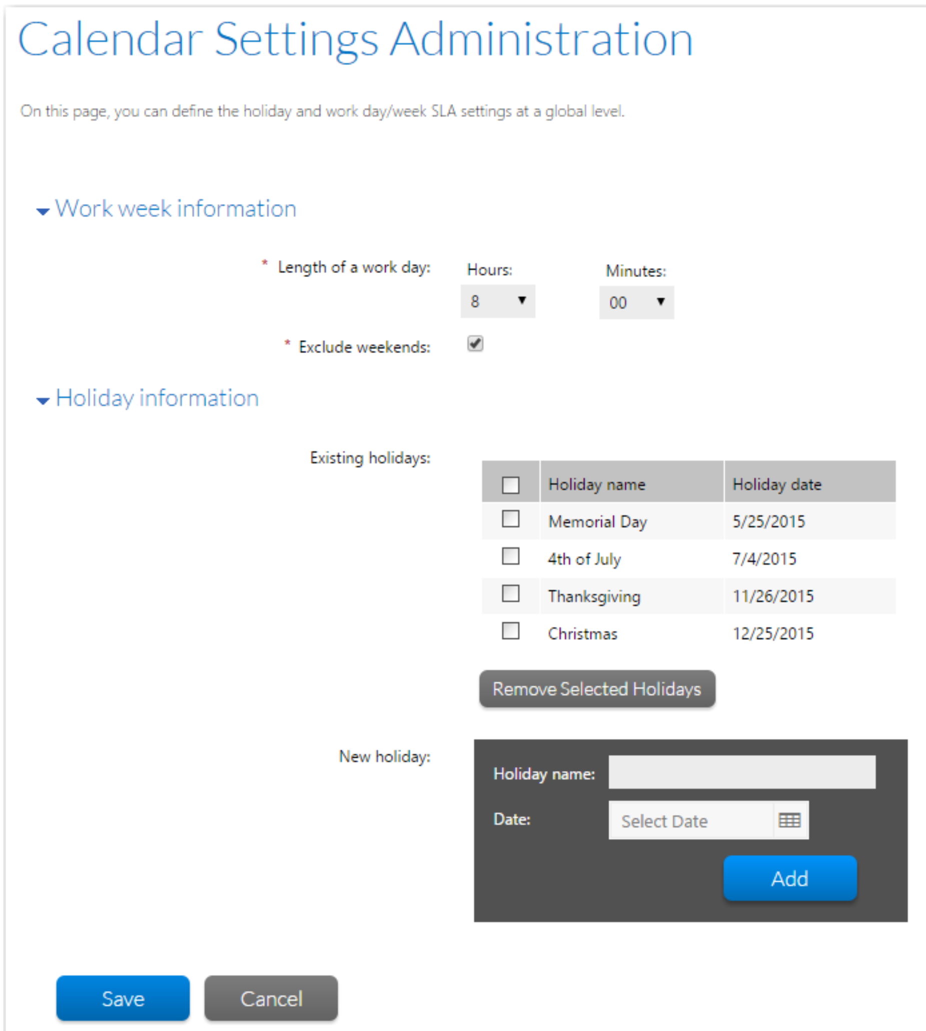
- **Work Week Information**—Work week information includes the length of an average work day (in hours and minutes), and whether weekends are considered as part of the working week.
- **Holiday Information**—Any public holidays or office shut down periods need to be specified, so that those days are not included in the elapsed time.

You can define the default SLA calendar settings by using the **Calendar Settings Administration** page. These settings are then automatically applied to all new projects.

Note • *You can override the default calendar settings for an individual project on the* ***Project Details*** *page. See* *Project Details Page* *for details.*

Task ***To set default SLA Calendar settings:***

1. In the navigation bar, click **Calendar Settings** on the **Administration** menu. The **Calendar Settings Administration** page opens.



2. In the **Work week information** area, specify the **Length of a work day**, by making selections in the **Hours** and **Minutes** lists.

   Note • *The **Length of a work day** value is used to convert hours into days when calculating elapsed time. For example, if the elapsed time for a particular workflow step is 45 hours, and a standard working day is 8 hours long, Workflow Manager will convert the 45 hours into 5 days and 5 hours in relevant reports.*

3. To exclude Saturday and Sunday from the work week, select the **Exclude weekends** option.

***Note** • For example, if a workflow request was submitted on Tuesday June 28, 2011 with a **Workflow due period** of 5 days and with the **Exclude weekends** option turned on, the due date for the workflow would be calculated as Tuesday July 5, 2011. If this option was turned off, then the due date would be Sunday July 3, 2011.*

4. The **Existing holidays** grid lists the public holidays or office shut down periods that have already been identified for your company. These days will be excluded from elapsed time calculations. To add a new holiday, perform the following steps:

    a. In the **Holiday name** field, enter a short description of the holiday.

    b. Click the calendar icon next to the **Date** field and select the date of the holiday.

    c. Click **Add**.

    The holiday you entered is automatically displayed in the grid. To remove an existing holiday, do the following:

    a. Locate the holiday you want to remove in the **Existing holidays** list and select its checkbox. For details about sorting or filtering the holiday list, see Using Lists.

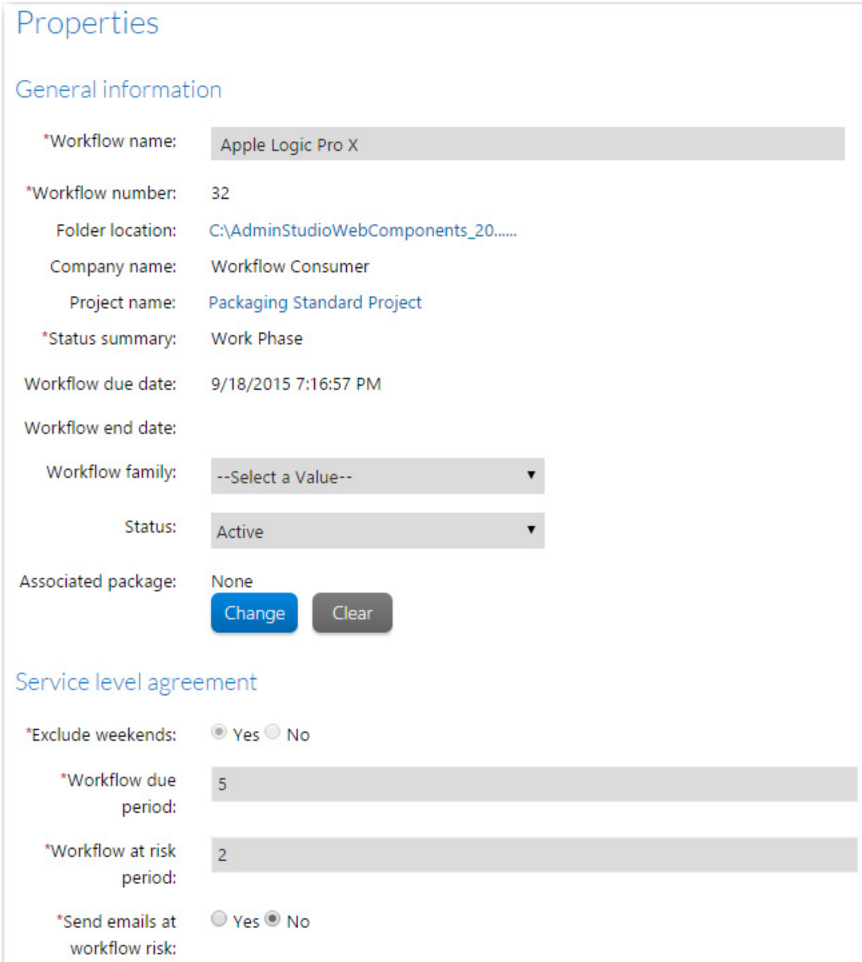
    b. Click **Remove Selected Holiday**. The holiday is removed.

Modifying Due/At Risk Period for a Specific Workflow Request

The due date of a workflow request, and the date at which it is at risk of being late, are calculated using a combination of the **Workflow Due Period**, **Workflow at Risk Period**, **Exclude Weekends**, **Existing Holidays** and **Length of a Work Day** settings. Initially, these are all taken from the SLA settings defined for the workflow request’s associated project (see for details). However, you can override the default **Workflow Due Period** and **Workflow at Risk Period** values for a specific workflow from its **Workflow Request** page.

Task ***To modify the SLA settings for a workflow request:***

1. In the navigation bar, click **All Workflows** in the **Workflows** menu. The **All Workflows** page opens.
2. Click on the workflow request you want to update. The **Workflow Request** page opens.
3. Open the **Properties** tab.



4. In the **Service level agreement** section, update the **Workflow due period** and **Workflow at risk period** fields.
5. Click **Save**. The new values you specified will be applied to this workflow request and used in reporting. In addition, the **Workflow due date** field further up on the **Properties** tab will be automatically updated based on the **Workflow due period** value.

Dynamically Updating a Workflow Request's Due Period

You can configure a workflow request so that its **Workflow Due Period** can be automatically adjusted, if needed, every time the workflow advances.

For example, let's say you created a workflow template related to deploying software on your employees' computers, and that your organization uses several different operating systems, such as Windows NT and Windows XP. In your organization, the deployment process for a Windows NT machine is considerably longer than on a Windows XP machine, but you want to use the same workflow template for both processes. You can set up your template so that the **Workflow due period** is automatically lengthened when someone submits a deployment request for a Windows NT system.

Note • *To set up dynamic **Workflow due period** adjustment, you need Visual Studio .NET 2003 or later.*

Sample Sla.xml File

The dynamic updating of **Workflow due period** is configured using an XML file named `sla.xml`. A sample `sla.xml` file would look like this:

```
<?xml version="1.0" encoding="utf-8"?>
<SLACompanies>
    <Company Name="Requester">
        <CustomAttribute Name="OS">
            <Value ID="XP">2</Value>
            <Value ID="NT">4</Value>
        </CustomAttribute>
        <CustomAttribute Name="Priority">
            <Value ID="Low">2</Value>
            <Value ID="Medium">4</Value>
            <Value ID="High">6</Value>
        </CustomAttribute>
    </Company>
    <Company Name="GUID2">
        <CustomAttribute Name="OS">
            <Value ID="XP">12</Value>
            <Value ID="2003">10</Value>
            </CustomAttribute>
    </Company>
</SLACompanies>
```

This XML file includes the following elements:

Table 5-23 • XML Elements in the sla.xml File

Element	Description
SLACompanies	The parent element of the XML file. Contains one or more `Company` child elements, listing the workflow consumer companies you want to set up dynamic SLA updating for.
Company	Each `Company` element has a `Name` attribute, specifying the name of a consumer company. In the example above, the two companies specified are **`Requester`** and **`GUID2`**.
CustomAttribute	Each `CustomAttribute` element has a `Name` attribute, specifying the name of the data element collected during the workflow request which determines whether the **Workflow due period** should be adjusted. In the example above, two data elements are relevant, **`OS`** and **`Priority`**.
Value	A `Value` element is included for each value of the `CustomAttribute` data element which can trigger a **Workflow due period** update. The `ID` attribute of the `Value` element specifies the data element value, while the actual value of the `Value` element specifies how many days the **Workflow due period** will be incremented by. For example, the following element: `<Value ID="NT">4</Value>` will increment the **Workflow due period** by 4 days, when the workflow consumer selects the value **`NT`** from the **`OS`** data element.

Setting Up Dynamic Workflow Due Period Adjustment

To set up dynamic **Workflow Due Period** adjustment for a workflow request, do the following.

Task ***To set up dynamic Workflow Due Period adjustment:***

1. Create a workflow template with a data element that can be used to determine whether to adjust the **Workflow due period** of a workflow request. It might be helpful to use a data element which presents the workflow consumer with a set of discrete choices, like a combo box or set of radio buttons, rather than a free text field, where the consumer's entry cannot be easily controlled.
2. Locate the following files that were installed with Workflow Manager:

   ```
   C:\AdminStudioWebComponents_2019\wwwroot\bin\IPlugin.dll
   C:\AdminStudioWebComponents_2019\wwwroot\bin\IPlugin2.dll
   ```
3. Obtain the following file from Flexera Technical Support and copy it into the same directory:

   `IPlugin.Test.csproj`
4. Open Visual Studio .NET 2003 or later, and include the `IPlugin.Test.csproj` C# project file into any solution.

   Note • *This* `IPlugin.Test.csproj` *project file can be used as a basis to build enterprise business logic and to create a DLL to interpret your* `sla.xml` *file.*
5. Build the solution in Visual Studio .NET. A file named `IPlugin.Test.dll` is created in that solution's `Output` directory.
6. Copy the `IPlugin.Test.dll` file from the Output directory to the following directory:

   `C:\AdminStudioWebComponents_2019\wwwroot\bin\`
7. Locate the `sla.xml` file in the following directory:

   `C:\AdminStudioWebComponents_2019\wwwroot\bin\Plugins`
8. Open the `sla.xml` file using a text editor of your choice.

   The default `sla.xml` file contains the following:

   ```
   <?xml version="1.0" encoding="utf-8"?>
   <SLACompanies>
       <Company Name="Requester">
           <CustomAttribute Name="OS">
               <Value ID="XP">2</Value>
               <Value ID="NT">4</Value>
           </CustomAttribute>
           <CustomAttribute Name="Priority">
               <Value ID="Low">2</Value>
               <Value ID="Medium">4</Value>
               <Value ID="High">6</Value>
           </CustomAttribute>
       </Company>
       <Company Name="GUID2">
           <CustomAttribute Name="OS">
               <Value ID="XP">12</Value>
               <Value ID="2003">10</Value>
               </CustomAttribute>
       </Company>
   </SLACompanies>
   ```

9. Create one `Company` element for each of workflow consumer companies you created your workflow template for. Set the `Name` attribute of the element to the name of the consumer company.

10. For each `Company` element, create a `CustomAttribute` child element with `Name` set to the description of the data element used to adjust the **Workflow due period** of the workflow request.

    Caution • *Make sure that the* `Name` *of your* `CustomAttribute` *is identical to the* ***Description*** *of the data element that you created in the workflow template.*

    Note • *You can create several* `CustomAttribute` *elements for the same company, and if both are collected during a workflow, both will be used to determine if the* ***Workflow due period*** *should be updated. You can also define* ***CustomAttribute*** *elements for more than one workflow consumer company in the same* `sla.xml` *file.*

11. For each `CustomAttribute` element, create a `Value` child element for each response to your data element which can cause a **Workflow due period** increase. Set the `ID` attribute of the `Value` element to the response you are expecting, and the actual value of the element to the **Workflow due period** increment that will be applied.

12. Save the `sla.xml` file.

    The next time that a workflow request created by one of the companies specified in the XML file collects one of the listed `CustomAttribute` data elements, the **Workflow due period** will automatically be adjusted based upon the consumer's response.

Managing Workflow Status Values

By default, workflows can be assigned one of two workflow status values: **Active** or **Inactive**. Any workflow request with a status of **Inactive** will not be included in reports or searches. Workflow administrators can change the status of a workflow request by using the **Properties** tab of the **Workflow Request** page. Every time a workflow status is changed, email notifications are sent out to the people specified on the **Notification** tab of the **Workflow Details** page for that workflow request's associated workflow template (see Assigning Permissions and Notification Settings on a Workflow Template for details).

You may create additional workflow status values to assign to your workflows, if the default pair is insufficient, and can specify whether each one is equivalent to the **Active** or **Inactive** status (to determine the behavior of workflow requests with that status). You can also rename the default pair of status values, but cannot remove them.

This section includes the following administrative tasks regarding managing workflow status values:

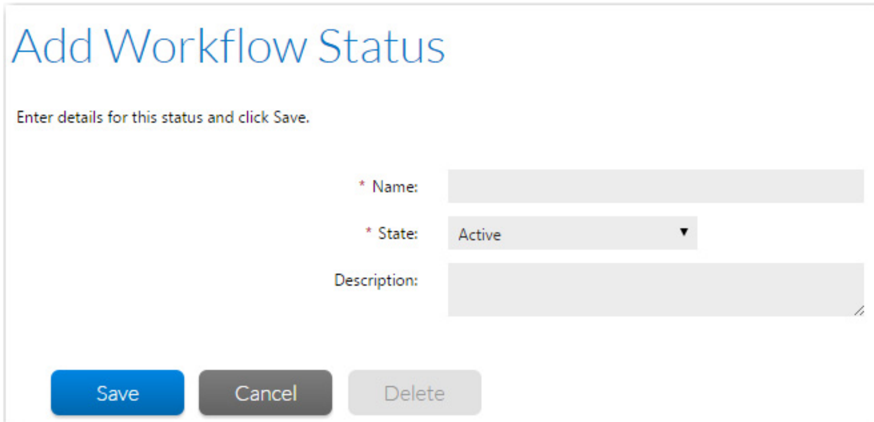
- Creating a New Workflow Status
- Viewing or Changing an Existing Workflow Status
- Deleting a Workflow Status

Creating a New Workflow Status

Do the following to create a new workflow status which you can assign to your workflow request:

Task ***To create a new workflow status:***

1. In the navigation bar, click **Workflow Status** on the **Administration** menu. The **Workflow Status Administration** page opens.
2. Click **Add** button. The **Add Workflow Status** page opens.



3. Enter the details of your new workflow status. See Add/Edit Workflow Status Page for more information.
4. Click the **Save** button. The **Add Workflow Status** page closes, and your new status now appears in the list on the **Workflow Status Administration** page.

Viewing or Changing an Existing Workflow Status

You may review and modify existing workflow status values.

Task ***To view or update an existing workflow status:***

1. In the navigation bar, click **Workflow Status** on the **Administration** menu. The **Workflow Status Administration** page opens.
2. Click on the workflow status that you want to edit. The **Edit Workflow Status** page opens.
3. View or update the status as required. See Add/Edit Workflow Status Page for more information.

   Tip • *You will be unable to modify the **State** of the two default status values (Active and Inactive), although you will be able to rename them.*

4. Click **Save**.

Deleting a Workflow Status

You may remove existing workflow status values from your system, unless they are one of the two default **Active** or **Inactive** statuses. Each workflow status has a state of **Active** or **Inactive**. So, when a workflow status is removed, any workflow request with that status is instead assigned the default **Active** or **Inactive** workflow status, corresponding to the removed status value's underlying state.

Task ***To delete an existing workflow status:***

1. In the navigation bar, click **Workflow Status** on the **Administration** menu. The **Workflow Status Administration** page opens.
2. Click on the workflow status that you want to edit. The **Edit Workflow Status** page opens.
3. Click the **Delete** button. You are prompted to confirm the deletion.
4. Click **OK**. The **Edit Workflow Status** page closes, and your workflow status is no longer visible on the **Workflow Status Administration** page.

Managing Workflow Families

Workflow families are used to group workflow requests into categories, allowing you to sort them easily. You can create new workflow families on the **Company Business/Unit Details** page of an administrator company, and, with permission, while you are completing or submitting workflow requests.

Task ***To create a new workflow family:***

1. Either submit a new workflow request, or (if you are an administrator) open the **Properties** tab of the **Workflow Request** page for an existing request:
    - If you are a workflow consumer, click **Submit Workflow Request** on the **Workflows** menu. The **Submit Workflow Request** page opens.
    - If you are a workflow administrator, do one of the following:
        - To open an existing workflow, click **All Workflow Requests** on the **Workflows** menu, and then click on the workflow request name. Then open the **Properties** tab of the **Workflow Request** page.
        - To submit a new workflow request, click **Submit Workflow Request** on the **Workflows** menu. The **Submit Workflow Request** page opens.
2. Click the **Create New** button next to the **Workflow Family** field. You are prompted to enter a name for the new workflow family.

    Note • *If you are a workflow consumer and the administrator company associated with this project was created with the* ***Is a Workflow Family Owner?*** *option selected, the* ***Create New*** *button will not appear. It will be available only when a workflow administrator is submitting a workflow request against the project. See* *Creating a New Company* *for more information about this option.*

3. Enter the name for your new workflow family in the text field, then click **Add**. The new workflow family is added to list.

***Note** • There is one other way to add workflow families. If you are a workflow administrator, and you create a new company, you will be able to add a new workflow family by clicking **Add Family** on its **Company/Business Unit Details** page. See Company/Business Unit Details Page for more information.*

Managing External Data Sources

If you define a connection to an external SQL Server or Oracle database, you can choose to populate a single-selection list displayed on a workflow request with *real-time* data values obtained from this data source.

The information about managing external data sources is presented in the following topics:

- About External Data Sources
- Creating a New Data Source Connection
- Viewing or Changing an Existing Data Source Connection
- Deleting a Data Source Connection

About External Data Sources

In a workflow template, you define the information that you want to gather when a workflow request is submitted by creating data groups containing one or more data elements. Each data group is displayed as a screen of questions, where the data elements define the questions. In some cases, you may want to limit the workflow consumer to choose one item from a list of options. One way to populate such a list is to connect to an external database, and you would do this by completing the following steps:

- Define a connection to an external data source (see)
- Create a new data item for a template with type **DB Driven Type**, and configure it to return data from your chosen data source (see).

Once such an element is defined, it will be displayed as a non-editable text field with a **Click to Select** hyperlink.

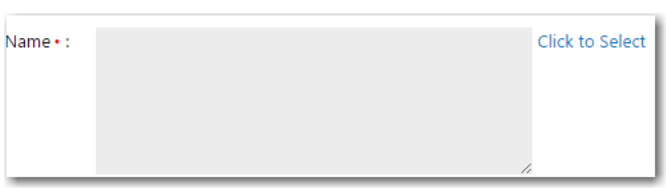


Figure 5-87: Database-Driven Data Element Displayed in a Workflow Request

When you click the hyperlink, the SQL query that was supplied to the workflow template for this data item will run on your external database, and the data it returns will be displayed in a new **Database Record List** window.

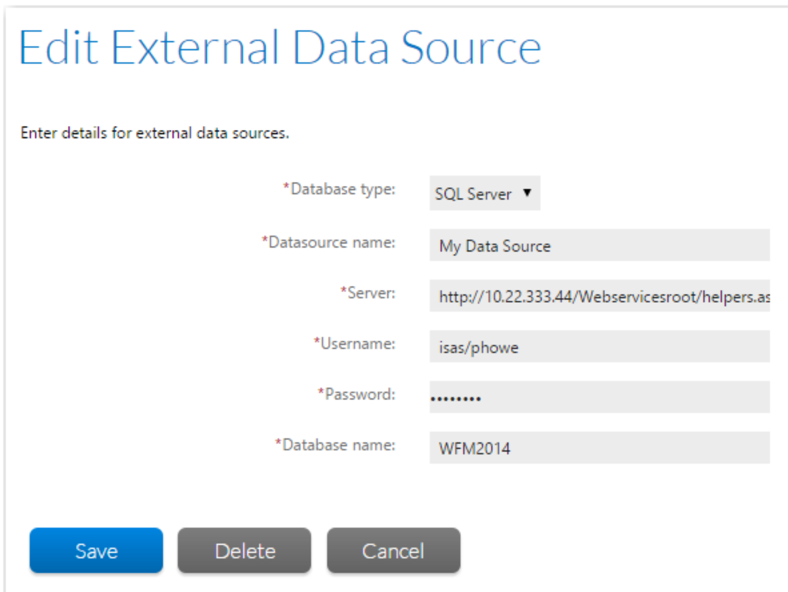
Choose one item from the list and click **Select**. The value of the column defined as the **Persisted Column** in the workflow template definition is displayed in the text field.

Creating a New Data Source Connection

To return data from an external database, you will first need to set up a database connection.

Task ***To create a new database connection:***

1. In the navigation bar, open the **Administration** group and click **External Data Sources** in the **Environment Settings** subgroup. The **External Data Sources Administration** page opens.
2. Click the **Add** button. The **Edit External Data Source** page opens.



3. Enter connection details for your database server. See Add/Edit External Data Source Page for more information.
4. Click the **Save** button. The **Edit External Data Source** page closes, and your new connection now appears in the list on the **External Data Sources Administration** page.

Viewing or Changing an Existing Data Source Connection

You may review and modify the details of any database connection.

Task ***To view or update an existing database connection:***

1. In the navigation bar, open the **Administration** group and click **External Data Sources** in the **Environment Settings** subgroup. The **External Data Sources Administration** page opens.
2. Click the connection you want to edit. The **Edit External Data Source** page opens.
3. View or update the connection as required. See Add/Edit External Data Source Page for more information.
4. Click **Save** to save your changes.

Deleting a Data Source Connection

If you no longer need your workflows to return information from a database, you may delete its connection. Be aware that if you do this and have existing workflow templates with data items bound to your database, you will need to revisit each of these items and assign a new database connection before using those templates again.

Task ***To delete an existing database connection:***

1. In the navigation bar, open the **Administration** group and click **External Data Sources** in the **Environment Settings** subgroup. The **External Data Sources Administration** page opens.
2. Click the connection you want to edit. The **Edit External Data Source** page opens.
3. Click **Delete**. You are prompted to confirm the deletion.
4. Click **OK**. The **Edit External Data Source** page closes, and your connection is no longer listed on the **External Data Sources Administration** page.

Managing External Web Services

Workflow Manager allows you to define a connection to an external web service, and then to pull data across from that web service in order to present the consumer with lists of real time data that they may select from, while supplying data to complete a workflow request.

The information about managing external web services is presented in the following topics:

- About External Web Services
- Default FlexNet Manager Suite Web Service Connection
- Creating a New Web Service Connection
- Viewing or Changing an Existing Web Service Connection
- Deleting a Web Service Connection

About External Web Services

In a workflow template, you define the information that you want to gather when a workflow request is submitted by creating data groups containing one or more data elements. Each data group is displayed as a screen of questions, where the data elements define the questions. In some cases, you may want to limit the workflow consumer to choose one item from a combo box, or from a list of options displayed in a grid. One way to populate such combo boxes and grids is to return data using a web method, via a web service. You would do this by completing the following steps:

- Define a connection to an external web service with an appropriate web method (see Creating a New Web Service Connection).
- Create a new data item for a template with type **Web Service Call**, and configure it to return data from your chosen web service (see Defining a Web Service Call Element).

Once such an element is defined, it will either be displayed as a standard combo box, or as a multi-line, non-editable text field with a **Click to Select** hyperlink. Click this hyperlink to open a new browser window, from which you may select one option from a list returned by your web method. See Web Service Results Dialog Box for more details.

Figure 5-88: Web Service Call Data Element

See Also

Default FlexNet Manager Suite Web Service Connection

By default, Workflow Manager comes installed with a connection to the FlexNet Manager Suite Compliance API web service connection. You can use this web service to return software license compliance-related information, including lists of computers, list of end-users, lists of software licenses, and so on.

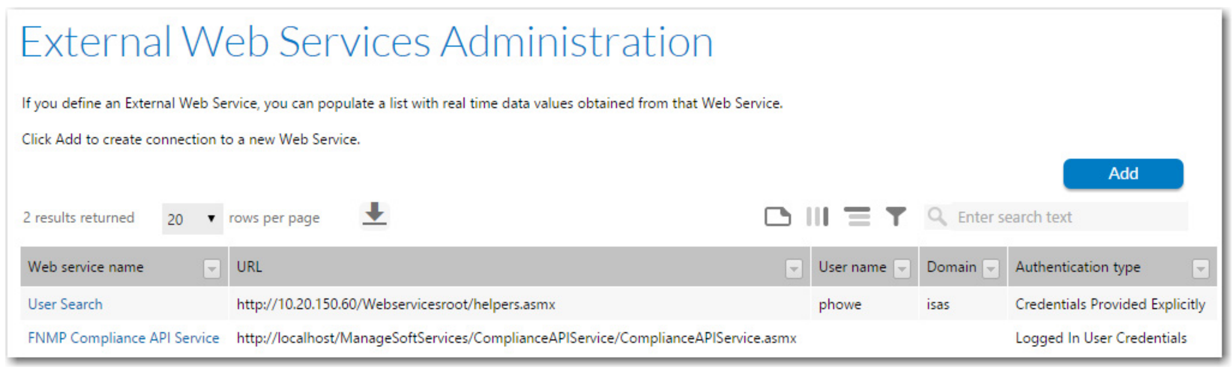


Figure 5-89: Connection to the FlexNet Manager Suite Compliance API Service

By default, the API is located at:

`http://<flexNetManagerPlatformServer>/ManageSoftServices/ComplianceAPIService/ComplianceAPIService.asmx`

Detailed information about the methods available with the web service can be found at:

`http://<flexNetManagerPlatformServer>/ManageSoftServices/ComplianceAPIService/Help/Index.htm`

This web service connection is also used to provide you with two special workflow steps, which you can use while creating workflow templates. One allows you to allocate software licenses to a computer or end-user, while the other will deallocate software licenses. See Defining an Allocate Software License Workflow Step and Defining a Deallocate Software License Workflow Step for details.

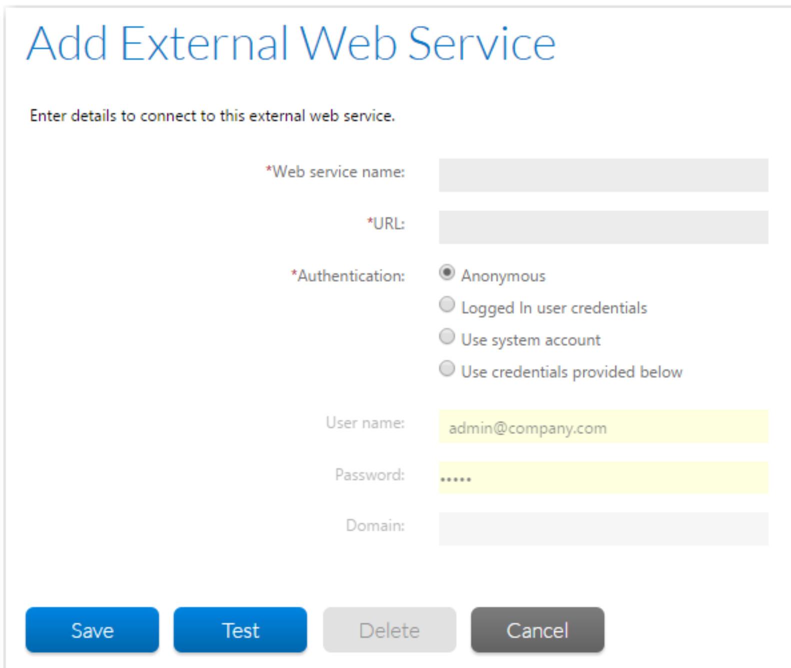
***Tip** • By default, the FlexNet Manager Suite Compliance API web service connection is configured to authenticate using the credentials of the currently logged in person. If you see an error message such as* `Unknown Data Element` *while completing a workflow request with a data element connecting to FlexNet Manager Suite, you may need to revisit this authentication setting.*

Creating a New Web Service Connection

To pull data from an existing web service, you will first need to set up a connection.

Task ***To create a new web service connection:***

1. In the navigation bar, click **External Web Services** in the **Settings** menu. The **External Web Services Administration** page opens.
2. Click the **Add** button. The **Add External Web Service** page opens.



3. Enter connection details for your web service. See Add/Edit External Web Service Page for more information.
4. Click the **Update** button. Workflow Manager attempts to connect to the web service using the connection details you provided. If the connection was successful, the **Add External Web Service** page closes, and your new connection now appears in the list on the **External Web Services Administration** page.

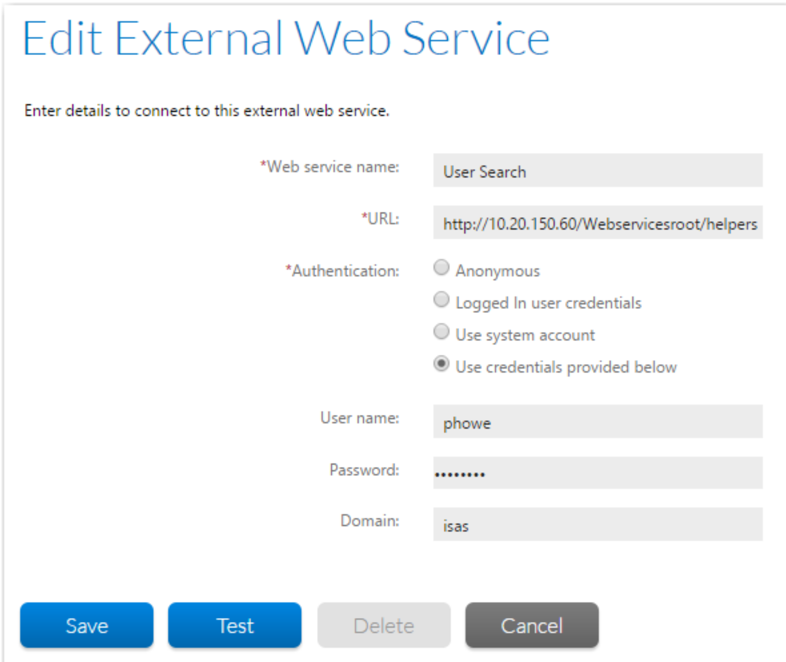
Tip • *You will be unable to save a web service connection if Workflow Manager is unable to validate your connection details, so ensure your web service server is available, and that you supply appropriate connection information.*

Viewing or Changing an Existing Web Service Connection

You may review and modify the details of any web service connection.

Task ***To view or update an existing web service connection:***

1. In the navigation bar, click **External Web Services** in the **Settings** menu. The **External Web Services Administration** page opens.
2. Click on the web service that you want to edit. The **Edit External Web Service** page opens.



3. View or update the connection as required. See Add/Edit External Web Service Page for more information.
4. Click **Save** to save your changes.:

Tip • *You will be unable to save a web service connection if Workflow Manager is unable to validate your connection details, so ensure your web service server is available, and that you supply appropriate connection information.*

Deleting a Web Service Connection

If you no longer need your workflows to take information from a web service, you may delete its connection. Be aware that if you do this and have existing workflow templates with data items bound to your service, you will need to revisit each of these items and assign a new web service connection.

Task ***To delete an existing web service connection:***

1. In the navigation bar, click **External Web Services** in the **Settings** menu. The **External Web Services Administration** page opens.
2. Click the connection you want to delete. The **Edit External Web Service** page opens.

3. Click **Delete**. You are prompted to confirm the deletion.
4. Click **OK**. The **Edit External Web Service** page closes, and your connection is no longer listed on the **External Web Services Administration** page.

Performing Configuration Tasks

This section has information about some general configuration tasks which you may need to perform in Workflow Manager.

- Specifying Directory Structure of File Share
- Customizing the Shared Folder Path to Store Uploaded Files
- Setting the System Account

Specifying Directory Structure of File Share

In the course of completing workflow requests, your workflow consumers and administrators may want to upload or download files relevant to the tasks they are performing. All of these files are uploaded to or downloaded from a subdirectory of the file share location that was specified during Workflow Manager installation.

***Note** • The Workflow Manager File Share location is initially set on the **File Share** panel of the Workflow Manager installer and recorded in the `web.config` file. For instructions on how to view or edit this file share location in the `web.config` file, see File Share Location: Root Folder for Uploading and Downloading Files.*

For each workflow request that is created, a set of subdirectories is automatically created in the Workflow Manager file share location to organize these files. To configure which subdirectories of the file share location these files should be stored in, perform the following steps.

Task ***To specify directory structure of file share location:***

1. Navigate to the following shared directory on your Workflow Manager server:

   `[FILE_SHARE_LOCATION]\_____AMS_System_Uses_This_Folder_Do_Not_Modify\ _____Sample_Folder_Structure`

   and open the `DirectoryConfig.xml` file in a text editor of your choice.

2. The file contains a list of tags, each representing a directory where your uploaded and downloadable files will be stored. Update each tag with the name of an appropriate subfolder of the `_____Sample_Folder_Structure` directory you just opened. The following tags are available for you to modify:

Tag Name	Purpose of Folder
InstallationUploadDirectory	This directory contains files uploaded during the completion of a workflow request, using a data element of type `Application Upload`.
DocumentUploadDirectory	This directory contains files uploaded during the completion of a workflow request, using a data element of type `Document Upload`.

Tag Name	Purpose of Folder
DependencyUploadDirectory	This directory contains files uploaded during the completion of a workflow request, using a data element of type `Dependency Upload`.
CustomerDownloadDirectory	This directory contains files that can be downloaded from the **Downloadable Files** sub-tab of a workflow request's **Workflow Request** page.
IssueFileUploadDirectory	This directory contains files associated with an issue raised during the course of a workflow request.

For example, the contents of `DirectoryConfig.xml` might look like this:

```
<DirectoryConfiguration>
    <InstallationUploadDirectory>
        6_Original_Install
    </InstallationUploadDirectory>
    <DocumentUploadDirectory>
        7_Documentation_Misc
    </DocumentUploadDirectory>
    <DependencyUploadDirectory>
        8_Dependencies
    </DependencyUploadDirectory>
    <CustomerDownloadDirectory>
        1_MSI_Repackaged_Install
    </CustomerDownloadDirectory>
    <IssueFileUploadDirectory>
        5_INC_Files
    </IssueFileUploadDirectory>
</DirectoryConfiguration>
```

3. If any of the folder names you specified in the previous step do not yet exist as subfolders of the `_____Sample_Folder_Structure`, ensure you create them before beginning to use Workflow Manager.

***Note** • The first time a workflow consumer or administrator uploads a file during the course of completing a workflow request, Workflow Manager does the following:*

- *Creates a subdirectory of the file share directory using the name of the workflow administrator company associated with the request (unless such a folder already exists).*
- *Creates a subfolder of the workflow administrator company directory using the name of the workflow consumer company associated with the request (unless the folder already exists).*
- *Creates a subdirectory of the workflow consumer company directory for the new workflow request, using a GUID appended to the workflow request name.*
- *Copies all the files and folders in the* `_____Sample_Folder_Structure` *folder to the new workflow request directory.*

The file being uploaded is then placed into the appropriate subfolder (as defined in the `DirectoryConfig.xml` *file), and the same happens to all subsequent uploaded files.*

Customizing the Shared Folder Path to Store Uploaded Files

By default, the shared folder path to store uploaded files follows this format:

```
[File Share]\[Servicer Company]\[Customer Company]\[App Short Name]__[App_GUID]
```

You can configure this path by editing the following setting in the `web.config` file:

```
<add key="UploadFolderStructure" value="" />
```

When you provide a value for `UploadFolderStructure`, you can use a combination of the following elements:

```
[ServicerCo]
[ConsumerCo]
[ProjectName]
[ProjectId]
[WFId]
[WFName]
```

For example:

```
<add key="UploadFolderStructure" value="[ProjectName][AppName]_[ARNumber]" />
```

Setting the System Account

Workflow Manager performs many operations, such as sending emails and uploading/downloading files, by impersonating the system account.

When Workflow Manager was installed, a default impersonating account was selected or created. To modify the system account, you need to use the AdminStudio Configuration Wizard.

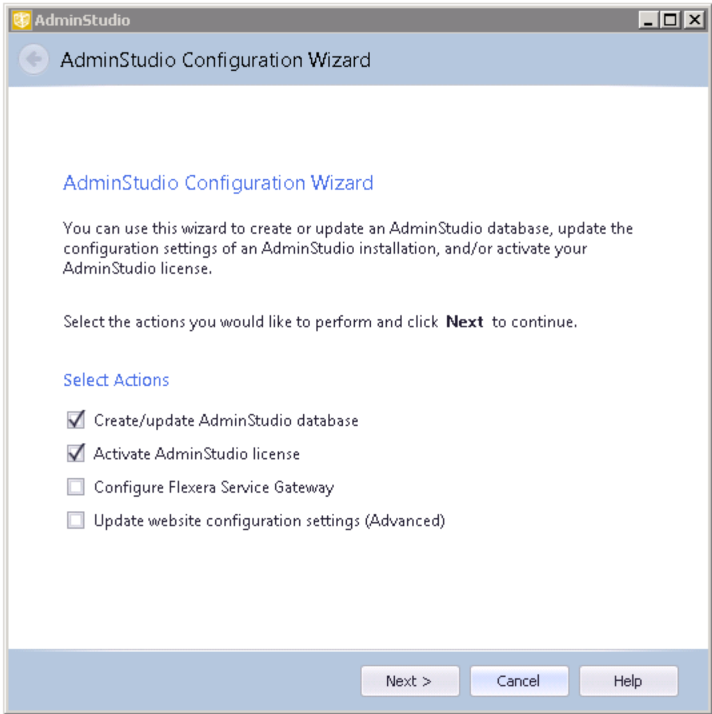
To modify the system account, perform the following steps:

Task ***To modify the system account:***

1. Launch the following file on the machine where you installed Workflow Manager:

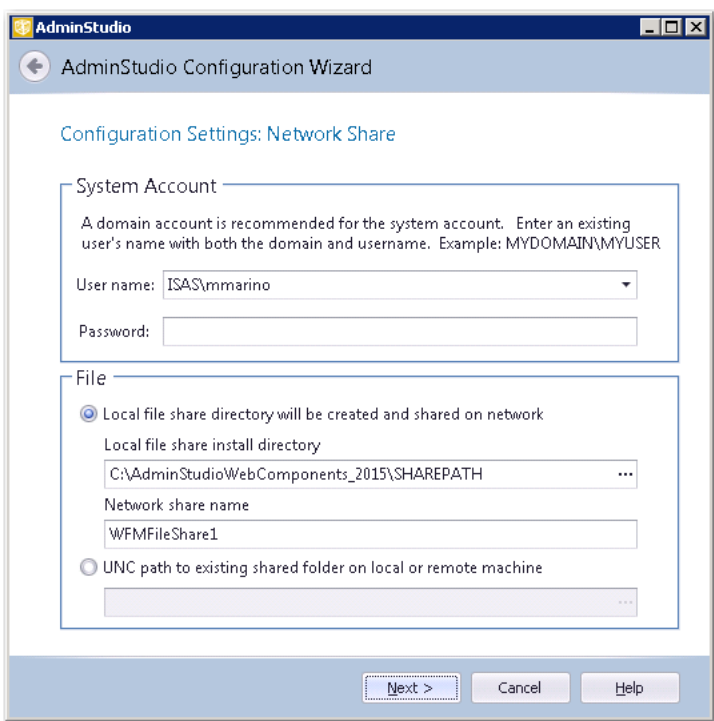
   `C:\AdminStudioWebComponents_2019\Support\Config\Config.exe`

   The AdminStudio Configuration Wizard Welcome panel opens.



2. Select only the **Update website configuration settings (Advanced)** option and click **Next**. The **Set Default Connection** panel opens.

3. Click **Next** until the **Configuration Settings: Network Share** panel opens.



4. In the System Account area. enter a user name and password for the system account. Enter the user name in `DOMAIN_NAME\USER_NAME` format.

5. Click **Next** to complete the wizard and save these edits.

For more information see the AdminStudio Configuration Wizard help library at:

http://helpnet.flexerasoftware.com/adminstudiocw2016/

Connecting to the Flexera Service Gateway

The Flexera Service Gateway is a component that enables AdminStudio, Workflow Manager, App Portal, and FlexNet Manager Suite to communicate. When Workflow Manager is connected to the Flexera Service Gateway, you can connect an App Portal catalog item to a Workflow Manager workflow request.

In App Portal, you select an event that you want to trigger a Workflow Manager workflow (such as **On Submit Approval)** and the Workflow Manager project that you want to use. A workflow request is then created in Workflow Manager. When Workflow Manager completes the workflow request, the status in App Portal changes to **Complete**.

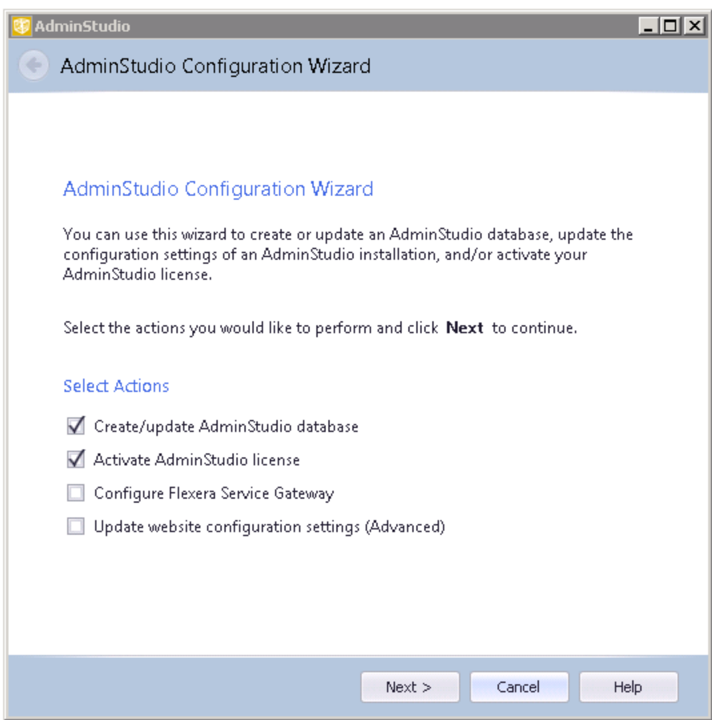
To connect Workflow Manager to the Flexera Service Gateway, perform the following steps:

Task ***To connect to the Flexera Service Gateway:***

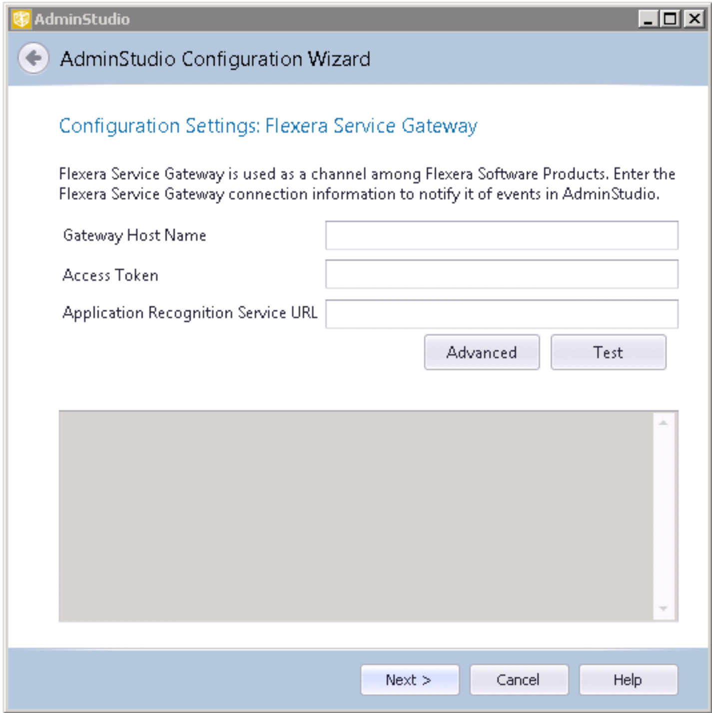
1. Launch the following file on the machine where you installed Workflow Manager:

   `C:\AdminStudioWebComponents_2019\Support\Config\Config.exe`

   The AdminStudio Configuration Wizard Welcome panel opens.



2. Select **Configure Flexera Service Gateway** and click **Next**. The **Configuration Settings: Flexera Service Gateway** panel opens.



3. In the **Gateway Host Name** field, enter the name of your Flexera Service Gateway Server.
4. By default, the user name and login to the Flexera Service Gateway is `admin / admin`. If your organization is using a different user name and password, click **Advanced** and enter the appropriate credentials.
5. Leave the **Access Token** and **Application Recognition Service URL** fields blank.
6. Click **Test** to test the connection. You should receive the following message:

   `Connection to Flexera Service Gateway successful!`

   `Testing WorkflowManager was successful at http://`*`SERVER_NAME`*`:81/WebServicesroot/authentication.asmx`

   The configuration begins and messages are displayed.
7. When the configuration steps are complete, click **Finish** to close the wizard.

Integrating AdminStudio and Workflow Manager

AdminStudio is a software packaging and testing solution. It includes a suite of tools—including Application Manager, Repackager, and InstallShield Editor—that systems administrators use to migrate their organization software to Windows Installer and deploy error-free software packages that meet enterprise requirements and standards.

You can use AdminStudio with Workflow Manager to make software packaging procedures easier and more efficient:

Table 5-24 • AdminStudio and Workflow Manager Integration

Topic	Description
Using Automated Workflow Steps to Perform AdminStudio Tasks	Workflow Manager leverages AdminStudio's web APIs to provide out-of-the-box support for enhanced automation data elements/workflow steps that make it possible to execute many AdminStudio tasks including: ● Importing a package into the Application Catalog and performing testing ● Viewing test results ● Setting the target environment ● Setting packaging formats ● Setting distribution points ● Publishing applications ● Viewing reports ● Viewing and setting application properties For more
Using iPlugin to Automatically Perform AdminStudio Tasks in a Workflow Request	You can use the IPlugin interface to import packages into the Application Catalog and perform validation and conflict analysis as part of a Workflow Manager workflow step via command line using AdminStudio Application Manager.
Connecting the AdminStudio Client Tools to the AdminStudio Enterprise Server Application Catalog	To integrate the AdminStudio client tools and Workflow Manager, you have to open AdminStudio and connect to the AdminStudio Enterprise Server Application Catalog where Workflow Manager is installed.
Associating a Workflow Manager Request with a Package	You can associate a Workflow Manager Request with a package, from either the AdminStudio or Workflow Manager interfaces. This links that package's Package Report with the Request's Workflow Report.
Sharing AdminStudio Extended Attribute Data With Workflow Manager Workflows	You can define a AdminStudio data group so that Data elements are automatically created based upon the elements defined in the Adminstudio Extended Attributes XML file.
Defining a Workflow Manager Phase as an AdminStudio Workflow Project	When defining a Template, you can choose to define a workflow phase as an AdminStudio Workflow project, and receive progress notification from AdminStudio as the project steps are completed.

Connecting the AdminStudio Client Tools to the AdminStudio Enterprise Server Application Catalog

The AdminStudio Enterprise tools (Security Console, Report Center, Workflow Manager) are configured during installation to connect to an Application Catalog, which is referred to as the *Enterprise Server Application Catalog*.

Note • *You could also refer to this as the Workflow Manager Application Catalog.*

You can also connect the AdminStudio client tools (including Application Manager) to the Enterprise Server Application Catalog. This allows you to have all of the client and enterprise tools reference the same database.

To connect to the AdminStudio Enterprise Server application catalog from an AdminStudio client tool, perform the following steps.

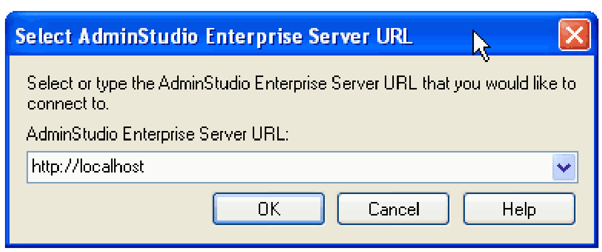
Task ***To connect the AdminStudio client tools to the AdminStudio Enterprise Server Application Catalog:***

1. Launch Application Manager, and on the Application Manager tab menu, click **Connect**.

    The **Connect Application Catalog** dialog box opens, displaying three tabs: **Enterprise Server**, **Standalone**, and **Recent**.

2. Open the **Enterprise Server** tab.

3. The URL to the AdminStudio Enterprise Server is listed above the **Authentication** field. If the AdminStudio Enterprise Server has not yet been configured with the AdminStudio client tools (such as when it is set to its default value of `http://localhost`), click the URL link to open the **Select AdminStudio Enterprise Server URL** dialog box.



4. In the **AdminStudio Enterprise Server URL** field, enter the URL for the location of AdminStudio Enterprise Server where Workflow Manager is installed and click **OK**. That URL is now listed on the **Enterprise Server** tab of the **Connect Application Catalog** dialog box.

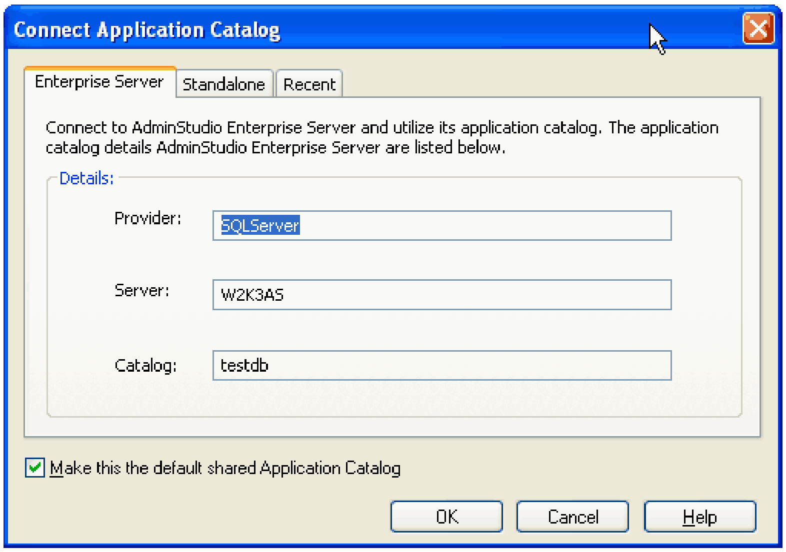
5. From the **Authentication** list, select either **AdminStudio Enterprise Server User** or **Windows Authentication**.

    Important • *When using **AdminStudio Enterprise Server User** authentication, if Anonymous authentication is turned off in IIS, both the user's machine and the AdminStudio Enterprise Server need to be on the same domain in order for login to succeed.*

6. If you selected **AdminStudio Enterprise Server User**, enter your AdminStudio Enterprise Server **User Name** and **Password** (provided by your System Administrator).

***Note** • AdminStudio Enterprise Server User Names are in the form of and email address, such as:* **`myname@mycompany`**.

7. Click **Login**. After a successful login, the **Provider**, **Server**, and **Catalog** name of the Enterprise Server database is listed.



8. Optionally, select the **Make this the default shared Application Catalog** option.

9. Click **OK**. The following functions are now enabled:

    - Associating a Workflow Manager Request with a Package
    - Sharing AdminStudio Extended Attribute Data With Workflow Manager Workflows
    - Defining a Workflow Manager Phase as an AdminStudio Workflow Project

Associating a Workflow Manager Request with a Package

When you associate a package with a request, their respective reports are also linked together:

- **Workflow Report**—The Request's Workflow Report contains a link to open the Package Report of its associated package.
- **Package Report**—The package's Package Report contains a link to open the Workflow Report of its associated Request.

You can associate a package with a request from both AdminStudio Application Manager and Workflow Manager.

Associating a Package With a Request from Application Manager

You can select a package in the Application Manager **Product View** and select a workflow from a list.

Task ***To associate a package with a request from Application Manager:***

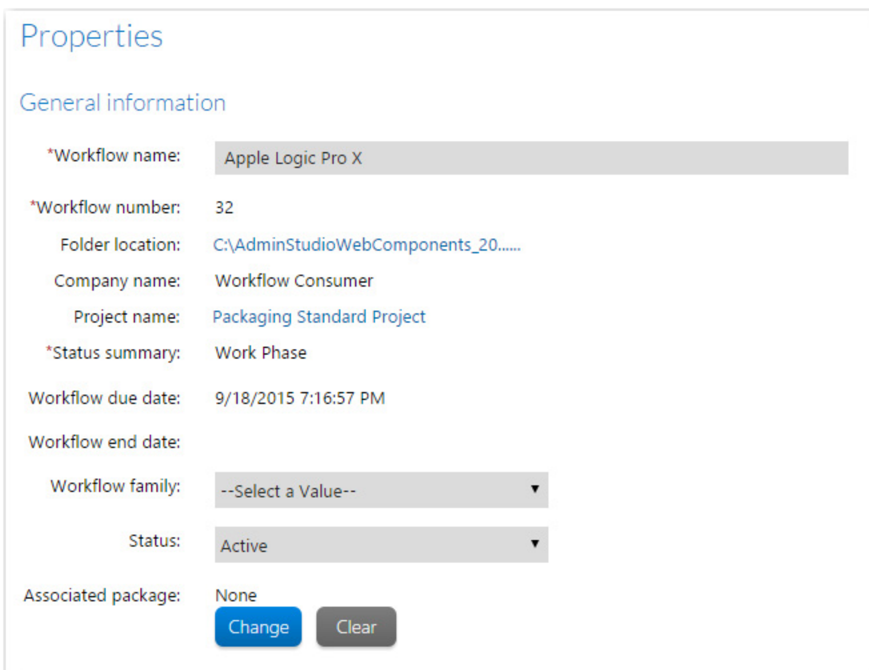
1. Open AdminStudio Application Manager and connect to the AdminStudio Enterprise Server Application Catalog.
2. On the **Catalog** tab, right-click on a package in the tree and select **Associate with Workflow Manager Workflow Request** from the shortcut menu. The **Associate with Workflow Manager Workflow Request** dialog box opens.
3. From the list, select the name of the workflow request that you want to associate with this package and click **OK**.

Associating a Package With a Request from Workflow Manager

You can open a request’s **Workflow Request** page and associate it with a package in the AdminStudio Enterprise Server Application Catalog.

Task ***To associate a request with a package from Workflow Manager:***

1. Open the **Workflow Request** page of the request that you want to associate with a package, as described in Opening a Workflow Request’s Workflow Request Page.
2. Open the **Properties** tab.



3. Next to the **Associated Package** field, click **Change**. The **Select Package** dialog box opens, displaying the Application Catalog package tree:
4. Select a package in the tree and click **Select Package**. The name of the selected package is now listed in the **Associated Package** field, and is linked to the package’s Package Report.

Tip • *On the **Select Package** dialog box, you could also use the tools in the **Search Packages** area to find a specific package.*

Sharing AdminStudio Extended Attribute Data With Workflow Manager Workflows

You can create a Workflow Manager Template that includes a data group that contains data elements that are defined in the AdminStudio Extended Attributes XML file.

When you create a data group with a **Data Type** of **AdminStudio Data Type**, that data group is automatically populated with a data element for each entry in the AdminStudio Extended Attributes XML file.

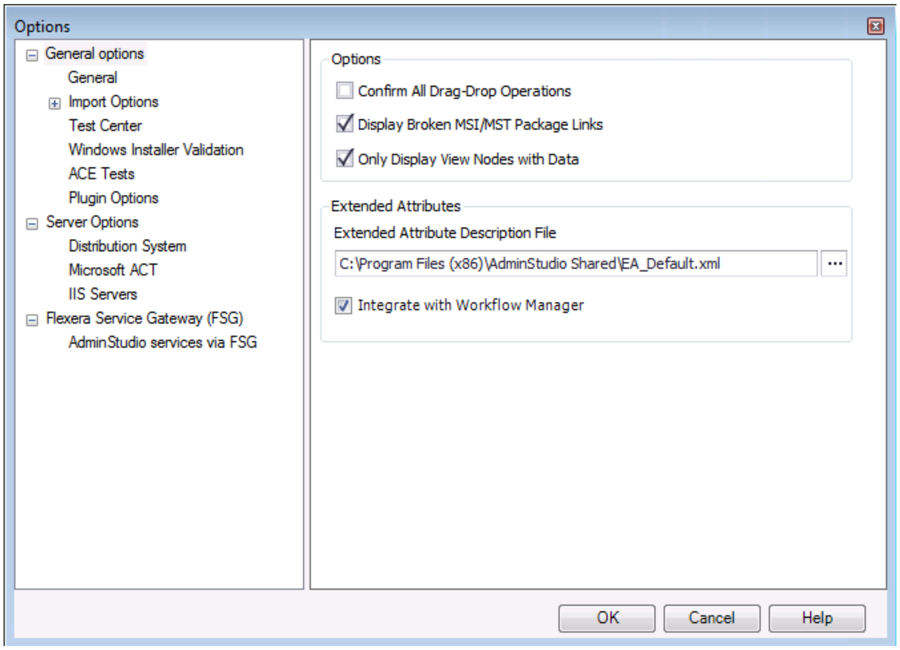
Also, because you can associate a request with a package:

- If you edit this package's data in the **Extended Attributes** view in Application Manager, the data stored in the Workflow Manager Request is automatically updated.
- If you edit the data submitted with the Request, the package data displayed in the **Extended Attributes** view in Application Manager is automatically updated.

Note • *By design, extended attributes data in Application Manager and Workflow Manager data have a one-to-one relationship. You can only associate one Workflow Manager request with a package in the AdminStudio Enterprise Server Application Catalog; once the request is associated with a package, it is no longer available for association with other packages in the Application Catalog.*

Task ***To share extended attributes between AdminStudio and Workflow Manager:***

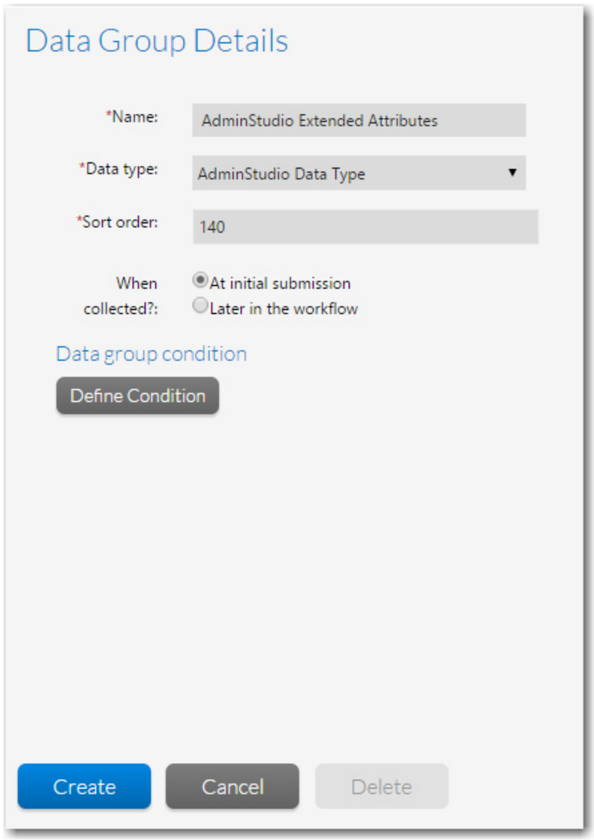
1. Enable data sharing between Workflow Manager and AdminStudio Application Manager by selecting the **Integrate with Workflow Manager** check box in the **Extended Attributes** area of the **General Options** tab of the Application Manager **Options** dialog box.



***Note** • The default Extended Attributes Description File is:* `C:\AdminStudio Shared\EA_Default.xml`

2. Open the **Template Details** page of the template that you want to share data with.

3. Create a new data group and set the **Data Type** to **AdminStudio Data Type**.



4. After you click **Create**, that data group's **Data Elements** are automatically created and populated by the fields defined in the AdminStudio Extended Attributes Description File.

Default Extended Attribute Description File

A portion of the default Extended Attribute Description File (`EA_Default.xml`) is displayed below:

```
<?xml version="1.0" encoding="UTF-8"?>
<Extended_Attribute UniqueIdentifier="ISASEA40"
    xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
    xsi:noNamespaceSchemaLocation="EA.xsd">

    <AttributeDetails>
        <Name>Application Name</Name>
        <Type>Text</Type>
        <HelpText>Common name used for the application.</HelpText>
    </AttributeDetails>

    <AttributeDetails>
        <Name>Application Description</Name>
        <Type>Text</Type>
        <HelpText>description of software's core function. </HelpText>
    </AttributeDetails>

    <AttributeDetails>
        <Name>Application Type</Name>
```

```
        <Type>Selection</Type>
        <Values>General;Accounting;Sales;CRM;Graphics;
            Communication;Database;Management;Development;
            Engineering;</Values>
        <HelpText>Select the Application Type</HelpText>
    </AttributeDetails>
```

As you can see, each `<AttributeDetails>` element in the `EA_Default.xml` file defines the data entry field on the Application Manager **Extended Attributes View**, and the `<Type>` element defines the type of entry field: text box, selection list, uploaded file, etc.

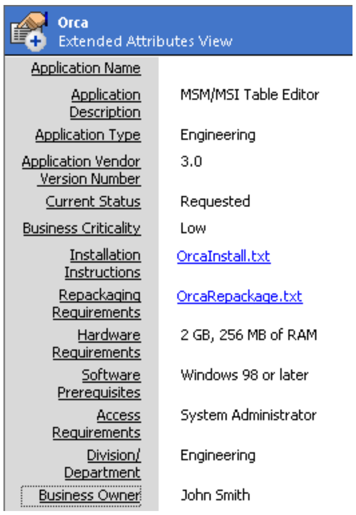


Figure 5-90: Application Manager Extended Attributes View

Defining a Workflow Manager Phase as an AdminStudio Workflow Project

Workflow Manager requests are based upon the workflow template selected for its associated project. AdminStudio has a similar concept: you create workflows and then execute projects using these workflows.

AdminStudio's workflows are displayed in a "checklist" format, similar to a Workflow Manager workflow phase:

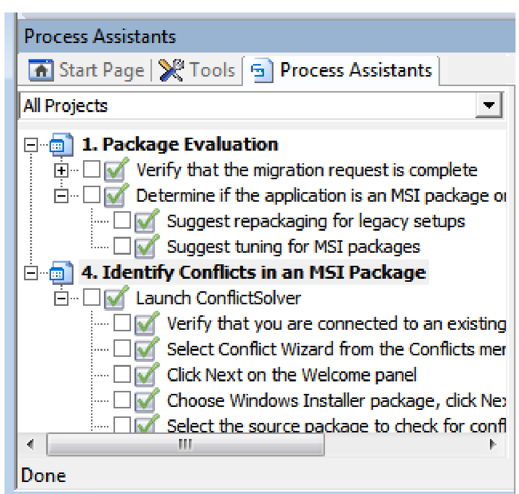


Figure 5-91: Sample AdminStudio Project in Progress

To define an Workflow Manager workflow phase as an AdminStudio workflow, you give the workflow phase a **Type** of **AdminStudio Phase**.

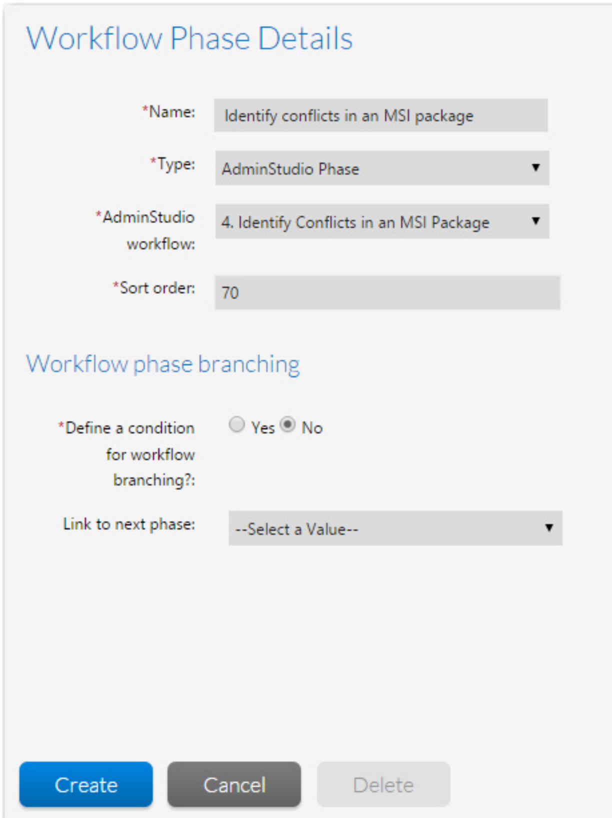


Figure 5-92: Specifying an AdminStudio Workflow as one of the Workflow Phases in a Workflow Template

When **AdminStudio Phase** is selected for **Phase type**, Workflow Manager communicates with AdminStudio, obtains a list of the current AdminStudio workflows, and displays them in the **AdminStudio WF** list. You select the AdminStudio workflow that you would like to insert into this template. When you click **Update** on the **Workflow Phase Details** area, a single workflow step named `All the items in the AdminStudio Workflow "Workflow Name"` is automatically created as a placeholder, indicating that this workflow phase will be performed using AdminStudio:

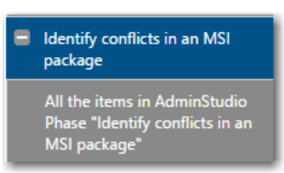


Figure 5-93: Workflow Manager creates a single Workflow Step for AdminStudio Workflows

When that template is viewed, the AdminStudio tasks appear as a single workflow phase, with no workflow steps displayed. Instead, the following message appears:

```
AdminStudio Phase in Progress
```

```
This phase is in progress and will be completed in AdminStudio.
```

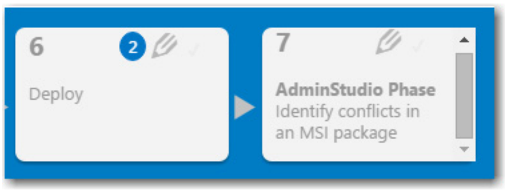


Figure 5-94: Workflow Phase with AdminStudio Integration

When a **Workflow Phase** is defined as an **AdminStudio Phase**, the following occurs:

Table 5-25 • Events Associated with Using an AdminStudio Workflow Step

Event	Description
AdminStudio users can be assigned to workflow steps	When a request is created using a Template that has a Phase defined as an **AdminStudio Phase**, AdminStudio Enterprise Server Users are available for selection on the Assignment Details Page.
Progress is displayed on the Workflow Request page	While the actual task names are not displayed on the **Workflow Request** page, as progress is made on the AdminStudio Project (as tasks are marked complete on the AdminStudio **Projects** tab), the percentage that those tasks are complete is displayed on the **Workflow Request** page. For example, if an AdminStudio Project has 10 tasks and 4 have been marked complete in AdminStudio, the Workflow Manager workflow phase will have a percentage complete of **40%**. When the last task of an AdminStudio Project is marked complete, the Workflow Manager workflow phase is marked **100%** complete on the **Workflow Request** page and the Workflow is advanced.
Progress can be decreased	If, on the **Projects** tab, an AdminStudio user opens a Project that is not yet completed and unselects tasks that were previously completed, the percentage complete displayed on the **Workflow Request** page reflects the change, resulting in decreasing the percentage complete displayed. ***Note •*** *If an AdminStudio Project is complete, it can no longer be changed.*
AdminStudio Workflow Phase can be rolled back	On the **Workflow Request** page, a Workflow Manager user can choose to either rollback directly to the AdminStudio workflow phase or to a Step in a previous Phase. The AdminStudio Project will then be performed again in AdminStudio.

Automatically Performing AdminStudio Tasks in a Workflow Request

There are two methods for performing AdminStudio tasks as part of a Workflow Manager workflow request:

- Using Web Services to Automatically Perform AdminStudio Tasks in a Workflow Request
- Using iPlugin to Automatically Perform AdminStudio Tasks in a Workflow Request

Using Web Services to Automatically Perform AdminStudio Tasks in a Workflow Request

Workflow Manager leverages AdminStudio's web services APIs to provide out-of-the-box support for enhanced automation data elements/workflow steps that make it possible to execute many AdminStudio tasks, such as:

- Importing a package into the Application Catalog and performing testing
- Viewing test results
- Setting the target environment
- Setting packaging formats
- Setting distribution points
- Publishing applications
- Viewing reports
- Viewing and setting application properties

This enhanced integration helps AdminStudio users leverage the built-in functionality of Workflow Manager, including approvals, email, issues, conditional logic, custom pages, reports, and integration with AdminStudio Inventory and Rationalization and FlexNet Manager Suite.

You can edit the out-of-the-box automation templates or create new templates that incorporate these AdminStudio tasks by using the AdminStudio-related workflow step types and data element data types.

***Important** • AdminStudio does not need to be installed on the same machine as Workflow Manager to use this integration. The only requirement is that AdminStudio and Workflow Manager must be connected to the same Application Catalog database.*

For detailed information on how to set up workflow templates to include **AdminStudio Integration** workflow steps, see Defining Automated AdminStudio Integration Workflow Steps.

Using iPlugin to Automatically Perform AdminStudio Tasks in a Workflow Request

You can use the IPlugin interface to import packages into the Application Catalog and perform validation and conflict analysis as part of a Workflow Manager workflow step via command line using AdminStudio Application Manager.

- For information on how to set up Workflow Manager automation, see Setting Up IPlugin Automation in Workflow Manager.
- For information on how to set up Workflow to include an **Automated Import**, **Automated Validation**, or **Automated Conflict Analysis** workflow step, see Defining Automated AdminStudio Workflow Steps That Use the iPlugin Interface.
- For information on how to use the IPlugin interface, see Using the IPlugin Interface.

6

Generating and Viewing Reports

Edition *• Reports is included with AdminStudio Enterprise Edition and with Workflow Manager.*

Reports provides reporting capability for both AdminStudio and Workflow Manager. You can use Reports to generate reports on packages stored in the Application Catalog, and on Workflow Manager projects and workflow requests, using customized SQL queries or stored procedures.

Table 6-1 • AdminStudio and Workflow Manager Reports in Reports

Product	Available Reports
AdminStudio Reports	Reports provides a centralized view of all of the information regarding packages in your Application Catalog. See Generating and Viewing AdminStudio Reports. • **Package Reports**—Includes detailed information on individual packages in the Application Catalog. See Viewing Package Reports. • **Custom SQL Query Report**—A custom report defined by entering an SQL query in the Report Wizard. See Generating a Custom SQL Query Report for AdminStudio. • **Custom Stored Procedure Report**—A custom report on data generated by AdminStudio or Workflow Manager that is defined by specifying a stored procedure in the Report Wizard. See Generating a Custom Stored Procedure Report for AdminStudio. • **AdminStudio Application Catalog Reports**—View a wide array of reports containing summary information on the Windows Installer, App-V, and iOS and Android applications in your Application Catalog. See Viewing AdminStudio Application Catalog Reports.

Table 6-1 • AdminStudio and Workflow Manager Reports in Reports (cont.)

Product	Available Reports
Workflow Manager Reports	You can view System Reports that include information on projects and requests. You can also define custom reports that include information about the status of projects and requests. See Generating and Viewing Workflow Manager Reports. • **System Reports**—Includes detailed summary information on a company's projects and requests. See Generating Standard Reports. • **Custom Report**—A report defined by using the Report Wizard. See Creating a Custom Report. • **Custom Activity Report**—Every time an activity or event occurs during the completion of a request, Workflow Manager records that activity. You can view a listing of these activities in the Activity Report, a custom report which you define using the Report Wizard. See Creating an Activity Report • **Custom SQL Query Report**—A custom report defined by entering an SQL query in the Report Wizard. See Generating a Custom SQL Query Report. • **Custom Stored Procedure Report**—A custom report on data generated by Workflow Manager that is defined by specifying a stored procedure in the Report Wizard. See Generating a Custom Stored Procedure Report.

Generating and Viewing AdminStudio Reports

Edition • *Reports is included with AdminStudio Enterprise Edition and with Workflow Manager.*

You can use Reports to obtain a centralized view of all of the information regarding packages in your AdminStudio Application Catalog. Because Reports is a Web application, it can be easily accessed by a geographically dispersed workforce without requiring any software installation or data transfer. Reports makes it easy to get the application data you need to diagnose and repair software problems and to manage applications across your organization.

A catalog-level search tool enables you to generate detailed, custom reports on packages with particular characteristics. These reports are accessible anywhere via a Web interface and can be exported to PDF or Excel format for sharing and archiving.

Information on generating and viewing AdminStudio reports in Reports is presented in the following sections:

Table 6-2 • Information About Generating AdminStudio Reports

Section	Description
Viewing Package Reports	Explains how to generate a Package Report on a selected package. Also explains how to filter the package tree by specified criteria in order to find a specific package in the Application Catalog. This section also lists the contents of all of the sections of a Package Report.

Table 6-2 • Information About Generating AdminStudio Reports

Section	Description
Generating a Custom SQL Query Report for AdminStudio	Explains how to enter an SQL query to specify the data to be displayed in a custom report.
Generating a Custom Stored Procedure Report for AdminStudio	Explains how to generate a custom report on data generated by AdminStudio or Workflow Manager that is defined by specifying a stored procedure in the Report Wizard.
Viewing AdminStudio Application Catalog Reports	Explains how to view a wide array of reports containing Application Catalog summary information on Windows Installer, App-V, and iOS and Android applications in the Application Catalog.

Viewing Package Reports

Edition • *Reports is included with AdminStudio Enterprise Edition and with Workflow Manager.*

Note • *In Workflow Manager, Package reports can be viewed by users in both Administrator and Consumer companies.*

You can generate AdminStudio Package Reports on the **Search Packages** page, which is opened by clicking **Search Packages** on the **Reports** menu of the navigation bar.

On the **Search Packages** page you can perform a search of all of the applications in the Application Catalog to locate the package you would like to generate a report for.

- Searching for a Package on the Search Packages Page
- Information Included in Package Reports
- Navigating Through a Package Report
- Archiving a Package Report
- Exporting a Package Report

Searching for a Package on the Search Packages Page

Edition • *Reports is included with AdminStudio Enterprise Edition and with Workflow Manager.*

By default, all of the packages in the connected AdminStudio Application Catalog are listed on the **Search Packages** page. However, you can filter the list of packages displayed in the package tree to display only those packages that meet specific search criteria. The search criteria are grouped into three categories:

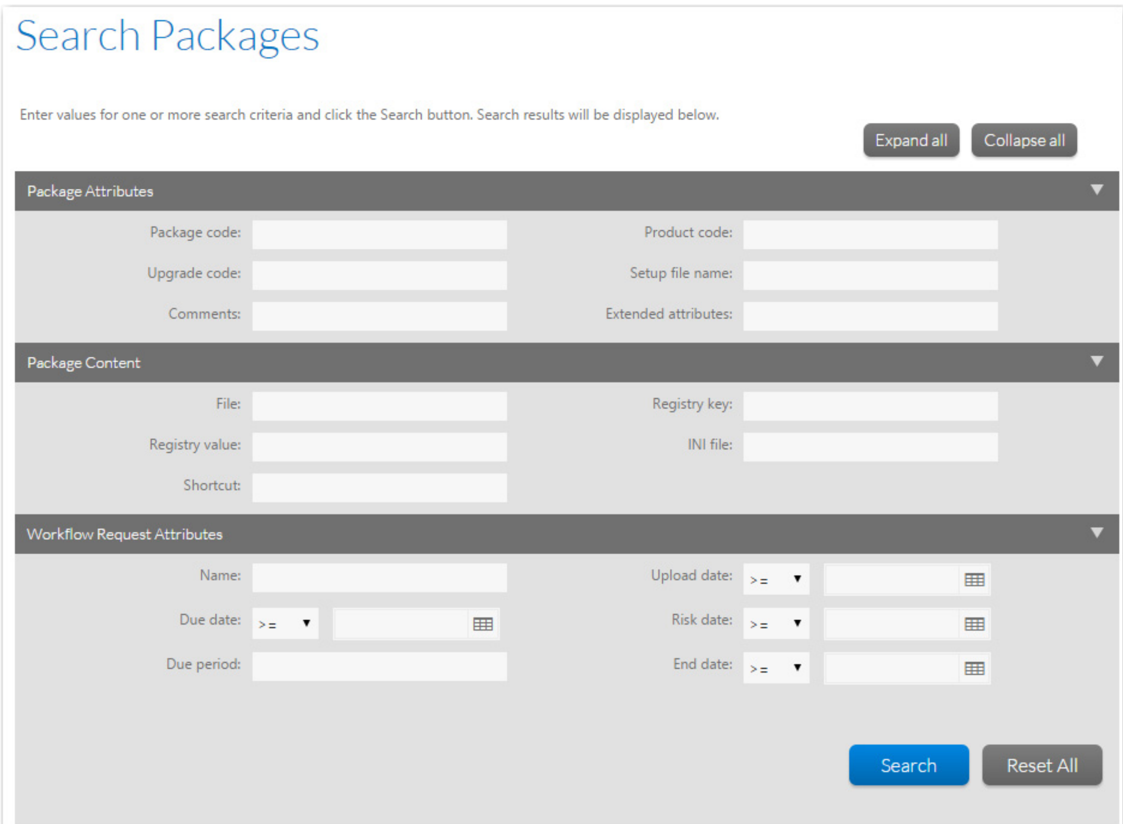
- **Package Attributes**—Search by common properties assigned to packages. See Package Attributes.

- **Package Content**—Search by files, registry entries, `.ini` files, or shortcuts contained in the package. See Package Content.
- **Workflow Request Attributes**—Search by information related to a package's associated workflow request. See Workflow Request Attributes.

To filter the list of packages displayed in the package tree to display only those packages that meet specific search criteria, perform the following steps.

Task ***To search for a package on the Search Packages page:***

1. In the **Search Packages** area of the **Search Packages** page, expand the criteria category that you want to use by clicking the arrow. When all three categories are expanded, the following fields are available:



2. Enter values in the criteria fields that you want to search on. You can search for packages in the Application Catalog based on metadata in three categories:
    - **Package Attributes**—Search by properties assigned to the package. See Package Attributes.
    - **Package Content**—Search by files, registry entries, `.ini` files, or shortcuts contained in the package. See Package Content.
    - **Workflow Request Attributes**—Search by information related to a package's associated workflow request. See Workflow Request Attributes.
3. After you have entered the search criteria, click **Search**. The packages that meet the criteria are now listed.

Package Attributes

You can search for packages in a catalog based on one or more of any of the following package attribute metadata:

Table 6-3 • Package Attribute Search Fields

Metadata	Description
Package Code	Enter the GUID that identifies a particular Windows Installer `.msi` package. The Package Code associates an `.msi` file with an application or product and is represented as a string GUID—a text string that has a special format: `{XXXXXXXX-XXXX-XXXX-XXXX-XXXXXXXXXXXX}` where each X character is a hex digit (0 through 9 or uppercase A through F).
Product Code	Enter the GUID that uniquely identifies the particular product release of a package. The `ProductCode` is a Windows Installer property and is represented as a string GUID—a text string that has a special format: `{XXXXXXXX-XXXX-XXXX-XXXX-XXXXXXXXXXXX}` where each X character is a hex digit (0 through 9 or uppercase A through F).
Upgrade Code	Enter the GUID that identifies the family of products that are in the same upgrade path. The **UpgradeCode** is a Windows Installer property and is represented as a string GUID—a text string that has a special format: `{XXXXXXXX-XXXX-XXXX-XXXX-XXXXXXXsXXXXX}` where each X character is a hex digit (0 through 9 or uppercase A through F). ***Note •*** *Each stand-alone product usually has its own **UpgradeCode** GUID. Every version of XYZ Product typically uses the same GUID for the **UpgradeCode**. In other words, Product A Version 1.0 has the same UpgradeCode as Product A Version 2.0, but has a different UpgradeCode than Product B.*
Setup File Name	Name of the file that was imported into the Application Catalog.
Comments	Enter the text of any comments associated with the package.
Extended Attributes	Enter the value of any of the Extended Attributes associated with the package.

Package Content

You can search for packages in a catalog based on one or more of any of the following Package Content metadata

Table 6-4 • Package Content Search Fields

Metadata	Description
File	Enter the file name of one of the files in the package.

Table 6-4 • Package Content Search Fields (cont.)

Metadata	Description
Registry Key	Enter a registry key to search on.
Registry Value	Enter a registry value to search on.
INI File	Enter any changes to an `.ini` file that are made when the product is installed.
Shortcut	Enter the name of a shortcut that is created when the product is installed.

Workflow Request Attributes

You can search for packages in a catalog based on one or more of any of the following attributes of the package's associated workflow request:

Table 6-5 • Workflow Request Attributes Search Fields

Metadata	Description
Name	Enter the name of the package's associated workflow request.
Upload Date	Enter the date the workflow request was created.
Due Date	Enter the date the workflow request is scheduled to be completed, based upon its value for **Application Due Period**.
Risk Date	Enter the date at which the workflow request's status will change to **At Risk**, which is based upon its value for **Application At Risk Period**.
Due Period	Enter, in days, the length of time this workflow request needs to be completed in order to meet its project's Service Level Agreement (SLA) requirements.
End Date	Enter the date the workflow request was completed.

Information Included in Package Reports

Edition • *Reports is included with AdminStudio Enterprise Edition and with Workflow Manager.*

A Package Report lists detailed package information for packages of the following deployment types:

- Microsoft Windows Installer packages
- Microsoft App-V virtual packages
- Apple iOS mobile apps (local and public store)
- Google Android mobile apps (local and public store)

In a Package Report, the information is presented in a tabbed interface, as described in Navigating Through a Package Report. A Package Report includes the following major sections:

- Package Summary Information View
- Files View
- Registry View
- Shortcuts View
- ODBC Drivers View
- ODBC DS View
- Extended Attributes View
- Validation View
- Conflicts View
- History View
- Dependencies View
- Properties View

Package Reports for mobile apps only include the Files View, Properties View, and History View.

Package Summary Information View

Edition *• Reports is included with AdminStudio Enterprise Edition and with Workflow Manager.*

The initial view (Page 1) of a Package Report is the **Package Summary Information** view.

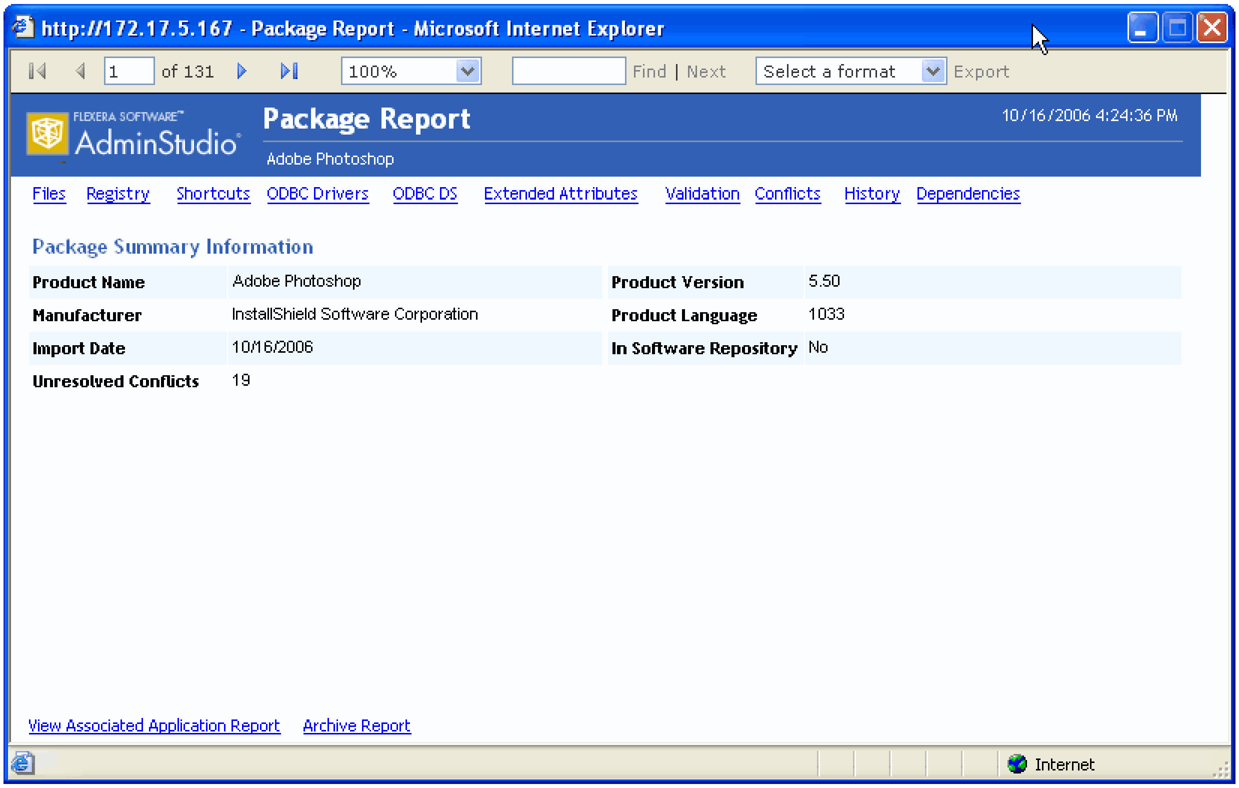


Figure 6-1: Package Report / Package Summary Information View

The Package Summary Information View lists the following information:

Table 6-6 • Package Report / Package Summary Information

Item	Description
Product Name	Name assigned to the package.
Manufacturer	Company that authored the package.
Import Date	The date and time the package was imported into the Application Catalog.
Unresolved Conflicts	The number of detected conflicts, generated during conflict analysis of this package, which have not yet been resolved—either automatically or manually.
Product Version	Version of package that is recorded in the package's Windows Installer file.
Product Language	Decimal-based code identifying the language that this software package was authored for. For example, English is 1033, German is 1031, and Japanese is 1041.
In Software Repository	Indicates whether or not this package and its associated files are managed by the Software Repository.

Files View

Edition • *Reports is included with AdminStudio Enterprise Edition and with Workflow Manager.*

The **Files** view lists all of the files included in the selected package, and the location where these files will be installed.

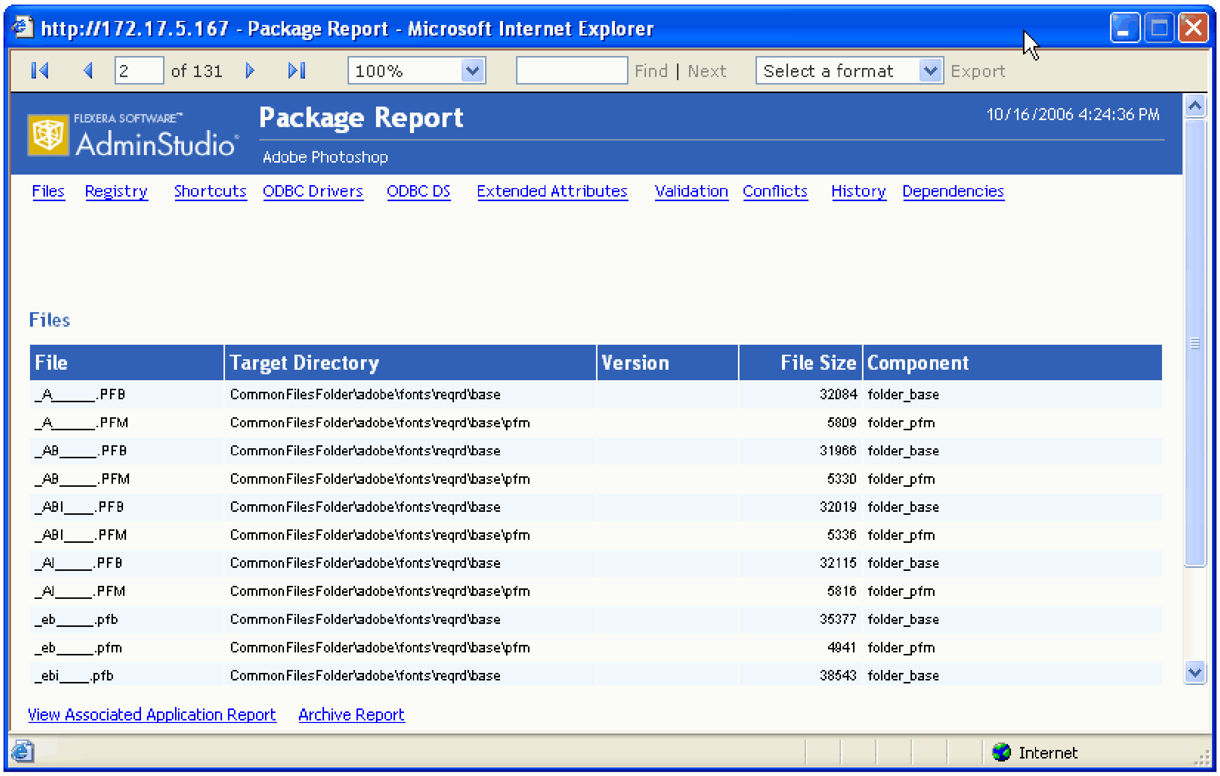


Figure 6-2: Package Report / Files View

For each file, the following information is listed:

Table 6-7 • Package Report / Files Information

Item	Description
File	Name of file included with this package.
Target Directory	Name of directory where the file is installed.
Version	Version number of the file.
File Size	Size of the installed file.
Component	Component that the file is associated with.

Registry View

***Edition** • Reports is included with AdminStudio Enterprise Edition and with Workflow Manager.*

The **Registry** view lists the registry entries that will be created when this package is installed.

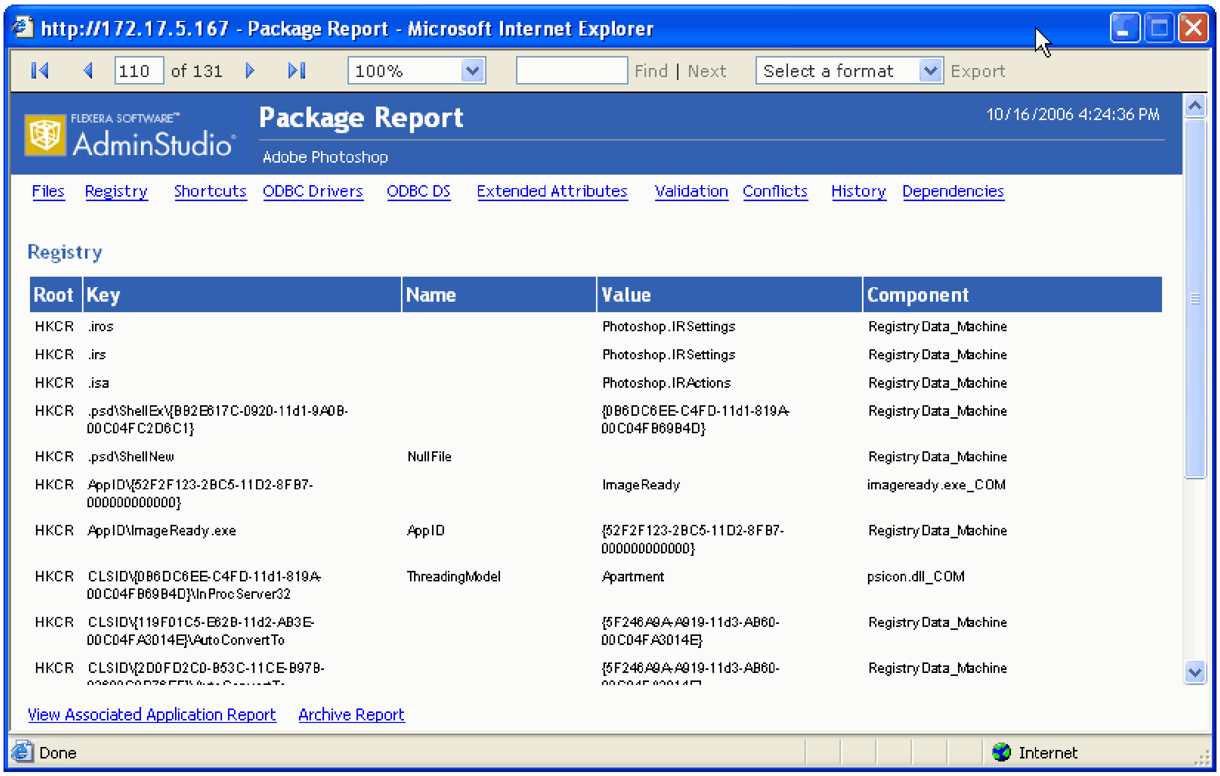


Figure 6-3: Package Report / Registry View

For each registry entry, the following information is listed:

Table 6-8 • Package Report / Registry Information

Item	Description
Root	Identifies the predefined “root” key that contains the registry entry.
Key	A registry key.
Name	Name identifying the registry entry.
Value	The string of data that defines the value of the key.
Component	Package component that the registry entry is associated with.

Shortcuts View

Edition • *Reports is included with AdminStudio Enterprise Edition and with Workflow Manager.*

The **Shortcuts** view lists all of the shortcuts that will be created when this package is installed.

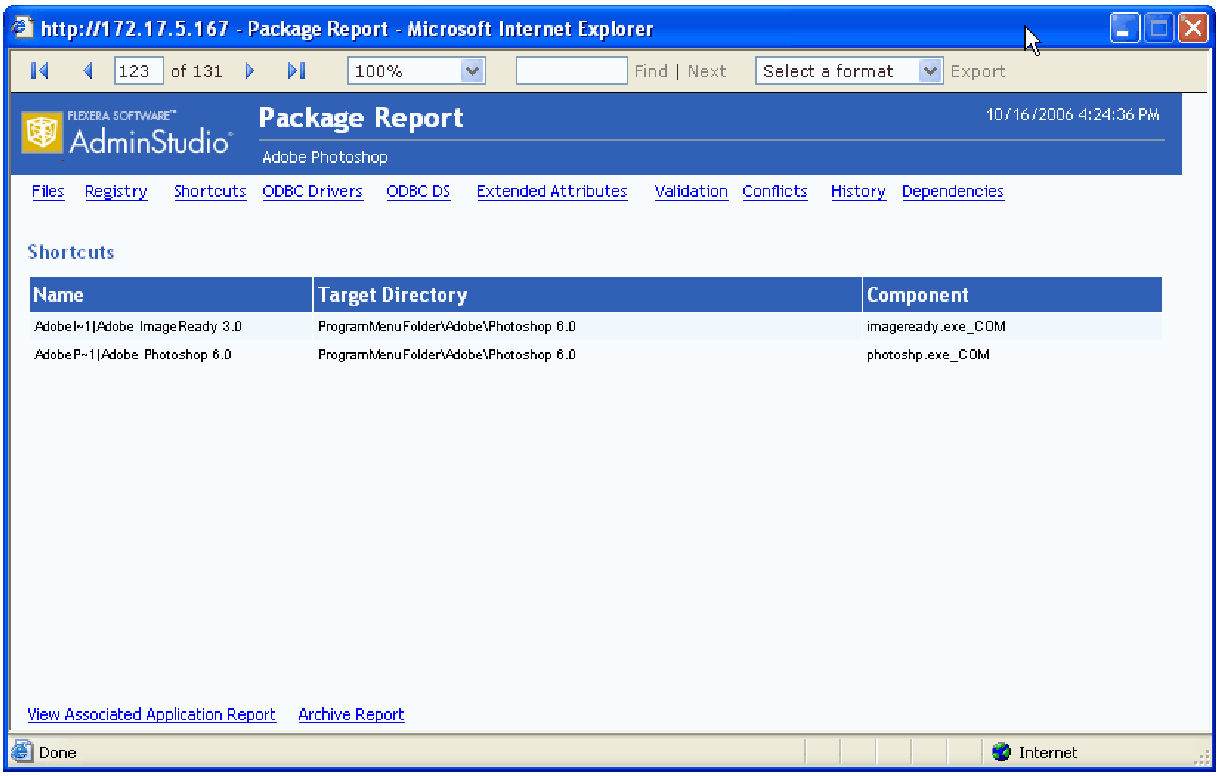


Figure 6-4: Package Report / Shortcuts View

For each shortcut, the following information is listed:

Table 6-9 • Package Report / Shortcuts Information

Item	Description
Name	Name identifying the shortcut.
Target Directory	Directory and executable that the shortcut invokes.
Component	Component associated with the shortcut.

ODBC Drivers View

Edition • *Reports is included with AdminStudio Enterprise Edition and with Workflow Manager.*

The **ODBC Drivers** view lists all of the Open Database Connectivity (ODBC) drivers in the package.

ODBC Resources are ones that involve interaction with databases. ODBC drivers are libraries that implement functions involving ODBC. Each database type has its own ODBC driver.

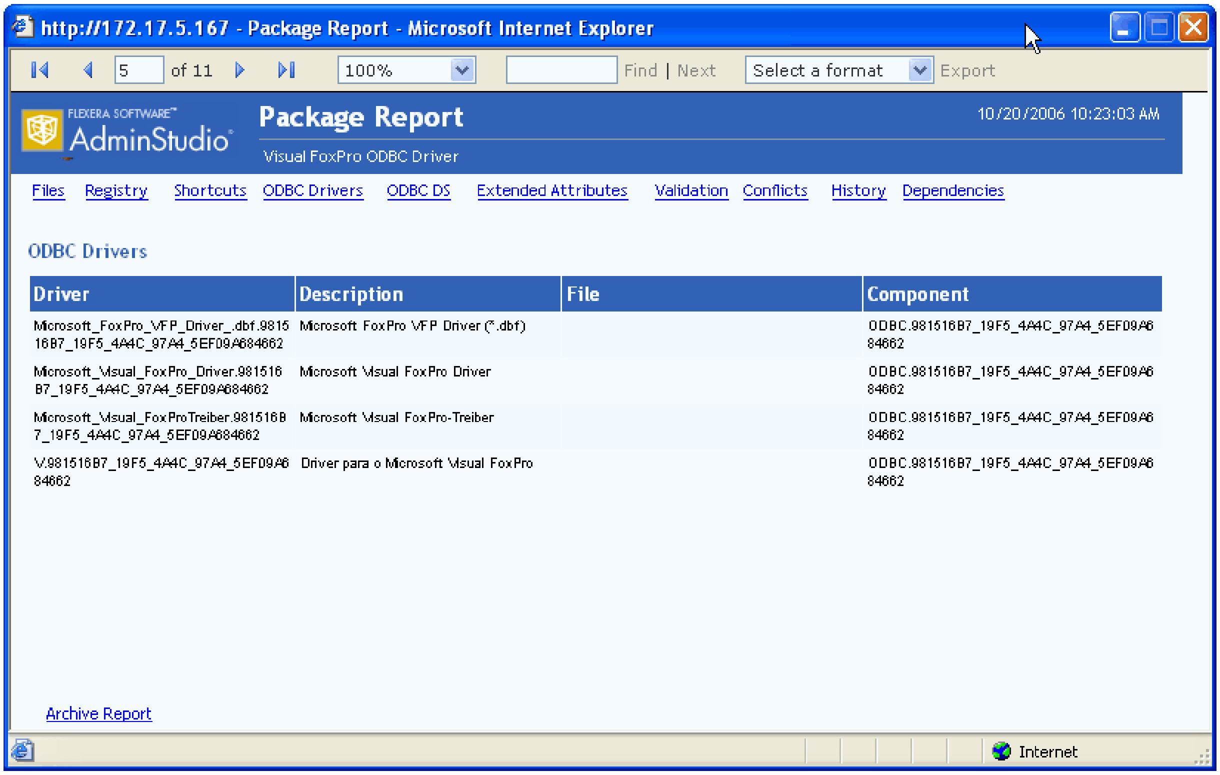


Figure 6-5: Package Report / ODBC Drivers View

For each ODBC driver, the following information is listed:

Table 6-10 • Package Report / ODBC Drivers Information

Item	Description
Driver	Name of an Open Database Connectivity (ODBC) driver in the package. Each database type has its own ODBC driver.
Description	Description of the ODBC driver identifying its associated database type.
File	File associated with the ODBC driver.
Component	Component associated with the ODBC driver.

ODBC DS View

Edition • *Reports is included with AdminStudio Enterprise Edition and with Workflow Manager.*

The **ODBC DS** view lists all of the Open Database Connectivity (ODBC) data sources in the package. An ODBC data source identifies the source database type and provides information on how to connect to that database.

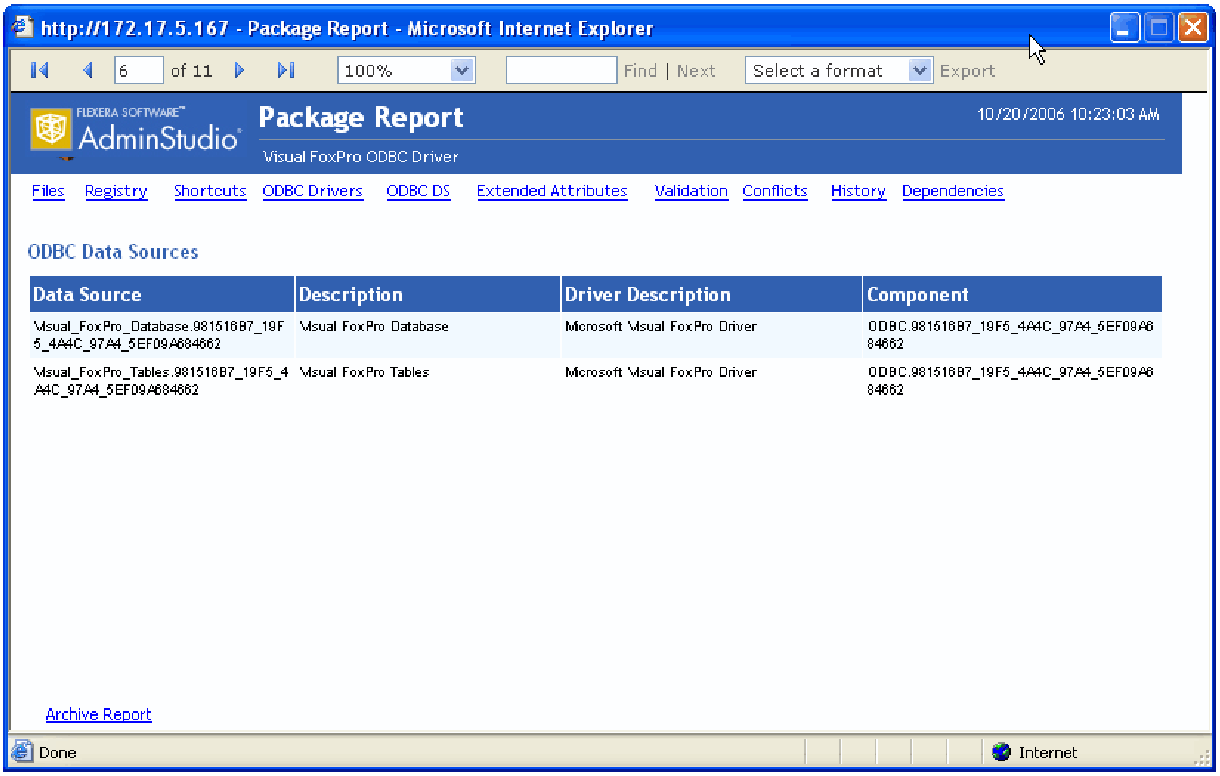


Figure 6-6: Package Report / ODBC Data Sources View

For each ODBC DS, the following information is listed:

Table 6-11 • Package Report / ODBC DS Information

Item	Description
Data Source	Name of the ODBC data source, which identifies the source database type and provides information on how to connect to that database.
Description	Identifies the database type.
Driver Description	Name of this ODBC data source’s associated ODBC driver.
Component	Component that this ODBC data source is affiliated with.

Extended Attributes View

Edition *• Reports is included with AdminStudio Enterprise Edition and with Workflow Manager.*

The **Extended Attributes** view lists all of the extended attribute metadata that has been entered for this package.

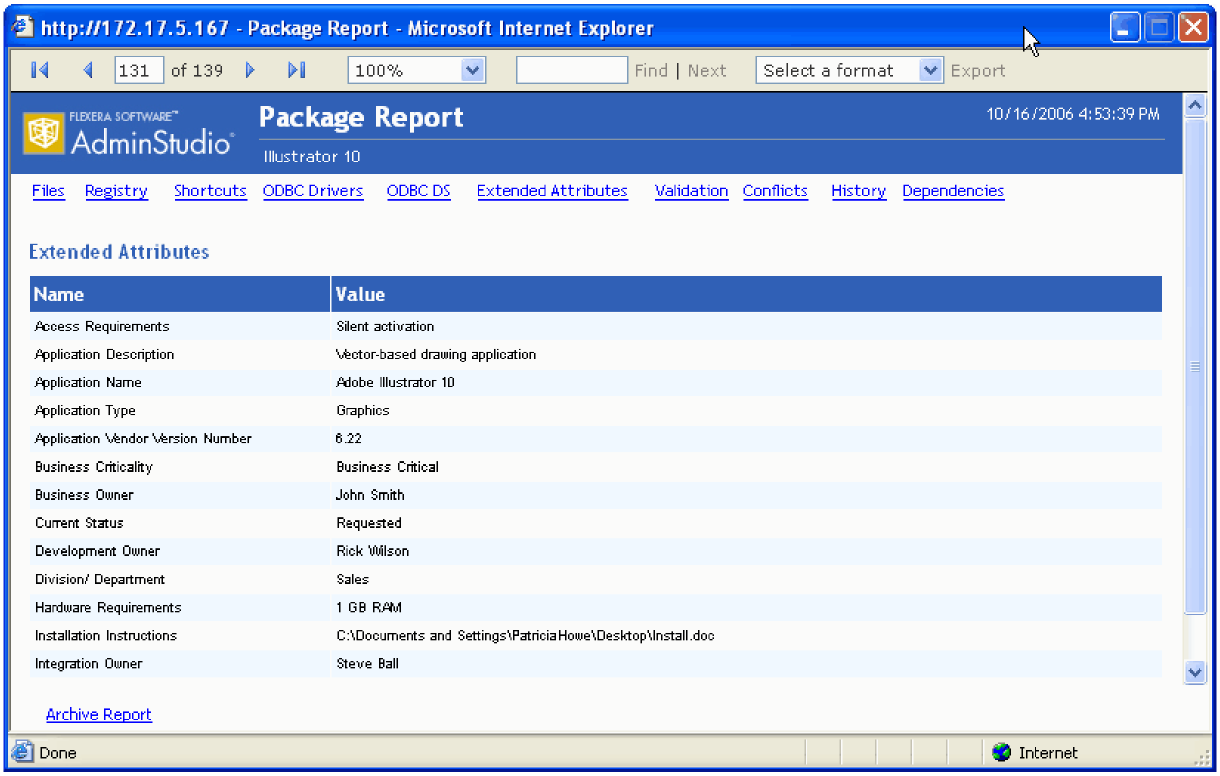


Figure 6-7: Package Report / Extended Attributes View

For each Extended Attribute, the following information is listed:

Table 6-12 • Package Report / Extended Attributes Information

Item	Description
Name	Name identifying the attribute.
Value	Content entered for the attribute.

Validation View

Edition • *Reports is included with AdminStudio Enterprise Edition and with Workflow Manager.*

The **Validation** view lists all of the ICE rule errors and warnings that were generated when the package was validated against Microsoft ICEs (Internal Consistency Evaluators)—custom actions written by Microsoft which can be executed to determine if an installation package is built according to Windows Installer standards.

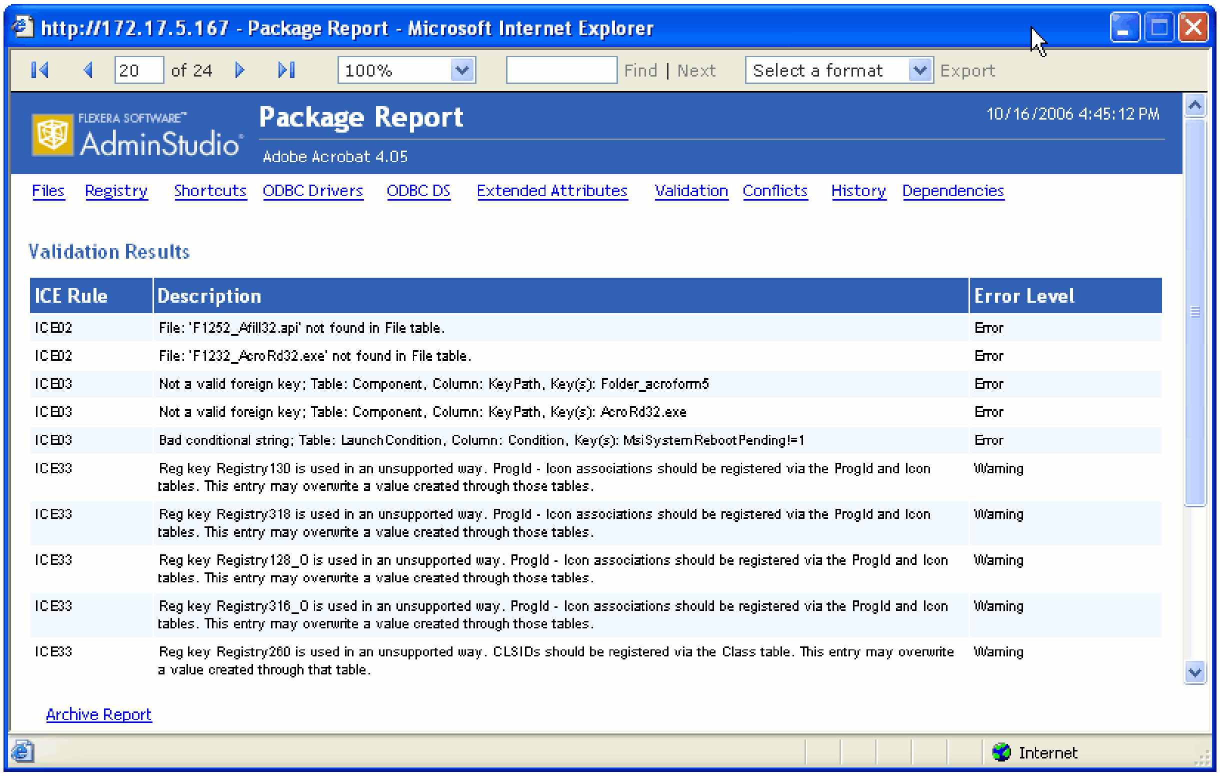


Figure 6-8: Package Report / Validation View

For each error or warning, the following information is listed:

Table 6-13 • Package Report / Validation Information

Item	Description
ICE Rule	Name of ICE Rule that generated an error or warning message.
Description	Error or warning message.
Error Level	Indicates the severity of the message as either being a Warning or an Error. • **Errors**—Package authoring that will cause incorrect behavior. • **Warnings**—Package authoring that could possibly cause incorrect behavior. Warnings can also report unexpected side-effects of package authoring.

Conflicts View

Edition *• Reports is included with AdminStudio Enterprise Edition and with Workflow Manager.*

The **Conflicts** view lists all of the unresolved errors that were found when conflict analysis was performed on this package.

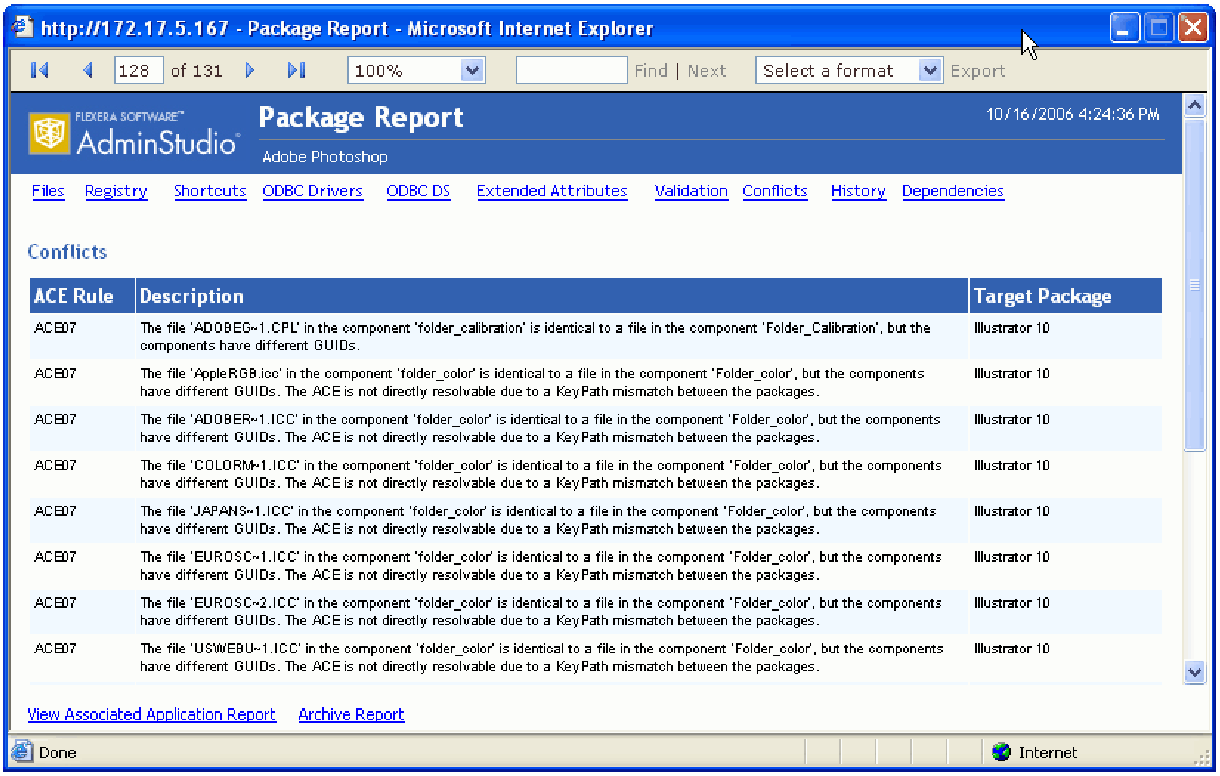


Figure 6-9: Package Report / Conflicts View

For each error, the following information is listed:

Table 6-14 • Package Report / Conflicts Information

Item	Description
ACE Rule	Name of ACE Rule that generated the message.
Description	Message generated during conflict analysis.
Target Package	Package that conflicted with this package.

History View

Edition • *Reports is included with AdminStudio Enterprise Edition and with Workflow Manager.*

The **History** view lists all of the actions that have been performed on this package since it was imported into the Application Catalog.

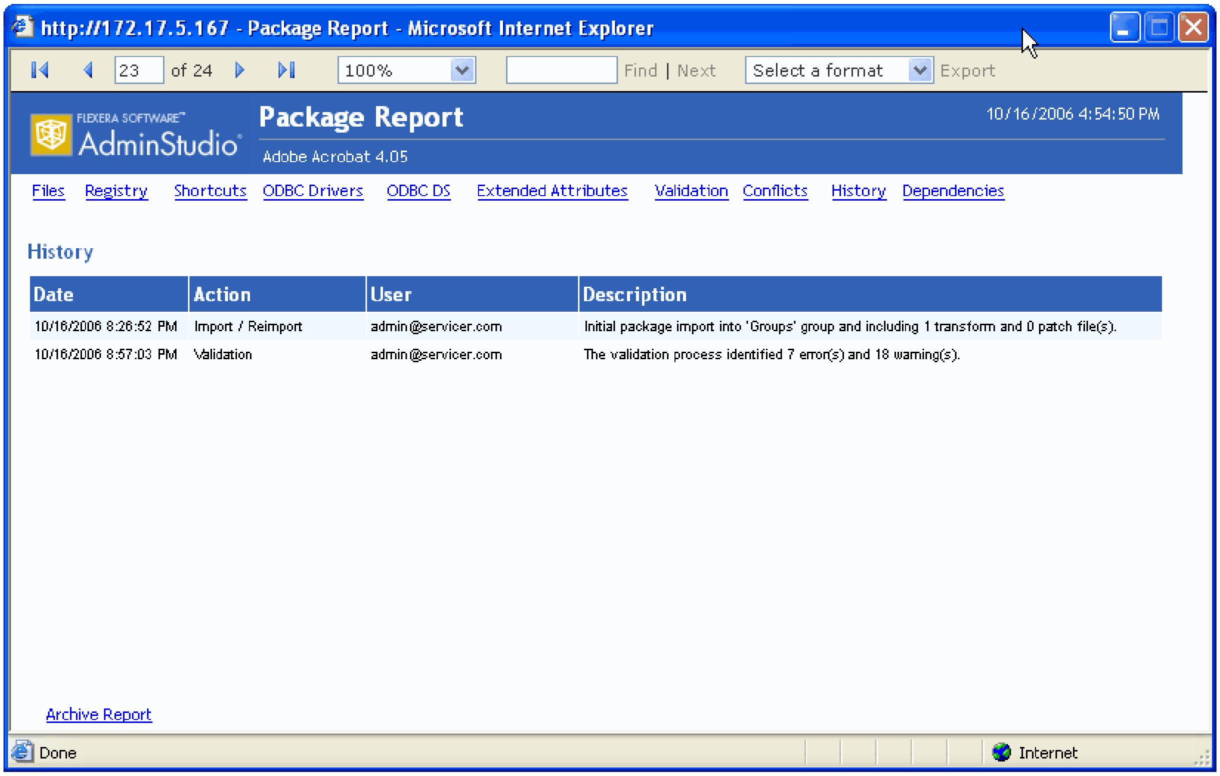


Figure 6-10: Package Report / History View

For each action, the following information is listed:

Table 6-15 • Package Report / History Information

Item	Description
Date	Day and time the event occurred.
Action	Identifies the event that occurred.
User	Identifies the user who executed the event.
Description	Description of the event that occurred.

Dependencies View

***Edition** • Reports is included with AdminStudio Enterprise Edition and with Workflow Manager.*

The **Dependencies** view lists all of a package's files that have dependencies with files used by other products or operating systems in the Application Catalog.

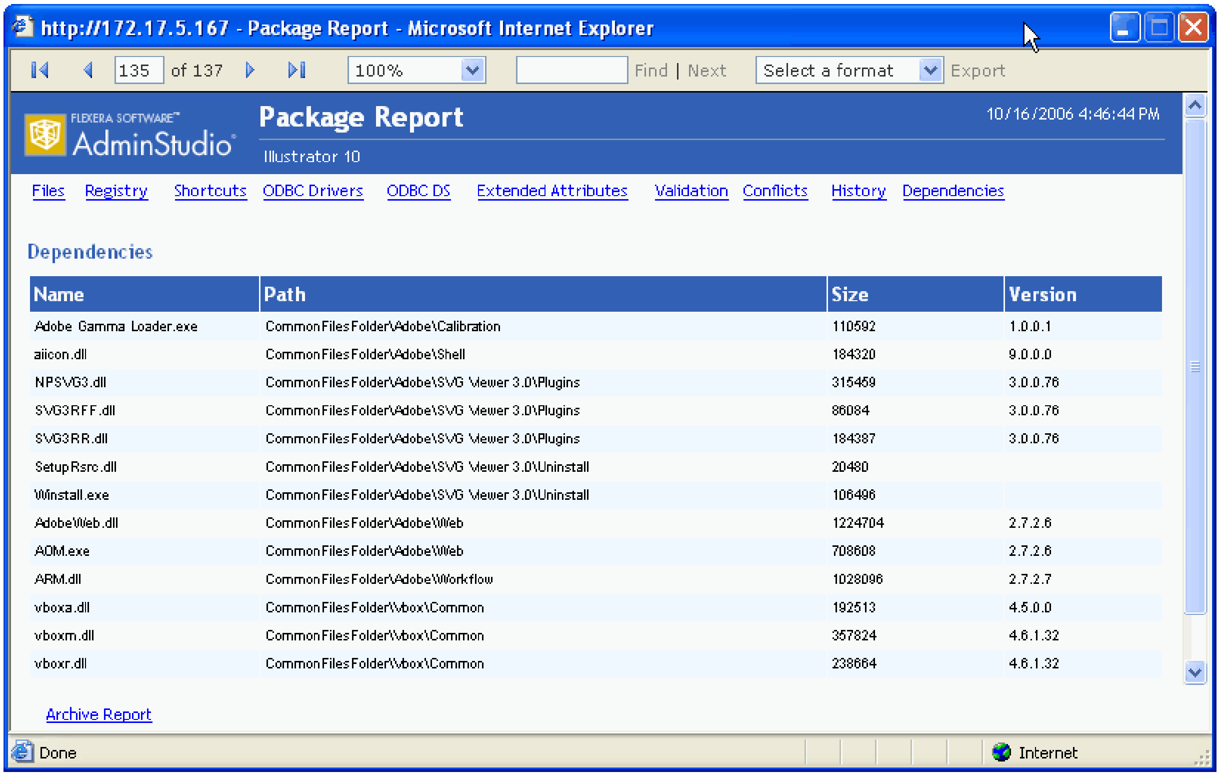


Figure 6-11: Package Report / Dependencies View

For each dependency, the following information is listed:

Table 6-16 • Package Report / Dependencies Information

Item	Description
Name	Name of a file associated with this package that has dependencies with files used by other products or operating systems in the Application Catalog.
Path	Location where this dependent file is installed.
Size	Size of the dependent file.
Version	Version of the dependent file.

Properties View

***Edition** • Reports is included with AdminStudio Enterprise Edition and with Workflow Manager.*

The **Properties** view of the Package Report, which is only displayed for mobile apps, lists various attributes of the selected mobile application.

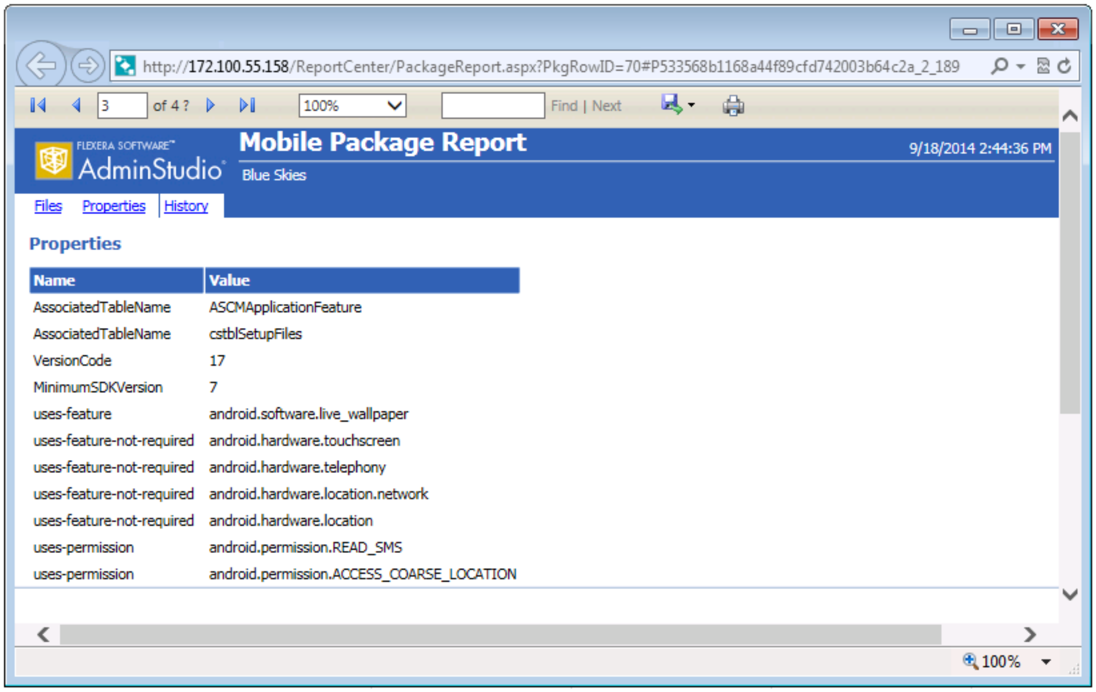


Figure 6-12: Package Report / Properties View

Navigating Through a Package Report

Edition • *Reports is included with AdminStudio Enterprise Edition and with Workflow Manager.*

The Package Report consists of the initial Package Summary View and 10 other multi-page views which are accessed by clicking the links at the top of the report:

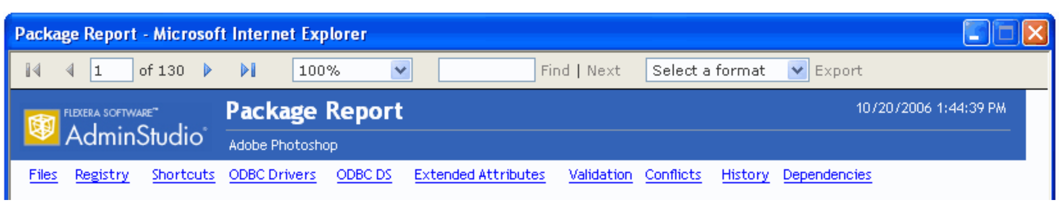


Figure 6-13: Navigation Links on the Package Report

Scrolling Through Pages of a View

Each of the Package Report views can be either a single page or multi-page, depending upon the content. The Package Report window is not resizable, so you cannot enlarge the window to display more items. Instead, you can use the Page Scrolling controls in the toolbar.

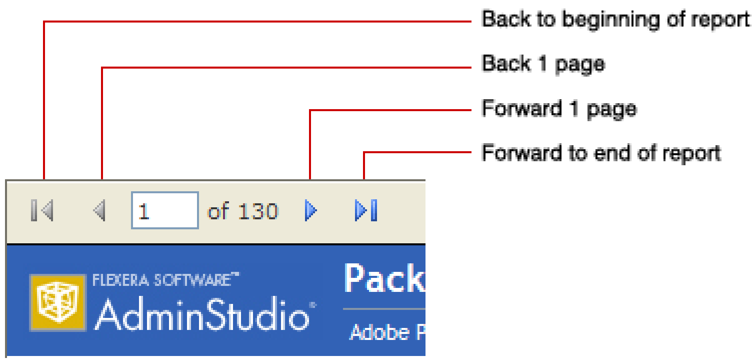


Figure 6-14: Page Scrolling Controls on Package Report

The total number of pages of the Package Report is listed in the toolbar, along with the number of the page that you are currently viewing. To jump to a specific page, enter a number in the box and click **Enter**.

Page 1 of the Package Report is the **Package Summary Information** view. Following this view, the rest of the views follow in the order in which they appear in the navigation links. The total number of pages in a Package Report is determined by adding the number of pages of all of the different views together.

Using Zoom Capability to Modify the Report Size

You can make selections from the Zoom list in the tool bar to enlarge or decrease the size of the report.

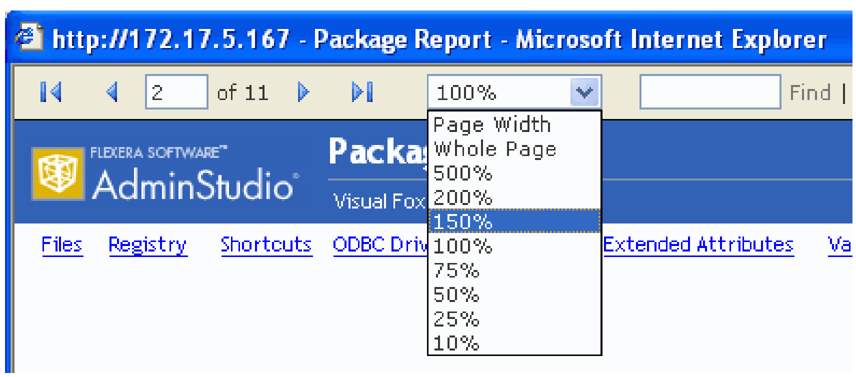


Figure 6-15: Zoom List on the Package Report

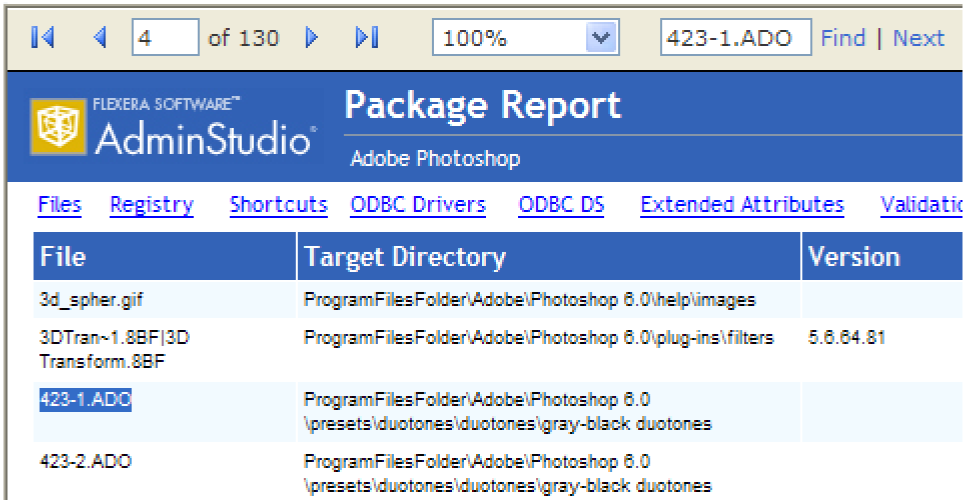
__Note__ • When you use the Zoom list to change the size of a Package Report, the size of the font used in the text is increased or decreased; however, the amount of information displayed on one page does not change.

Searching for Information in a Package Report

You can use the **Find** box in the Package Report tool bar to search for specific information in the Package Report.

Task ***To search a Package Report:***

1. In the Package Report toolbar, enter the text you want to search for in the **Find** box and click **Find**. The page containing the first instance of that text is opened, and the text you searched for is highlighted.



2. Click **Next** in the tool bar to find the next instance of the text.

Archiving a Package Report

Edition • *Reports is included with AdminStudio Enterprise Edition and with Workflow Manager.*

You can archive a Package Report to document a snapshot of a package's information as of a specific date and time.

Package Reports are saved in PDF format, and therefore can be easily distributed. An archived report looks very similar to the original report, except that it is a multiple-page PDF:

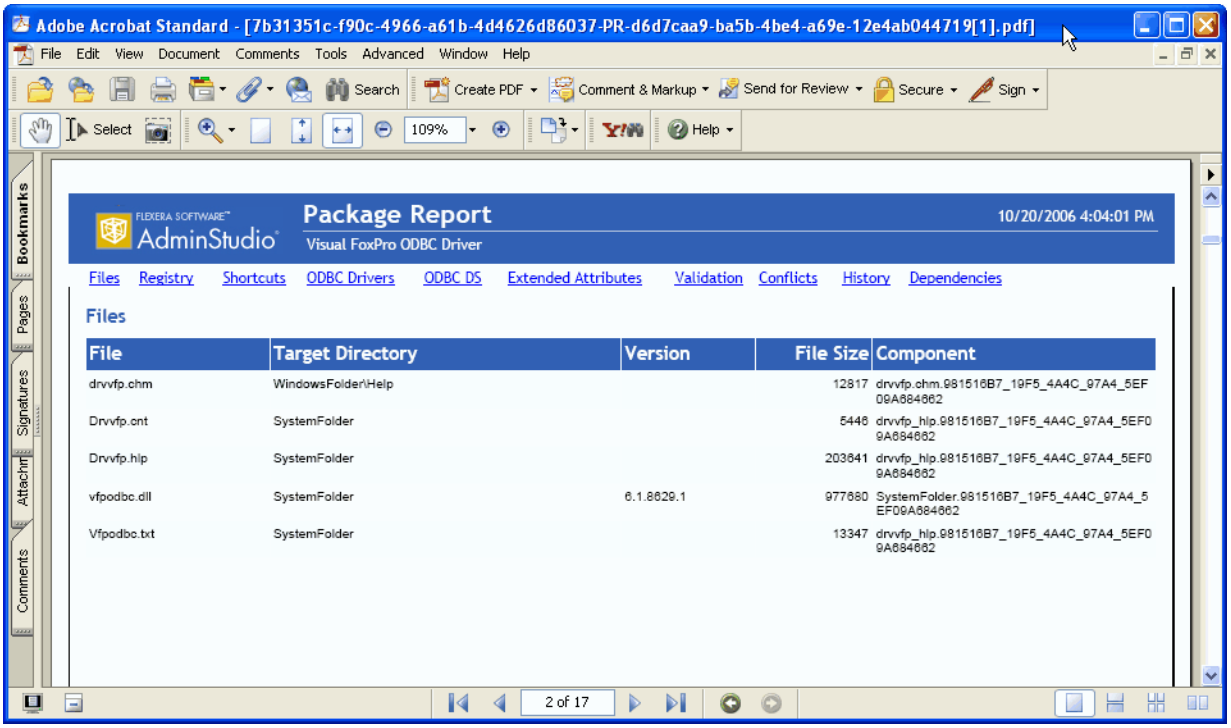


Figure 6-16: Archived Package Report

Note • *In an archived Package Report PDF, the navigation links at the top of the report (**Files**, **Registry**, **Shortcuts**, etc.) are not active. To scroll through the PDF, use the standard Adobe Reader controls.*

To archive a Package Report, perform the following steps.

Task ***To archive a Package Report:***

1. Open a Package Report.
2. Click the **Archive Report** link in the lower left corner any of the Package Report pages. The report is archived in PDF format and the following message is displayed:

   `The report has been archived.`

3. Click the Reports **All Reports** tab. The **All Reports** page opens, and the report that you just archived is listed.

   Note • *Each user's **Archived Reports** list only includes those reports that they archived. If you want others in your organization to view an archived report, you need to distribute the PDF via email or other delivery method.*

4. Click **View** next to the Package Report that you want to view. The report is opened in a PDF browser.

Deleting an Archived Package Report from the Archived Reports List

To delete an archived Package Report, perform the following steps.

Task ***To delete an archived Package Report from the Archived Reports list:***

1. In the Archived Reports list on the **All Reports** page, right-click on the archived report you want to delete, and then click **Delete**. You are prompted to confirm the deletion.
2. Click **OK**. The archived report is deleted.

Exporting a Package Report

Edition • *Reports is included with AdminStudio Enterprise Edition and with Workflow Manager.*

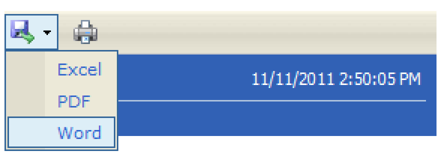
You can export the contents of a Package Report to an Excel (`.xls`) or Acrobat (`.pdf`) file, or Microsoft Word (`.doc`) file.

- **Excel .xls file**—When a Package Report is exported to Microsoft Excel format, each of the Package Report views are displayed on a different worksheet.
- **Acrobat .pdf file**—An exported Package Report in PDF format is the same as the PDF created when a Package Report is archived. See Archiving a Package Report.
- **Word (.doc) file**—The Package Report is exported in Microsoft Office Word 97 - 2003 format.

To export a Package Report, perform the following steps.

Task ***To export a Package Report:***

1. In the Package Report tool bar, click on the Export icon.
2. Select **Excel** or **PDF**, or **Word** from the list.



One the following occurs:

- If you selected **Excel** or **Word**, the **File Download** dialog box opens. Click **Save** and select a location for the exported file on the **Save As** dialog box.
- If you selected **PDF**, the PDF will open in a new browser window.

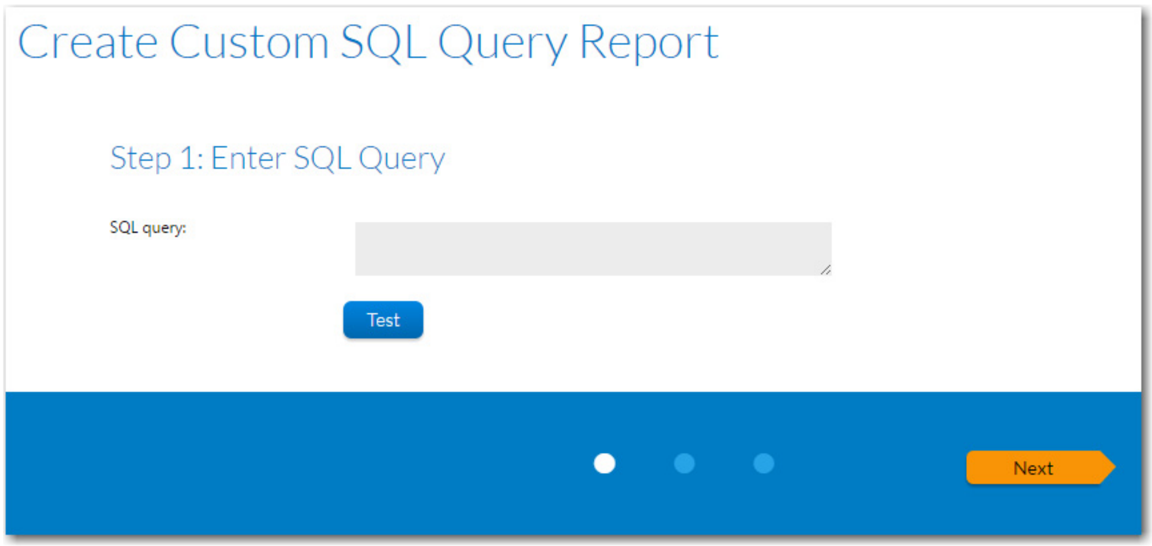
Generating a Custom SQL Query Report for AdminStudio

Edition • *Reports is included with AdminStudio Enterprise Edition and with Workflow Manager.*

You can generate a Custom SQL Query Report to include data generated by both AdminStudio and Workflow Manager. To generate a Custom SQL Query Report, perform the following steps.

Task ***To generate a new Custom SQL Query report:***

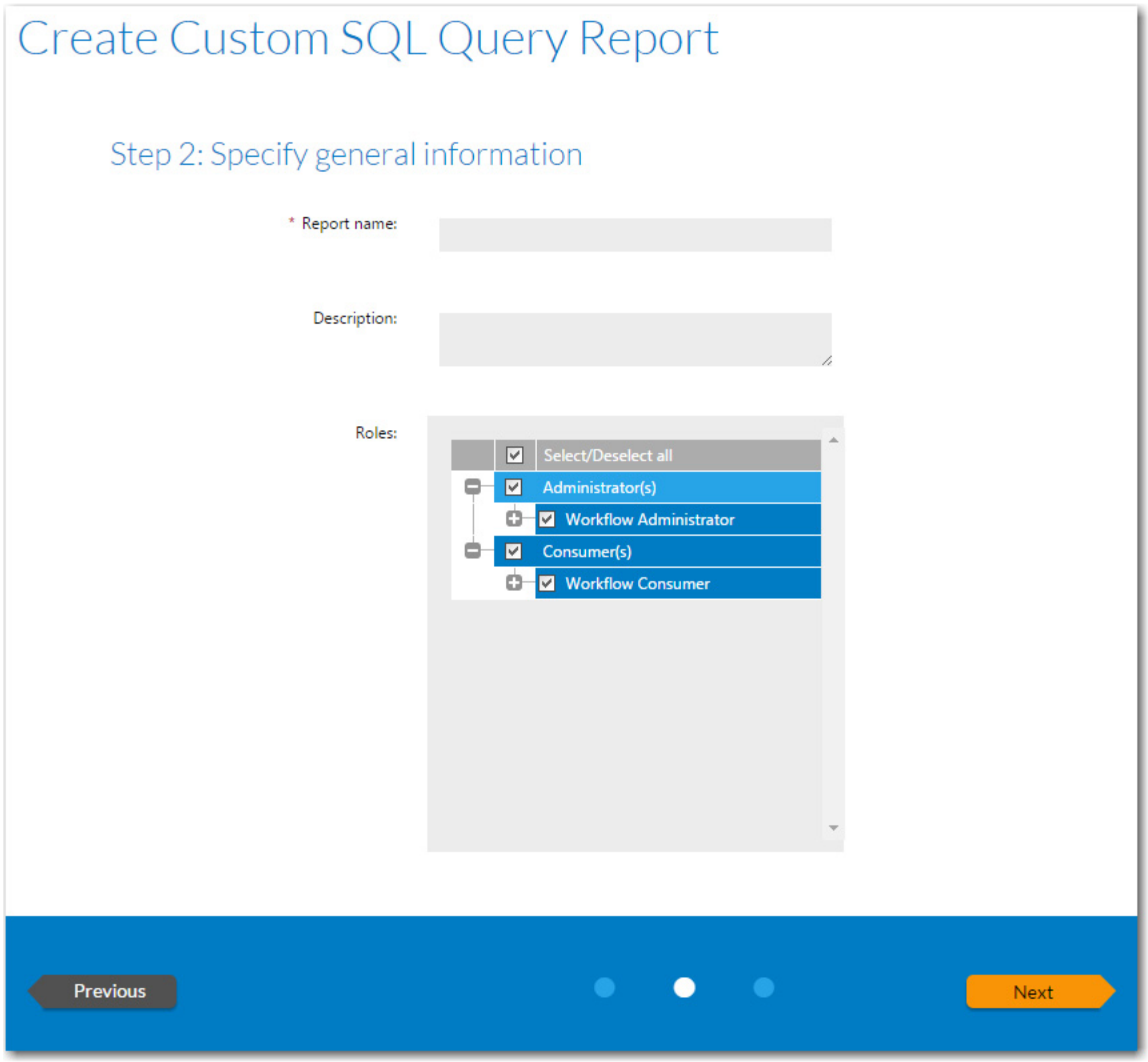
1. In the navigation bar, click **Create Custom SQL Query Report** on the **Reports** menu. The **Step 1: Enter SQL Query** panel of the **Create Custom SQL Query Report** page opens.



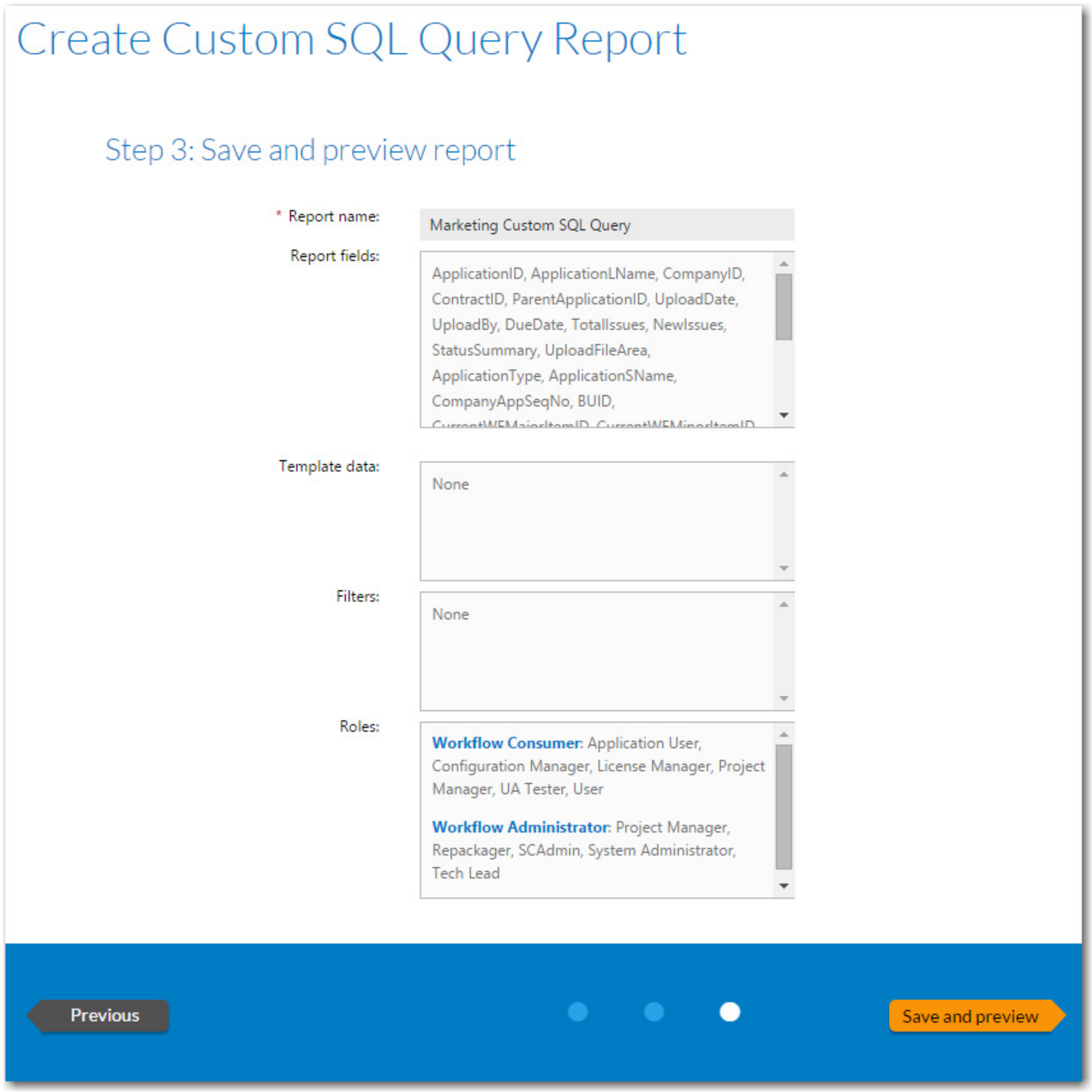
2. Enter an SQL query to retrieve the data for this report. Click the **Test Query** button to verify the query syntax.

Tip • *To assist you in writing queries to retrieve data, see Wildcard Support in Reports SQL Queries.*

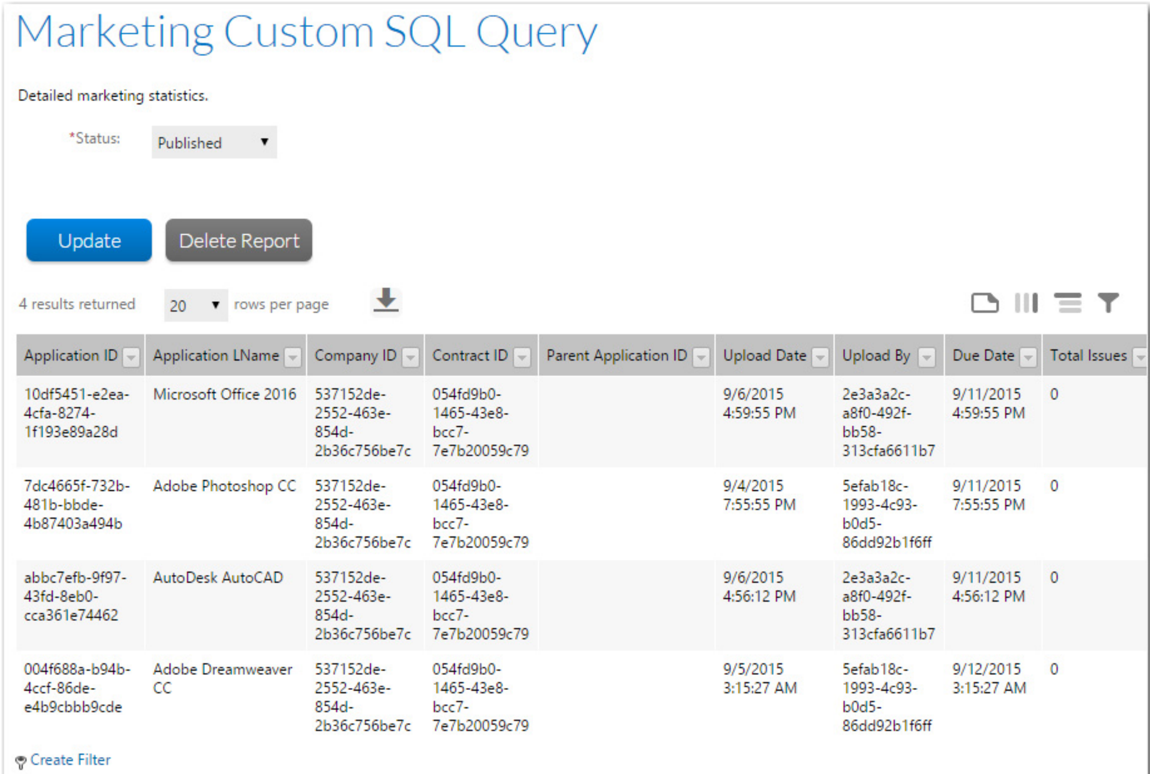
3. Click **Next**. The **Step 2: Specify general information** panel opens.



4. Enter a **Report name** and **Description** to clearly identify the contents and purpose of this report. This name and description will be listed on the **All Reports** page.
5. Select the roles that you want to have permission to view this report.
6. Click **Next**. The **Step 3: Save and preview report** page opens, which displays all the information needed to create the report.



7. Click **Save and preview**. The report is generated. This report is also saved and now appears in the list on the **All Reports** page.



Wildcard Support in Reports SQL Queries

In Reports searches, the `LIKE` operator is always used. You can combine the `LIKE` operator with a wildcard character, and the following rules apply:

Table 6-17 • Wildcard Support in Reports Queries

Situation	Rule
When no wildcards are used	If you do not enter a wildcard character in the **Search** box, then Reports performs a “LIKE” search, which searches for any occurrence of that text anywhere in the item that is being searched for. For example, if you are searching for a file name that has the word `test` anywhere in the file name, and you entered **`test`** in the **Search** box, it would be interpreted by Reports as: `*test*` And the following files would be found: `MyTestFile and TestFile`
When wildcards are used	You can specify a * wildcard in the **Search** box to narrow the search results. For example, if you are searching for a file name that includes the word `test`, but does not begin with it, and you entered `*test` in the **Search** box, `MyTest` would be returned, but not `TestFile`.

Generating a Custom Stored Procedure Report for AdminStudio

You have the option of generating an AdminStudio Enterprise Server report using a stored procedure. A **Custom Stored Procedure Report** is a report on data generated by AdminStudio that is defined by specifying a stored procedure.

- Generating a New Custom Stored Procedure Report
- Sample Custom Stored Procedure Report

Generating a New Custom Stored Procedure Report

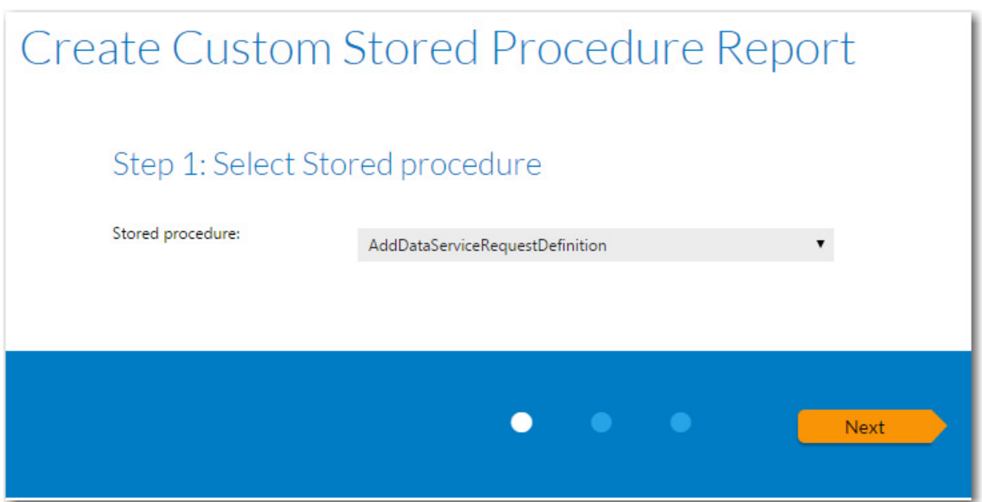
To generate a Custom Stored Procedure report, perform the following steps.

Task ***To generate a Custom Stored Procedure report:***

1. Open the `AMS_CustomReports` table and enter the names of the stored procedures you want to use to generate reports.

   Note • *For more information on stored procedures, see SQL Stored Procedures in Microsoft TechNet.*

2. In the navigation bar, click **Create Custom Stored Procedure Report** on the **Reports** menu. The Step 1: Select Stored procedure of the Create Custom Stored Procedure Report page opens.

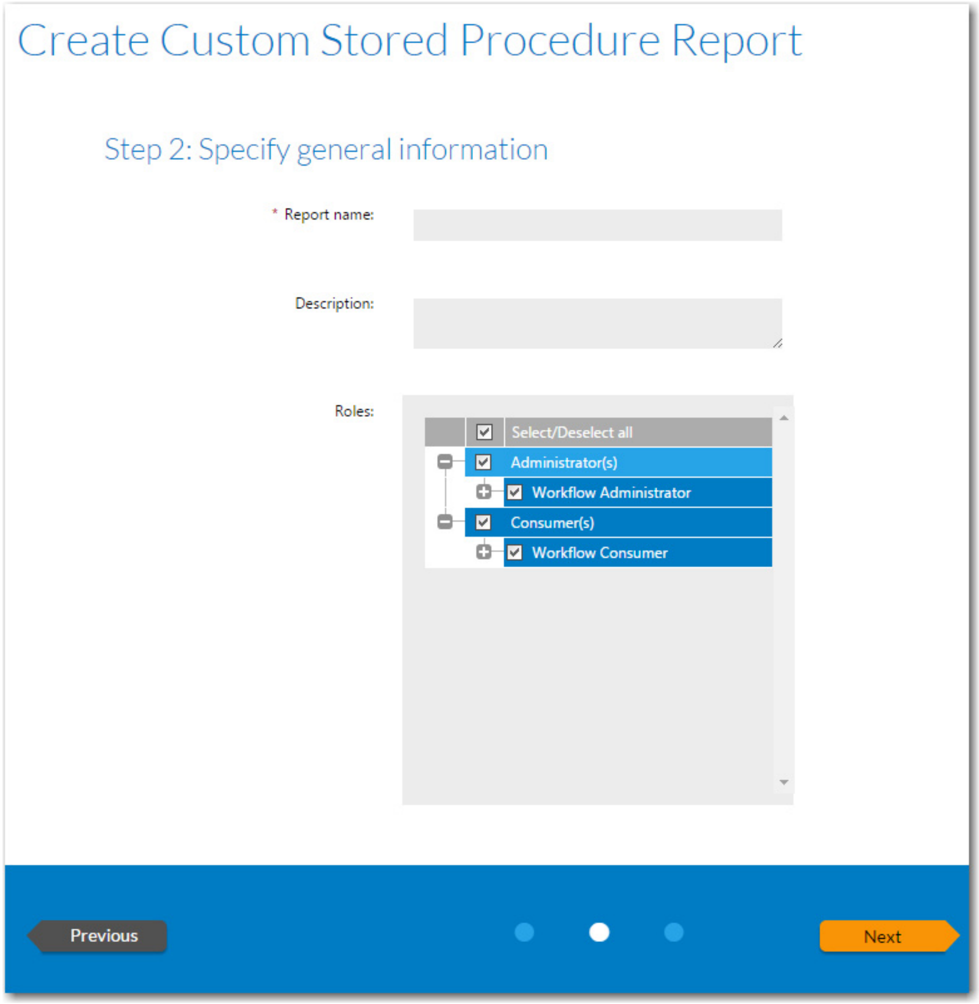
   

   The contents of this panel is determined by the selected stored procedure.

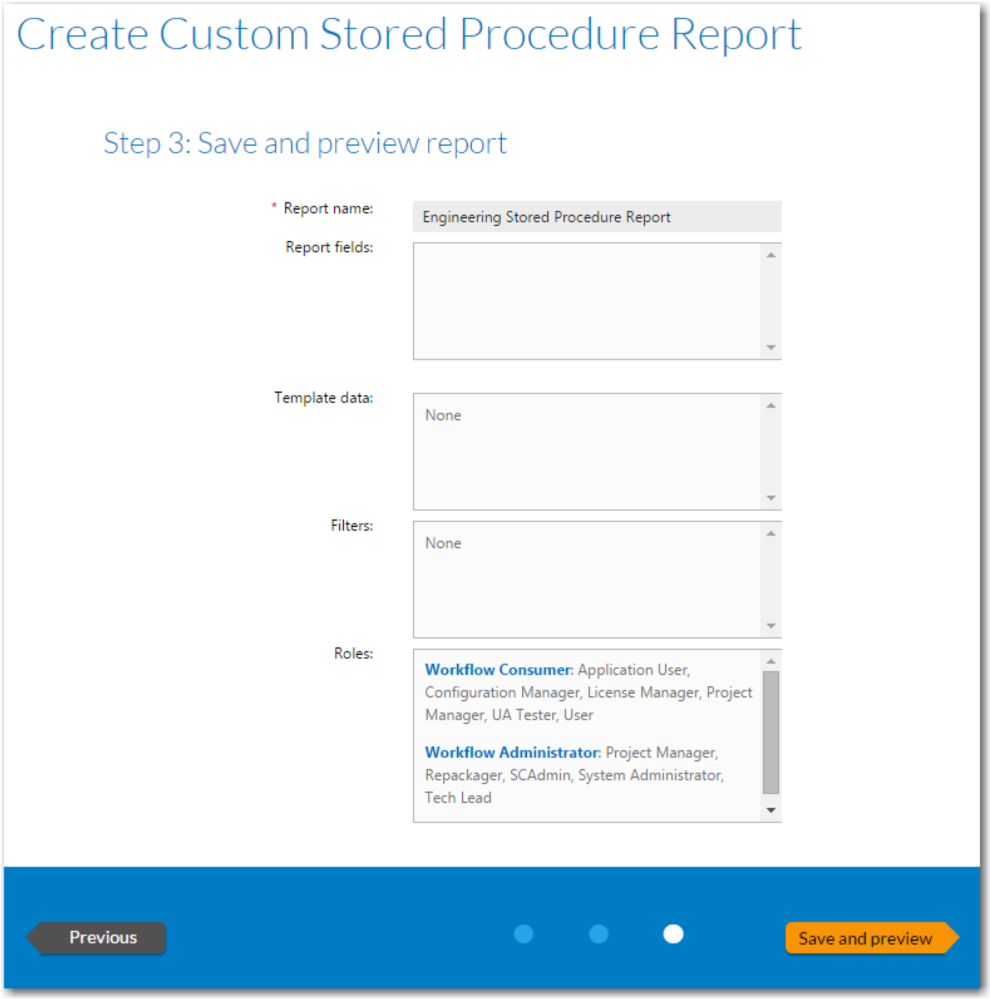
   Note • *This panel is customizable per customer need. The filters shown on the screen are based up on the parameters required by the stored procedure.*

3. Select a stored procedure from the list and specify any other requested information.

4. Click **Next**. The **Step 2: Specify general information** panel opens.



5. In the **Report name** field, enter a name to identify this report. This name will be listed on the **All Reports** page.
6. Enter a **Description** to identify the purpose of this report.
7. In the **Roles** section, select those roles that you want to assign permission to view this report.
8. Click **Next**. The **Step 3: Save and preview report** panel opens.



9. Click **Save and preview**. The report is displayed.

The report is now saved and available to view by users with appropriate permission.

Sample Custom Stored Procedure Report

A sample custom stored procedure report is shipped with Workflow Manager named `usp_GetReadOnlyWorkflows`. This report lists all of the workflow requests that are in “read-only” status due to a stopped SLA clock or having an open critical issue.

You can view this report by selecting **Create Custom Stored Procedure Report** from the **Reports** menu, and then selecting the `usp_GetReadOnlyWorkflows` from the **Stored procedure** list.

Specifying Predefined Parameters in a Custom Stored Procedure Report

You can specify known predefined parameters in a stored procedure. When the report is displayed, it will include drop down lists that users can use to filter the data displayed in the custom report.

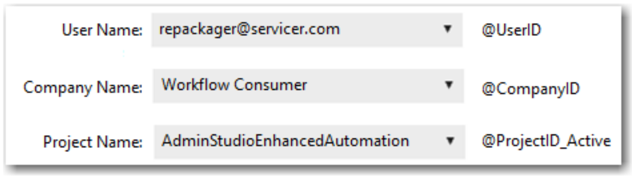


Figure 6-17: Predefined Parameters Displayed in Custom Stored Procedure Report

Workflow Manager ships with a default stored procedure named `usp_getreadonlyworkflows`. In this stored procedure, the following predefined parameters are supported:

Table 6-18 • Predefined Parameters

Parameters	Description
`@ApplicationID`	List of all the workflow request names.
`@ApplicationID_Completed`	List of all the workflow request names which are already completed.
`@ApplicationID_InProgress`	List of all the workflow request names which are in progress.
`@CompanyID`	For a consumer company, this will default to the company ID of the user's company. For an administrator company, this will default to the company ID of the user's company, but will also include the company IDs of corresponding client companies as well.
`@ProjectID`	List of all projects.
`@ProjectID_Active`	List of all active projects.
`@TemplateID`	List of all templates.
`@UserID`	List of all users based on CompanyID.
`@WorkflowStatus`	Values from `[AMS_ApplicationStatus]` table status.

You can also edit an XML file named `StoredProcParams.xml` in the Workflow Manager installation directory to add additional parameters.

```
<?xml version="1.0" encoding="UTF-8"?>
- <StoredProcParams>
      <!--can provide list of all template names no global templates-->
  - <Parameter>
      <Key>TemplateID</Key>
      <label>Template Name</label>
    - <Value>
        cdata
        <![CDATA[SELECT TEMPLATEID AS VALUE, TEMPLATENAME AS TEXT FROM AMS_TEMPLATES WHERE
        sCOMPANYID IN ( SELECT DISTINCT sc.CompanyID FROM AMS_Company sc WITH (NOLOCK),
        AMS_ServiceCompanyJoin scj WITH (NOLOCK) WHERE sc.CompanyID = '[CompanyId]' OR
        (sc.CompanyID = scj.CompanyID AND scj.ServiceCompanyID = '[CompanyId]'))]]>
      </Value>
    </Parameter>
      <!--can provide list of all project names-->
  - <Parameter>
      <Key>ProjectID</Key>
      <label>Project Name</label>
    - <Value>
        cdata
        <![CDATA[SELECT CONTRACTID AS VALUE, CONTRACTNAME AS TEXT FROM AMS_Contracts WHERE
        COMPANYID IN ( SELECT DISTINCT sc.CompanyID FROM AMS_Company sc WITH (NOLOCK),
        AMS_ServiceCompanyJoin scj WITH (NOLOCK) WHERE sc.CompanyID = '[CompanyId]' OR
        (sc.CompanyID = scj.CompanyID AND scj.ServiceCompanyID = '[CompanyId]')) ]]>
      </Value>
    </Par
```

Figure 6-18: StoredProcParams.xml File

This file installed in the following location:

`C:\AdminStudioWebComponents_2019\wwwroot\App_Data`

In the `StoredProcParams.xml` file, the `<Value>` element is a select statement that will be used to populate the drop down list for that parameter.

Viewing AdminStudio Application Catalog Reports

Edition • *Reports is included with AdminStudio Enterprise Edition and with Work flow Manager.*

Note • *In Workflow Manager, AdminStudio Application Catalog reports can be viewed by users in both Administrator and Consumer companies.*

On the **Application Catalog Reports** page, you can view a wide array of reports containing summary information on the applications in your Application Catalog. These reports give you insight into the readiness of those packages for distribution and for conversion to virtual packages.

You open the **Application Catalog Reports** page by selecting **Application Catalog Reports** on the **Reports** menu of the navigation bar. You switch between reports by selecting the report name from the **Select Report** list.

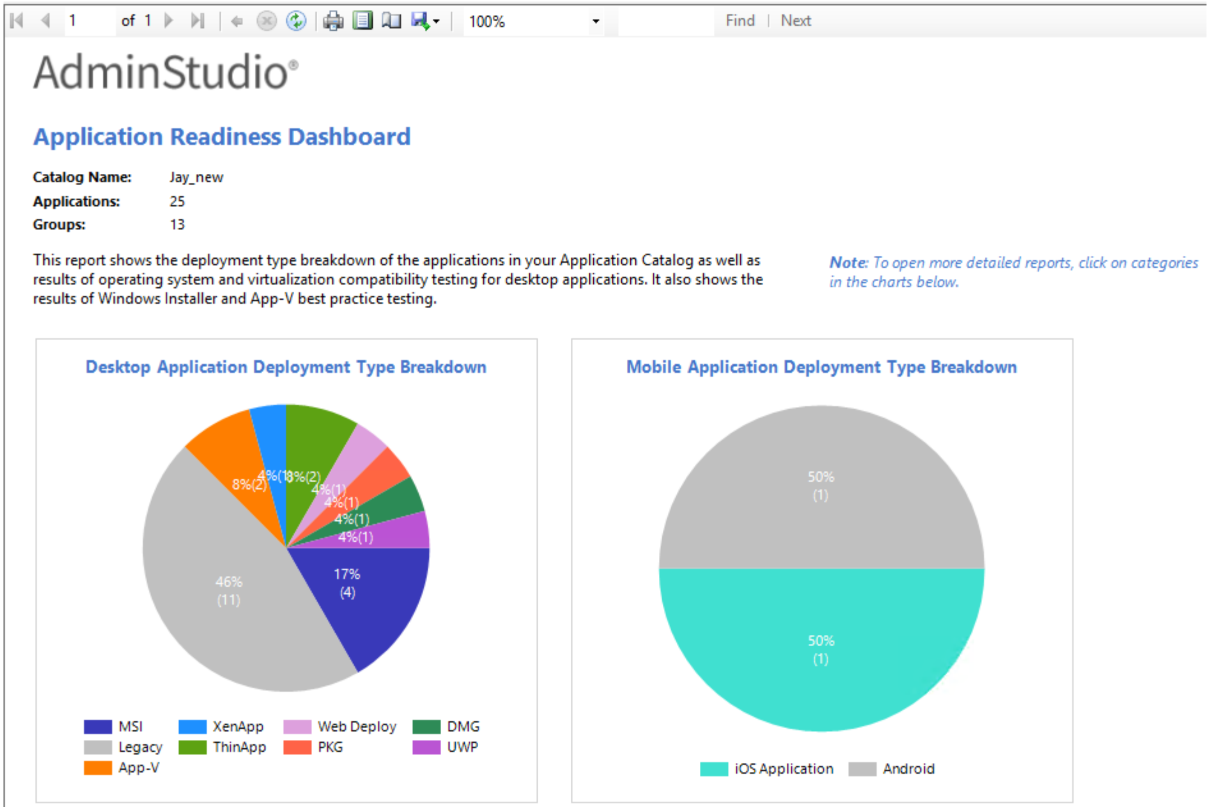


Figure 6-19: Application Readiness Dashboard Report

The available reports include test results from operating system compatibility, browser compatibility, virtualization compatibility, remote application publishing compatibility, best practices testing, and application conflict testing. For Mac OS, Apple iOS, Google Android, and Microsoft Windows Phone mobile apps, reports on feature use, risk assessment, device compatibility, and/or policy compatibility are available. Reports are also included on App-V packages in your Application Catalog, as well as Microsoft System Center Configuration Manager deployment information.

For most reports, detailed sub-reports are available by clicking on one of the categories of the pie bar chart, on one of the numbers in an issue count column, or on a package name. Click on the available hyperlinks until you have explored all of the levels of the report.

Generating and Viewing Workflow Manager Reports

Edition • *This feature is available in Workflow Manager only.*

Both workflow consumers and administrators can generate reports. All reports can be filtered by many common fields (such as project, company, and so on), and you can also export reports to many different formats, including PDF, RTF, XLSX, and CSV.

This section includes topics on the following:

- Generating Standard Reports
- Creating Custom Reports
- Exporting Report Data from Reports

Note • *You must be a Workflow Administrator with Administrative permissions to create a Report.*

Generating Standard Reports

Edition • *This feature is available in Workflow Manager only.*

Workflow administrators can open five system reports from the **All Reports** page. These reports provide you with detailed summary information about a company's projects and workflow requests.

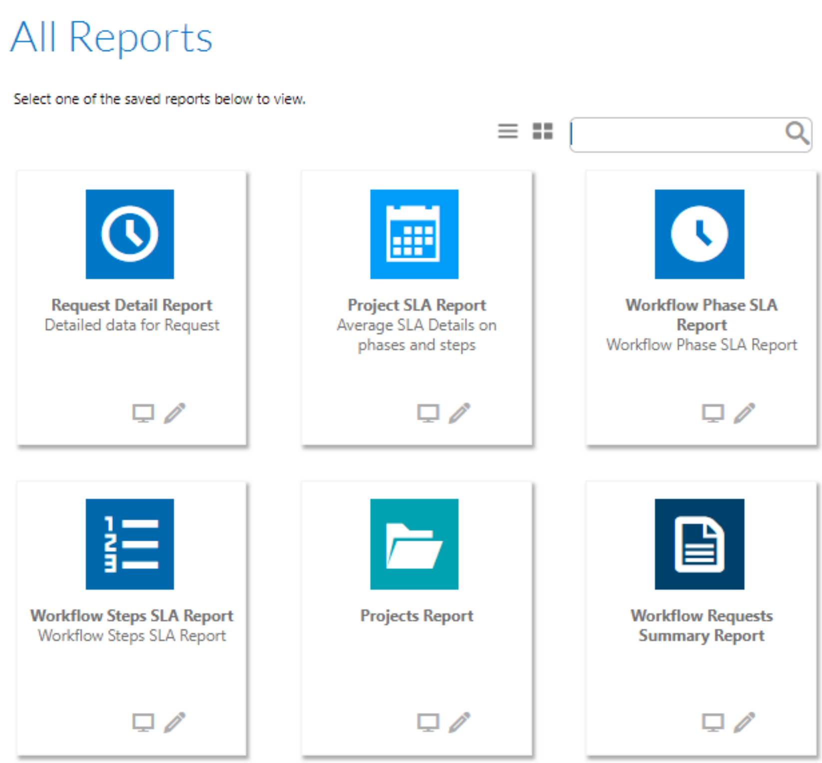


Figure 6-20: System Reports on the All Reports Page

The following reports are available:

- **Projects Report**—A report that groups projects by customer and returns summarized information including the progress and Service Level Agreement (SLA) status of workflow requests. You can choose to return information about one project or all of a company's projects. See Generating a Projects Report.

- **Workflow Requests Summary Report**—A report that lists all of a company's workflow requests, displaying the SLA status and workflow progress of each request. You can filter this report by SLA status. See Generating a Workflow Requests Summary Report.
- **Request Detail Report**—A report that lists information on workflow requests for a specific project. See Generating a Request Detail Report.
- **Project SLA Report**—A report that measures and reports on the SLA status for a specific project, or for all projects, during a specific date range. See Generating a Project SLA Report.
- **Workflow Phases SLA Report**—A report that lists all workflow phases for which phase-level SLA tracking is being performed along with their **SLA Status**. See Generating a Workflow Phases SLA Report.
- **Workflow Steps SLA Report**—A report that lists all workflow steps for which step-level SLA tracking is being performed along with their **SLA Status**. See Generating a Workflow Steps SLA Report.

Opening a System Report

You can open all of these System Reports from either the **All Reports** page or by selecting them on the **Reports** menu of the navigation bar.

Task ***To open a System Report:***

1. Click on a report name on the **Reports** menu of the navigation bar.
2. Follow the instructions in one of the following topics:
   - Generating a Projects Report
   - Generating a Workflow Requests Summary Report
   - Generating a Request Detail Report
   - Generating a Project SLA Report
   - Generating a Workflow Phases SLA Report
   - Generating a Workflow Steps SLA Report

Setting View Permissions for the Projects or Workflow Requests Summary Reports

You can specify which roles at your company are able to view the Projects and the Workflow Requests Summary reports.

Task ***To set view permissions:***

1. On the **All Reports** page, click the Edit icon **Projects Report** or **Workflow Requests Summary Report**. The report's information panel opens, listing all of the roles for both the Workflow Consumer and Workflow Administrator company.
2. Select the roles that you want to be able to view the selected report.
3. Click **Save**.

Generating a Projects Report

Edition • *This feature is available in Workflow Manager only.*

A **Projects Report** groups projects by customer and returns summarized information including the progress and Service Level Agreement (SLA) status of workflow requests. You can choose to return information about one project or all of a company's projects.

Task ***To view a Projects Report:***

1. Click **Projects Report** on the **Reports** menu. The **Projects Report** page opens.
2. Select the company that you want to report on from the **Company** list.
3. Choose one of the company's projects from the **Projects** list, or select **** View for all **** to return information about all of a company's projects.
4. To return only workflow requests with specific SLA Status values, choose one or more of: **Completed On Time**, **Completed Late**, **On Time**, **At Risk**, or **Late**. Select all of these if you want to report on all workflow requests.
5. Click **View Report**. The **Projects Report** opens. See Projects Report for more information.

Generating a Workflow Requests Summary Report

Edition • *This feature is available in Workflow Manager only.*

A **Workflow Requests Summary Report** groups workflow requests by company, and presents information on their progress and Service Level Agreement (SLA) status.

You can choose to return information about one workflow request or about all of a company's workflow requests. You can also filter the report by SLA status.

Task ***To view a Workflow Requests Summary Report:***

1. Click **Workflow Requests Summary Report** on the **Reports** menu. The **Workflow Requests Summary Report** page opens.
2. From the **Company** list, select the company that you want to view a report on.
3. Select one of the following options to specify which requests to include in this report:
    - **Single Workflow Request**—Select this option to return information about only one workflow request, which you select from the associated combo box.
    - **Multiple Workflow Requests**—Select this option to return all workflow requests with specific SLA status values. Choose one or more of **Completed On Time**, **Completed Late**, **On Time**, **At Risk**, or **Late** to indicate which workflow requests you wish to return. Select all of these options to return all workflow requests associated with a project

4. If you chose to generate a report about a single workflow request, the **Additional Metadata Filter Conditions** check box becomes visible. Select this check box to return filter your report by the values provided by people as they complete the data elements in a workflow request. If you select the checkbox, the metadata filter fields appear, and you should do the following:

    a. Select the data element that you want to filter by from the **Metadata Field** list.

    b. Enter a value for the selected **Metadata Field** in the **Condition Value** box, or select a value from the **Values List** (when available).

    c. Select the appropriate **Operator** from the list (`AND` or `OR`).

    d. Continue adding **Metadata Fields**, if desired. You can filter by up to four fields.

5. Click **View Report**. The **Workflow Requests Summary Report** opens. See Workflow Requests Summary Report for more information.

Generating a Request Detail Report

Edition • *This feature is available in Workflow Manager only.*

A **Request Detail Report** groups workflow requests by project, and presents information on their progress and Service Level Agreement (SLA) status.

You can choose to return information about workflow requests for one project or for all of the projects of a company.

Task ***To view a Request Detail report:***

1. Click **Request Detail Report** on the **Reports** menu on the navigation bar. The **Request Detail Report** page opens.

2. From the **Company/Business Unit Name** list, select the company that you want to view a report on. You can also select **** View for all ****.

3. From the **Template** list, select a template. You can also select **** View for all ****.

4. From the **Project** list, select a template. You can also select **** View for all ****.

5. From the **Date Range From** and **Date Range To** lists, specify the date range that you want the report to cover.

6. Click **View Report**. The **Request Detail Report** opens. See Workflow Requests Summary Report for more information.

Generating a Project SLA Report

Edition • *This feature is available in Workflow Manager only.*

You can generate a **Project SLA Report** to measure and report on the SLA status for a specific project, or for all projects, during a specific date range. This helps you helps you analyze the delivery time for any completed project, and identify bottlenecks and weak points in your process.

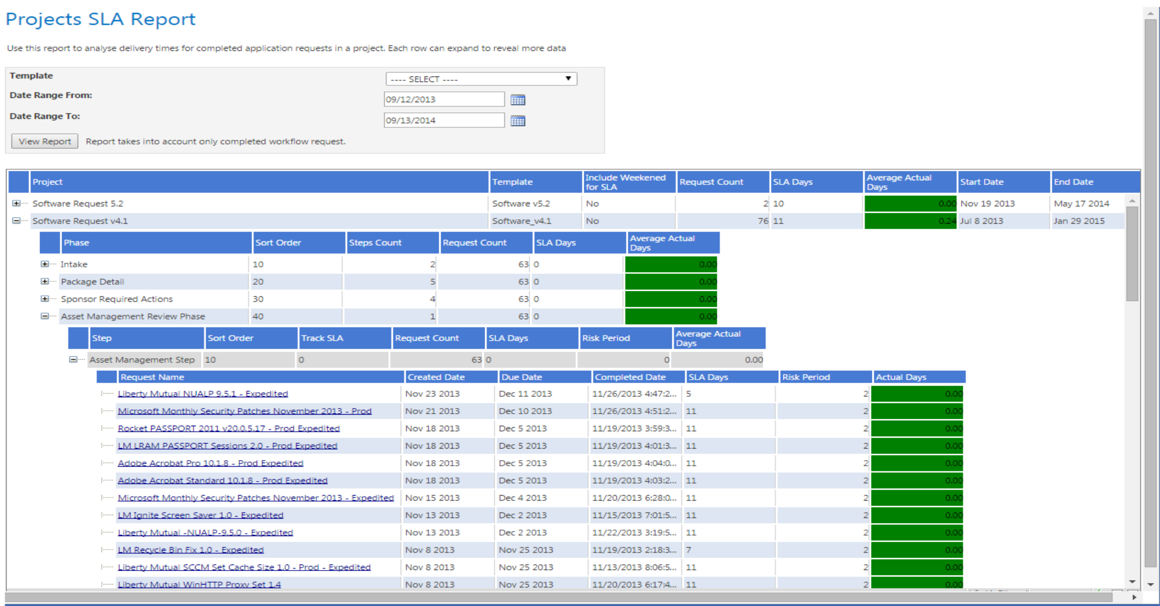
Using this report, you can view projects within a specific date range, and then drill down from project level to workflow requests across both phases and steps to see the SLA status at each level.

Task ***To generate a Project SLA Report:***

1. Click **Project SLA Report** on the **Reports** menu on the navigation bar. The **Project SLA Report** page opens.
2. From the **Template** list, select the name of the Workflow Template used by the project or projects that you want to view SLA information for.

   Important • *To generate a report that lists SLA data for all projects during a specific date range, do not make a selection from the **Template** list.*

3. For the **Data Range From** and **Date Range To** fields, identify the date range for which you want to view project data.
4. Click **View Report** to generate the Project SLA Report.



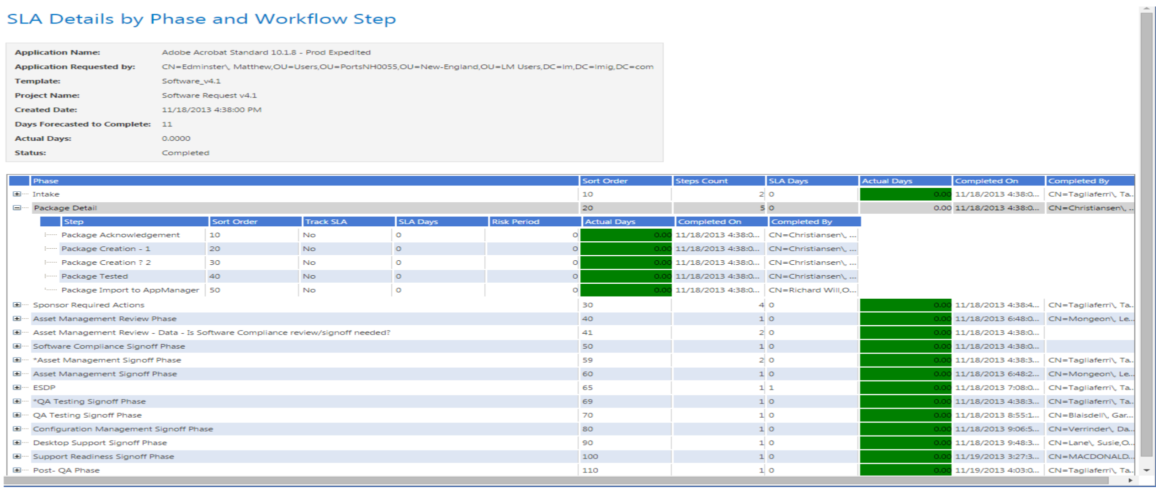
5. Click the plus signs to expand the listing to view SLA data across phases and steps for a specific project.
6. To view SLA information on a specific workflow request, click the hyperlinked **Request Name** to open the SLA Details by Phase and Workflow Step Subreport for that workflow request.

SLA Details by Phase and Workflow Step Subreport

The **SLA Details by Phase and Workflow Step** report lists SLA data for a specific workflow request.

Task ***To open an SLA Details by Phase and Workflow Step report:***

1. Open a Project SLA Report, as described in Generating a Project SLA Report.
2. Click the plus signs to expand the listing until you can view the SLA data for a specific workflow step. Workflow requests that contain that workflow step are listed.
3. Under the expanded workflow step, click the hyperlinked **Request Name** to open the **SLA Details by Phase and Workflow Step Subreport** for that workflow request.


SLA Details by Phase and Workflow Step

Application Name:	Adobe Acrobat Standard 10.1.8 - Prod Expedited
Application Requested by:	CN=Edminster\, Matthew,OU=Users,OU=PortsNH0055,OU=New-England,OU=LM Users,DC=lm,DC=lmig,DC=com
Template:	Software_v4.1
Project Name:	Software Request v4.1
Created Date:	11/18/2013 4:38:00 PM
Days Forecasted to Complete:	11
Actual Days:	0.0000
Status:	Completed

Phase	Sort Order	Steps Count	SLA Days	Actual Days	Completed On	Completed By
Intake	10	2	0	0.00	11/18/2013 4:38:0...	CN=Tagliaferri\, Ta..
Package Detail	20	5	0	0.00	11/18/2013 4:38:0...	CN=Christiansen\, ..

Step	Sort Order	Track SLA	SLA Days	Risk Period	Actual Days	Completed On	Completed By
Package Acknowledgement	10	No	0	0	0.00	11/18/2013 4:38:0...	CN=Christiansen\, ...
Package Creation - 1	20	No	0	0	0.00	11/18/2013 4:38:0...	CN=Christiansen\, ...
Package Creation ? 2	30	No	0	0	0.00	11/18/2013 4:38:0...	CN=Christiansen\, ...
Package Tested	40	No	0	0	0.00	11/18/2013 4:38:0...	CN=Christiansen\, ...
Package Import to AppManager	50	No	0	0	0.00	11/18/2013 4:38:0...	CN=Richard Will,O...

Phase	Sort Order	Steps Count	SLA Days	Actual Days	Completed On	Completed By
Sponsor Required Actions	30	4	0	0.00	11/18/2013 4:38:4...	CN=Tagliaferri\, Ta..
Asset Management Review Phase	40	1	0	0.00	11/18/2013 6:48:0...	CN=Mongeon\, Le..
Asset Management Review - Data - Is Software Compliance review/signoff needed?	41	2	0	0.00	11/18/2013 4:38:0...	
Software Compliance Signoff Phase	50	1	0	0.00	11/18/2013 4:38:0...	
*Asset Management Signoff Phase	59	2	0	0.00	11/18/2013 4:38:3...	CN=Tagliaferri\, Ta..
Asset Management Signoff Phase	60	1	0	0.00	11/18/2013 6:48:2...	CN=Mongeon\, Le..
ESDP	65	1	1	0.00	11/18/2013 7:08:0...	CN=Tagliaferri\, Ta..
*QA Testing Signoff Phase	69	1	0	0.00	11/18/2013 4:38:3...	CN=Tagliaferri\, Ta..
QA Testing Signoff Phase	70	1	0	0.00	11/18/2013 8:55:1...	CN=Blaisdell\, Gar...
Configuration Management Signoff Phase	80	1	0	0.00	11/18/2013 9:06:5...	CN=Verrinder\, Da..
Desktop Support Signoff Phase	90	1	0	0.00	11/18/2013 9:48:3...	CN=Lane\, Susie,O...
Support Readiness Signoff Phase	100	1	0	0.00	11/19/2013 3:27:3...	CN=MACDONALD...
Post- QA Phase	110	1	0	0.00	11/19/2013 4:03:0...	CN=Tagliaferri\, Ta..

4. To view the SLA data for other workflow steps in that workflow request, use the plus signs to expand the listing.

Generating a Workflow Phases SLA Report

Edition • *This feature is available in Workflow Manager only.*

A **Workflow Phases SLA Report** lists all workflow phases for which step-level SLA tracking is being performed along with their **SLA Status**. SLA (Service Level Agreement) time tracking is used to determine the status of a workflow phase (or workflow request) in relationship to its SLA due date as either: In Progress, On Time, At Risk, Late, Completed on Time, or Completed Late.

Note • *For information on enabling workflow-*phase *level SLA tracking, see "Tracking a Workflow Request or Workflow Phase's SLA Status" in the Workflow Manager Help Library.*

Task ***To generate a Workflow* Phases *SLA Report:***

1. Click **Workflow Phases SLA Report** on the **Reports** menu on the navigation bar. The **Workflow Phases SLA Report** page opens.
2. To display the SLA status of workflow steps from all workflow requests, even those that have been completed, clear the selection of the **Only include Workflow Phases in active Workflow Requests** option and click **Refresh Report**.

Generating a Workflow Steps SLA Report

Edition • *This feature is available in Workflow Manager only.*

A **Workflow Steps SLA Report** lists all workflow steps for which step-level SLA tracking is being performed along with their **SLA Status**. SLA (Service Level Agreement) time tracking is used to determine the status of a workflow step (or workflow request) in relationship to its SLA due date as either: In Progress, On Time, At Risk, Late, Completed on Time, or Completed Late.

Note • *For information on enabling workflow-step level SLA tracking, see "Tracking a Workflow Request or Workflow Step's SLA Status" in the Workflow Manager Help Library.*

Task ***To generate a Workflow Steps SLA Report:***

1. Click **Workflow Steps SLA Report** on the **Reports** menu on the navigation bar. The **Workflow Steps SLA Report** page opens.
2. To display the SLA status of workflow steps from all workflow requests, even those that have been completed, clear the selection of the **Only include Workflow Steps in active Workflow Requests** option and click **Refresh Report**.

Creating Custom Reports

Edition • *This feature is available in Workflow Manager only.*

You can create the following types of custom reports using the Reports Wizard:

- **Custom Report**—A custom report defined by using the Reports Wizard. See Creating a Custom Report.
- **Activity Report**—A custom report, which you define using the Report Wizard, that displays a listing of activities that occur during the completion of a request. See Creating an Activity Report.
- **Custom SQL Query Report**—A custom report defined by entering an SQL query in the Report Wizard. See Generating a Custom SQL Query Report.
- **Custom Stored Procedure Report**—A custom report defined by specifying a stored procedure in the Report Wizard. See Generating a Custom Stored Procedure Report.

Additional information is provided in this section that may help you generate custom reports:

- **Wildcard Support in Reports SQL Queries**—You can combine the SQL `LIKE` operator with wildcard characters to perform searches. See Wildcard Support in Reports SQL Queries.
- **Sample SQL Queries Used to Generate Project and Workflow Request Reports**—Sample SQL queries that are used to generate the built-in Project and Workflow Requests reports are provided. These sample queries might be helpful to refer to when you are creating your own custom reports. See Sample SQL Queries Used to Generate Project and Workflow Request Reports.

Creating a Custom Report

Edition • *This feature is available in Workflow Manager only.*

To create a new custom report, perform the following steps.

Task ***To create a new report:***

1. In the navigation bar, click **Create Custom Workflow Manager Report** on the **Reports** menu. The **Step 1: Select report objects** panel of the **Create Custom Workflow Manager Report** page opens.
2. Select the objects that you would like to include in the report and click **Next**. The **Select report fields** panel opens, listing all of the defined fields by object type. Only the objects that you selected in the previous step will be listed.
3. Select the report fields that you would like to include in the report and click **Next**. The **Select report filters** panel opens, where you can filter the data that you want to appear in the report.
4. Click on a field in the tree and set its filter on the right side using the drop-down boxes and the text box, selecting appropriate logical conditions which are populated according to the selected field. Each time you create a filter, click **Add** to add the filter to the current filter conditions.

   Note • *Even though you may not have included all of the available report fields in this report, you can still filter the data using all of these report fields.*

5. Click **Test** to test the created query for your report.
6. When you are satisfied with the filter conditions, click **Next**. The **Templates** panel opens, listing all available template data.
7. Expand the templates in the tree and select the data that you want to include in the report. All of the data groups and data elements associated with the selected template are listed.

   To display only those templates that are in use in the **Available Templates** list, select the **Templates in use only** option.

8. Click **Next**. The **Specify general information** panel opens.
9. Enter a **Report name** and **Description** to clearly identify the contents and purpose of this report. This name and description will be listed on the **All Reports** page.
10. Select the Administrator and Consumer roles that you want to have permission to view this report.

11. Click **Next**. The **Save and preview report** panel opens, which displays all the information needed to create the report.

12. Click **Save and preview**. The report is generated. This report is also saved and now appears in the list on the **All Reports** page.

Creating an Activity Report

Edition • *This feature is available in Workflow Manager only.*

Every time an activity or event occurs during the completion of a request, Workflow Manager records that activity. You can view a listing of these activities in the Activity Report, a custom report which you define using the Report Wizard.

- Activities Displayed in the Activity Report
- Information that Can Be Included in an Activity Report
- How to Create an Activity Report

Activities Displayed in the Activity Report

The Activity Report lists a record for each time one of the following activities occurs during the completion of a request:

Table 6-19 • Activities Listed in the Activity Report

Activity	Description
Request Name Change	Occurs when a user edits the **Workflow Name** field on the **Properties** tab of the **Workflow Request** page and clicks **Update**.
Request Status Changed	Occurs when a user edits the **Status** of a request on the **Properties** tab of the **Workflow Request** page and clicks **Update**.
Data Acceptance Begins	Occurs when a user clicks the **Submit** button after they have entered all of the initial data that is required for a request (the Data Entry Step of the first Workflow Phase). ***Note*** • *This event occurs simultaneously with the Data Submission Complete event.*
Data Acceptance Cancel	Occurs when a Workflow Administrator clicks the **Reject Data** button to reject the data submitted during a request's Data Entry Step. Each time data is rejected, three activities are recorded: • Data Acceptance Cancel • Data Rejected • Data Submission Begins
Data Acceptance Complete	Occurs when a Workflow Administrator clicks the **Accept Data** button after reviewing the data submitted during a request's Data Entry Step.

Table 6-19 • Activities Listed in the Activity Report (cont.)

Activity	Description
Data Changed	Occurs when a user clicks **Update** after editing data that was submitted as part of a request.
Data Edit	Occurs when a user clicks the name of a Data Entry Workflow Step, and then clicks the **Edit Data** button.
Data Rejected	Occurs when a Workflow Administrator clicks the **Reject Data** button to reject the data submitted during a request's Data Entry Step. Each time data is rejected, three activities are recorded: • Data Acceptance Cancel • Data Rejected • Data Submission Begins
Data Submission Begins	Because the first Workflow Step of the first Workflow Phase of every Request is a Data Entry step, each time a Workflow Consumer or Workflow Administrator submits a new Request, this activity occurs when the **Submit** button is clicked. ***Note •*** *When Workflow Consumers submit a request, they are immediately prompted to enter the required data. However, when Workflow Administrators submit a request, they are not prompted to enter the required data until they click on the first workflow step of the first workflow phase on the* ***Workflow Request*** *page.*
Data Submission Complete	Occurs when a user clicks the **Submit** button after they have entered all of the initial data that is required for a request (the Data Entry Step of the first Workflow Phase). ***Note •*** *This event occurs simultaneously with the Data Acceptance Begins event.*
SLA Start	Occurs when a user clicks the **Start Clock** button on the **Workflow Request** page to restart monitoring of SLA time for the current workflow step.
SLA Stop	Occurs when a user clicks the **Stop Clock** button on the **Workflow Request** page to stop monitoring of SLA time for the current workflow step.
Workflow Phase Begins	Occurs when the last workflow step in the previous workflow phase is completed.
Workflow Phase Cancel	Occurs when all workflow steps in a workflow phase are rolled back.
Workflow Phase Complete	Occurs when the last Workflow Step of a Workflow Phase is completed.
Workflow Step Begins	Occurs when the previous Workflow Step in a Workflow is completed.

Table 6-19 • Activities Listed in the Activity Report (cont.)

Activity	Description
Workflow Step Cancel	Occurs when a Workflow is rolled back to previous Workflow Step, which cancels the completion state of all of the Workflow Steps between the current step and the one that is rolled back to.
Workflow Step Complete	Occurs when a Workflow Step is completed, one of the following events occurs (depending upon the **Step Type**): • **Data Entry/Edit**—Occurs when a user clicks **Submit** after entering the required data. • **Normal**—Occurs when a user clicks **OK** after entering time information on the **Step Validation** dialog box. • **Update History**—Occurs when a user clicks **OK** after entering information on the Update History dialog box to document a Workflow Step/Phase. • **Workflow Assignment**—Occurs when a user clicks **Apply** on the **Assignment Details** page after assigning a user to roles associated with this Request. • **Script Execution**—Occurs when a user clicks this Workflow Step name on the **Workflow Request** page, which launches a user-specified executable file. • **Custom Web Page**—Occurs when a user clicks this Workflow Step name on the **Workflow Request** page, which opens a user-specified URL address in a new browser window.
Workflow Step Rollback	Occurs when a user enters a reason for rollback and clicks the **Rollback** button on the **Rollback Workflow Item** dialog box (which is opened by clicking the check mark next to the name of a completed Workflow Step).

Information that Can Be Included in an Activity Report

Each time an activity occurs, the following information is recorded:

Table 6-20 • Available Activity Report Fields

Field	Description
Activity Date	Date and time that an activity occurred.
Activity Name	Name of event that was recorded. See Activities Displayed in the Activity Report for a complete list.
Activity Owner	User who was “assigned” to the Workflow Step that was active when the activity occurred; the user who performed the activity.
Workflow Name	Name of the request that the activity was associated with.
Data Major	Name of the data group that contains a data element that was modified.
Data Minor	Name of the data element that was modified.

Table 6-20 • Available Activity Report Fields

Field	Description
New Value	Modified value of the edited data element.
Old Value	Previous value of the edited data element.
Project Name	Name of project that the request associated with this Activity is associated with.
Workflow Major	Name of the Workflow Phase that contains the Workflow Step that was current when the activity occurred.
Workflow Minor	Name of the Workflow Step that was current when the activity occurred.

When defining an Activity Report, you choose which of these fields to include in the report. You can also choose to include any data that was entered for a request, and you can also filter the report based upon the value of one of the available report fields.

How to Create an Activity Report

To create a Custom Activity Report, perform the following steps.

Task ***To create an Activity Report:***

1. In the navigation bar, click **Create Workflow Request Activity Report**. The **Select report objects** panel of the **Create Workflow Request Activity Report** page opens.
2. Leave **Activities** selected and click **Next**. The **Select report fields** panel opens.
3. Select the report fields that you would like to include in the Activity Report and click **Next**. The **Define report filters** panel opens, where you can filter the data that you want to appear in the report.

   Note • *For a listing of the report fields available in the Activity Report, see Information that Can Be Included in an Activity Report.*
4. Click on a field in the tree and set its filter on the right side using the drop-down boxes and the text box, selecting appropriate logical conditions which are populated according to the selected field. Each time you create a filter, click **Add** to add the filter to the current filter conditions.

   Note • *Even though you may not have included all of the available report fields in this report, you can still filter the data using all of these report fields.*
5. Click **Test** to test the created query for your report.
6. When you are satisfied with the filter conditions, click **Next**. The **Templates** panel opens, listing all available Templates.

7. Expand the templates in the tree and select the data that you want to include in the report. All of the data groups and data elements associated with the selected template are listed.

   To display only those templates that are in use in the **Available Templates** list, select the **Templates in use only** option.

8. Click **Next**. The **Specify general information** panel opens.
9. Enter a **Report name** and **Description** to clearly identify the contents and purpose of this report. This name and description will be listed on the **All Reports** page.
10. Select the Administrator and Consumer roles that you want to have permission to view this report.
11. Click **Next**. The **Save and preview report** panel opens, which displays all the information needed to create the report.
12. Click **Save and preview**. The report is generated. This report is also saved and now appears in the list on the **All Reports** page.

Generating a Custom SQL Query Report

Edition • *This feature is available in Workflow Manager only.*

A **Custom SQL Query Report** is a report on data generated by Workflow Manager that is defined by entering an SQL query in the Report Wizard. To generate a Custom SQL Query Report, perform the following steps.

Task ***To generate a new Custom SQL Query report:***

1. In the navigation bar, click **Create Custom SQL Query Report**. The **Enter SQL Query** panel of the **Create Custom SQL Query Report** page opens.
2. Enter the SQL query which is to retrieve data for your report into the **Custom SQL Query** text field to retrieve the data for this report. Click the **Test** button to verify the query syntax.

   Note • *Refer to* *Enter SQL Query Panel* *for information about Workflow Manager database tables which you might want to return data from.*

3. Click **Next**. The **Specify general information** panel opens.
4. Enter a **Report name** and **Description** to clearly identify the contents and purpose of this report. This name and description will be listed on the **All Reports** page.
5. Decide which roles should have the right to view your report, selecting them from the **Roles** tree
6. Click **Next**. The **Save and preview report** panel opens, summarizing the information that will be used to create your report.
7. Click **Save and preview**. Your report is generated. The report will now also appear in the list on the **All Reports** page.

Generating a Custom Stored Procedure Report

You have the option of generating a Workflow Manager report using a stored procedure. A **Custom Stored Procedure Report** is a report on data generated by Workflow Manager that is defined by specifying a stored procedure.

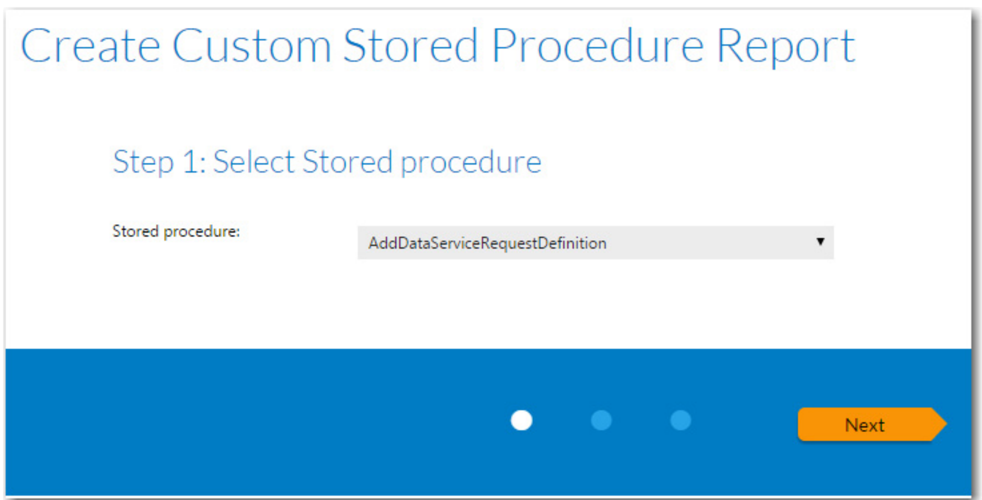
To generate a Custom Stored Procedure report, perform the following steps.

Task ***To generate a Custom Stored Procedure report:***

1. Open the `AMS_CustomReports` table and enter the names of the stored procedures you want to use to generate reports.

   Note • *For more information on stored procedures, see SQL Stored Procedures in Microsoft TechNet.*

2. In the navigation bar, click **Create Custom Stored Procedure Report** on the **Reports** menu. The **Step 1: Select Stored procedure** of the **Create Custom Stored Procedure Report** page opens.

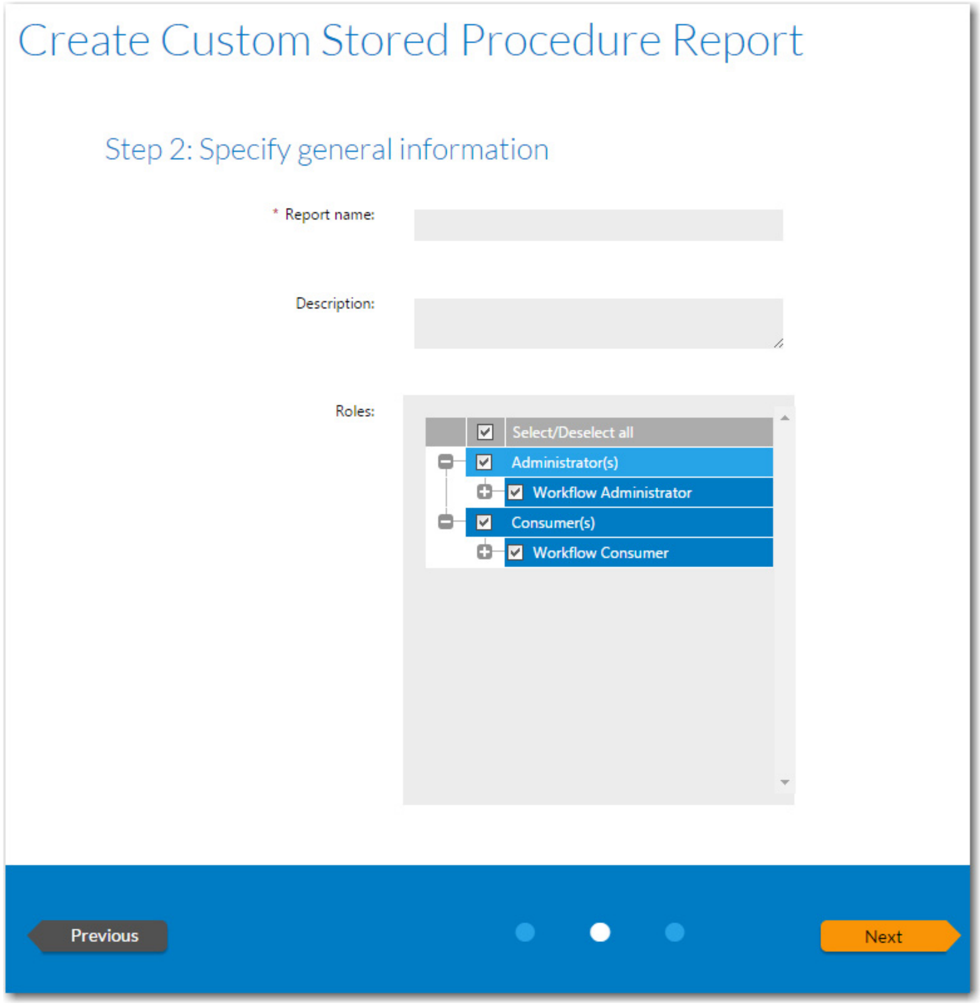
   

   The contents of this panel is determined by the selected stored procedure.

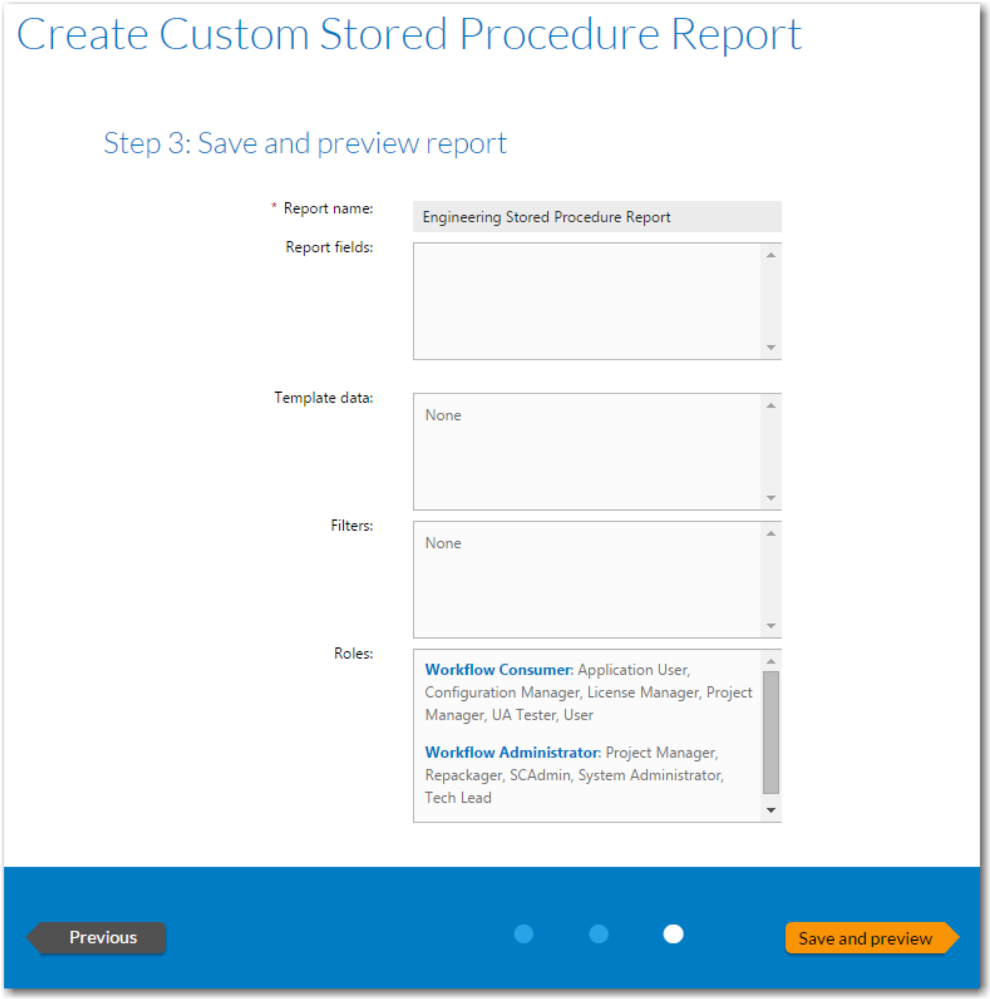
   Note • *This panel is customizable per customer need. The filters shown on the screen are based up on the parameters required by the stored procedure.*

3. Select a stored procedure from the list and specify any other requested information.

4. Click **Next**. The **Step 2: Specify general information** panel opens.



5. In the **Report name** field, enter a name to identify this report. This name will be listed on the **All Reports** page.
6. Enter a **Description** to identify the purpose of this report.
7. In the **Roles** section, select those roles that you want to assign permission to view this report.
8. Click **Next**. The **Step 3: Save and preview report** panel opens.



9. Click **Save and preview**. The report is displayed.

   The report is now saved and available to view by users with appropriate permission.

Wildcard Support in Reports SQL Queries

***Edition** • This feature is available in Workflow Manager only.*

In Reports searches, data is always filtered using the SQL LIKE operator. You can combine the LIKE operator with wildcard characters to achieve the following results:

Table 6-21 • Wildcard Support in Reports Queries

Situation	Rule
When no wildcards are used	If you do not enter a wildcard character in the **Search** box, then Reports performs a "LIKE" search, meaning that it will identify any occurrence of your search text in the field being searched. For example, if you enter the word **test** in the **Search** box, Reports would interpret this as `*test*` and would return any records containing the word `test` (including `MyTestFile` and `TestFile`).
When wildcards are used	You can specify a * wildcard in the **Search** box to narrow the search results. For example, if you want to return all records which contain the word `test` but do not begin with it, enter `*test` in the **Search** box. Then records with the word `MyTest` would be returned, but not records with the word `TestFile`.

Sample SQL Queries Used to Generate Project and Workflow Request Reports

Edition • *This feature is available in Workflow Manager only.*

The following queries are used to generate the built-in Project and Workflow Requests reports. These sample queries might be helpful to refer to when you are creating your own custom reports.

Note • *Note that* `DateTimeHelper.GetUniversalDateTime()` *is used in some of the queries for demonstration purposes only, it is not valid SQL syntax.*

Projects Completed On-Time

The following is a sample query to generate data on projects that were completed on time.

```
SELECT ApplicationID FROM AMS_Application A, AMS_ApplicationStatus AST WHERE A.AppStatusID= AST.StatusID
    AND AST.IsActive = 1 AND A.StatusSummary =90 AND A.DueDate >= A.ApplicationEndDate AND A.ContractID
    = 'd135b5ae-8ac0-42b4-a5bc-e105c11b5e13'
```

Projects Completed Late

The following is a sample query to generate data on projects that were completed late.

```
SELECT ApplicationID FROM AMS_Application A, AMS_ApplicationStatus AST WHERE A.AppStatusID= AST.StatusID
    AND AST.IsActive = 1 AND A.StatusSummary =90 AND A.DueDate < A.ApplicationEndDate AND A.ContractID =
    'd135b5ae-8ac0-42b4-a5bc-e105c11b5e13'
```

On Time Workflow Requests

The following is a sample query to generate data on workflow requests that were completed on time.

```
GetOnTimeActiveApplications
```

```
SELECT ApplicationID FROM AMS_Application A, AMS_ApplicationStatus AST WHERE A.AppStatusID =
    AST.StatusID AND AST.IsActive = 1 AND A.StatusSummary <> 90 AND
    DateTimeHelper.GetUniversalDateTime() < A.RiskDate AND A.ContractID = 'd135b5ae-8ac0-42b4-a5bc-
    e105c11b5e13'
```

At Risk Workflow Requests

The following is a sample query to generate data on workflow requests that at risk of being completed late.

```
GetAtRiskApplicationCount
```

```
SELECT Count(*) FROM AMS_Application WHERE StatusSummary <> 90 AND DateTimeHelper.GetUniversalDateTime()
    > RiskDate AND DateTimeHelper.GetUniversalDateTime() < DueDate AND ContractID = 'd135b5ae-8ac0-42b4-
    a5bc-e105c11b5e13'
```

Exporting Report Data from Reports

You can choose to export data by using the export feature that is built into all lists to export the data in PDF, RTF, XLSX, or CSV format.

Reports Reference

This section includes reference information on the following pages, views, and reports:

- All Reports Page
- Search Packages Page
- Application Catalog Reports Page
- Package Report
- Reports Wizard

All Reports Page

The **All Reports** page provides access to the following reports:

- **Workflow Manager**—System Reports (Projects Report, Project SLA Report, Request Detail Report, Workflow Requests Summary Report, Workflow Phases SLA Report, and Workflow Steps SLA Report), Custom Workflow Manager Report, Workflow Request Activity Report, Custom SQL Query Report, and Custom Stored Procedure Report.
- **AdminStudio**—Archived Package Reports, Custom SQL Query Report, and Custom Stored Procedure Report.

The **All Reports** page can be viewed in either a card view or list view.

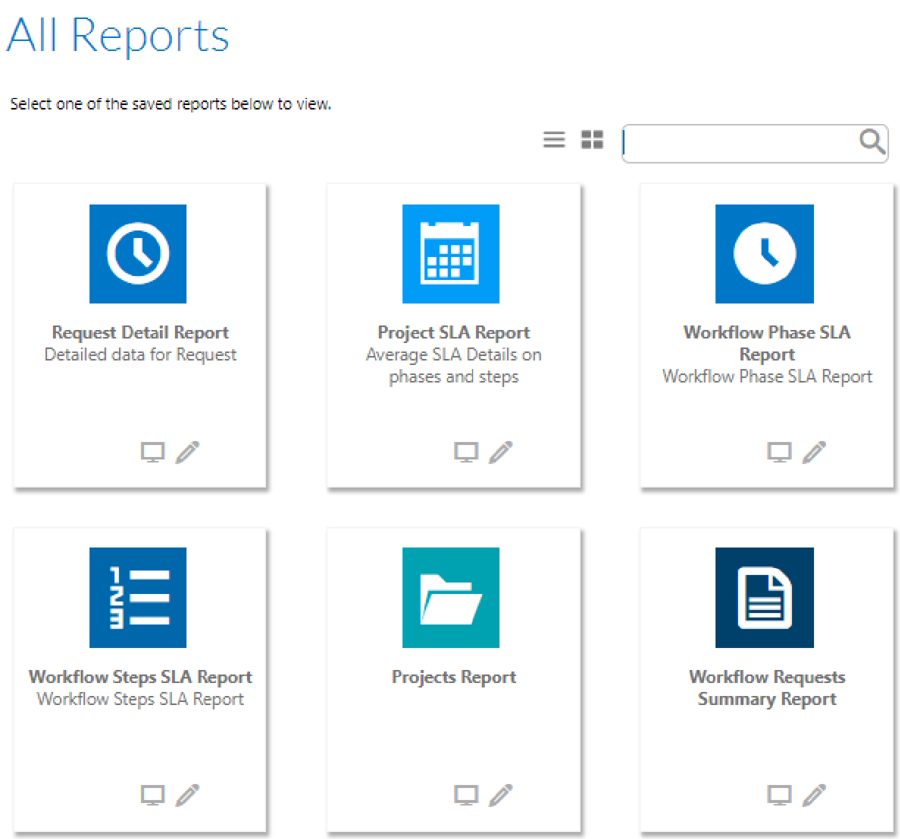


Figure 6-21: System Reports on the All Reports Page (Card View)

You can click on the icon on the top right to toggle this view to list view.

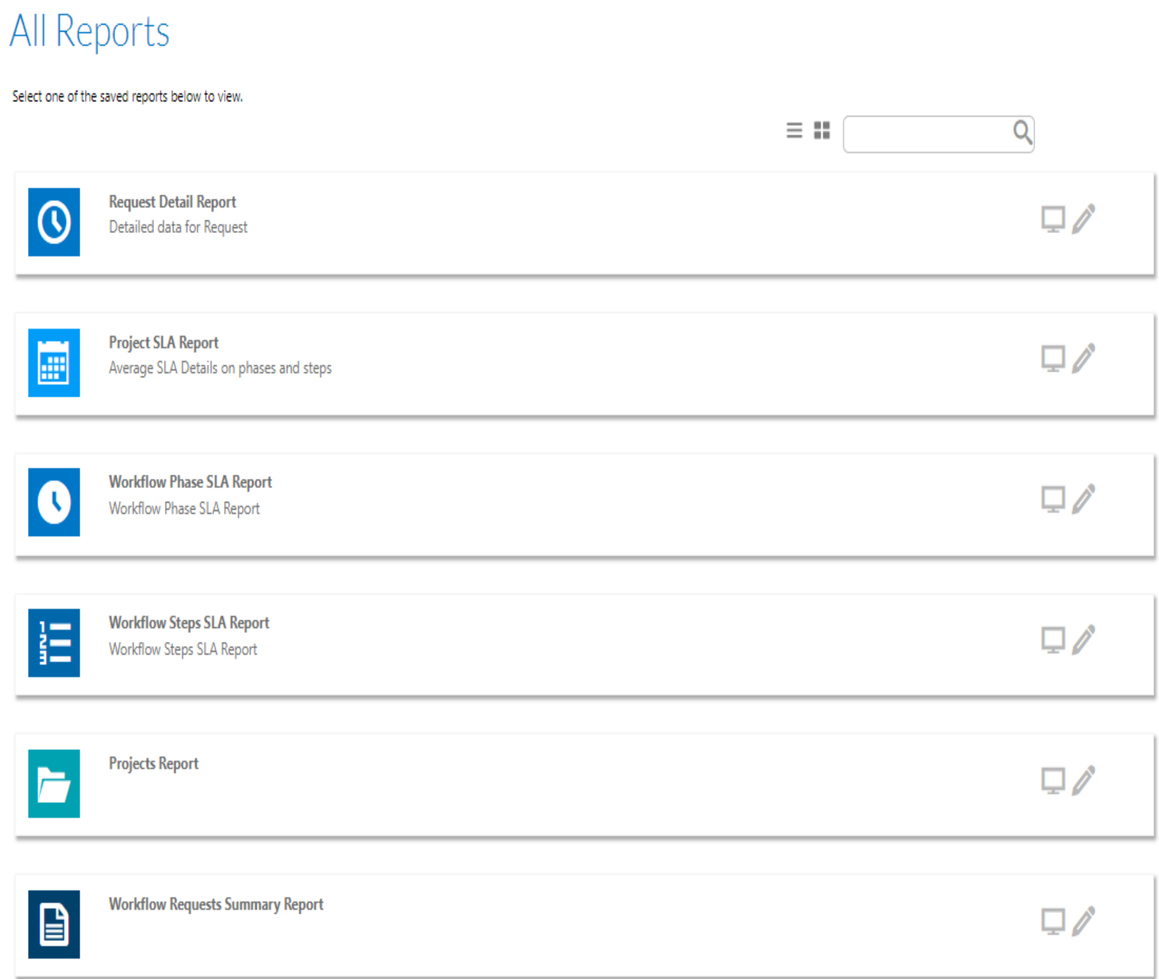


Figure 6-22: Reports on the All Reports Page (List View)

The **All Reports** page includes the following icons:

Table 6-22 • All Reports Page Icons

Icons	Description
	Click to edit the report.
	Click to view the report.
	Click to delete the report.
	Use to toggle between list and card view.

Available Reports

From the **All Reports** page, you can choose to create a new custom report, view a custom report that was already created, or view the following reports:

- Projects Report
- Workflow Requests Summary Report
- Request Detail Report
- Project SLA Report
- Workflow Phases SLA Report
- Workflow Steps SLA Report

Viewing an Existing Custom Report from the All Reports Page

To view a report, click on the report name or the View Report icon:

Figure 6-23: View Report Icon

Standard Reports

Edition • *This page is available in Workflow Manager only.*

Workflow Manager includes the following standard reports;

- Projects Report
- Workflow Requests Summary Report
- Request Detail Report
- Project SLA Report
- Workflow Phases SLA Report
- Workflow Steps SLA Report

Projects Report

Edition • *This page is available in Workflow Manager only.*

A **Projects Report** groups projects by customer and returns summarized information including the progress and Service Level Agreement (SLA) status of workflow requests. You can choose to return information about one project or all of a company's projects.

To view a Projects Report, click **Projects Report** on the **Reports** menu. The **Projects Report** page opens.

Table 6-23 • Projects Report Page Options

Option	Description
Company	Select the company that you want to report on.
Project	Choose one of the company's projects from this list, or select **** View for all **** to return information about all of a company's projects.
SLA status	To return only workflow requests with specific SLA Status values, choose one or more of: **Completed On Time**, **Completed Late**, **On Time**, **At Risk**, or **Late**. Select all of these if you want to report on all workflow requests.
View Report	Click to generate and display the Projects Report.

Projects Report Information

A Projects Report lists project summary information by Workflow Consumer, including request and Service Level Agreement (SLA) status. You can choose to include information on one project or all of a Workflow Consumer's projects.

The following information is included in the Projects Report:

Table 6-24 • Projects Report Information

Item	Description
Project Summary	General project properties and SLA settings.
Workflow Requests by SLA Status	A table listing the number of workflow requests associated with this project, grouped by SLA Status: **Completed On Time**, **Completed Late**, **On Time**, **At Risk**, and **Late**.
Workflow Request Progress Overview	This section includes the following pie charts: • **SLA Compliance Summary**—Pie chart illustrating the number of workflow requests associated with this project with a given SLA status. • **Current Phase Status**—Pie chart illustrating the number of active workflow requests associated with this project in a given phase.
Workflow Request Progress In-Progress Workflow Requests By Current Workflow Phase	Lists of in-progress workflow requests in each workflow phase, grouped by SLA status.
View Workflow Requests Summary	Click to open the Workflow Requests Summary Report for this project.

Workflow Requests Summary Report

Edition • *This page is available in Workflow Manager only.*

A **Workflow Requests Summary Report** lists request summary information by company, including progress status and Service Level Agreement (SLA) status. You can choose to include information on one request or all of a company's requests. You can also filter the report by SLA Status.

To view a Workflow Requests Summary Report, click **Workflow Requests Summary Report** on the **Reports** menu. The **Workflow Requests Summary Report** opens.

Table 6-25 • Workflow Requests Summary Report Page Options

Option	Description
Company	Select the company that you want to view a report on.
Include	Select one of the following options to specify which requests to include in this report: • **Single Workflow Request**—Select this option to return information about only one workflow request, which you select from the associated combo box. • **Multiple Workflow Requests**—Select this option to return all workflow requests with specific SLA status values. Choose one or more of **Completed On Time**, **Completed Late**, **On Time**, **At Risk**, or **Late** to indicate which workflow requests you wish to return. Select all of these options to return all workflow requests associated with a project
Additional Metadata Filter Conditions	If you chose to generate a report about a single workflow request, this check box becomes visible. Select this check box to return filter your report by the values provided by people as they complete the data elements in a workflow request. If you select this checkbox, the metadata filter fields appear, and you should do the following: • **Metadata Field**—Select the data element that you want to filter by from the list. • **Conditional Value & Values List**—Enter a value for the selected **Metadata Field** in the **Condition Value** box or select a value from the **Values List** (when available). • **Operator**—Select the appropriate **Operator** from the list (**AND** or **OR**). You can filter by up to four **Metadata Fields**.
View Report	Click to generate and display the Workflow Requests Summary Report.

Workflow Requests Summary Report Information

A **Workflow Requests Summary Report** lists request summary information by company, including progress status and Service Level Agreement (SLA) status. You can choose to include information on one request or all of a company's requests. You can also filter the report by SLA Status.

The following information is included in a Workflow Requests Summary Report:

Table 6-26 • Workflow Requests Summary Report Information

Item	Description
Administrator Company	Identifies the administrator company associated with these workflow requests.
Selected Workflow Requests	List of the SLA status values included in this report.
Workflow Requests	List of workflow requests associated with this administrator company. The list includes the following information: • **Workflow**—Hyperlinked workflow request name. Click the name to open the **Workflow Request** page for that workflow request. • **Start Date**—The date the workflow request was submitted. • **Due Date**—The date the workflow request is due to be completed, in order to meet SLA requirements. • **End Date**—The actual date the workflow request was completed. • **Progress Status**—The phase type of the workflow request's current workflow phase. • **SLA Status**—The workflow request's SLA Status. One of **On Time**, **At Risk**, **Late**, **Completed Late**, or **Completed On Time**. • **Elapsed Time**—The amount of time elapsed since the workflow request was submitted, excluding any periods when the SLA clock was stopped. • **SLA Time**—The amount of time elapsed since the workflow request was submitted, excluding any periods when the SLA clock was stopped, and excluding any time spent performing a workflow step that was not tracked. • **Company**—The name of the workflow consumer's company. • **Project**—Hyperlinked name of the project associated with this workflow request. Click the name to open the **Projects Report** for that project.

Request Detail Report

The Request Detail Report helps you analyze the SLA delivery time for any workflow request. You can use the fields at the top to filter the list of workflow requests displayed in this report, such as to display only workflow requests from a particular project, or just those using a particular workflow template, etc.

You open the **Request Detail Report** page by clicking **Request Detail Report** on the **Reports** menu.

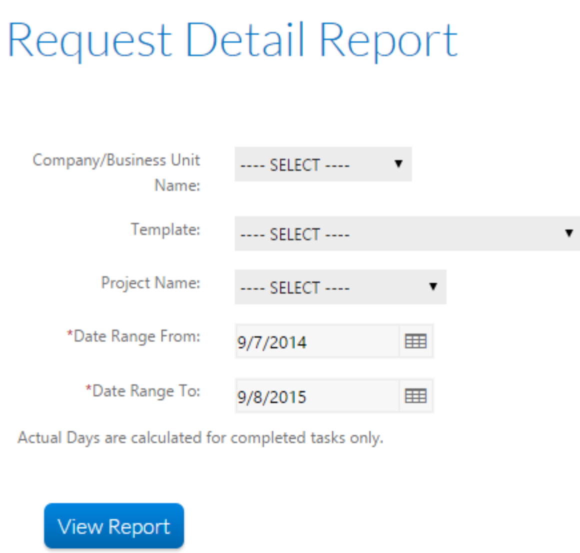


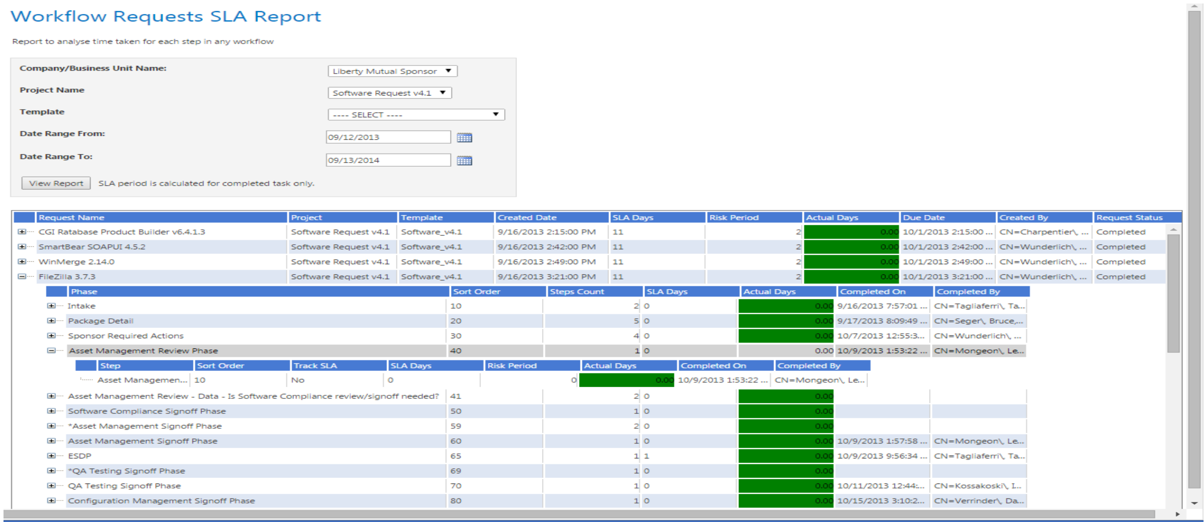
Figure 6-24: Request Detail Report / Initial View

The initial view of the Request Detail Report includes the following options:

Table 6-27 • Request Detail Report Options

Option	Description
Company/Business Unit Name	Select the name of the company or business unit that you want to view SLA information for.
Template	Select the name of the workflow template used by the workflow requests that you want to view SLA information for. ***Important*** • *To generate a report that lists SLA data for all workflow requests during a specific date range, do not make a selection from the **Template** list.*
Project Name	Select the name of the project that is associated with the workflow requests that you want to view SLA information for. ***Important*** • *To generate a report that lists SLA data for all projects during a specific date range, do not make a selection from the **Project Name** list.*
Date Range From **Date Range To**	Identify the date range for which you want to view workflow request data.
View Report	Click to generate the Request Detail Report using the specified criteria.

In the Request Detail Report, workflow requests are listed, along with summary SLA information for all phases in that workflow request. Use the plus signs to expand the listing to view the SLA data for workflow phases and steps in a particular workflow request.



Project SLA Report

You can generate a **Project SLA Report** to measure and report on the SLA status for a specific project, or for all projects, during a specific date range. This helps you helps you analyze the delivery time for any completed project, and identify bottlenecks and weak points in your process.

Using this report, you can view projects within a specific date range, and then drill down from project level to workflow requests across both phases and steps to see the SLA status at each level.

You open the **Project SLA Report** page by clicking **Project SLA Report** on the **Reports** menu.

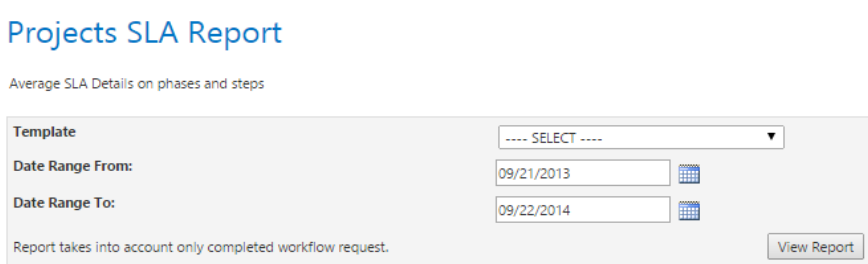


Figure 6-25: Project SLA Report / Initial View

The initial view of the Project SLA Report includes the following options:

Table 6-28 • Project SLA Report Options

Option	Description
Template	Select the name of the Workflow Template used by the project or projects that you want to view SLA information for. ***Important •*** *To generate a report that lists SLA data for all projects during a specific date range, do not make a selection from the* ***Template*** *list.*
Date Range From **Date Range To**	identify the date range for which you want to view project data.
View Report	Click to generate the Project SLA Report using the specified criteria.

In the Project SLA Report data area, click the plus signs to expand the listing to view SLA data across phases and steps for a specific project.

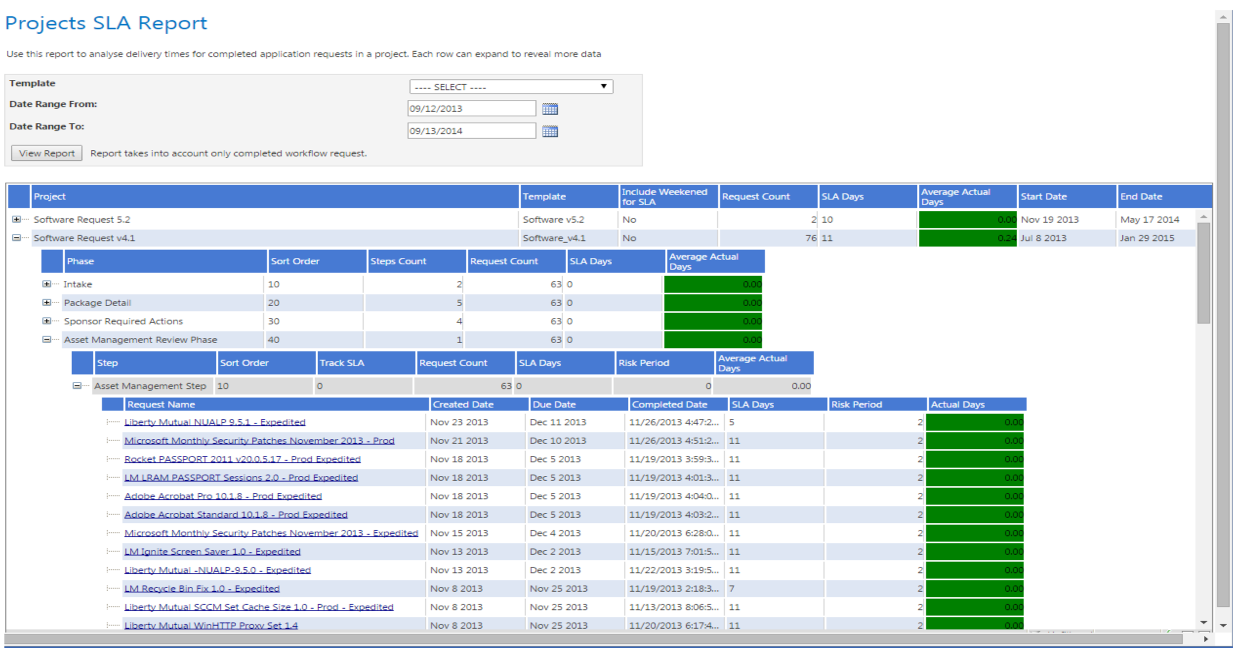


Figure 6-26: Project SLA Report

To view SLA information on a specific workflow request, click the hyperlinked **Request Name** to open the SLA Details by Phase and Workflow Step Subreport for that workflow request.

Subreport: SLA Details by Phase and Workflow Step

The **SLA Details by Phase and Workflow Step** report, which is opened by clicking on a workflow request name in the **Project SLA Report**, shows delivery time for one completed workflow request across both phases and steps.

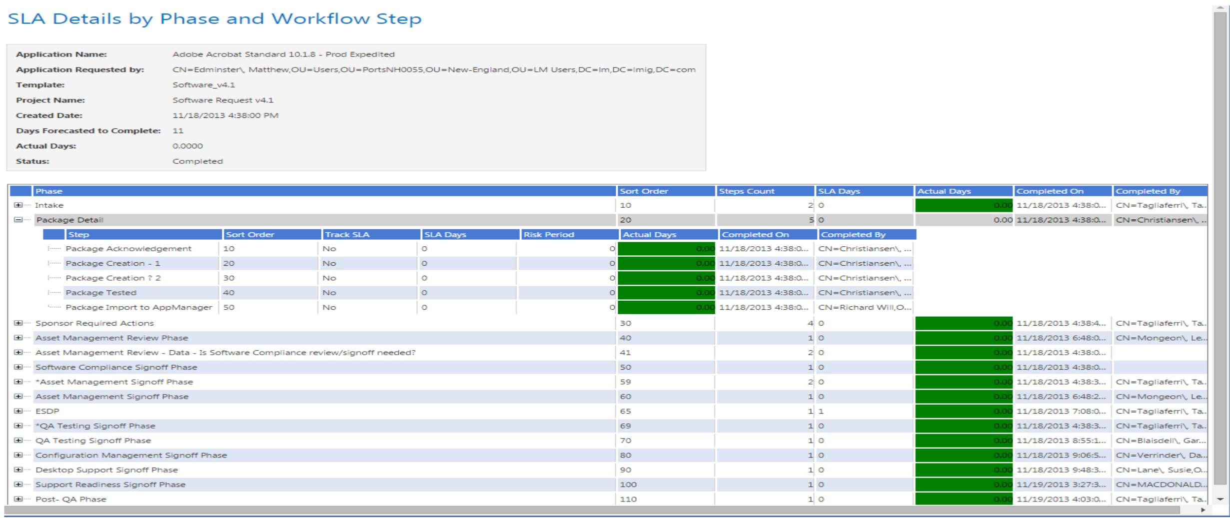


Figure 6-27: SLA Details by Phase and Workflow Step

To view the SLA data for other workflow steps in that workflow request, use the plus signs to expand the listing.

***Note** • Workflow Manager stores SLA time in the `SLAPeriod` field of the `ams_applicationItem` table. This value is calculated every time the step is completed. Same `SLAPeriod` field in `ams_application` table is stored to save SLAPeriod for the whole application. This field is automatically calculated when the application is completed.*

Workflow Phases SLA Report

A **Workflow Phases SLA Report** lists all workflow phases for which step-level SLA tracking is being performed along with their **SLA Status**. SLA (Service Level Agreement) time tracking is used to determine the status of a workflow phase (or workflow request) in relationship to its SLA due date as either: In Progress, On Time, At Risk, Late, Completed on Time, or Completed Late.

***Note** • For information on enabling workflow-phase level SLA tracking, see “Tracking a Workflow Request or Workflow Phase’s SLA Status” in the Workflow Manager Help Library.*

To open the Workflow Phases SLA Report, click **Workflow Phases SLA Report** on the **Reports** menu.

The **Workflow Phases SLA Report** lists the following details:

Table 6-29 • Workflow Phases SLA Report

Property	Description
Only include Workflow Phases in active Workflow Requests	By default, only workflow phases from currently active workflow requests are listed. To display the SLA status of workflow phases from all workflow requests, even those that have been completed, clear the selection of this option and click **Refresh Report**.

Table 6-29 • Workflow Phases SLA Report

Property	Description
Project	Project associated with this workflow request.
Workflow	Workflow request associated with this workflow phase.
Workflow Phase	Name of workflow phase that is being tracked for SLA status.
Due Period	The elapsed time (in days) after the workflow phase becomes the current phase that it should be completed in order to be SLA compliant. If it is not completed by this date, its SLA status would be `Late` and an email alert would be sent out.
Risk Period	The elapsed time (in days) after which this workflow phase should be considered at risk of not being completed on time (corresponds to SLA status of `At Risk`).
Start Time	Time this workflow phase was initiated.
End Time	Time that this workflow phase was completed.
Due Date	Scheduled due date for this workflow phase based upon its **Due Period**.
Risk Date	Scheduled risk date for this workflow phase based upon its **Risk Period.**
SLA Status	Identifies the workflow phase's SLA Status. SLA (Service Level Agreement) time tracking is used to report the status of a workflow request and/or a single workflow phase with respect to its SLA due date, as one of: `In Progress`, `On Time`, `At Risk`, `Late`, `Completed on Time`, or `Completed Late`.

Workflow Steps SLA Report

A **Workflow Steps SLA Report** lists all workflow steps for which step-level SLA tracking is being performed along with their **SLA Status**. SLA (Service Level Agreement) time tracking is used to determine the status of a workflow step (or workflow request) in relationship to its SLA due date as either: In Progress, On Time, At Risk, Late, Completed on Time, or Completed Late.

***Note** • For information on enabling workflow-step level SLA tracking, see "Tracking a Workflow Request or Workflow Step's SLA Status" in the Workflow Manager Help Library.*

To open the Workflow Steps SLA Report, click **Workflow Steps SLA Report** on the **Reports** menu.

The **Workflow Steps SLA Report** lists the following details:

Table 6-30 • Workflow Steps SLA Report

Property	Description
Only include Workflow Steps in active Workflow Requests	By default, only workflow steps from currently active workflow requests are listed. To display the SLA status of workflow steps from all workflow requests, even those that have been completed, clear the selection of this option and click **Refresh Report**.
Project	Project associated with this workflow request.
Workflow	Workflow request associated with this workflow step.
Workflow Step	Name of workflow step that is being tracked for SLA status.
Due Period	The elapsed time (in days) after the workflow step becomes the current step that it should be completed in order to be SLA compliant. If it is not completed by this date, its SLA status would be `Late` and an email alert would be sent out.
Risk Period	The elapsed time (in days) after which this workflow step should be considered at risk of not being completed on time (corresponds to SLA status of `At Risk`).
Start Time	Time this workflow step was initiated.
End Time	Time that this workflow step was completed.
Due Date	Scheduled due date for this workflow step based upon its **Due Period**.
Risk Date	Scheduled risk date for this workflow step based upon its **Risk Period.**
SLA Status	Identifies the workflow step's SLA Status. SLA (Service Level Agreement) time tracking is used to report the status of a workflow request and/or a single workflow step with respect to its SLA due date, as one of: `In Progress`, `On Time`, `At Risk`, `Late`, `Completed on Time`, or `Completed Late`.

Search Packages Page

From the **Search Packages** page, you can select or search for a specific package, and then generate a detailed Package Report. On this page, you can filter the list of packages displayed in the package tree to display only those packages that meet specific search criteria, which are grouped into three categories:

- **Package Attributes**—Search by properties assigned to the Windows Installer package. See Package Attributes.
- **Package Content**—Search by files, registry entries, `.ini` files, or shortcuts contained in the Windows Installer package. See Package Content.
- **Application Request Attributes**—Search by information related to a package's associated request. See Application Request Attributes.

To filter the list of packages displayed in the package tree to display only those packages that meet specific search criteria, enter values in the criteria fields that you want to search on, and click **Search**. The packages that meet *any of the criteria* are then listed in the package tree in alphabetical order and are no longer grouped.

Package Attributes

You can search for packages in a catalog based on one or more of any of the following Package attribute metadata:

Table 6-31 • Package Attribute Search Fields

Metadata	Description
Package Code	Enter the GUID that identifies a particular Windows Installer `.msi` package. The Package Code associates an `.msi` file with an application or product and is represented as a string GUID—a text string that has a special format: `{XXXXXXXX-XXXX-XXXX-XXXX-XXXXXXXXXXXX}` where each X character is a hex digit (0 through 9 or uppercase A through F).
Product Code	Enter the GUID that uniquely identifies the particular product release of the package. The `ProductCode` is a Windows Installer property and is represented as a string GUID—a text string that has a special format: `{XXXXXXXX-XXXX-XXXX-XXXX-XXXXXXXXXXXX}` where each X character is a hex digit (0 through 9 or uppercase A through F).
Upgrade Code	Enter the GUID that identifies the family of products that are in the same upgrade path. The **UpgradeCode** is a Windows Installer property and is represented as a string GUID—a text string that has a special format: `{XXXXXXXX-XXXX-XXXX-XXXX-XXXXXXXsXXXXX}` where each X character is a hex digit (0 through 9 or uppercase A through F). ***Note •*** *Each stand-alone product usually has its own* ***UpgradeCode*** *GUID. Every version of XYZ Product typically uses the same GUID for the* ***UpgradeCode****. In other words, Product A Version 1.0 has the same UpgradeCode as Product A Version 2.0, but has a different UpgradeCode than Product B.*
Setup File Name	Name of the Windows Installer (.msi) file that was imported into the Application Catalog.
Comments	Enter the text of any comments associated with the package.
Extended Attributes	Enter the value of any of the Extended Attributes associated with the package.

Package Content

You can search for packages in a catalog based on one or more of any of the following Package Content metadata

Table 6-32 • Package Content Search Fields

Metadata	Description
File	Enter the file name of one of the files in the Windows Installer package.
Registry Key	Enter a registry key to search on.
Registry Value	Enter a registry value to search on.
INI File	Enter any changes to an `.ini` file that are made when the product is installed.
Shortcut	Enter any shortcuts that are created when the product is installed.

Application Request Attributes

You can search for packages in a catalog based on one or more of any of the following attributes of the package's associated request:

Table 6-33 • Request Attributes Search Fields

Metadata	Description
Name	Enter the name of the package's associated request.
Upload Date	Date the request was submitted.
Due Date	Enter the date the request is scheduled to be completed, based upon its value for **Application Due Period**.
Risk Date	Enter the date at which the request's status will change to **At Risk**, which is based upon its value for **Application At Risk Period**.
Due Period	Enter, in days, the length of time this request needs to be completed in order to meet its project's Service Level Agreement (SLA) requirements.
End Date	Enter the date the request was completed.

Application Catalog Reports Page

On the **Application Catalog Reports** page, you can view a wide array of reports containing summary information on Windows Installer and virtual packages in the AdminStudio Application Catalog. These reports give you insight into the readiness of those packages for distribution and for conversion to virtual packages.

You open the **Application Catalog Reports** page by selecting **Application Catalog Reports** in the **AdminStudio Reports** subgroup of the **Reports** group in the navigation bar.

- Viewing the AdminStudio Application Catalog Reports
- Exporting a Report in PDF, Excel, or Word Format

Viewing the AdminStudio Application Catalog Reports

On the **Application Catalog Reports** page, you can view a wide array of reports containing summary information on Windows Installer and virtual packages in the AdminStudio Application Catalog. These reports give you insight into the readiness of those packages for distribution and for conversion to virtual packages.

You open the **Application Catalog Reports** page by selecting **Application Catalog Reports** in the **AdminStudio Reports** subgroup of the **Reports** group in the navigation bar.

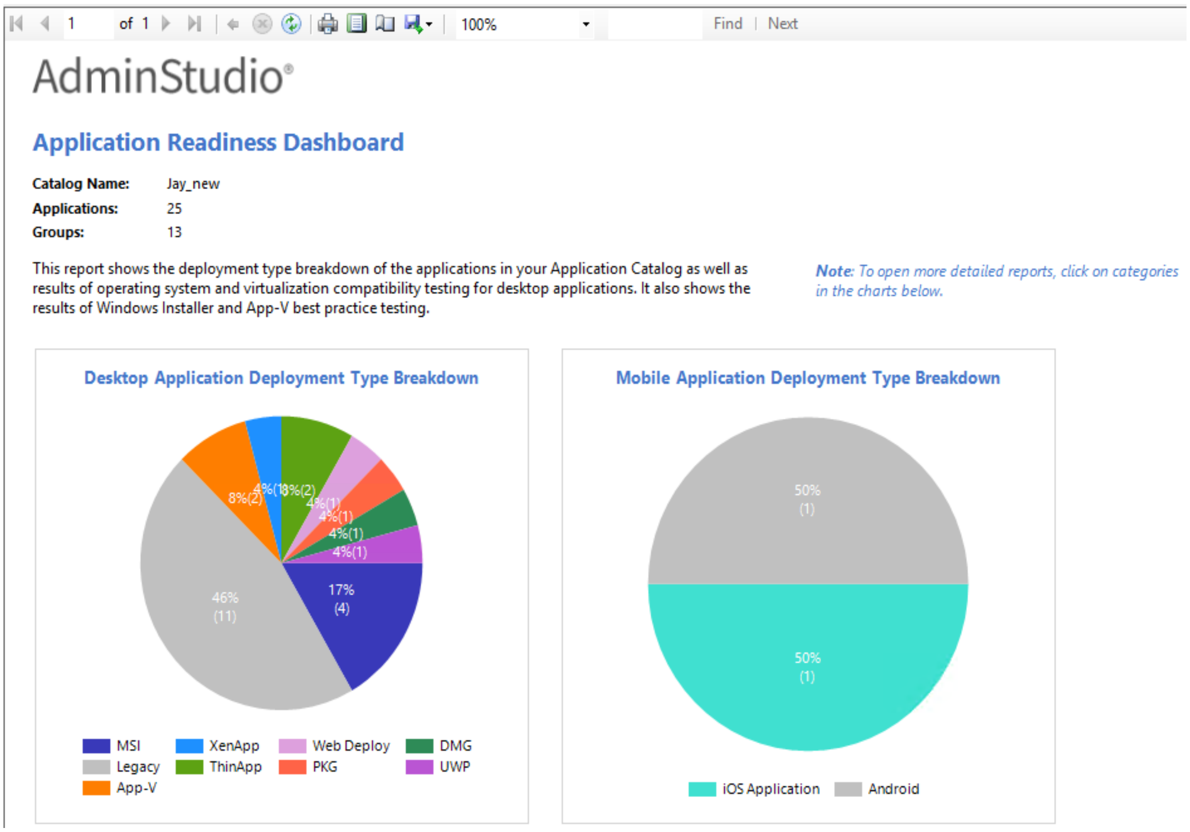


Figure 6-28: Application Readiness Dashboard Report

You switch between reports by selecting the report name from the **Select Report** list.

The available reports include test results from operating system compatibility, browser compatibility testing, remote application publishing compatibility, installer best practices testing, and application conflict testing. They also include information about the App-V packages in your Application Catalog, as well as Microsoft System Center Configuration Manager deployment information.

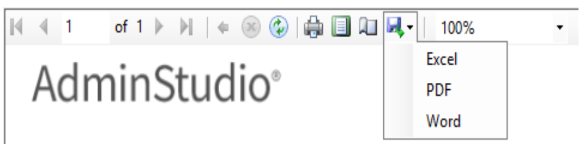
For most reports, detailed sub-reports are available by clicking on one of the categories of the pie bar chart, on one of the numbers in an issue count column, or on a package name. Click on the available hyperlinks until you have explored all of the levels of the report.

Exporting a Report in PDF, Excel, or Word Format

You can save any of the reports on the **Application Catalog Reports** page (and any of the drill-through reports) in PDF, Microsoft Excel, or Microsoft Word format.

Task ***Saving a report:***

1. View the report that you want to save.
2. In the toolbar, click the **Save** icon.



3. From the menu, select either **Excel**, **PDF**, or **Word**. The report is exported and you are prompted for a location to store the report.
4. Specify a location and click **Save**.

***Note** • You can also print the currently viewed report by clicking the **Print** icon in the toolbar.*

Package Report

You can generate AdminStudio Package Reports on the **Search Packages** page, which is opened by clicking **Search Packages** under the **AdminStudio Reports** subgroup of the **Reports** group in the navigation bar. On the **Search Packages** page you can perform a search of all of the applications in the Application Catalog to locate the package you would like to generate a report for.

A **Package Report** lists detailed package information for packages of the following deployment types:

- Microsoft Windows Installer packages
- Microsoft App-V virtual packages
- Apple iOS mobile apps (local and public store)
- Google Android mobile apps (local and public store)

In a Package Report, the information is presented in a tabbed interface, as described in Navigating Through a Package Report. A Package Report includes the following major sections:

- Package Summary Information View
- Files View
- Registry View
- Shortcuts View
- ODBC Drivers View

- ODBC DS View
- Extended Attributes View
- Validation View
- Conflicts View
- History View
- Dependencies View
- Properties View

***Note** • See also see Information Included in Package Reports.*

***Note** • Additional information may be available for App-V packages.*

Package Summary Information View

The initial view (Page 1) of a Package Report is the **Package Summary Information** view, and it lists the following information:

Table 6-34 • Package Report / Package Summary Information

Item	Description
Product Name	Name assigned to the package.
Manufacturer	Company that authored the package.
Import Date	The date and time the package was imported into the Application Catalog.
Unresolved Conflicts	The number of detected conflicts, generated during conflict analysis of this package, which have not yet been resolved—either automatically or manually.
Product Version	Version of package that is recorded in the package’s Windows Installer file.
Product Language	Decimal-based code identifying the language that this software package was authored for. For example, English is 1033, German is 1031, and Japanese is 1041.
In Software Repository	Indicates whether or not this package and its associated files are managed by the Software Repository.

Files View

The **Files** view lists the all of the files included in the selected package, and the location where these files will be installed. For each file, the following information is listed:

Table 6-35 • Package Report / Files Information

Item	Description
File	Name of file included with this package.
Target Directory	Name of directory where the file is installed.
Version	Version number of the file.
File Size	Size of the installed file.
Component	Component that the file is associated with.

Registry View

The **Registry** view lists the registry entries that will be created when this package is installed. For each registry entry, the following information is listed:

Table 6-36 • Package Report / Registry Information

Item	Description
Root	Identifies the predefined “root” key that contains the registry entry.
Key	A registry key.
Name	Name identifying the registry entry.
Value	The string of data that defines the value of the key.
Component	Package component that the registry entry is associated with.

Shortcuts View

The **Shortcuts** view lists all of the shortcuts that will be created when this package is installed. For each shortcut, the following information is listed:

Table 6-37 • Package Report / Shortcuts Information

Item	Description
Name	Name identifying the shortcut.
Target Directory	Directory and executable that the shortcut invokes.

Table 6-37 • Package Report / Shortcuts Information (cont.)

Item	Description
Component	Component associated with the shortcut.

ODBC Drivers View

The **ODBC Drivers** view lists all of the Open Database Connectivity (ODBC) drivers in the package.

ODBC Resources are ones that involve interaction with databases. ODBC drivers are libraries that implement functions involving ODBC. Each database type has its own ODBC driver. For each ODBC driver, the following information is listed:

Table 6-38 • Package Report / ODBC Drivers Information

Item	Description
Driver	Name of an Open Database Connectivity (ODBC) driver in the package. Each database type has its own ODBC driver.
Description	Description of the ODBC driver identifying its associated database type.
File	File associated with the ODBC driver.
Component	Component associated with the ODBC driver.

ODBC DS View

The **ODBC DS** view lists all of the Open Database Connectivity (ODBC) data sources in the package. An ODBC data source identifies the source database type and provides information on how to connect to that database. For each ODBC DS, the following information is listed:

Table 6-39 • Package Report / ODBC DS Information

Item	Description
Data Source	Name of the ODBC data source, which identifies the source database type and provides information on how to connect to that database.
Description	Identifies the database type.
Driver Description	Name of this ODBC data source’s associated ODBC driver.
Component	Component that this ODBC data source is affiliated with.

Extended Attributes View

The **Extended Attributes** view lists all of the extended attribute metadata that has been entered for this package. For each Extended Attribute, the following information is listed:

Table 6-40 • Package Report / Extended Attributes Information

Item	Description
Name	Name identifying the attribute.
Value	Content entered for the attribute.

Validation View

The **Validation** view lists all of the ICE rule errors and warnings that were generated when the package was validated against Microsoft ICEs (Internal Consistency Evaluators)—custom actions written by Microsoft which can be executed to determine if an installation package is built according to Windows Installer standards.

For each error or warning, the following information is listed:

Table 6-41 • Package Report / Validation Information

Item	Description
ICE Rule	Name of ICE Rule that generated an error or warning message.
Description	Error or warning message.
Error Level	Indicates the severity of the message as either being a Warning or an Error. • **Errors**—Package authoring that will cause incorrect behavior. • **Warnings**—Package authoring that could possibly cause incorrect behavior. Warnings can also report unexpected side-effects of package authoring.

Conflicts View

The **Conflicts** view lists all of the unresolved errors that were found when conflict analysis was performed on this package. For each error, the following information is listed:

Table 6-42 • Package Report / Conflicts Information

Item	Description
ACE Rule	Name of ACE Rule that generated the message.
Description	Message generated during conflict analysis.
Target Package	Package that conflicted with this package.

History View

The **History** view lists all of the actions that have been performed on this package since it was imported into the Application Catalog. For each action, the following information is listed:

Table 6-43 • Package Report / History Information

Item	Description
Date	Day and time the event occurred.
Action	Identifies the event that occurred.
User	Identifies the user who executed the event.
Description	Description of the event that occurred.

Dependencies View

The **Dependencies** view lists all of a package's files that have dependencies with files used by other products or operating systems in the Application Catalog. For each dependency, the following information is listed:

Table 6-44 • Package Report / Dependencies Information

Item	Description
Name	Name of a file associated with this package that has dependencies with files used by other products or operating systems in the Application Catalog.
Path	Location where this dependent file is installed.
Size	Size of the dependent file.
Version	Version of the dependent file.

Properties View

The **Properties** view of the Package Report, which is only displayed for mobile apps, lists various attributes of the selected mobile application.

Reports Wizard

Using the Reports Wizard, you can generate Custom and Activity Reports and Custom SQL Query Reports. For more information, see the following topics:

- Creating a Custom Report
- Creating an Activity Report
- Generating a Custom SQL Query Report

You can use the Reports Wizard to generate reports of Workflow Manager deployment at any Workflow Consumer site. You can choose to include or exclude data, regardless of the specific consumer implementation. You can filter the data by companies, projects, requests, workflow Items, and other data, giving you maximum flexibility.

The Reports Wizard is comprised of the following panels:

- Select Report Objects Panel
- Select Report Fields Panel
- Define Report Filters Panel
- Select Template Data Panel
- Enter SQL Query Panel
- Specify General Information Panel
- Save and Preview Report Panel

***Note** • Only Workflow Administrators with appropriate role permissions can create a report. Workflow Consumers cannot create reports.*

Select Stored Procedure Panel

On the **Select Stored Procedure** panel of the Reports Wizard, select the stored procedure that you want to use to generate a report and then click **Get Report**. The contents of this panel is determined by the selected stored procedure. You will be prompted to enter the information required by the stored procedure.

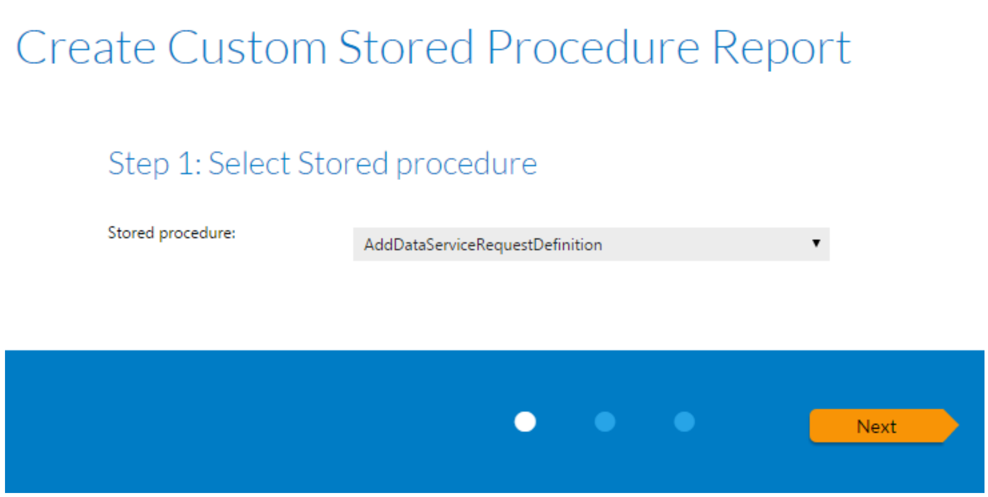


Figure 6-29: Select Stored Procedure Panel

To add a stored procedure to this list, open the `AMS_CustomReports` table and enter the name of the stored procedure you want to use to generate a report. For more information, see Generating a Custom Stored Procedure Report.

***Note** • For more information on stored procedures, see SQL Stored Procedures in Microsoft TechNet.*

Select Report Objects Panel

On the **Select Report Objects** panel of the Reports Wizard, select the objects you want to include in the report:

- For a **Custom Report**, you can select **Applications**, **Companies**, **Projects**, and **Issues**.
- For an **Activity Report**, the only selection is **Activities**.

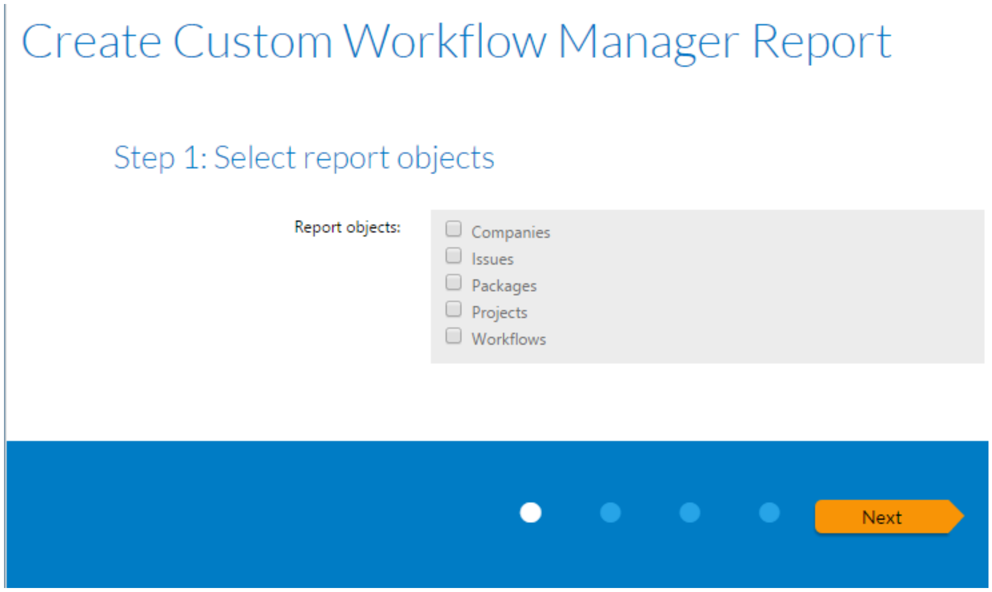


Figure 6-30: Select Report Objects Panel

Click **Next** to continue with the Reports Wizard.

Select Report Fields Panel

On the **Select Report Fields Panel** of the Reports Wizard, select the fields you want to include in the report. All of the available fields are listed by object.

- For a **Custom Report**, the **Applications**, **Companies**, **Projects**, and **Issues** objects could be listed.
- For an **Activity Report**, only the **Activities** object is listed.

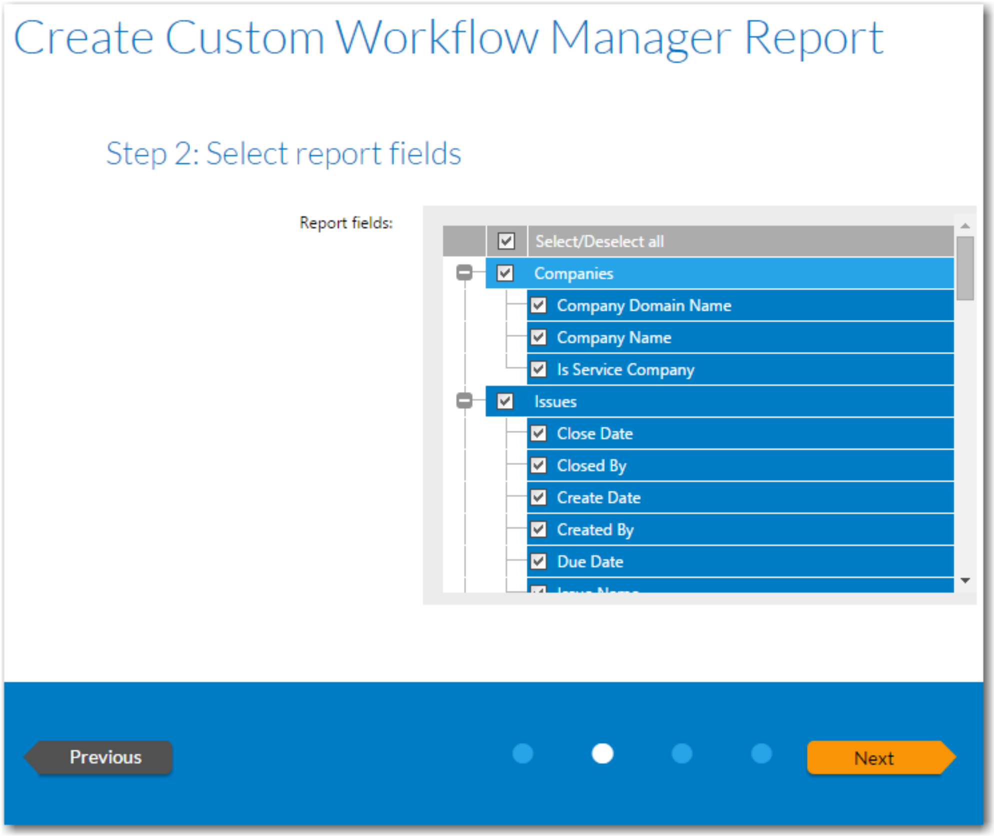


Figure 6-31: Select Report Fields Panel

Click **Next** to continue with the Reports Wizard.

Define Report Filters Panel

On the **Define Report Filters** panel of the Reports Wizard, enter a filter to define the data that you want to include in this report.

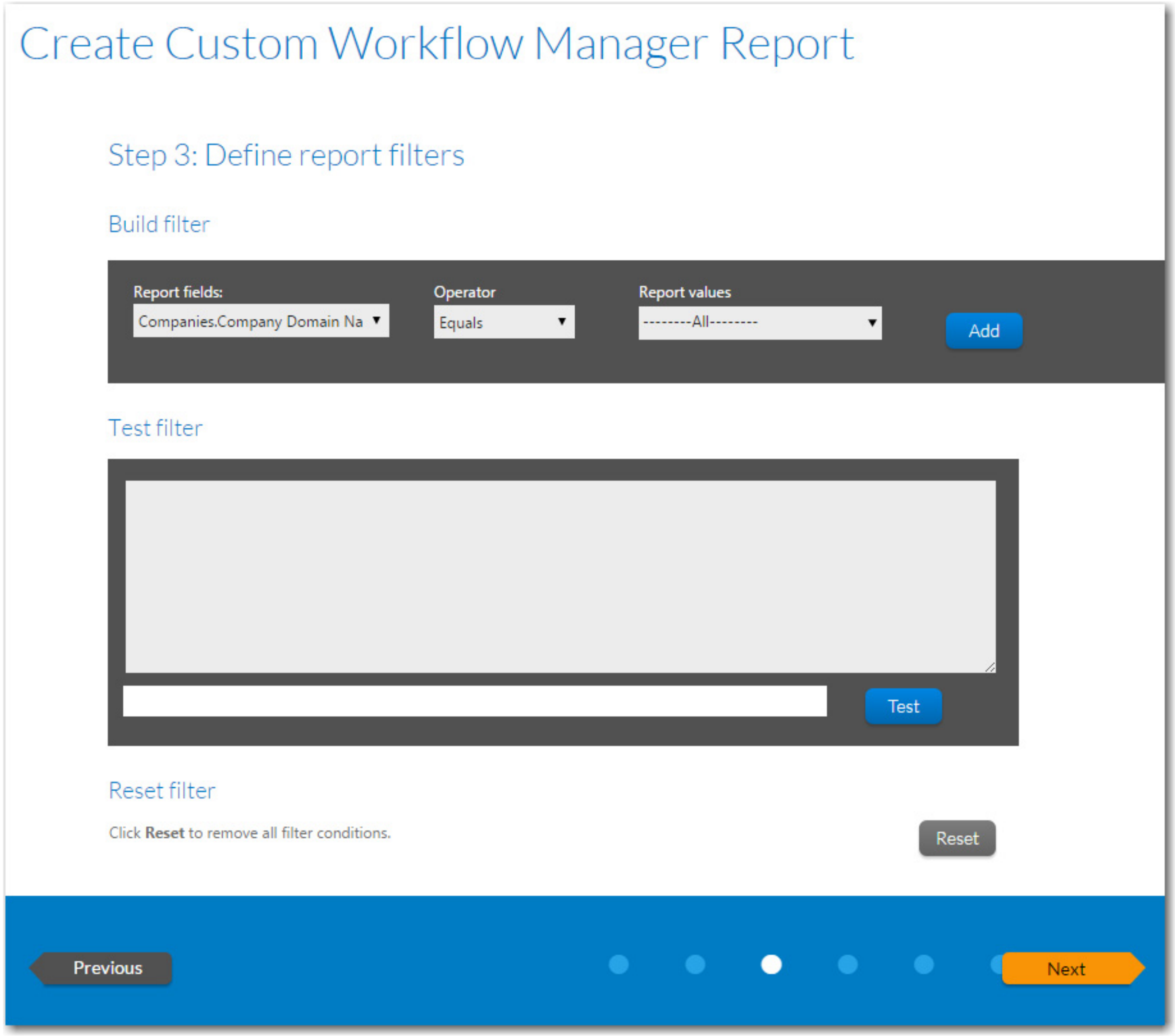


Figure 6-32: Define Report Filters Panel

The Define Report Filters panel includes the following properties:

Table 6-45 • Select Report Filters Panel of the Reports Wizard

Option	Description
Available Fields	Select a field from this tree to use to create a filter. When you click on a field to select it, all of its values populate the **Select a value for this filter** list.

Table 6-45 • Select Report Filters Panel of the Reports Wizard (cont.)

Option	Description
Set Filter Area	Use the following fields to create a filter to apply to this report: • **Select a value for this filter**—All of the values of the selected field are listed. Select the one that you want to use to create this filter. • **or alternatively type in a value for this filter**—If you want to use a value that does not appear in the list, type the value in this text box. • **Operator list box**—Select an operator from this list box to specify how you want the value in the selected field of each record to be selected, such as Equal, Greater Than, Less Than, etc. • **Add**—After you have set a filter, click Add to add the filter to the current filter conditions. It will be added to the Test Query box below, and a query is automatically run to determine if this filter generates any records. • **Conjunction Express List (AND, OR)**—After you have set one filter, and want to add another, select a conjunction from this box before you click Add to specify whether the record must meet both filter conditions (AND) or only one filter condition (OR). • **Test Query**—Click to run the specified query to determine if the filter combination generates any records. If no records are found, you are prompted to change the filters. • **Reset All**—Click to remove all filter conditions.

When you have finished defining filters, click **Next** to continue with the Reports Wizard.

Select Template Data Panel

On the **Select Template Data** panel of the Reports Wizard, you specify the Template data fields that you want to include in this report.

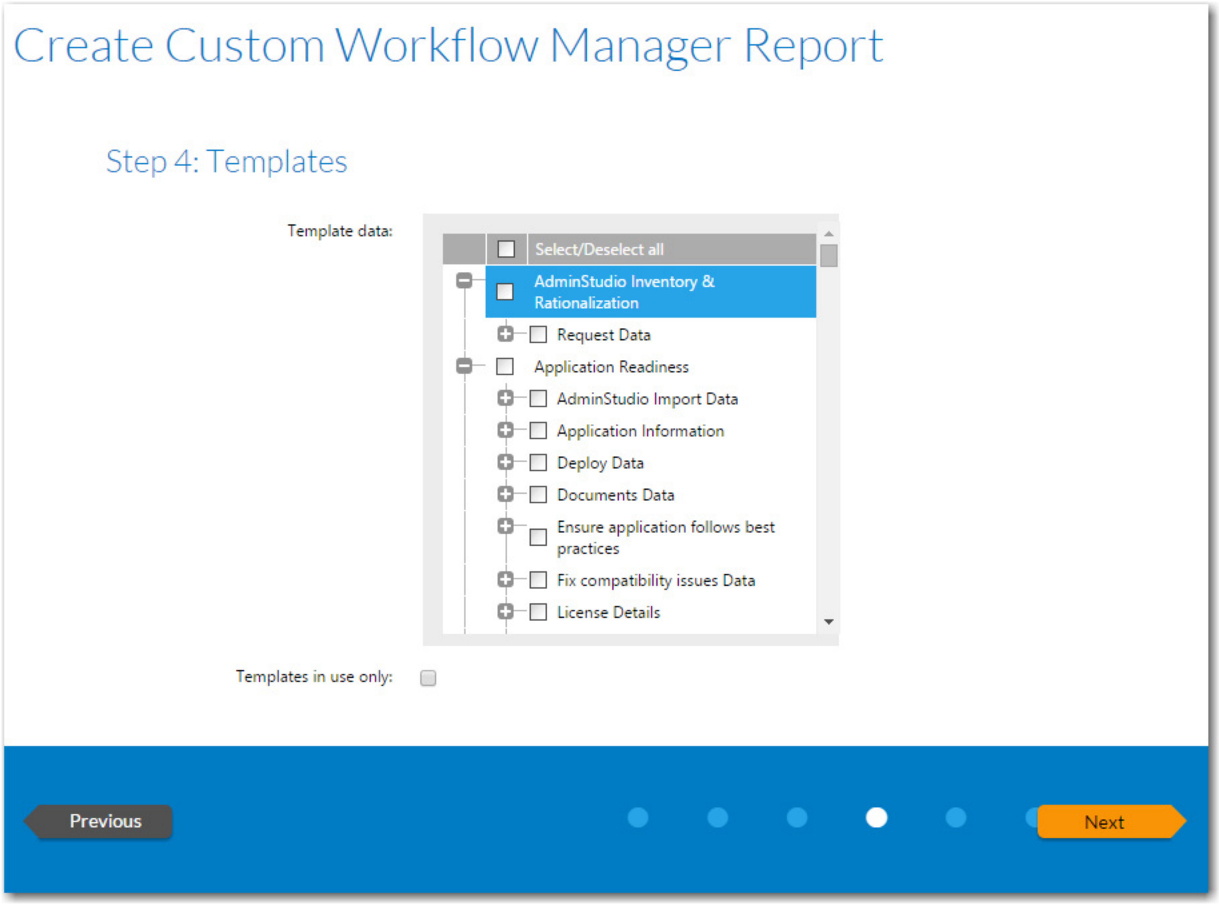


Figure 6-33: Templates Panel

In the **Available Templates** list, click the plus sign next to a Template name to expand the listing to show all data fields associated with that Template, and select the data fields that you would like to include in the report.

Select the **Templates in use only** option if you want only Templates that are associated with active projects and requests to be listed.

Click **Next** to continue with the Reports Wizard.

Enter SQL Query Panel

On the **Enter SQL Query** panel of the **Custom SQL Query Reports Wizard**, enter an SQL query to retrieve the data for this report.

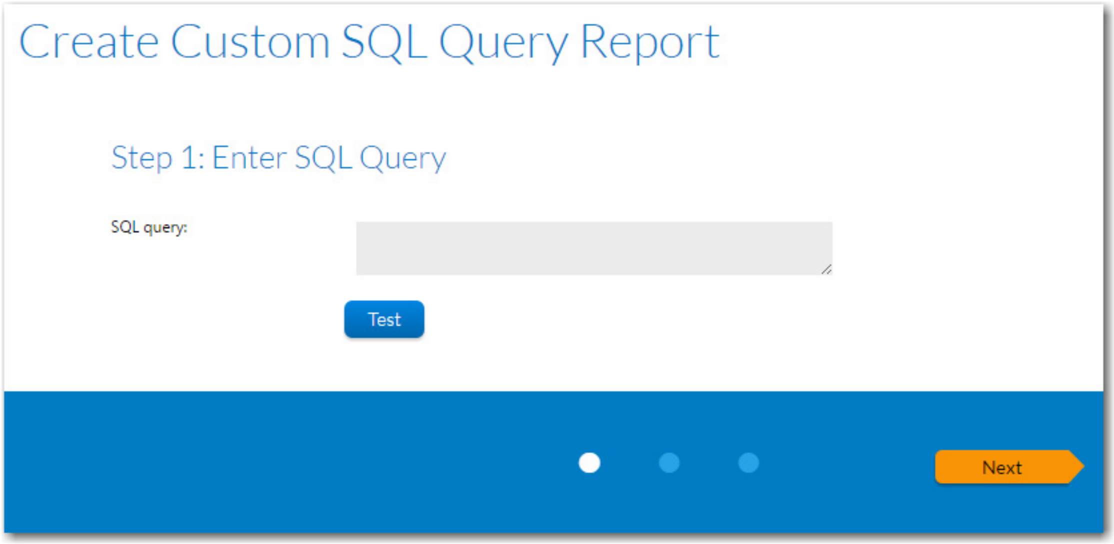


Figure 6-34: Enter SQL Query Panel

Click the **Test Query** button to verify the query syntax, and click **Next** to proceed.

Wildcard Support in Reports SQL Queries

In Reports searches, the `LIKE` operator is always used. You can combine the `LIKE` operator with a wildcard character, and the following rules apply:

Table 6-46 • Wildcard Support in Reports Queries

Situation	Rule
When no wildcards are used	If you do not enter a wildcard character in the **Search** box, then Reports performs a "LIKE" search, which searches for any occurrence of that text anywhere in the item that is being searched for. For example, if you are searching for a file name that has the word `test` anywhere in the file name, and you entered **`test`** in the **Search** box, it would be interpreted by Reports as: `*test*` And the following files would be found: `MyTestFile and TestFile`
When wildcards are used	You can specify a * wildcard in the **Search** box to narrow the search results. For example, if you are searching for a file name that includes the word `test`, but does not begin with it, and you entered `*test` in the **Search** box, `MyTest` would be returned, but not `TestFile`.

Specify General Information Panel

On the **Specify General Information** panel of the Reports Wizard, enter a **Report Name** and **Description** to clearly identify the contents and purpose of this report. This name and description will be listed on the **All Reports** page.

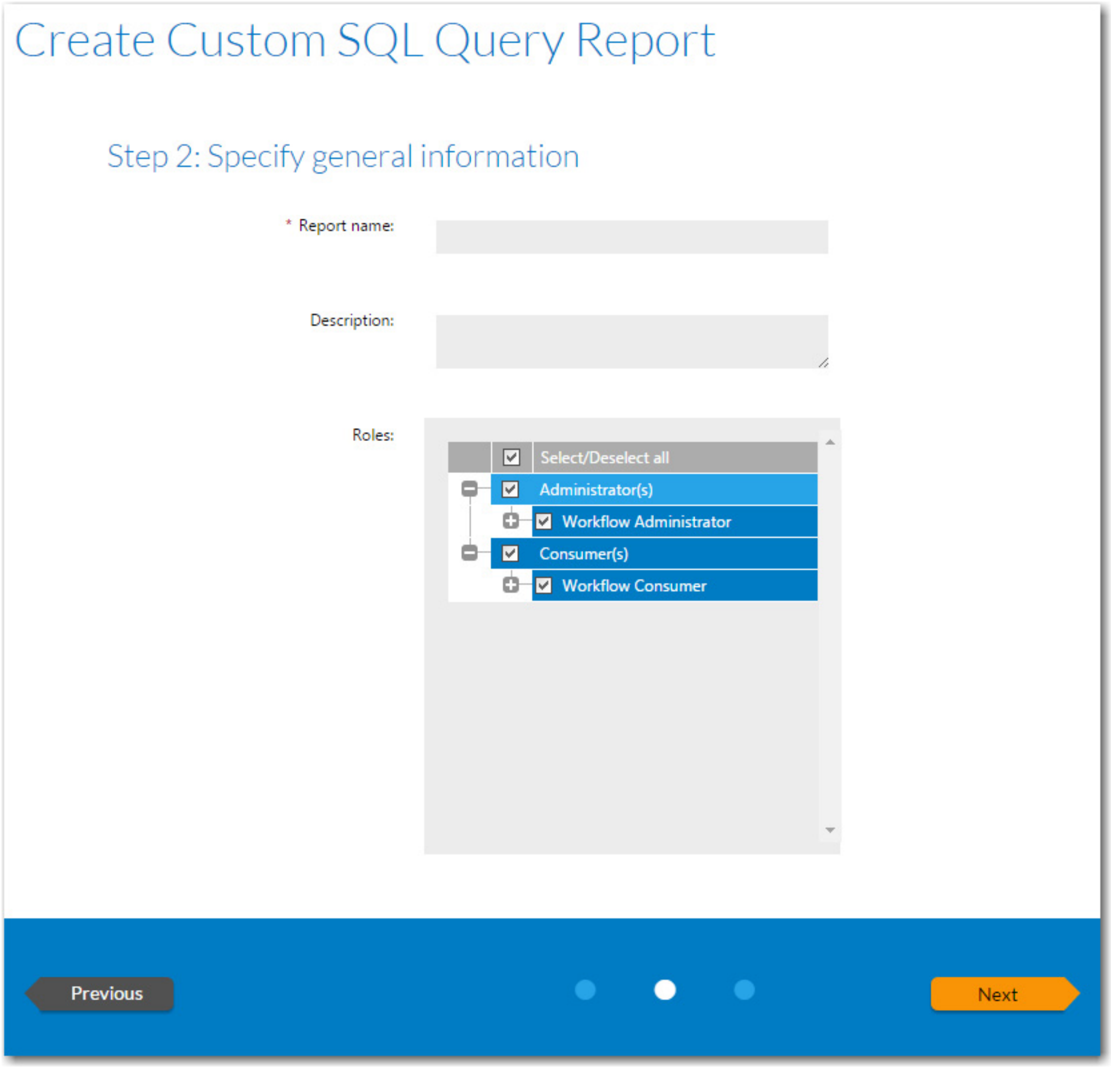


Figure 6-35: Specify General Information Panel

Next, select the **Roles** that you want to have permission to view this report.

Click **Next** to continue with the Reports Wizard.

Note • *You can change the selected roles at any time after this report is created by clicking Edit next to the Report Name on the* ***All Reports*** *page.*

Save and Preview Report Panel

The **Save and Preview Report** panel lists a summary of the selections you have made while creating the report.

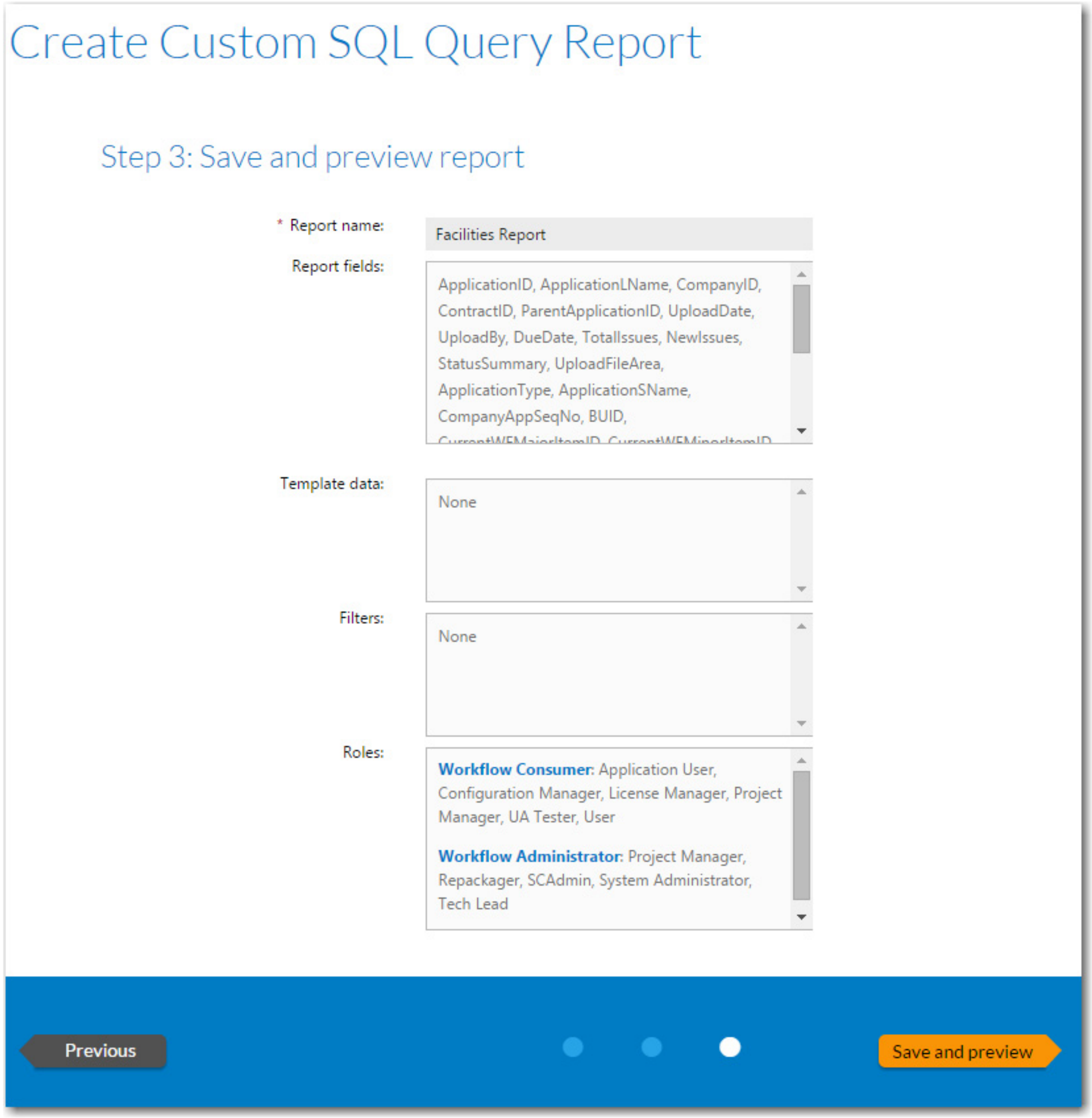


Figure 6-36: Save and Preview Report Panel

On the **Save and Preview Report** panel of the Reports Wizard, the following information is listed:

Table 6-47 • Save and Preview Report Panel

Option	Description
Report Name	Name of report.
Report Fields	List of fields that you selected to be included in this report.
Template Data	A list of the Template data you selected to be in this report.
Filters	A list of filters applied to this report.

Click **Save and preview** to generate the Report. The report is generated. This report is also saved and now appears in the list on the **All Reports** page.

7

Workflow Manager Reference

The Workflow Manager Reference section includes information on the Workflow Manager interface, organized by page and dialog box. Additional reference information on Workflow Manager configuration file, extending Workflow Manager, and using custom plug-ins with Workflow Manager is also provided. Reference information for Workflow Manager is presented in the following sections:

Table 7-1 • Workflow Manager Reference

Section	Description
Navigation Bar	Describes the items available on the navigation bar.
Home Page	Describes the items available on the Home page and its tabs: **Dashboard** and **Getting Started**.
Workflow Request Related Pages	Describes the pages and views used to submit a request, perform workflow request tasks, and check on a request's progress.
Administration Pages	Describes the pages and views used to perform Workflow Manager administrative tasks.
Dialog Boxes	Specific help for each pop-up dialog box in Workflow Manager is covered in this section.
Configuring Workflow Manager	Explains how to set company preferences using the Configuration Wizard, by editing the settings on the Company Preferences page, and by editing the Workflow Manager Configuration file: **web.config**.
Extending Workflow Manager	A list of the officially supported mechanisms for extending the functionality of Workflow Manager.
Using the IPlugin Interface	Explains how to create custom plugins for Workflow Manager. The IPlugin interface defines some standard callback methods which will be called by Workflow Manager during the course of application submission and workflow advancement. Your custom implementation of this plugin can have custom code to link these events with external systems.

Table 7-1 • Workflow Manager Reference (cont.)

Section	Description
Web Services	Explains how to use the Workflow Manager web services.
Workflow Manager Caching Logic	Explains how, to help reduce the amount of time it takes to search Active Directory, Workflow Manager caches the results of searches for users belonging to a specific role.
Workflow Manager Installation Issues	Points you to information you can find in the *Workflow Manager Installation Guide*.

Navigation Bar

You navigate through the screens of Workflow Manager / AdminStudio Enterprise Server by clicking on menu items in the navigation bar at the top of the page. The items which appear on the navigation bar menus vary according to the product you have purchased, your permissions, and whether you are a workflow administrator or consumer.

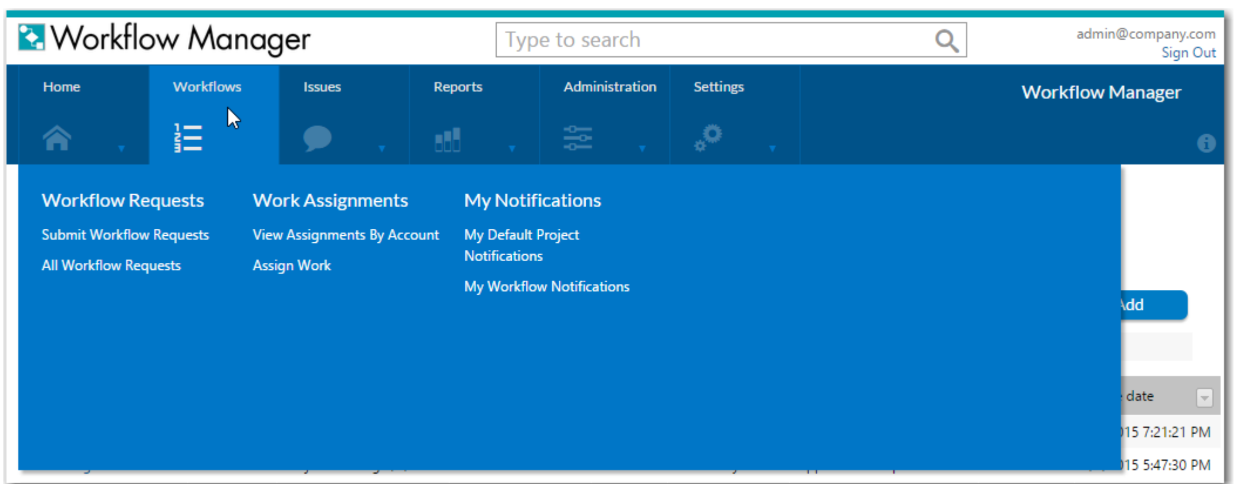


Figure 7-1: Workflow Manager / AdminStudio Enterprise Server Navigation Bar Menu

The Workflow Manager / AdminStudio Enterprise Server navigation bar menu contains the following selections:

Table 7-2 • Navigation Bar Selections

Menu	Heading	Menu Selection	Product	Description
Home	**Options**	Dashboard	WFM	See Viewing Dashboard Reports.
		Getting Started	WFM	See Getting Started.

Table 7-2 • Navigation Bar Selections (cont.)

Menu	Heading	Menu Selection	Product	Description
Workflows	**Workflow Requests**	Submit Workflow Requests	WFM	See Submitting a Workflow Request.
		Copy an Existing Workflow Request	WFM	See Copying an Existing Workflow Request.
		All Workflow Requests	WFM	See All Workflow Requests Page.
		Workflow Requests Assigned to Me	WFM	See Workflow Requests Assigned To Me Page.
	Work Assignments	View Assignments By Account	WFM	See Assignments By Account Page
		Assign Work	WFM	See Work Assignment Listing Page.
	My Notifications	My Default Project Notifications	WFM	See My Default Project Notifications Page.
		My Workflow Notifications	WFM	See My Workflow Notifications Page.
Issues	**Open Issues**	All Open Issues	WFM	See Issues Pages.
		Recently Created Issues	WFM	See Issues Pages.
		Recently Created Critical Issues	WFM	See Issues Pages.
		Recently Responded Issues	WFM	See Issues Pages.
	Closed Issues	Recently Closed Issues	WFM	See Issues Pages.

Table 7-2 • Navigation Bar Selections (cont.)

Menu	Heading	Menu Selection	Product	Description
Reports	**Standard Reports**	All Reports	WFM	See All Reports Page.
		Request Detail Report	WFM	See Request Detail Report.
		Project SLA Report	WFM	See Project SLA Report.
		Projects Report	WFM	See Projects Report.
		Workflow Request Summary Report	WFM	See Workflow Requests Summary Report.
		Workflow Phases SLA Report	WFM	See Workflow Phases SLA Report.
		Workflow Steps SLA Report	WFM	See Workflow Steps SLA Report.
	Custom Reports	Create Custom Workflow Manager Report	WFM	See Creating a Custom Report.
		Create Workflow Manager Activity Report	WFM	See Creating an Activity Report.
		Create Custom SQL Query Report	WFM / ASES	See Generating a Custom SQL Query Report.
		Create Custom Stored Procedure Report	WFM / ASES	See Generating a Custom Stored Procedure Report.
	AdminStudio Reports	Search Packages	WFM / ASES	See Viewing Package Reports.
		Application Catalog Reports	WFM / ASES	See Viewing AdminStudio Application Catalog Reports.

Table 7-2 • Navigation Bar Selections (cont.)

Menu	Heading	Menu Selection	Product	Description
Administration	**Design**	Projects	WFM	See Project Administration Page.
		Templates	WFM	See Creating a New Template and Template Administration Page.
		Approvals	WFM	See Managing Approval Templates and Approval Administration Page.
	Configuration	Workflow Status	WFM	See Managing Workflow Status Values
		External Email Addresses	WFM	See External Email Address Administration Page.
		Calendar Settings	WFM	See Modifying Default SLA Calendar Settings.
Settings	**Configuration**	Accounts and Groups	WFM / ASES	See Account Administration Page.
		Roles	WFM / ASES	See Role Administration Page.
		Email Templates	WFM	See Email Template Administration Page.
		Companies	WFM	See Company/Business Unit Administration Page.
		Directory Services	WFM / ASES	See Directory Services Administration Page.
		External Web Services	WFM	See External Web Services Administration Page.
		External Data Sources	WFM	See External Data Sources Administration Page.
		Directory Service Attributes	WFM	See Directory Services Attributes Administration Page.
	Time Off	Time Off	WFM	See Time Off Administration Page.

Icon-Only View

When you scroll down on a page, the Navigation bar remains visible, but only the icons are displayed. This helps you conserve vertical space in your browser window.

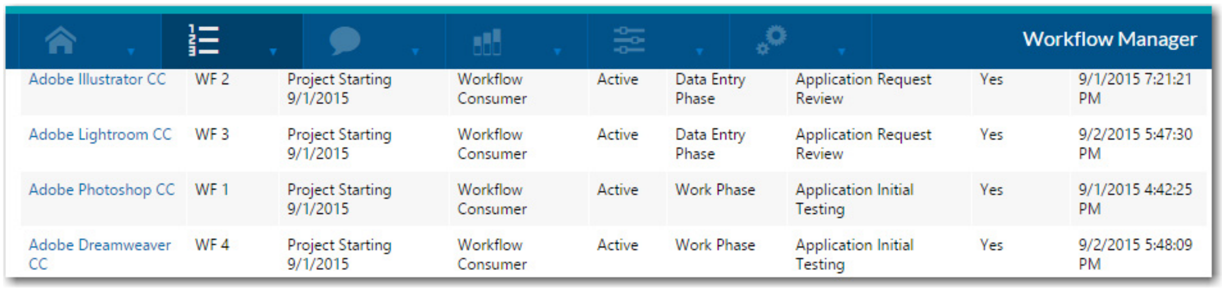


Figure 7-2: Icon Only View of Navigation Bar

Home Page

When you first login to Workflow Manager, you will be taken to your Home page. You can access the Home page at any time by clicking Home in the navigation bar. The Home page provides information on how to get started using Workflow Manager, and also provides summary charts about your currently open workflow requests.

The items which appear on the Home page tabs vary according to your permissions, and whether you are a workflow administrator or consumer.

- Dashboard Page
- Getting Started Page

Dashboard Page

The Workflow Manager **Dashboard** view provides pie and bar charts that provide summary information about your rationalization projects. If you have not yet created any rationalization projects, this view will be empty.

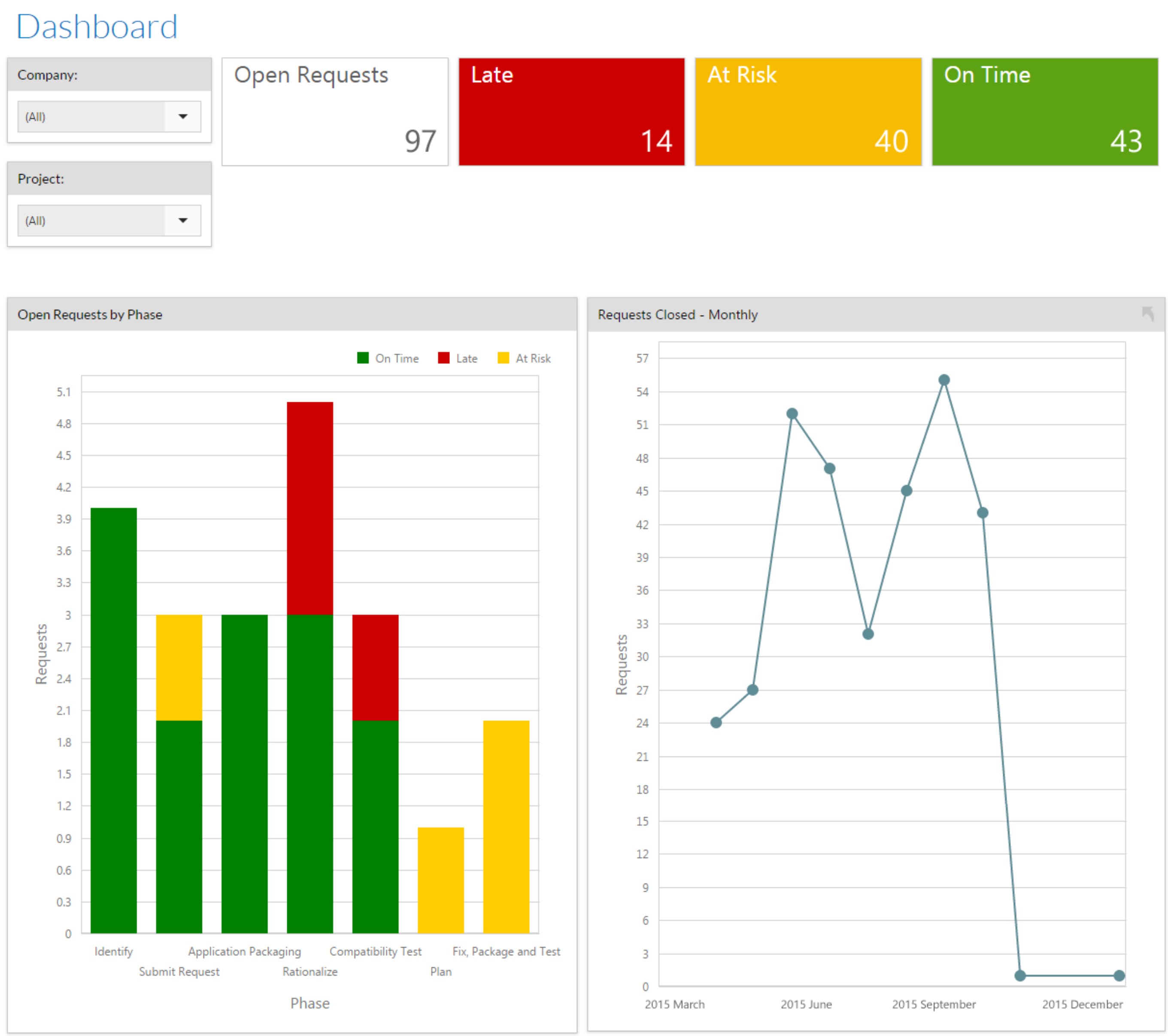


Figure 7-3: Dashboard Report / Individual Project

For more detailed information, see Viewing Dashboard Reports.

Getting Started Page

The **Getting Started** page, which is opened by selecting **Getting Started** on the **Home** menu, consists of three tabs to help you get started using Workflow Manager.

- Process Overview
- First Use Tasks
- Help

Process Overview

The **Process Overview** diagram illustrates how you can use Workflow Manager to connect end users, IT management, and administrators to streamline the packaging process.

For detailed information about the steps outlined on this diagram, see Workflow Manager Process Overview.

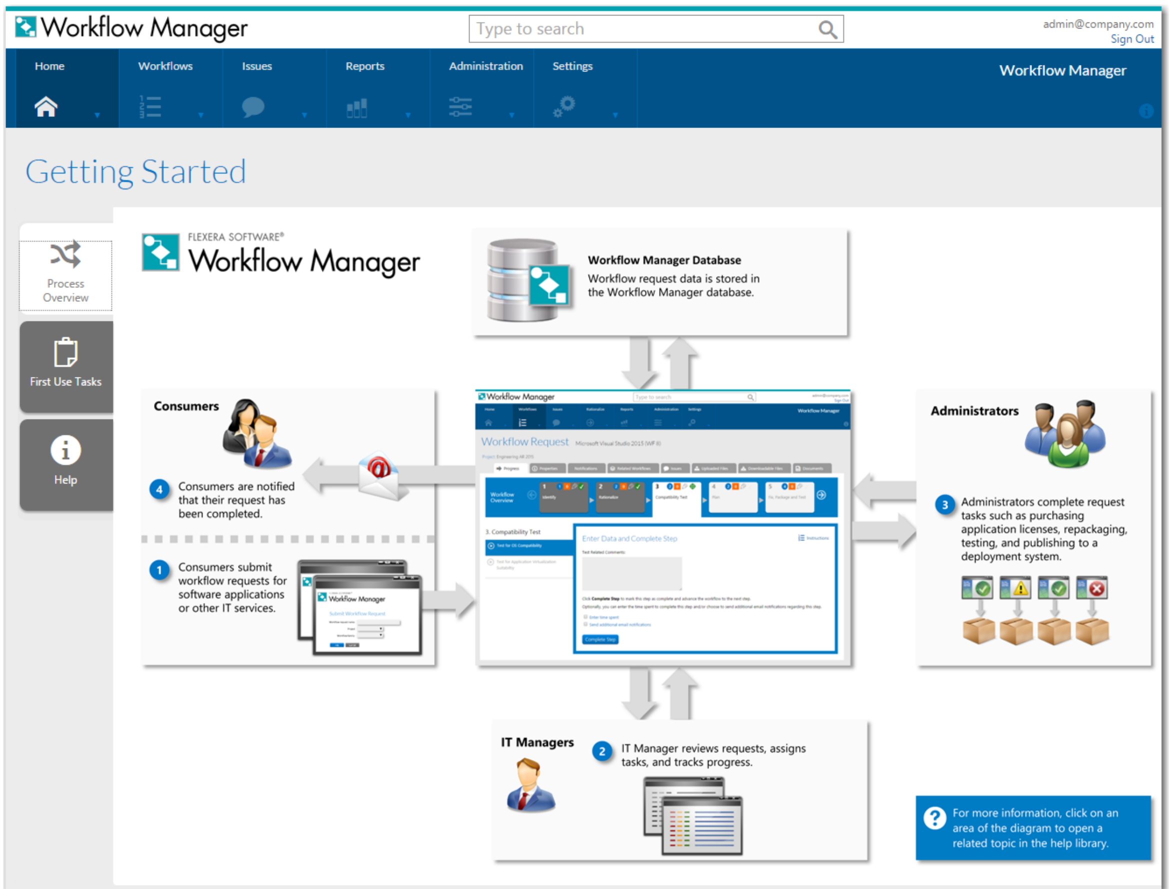


Figure 7-4: Process Overview Tab of Getting Started Page

First Use Tasks

***Note** • This tab is only displayed to workflow administrator users.*

Before you get started using Workflow Manager, there are a few steps you need to perform. The **First Use Tasks** tab describes these tasks and provides links to help topics that explain how to perform these tasks.

For detailed information, see First Use Tasks.

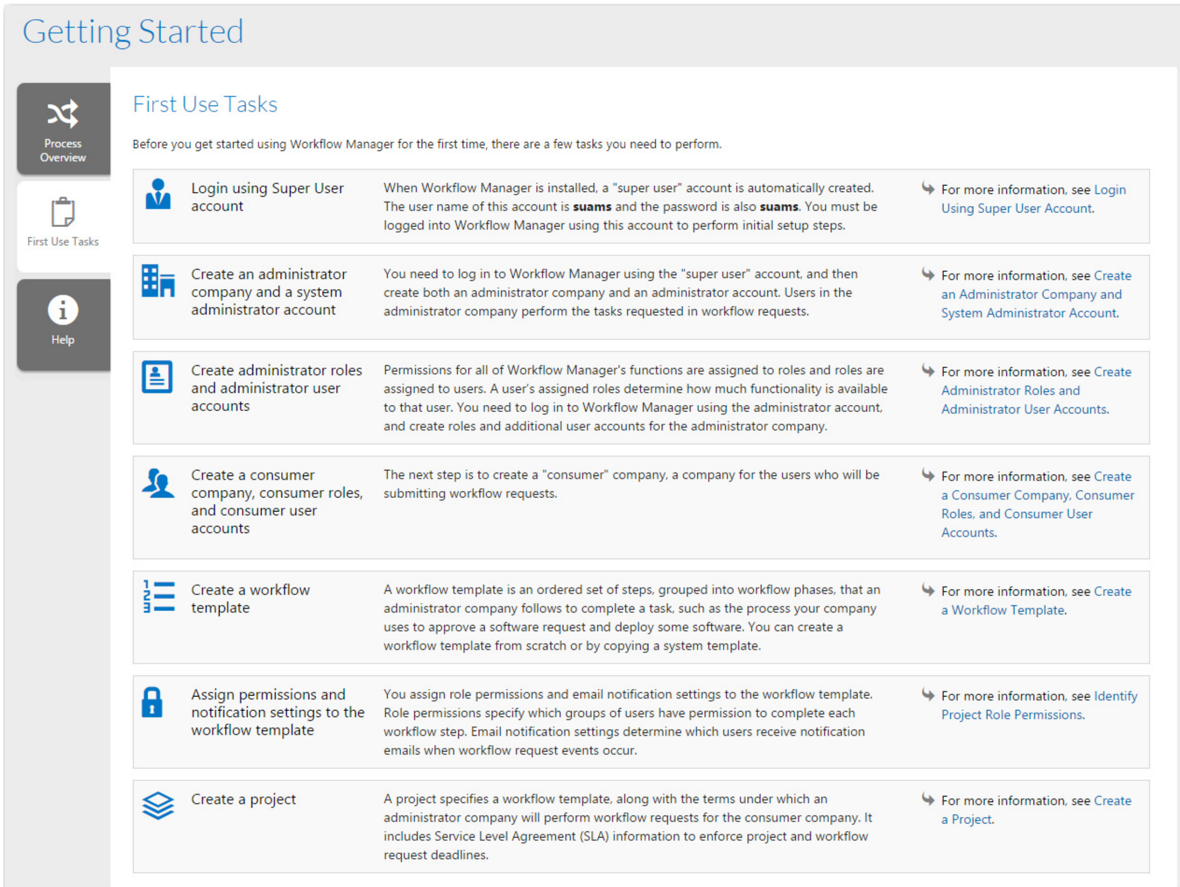


Figure 7-5: First Use Tasks Tab of Getting Started Page

Help

The Help tab provides links to access the Workflow Manager user documentation in both HTML and PDF format, and to access the Flexera Knowledge Base.

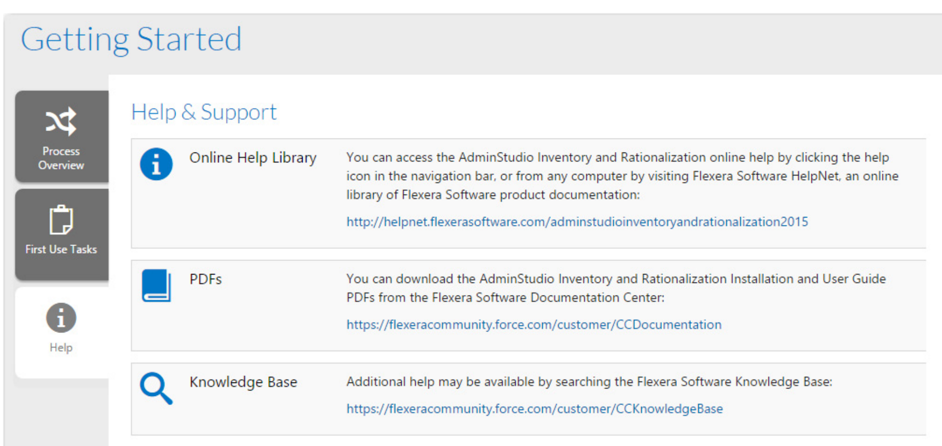


Figure 7-6: Help Tab of Getting Started Page

Workflow Request Related Pages

Workflow request-related pages described in this section are used to submit, perform, and manage workflow requests.

Table 7-3 • Workflow Request Related Pages

Option	Description
All Workflow Requests Page	List of all workflow requests.
Workflow Requests Assigned To Me Page	List those workflow requests whose current workflow step is assigned to you (the signed-in user).
Assignments By Account Page	List of all workflow assignments which are currently in progress.
Workflow Request Page	Used to view data entry, workflow, issues, and associated file information for a selected request.
Copy Workflow Request Page	Used to copy an existing workflow request.
Workflow Report	Contains detailed information about a workflow request's progress, including its history and SLA (Service Level Agreement) status.
Submit Workflow Request Page	Used to submit a new workflow request.
Work Assignment Listing Page	Used by workflow administrators to assign a workflow request task to a role.
My Notifications Pages	View a list of your current email notification event subscriptions, and choose to unsubscribe from existing events or subscribe to additional events.
Issues Pages	Lists issues filtered by the following whether they are open, closed, and/or critical.
Search Results Page	Lists the results of using the search engine to perform a search.

***Note** • The availability of these pages for a particular user is dependent upon the user's assigned roles. See Managing Roles and Permissions.*

All Workflow Requests Page

The **All Workflow Requests** page, which is opened by selecting **All Workflow Requests** on the **Workflows** tab of the navigation bar, lists all existing workflow requests. You can filter this list using filter controls, as described in Using Lists.

Use this page to drill through to the **Workflow Request** page for a specific workflow. See Workflow Request Page for more information.

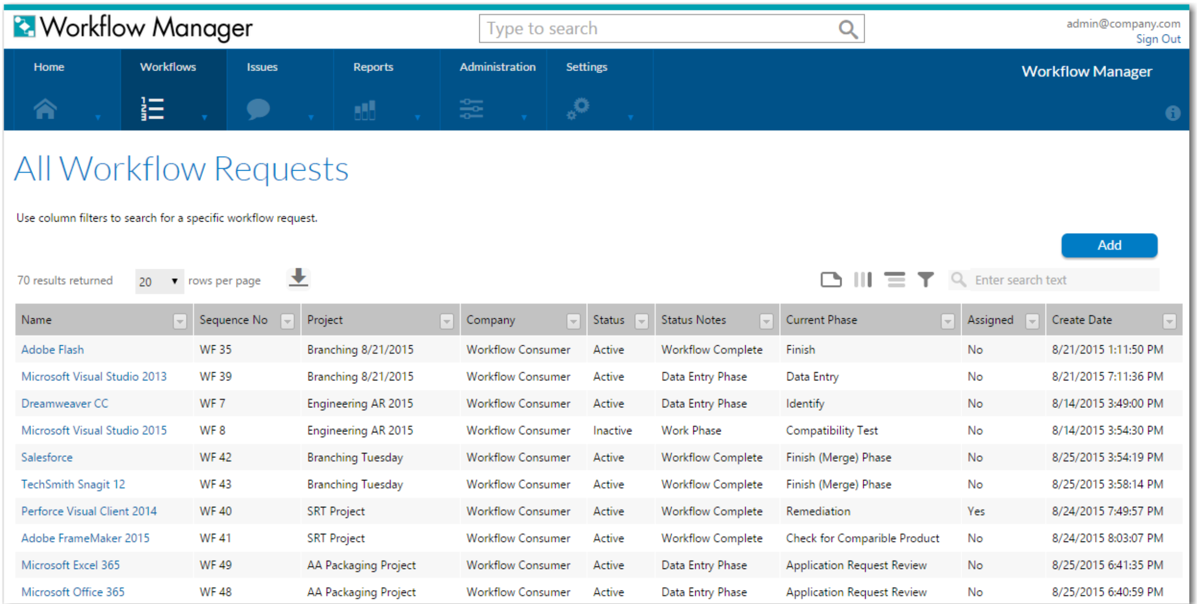


Figure 7-7: All Workflow Requests Page

The **All Workflow Requests** page lists the following workflow details:

Table 7-4 • All Workflow Requests Page Options

Option	Description
Name	A short description of the workflow request.
Sequence No.	A unique identifier for the workflow request, consisting of a workflow request prefix (`WF` by default) and an integer.
Project	The name of the project this workflow request is associated with.
Company	The name of the company this workflow request is associated with.
Status	The workflow request's status, either **Active** or **Inactive**.
Current Phase	The phase of the workflow which is currently active.
Assigned	Displays **Yes** if someone has been assigned to this workflow request, and **No** otherwise.
Create Date	The date the workflow request was submitted.

You can use the grouping controls to group this list by project or by any other column. See Grouping Items in Lists.

Workflow Requests Assigned To Me Page

The **Workflow Requests Assigned To Me** page, which is opened by selecting **Workflow Requests Assigned To Me** on the **Workflows** tab of the navigation bar, lists those workflow requests whose current workflow step is assigned to you (the signed-in user). It does not list a workflow request if you are only assigned to a future workflow step or a workflow step that is already completed.

You can filter this list using filter controls, as described in Using Lists. Use this page to drill through to the **Workflow Request** page for a specific workflow. See Workflow Request Page for more information.

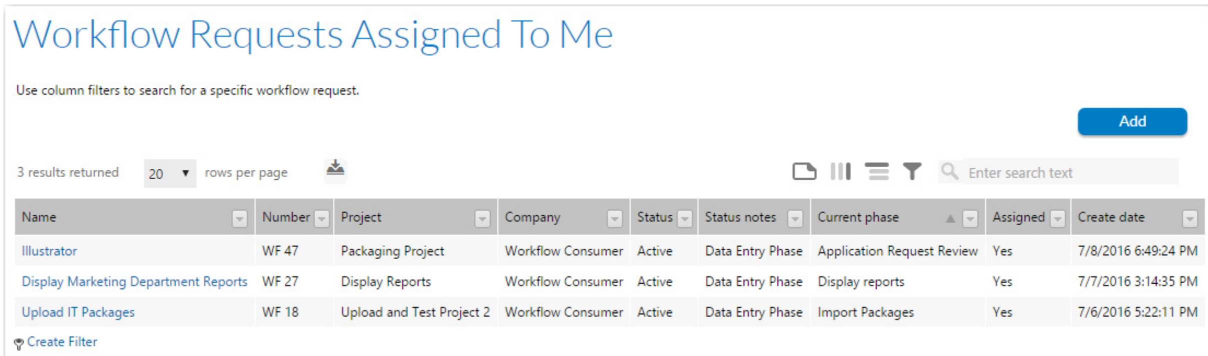


Figure 7-8: Workflow Requests Assigned To Me Page

The **All Workflow Requests** page lists the following workflow details:

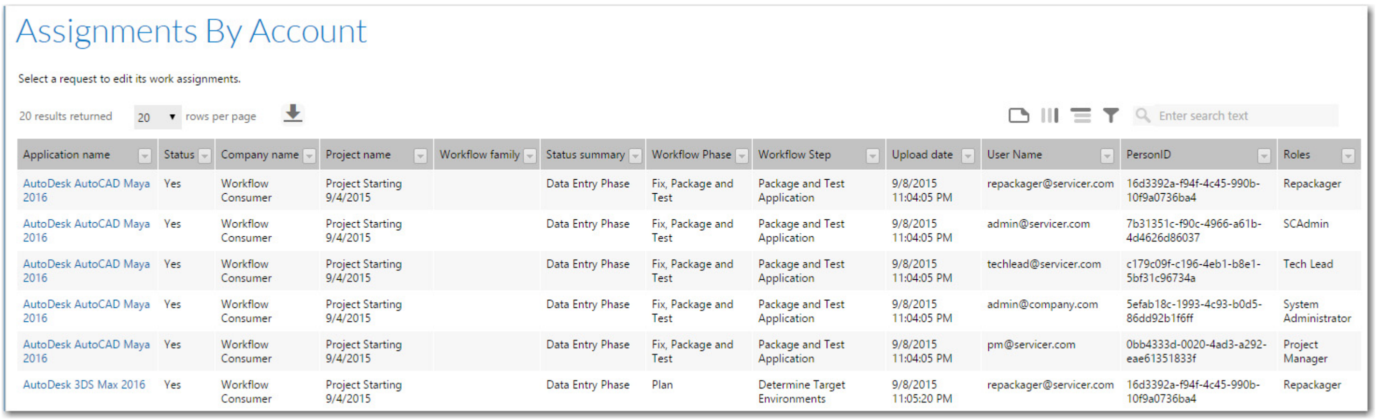
Table 7-5 • All Workflow Requests Page Options

Option	Description
Name	A short description of the workflow request.
Number	A unique identifier for the workflow request, consisting of a workflow request prefix (WF by default) and an integer.
Project	The name of the project this workflow request is associated with.
Company	The name of the company this workflow request is associated with.
Status notes	Type of phase which is currently active, such as Data Entry Phase or Work Phase.
Current phase	The phase of the workflow which is currently active.
Assigned	Displays **Yes** if someone has been assigned to this workflow request, and **No** otherwise.
Create date	The date the workflow request was submitted.

Assignments By Account Page

The **View Assignments By Account** page, accessible to workflow administrators, returns a list of all workflow assignments which are currently in progress. Open this page by selecting **View Assignments by Account** on the **Workflows** tab of the navigation bar.

Use this page to drill through to the **Workflow Request** page for a specific workflow request, where you may update the request as you complete your assigned tasks. See Completing Workflow Requests for more information.



Application name	Status	Company name	Project name	Workflow family	Status summary	Workflow Phase	Workflow Step	Upload date	User Name	PersonID	Roles
AutoDesk AutoCAD Maya 2016	Yes	Workflow Consumer	Project Starting 9/4/2015		Data Entry Phase	Fix, Package and Test	Package and Test Application	9/8/2015 11:04:05 PM	repackager@servicer.com	16d3392a-f94f-4c45-990b-10f9a0736ba4	Repackager
AutoDesk AutoCAD Maya 2016	Yes	Workflow Consumer	Project Starting 9/4/2015		Data Entry Phase	Fix, Package and Test	Package and Test Application	9/8/2015 11:04:05 PM	admin@servicer.com	7b31351c-f90c-4966-a61b-4d4626d86037	SCAdmin
AutoDesk AutoCAD Maya 2016	Yes	Workflow Consumer	Project Starting 9/4/2015		Data Entry Phase	Fix, Package and Test	Package and Test Application	9/8/2015 11:04:05 PM	techlead@servicer.com	c179c09f-c196-4eb1-b8e1-5bf31c96734a	Tech Lead
AutoDesk AutoCAD Maya 2016	Yes	Workflow Consumer	Project Starting 9/4/2015		Data Entry Phase	Fix, Package and Test	Package and Test Application	9/8/2015 11:04:05 PM	admin@company.com	5efab18c-1993-4c93-b0d5-86dd92b1f6ff	System Administrator
AutoDesk AutoCAD Maya 2016	Yes	Workflow Consumer	Project Starting 9/4/2015		Data Entry Phase	Fix, Package and Test	Package and Test Application	9/8/2015 11:04:05 PM	pm@servicer.com	0bb4333d-0020-4ad3-a292-eae61351833f	Project Manager
AutoDesk 3DS Max 2016	Yes	Workflow Consumer	Project Starting 9/4/2015		Data Entry Phase	Plan	Determine Target Environments	9/8/2015 11:05:20 PM	repackager@servicer.com	16d3392a-f94f-4c45-990b-10f9a0736ba4	Repackager

Figure 7-9: Assignments Page

The **Assignments** page contains the following workflow details.

Table 7-6 • Assignments Page Options

Option	Description
Role Name	The name of the role through which you are assigned to the workflow request.
Workflow Name	The name of a workflow request to which you are assigned.
Due Date	The date that the workflow request is due to be completed.
Workflow Phase	The name of the workflow request's active workflow phase.
Workflow Step	The name of the workflow request's active workflow step.
Status	The status of the workflow, one of: • **Data Entry Phase**—The workflow is in its initial submission phase. • **Request Approved**—The workflow request has been approved by an administrator. • **Work Phase**—The workflow is in progress, and is up to a standard phase, with no restrictions. • **Consumer Acceptance Phase**—The workflow is awaiting the consumer's approval, before it is marked as complete. • **Last Phase**—The workflow request is in its final administrative phase.

Workflow Request Page

The **Workflow Request** page for used to track the progress of a workflow request and complete workflow steps. When you open this page, the **Progress** tab is selected by default.

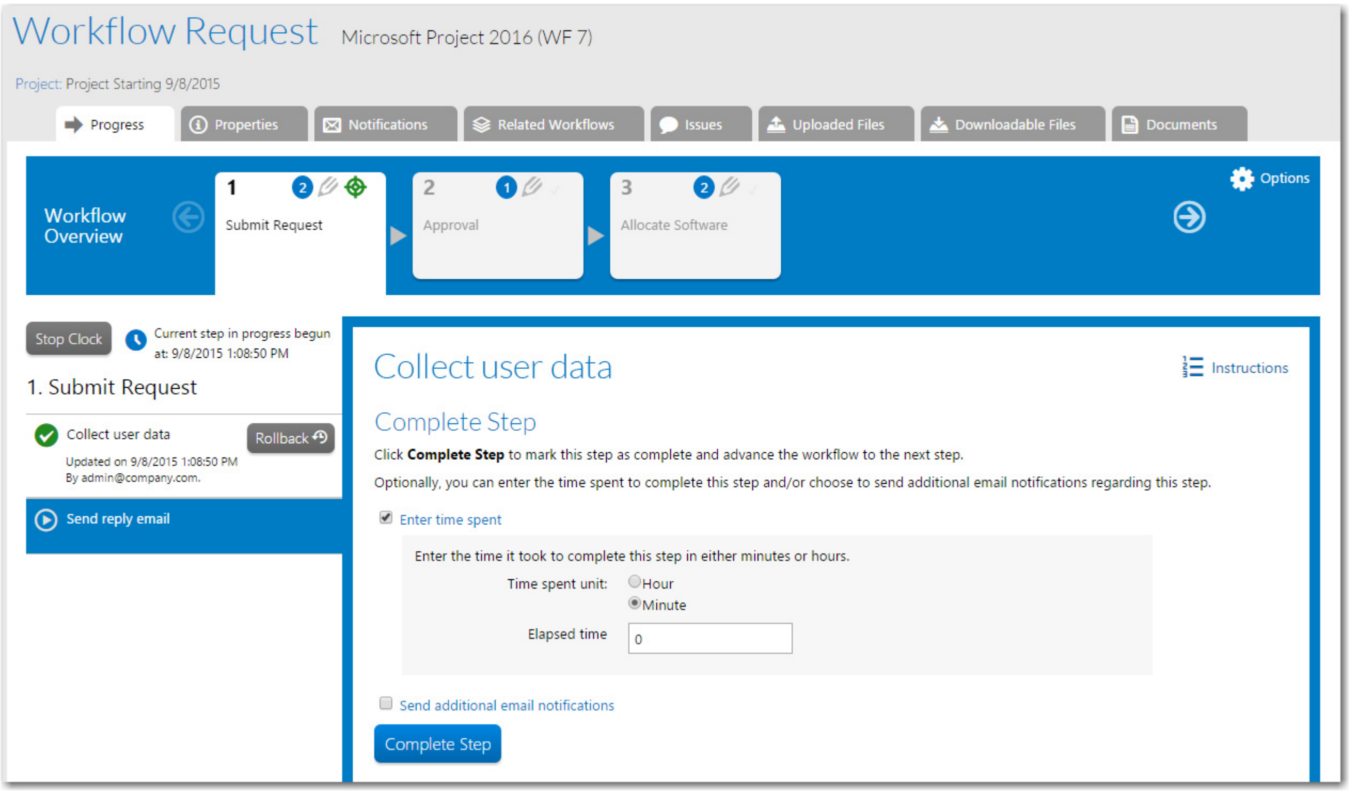


Figure 7-10: Workflow Request Page

Use the various tabs of this page to perform the following tasks:

Table 7-7 • Tasks Performed on the Tabs of the Workflow Request Page (Administrator)

Tab	Task
Progress Tab	Monitor the progress of the request.
Properties Tab	Review and update the general properties of the workflow, and copy the workflow if desired.
Notifications Tab	View the email notification settings that the request inherited from its project, and choose to override those settings by either adding or deleting email notification settings.
Related Workflows Tab	Associate workflow requests with other workflow requests, or review existing associations.
Issues Tab	Raise or respond to an issue related to the request.

Table 7-7 • Tasks Performed on the Tabs of the Workflow Request Page (Administrator)

Tab	Task
Downloadable Files Tab and Uploaded Files Tab	Review documentation uploaded while completing the workflow request.
Documents Tab	Access documents that are stored in the Workflow Manager database, and upload documents to store in the database.

Note • *You can restrict an account's access to each of these tabs by modifying role permissions. See Viewing or Changing an Existing Role and Workflow Manager Permissions.*

Note • *You can restrict an account's access to each of these tabs by modifying role permissions. See Viewing or Changing an Existing Role and Workflow Manager Permissions.*

Progress Tab

Use the **Progress** tab to track the progress of a workflow request. It lists all the workflow phases in the template that this request was based on.

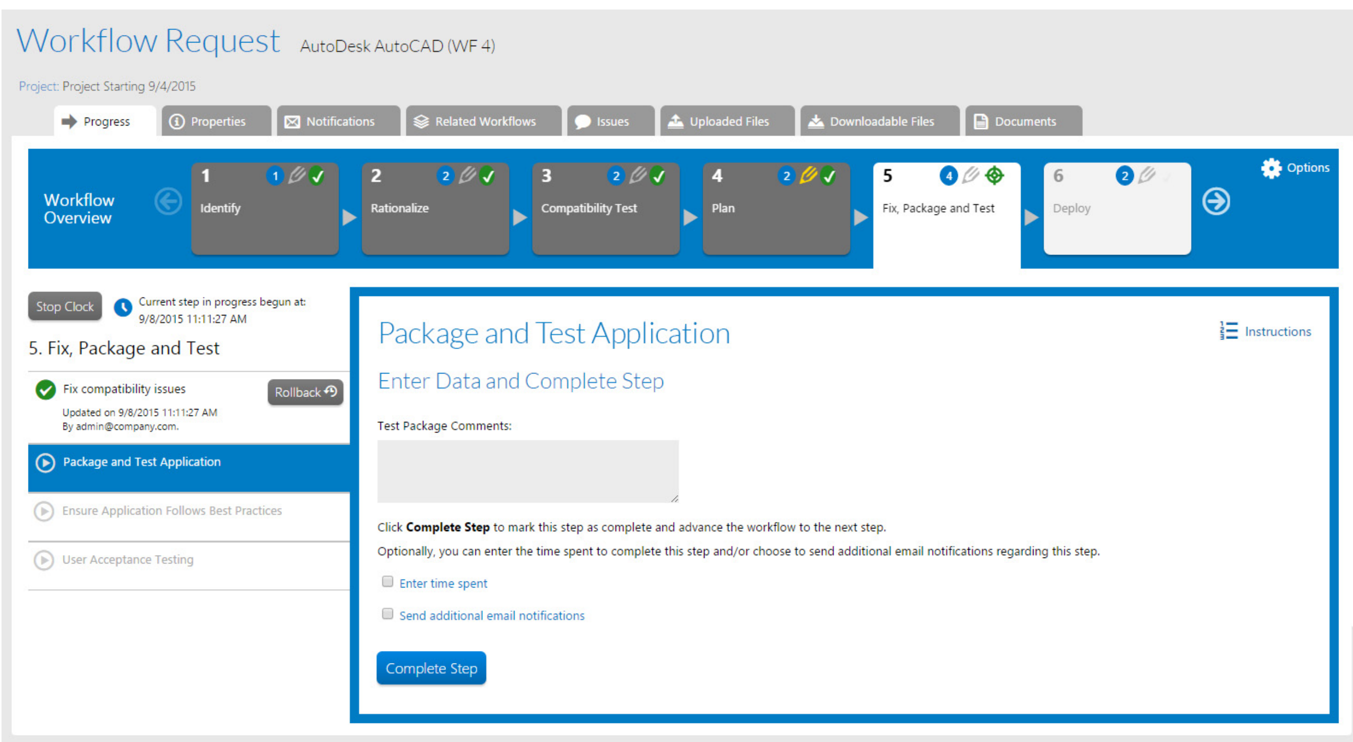


Figure 7-11: Workflow Request Page / Progress Tab

The Progress tab is comprised the following areas:

- Phase Navigation Bar
- Workflow Step Area
- Workflow Step Panel
- Icons Used in on Workflow Progress Tab
- Options Menu
- Start/Stop SLA Clock Button

Phase Navigation Bar

You can switch between the current and completed phases by clicking in the phase navigation bar:

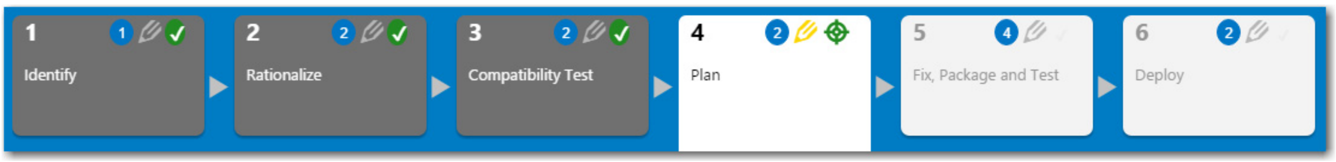


Figure 7-12: Phase Navigation Bar

Completed phases are have a dark gray background. The background of the current phase is white, while future phases have a light gray background. You can scroll through any completed phase or the current phase. However, you cannot view future phases.

If the workflow template uses branching condition, the branch location has a yellow background:

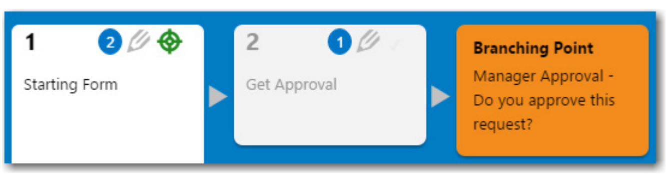


Figure 7-13: Phase With a Branch Point

Workflow Step Area

A list of the workflow steps of the selected workflow phase are listed on the left side of the page.

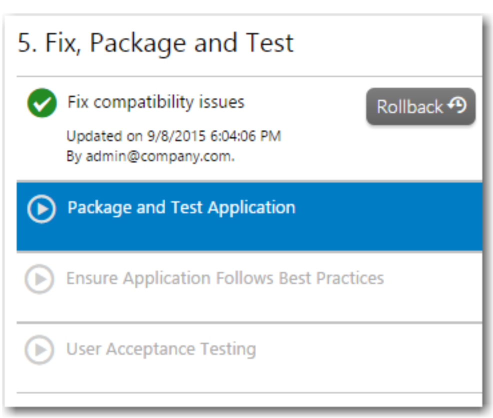


Figure 7-14: Workflow Step Area

Completed steps are indicated by a green checkmark, and lists the time it was completed and the user who completed it. The current step is highlighted in blue.

Workflow Step Panel

The middle portion of the page displays the step completion fields.

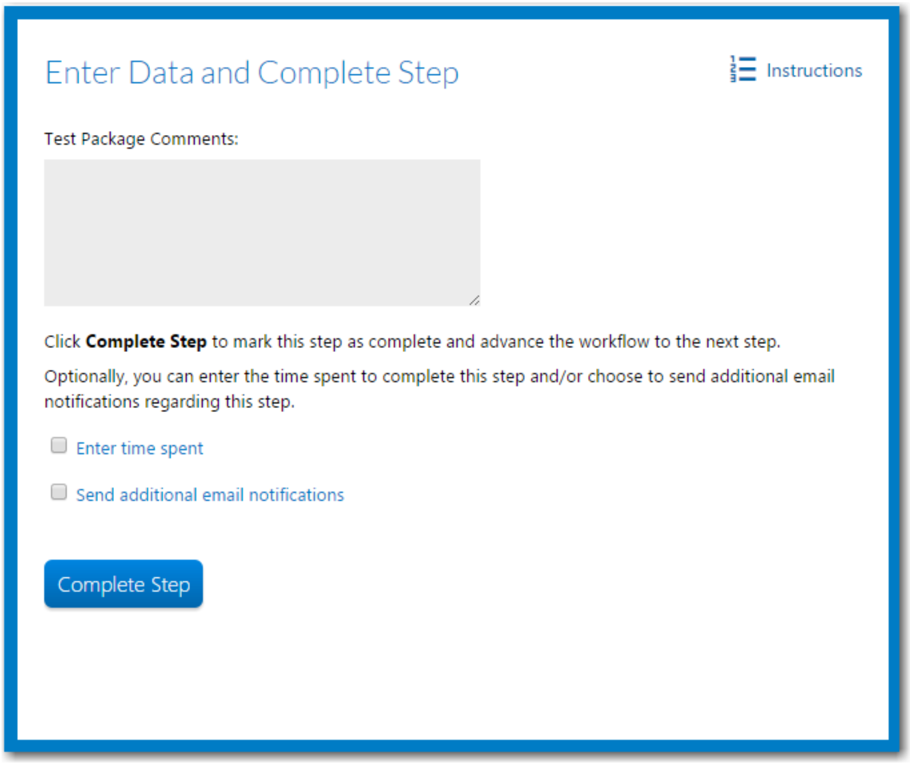


Figure 7-15: Workflow Step Panel

Icons Used in on Workflow Progress Tab

The following icons are used to provide information on the state of each workflow phase and workflow step:

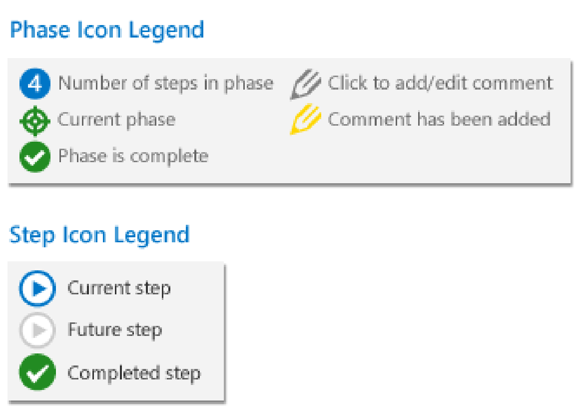


Figure 7-16: Icons Used on Workflow Progress Tab

Options Menu

This **Options** menu available on the **Progress** tab also provides you with the following options:

Table 7-8 • Progress Tab Options Menu

Option	Description
View Documents	Opens a page to view all central documents associated with the workflow request's project, including contracts, company policies regarding completion of the workflow request, and so on.
View Assignments	Opens the **Assignment Details** page, allowing you to make work assignments for this workflow request. See Assignment Details Page for more information.
View Report	Opens the **Workflow Report**, summarizing the state of the workflow request. See Workflow Report for more information.

Start/Stop SLA Clock Button

Click **Stop Clock** to stop the monitoring of elapsed time for the current workflow step. If work on a workflow request was interrupted, you might want to stop the SLA clock to prevent that request from being inaccurately listed in SLA reports as `At Risk` or `Late`.

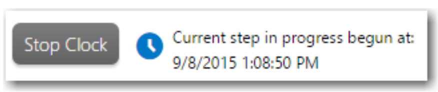


Figure 7-17: Stop Clock Button

When the **Stop Clock** button is clicked, its name changes to **Start Clock**, and the date and time that the clock was stopped is listed. Click the **Start Clock** button to resume monitoring elapsed time.

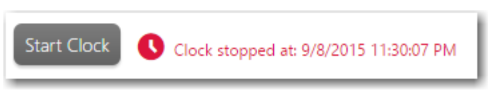


Figure 7-18: Start Clock Button

Properties Tab

The **Properties** tab displays general information about the workflow request. Use this tab to:

- **Edit request details**—Review and update the workflow request details, then click **Update** at the bottom of the tab to commit your changes. See below for a list of properties which you may update.
- **Copy a request**—Copy the workflow request. See Copying an Existing Workflow Request.
- **Delete a request**—Delete the workflow request. See Deleting a Workflow Request.

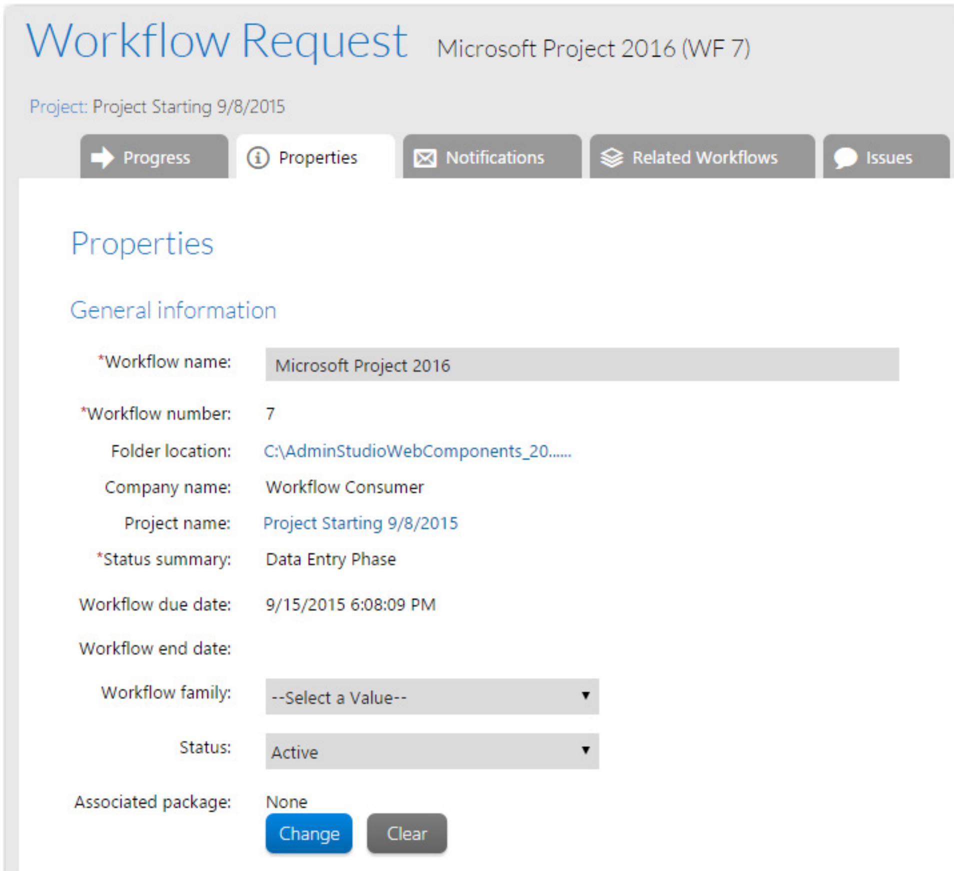


Figure 7-19: Workflow Request Page / Properties Tab

The following fields are available on the **Properties** tab:

Table 7-9 • Workflow Request Page (Administrator) / Properties Tab

Option	Description
Workflow name	A short description of the workflow request.
Workflow number	(Read-only) A unique numerical identifier for the workflow. This number is generated by Workflow Manager.
Folder location	(Read-only) A link to the directory on the Workflow Manager file server, where documents and files associated with this workflow request are uploaded. When you hover over this link, the complete path name is visible. To copy the link, right-click on the link and select **Copy link address** from the shortcut menu. If you click on this link, the location will be opened in a new window.
Company name	(Read-only) The name of the company that the person who submitted this request belongs to.

Table 7-9 • Workflow Request Page (Administrator) / Properties Tab (cont.)

Option	Description
Project name	(Read-only) The name of the project associated with this workflow request. Click the folder name to open the **Project Details** page for the project.
Status summary	(Read Only) Identifies the active workflow phase of this request as being in one of the following four statuses: ● Data Entry Phase ● Work Phase ● Migration Complete ● Deployment Complete
Workflow due date	(Read-only) The date that this workflow request should be completed by in order to meet the SLA (Service Level Agreement) requirements of the project. This date is calculated by adding the number of business days specified in the **Workflow Due Period** field to the date this request was submitted. ***Note** • If you modify the **Workflow Due Period** field and click the **Update** button at the bottom of the tab, the **Workflow Due Date** field will be automatically updated.*
Workflow end date	The date that the workflow request was completed. This field is editable only if all phases in the workflow have been completed.
Workflow family	You can use this field to group workflow requests together, which may assist you when producing reports. You may click **Create New** to create a new workflow family, or select an existing one from the list. Refer to Managing Workflow Families for further information. ***Note** • If you are a workflow consumer and the company associated with this project was created with the Is a **Workflow Family Owner?** option selected, the **Create New** button will not appear. It will be available only when a workflow administrator is submitting a workflow request against the project. See Creating a New Company for more information about this option.*

Table 7-9 • Workflow Request Page (Administrator) / Properties Tab (cont.)

Option	Description
Status	Select the status that you want to assign to the workflow request. ● **Workflow Status** is a user-configurable field used to assign metadata to a request. This metadata can be used when performing searches and generating reports. ● By default, Workflow Manager is installed with two statuses: **Active** and **Inactive**. ● The Workflow Manager Administrator can create a new workflow status, and assign it either an **Active** or **Inactive** state. ● The Consumer users can also assign the workflow status to either an **Active** or **Inactive** state. ● If a request's **Status** is set to either the default **Inactive** status or a user-defined status that is assigned the **Inactive** state, it will not be included in reports or searches.
Associated package	Click the **Change** button to associate this workflow request to a package in the AdminStudio Enterprise Server Application Catalog database. When you click **Change**, the Select Package page opens, listing all of the packages in the Enterprise Server Application Catalog. Select a package in the package tree and click **Select Package**. ● Click the name of the associated package to view its Package Report. ● Click **Clear** to remove the association with this package. ***Note •*** *You can also associate a package with a request from the AdminStudio Application Manager interface.*
Exclude weekends?	(Read Only) When calculating a request's at risk date and due date (using the values in the **Application Due Period** and **Application at Risk Period** fields), this field indicates whether Saturdays and Sundays are being counted as business days. The value of this field is set at the **Project** level.
Workflow due period	Number of days after its submission date that this workflow request should be completed (in order to be in SLA compliance). The value of this field is initially set at the **Project** level, but can be edited here.
Workflow at risk period	Number of days after its submission date that this workflow request will be considered **At Risk** of not meeting its due date. When a request is **At Risk**, it is noted in **Request** and **Projects** reports, and an "at risk" notification email is sent out if the **Send Emails at Application Risk** option is selected. The value of this field is set is initially set at the **Project** level, but can be edited here.

Table 7-9 • Workflow Request Page (Administrator) / Properties Tab (cont.)

Option	Description
Send emails at workflow risk	When "at risk" workflow requests are identified, select whether to send out an email notification of this by selecting **Yes** or **No**.
Comment	You can document this workflow request by writing comments in this box. Comments entered on the **Edit Status Comment** dialog box are also displayed here. You open the **Edit Status Comment** dialog box by clicking **Edit Status Comment** in the **Quick Links** menu on the **Workflow Request** page.
Copy	Click to copy this workflow request. See Copying an Existing Workflow Request.
Save	Click to save your edits to this workflow request's properties.
Delete	The Workflow Manager Administrator or Consumer users can click **Delete** to delete this workflow request.

Notifications Tab

On the **Notifications** tab, the **Workflow Request Notifications Override** page is displayed. When a new workflow request is created, it inherits the email notification settings defined on it associated workflow template. You can, however, modify these notification settings as required on the **Workflow Request Notifications Override** page for that workflow request.

On the **Workflow Request Notifications Override** page, you can view the email notification subscriptions that the workflow request inherited from its project, and you can choose to override those subscriptions by either adding or deleting subscriptions. This page lists all of this workflow request's email notification subscriptions, including those that were assigned via role(s) or group(s) and those assigned explicitly.

Note • *Note that if an individual wanted to add or delete his own subscription to this request, he would make those changes on the* ***My Default Project Notifications*** *and the* ***My Workflow Notifications*** *pages rather than on the Workflow Request Notifications page.*

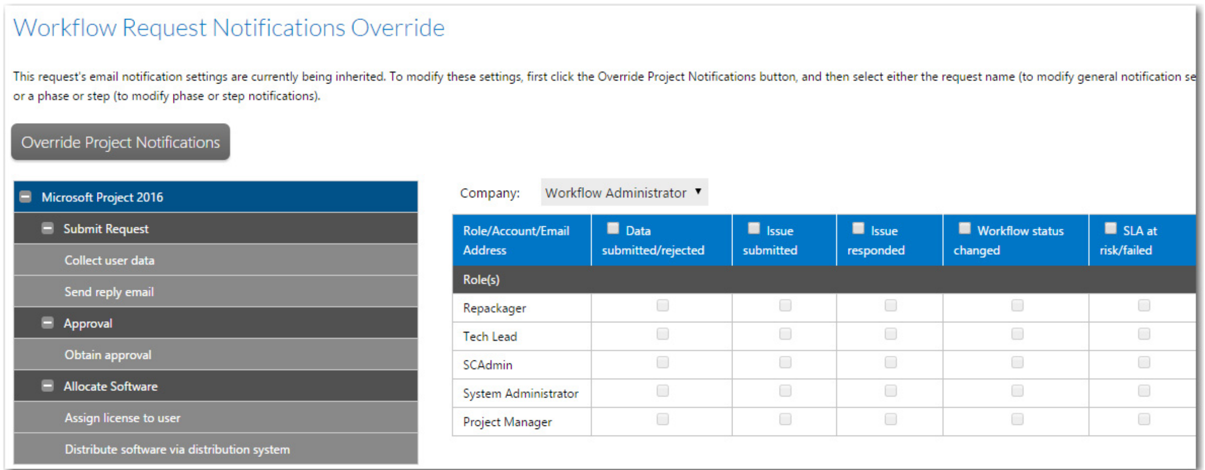


Figure 7-20: Request Notifications Override Page / Initial View

Initially, the email notification options are display-only. To unlock these settings so that you can override them, click the **Override Project Notifications** button. The notification options are unlocked and the name of the button changes to **Inherit Project Notifications**.

***Note •** If at any time after modifying these notification settings, you want to return to the project defaults, click the **Inherit Project Notifications** button.*

For detailed information on using the **Workflow Request Notifications Overrides** page to override both workflow request-level and individual phase and step-level email notifications, see Overriding Default Email Notification Settings for an Individual Workflow Request.

Related Workflows Tab

The **Related Workflows** tab lists all workflow requests associated with the current request. By linking related workflow requests together, you can easily track the progress of all associated requests, and may also produce reports displaying this information. Use this page to:

- Review or update the properties of an associated workflow request
- Associate a new workflow request with this current workflow request
- Unlink a workflow request from the current workflow request.

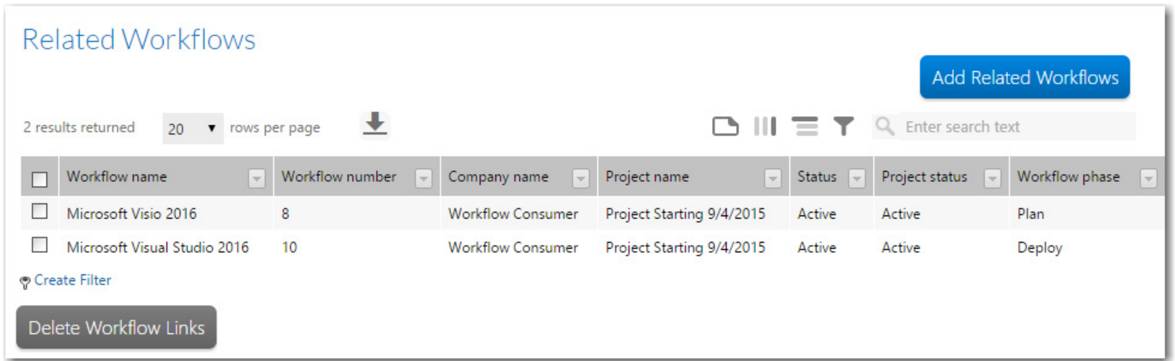


Figure 7-21: Workflow Request Page (Administrator) / Related Workflows Tab

Workflow request associations are bidirectional - if you relate one workflow request to a second, the first workflow request appears in the **Related Workflows** tab of the second, and the second workflow request appears in the **Related Workflows** tab of the first.

The **Related Workflows** tab lists the following details about the associated workflows:

Table 7-10 • Related Workflows Tab

Option	Description
Workflow Name	A short description of the associated workflow request.
Workflow number	A unique numerical identifier for the workflow.
Company name	The name of the company that the person who submitted this request belongs to.
Project name	The name of the project associated with this workflow request.
Status	Identifies the status of this workflow request, either **Active** or **Inactive** by default.
Project status	Identifies the status of the associated project, either **Active** or **Inactive** by default.
Workflow phase	The name of the currently active phase of the associated workflow request.

Related Workflows List

The **Related Workflows** list, which is opened by clicking **Add Related Workflows** on the **Related Workflows** tab of the **Workflow Progress** page, lists all requests and enables you to select those requests that you want to link to the current request.

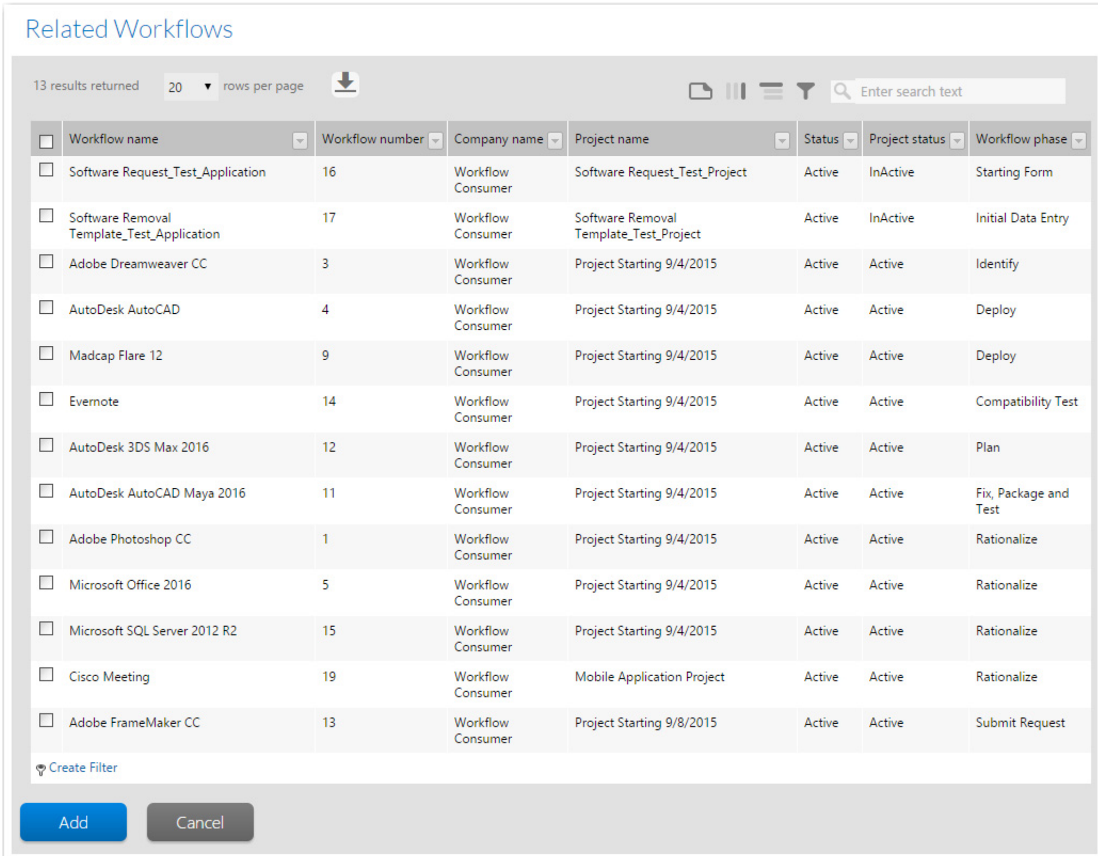


Figure 7-22: Related Workflows Dialog Box

The current workflow request will not appear in this grid, nor will any of the other requests you have already linked to the current one.

Select the check box to the left of the workflow request(s) that you want to link, then click the **Add** button. The list will close, and the workflow request(s) you chose will automatically appear in the grid on the **Related Workflows** tab.

The grid on this dialog reveals the following information about workflow requests:

Table 7-11 • Related Workflows Dialog Box Properties

Property	Description
Workflow name	A short description of the associated workflow request.
Workflow number	A unique numerical identifier for the workflow.
Company name	The name of the company that the person who submitted this request belongs to.
Project name	The name of the project associated with this workflow request.
Workflow status	Identifies the status of this workflow request, either **Active** or **Inactive** by default.

Table 7-11 • Related Workflows Dialog Box Properties

Property	Description
Project status	Identifies the status of the project that this workflow request belongs to as either **Active** or **Inactive**.
Workflow phase	Lists the name of the active workflow phase for this request.
Site name	For deployment workflows, the site where this request is being deployed.

Issues Tab

The **Issues** tab displays a list of issues raised for this workflow request, and may also display extra fields allowing you to update, respond to or create a new issue. From this tab, you may:

- **Respond to an issue**—View, update or respond to an issue. See Responding to or Closing an Issue.
- **Attach file to an issue**—Attach documents to support an issue. See File Upload Dialog Box.
- **Create an issue**—Create a new issue. See Creating a New Issue.

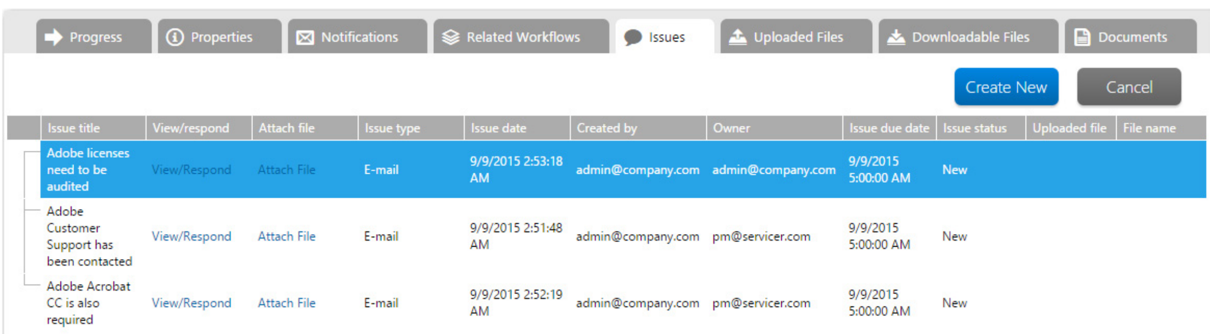


Figure 7-23: Workflow Request Page / Issues Tab

The **Issues** tab includes the following views:

- Issue List
- Issue Details View: Existing Issue
- Issue Details View: New Issue

Issue List

The **Issues** tab lists all issues associated with the selected application. Click an issue to display the **Issue Details View**, where you can view, respond, or close that issue. For each issue, the following information is provided. To sort this list, click on one of the column headings.

Table 7-12 • Workflow Request Page / Issues Tab / Issue List

Option	Description
Issue title	A short description of the issue.
View/Respond	Click to open the **Issue Details** view for the issue.
Attach File	Click to access the **File Upload Dialog Box**, where you can upload a file to attach to this issue. The Uploaded File field of this listing lists the name of the most recently uploaded file associated with this issue. You can upload multiple files for an issue, but only the most recently uploaded file is listed in this column. To see a list of all uploaded files for this issue, click the **Uploaded Files Tab**.
Issue type	Identifies the type of issue as one of: ● **Knowledge Base**—The issue is posted on the **Issues** tab of the workflow request. ● **E-mail**—The issue is posted on the **Issues** tab, and an email is sent out to the people associated with this workflow request, ● **Critical**—All work is stopped on this workflow request until this issue is closed—functionally, this means the workflow is made read-only until the issue is resolved.
Issue date	The date the issue was raised.
Created by	The account name of the person who raised the issue.
Owner	The person assigned to resolve this issue.
Issue due date	The date that the person creating this issue wanted it resolved by.
Issue status	Indicates the current state of the issue: ● **New**—Issue has not been responded to. ● **Responded**—Issue has been responded to. ● **Closed**—Issue has been resolved.
Uploaded file	The document or file most recently uploaded for this issue. You may click on the filename in this field to download the file. ***Note** • If you have uploaded more than one file, the older ones can all be seen and downloaded on the **Uploaded Files** tab.*
File name	Name of most recently uploaded file.

Table 7-12 • Workflow Request Page / Issues Tab / Issue List (cont.)

Option	Description
Create New	Click to create a new issue in the Issue Details View.

Issue Details View: Existing Issue

When you click **View/Respond** on the **Issues** tab for an existing issue, the **Issue Details** view appears below the list, where you can view and respond to an issue (if it is not already Closed):

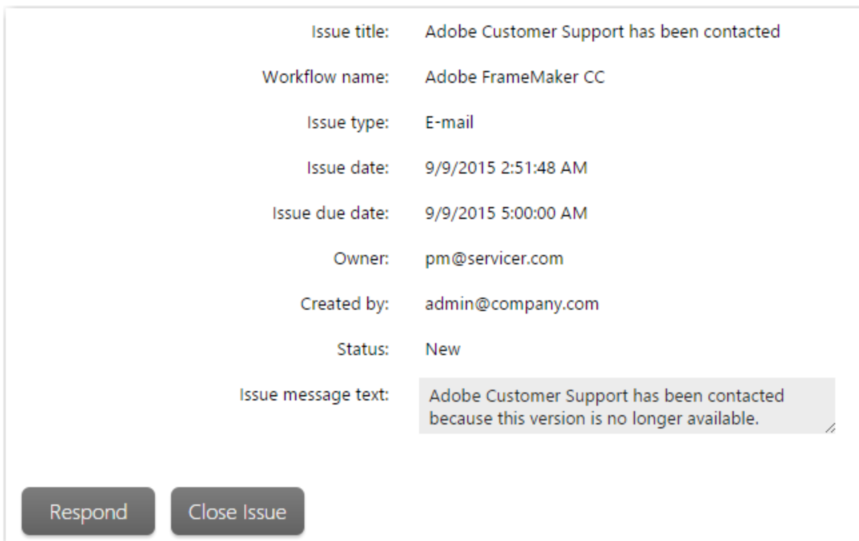


Figure 7-24: Issue Details View (Existing Issue)

Note • *For more information, see Responding to or Closing an Issue.*

The **Issue Details** view for an existing issue includes the following information:

Table 7-13 • Workflow Request Page / Issues Tab / Issue Details View / Existing Issue

Option	Description
Issue title	Short description of issue that was entered by the person who created the issue.
Workflow name	Name of workflow associated with the issue.
Issue type	Indicates the type of issue, such as **Email**, **Knowledge Base**, or **Critical**.
Issue date	Date issue was created.
Issue due date	Due date assigned to this issue when it was created.
Owner	Name of the user assigned to this issue.

Table 7-13 • Workflow Request Page / Issues Tab / Issue Details View / Existing Issue (cont.)

Option	Description
Created by	Name of person who created this issue.
Status	Indicates whether this issue is **New** (has not been responded to), **Responded** (issue has been responded to), or **Closed**.
Issue message text	Issue content.
Respond	To respond to the message you are viewing, click **Respond**. A Response text box appears, where you can type in the text of your response. When you have finished, click **Submit** to post your response. As soon as the screen is refreshed, this response will appear in the **Issue List**. (Does not appear if you are viewing an issue with a Status of **Closed**.)
Close Issue	Click to change the status of this issue to **Closed**.

Issue Details View: New Issue

When you click **New o**n the **Issues** tab, the **Issue Details** view appears below the list, where you create a new issue.

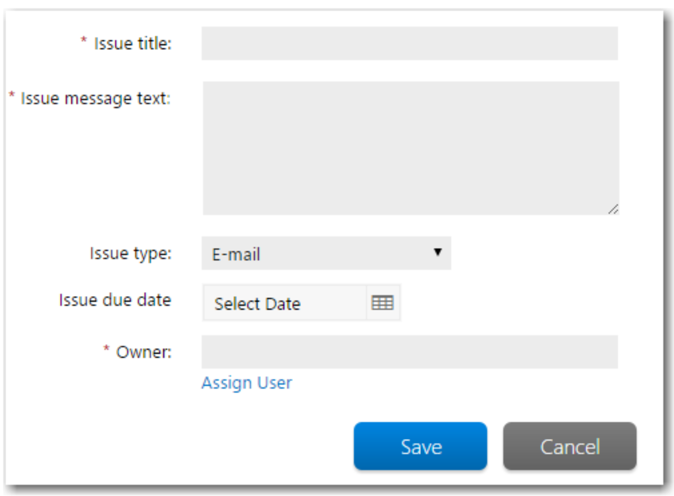


Figure 7-25: Issue Details View (New Issue)

The **Issue Details** view for a new issue contains the following information:

Table 7-14 • Workflow Request Page / Issues Tab / Issue Details View / New Issue

Option	Description
Issue title	Enter a short abstract of the issue to identify this issue in listings.
Issue text box	Enter the text of this issue.

Table 7-14 • Workflow Request Page / Issues Tab / Issue Details View / New Issue (cont.)

Option	Description
Issue type	Specify one of the following issue types: **Knowledge Base**—Select if you want to post this issue on the **Issues** tab but do not want to send a notification email to anyone. • A Knowledge Base issue is used to share information between several users in a discussion board forum. • Other users must open the **Issues** tab to read it. • Each time someone responds to an issue, their response is listed below the original issue on the **Issues** tab. **Email**—Select **Email** if you want to send a notification email to all users with permission on this project. • You use the **Email** type for issues that you do not consider critical, but which require that people associated with this project be notified. • When you create an **Email** issue, the issue is posted on the **Issues** tab and a notification email is sent to all users who are members of roles that are selected in the **Issue Submitted** column of the **Notification** tab of the **Template Details** view for this workflow request's associated workflow template.
Issue type (continued)	**Critical**—Select **Critical** if you want to stop all work on this workflow request until the issue is resolved. • Only users who have edit permission for a workflow step will be able to create a **Critical** issue for that Step. • Whenever a request has an open **Critical** issue, its workflow becomes read only until the issue is resolved. The following note appears at the top of the **Issues** tab: `Open Critical issue present in Application.` Also, the following note appears at the top of the Progress tab: `The workflow is READ-ONLY because of Critical issues.` • Each time a person opens the **Issues** tab of a request that has an open **Critical** issue, the **Issue Details** view of the **Critical** issue is opened. • Before any steps can be performed on this workflow request, a user with edit permission on this workflow step must close the issue. • The amount of time it takes to close a **Critical** issue is tracked and is listed on the Workflow Report. ***Note •*** *Users assigned to roles with appropriate permissions can edit the names of the three types of **Issues** (**Email**, **Critical**, **Knowledge Base**), but cannot create any additional issue types.*

Table 7-14 • Workflow Request Page / Issues Tab / Issue Details View / New Issue (cont.)

Option	Description
Issue due date	To assign a due date to this issue, click the calendar icon and select a date.
Owner	[Administrator Only] To assign a user to this issue, click the **Assign User** button to open the **Select User** dialog box. Select a user as described in Searching for Accounts.
Save	Click to create the issue. The issue is then listed on the **Issues** tab.

By default, each person may view a list of issues raised by people belonging to their company. This list of issues is available by clicking one of the following links in the **Issues** group of the **Workflows** menu in the navigation bar:

- **All Open Issues**
- **Recently Created Issues**
- **Recently Created Critical Issues**
- **Recently Closed Issues**
- **Recently Responded Issues**

On these **Issues** pages, you can:

- **Review issues**—Review issues without needing to open the **Issues** tab for each individual workflow request they are related to.
- **View issue details**—View the details of the issue, and respond to or close it if is open.
- **Upload files**—Upload a file in support of the issue. See File Upload Dialog Box.

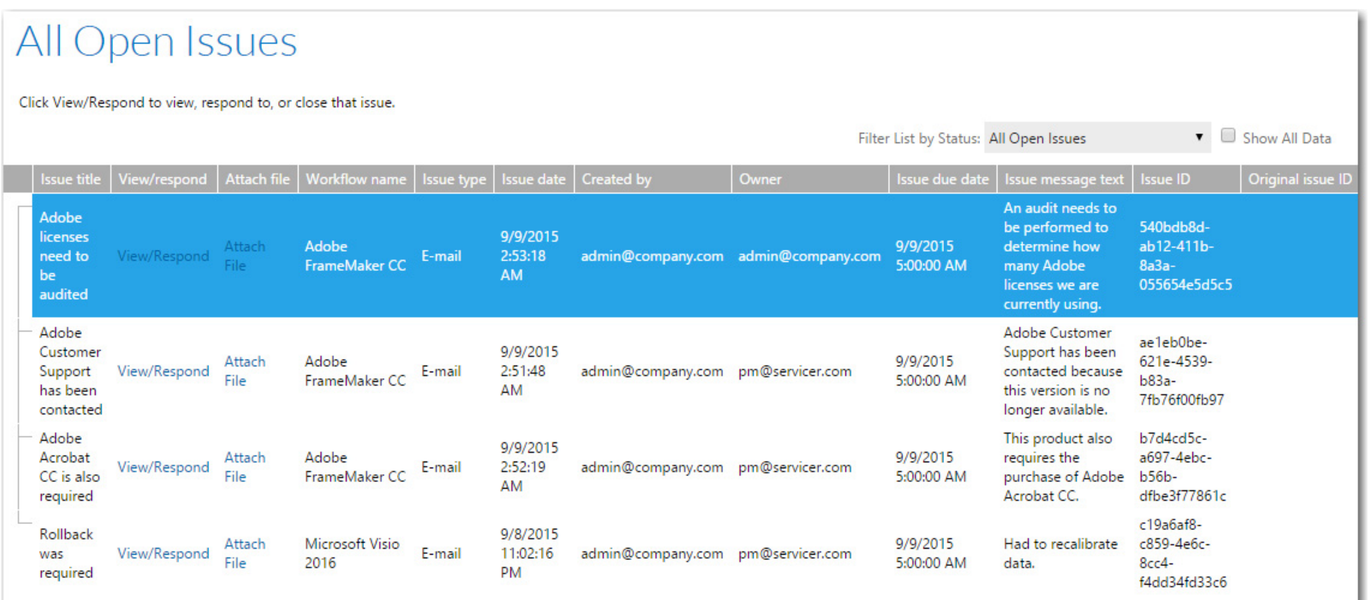


Figure 7-26: All Open Issues Page

The **Issues** pages displays the following information:

Table 7-15 • Issues Pages Properties

Property	Description
Filter List by Status	Use to filter the list by issue status.
Show All Data	If this option is not selected, the list will display either just open issues (administrators) or the just issues assigned to you (consumers). Select this option to display all issues.
Issue title	A short description of the issue or a response. If this field shows a **+** next to an issue (or response) name, click it to expand out a list of all responses to that issue (or response).
Workflow name	Which workflow request the issue was raised for.
Issue type	The type of issue, one of `Knowledge Base`, `E-mail`, `Critical` or `Response`.
Issue date	When the issue was raised or the response posted.
Created by	Who raised the issue or posted the response.
Owner	Who has been assigned to resolve the issue.
Issue due date	When the person raising the issue would like it resolved by.
Issue message text	The full description of the issue, or the text of the response.
Issue ID	A unique identifier for the issue.
Original Issue ID	For responses only, the identifier of the parent issue or response.

Filtering the Issues

The issues that are displayed on an **Issues** page depends upon the selection made in the **Filter List by Status** list.

Task ***To change the issues displayed on the Issues pages:***

Choose an option from the **Filter List by Status** combo box. Select one of:

- **All Open Issues**—Returns a list of all open issues
- **Recently Created Issues**—Returns a list of open issues, created recently
- **Recently Created Critical Issues**—Returns a list of all open Critical issues, created recently
- **Recently Closed Issues**—Returns a list of all issues which were recently closed
- **Recently Responded Issues**—Returns a list of all issues, regardless of status, which were recently responded to.

You may also toggle the **Show All Data** check box to change the information listed in this grid. If the **Show All Data** check box is selected, and:

- You are a workflow administrator, you will be shown a list of issues raised by people belonging either to your own company, or to workflow consumer companies which you service.
- You are a workflow consumer, you will be shown a list of issues raised by people belonging to you company, or to workflow administrator companies whose service your requests.

When this check box is not selected, the list shows only issues raised by people belonging to your company.

Uploaded Files Tab

The **Uploaded Files** tab lists files that have been uploaded to Workflow Manager during the submission of a request, when completing a workflow step that collects a data element with a **Data type** of **Document Upload**, **Application Upload**, **Upload Folder Content,** or **Dependency Upload**, or in association with an issue.

Click a file name to download it.

The following details are shown on the **Uploaded Files** tab:

Table 7-16 • Workflow Request Page / Uploaded Files Tab

Option	Description
Download	Click this link to download the file.
Client File Path	The location of the uploaded file.
Server File Name	The name of the uploaded file on the Workflow Manager file server.
Upload Date	The date of the file was uploaded.
File Size	The size of the file (bytes).
File Status	Whether the file was uploaded, or just linked as an external file to the workflow request. One of: • **Uploaded**—The file is uploaded to the Workflow Manager file server) • **External**—This record represents a link to an external file) • **Deleted**—The file had been uploaded, but has now been deleted).
File Type	The type of file. One of: • **Issue Uploaded File**—The file was uploaded as an attachment to an issue) • **APP**—The file is an application) • **DEP**—The file is a dependency file) • **DOC**—The file is some other miscellaneous type of file, like a word processing document, an image, a spreadsheet, and so on).

Downloadable Files Tab

The **Downloadable Files** tab shows all documents or files that a workflow administrator has moved to the Workflow Manager downloadable files directory. This can be done in one of two ways:

- When completing a workflow step that collects a data element with a data type of **Downloadable File Upload**.
- By copying a file directly to the directory on the Workflow Manager file server where downloadable files are stored, which can be accessed by clicking the **Click to access downloadable files location** link.

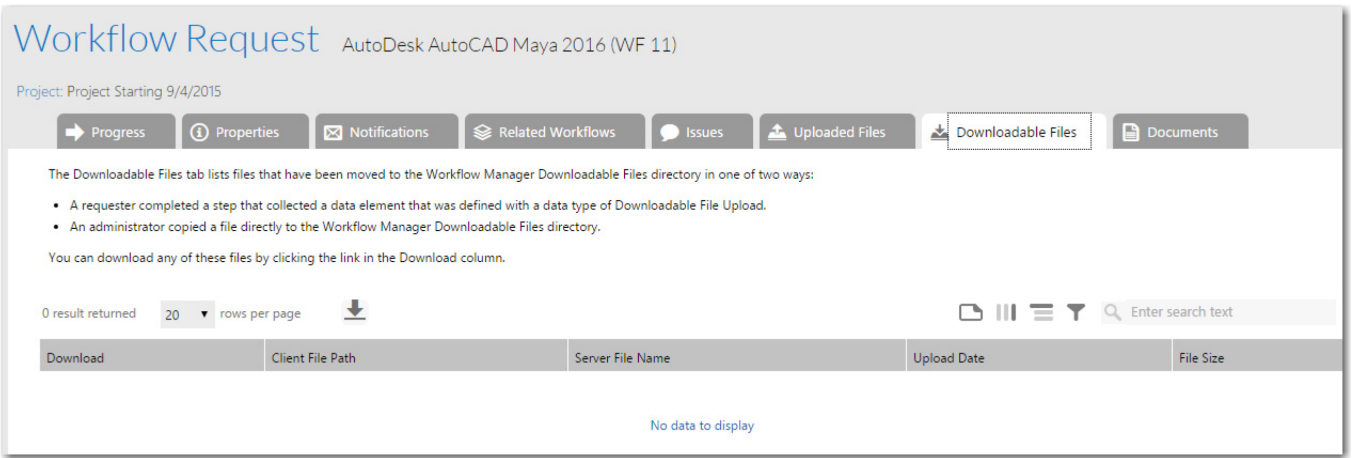


Figure 7-27: Workflow Request Page / Downloadable Files Tab

Click the **Download** link to the left of any file that you want to download.

The following details are shown on the **Downloadable Files** tab:

Table 7-17 • Workflow Request Page / Downloadable Files Tab

Option	Description
Client File Path	The location of the uploaded file.
Server File Name	The name of the uploaded file on the Workflow Manager file server.
Upload Date	The date the file was uploaded.
File Size	The size of the file (bytes).

Documents Tab

On the **Documents** tab, you can access documents that are stored in the Workflow Manager database, and upload documents to store in the database.

Documents attached to a workflow request on the **Downloadable Files** tab are stored in an external directory on the Workflow Manager file server that was set up by the Workflow Manager administrator, and includes the documents that are added when a user completes a workflow step that collects a data element with the data type of **Downloadable File Upload**.

However, documents such as draft contracts, addendums, ratings of vendors responding to RFPs, etc. need to be more securely stored than on a file server. Historical versions of each document, especially contracts, need to be recorded. Documents stored using the **Documents** tab are securely stored in the Workflow Manager database and document versioning is available.

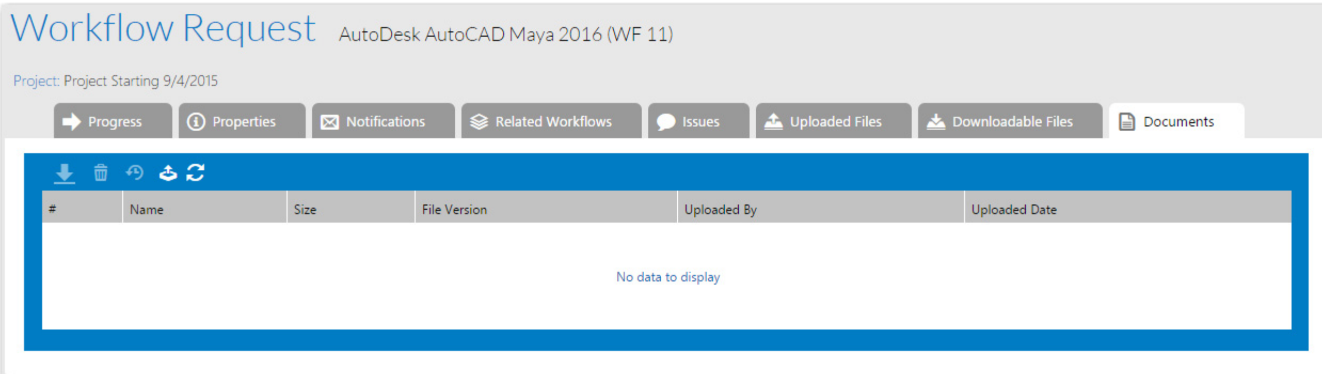


Figure 7-28: Workflow Request Page (Administrator) / Documents Tab

On the **Documents** tab, you can perform the following tasks:

- Uploading a New File to the Documents Tab
- Viewing a File on the Documents Tab
- Viewing a Previous Version of a File on the Documents Tab

The Documents tab includes the following buttons and properties:

Table 7-18 • Documents Toolbar

Item	Description
Open	Click to open the selected file.
Refresh	Click to refresh the listing.
Delete	Click to delete the selected file.
Upload	Click to open the **Upload** dialog box to upload a document.
Upload New Version of: FileName	Select this option to upload a new version of the selected file. • **Option selected**—If you select this option, the file you upload will be saved as a new version of the selected file, even if it does not have the exact same name. • **Option not selected**—If you are uploading a new file (not a new version of an existing file) leave this option unselected. However, if this option is unselected, and you attempt to upload a file with the same name as an existing file, you will receive an error message stating that the file already exists.
View Previous Versions	Click to open the **File Version History** dialog box, which lists the previous versions of the selected document, and enables you to view or delete them.

Table 7-18 • Documents Toolbar

Item	Description
Filename	File name of uploaded file.
Size	Size of uploaded file.
File Version	Number of versions of the uploaded file that exists.
Uploaded By	Person who uploaded the current version of the file.
Uploaded Date	Date and time that the current version of the file was uploaded.

Upload Area

On the **Upload** are, which is opened by clicking the **Upload** button on the toolbar of the **Documents** tab, you select the file that you want to upload to the Workflow Manager database.

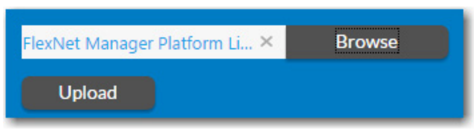


Figure 7-29: Upload Dialog Box / Uploading a New File

The behavior of the **Upload** dialog box depends upon whether you have selected the **Upload New Version of** option on the **Documents** tab to upload a new version of an existing file.

The **Upload** dialog box includes the following options:

Table 7-19 • Upload Dialog Box

Option	Description
Browse	Click to select a file to upload. The maximum file size is 10 MB. • If the **Upload New Version of** option is selected, select a new version of an existing file. This file is not required to have the same name as the existing version. • If the **Upload New Version of** option is not selected, select a new file that does not have the same name as an existing file. If you attempt to upload a file with the same name as an existing file, you will receive an error message stating that the file already exists. ***Note •*** *The file extensions that you are permitted to upload are listed on the* ***Upload*** *dialog box. By default, all file extensions are permitted.*
Max file size allowed	Lists the maximum file size that you are permitted to upload. By default, this is set to `10 MB`. However, this value is configurable by editing the following setting in the `web.config` file: `<add key="MaxUploadFileSize" value="10485760"/>`

Table 7-19 • Upload Dialog Box

Option	Description
File extensions allowed	Lists the file extensions of the files that you are permitted to upload. By default, this is set to `*.*`. However, this value is configurable by editing the following setting in the `web.config` file: <add key="SearchPatterns" value="*.*"></add>
Remove	Click to remove the selected file.
Add	This button is disabled.
Upload	Click to upload the file to the database.

File Version History Area

On the **File Version History** area, which is opened when you click the **View Previous Versions** button on the toolbar of the **Documents** tab, all previous versions of the selected file are listed. In this area, you can view all versions of the file and also delete versions.

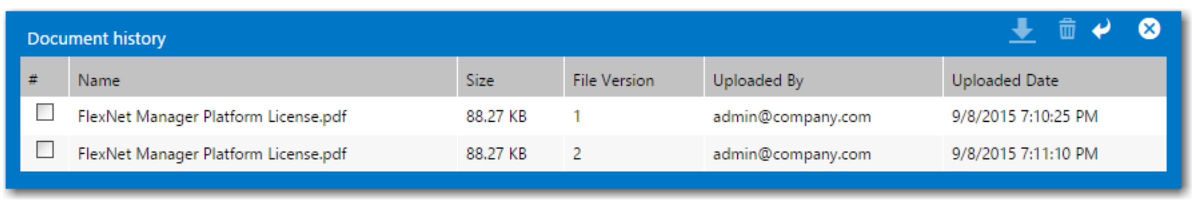


Figure 7-30: File Version History Area

The **File Version History** area includes the following options:

Table 7-20 • File Version History Area

Option	Description
File Name	Name of the version of the document.
File Version	Identifies the version of the document.
Size	Size of that version of the document.
Original File Name	Name of the document when it was originally uploaded.
User Name	User who uploaded that version of the document.
Uploaded Date	Date document version was uploaded.

Copy Workflow Request Page

If you want to create a new workflow request which is very similar to an existing workflow request, you can copy the existing one, rather than re-entering all of the requested data. The amount of data that is copied to the new workflow request depends upon whether you are a consumer or an administrator:

- **For consumers**, only data submitted in the initial data step are copied to the new workflow. Any data submitted in later steps will need to be re-entered.
- **For administrators**, you can choose to just copy the data entered in the initial date entry step, or the current workflow state (all the data items and the state of each workflow step). You can also link the copy to the original workflow request.

To copy an existing workflow request, select **Copy an Existing Workflow Request** in the **Workflows** menu of the navigation bar. The initial view of the **Copy Workflow Request** page opens, listing all workflow requests.

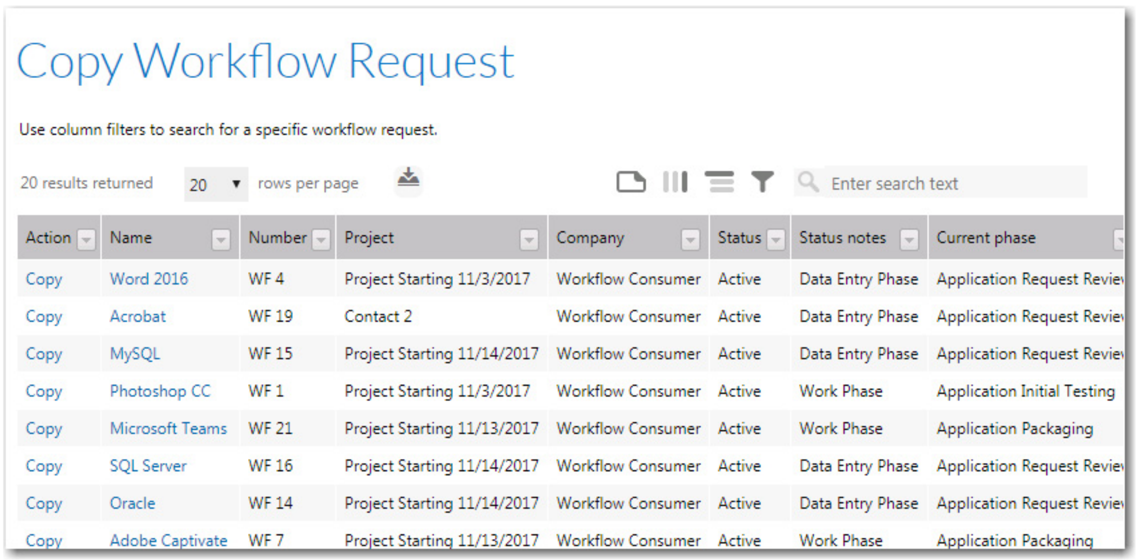


Figure 7-31: Copy Workflow Request Page / Initial View

Click **Copy** next to the name of the workflow request that you want to copy. The detail view of the **Copy Workflow Request** page opens.

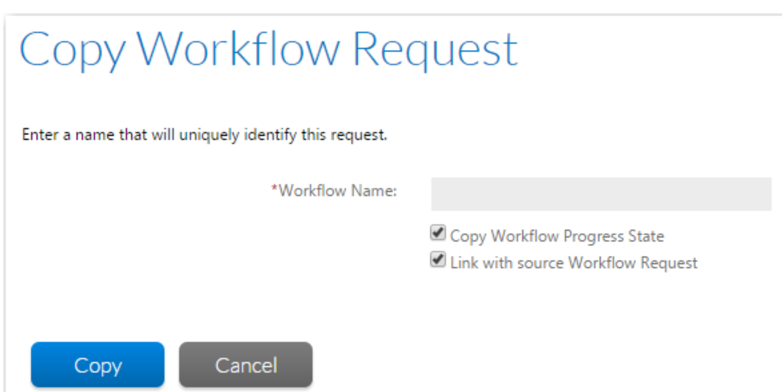


Figure 7-32: Copy Workflow Request / Detail View

The following fields are included:

Table 7-21 • Copy a Workflow Request Page

Option	Description
Company Name	(Administrator only) Name of company that submitted this request.
Workflow Name	Enter a unique name to identify the new workflow request
Copy the Workflow Progress State	(Administrator only) Select this option if you want to copy the data items and state of each workflow step from the source request to the new request. If this option is not checked, Workflow Manager only copies the initial data entry step, and the request is not automatically submitted.
Link with source Request	(Administrator only) Select this option if you want to link the copy to the original request. Linked requests are listed on the **Related Applications** tab.
Copy	Click to create the copy of the request.

Workflow Report

The **Workflow Report** contains detailed information about a workflow request's progress, including its history and SLA (Service Level Agreement) status. You can open a **Workflow Report** for a workflow request by clicking the **View Workflow Report** link in the **Action** menu of its **Workflow Request** page. It opens in a new browser window.

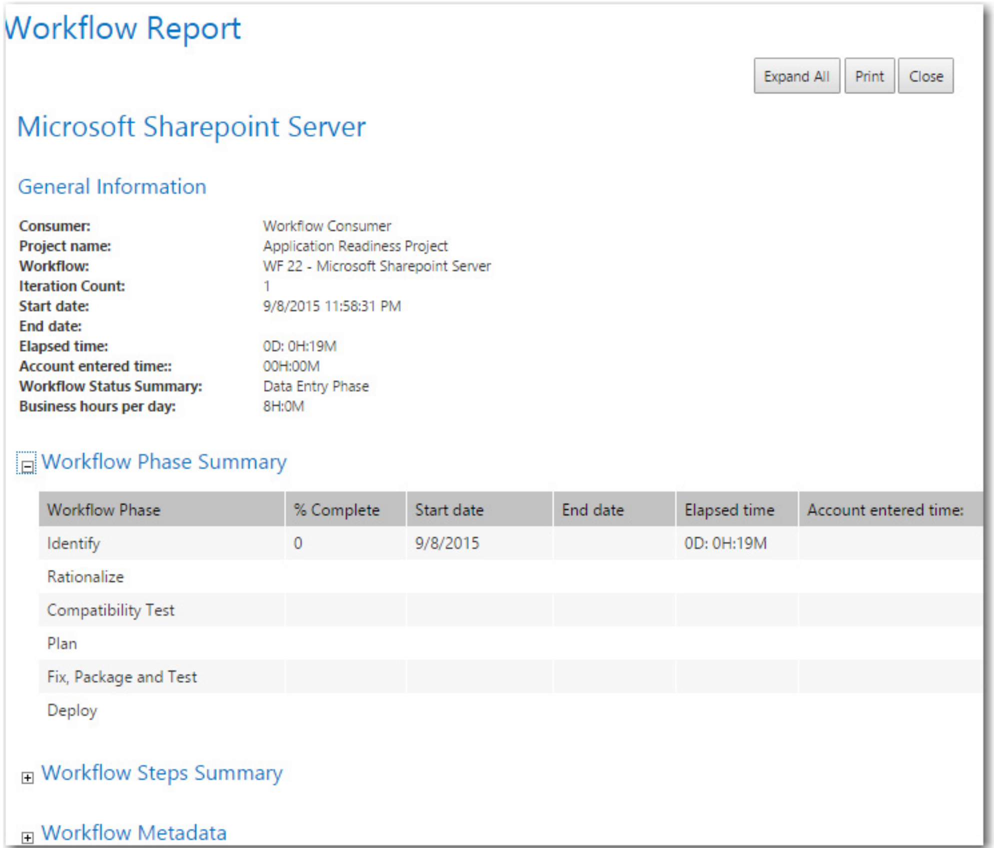


Figure 7-33: Workflow Report

As well as general information about the workflow request, the **Workflow Report** also contains other information (related to history of the workflow request, a summary of the data entered in data entry steps, and so on). All these additional sections are initially collapsed, but can be expanded by clicking the **+** icon next to their heading. You can expand all of the sections at once by clicking the **Expand All** button at the top of the page, at which point its text changes to **Collapse All**. Click this button again to collapse all the fields.

The following details are shown on the **Workflow Report**:

Table 7-22 • Workflow Report Details

Report Section	Field	Description
General Information	**Requesting Company**	The name of the company submitting the request.
	Project Name	The name of the project this workflow request is associated with.
	Project ID	A unique identifier for the project.
	Workflow	The name of the workflow request.
	Iteration Count	The number of times steps in this workflow have been repeated. Every time the workflow is rolled back, this count increments by 1.
	Start Date	The date this workflow request was first submitted.
	Due Date	The date that this workflow request needs to be completed in order to remain SLA (Service Level Agreement) compliant.
	Risk Date	The date when this workflow request will be considered to be at risk of not meeting its SLA due date.
	End Date	The date the workflow request was completed (blank if still active).
	Elapsed Time	The amount of time elapsed since this workflow request was submitted. If the request is complete, the elapsed time shows the total time from the start date to the end date. The value in this field takes into account the length of a work day specified for this project, whether weekends and holidays were excluded, and if the SLA clock was stopped. ***Note •*** *For more information, see Stopping and Restarting the SLA Clock.*
	Account Entered Time	The total time spent completing a workflow step, as entered on the **Step Validation** dialogs.
	SLA Time	The total elapsed SLA time.
General Information Continued	**Workflow Status Summary**	The type of the currently active phase for the workflow request.
	SLA Compliance	The status of the request. One of: On Time, At Risk, Late, Completed On Time, or Completed Late.
	Business Hours Per Day	The length of a standard business day, used to calculated the elapsed time for SLA calculations.

Table 7-22 • Workflow Report Details

Report Section	Field	Description
Workflow Phase Summary	This sections contains a grid listing all the phases in the workflow request. The grid has the following fields:	
	Workflow Phase	The name of the of the workflow phase.
	% Complete	How far through this workflow phase the workflow request is. This field (and those following) are blank unless the workflow phase is currently in progress, or has been completed.
	Start Date	The date this phase was started.
	End Date	The date this phase was completed (blank if it is not yet completed.
	Elapsed Time	How long the phase has been active, or the time taken to complete the phase if it is already completed.
	SLA Time	The total elapsed SLA time.
	Account Entered Time	The time taken to complete this phase, as entered on the **Step Validation** dialogs.
Workflow Steps Summary	This section contains a grid listing all the steps in this workflow request. The grid has the following fields:	
	Workflow Phase	The name of the of the workflow phase that the workflow step belongs to.
	Workflow Step	The name of the workflow step.
	End Date	The date this step was completed (blank if it is not yet completed.
	Elapsed Time	How long the step has been active, or the time taken to complete the step if it is already completed.
	SLA Time	The total elapsed SLA time.
	Account Entered Time	The time taken to complete this step, as entered on a **Step Validation** dialog.
Workflow Metadata	This section contains one grid for each of the data groups in this workflow, and lists each data element in the group, along with the value supplied for the data element by the people completing the workflow. Each grid has the following fields:	
	Data Element	The name of the data element.
	Data Value	The value entered in the data element.

Table 7-22 • Workflow Report Details

Report Section	Field	Description
Workflow History	This section contains a grid listing the activities that have occurred for each workflow phase. An entry is added to this table each time a data collection step is submitted and when a workflow step is completed. Rollback information is also listed in additional grids in this section. If the value of a data element changes, the old and new values are also shown in this grid. The grids in this section contain the following fields:	
	Workflow Phase	The name of the workflow phase.
	Workflow Step	The name of the workflow step.
	Activity	The activity that took place.
	Old Value	If the value of a data element was changed during this activity, the original value of that element.
	New Value	If the value of a data element was changed during this activity, the new value of that element.

Table 7-22 • Workflow Report Details

Report Section	Field	Description
Issues	This section contains two grids, an **Issue Summary** grid, summarizing the total number of issues submitted for this workflow request, and an **Issue Details** grid, showing more detailed information about each of the raised issues. This **Issue Summary** grid has the following fields:	
	Issue type	The type of issue raised (E-mail, Knowledge Base or Critical).
	Total Issues	The number of issues raised of the specified type.
	Total Closed Issues	The number of issues of this type which were resolved.
	Total Open Issues	The number of issues of this type which are still open.
	Total Time Spent on Closed Issues	The total time spent resolving closed issues.
	The **Issue Details** grid has the following fields:	
	Issue title	A short description of the issue.
	Issue Status	The current state of the issue (New, Responded, or Closed).
	Issue type	The type of issue (Knowledge Base, E-mail or Critical).
	Created By	The person who raised the issue.
	Owner	The person responsible for resolving the issue.
	Issue due date	The date the person raising the issue wanted it resolved by.
	Closed Date	The date the issue was resolved (blank if still active).
	Closed By	The person who resolved the issue.
	Elapsed Time	The amount of time taken to resolve the issue.
	Phase	The workflow phase active when this issue was closed.
	Step	The workflow step active when this issue was closed.

Saving and Printing the Workflow Report

Use the **Print** button at the top of the page to print the **Workflow Report.**

Alternatively, you can save the **Workflow Report** in `.mht` format by clicking the **Save** button at the top of the window. The **Save Webpage** dialog box should open. Enter a name and choose a file location for the report, then click **OK**.

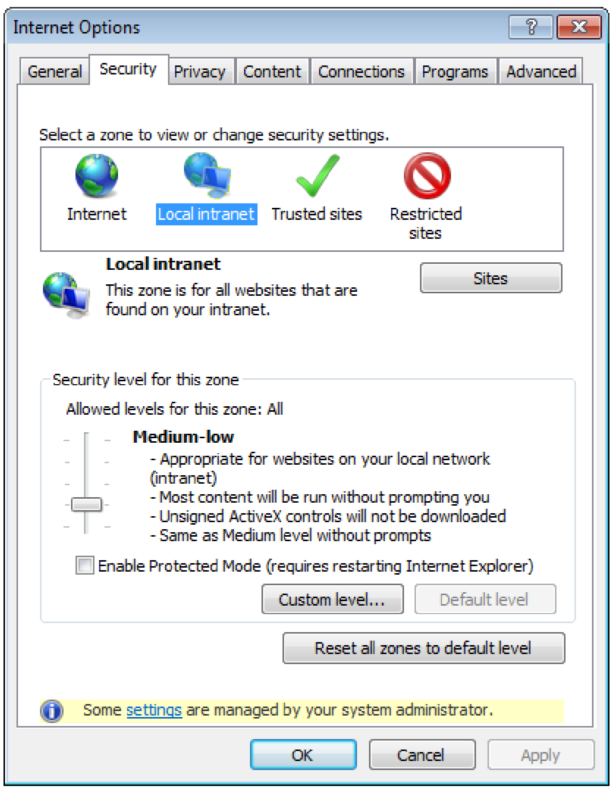
If you are using Internet Explorer, the ActiveX settings of your browser may prevent you from saving the **Workflow Report**, and a message similar to the following will be displayed instead of the **Save Webpage** dialog:

```
Internet Explorer has blocked this site from using an ActiveX control in an unsafe manner. As a result,
    this page may not display correctly.
```

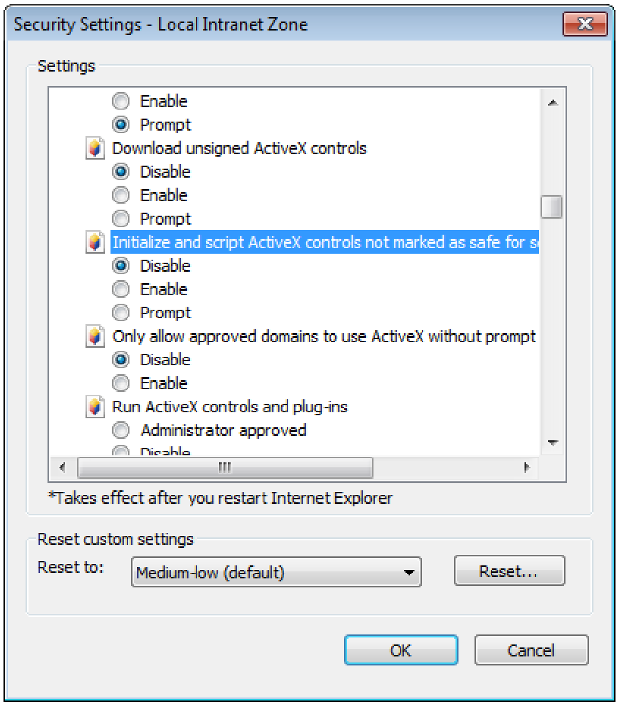
If you receive this error message, perform the following steps to adjust your browser's ActiveX settings:

Task ***To adjust ActiveX browser settings in Internet Explorer:***

1. In Internet Explorer, select **Internet Options** on the **Tools** menu. The **Internet Options** dialog box opens.
2. Select the **Security** tab.
3. In the **Select a zone to view or change security settings** area, select **Local intranet**.



4. In the **Security level for this zone** area, click **Custom Level**. The **Security Settings** dialog box opens.



5. Scroll down to the section named **Initialize and script ActiveX controls not marked as safe**, and select **Prompt**.
6. Click **OK** to close the **Security Settings** dialog box and click **OK** to confirm the change.
7. Click **OK** to close the **Internet Options** dialog box.
8. Quit Internet Explorer and restart it.
9. Login to Workflow Manager. You will now be permitted to save a **Workflow Report** using the **Save** button.

Submit Workflow Request Page

This page opens when you open the **Workflows** group of the navigation bar and click **Submit Workflow Request** in the **Workflow Request** subgroup.

The **Submit Workflow Request** page includes the following options:

Table 7-23 • Submit Workflow Request Page Options

Option	Description
Project	Select the project that you want to submit a request for.
Workflow Name	Enter a name to uniquely identify this workflow request. You can enter up to 80 characters.
Workflow Family	Select the **Workflow Family** that this application will belong to, or click **Create New** to create a new workflow family. ***Note •*** *See Workflow Families for more information.*

Table 7-23 • Submit Workflow Request Page Options (cont.)

Option	Description
Create New	Click to create a new workflow family. ***Note •*** *If the administrator company associated with this Project was created with the* ***Is a Workflow Family Owner?*** *option selected, this button will only appear when an administrator is submitting a request; if the option was not selected, this link will appear for both administrators and consumers.*
Create a New Workflow Request	[Customer only] Click to submit your workflow request.
Submit	[Administrator only] Click to submit your workflow request.

Work Assignment Listing Page

The **Work Assignment Listing** page returns a list of workflow requests associated with your company or those companies which you administer. Open this page clicking **Assign Work** in the **Workflows** menu.

Use this page to drill through to the **Assignment Details** page for a specific workflow request, where you may assign a person to each role able to complete the workflow's tasks. See Assigning Users to Workflow Requests for more information.

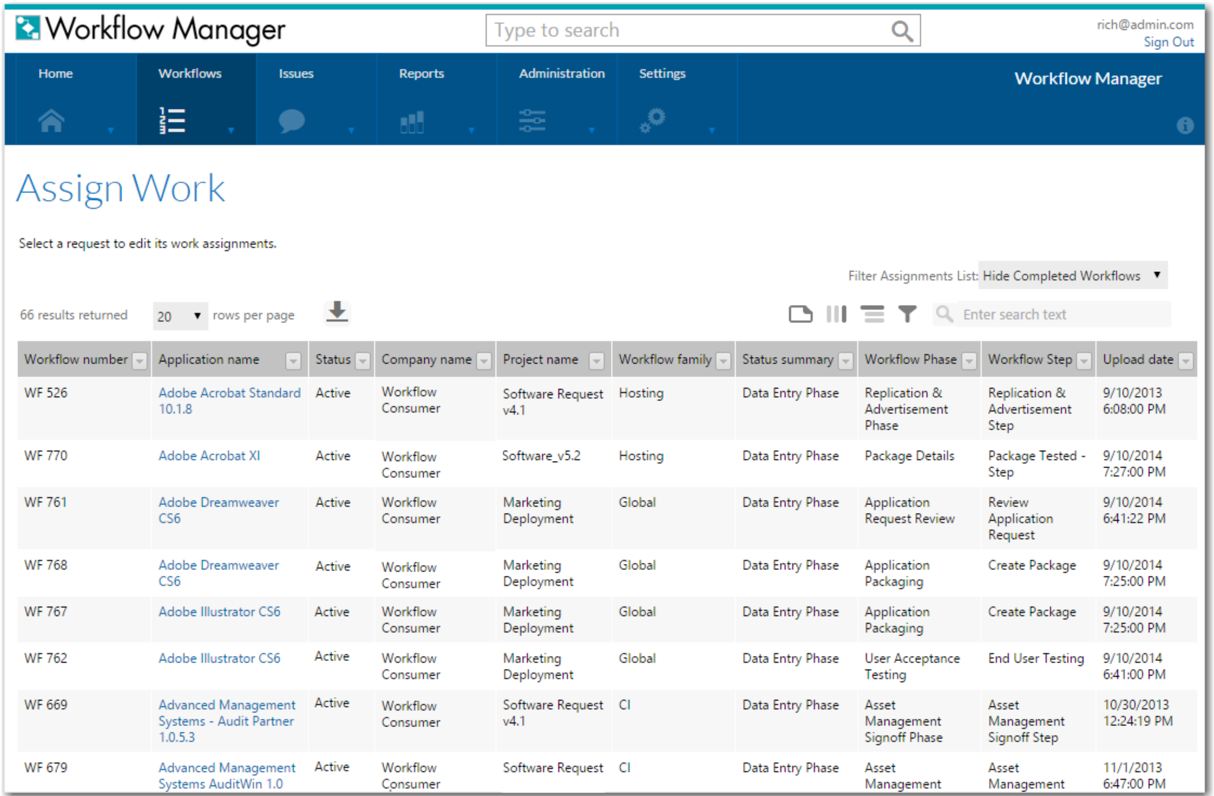


Figure 7-34: Work Assignment Listing Page

Use the **Filter Assignments List** to change what information is displayed on the **Work Assignment Listing** page. If the field is blank, all workflow requests are shown. The following options are available:

- **Hide Completed Workflows**—Lists only those workflow requests which are still in progress
- **Data Entry Phase**—Lists only those workflow requests which are in the initial data collection step, visible when first submitting the request
- **Work Phase**—Lists only those workflow requests which are in a standard work phase
- **Consumer Acceptance Phase**—Lists only those workflow requests which only require consumer approval to be completed
- **Last Phase**—Lists only those workflow requests where the consumer project has been completed, but the requests include a final administrative phase
- **Workflow Complete**—Lists only those workflow requests which are completed
- **Merging Workflow Steps**—Lists only those workflow requests which are in a phase that implements conditional branching.

The **Work Assignment Listing** page contains the following workflow details.

Table 7-24 • Work Assignment Listing Page Properties

Property	Description
Workflow Number	A unique identifier for the workflow, consisting of a workflow request prefix (`WF` by default) and an integer.
Workflow Name	A short description of the workflow request.
Status	An indication of the assignment status for the request. Possible values are Yes (all tasks are assigned to people), **Partial** (some tasks are assigned to people) or `No` (no tasks are assigned to people).
Company Name	The company that the person who submitted this request belongs to.
Project Name	The name of the project this workflow is associated with.
Workflow Family	The category that this workflow request belongs to.
Status Summary	The status of the workflow, one of: • Workflow Complete • Data Entry Phase • Last Phase • Merging Workflow Steps • Work Phase
Workflow Phase	The name of the workflow request's active workflow phase.
Workflow Step	The name of the workflow request's active workflow step.
Upload Date	The date the workflow request was submitted.

Assignment Details Page

On the **Assignment Details** page, which is opened by selecting a request on the **Work Assignment Listing** page, you can assign a user to each role that has permission to perform tasks on the workflow request.

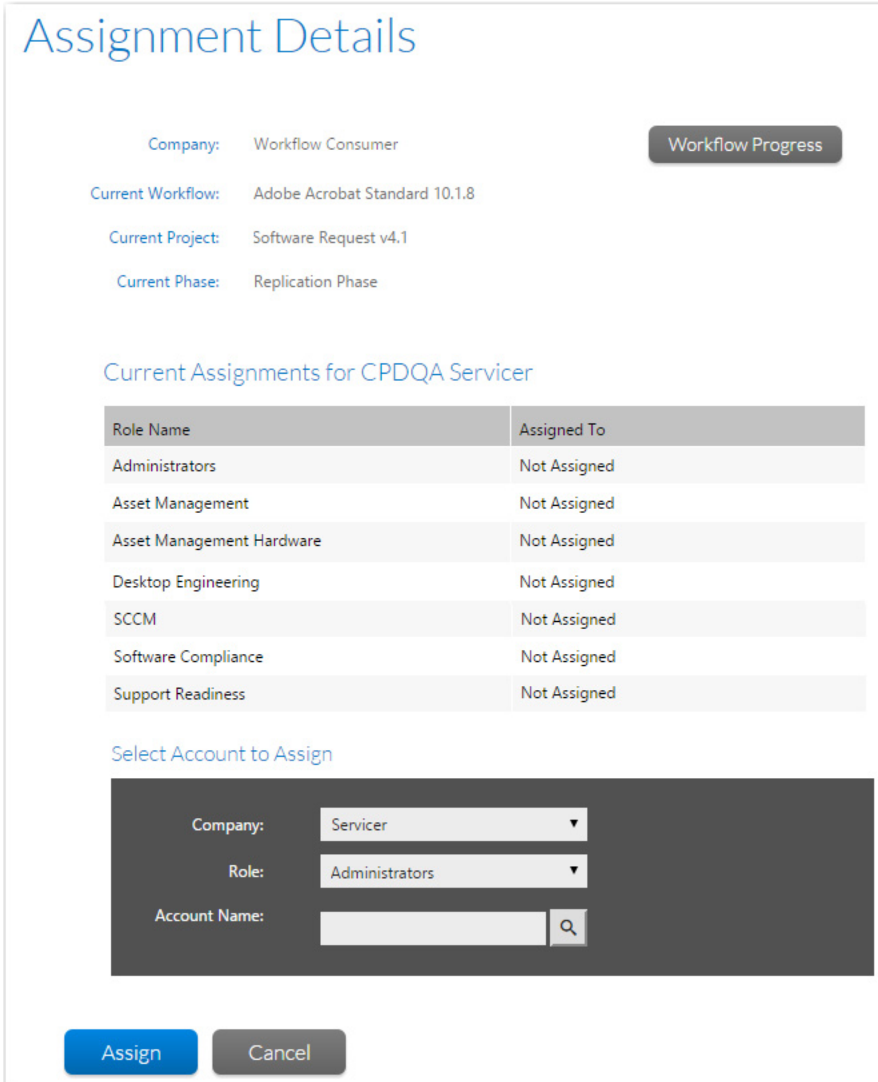


Figure 7-35: Assignment Details Page

The **Assignment Details** page includes the following options:

Table 7-25 • Assignment Details Page Options

Option	Description
General Information	Identifies the workflow request: • **Company**—Name of the consumer company associated with this workflow request. • **Current Workflow**—Name of this workflow request's associated workflow template. • **Project**—Name of the project that this workflow request is associated with. • **Workflow Name**—Name of the workflow request. • **Current Phase**—Current phase of the workflow request.

Table 7-25 • Assignment Details Page Options (cont.)

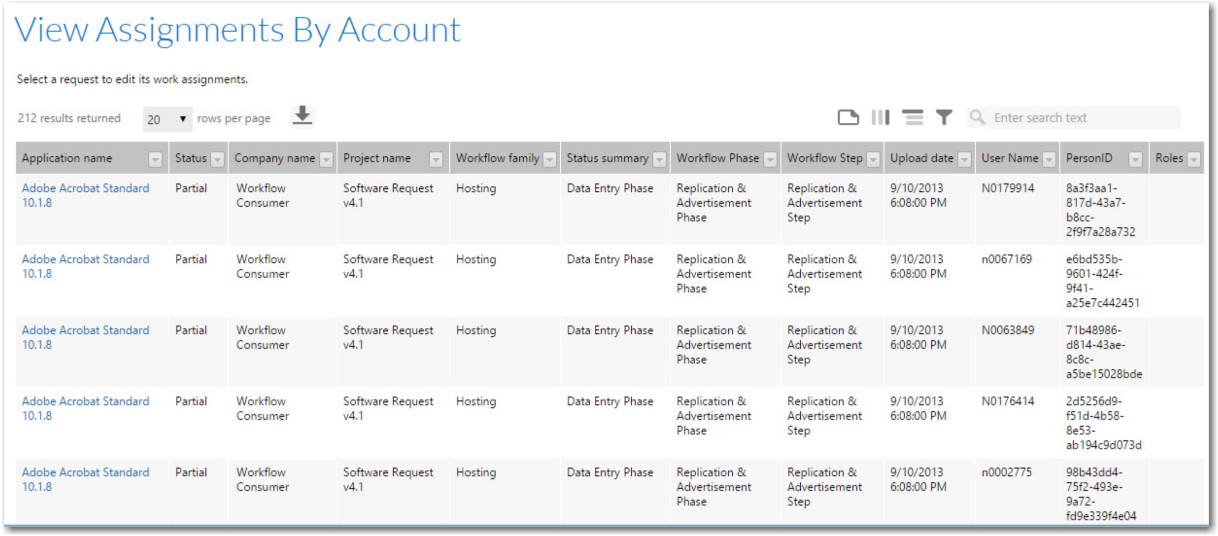
Option	Description
Current Assignments for Workflow Administrator	Table listing all of the **Roles** that have permission to perform tasks on this workflow request and the users that have been **Assigned To** those roles. If no user has been assigned to a role, `Not Assigned` is displayed in the **Assigned To** column for that role. ***Note •*** *If this table is not visible, click the blue arrow to display it.*
Company	Select the Company that you would like to perform assignments on.
Role	Lists all roles that have permission to perform tasks for this workflow request for the selected Company.
Account Name	Select a user by entering a user name in this field or by searching a comprehensive list containing all Workflow Manager users as well as all of the directory services users that have been imported, as described in Searching for Accounts. When you perform a search and generate a list of users, the number of current assignments each user has is included in the list. After selecting a user, click **Apply**. The selected user name is then displayed in the **Assigned To** column of the **Current Assignments** list next to the name of the role.
Workflow Progress	Click this link to jump to this workflow requests's **Workflow Request** page.

Assignments By Account Page

The **Assignments By Account** page returns a list of workflow requests assigned to at least one account. If one workflow is assigned to multiple accounts, that request will appear multiple times in this list, once for each account.

To open the **Assignments By Account** page, click **View Assignments By Account** on the **Workflows** menu.

Use this page to drill through to the **Assignment Details** page for a specific workflow request, where you may update the person assigned to each role able to complete the workflow's tasks. See Assigning Users to Workflow Requests for more information.



View Assignments By Account

Select a request to edit its work assignments.

212 results returned 20 rows per page

Application name	Status	Company name	Project name	Workflow family	Status summary	Workflow Phase	Workflow Step	Upload date	User Name	PersonID	Roles
Adobe Acrobat Standard 10.1.8	Partial	Workflow Consumer	Software Request v4.1	Hosting	Data Entry Phase	Replication & Advertisement Phase	Replication & Advertisement Step	9/10/2013 6:08:00 PM	N0179914	8a3f3aa1-817d-43a7-b8cc-2f9f7a28a732	
Adobe Acrobat Standard 10.1.8	Partial	Workflow Consumer	Software Request v4.1	Hosting	Data Entry Phase	Replication & Advertisement Phase	Replication & Advertisement Step	9/10/2013 6:08:00 PM	n0067169	e6bd535b-9601-424f-9f41-a25e7c442451	
Adobe Acrobat Standard 10.1.8	Partial	Workflow Consumer	Software Request v4.1	Hosting	Data Entry Phase	Replication & Advertisement Phase	Replication & Advertisement Step	9/10/2013 6:08:00 PM	N0063849	71b48986-d814-43ae-8c8c-a5be15028bde	
Adobe Acrobat Standard 10.1.8	Partial	Workflow Consumer	Software Request v4.1	Hosting	Data Entry Phase	Replication & Advertisement Phase	Replication & Advertisement Step	9/10/2013 6:08:00 PM	N0176414	2d5256d9-f51d-4b58-8e53-ab194c9d073d	
Adobe Acrobat Standard 10.1.8	Partial	Workflow Consumer	Software Request v4.1	Hosting	Data Entry Phase	Replication & Advertisement Phase	Replication & Advertisement Step	9/10/2013 6:08:00 PM	n0002775	98b43dd4-75f2-493e-9a72-fd9e339f4e04	

Figure 7-36: Assignments By Account Page

The **Assignments By Account** page contains the following workflow details.

Table 7-26 • Assignments By Account Page Properties

Property	Description
Workflow Name	A short description of the workflow request.
Status	An indication of the assignment status for the request. Possible values are **Yes** (all tasks are assigned to people), **Partial** (some tasks are assigned to people) or **No** (no tasks are assigned to people).
Company Name	The company that the person who submitted this request belongs to.
Project Name	The name of the project this workflow is associated with.
Workflow Family	The category that this workflow request belongs to.
Status Summary	The status of the workflow, one of: • Workflow Complete • Data Entry Phase • Last Phase • Merging Workflow Steps • Work Phase
Workflow Phase	The name of the workflow request’s active workflow phase.
Workflow Step	The name of the workflow request’s active workflow step.

Table 7-26 • Assignments By Account Page Properties

Property	Description
Upload Date	The date the workflow request was submitted.
Site Name	For deployment workflows, the site where this request is being deployed.
User Name	The name of an account assigned to this workflow.
Person ID	A unique identifier for the account. Internal to Workflow Manager.
Roles	Roles that the assigned user is a member of.

My Notifications Pages

Users can be subscribed to receive email notification when any of the following events occur:

Table 7-27 • Event Sources

Project Level Events	Workflow Step Level Events
• Data Submitted/Rejected	• Workflow Step Initiated
• Issue Submitted	• Workflow Step Rolled Back
• Issue Responded	• Workflow Step Edited
• Workflow Status Changed	• Workflow Step Completed
• SLA At Risk/Failed	

You can view a list of your current email notification event subscriptions, and you can also choose to unsubscribe from existing events or subscribe to additional events. To do this, open the **Workflows** group of the navigation bar and click **My Default Project Notifications** or **My Workflow Notifications** in the the **My Notifications** subgroup.

Two email notification views are provided:

Table 7-28 • My Notifications Pages

Page	Description
My Default Project Notifications Page	Lists the email notification event subscriptions that were assigned to you at the workflow template level via role or group or account name. • **How were they assigned?**—Email notification settings are defined on the **Notification** tab of a workflow template's **Template Details** page. • **When are they applied?**—These notification settings are applied to all of the workflow requests associated with projects that use that workflow template (unless the subscriptions have been overridden).

Table 7-28 • My Notifications Pages

Page	Description
My Workflow Notifications Page	Lists the email notification event subscriptions that were assigned to the current user via role or group or account name by overriding a request's project defaults. • **How were they assigned?**—These notification settings are assigned directly to a request on the **Request Notifications Override** page. • **When are they applied?**—These notification settings apply to only this specific workflow request.

My Default Project Notifications Page

The **My Default Project Notifications** page lists the project email notification events that you have been subscribed to on a workflow request's **Notification** tab—both those assigned indirectly via role and those assigned explicitly by account or group.

The subscriptions listed on the **My Default Project Notifications** page will be applied to all of the project's new and existing workflow requests for which email notification event subscriptions are not overridden.

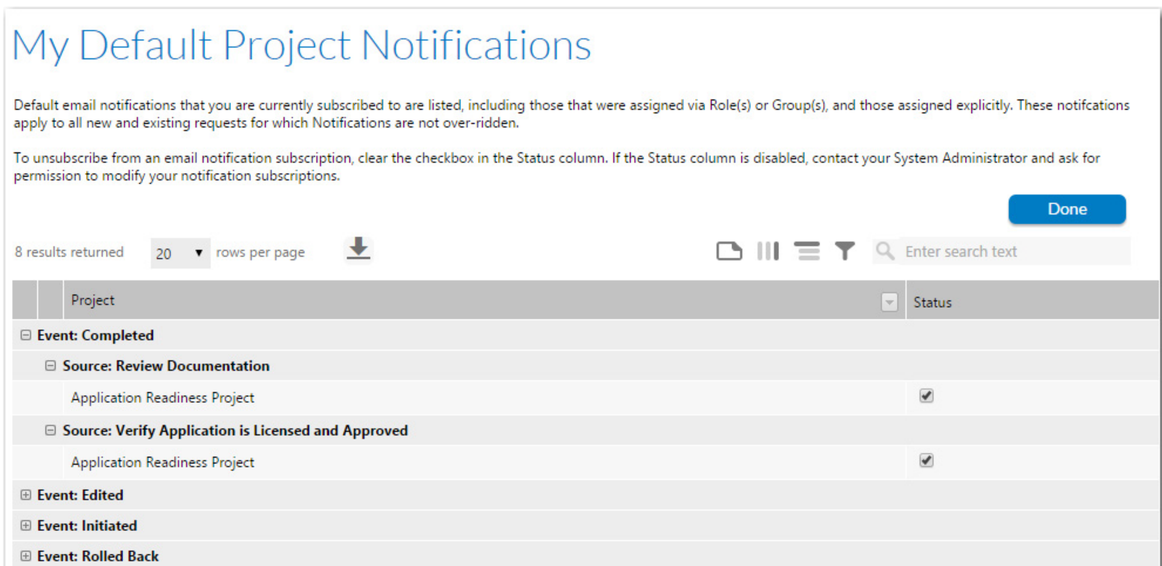


Figure 7-37: My Default Project Notifications Page

Event Tree

Notification events are grouped by **Event**. If you expand the **Event** list, the **Source** of the subscription and the name of the **Project** are displayed:

The **Source** can be either of the following:

- **Project Root**—Email notification event was assigned at the root level of the project and it was inherited by all of its child workflow phases/steps.

- **Workflow Step Name**—If the name of a workflow step is the source, that means that this email notification event was assigned directly on a workflow phase (and inherited by all of its steps) or directly to one workflow step.

***Note** • When each new Project is created, it inherits the email notification settings that are defined on the **Notification** tab of the **Template Details** page. See Template Details Page for more information.*

Status Column

A check mark in the status check box indicates that the subscription is in effect. To unsubscribe from that notification event, clear the check box.

To unsubscribe from an email notification event for an individual project, clear the check box in the **Status** column.

***Tip** • If the **Status** column is disabled, contact your System Administrator and ask for permission to modify your notification subscriptions.*

My Workflow Notifications Page

The **My Workflow Notifications** page lists the workflow requests for which you have an email notification event subscription—both those assigned indirectly via role and those assigned explicitly by account or group.

A request's email notification subscriptions are inherited from those set on its project. However, Administrators can also override these default project settings for a specific workflow request by making selections on that workflow request's Notifications Tab.

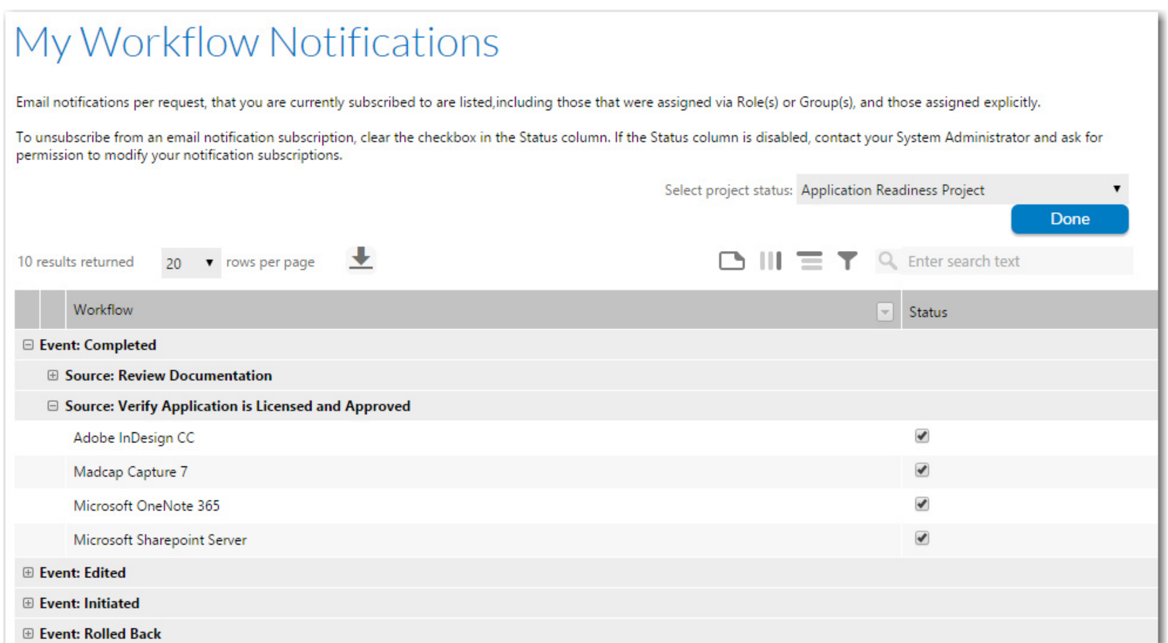


Figure 7-38: My Workflow Notifications Page

Filtering This List

To filter this list to display email notification subscriptions for only those workflow requests that you have been assigned to work on, select **All Requests with Work Assigned to Me** from the list. You can also select a project name from the list to display your email notification subscriptions for all workflow requests for a particular project.

Event Tree

Notification events are grouped by **Event**. If you expand the **Event** list, the **Source** of the subscription and the name of the workflow request are displayed:

The **Source** can be either of the following:

- **Application Root**—Email notification event was assigned at the root level of the workflow request and it was inherited by all of its child workflow phases/Steps.
- **Workflow Step Name**—If the name of a workflow step is the Source, that means that this email notification event was assigned directly on a workflow phase (and inherited by all of its steps) or directly to one workflow step.

Status Column

A check mark in the status check box indicates that the subscription is in effect. To unsubscribe from that notification event, clear the check box.

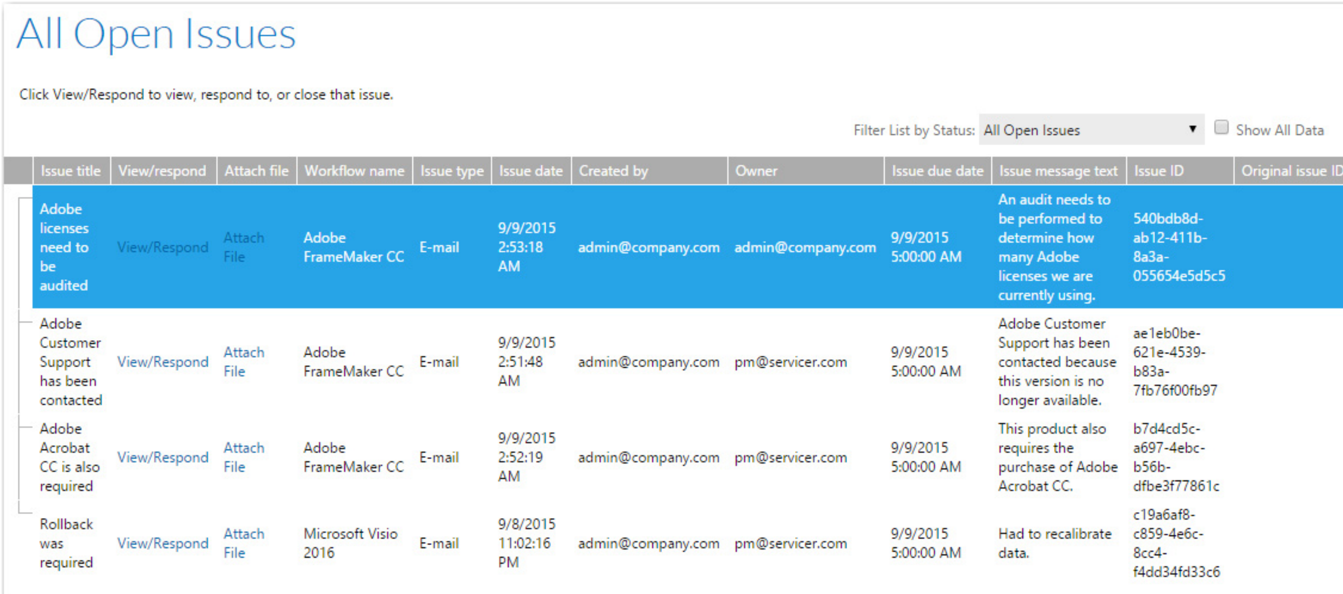
To unsubscribe from an email notification event for an individual project, clear the check box in the **Status** column.

***Tip** • If the **Status** column is disabled, contact your System Administrator and ask for permission to modify your notification subscriptions.*

Issues Pages

The Issues pages display issues filtered by the following criteria:

- All Open Issues
- Recently Created Issues
- Recently Created Critical Issues
- Recently Responded Issues
- Recently Closed Issues



Issue title	View/respond	Attach file	Workflow name	Issue type	Issue date	Created by	Owner	Issue due date	Issue message text	Issue ID	Original issue ID
Adobe licenses need to be audited	View/Respond	Attach File	Adobe FrameMaker CC	E-mail	9/9/2015 2:53:18 AM	admin@company.com	admin@company.com	9/9/2015 5:00:00 AM	An audit needs to be performed to determine how many Adobe licenses we are currently using.	540bdb8d-ab12-411b-8a3a-055654e5d5c5	
Adobe Customer Support has been contacted	View/Respond	Attach File	Adobe FrameMaker CC	E-mail	9/9/2015 2:51:48 AM	admin@company.com	pm@servicer.com	9/9/2015 5:00:00 AM	Adobe Customer Support has been contacted because this version is no longer available.	ae1eb0be-621e-4539-b83a-7fb76f00fb97	
Adobe Acrobat CC is also required	View/Respond	Attach File	Adobe FrameMaker CC	E-mail	9/9/2015 2:52:19 AM	admin@company.com	pm@servicer.com	9/9/2015 5:00:00 AM	This product also requires the purchase of Adobe Acrobat CC.	b7d4cd5c-a697-4ebc-b56b-dfbe3f77861c	
Rollback was required	View/Respond	Attach File	Microsoft Visio 2016	E-mail	9/8/2015 11:02:16 PM	admin@company.com	pm@servicer.com	9/9/2015 5:00:00 AM	Had to recalibrate data.	c19a6af8-c859-4e6c-8cc4-f4dd34fd33c6	

Figure 7-39: All Open Issues Page

Click **View/Respond** to view or respond to an issue. You can also attach a file to an issue by clicking **Attach File**.

Search Results Page

To perform a search for a workflow request, project, or issue, you enter a search term in the search box above the navigation bar.

When you put your cursor in the Search box, the **Filter Your Search** menu opens to enable you to only search through portions of the available data.

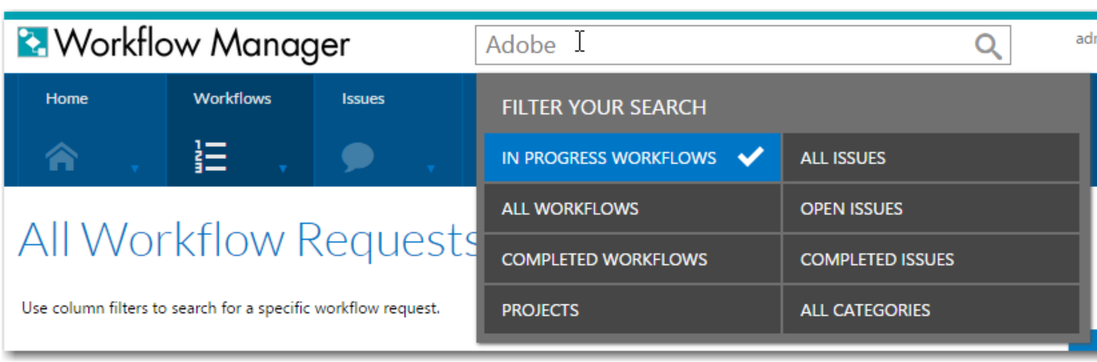


Figure 7-40: Search Box and Filter Your Search Menu

Select the categories that you want to include in the search, and click enter. The results are listed by category.

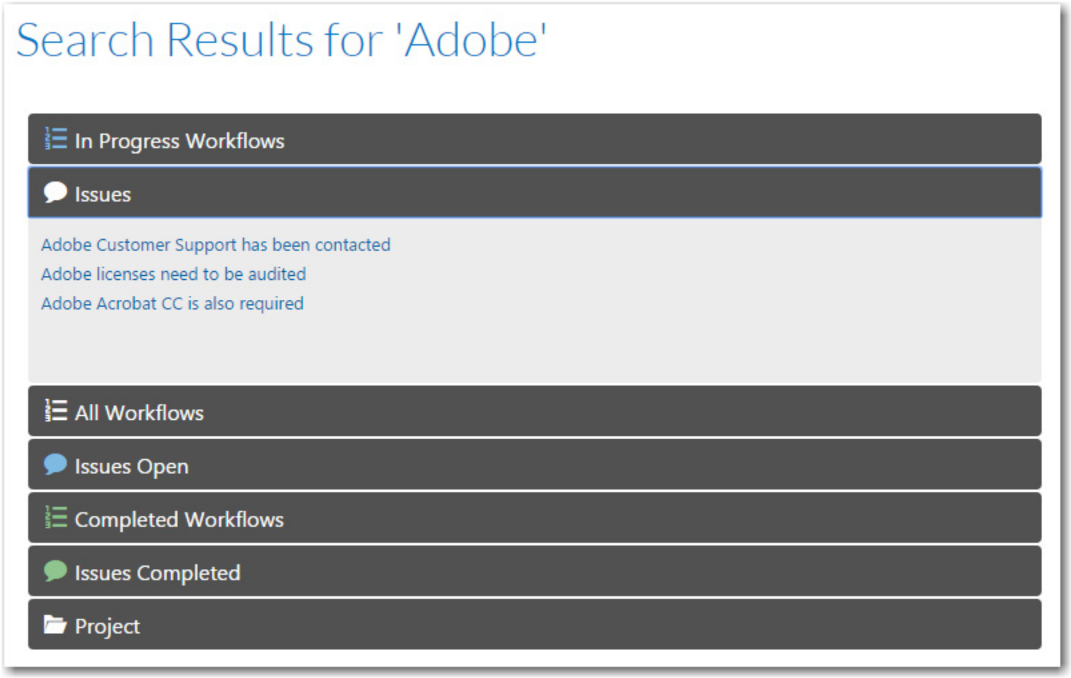


Figure 7-41: Search Results Page

On the Search Results page, you can click on a category name to expand/collapse the listing, and can click on a result link to open that page.

Administration Pages

The section includes descriptions of the pages used to perform Workflow Manager / AdminStudio Enterprise Server administrative tasks:

Table 7-29 • Administration Related Pages

Option	Description
Calendar Settings Administration Page	Specify the calendar settings to use when reporting on request compliance with project Service Level Agreement (SLA) due dates.
Company/Business Unit Administration Page	Create and edit companies.
External Email Address Administration Page	Review and add external email addresses.
Project Administration Page	Create or edit a project.
Template Administration Page	Create, edit, or copy a template.
Template Details Page	Add and edit workflow phases, workflow steps, data groups, and data elements.

Table 7-29 • Administration Related Pages (cont.)

Option	Description
Workflow Status Administration Page	Use to add or edit workflow statuses, a user-configurable field you can use to assign metadata to a request which can be used when performing searches and generating reports.
Approval Administration Page	Create, update, or delete approval templates.
External Data Sources Administration Page	Create, update, or delete a database connection.
Email Template Administration Page	Create, update, or delete an email template.
External Web Services Administration Page	Create, update, or delete a connection to an external web service.
Time Off Administration Page	To display future time off for administrator users on work assignment screens that are part of a workflow step.
Custom Table Editor Administration Page	Change records in any table in Workflow Manager.

Note • *The availability of these pages for a particular user is dependent upon the user's assigned roles. See Managing Roles and Permissions.*

Calendar Settings Administration Page

When you create a new project, or update an existing project, you can specify the calendar settings to use when reporting on the workflow request's compliance with that project's associated Service Level Agreement due dates. The following information is important in elapsed time calculations:

- **Work Week Information**—Work week information includes the length of an average work day (in hours and minutes), and whether weekends are considered as part of the working week.
- **Holiday Information**—Any public holidays or office shut down periods need to be specified, so that those days are not included in the elapsed time.

You can define the default SLA calendar settings by using the **Calendar Settings Administration** page. These settings are then automatically applied to all new projects. To view the **Calendar Settings Administration** page, open the **Administration** menu and click **Calendar Settings**.

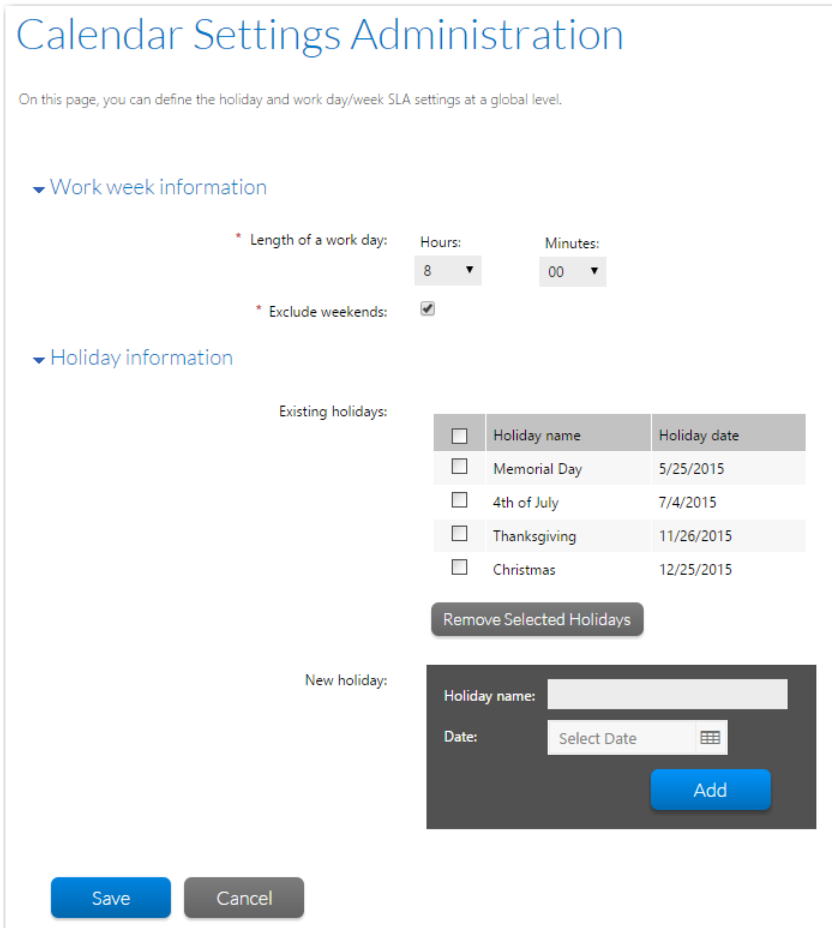


Figure 7-42: Calendar Settings Administration Page

Note • *You can override the default calendar settings for an individual project on the* ***Project Details*** *page. See Project Details Page for details.*

You can view the **Calendar Settings Administration** page by clicking **Calendar Settings** on the **Administration** tab of the navigation bar.

Table 7-30 • Calendar Settings Administration Page

Option	Description
Length of a work day	Make a selection from the **Hours** and **Minutes** lists to specify how many hours in a day are considered work hours when performing SLA calculations. ***Note •*** *The* ***Length of a work day*** *value is used to convert hours into days when calculating elapsed time. For example, if the elapsed time for a particular workflow step is 45 hours, and a standard working day is 8 hours long, Workflow Manager will convert the 45 hours into 5 days and 5 hours in relevant reports.*

Table 7-30 • Calendar Settings Administration Page (cont.)

Option	Description
Exclude weekends?	Select this option to exclude weekend days (Saturday and Sunday) from SLA calculations.
Existing holidays	Grid lists the public holidays or office shut down periods that have already been identified for your company. These days will be excluded from elapsed time calculations.
New holiday	To add a holiday to the list, enter a **Holiday Name** and **Date**, and click **Add.**
Remove Selected Holiday	To delete a holiday from the list, select that holiday's check box and click **Remove Selected Holiday**.

Company/Business Unit Administration Page

The **Company/Business Unit Administration** page lists the companies defined in Workflow Manager. You can view this page by opening the **Settings** menu and clicking **Companies**. You can use this page to:

- **Edit or delete a company**—Drill through to a page showing the details of a single company, where you may either update (see Viewing or Changing an Existing Company) or delete (see Deleting an Existing Company) that company.
- **Create a new company**—See Creating a New Company).

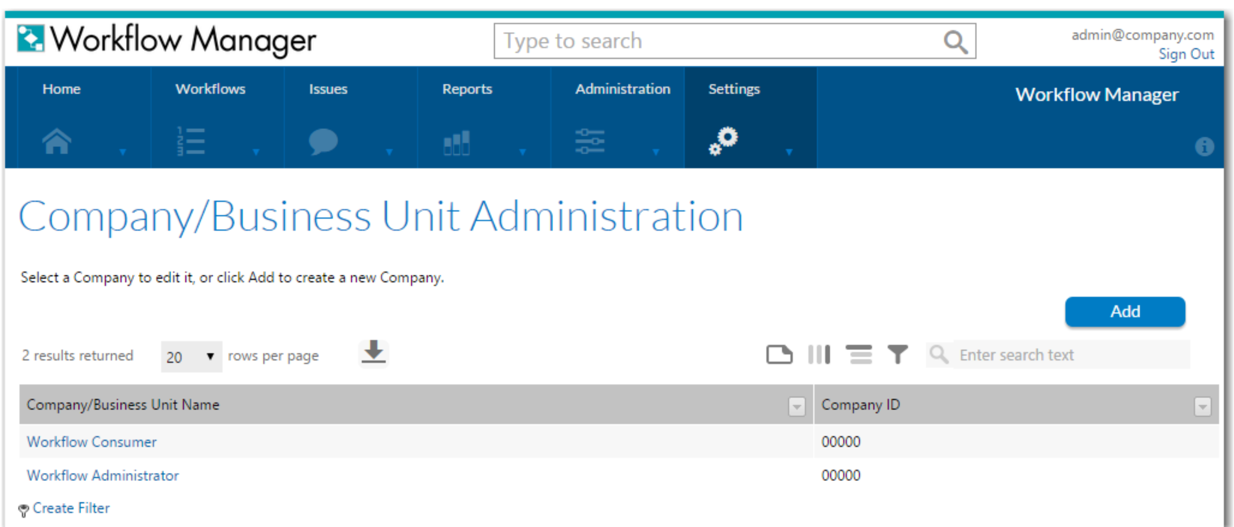


Figure 7-43: Company/Business Unit Administration Page

The **Company/Business Unit Administration** page displays the following company details:

Table 7-31 • Company/Business Unit Administration Page

Option	Description
Company/Business Unit Name	The name of the company or department.

Table 7-31 • Company/Business Unit Administration Page (cont.)

Option	Description
Company ID	Any identifier that your organization uses to identify the company.

Company/Business Unit Details Page

The **Company/Business Unit Details** page allows you to view and update the details of an individual company. Different fields are available depending on whether you are viewing one of the two default companies, and whether you are viewing an administrator or consumer company. You can also use this page to remove an existing company which is no longer required.

You open the **Company/Business Unit Details** page from the **Company/Business Unit Administration** page by clicking on an existing company name or by clicking **Add** to create a new company.

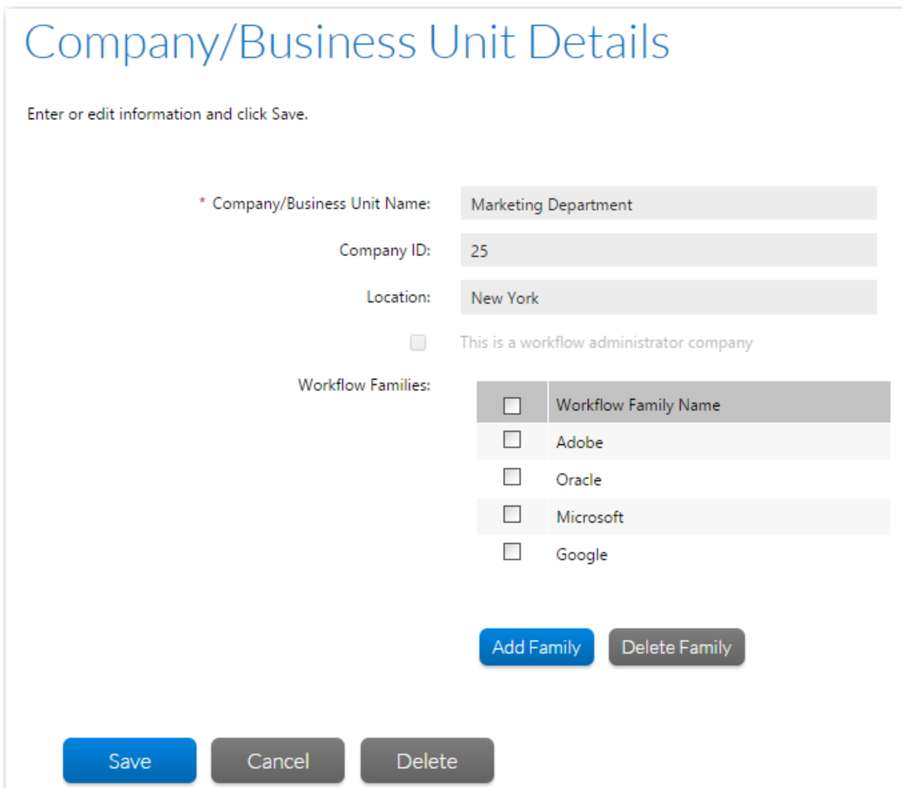


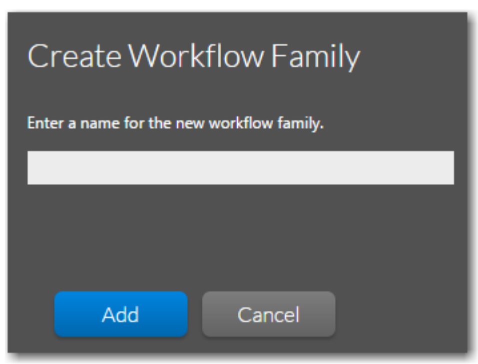
Figure 7-44: Company/Business Unit Details Page

The **Company/Business Unit Details** page includes the following options:

Table 7-32 • Company/Business Unit Details Page Options

Option	Description
Company/Business Unit Name	A unique name for the company.

Table 7-32 • Company/Business Unit Details Page Options (cont.)

Option	Description
Company ID	An optional identifier for the company. This could be a department number, or an identifier in your CRM software.
Location	A zone or location associated with your company (such as `Chicago` or `Zone 1`, for example).
This is a workflow administrator company	This check box is only displayed when editing an existing administrator company (in read-only format), or when you are logged in with the Super User account and are creating a new company. If checked, the company is a workflow administrator. When you are not logged in user the Super User account and are creating a new consumer company or editing an existing one, this field will not be displayed.
Is a workflow family owner?	This field is only available for workflow administrator companies. If checked, only this company may create new workflow families for projects that it administers. If unchecked, both this company and the consumer companies it services can create families.
Workflow families	This field is only available when editing an administrator company or a consumer company other than the default Workflow Consumer company. Use it to create a set of workflow families to group workflow requests associated with this company into. To create a new workflow family, click the **Add Family** link to open the **Create Workflow Family** area. Every family you create will be listed in the multi-line text box. Enter a workflow family name in the text box and click **Add** to add it to the list.  To delete a workflow family, select one or more families from the list and click **Delete Family**. Refer to Managing Workflow Families for more information about workflow families.

External Email Address Administration Page

The **External Email Address Administration** page lists the email addresses of people not configured to use Workflow Manager, but who still need to receive notifications when certain workflow events occur. Use this page to review a list of external email addresses registered with Workflow Manager, or to drill through to a page where you can add, update or remove existing external email addresses.

You can open the **External Email Address Administration** page by clicking **External Email Addresses** on the **Administration** menu.

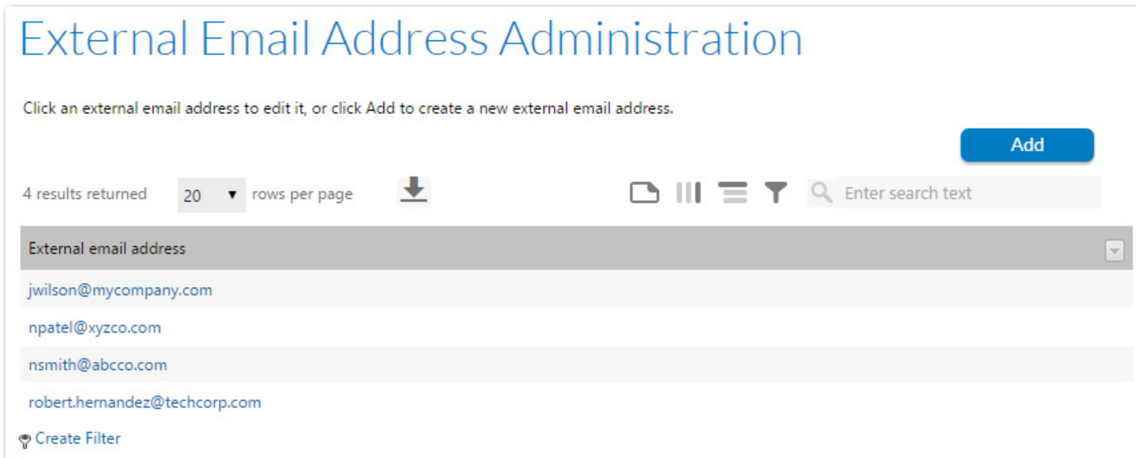


Figure 7-45: External Email Address Administration Page

After an external email address has been added, it can be added to the **Role/Account/Email Address** column of the **Notifications** tab of the **Template Details** view, making it available for selection when setting email notification options.

You could add an external email address so that a user would always receive the selected notifications even if he is not a member of any of the selected roles, or even if he does not have a Workflow Manager user account.

Use the following options to define external email addresses:

Table 7-33 • External Email Address Administration Page Options

Option	Description
Add	Click to open the Edit/Add External Email Address Page where you may specify a new email address to register with Workflow Manager.
External email address	List of the external email addresses that have been added. Click the email address to open the Edit/Add External Email Address Page, where you may update or remove an existing email address.

Edit/Add External Email Address Page

The **Edit/Add External Email Address** page allows you to add a new external email address, or update or remove an existing external email address. After an external email address has been added to Workflow Manager, it will be available for selection on the **Notification** tabs of the **Template Details** page, so that notifications can be sent to it when certain workflow events occur.

You can access the **Edit/Add External Email Address** page by opening the **External Email Address Administration** page and either clicking **Add** or clicking on an existing email address.

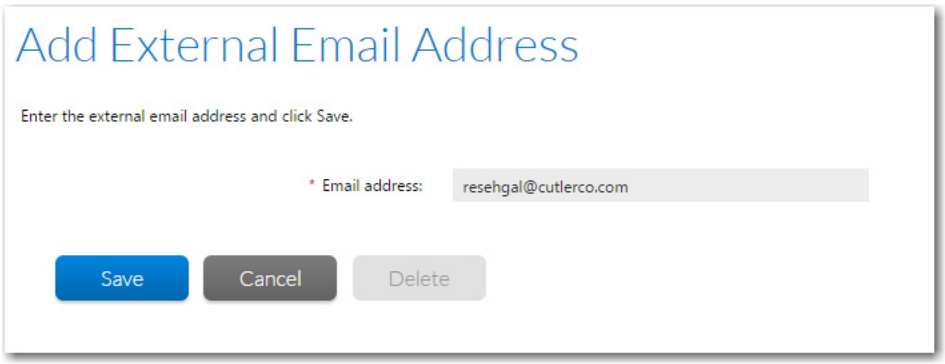


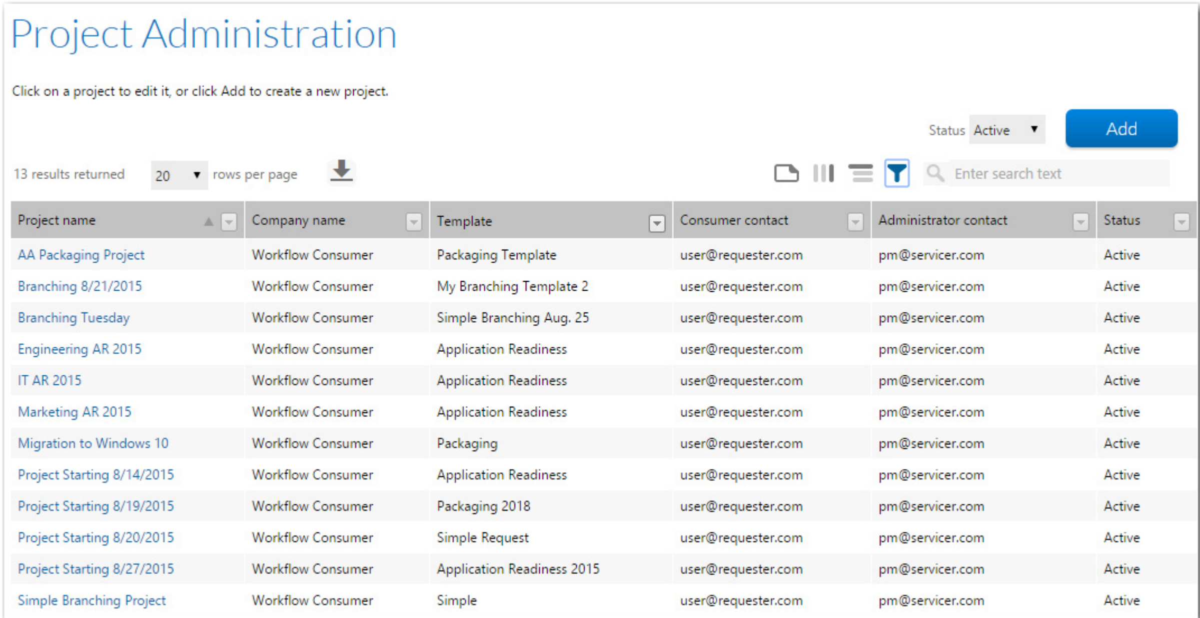
Figure 7-46: Add External Email Address Page

Project Administration Page

The **Project Administration** page, which you open by clicking **Projects** on the **Administration** menu, lists the projects associated with your consumer companies.

Use this page to:

- **Edit or delete an existing project**—Drill through to a page showing the details of a single project, where you may update (see Viewing or Changing an Existing Project) or delete (see Deleting an Existing Project) that project, or mark it as inactive (see Flagging a Project as Inactive).
- **Create a new project**—See Creating a New Project.
- **Filter project listing**—Change which projects are displayed in the list.



Project name	Company name	Template	Consumer contact	Administrator contact	Status
AA Packaging Project	Workflow Consumer	Packaging Template	user@requester.com	pm@servicer.com	Active
Branching 8/21/2015	Workflow Consumer	My Branching Template 2	user@requester.com	pm@servicer.com	Active
Branching Tuesday	Workflow Consumer	Simple Branching Aug. 25	user@requester.com	pm@servicer.com	Active
Engineering AR 2015	Workflow Consumer	Application Readiness	user@requester.com	pm@servicer.com	Active
IT AR 2015	Workflow Consumer	Application Readiness	user@requester.com	pm@servicer.com	Active
Marketing AR 2015	Workflow Consumer	Application Readiness	user@requester.com	pm@servicer.com	Active
Migration to Windows 10	Workflow Consumer	Packaging	user@requester.com	pm@servicer.com	Active
Project Starting 8/14/2015	Workflow Consumer	Application Readiness	user@requester.com	pm@servicer.com	Active
Project Starting 8/19/2015	Workflow Consumer	Packaging 2018	user@requester.com	pm@servicer.com	Active
Project Starting 8/20/2015	Workflow Consumer	Simple Request	user@requester.com	pm@servicer.com	Active
Project Starting 8/27/2015	Workflow Consumer	Application Readiness 2015	user@requester.com	pm@servicer.com	Active
Simple Branching Project	Workflow Consumer	Simple	user@requester.com	pm@servicer.com	Active

Figure 7-47: Project Administration Page

The **Project Administration** page lists the following company details:

Table 7-34 • Project Administration Page Properties

Property	Description
Project name	A short description of the project.
Company name	The name of the consumer company this project is associated with.
Template	The name of the workflow template this project is based on. All workflow requests made under this project will be based on the template specified in this field.
Consumer contact	The account of the person in the workflow consumer company who should be contacted with any inquires about this project.
Administrator contact	The account of the person in your workflow administrator company who should be contacted with any inquires about this project.
Status	The status of the project, either **Active** or **Inactive**. You cannot create workflow requests against **Inactive** projects.

By default, only active projects are shown in the **Project Administration** list, but you can update this view by selecting one of the following options from the **Status** combo box above the grid:

- Active
- Inactive
- All (shows all projects, regardless of their status).

Project Details Page

On the **Project Details** page, you can view and update the details of an individual project. You can also use this page to remove an existing completed project, or to mark a completed project as **Inactive**.

To open the **Project Details** page, click on a project name or click **Add** on the **Product Administration** page.

Project details are grouped into six tabs:

- General Information
- Project Information
- SLA Information
- Work Week Information
- Holiday Information
- Automatic Work Assignment

General Information

The **General Information** tab of the **Project Details** page includes the project name, associated template, consumer and administrator contacts, and other general settings.

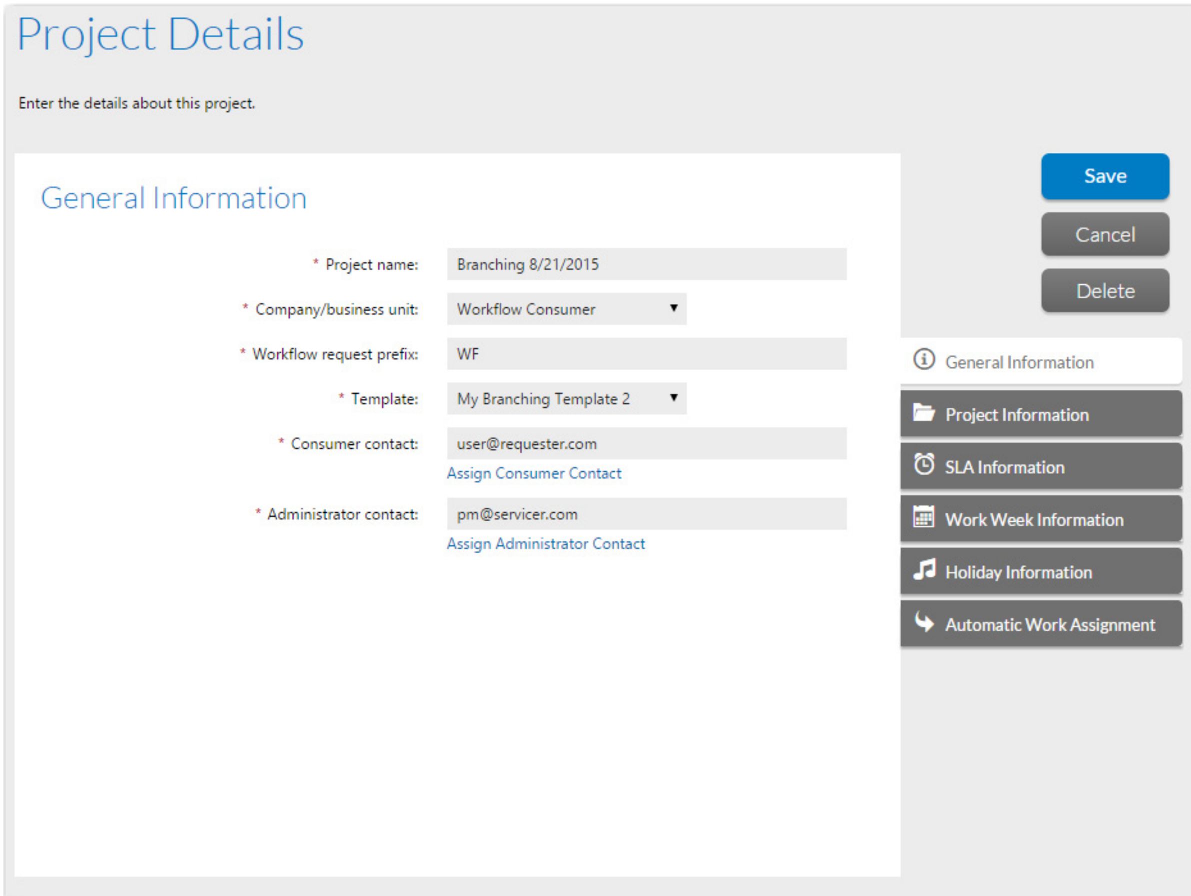


Figure 7-48: Project Details Page / General Information Tab

The following options are available on the **General Information** tab of the **Project Details** page.

Table 7-35 • General Information Tab of Project Details Page

Option	Description
Project name	A short description for the project.
Company/business unit	The name of the workflow consumer company associated with this project. This field is only updatable when you first create the project; every project must be associated with one workflow consumer company.
Workflow request prefix	To uniquely identify it, every workflow request is automatically assigned a unique integer by Workflow Manager. Use this field to define a project-specific prefix for the workflow request identifiers. The default choice is **WR**.
Template	Choose the workflow template that you want all workflow requests associated with this project to use.

Table 7-35 • General Information Tab of Project Details Page

Option	Description
Consumer contact	Record the account name of the workflow consumer who should be contacted with any queries related to this project. Click the **Assign Consumer Contact** button to open the **Select User** window and search for an appropriate account. See Searching for Accounts for details.
Administrator contact	Record the account name of the workflow administrator who should be contacted with any queries related to this project. Click the **Assign Administrator Contact** button to open the **Select User** window and search for an appropriate account. See Searching for Accounts for details.

Project Information

The **Project Information** tab of the **Project Details** page is where you can set project status and specify whether or not new workflow requests can be created for this project.

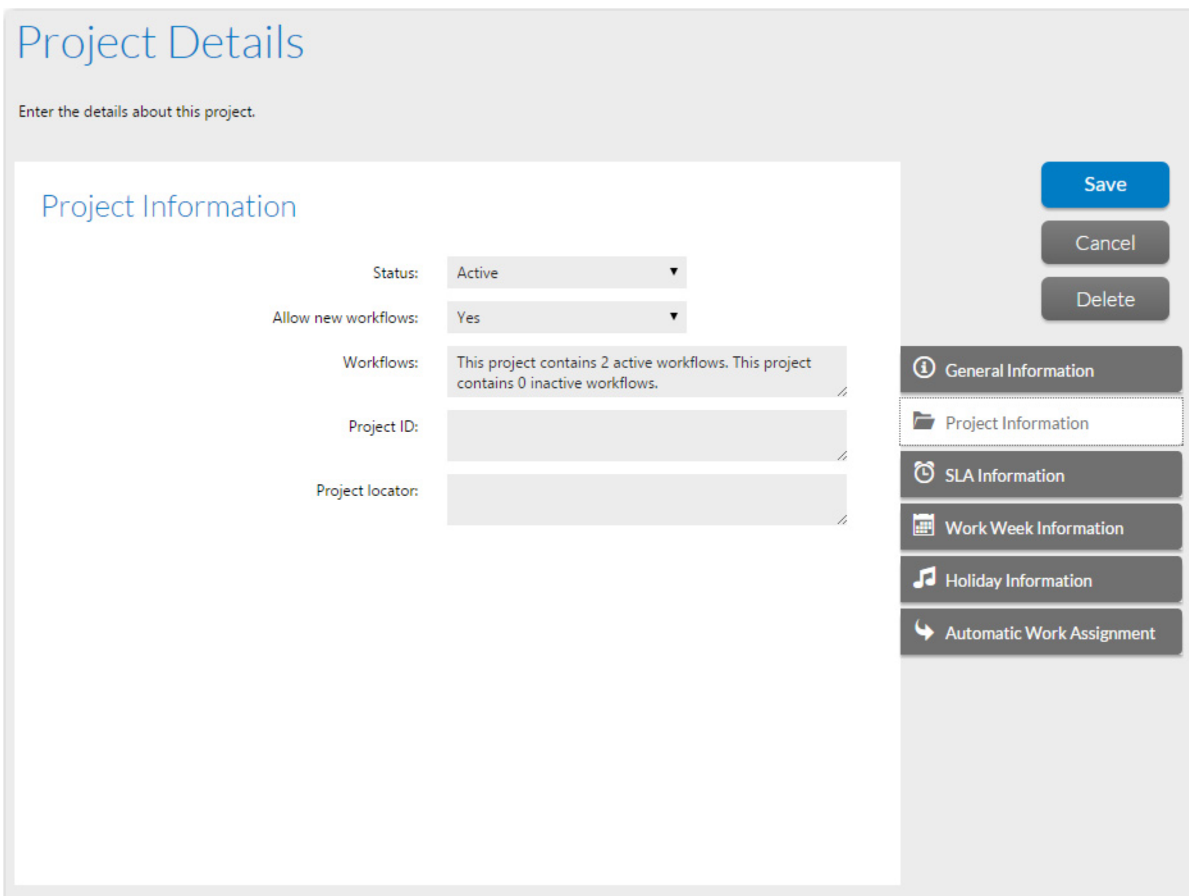


Figure 7-49: Project Details Page / Project Information Tab

The following options are available on the **Project Information** tab of the **Project Details** page.

Table 7-36 • Project Information Tab of Project Details Page

Option	Description
Status	The status of a project can be either **Active** or **Inactive**. Workflow requests can only be assigned to active projects. ***Tip •*** *Changing the status of the project also automatically updates the status of all of its associated workflow requests.*
Allow new workflows	If a project's status is set to **Inactive**, then all of its associated active workflow requests are also made inactive. If you want to mark this project as "inactive" but allow all of its associated active workflow requests to remain active, leave the project's **Status** set to **Active** but set its **Allow new Workflows** property to **No**. With this property set to **No**, customers will be unable to create any new workflow requests for this project, but the active workflow requests will remain active and will be included in reporting.
Workflows	This read-only field lists the number of active and inactive workflows associated with this project.
Project ID	An optional identifier for the project. This could be an internal project tracking number, or an identifier in your CRM software.
Project locator	*Not currently in use.*

SLA Information

The **SLA Information** tab of the **Project Details** page is where you specify settings to enforce project and workflow request deadlines.

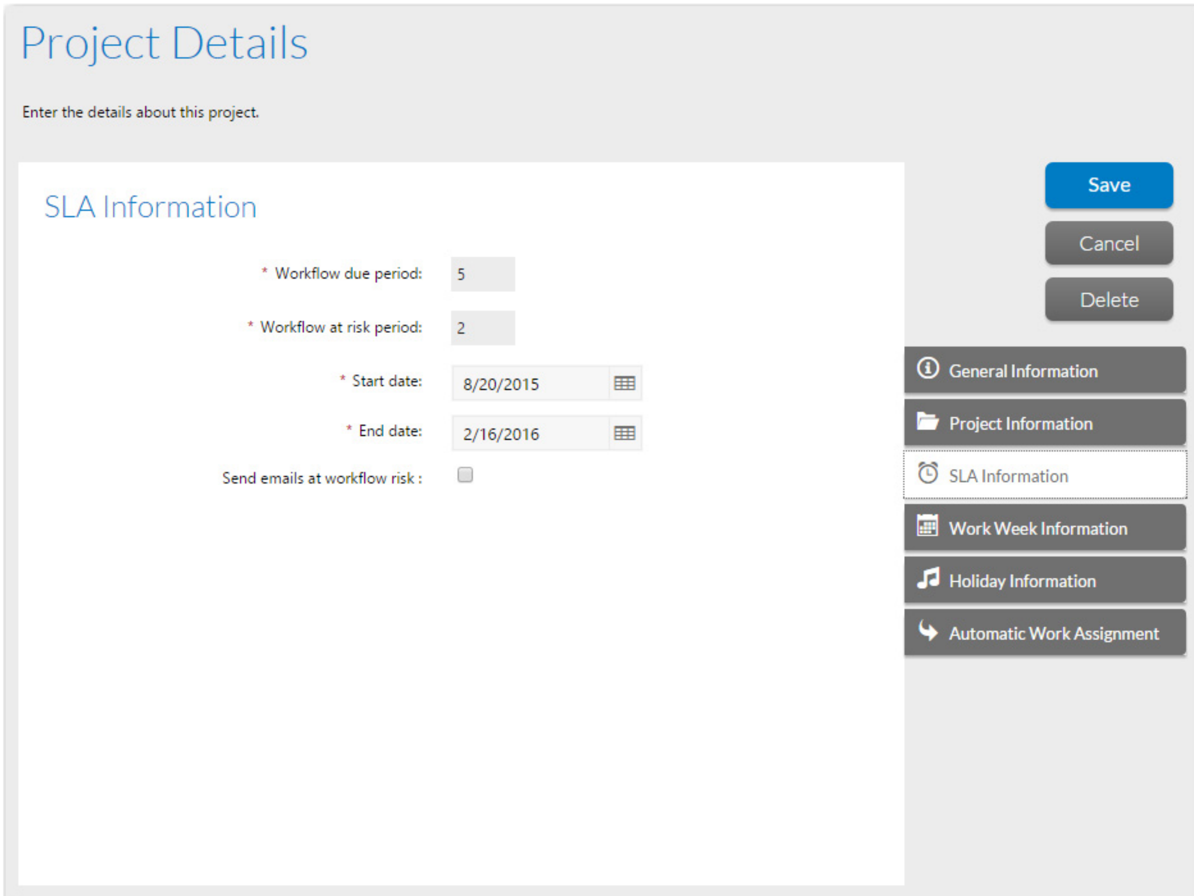


Figure 7-50: Project Details Page / SLA Information Tab

The following options are available on **SLA Information** tab of the **Project Details** page.

Table 7-37 • SLA Information Tab of Project Details Page

Option	Description
Workflow due period	The number of days which should be taken to complete workflow requests associated with this project. You may override this setting at the workflow request level.
Workflow at risk period	The elapsed time (in days) after which workflow requests associated with this project should be considered at risk of not being completed on time. You may override this setting at the workflow request level.
Start date	The date the project was started. Defaults to the current date. Click the calendar icon next to this field to update the project start date.

Table 7-37 • SLA Information Tab of Project Details Page

Option	Description
End date	The date when the project (and all of its associated workflow requests) is estimated to be completed. *Tip* • *The information entered in this field is not currently used in any Workflow Manager calculations.*
Send email at workflow risk	Set this field to **Yes** if you want email notifications to be sent out when a workflow request passes its *at risk* date.

Work Week Information

The **Work Week Information** tab of the **Project Details** page is where you specify the length of a work day and whether to include or exclude weekends when calculating SLA deadlines.

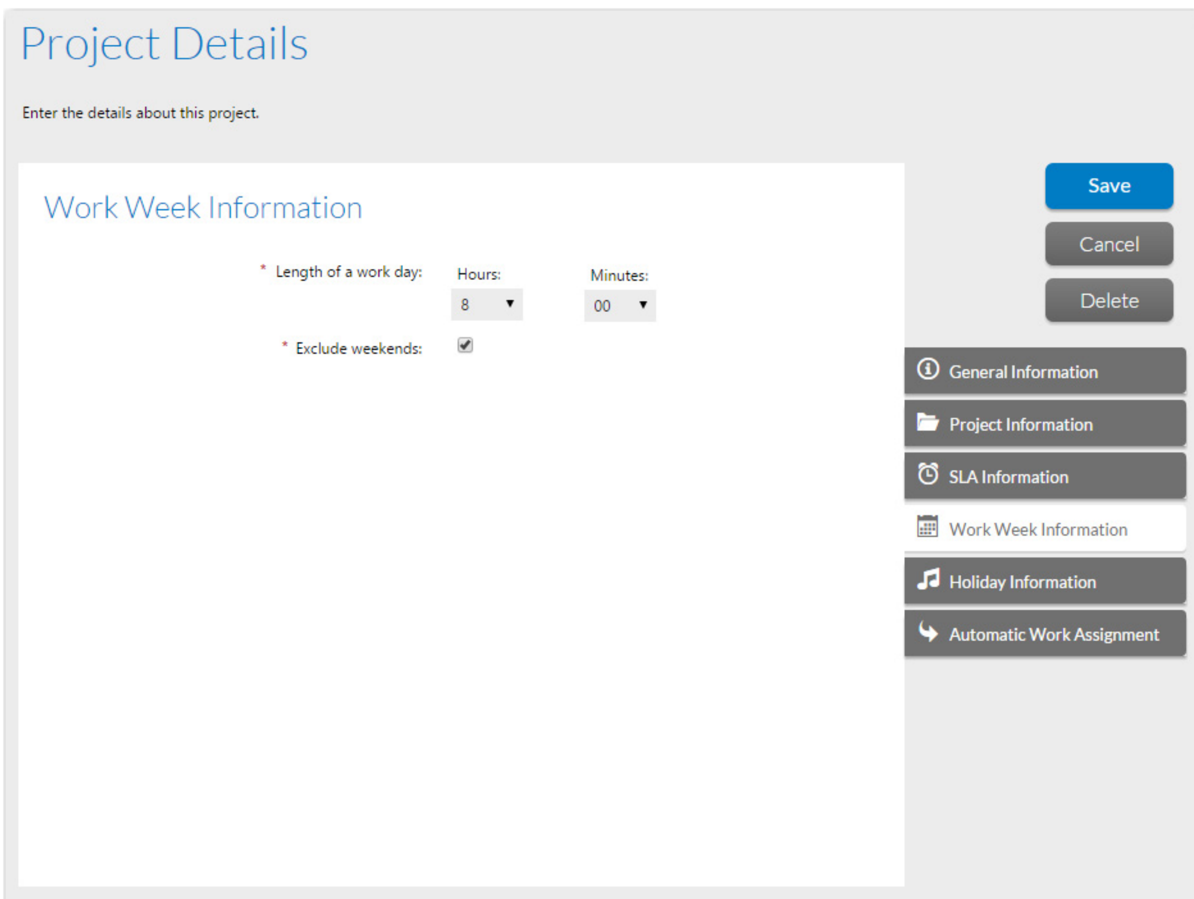


Figure 7-51: Project Details Page / Work Week Information Tab

The following options are available on the **Work Week Information** tab of the **Project Details** page.

Table 7-38 • Work Week Information Tab of Project Details Page

Option	Description
Length of a work day	Use this field to define the length of a typical working day. This field is used to convert hours into days when calculating elapsed time for workflow requests. For example, if the elapsed time for a particular workflow step is 45 hours, and a standard working day is 8 hours long, Workflow Manager will convert the 45 hours into 5 days and 5 hours in relevant reports. ***Note** • This field defaults to the **Length of a work day** value defined on the **Calendar Settings** page. See Modifying Default SLA Calendar Settings for details.*
Exclude weekends	Ensure this check box is selected if your company does not consider weekends to be part of the working week. Saturdays and Sundays will then be omitted from elapsed time calculations. ***Note** • This field defaults to the **Exclude weekends** value defined on the **Calendar Settings** page. See Modifying Default SLA Calendar Settings for details.*

Holiday Information

The **Work Week Information** tab of the **Project Details** page is where you specify the holidays that will be excluded when calculating SLA deadlines. You should define any public holidays or office shut downs for your company. These days will be omitted from elapsed time calculations.

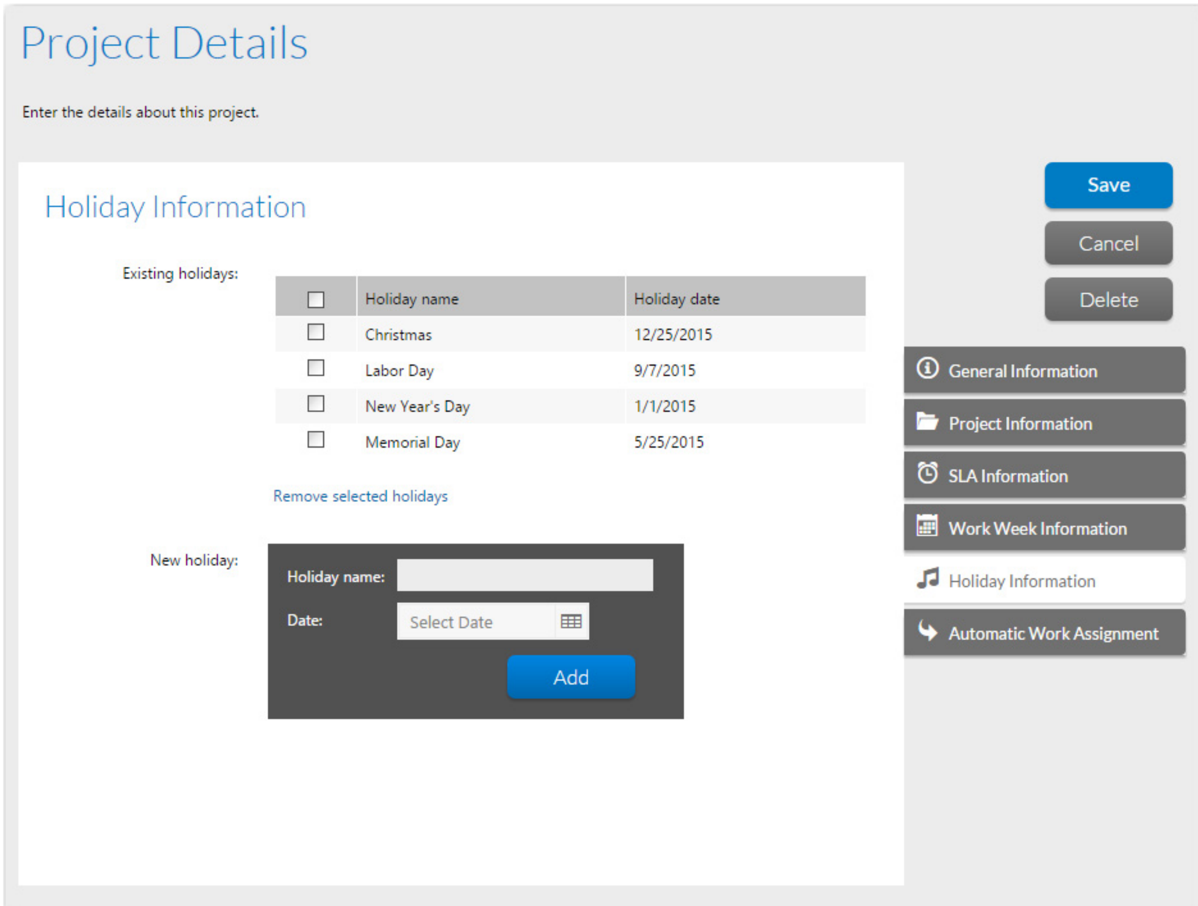


Figure 7-52: Project Details Page / Holiday Information Tab

The following options are available on the **Holiday Information** page.

Table 7-39 • Holiday Information Tab of Project Details Page

Option	Description
Existing holidays	List of holidays that have already been defined. ***Tip •*** *Populating this list is identical to populating the* ***Existing holidays*** *list on the* ***Calendar Settings*** *page. See Modifying Default SLA Calendar Settings for more information.*
Holiday name **Date**	Enter a holiday name, elect a date, and then click **Add** to add a holiday to the **Existing holidays** list.

Automatic Work Assignment

The **Automatic Work Assignment** tab of the **Project Details** page is where you can set up automatic work assignment that will dynamically and automatically assign a workflow step to operators based on rules. When a template's associated project has **Automatic Work Assignment** configured, if the user (or users) captured during the submission of the workflow request have edit permission for a particular role which is assigned to any of the workflow steps in the template, he will automatically be assigned the task.

If you do not set up automatic work assignment, every user in the system who belongs to a role that has edit permission on that workflow step will receive a notification email at the initiation of that workflow step.

You could use automatic work assignment to create an "auto acknowledgment" workflow step that notifies the requester that his request has been received. Optionally, you can also use the AdminStudio.Public API to do automatic work assignment by searching Active Directory to determine the requester's manager, and then assign the approval task of the workflow request to that manager.

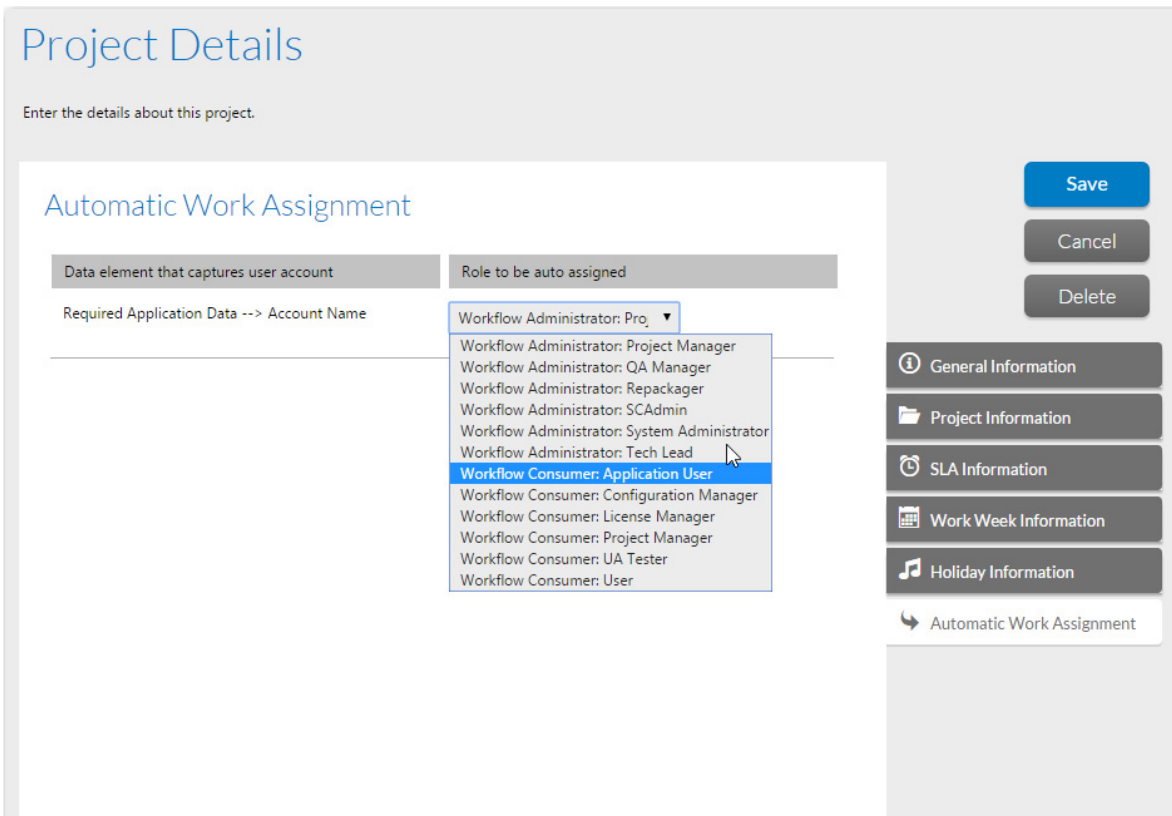


Figure 7-53: Project Details Page / Automatic Work Assignment Tab

The following options are available on the **Automatic Work Assignment** tab of the **Project Details** page.

Table 7-40 • Automatic Work Assignment Tab of Project Details Page Options

Option	Description
Data element that captures user account	List of all of the data elements in the workflow which will capture a directory service user account. See Setting Up Automatic Work Assignment for more information. ***Important •*** *To use the automatic work assignment feature, users must be logged in using Windows NT authentication.*
Role to be auto assigned	Select which user role you want to automatically be assigned work in this project. The selection of this role determines which workflow steps will be automatically assigned. These roles are listed in the format of `Company Name: Role Name`

Additional Links

The following links are available on the Project Details page:

Table 7-41 • Project Details View Links

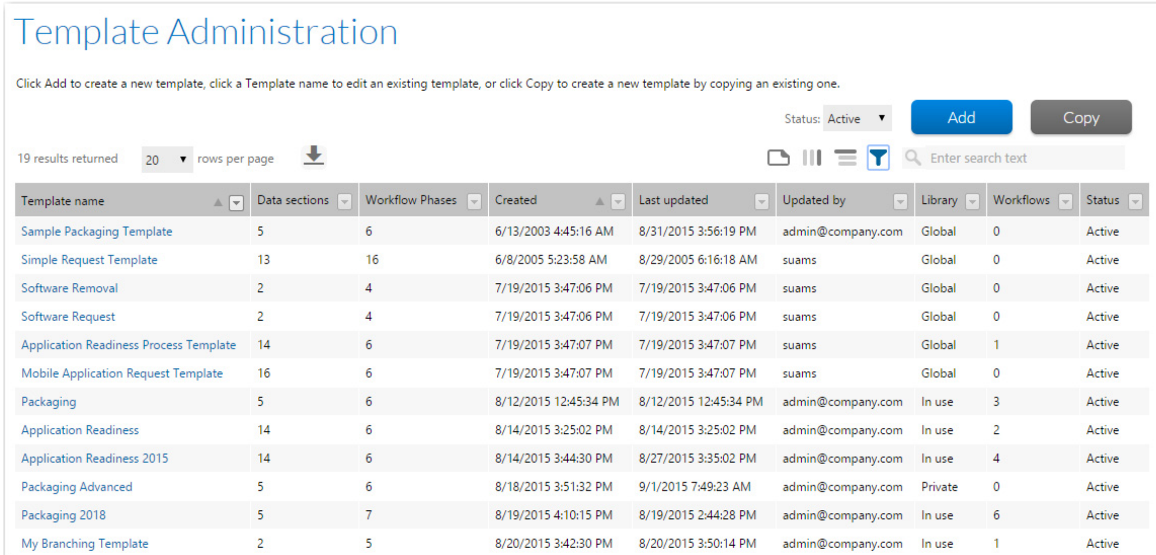
Option	Description
Add/Edit Policy Documents	Click to open the **Policy Documents** page for this project, where you can view this project's associated policy documents and add new policy documents. A policy document is a file that you upload to associate it with a project, making it centrally available to all people involved, such as a contract, company procedures for packaging applications, software distribution procedures, etc.

Template Administration Page

The **Template Administration** page lists all workflow templates defined in the system. You can view this page by clicking **Templates** on the **Administration** menu.

On the **Template Administration** page, you can:

- **Update or delete a template**—Drill through to a page showing the details of a single template, where you may either update (see Editing a Template That is in Use) or delete (see Deleting a Template) that template.
- **Create a new template**—See Creating a New Template.
- **Copy an existing template**—See Copying a Template.



Template Administration

Click Add to create a new template, click a Template name to edit an existing template, or click Copy to create a new template by copying an existing one.

Status: Active | Add | Copy

19 results returned 20 rows per page

Enter search text

Template name	Data sections	Workflow Phases	Created	Last updated	Updated by	Library	Workflows	Status
Sample Packaging Template	5	6	6/13/2003 4:45:16 AM	8/31/2015 3:56:19 PM	admin@company.com	Global	0	Active
Simple Request Template	13	16	6/8/2005 5:23:58 AM	8/29/2005 6:16:18 AM	suams	Global	0	Active
Software Removal	2	4	7/19/2015 3:47:06 PM	7/19/2015 3:47:06 PM	suams	Global	0	Active
Software Request	2	4	7/19/2015 3:47:06 PM	7/19/2015 3:47:06 PM	suams	Global	0	Active
Application Readiness Process Template	14	6	7/19/2015 3:47:07 PM	7/19/2015 3:47:07 PM	suams	Global	1	Active
Mobile Application Request Template	16	6	7/19/2015 3:47:07 PM	7/19/2015 3:47:07 PM	suams	Global	0	Active
Packaging	5	6	8/12/2015 12:45:34 PM	8/12/2015 12:45:34 PM	admin@company.com	In use	3	Active
Application Readiness	14	6	8/14/2015 3:25:02 PM	8/14/2015 3:25:02 PM	admin@company.com	In use	2	Active
Application Readiness 2015	14	6	8/14/2015 3:44:30 PM	8/27/2015 3:35:02 PM	admin@company.com	In use	4	Active
Packaging Advanced	5	6	8/18/2015 3:51:32 PM	9/1/2015 7:49:23 AM	admin@company.com	Private	0	Active
Packaging 2018	5	7	8/19/2015 4:10:15 PM	8/19/2015 2:44:28 PM	admin@company.com	In use	6	Active
My Branching Template	2	5	8/20/2015 3:42:30 PM	8/20/2015 3:50:14 PM	admin@company.com	In use	1	Active

Figure 7-54: Template Administration Page

The **Template Administration** page lists the following template details:

Table 7-42 • Template Administration Page Properties

Property	Description
Template name	A unique identifier for the template.
Data sections	The number of data groups defined for this template.
Workflow phases	The number of phases defined for this template.
Created	When this workflow template was created.
Last updated	When this workflow template was last modified.
Updated by	The account name of the person who last modified the workflow template.

Table 7-42 • Template Administration Page Properties

Property	Description
Library	The state of the template. One of: • **Global**—**Global** templates are those installed with Workflow Manager to serve as examples for you to copy and use. They cannot be modified, and you cannot assign a **Global** template to a project. • **Private**—A **Private** template is one that a template administrator created, either starting from scratch or by copying and modifying a **Global** template, but which has not yet been assigned to a project or used to create a workflow request. You can assign a **Private** template to a project, and it is fully editable. • **In use Via Project**—An **In Use Via Project** template is a **Private** template which has been assigned to a project, but which has not yet been used to create any workflow request. • **In use**—The status of an **In use Via Project** template changes to **In use** as soon as a workflow request is submitted for one of the template's projects. You can update some of the template fields for such templates, but cannot edit others. ***Note •*** *A template which is in use can only be partially modified. See Editing a Template That is in Use for a description of what can and can't be updated. If you do update such a template, all workflow requests created using this template will also be updated.*
Workflows	The number of workflow requests created using this template.
Status	Identifies the template as either **Active** or **Inactive**.

Copy Template Page

Using the **Copy Template** page, which opens when you click **Copy** on the **Template Administration** page, you an copy an existing template.

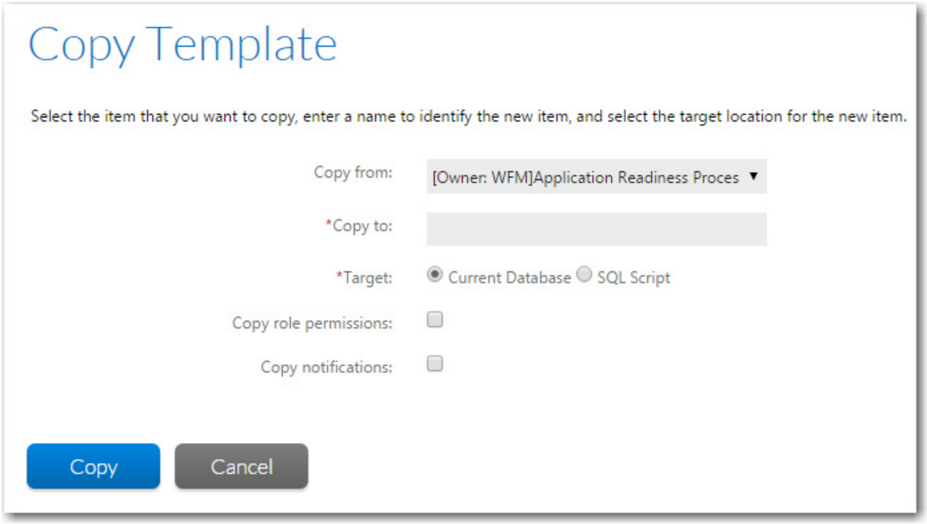


Figure 7-55: Copy Template Page

The **Copy Template** page includes the following options..

Table 7-43 • Template Administration / Copy Template View Options

Option	Description
Copy from	Select the name of the template that you want to copy from this list.
Copy to	Enter a name to identify the new template.
Target	Select the target location for this copied template: • **Current database**—Select this option to create a copy of this template in the currently open Workflow Manager database. • **SQL Script**—Select this option to export a copy of this template to an external SQL script file, which can then be imported into another instance of Workflow Manager. After you select this option, a text box named **Enter the Filename** is displayed. Enter an appropriate name for this SQL script and click **Copy**. It is not necessary to enter the `.sql` extension. You are then prompted to select a location where you want to save the script file. After you have downloaded the script file, you can run it against any other Workflow Manager database to import the exported template. For more information, see Copying an Existing Template to Another Database.
Copy role permissions	Select this option to copy the workflow template's role permissions settings. If this option is not selected, the default permission settings will be used ***Note •*** *If you are copying this workflow template to another database using the* ***SQL Script*** *option, it is likely that you will want to clear the selection of this option.*

Table 7-43 • Template Administration / Copy Template View Options (cont.)

Option	Description
Copy notifications	Select this option to copy the workflow template's email notification settings. If this option is not selected, the default notification settings will be used. ***Note •*** *If you are copying this workflow template to another database using the* ***SQL Script*** *option, it is likely that you will want to clear the selection of this option.*
Copy	Click to copy the template and return to the **Template Administration** page, where the new template will be listed.

Template Report

The Template Report opens when you select **View Template Report** on the template options menu on the **Template Details** page.

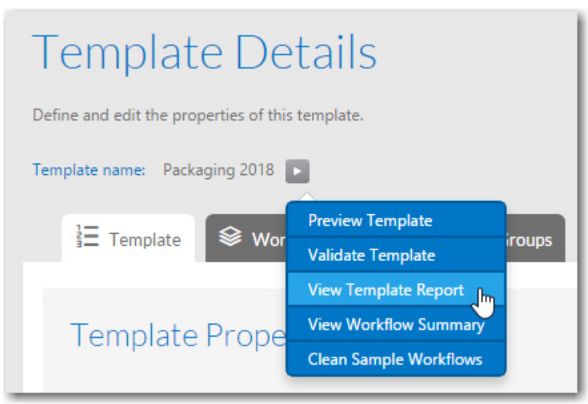
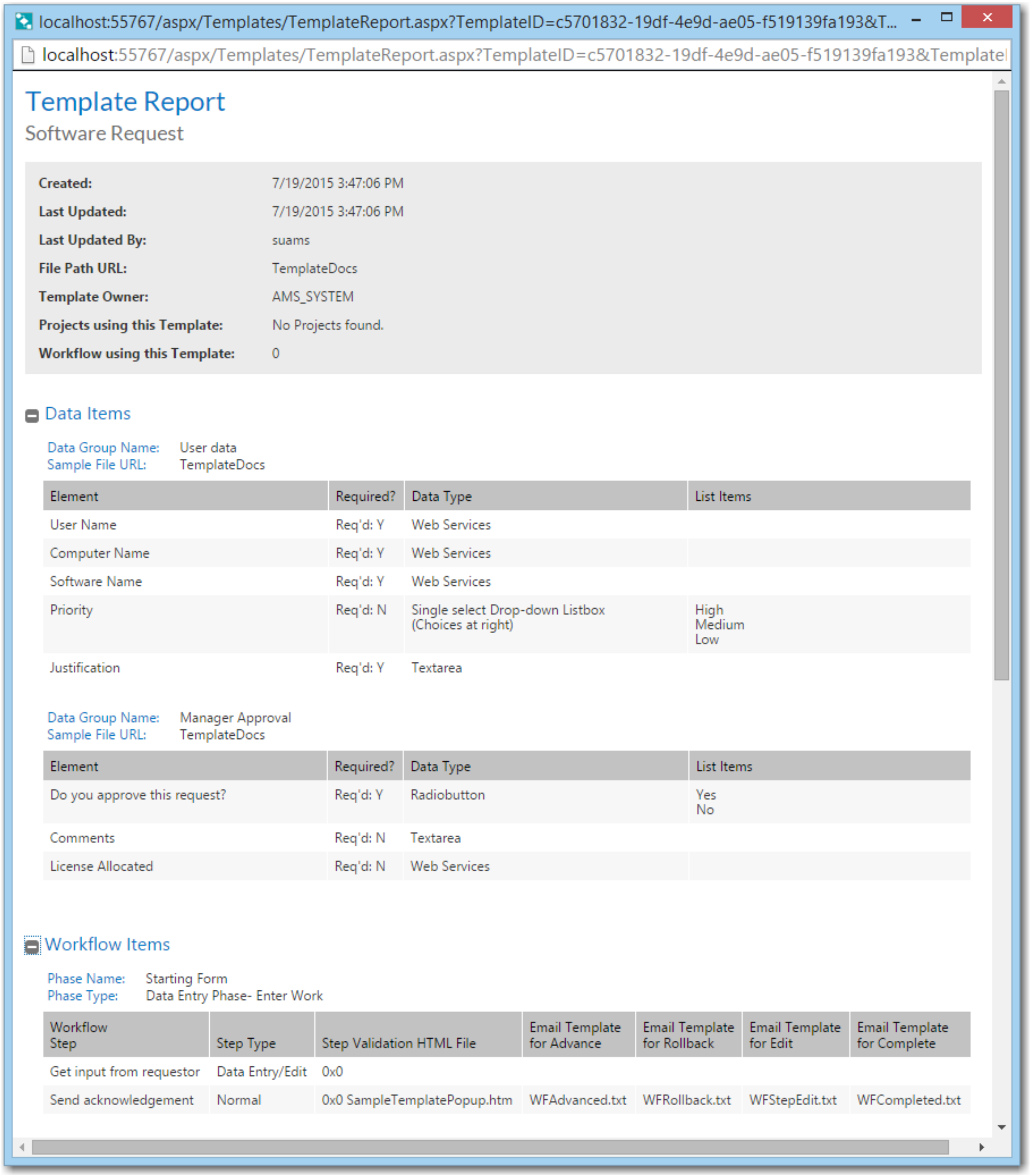


Figure 7-56: Selecting the View Template Report Option

The **Template Report** provides a summary of all information related to this template, including a listing of all data groups and workflow phases in the template.



localhost:55767/aspx/Templates/TemplateReport.aspx?TemplateID=c5701832-19df-4e9d-ae05-f519139fa193&T...

localhost:55767/aspx/Templates/TemplateReport.aspx?TemplateID=c5701832-19df-4e9d-ae05-f519139fa193&Template

Template Report

Software Request

Created:	7/19/2015 3:47:06 PM
Last Updated:	7/19/2015 3:47:06 PM
Last Updated By:	suams
File Path URL:	TemplateDocs
Template Owner:	AMS_SYSTEM
Projects using this Template:	No Projects found.
Workflow using this Template:	0

Data Items

Data Group Name: User data
Sample File URL: TemplateDocs

Element	Required?	Data Type	List Items
User Name	Req'd: Y	Web Services	
Computer Name	Req'd: Y	Web Services	
Software Name	Req'd: Y	Web Services	
Priority	Req'd: N	Single select Drop-down Listbox (Choices at right)	High Medium Low
Justification	Req'd: Y	Textarea	

Data Group Name: Manager Approval
Sample File URL: TemplateDocs

Element	Required?	Data Type	List Items
Do you approve this request?	Req'd: Y	Radiobutton	Yes No
Comments	Req'd: N	Textarea	
License Allocated	Req'd: N	Web Services	

Workflow Items

Phase Name: Starting Form
Phase Type: Data Entry Phase- Enter Work

Workflow Step	Step Type	Step Validation HTML File	Email Template for Advance	Email Template for Rollback	Email Template for Edit	Email Template for Complete
Get input from requestor	Data Entry/Edit	0x0				
Send acknowledgement	Normal	0x0 SampleTemplatePopup.htm	WFAdvanced.txt	WFRollback.txt	WFStepEdit.txt	WFCompleted.txt

Figure 7-57: Template Report

Template Details Page

The **Template Details** page, which is opened from the **Template Administration** page by either clicking **Add** or clicking on an existing template, is used to define the phases and steps involved in the workflow template. From this page, you can create a new workflow template or edit an existing template.

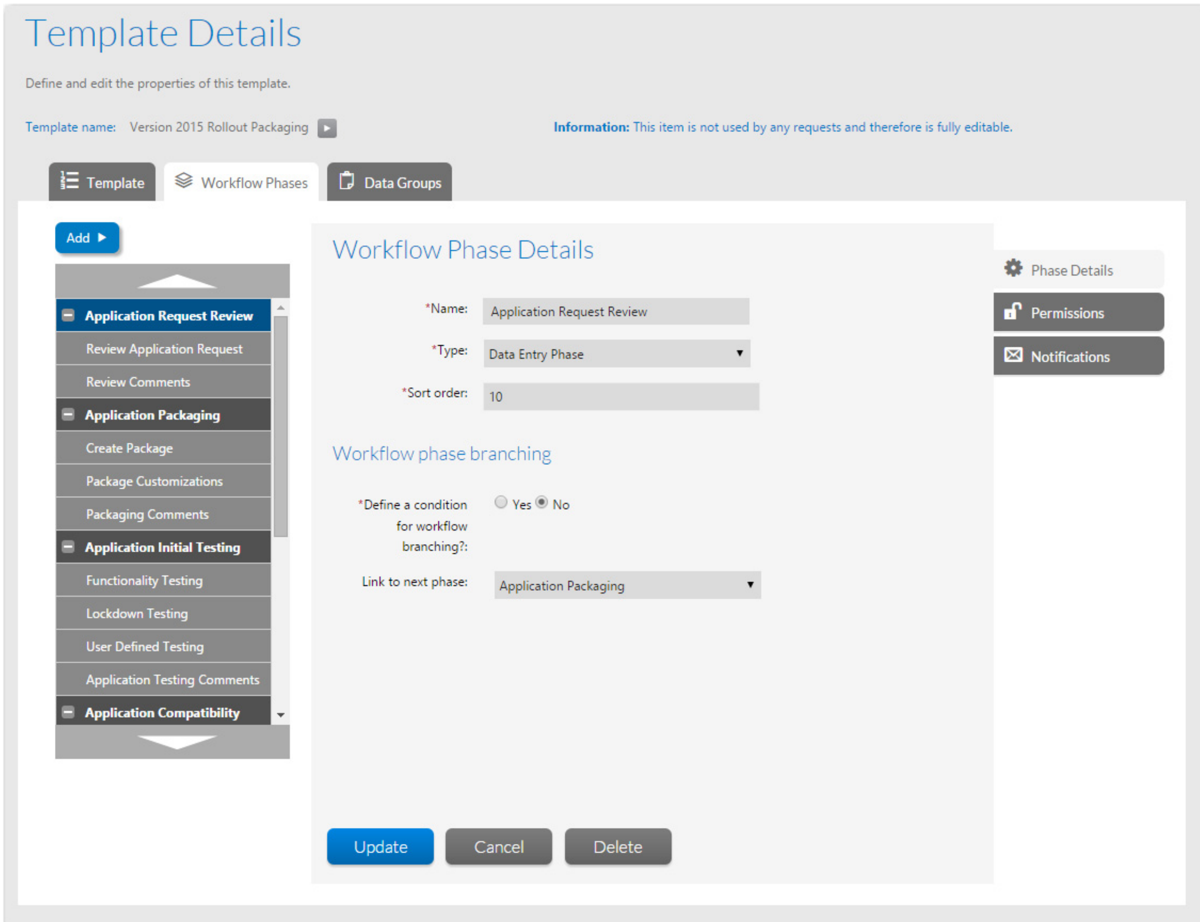


Figure 7-58: Template Details Page

The **Template Details** page is divided into three tabs:

- **Template**—On the **Properties** subtab of the **Template** tab, you can set general template properties such as template name, as well as assign email notification settings for general workflow notifications.
- **Workflow Phases**—On the **Phase Details** subtab of the **Workflow Phases** tab, you can define and edit workflow phases and workflow steps, as well as assign role permissions and email notification settings.
- **Data Groups**—On the **Group Details** subtab of the **Data Groups** tab, you can define and edit data groups and data elements, as well as assign role permissions and email notification settings.

Template Details View Tabs

The fields displayed in the main pane of the **Template Details** page change depend upon which main tab is selected and what is selected in the **Workflow Phase / Data Group** tree:

- Template Properties View
- Data Group Details View
- Data Element Details View
- Workflow Phase Details View

- Workflow Step Details View

***Note** • You can assign permissions and email notification settings on a workflow template on the **Permission** and **Notification** subtabs of the **Template Details** page. See Permission and Notification Tabs of Template Details Page for more information.*

The following fields/controls are always visible on the **Template Details** page:

Table 7-44 • Template Details Page

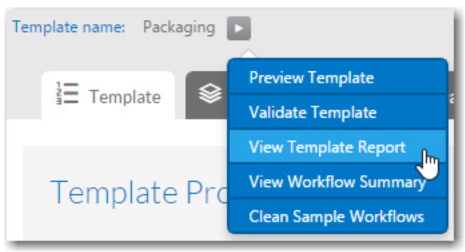
Option	Description
Name	Displays the name of the template.
Options Menu  	Click on this arrow to display a menu containing the following additional template options: • Preview Template • Validate Template • View Template Report • View Workflow Summary • Clean Sample Workflows
Information	Indicates the status of the template: • **Global**—This template is a Global template and therefore cannot be modified. • **Not in use**—This template is not used by any workflow requests and therefore is fully editable. • **In use**—This template is in use and therefore can only be partially modified. Any workflow requests currently using this template will be affected by any changes that are made. See Editing a Template That is in Use for more information.

Table 7-44 • Template Details Page

Option	Description
Data Group and Workflow Phase Tree	Expandable list of all of the data groups and workflow phases defined in the template. data group and workflow phase names. When you click on the plus sign next to the data group or workflow phase name, its child elements are listed. To edit one of the listed items, select it in the tree to open its corresponding view. Depending upon what is selected in the tree, the following child views are displayed: • Template Properties View • Data Group Details View • Data Element Details View • Workflow Phase Details View • Workflow Step Details View ***Note •*** *To return to the* ***Template Properties*** *view from any view on this page, click on the* ***Template Name*** *at the top of the page.*

Template Options Menu

The following table describes the available options on the Template Options menu:

Table 7-45 • Template Options Menu

Option	Description
Preview Template	Select the **Preview Template** option to view and test a template's workflow. The **Preview Template** option is found by clicking on the blue arrow next to the **Template Name** on the **Template Details** page. When you click this button, the **Preview Template** page opens and displays a visual representation of the current template's workflow exactly as it will appear on the **Workflow Request** page. You can test the template by marking steps complete, rolling back to previous steps, and making branching decisions. • To clear any selections that you made and start the test over, click the **Reset** button. • To close the **Preview Template** area, click **Close**. ***Note** • When you click **Close** to close the **Preview Template** area, the test data (a project and an application) that Workflow Manager created to test this template is deleted. If, when you are viewing the template in the **Preview Template** area, you close the window without clicking the **Close** button, the test data will not be deleted and will be included in Workflow Manager listings. To delete this leftover test data, you can click **Delete Test Data** in the **Template Properties** view.* ***Note** • For more information, see Previewing a Template.*
Validate Template	Select the **Validate Template** option to analyze a template to determine if it is ready to use. The **Validate Template** option is found by clicking on the blue arrow next to the **Template Name** on the **Template Details** page. The **Template Validation Results** report opens in a new screen, stating whether or not the template is valid. If it is invalid, the reasons will be listed. A template would be invalid, for example, if a workflow phase does not contain any workflow steps, or if a data group did not contain any data elements, etc. ***Note** • For more information, see Validating a Template.*
View Template Report	Select the **View Template Report** option to view a summary of all of the information related to a template, including a listing of all data groups and workflow phases in the template. The **View Template Report** option is found by clicking on the blue arrow next to the **Template Name** on the **Template Details** page. ***Note** • For more information, see Viewing the Template Report.*

Table 7-45 • Template Options Menu

Option	Description
View Workflow Summary	Select the **View Workflow Summary** option to view a listing of all workflow phases defined in a template. The **View Workflow Summary** option is found by clicking on the blue arrow next to the **Template Name** on the **Template Details** page. ● Workflow phases are shown in order. ● Conditional branch points and merge points are also shown. A legend at the bottom of the report differentiates between workflow phase, branch point and merge point. In a *branch phase*, the workflow proceeds in two different paths depending upon an item of data that was collected. A *merge phase* is where a workflow with branch phases merges back together. ● You can click on a branch point condition to jump to the resulting workflow phase. ***Note •*** *For more information, see Viewing a Summary of the Template.*
Clean Sample Workflows	You can use the **Clean Sample Workflow** option to delete any test data that was created when you previewed a template and tested its workflow. The **Clean Sample Workflows** option is found by clicking on the blue arrow next to the **Template Name** on the **Template Details** page.

Template Properties View

On the **Properties** tab of the **Template Details** page, which is displayed when the **Template Name** is selected, you can set general properties for the entire template.

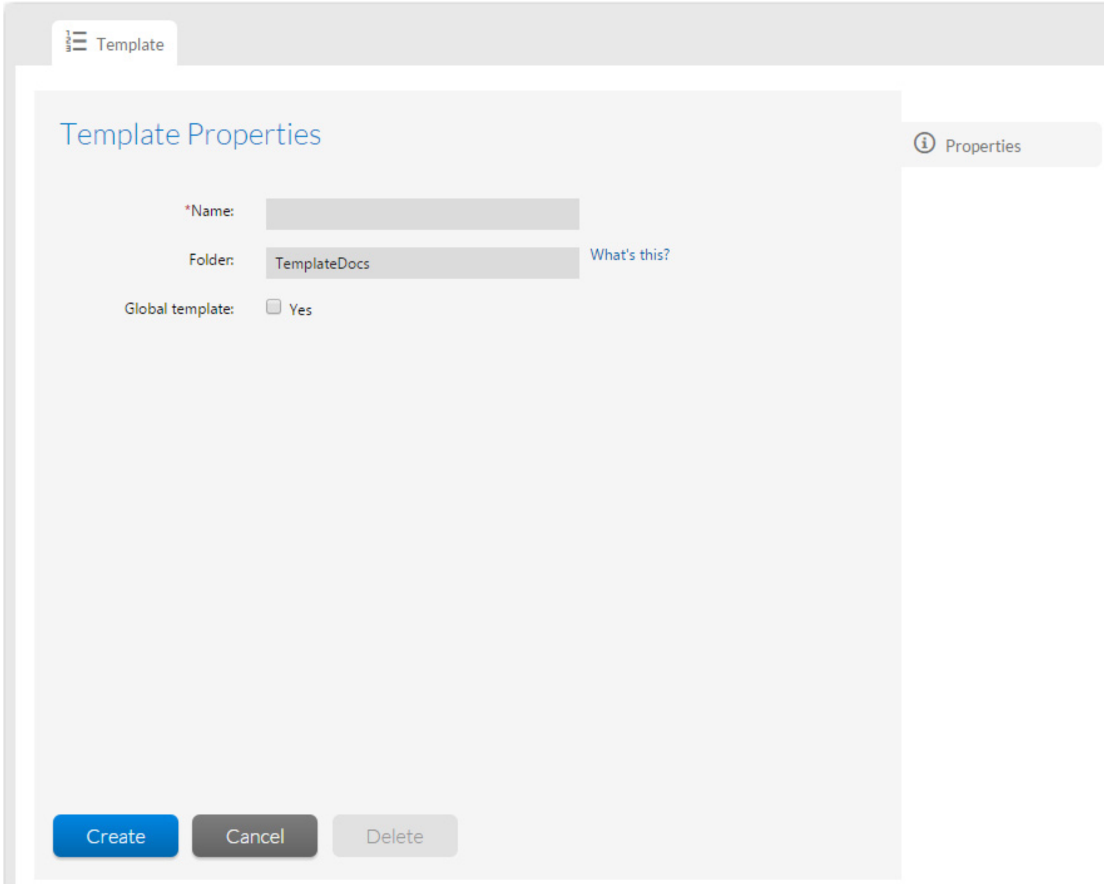


Figure 7-59: Template Properties View on the Template Details Page

The **Template Properties** view includes the following properties and options:

Table 7-46 • Template Properties View

Option	Description
Name	The information displayed in the **Name** field depends upon whether you are adding or editing a template and whether or not you are editing a Global or Private template. • **Creating a new template**—Enter a unique name for this new template. • **Editing an existing private template**—You can edit the template name. • **Viewing a global template**—You can view the template name, but you cannot edit it.
Folder	Specify a location, relative to the `wwwroot` subfolder of the folder to which Workflow Manager is installed, for files used by the template. It is the folder on the Web server that will contain Data help files and Workflow instruction files.

Table 7-46 • Template Properties View (cont.)

Option	Description
Status	Select one of the following options: • **Active**—Choose to make this template available for selection when creating a new project. • **Inactive**—Choose to make this template unavailable for use. ***Note** • If you are creating a new template, this option is not displayed until after you click the **Create** button.*
Global Template	Select the **Yes** option if you want to create a Global template. • Global templates serve as example templates that can be copied and used, but cannot be modified. • Global templates cannot be assigned to a project. • Global templates have the word **Global** listed in the **Library** column on the **Template Administration** page. ***Note** • For more information, see Template Library Types: Global, Private, In Use Via Project, and In Use.*
Create	When creating a new template, click to proceed with template creation. When you are editing an existing template, this button is labeled **Update**.
Save	Click to save any edits you have made. When creating a new template, this button is labeled **Create**.
Delete	Click to delete this template. ***Caution** • If you delete a template that is in use, all of its associated projects and workflow requests will also be deleted.*

About Editing a Template That is in Use

After a template has been used to create a workflow request, you will no longer be allowed to update all of that template's details. See Editing a Template That is in Use for a chart that lists what may and may not be updated in an in-use template.

Data Group Details View

The information that is gathered during a request is defined in a template data group (screens displayed when a request is submitted) comprised of data elements (questions).

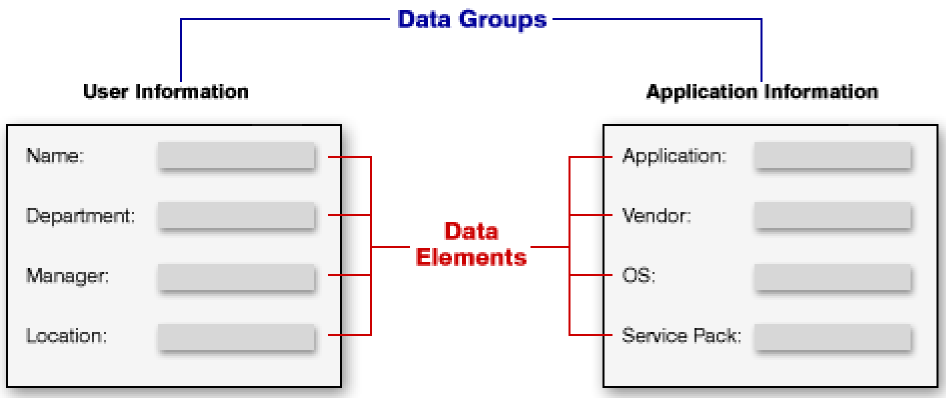


Figure 7-60: Diagram Demonstrating Data Groups and Data Elements

On the **Data Group Details** view, which opens when you select a data group or create a new data group on the **Template Details** page, you identify groups of questions that are displayed to a user during work on a request.

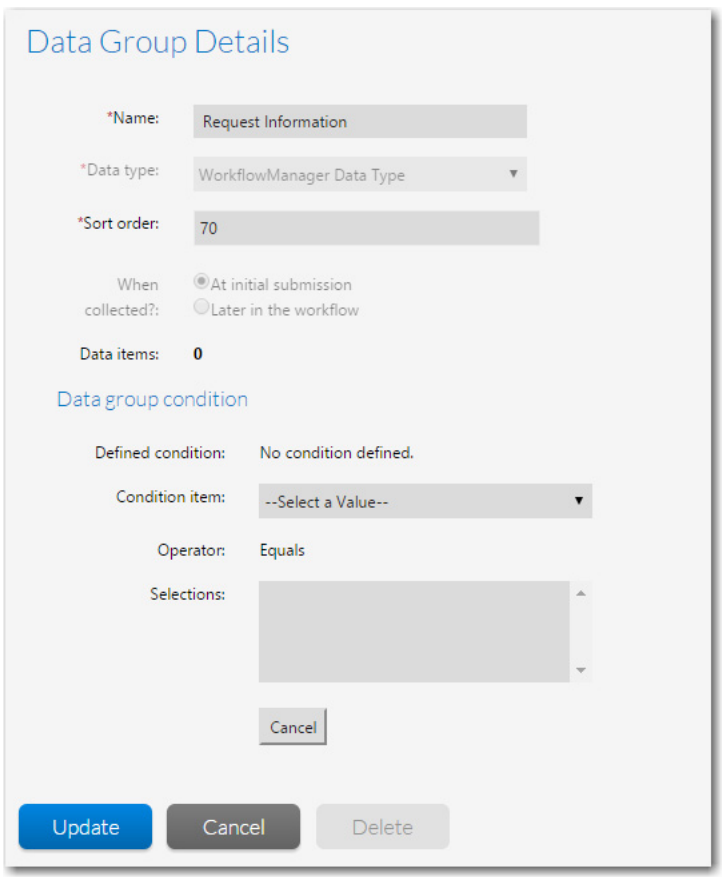


Figure 7-61: Data Group Details View

The **Data Group Details** view consists of the following areas:

- Properties Area
- Data Group Condition Area

Properties Area

The Properties area of the **Data Group Details** view includes the following options:

Table 7-47 • Data Group Details View

Option	Description
Data Group Name	Enter a unique name to identify this data group.
Data Type	Select one of the following: • **Workflow Manager Data Type**—Select if you are going to define the data elements of this data group in Workflow Manager. • **AdminStudio Data Type**—Select to create a data group whose data elements are automatically created and populated by the fields defined in the currently selected AdminStudio Application Manager Extended Attributes Description File, which by default is: `C:\AdminStudio Shared\EA_Default.xml` Selecting the **AdminStudio Data Type** enables you to share application-related data between AdminStudio and Workflow Manager. If the Extended Attribute data for an application that is associated with this workflow request is already entered in the Application Catalog database, the corresponding fields that appear during the data collection task during a request will be populated with the information in the Application Catalog database. When you change the data in Application Manager, it will automatically be changed in that Workflow Manager workflow request, and vice versa. ***Note** • This field is only enabled when you are creating a new data group. If you are editing an existing data group, this field is disabled.*
Sort Order	Enter a number to identify where this data group will appear in the data group list, with lower numbers appearing higher in the list.
When collected?	Specify when you want to collect this data group by selecting one of the following: • **At initial submission**—The data group will be collected when the workflow request is submitted. • **Later in the workflow**—The data group will be available to be collected during any workflow step you define in any of the phases of this workflow.
Data Items *n*	Lists the number of currently defined data elements for this data group. Click the **Add Data Item** button to add a new data element. You can also add a new data element by clicking the Add a new data element icon in the data group tree.
Update	Click to add the new data group or save the changes you have made to an existing data group.

Table 7-47 • Data Group Details View (cont.)

Option	Description
Delete	Click to delete this data group.
Cancel	Click to cancel the creation of a new data group or to cancel any edits that you have just made.

Data Group Condition Area

You can use the fields in the **Data Group Condition** area to make the display of this data group be conditional upon the data collected during this Workflow.

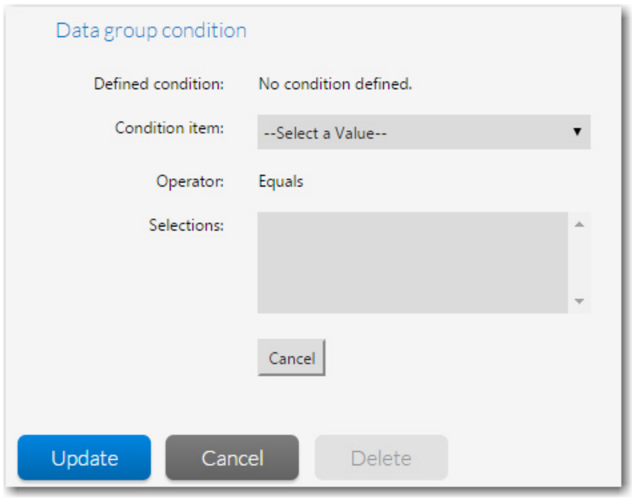


Figure 7-62: Data Group Condition Area

The **Data Group Condition** area includes the following fields:

Table 7-48 • Data Group Condition Area

Property	Description
Defined Condition	Lists any conditions that are assigned to this data group. ***Note*** • *If you are editing a template that is in use, this field is not available.*
Define Condition	Click to display the condition definition fields (**Condition Item**, **Operator, Selections**), where you can define a condition to determine whether or not this data group is displayed. For more information, see Setting Up Conditional Display of Data Groups, Data Elements, or Workflow Steps. ***Note*** • *If you are editing a template that is in use, this field is not available.*

Table 7-48 • Data Group Condition Area (cont.)

Property	Description
Condition Item	If any of the other data groups in this template includes a data element that has its **Use to define conditions/branching** option set to **Yes**, that data element will be listed in the **Condition Item** list. From the **Condition Item** list, select the data element you want to use to determine if this data group is displayed. • Data elements are listed in the following format: *Data Group - Data Element*. • If no data elements in this template are defined with the **Use to define conditions/ branching option** selected, the **Condition Item** list will be empty. For more information, see Setting Up Conditional Display of Data Groups, Data Elements, or Workflow Steps.
Operator	This field is set to **Equals** to indicate how to read this condition. For example: • IF `Data Element` EQUALS `Value(s)` THEN display this data group • IF `Operating System` EQUALS `Windows XP` THEN display this data group
Selections	Lists all values defined for the selected data element.
Save	Click to create the new condition or update an existing condition.
Clear	Click to remove all conditions that have been defined.
Cancel	Click to close the expanded **Data Group Condition** area without saving any changes.

Data Element Details View

On the **Data Element Details** view, which opens when you select a data element or create a new data element on the **Template Details** page, you define questions that are displayed to users during work on a request.

The options that are displayed on the **Data Element Details** view depend upon the **Data Type** that is selected.

- Common Properties
- Data Element Data Types
- Data Type-Specific Properties
- Data Element Condition Area

Common Properties

When defining a data element, you always specify the name of a data element and also set its **Data Type**.

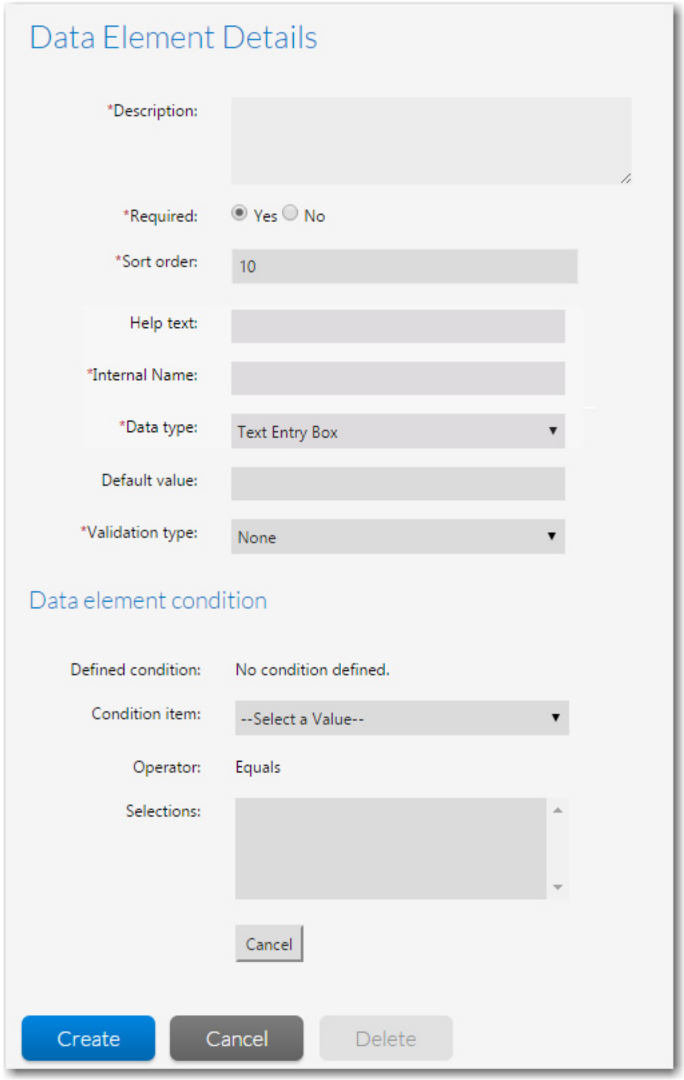


Figure 7-63: Data Element Details View

The **Data Element Details** view includes the following options:

Table 7-49 • Data Element Details View

Option	Description
Description	Enter a description to identify the type of data that is being collected in this data element.
Required	Select **Yes** or **No** to specify whether the user will be required to provide an answer to this question before the data can be submitted.
Sort order	Enter a number to identify where this data element will appear in the data elements list, with lower numbers appearing higher in the list.

Table 7-49 • Data Element Details View (cont.)

Option	Description
Help text	If you enter text in this field, when this data element is displayed to the user, a help icon will appear to the right of the field. When the user hovers over that help icon, this text will be displayed.
Internal Name	Enter a permanent name for this data element. The **Internal Name** value should be used to refer to this data element when writing custom reports. ***Note** • If you reference a data element in a custom report using the **Internal Name**—instead of its **Description** or GUID (`DataMinorItemID`)—that report will continue to work even if the **Description** of this data element changes or if the template is copied.* ***Note** • The value entered into the **Internal Name** field is stored in the `DataMinorItemInternalDesc` column of the `AMS_DataMinorItemTpl` table.*
Data type	Select the type of entry field you want this data element to be. See Data Element Data Types for a description of each data type. ***Note** • Additional properties appear on the **Data Element Details** view depending upon which **Data Type** is selected. See Data Type-Specific Properties for a list of those data type-specific fields.*
Data element condition	You can use the properties in this area to make the display of this data element be conditional upon the data collected during this workflow. See Data Element Condition Area.
Update	Click to create a new data element or save the edits that you have made to an existing data element.
Delete	Click to delete this data element.
Cancel	Click to cancel the creation of a new data element, or cancel the changes that you just made to an existing data element.

Data Element Data Types

You can define a data element with any of the following data types:

Table 7-50 • Available Data Element Data Types

Data Type	Description
Text Entry Box	A single-line, editable text box. To validate the data that a user enters into this text box, set the **Validation Type** option to **Mask** or **Regular Expression**. When you select **Mask** or **Regular Expression**, two additional options appear: **Validation Expression** and **Validation Message**. See Text Entry Box Data Type Validation Options for more information.
Text Area	A multi-line, scrollable, and editable text box.
Single Selection	A drop down list prompting the user to select one value from a list of values. When this option is selected, the **Selection list items** field appears, where you enter the list values, one per line. ***Important •*** *Because a user can only select one value,* ***Single Selection*** *lists can be used to control branching.*
Multiple Selection	List in which the user is permitted to select more than one value. When this option is selected, the **Selection list items** field appears, where you enter the list values, one per line.
Check Box	Square box that is selected or cleared to turn on or off an option. More than one check box can be selected. When this option is selected, the **Selection list items** field appears, where you enter the check box values, one per line.
Radio Button	A round button used to select one of a group of mutually exclusive options. When this option is selected, the **Selection list items** field appears, where you enter the radio button values, one per line. ***Important •*** *Because a user can only select one value,* ***Radio Buttons*** *can be used to control branching.*
Date	A text box where the user is only permitted to either enter a date in date format (such as `MM/DD/YYYY`) or select a date by clicking on the field's associated Calendar icon.

Table 7-50 • Available Data Element Data Types (cont.)

Data Type	Description
Document Upload, Application Upload, Dependency Upload, Upload Folder Content	An upload link in a workflow step which enables a user to upload application, documentation, or dependency files to a specific location on the Workflow Manager file server for the selected workflow request. ***Tip*** • *In Uploaded Files Tab, You can find all the uploaded files for the selected workflow request.* ***Note*** • *The data type **Upload Folder Content** allows you to create a folder and sub folder structure.*
Downloadable File Upload	An upload link in a workflow step that occurs after the initial data entry step. These files are stored in the Workflow Manager Downloadable Files directory and are listed on the **Downloadable Files** tab for the selected workflow request. Typically after an administrator has completed his tasks, his next workflow step would be to upload the revised application file.
Directory Service	Select to map the data element to an attribute in a directory service, so that when this field is presented to the user, its value will be pre-populated by the value of the attribute for the current user. When **Directory Service** is selected in the **Data Type** field, two additional fields appear: the **Directory Services** list, where you pick the directory service that contains the attribute that you want to use, and the **Data element** list, where you select the attribute that you want to map to.
Dynamic Pick List	A selection list which is populated with values from a user-supplied XML file. When this option is selected, the **Data Source File** field appears, where you specify the XML file that you want to use, and the **Column Value to Select** field appears, where you select which column's value in the XML file will be passed to Workflow Manager. By default, the first column is selected. When a data element with a data type of **Dynamic Pick List** is displayed in a request, the user is prompted to click a link to make a selection. When the user clicks the **Click to Select** link, the **Dynamic Pick List** dialog box opens containing a list of the data in the selected XML file. After the user selects one or multiple items in the list and clicks **OK**, the selected values then populate the text area, with entries separated by pipes. ***Note*** • *See Dynamic Pick List Data Type Options for more information.*

Table 7-50 • Available Data Element Data Types (cont.)

<table>
<tr><th>Data Type</th><th>Description</th></tr>
<tr><td>DB Driven Type</td><td>Select this option to populate a single-selection list with real time data values obtained from an associated SQL Server or Oracle database. When you select DB Driven Type from the Data Type list, three new fields appear:
External Datasources—Select a database connection that was defined on the External Data Sources Administration page. See Creating a New Data Source Connection.
SQL Query—Define a query to select the columns of the database table that you want to include on the selection list that is displayed to the user as a request is worked on. For example, if you want to display the <code>LastName</code> and <code>JobTitle</code> and <code>EmployeeID</code> of all salespersons in the Midwest region, enter a query that would return those values.
Persisted Column—Enter the name of the column containing the value you want to store in the database. In the previous example, you would probably want to store the EmployeeID column as the Persisted Column because it uniquely identifies the person that will be selected.
Note • See DB-Driven Type Data Type Options for more information.</td></tr>
<tr><td>Web Service Call</td><td>Select this option to return information from across a web service connection. For more information, see Web Service Results Dialog Box and Defining a Web Service Call Element.</td></tr>
</table>

Table 7-50 • Available Data Element Data Types (cont.)

Data Type	Description
AdminStudio Package Upload	Select this data type to prompt the requester to click a button to upload packages to the AdminStudio Application Catalog from any accessible location. When the requester clicks the **Upload Package Content** button, the **File Upload** dialog box opens, and the requester can upload multiple files. ***Note •*** *For more information, see Uploading Individual Packages.* ***Note •*** *The supported deployment types that can be imported into AdminStudio are described in Supported Package Deployment Types for Import.* ***Important •*** *After creating an **AdminStudio Package Upload** data element, you also need to create a workflow step with a step type of **AdminStudio Integration / Package import** to collect this data element and process the import. See Creating a Workflow Step to Process the Import.* ***Note •*** *The **AdminStudio Package Upload** method is not recommended to import large packages because of the length of time it takes to upload and test, and also because it requires you to manually select all dependent files, such as `.mst` and `.cab` files. When importing larger files and files with dependent files, you should use the **AdminStudio Package Upload from Import Path** method, as described in Uploading Packages from a Directory.*

Table 7-50 • Available Data Element Data Types (cont.)

Data Type	Description
AdminStudio Package Upload from Import Path	Select this data type to prompt the requester to upload a directory of packages to the AdminStudio Application Catalog. With this data type, the user is first prompted to copy the files that they want to upload into the workflow-request-specific subdirectory, which is created automatically when the workflow request is created. ***Note** • The root path to this import directory is specified in the **AdminStudio Import Base Directory** field on the **Company Preferences** page. See Setting Preferences on the Company Preferences Page.* When using this type of data element, dependent files are automatically imported along with the selected packages, and you are able to use Workflow Manager to perform other tasks while the files are being imported and tested. All packages of the specified deployment types in the selected directory will be imported. ***Note** • The supported deployment types that can be imported into AdminStudio are described in Supported Package Deployment Types for Import.* ***Note** • For more information, see Uploading Packages from a Directory.* ***Important** • After creating an **AdminStudio Package Upload from Import Path** data element, you also need to create a workflow step with a step type of **AdminStudio Integration / Package import** to collect this data element and process the import. See Creating a Workflow Step to Process the Import.*

Table 7-50 • Available Data Element Data Types (cont.)

Data Type	Description
AdminStudio Package Content Upload	Select this data type to prompt the requester to click a button, which allows him to create a folder and subfolder structure, upload packages to the AdminStudio Application Catalog from any accessible location. When the requester clicks the **Upload Package Content** button, the **Upload** windows pane opens, and the requester can create folders, sub folders and upload multiple program files and supporting files. ***Tip*** • *You can upload multiple program files and supporting files in to the folder structure created, however you can import single application and supporting file into the AdminStudio Catalog* ***Note*** • *For more information, see Uploading Uncompressed Setup Files.* ***Note*** • *The supported deployment types that can be imported into AdminStudio are described in Supported Package Deployment Types for Import.* ***Important*** • *After creating an **AdminStudio Package Upload** data element, you also need to create a workflow step with a step type of **AdminStudio Integration / Package import** to collect this data element and process the import. See Creating a Workflow Step to Process the Import.*
Existing AdminStudio Package	Select this data type to create a workflow step that prompts the requester to select existing packages from the AdminStudio Application Catalog to associate with the workflow request. Once you associate packages with a workflow request, you can perform other AdminStudio tasks on those packages as part of subsequent workflow steps such as performing testing in AdminStudio, viewing test results, and distributing packages to specified distribution systems such as System Center Configuration Manager. ***Note*** • *For more information, see Selecting Existing AdminStudio Packages.*

Table 7-50 • Available Data Element Data Types (cont.)

Data Type	Description
Set AdminStudio Property	Select this data type to set an AdminStudio package property in a workflow step for packages associated with the workflow request. After you select this data type, select the property that you want to set from the **Property Name** list, and enter the **Property Value** that you want to set. For example, if you want to set the App Portal category of all of the packages associated to a Workflow Request to **`Utilities`**, you would select **Categories** from the **Property Name** list and enter **`Utilities`** in the **Property Value** list. When this data element is displayed in a workflow request, the status of the property update is listed. ***Note •*** *For more information, see Setting Package Properties in a Workflow Request.* ***Note •*** *To set package properties in a workflow step, you need to first associate packages with a workflow request, as described in Selecting Existing AdminStudio Packages or Importing New Packages into AdminStudio.*

Table 7-50 • Available Data Element Data Types (cont.)

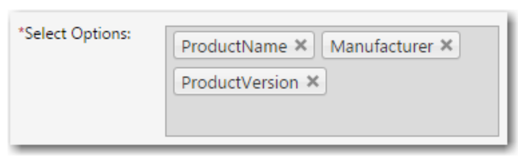
Data Type	Description
Get AdminStudio Property	Select this data type to display selected AdminStudio properties for the packages associated with a workflow request. The following package properties can be displayed: • Product Name • Manufacturer • Comments • Product Version • Product Code • Product Language • Flexera Identifier • Flags When you select this data type, you need to also select the properties that you want to display from the **Select Options** list. You can select multiple properties.  When a **Get AdminStudio Property** data element is displayed in a workflow request, the properties you selected are listed in table format. ***Note •*** *For more information, see Displaying Package Properties in a Workflow Request.* ***Note •*** *To display package properties in a workflow step, you need to first associate packages with a workflow request, as described in Selecting Existing AdminStudio Packages or Importing New Packages into AdminStudio.*

Table 7-50 • Available Data Element Data Types (cont.)

Data Type	Description
AdminStudio Package Formats	You can use the **AdminStudio Package Formats** data element to prompt the user to specify data about applications as part of an application rationalization process. For example, after performing testing on an application, you may want to specify that you want to distribute the package in a different package format than its current format, which may require application virtualization. You may also want to create workflow templates where package format could be used as a branching condition. When you select the **AdminStudio Package Formats** data type, you also need to click in the **Select Options** field and select the package formats you want to include in the selection list. You can select multiple items from the list. When this data element is displayed in a workflow request, the user will be able make selections from a drop down list. ***Note •*** *For more information, see Specifying Package Formats and Target Environments.*
AdminStudio Target Environments	You can use the **AdminStudio Target Environments** data element to prompt the user to specify data about applications as part of an application rationalization process. For example, after performing testing on an application, you may want to specify the supported target operating system for the package. You may also want to create workflow templates where target environment could be used as a branching condition. When you select the **AdminStudio Target Environments** data type, you also need to click in the **Select Options** field and select the target environments you want to include in the selection list. You can select multiple items from the list. When this data element is displayed in a workflow request, the user will be able make a selection from a drop down list. ***Note •*** *For more information, see Specifying Package Formats and Target Environments.*
AdminStudio Distribution Connections	When creating a workflow step to distribute packages associated with that workflow request to a distribution system that is configured in AdminStudio, you first need to create an **AdminStudio Distribution Connections** data element that identifies the named connection to the distribution system. In the **Select Options** field, select which of the named connections to distribution systems defined in AdminStudio that you want to provide as an option in this workflow step. ***Note •*** *For more information, see Distributing Packages.*

Data Type-Specific Properties

The **Data Element Details** view includes the following properties, depending upon the selected **Data Type**:

- Properties Common to Multiple Data Types
- Text Entry Box Data Type Validation Options
- DB-Driven Type Data Type Options
- Dynamic Pick List Data Type Options

Properties Common to Multiple Data Types

The following data element options are common to multiple data types:

Table 7-51 • Data Element Details View

Option	Displayed for Data Types ...	Description
Default Value	Text Entry Box, Text Area, Single Selection, Multiple Selection, Radio Button, Check Box, Date	To set default values for text fields, selection lists, radio buttons, or dates, use this option: • **For text boxes**, if you would like text to appear in this text field by default, enter that text here. • **For selection lists**, if you would like one of the selections to be selected by default, make a selection from this list. • **For dates**, you click the calendar icon and select a date.
Use to define conditions/ branching	Single Selection, Radio Button	Enables this data element to be specified as controlling a workflow branching condition. When workflow phases are defined, data elements with this option can be selected as the condition of the phase. The default value for this field will be No. ***Important** • This field is only shown if you have selected a Workflow Manager **Data Type** that supports branching (**Single Selection** or **Radio Button**).*
Define a condition for automatic rollback?	Single Selection, Radio Button	Enables this data element to be specified as controlling the automatic rollback to a specified workflow step, based upon administrator input. The default value for this field will be **No**. For more information, see Setting Up Conditions to Perform Automatic Rollback to a Workflow Step. ***Important** • This field is only shown if you have selected a **Data Type** that supports branching (**Single Selection** or **Radio Button**) and if **Use to define conditions/branching** option is set to **Yes**.*
Selection list items	Single Selection, Multiple Selection, Radio Button, Check Box	Enter the items in the list control (if you selected **Single Selection** or **Multiple Selection** in the **Data Type** field)

Table 7-51 • Data Element Details View (cont.)

Option	Displayed for Data Types ...	Description
Directory Services	Directory Service	If you selected **Directory Service** as the **Data Type**, this field appears allowing you to select a **Directory Service Attribute** (which are defined on the Directory Services Attributes Administration Page) to map to a user in the directory service. If you select the **Directory Service** data type and no directory service information has been defined, the **Add New...** link appears. Click **Add New...** to define directory service information, or select a different data type. See Creating a New Directory Service Connection.

Text Entry Box Data Type Validation Options

The following additional options are displayed when the **Data Type** is set to **Text Entry Box**:

Table 7-52 • Text Entry Box Data Type Validation Options

Option	Description
Validation Type	From the **Validation Type** list, select one of the following options to specify if you would like to validate the data that is entered into that field: • **None**—Do not validate this field. • **Mask**—Validate this field using a mask expression, where you use # to represent a number and @ to represent an alphanumeric character. • **Regular Expression**—Validate this field using a special text string that describes a search pattern. If you select the **Mask** or **Regular Expression** options, the **Validation Expression** and **Validation Message** options are displayed.
Validation Expression	Enter one of the following: • **For Regular Expression validations**—Enter a valid regular expression that will be used to validate this data item. For example, to validate a United States phone number, you would enter `\(\d{3}\)\d{3}-\d{4}` • **For Mask validations**—Enter a valid mask validation expression, using # to represent a number and @ to represent an alphanumeric character. You can also use the following characters: `( ) - \ / . $` An example of a mask validation for a United States phone number would be: `(###)-(###)-(####)`

Table 7-52 • Text Entry Box Data Type Validation Options

Option	Description
Validation Message	Enter the error message text that you would like to display if the users' entry is not valid. The error will be generated when the user attempts to navigate out of the text field.

DB-Driven Type Data Type Options

On the **Data Element Details** view, when the **Data Type** of a **Data Element** is set to **DB Driven Type**, the following additional options are displayed

Table 7-53 • DB-Driven Type Data Type Options

Option	Description
External Data Source	Select a database connection that was defined on the **External Data Sources Administration** page. See Creating a New Data Source Connection.
SQL Query	Define a query to select the columns of the database table that you want to include on the selection list that is displayed to the user as a request is worked on. For example, if you want to display the `LastName` and `JobTitle` and `EmployeeID` of all salespersons in the Midwest region, enter a query that would return those values. Also note the following regarding the SQL Query field: • The **SQL Query** field accepts multi-line SQL commands. • In the **SQL Query** field, you can use a replaceable parameter for `ApplicationID` by denoting a **`{0}`** in the SQL query string.
Persisted Column	Enter the name of the column containing the value you want to store in the database. In the previous example, you would probably want to store the **EmployeeID** column as the Persisted Column because it uniquely identifies the person that will be selected.

Dynamic Pick List Data Type Options

On the **Data Element Details** view, when the **Data Type** of a **Data Element** is set to **Dynamic Pick List**, the following additional options are displayed:

Table 7-54 • Dynamic Pick List Data Type Options

Option	Description
Data Source File	Select an XML data source file to populate your Dynamic Pick List data element. This field lists of all of the XML source files that have been copied to the following Workflow Manager Web Server location: `[Workflow Manager Web Application Root]\DataSourceFiles` ***Important •*** *These XML data source files must adhere to the Microsoft Excel XML spreadsheet schema. To ensure that your XML file is in the correct format, open your XML file in Microsoft Excel, and save it in* ***XML Spreadsheet 2003 (*.xml)*** *format.*
Column Value to Submit	For Dynamic Pick List data elements, select the name of the column in the selected XML data source file that contains the value that you want to pass to Workflow Manager when an item is selected. An XML data source file can have multiple columns, but only one column value is passed to Workflow Manager. By default, the first column in the XML file is selected. If no column names are listed, it means that the XML data source file that you selected either contains no data or was not saved in Microsoft Excel **XML Spreadsheet 2003 (*.xml)** format.

Data Element Condition Area

You can use the properties in the **Data Element Condition** area to make the display of this data element be conditional upon the data collected during this Workflow.

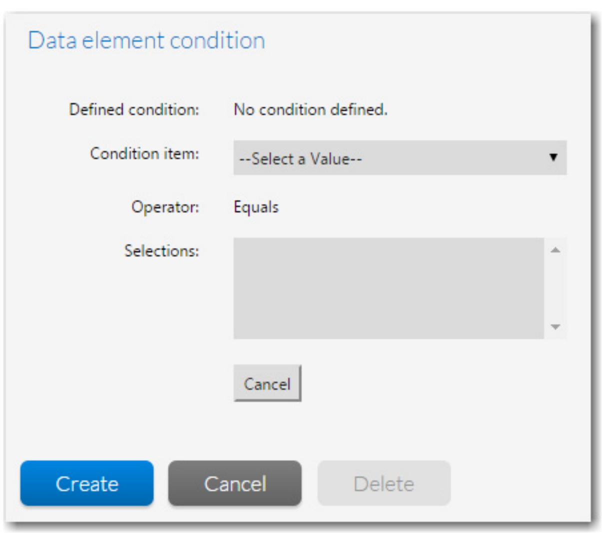


Figure 7-64: Data Element Condition Area

The **Data Element Condition** area includes the following options:

Table 7-55 • Data Element Condition Area

Option	Description
Defined Condition	Lists any conditions that are assigned to this data element. ***Note** • If you are editing a template that is in use, this field is not available.*
Define Condition	Click to display the condition definition fields (**Condition Item**, **Operator, Selections**), where you can define a condition to determine whether or not this data element is displayed. For more information, see Setting Up Conditional Display of Data Groups, Data Elements, or Workflow Steps. ***Note** • If you are editing a template that is in use, this field is not available.*
Condition Item	If any of the data groups in this template includes a data element that has its **Use to define conditions/branching** option set to **Yes**, that data element will be listed in the **Condition Item** list. From the **Condition Item** list, select the data element you want to use to determine if this data element is displayed. ● Data elements are listed in the following format: *Data Group - Data Element*. ● If no data elements in this template are defined with the **Use to define conditions/ branching option** selected, the **Condition Item** list will be empty. For more information, see Setting Up Conditional Display of Data Groups, Data Elements, or Workflow Steps.
Operator	This field is set to **Equals** to indicate how to read this condition. For example: ● IF ***Data Element*** EQUALS ***Value(s)*** THEN display this data element ● IF **Operating System** EQUALS **Windows XP** THEN display this data element
Selections	Lists all values defined for the selected data element.
Save	Click to create the new condition or update an existing condition.
Clear	Click to remove all conditions that have been defined.
Cancel	Click to close the expanded Defined Condition area without saving any changes.

Workflow Phase Details View

On the **Workflow Phase Details** view, which opens when you create a new workflow phase or edit an existing workflow phase on the **Template Details** page, you build the workflow phases of a template.

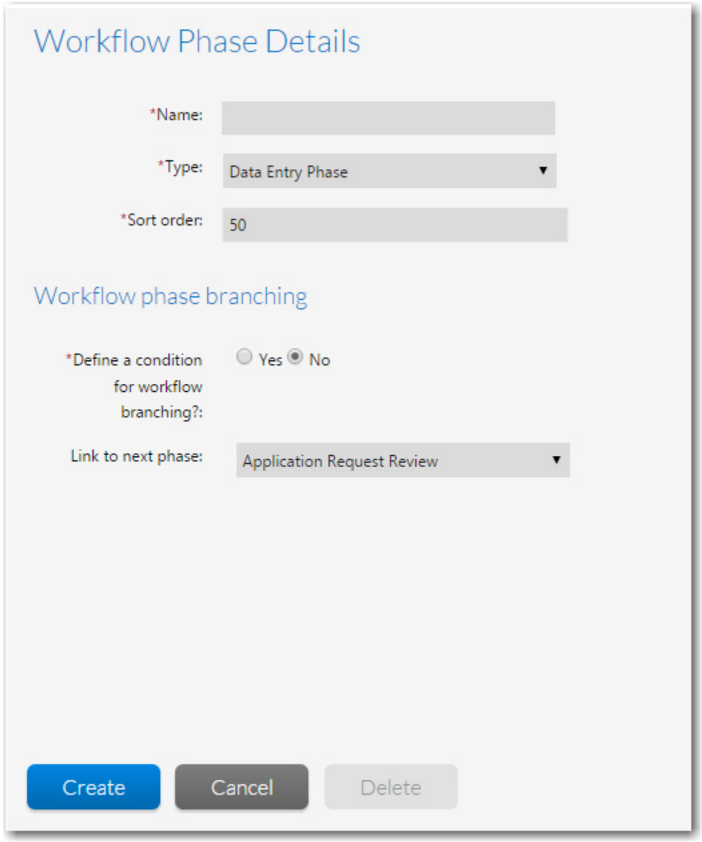


Figure 7-65: Workflow Phase Details View

The **Workflow Phase Details** view consists of the following options:

Table 7-56 • Workflow Phase Details View

Option	Description
Workflow Phase Name	Enter a name to identify this workflow phase.

Table 7-56 • Workflow Phase Details View (cont.)

Option	Description
Phase Type	Select one of the following options to identify the workflow phase type: • **Data Entry Phase**—Phase containing the data collection step that is required when submitting a request. • **Work Phase**—Standard phase that has no restrictions. • **Customer Acceptance Phase**—Phase that requires Customer approval to be completed. • **Last Phase**—Phase including administrative tasks after Customer project has been completed. • **AdminStudio Workflow**—Phase is performed in its entirety as an AdminStudio project. ***Note •*** *By default, an* ***AdminStudio Workflow*** *phase is automatically assigned to the AdminStudio user named admin@servicer.com. To change this default user to a different user, go to the <appSettings> section of the web.config file on the web server and edit the following line:* *<add key="ASProjectOwner" value="admin@servicer.com" />* ***Note •*** *If you are editing a Workflow Phase that is in use, the Phase Type field is disabled.*
Sort Order	Enter a number to determine where this workflow phase will appear in the workflow phase list, with lower numbers appearing higher in the list.
Track for Workflow SLA	Select this option to instruct Workflow Manager to include the time spent to perform this workflow phase in the SLA calculations for the entire workflow request (shown on the **Projects Report**). Clear this selection to exclude the time spent on this workflow phase from SLA calculations. SLA (Service Level Agreement) time tracking is used to determine the status of a request (or a single workflow phase) in relationship to its SLA due date as either: On Time, At Risk, Late, Completed on Time, or Completed Late. See Calculating SLA Status for more information.

Table 7-56 • Workflow Phase Details View (cont.)

Option	Description
Track for Workflow Phase SLA	Select this option and enter a numeric value in the **Due Period** and **Risk Period** fields to instruct Workflow Manager to send out an email alert and change the workflow phase's **SLA Status** (shown in the **Workflow Phases SLA Report**) when a duration threshold is reached. ***Important •*** *It is recommended that this option should be selected only for tasks that are critical for the completion of the workflow for which immediate notification of a delay is important.* If this option is not selected, no email alerts will be sent out regarding this workflow phase and it will not be listed on the Workflow Phases SLA Report. ***Note •*** *SLA (Service Level Agreement) time tracking is used to determine the status of a request (or a single workflow* phase*) in relationship to its SLA due date as either: On Time, At Risk, Late, Completed on Time, or Completed Late. See Calculating SLA Status for more information.*
Due Period	The elapsed time (in days) after the workflow step becomes the current phase that it should be completed in order to be SLA compliant. If it is not completed by this date, its SLA status would be `Late` and an email alert would be sent out. This field is enabled if **Track for Workflow Phase SLA** is also selected.
Risk Period	The elapsed time (in days) after which this workflow phase should be considered at risk of not being completed on time (corresponds to SLA status of `At Risk`). This field is enabled if **Track for Workflow Phase SLA** is also selected.
Define a condition for workflow branching?	Select one of the following options: • **No**—Select **No** to create a standard, non-branching workflow phase. • **Yes**—Select **Yes** to define this workflow phase as a workflow branch or merge phase. When you select **Yes**, additional options are displayed. **Branch and Merge Phases** In a *branch phase*, the workflow proceeds in two different paths depending upon an item of data that was collected. A *merge phase* is where a workflow with branch phases merges back together.

Table 7-56 • Workflow Phase Details View (cont.)

Option	Description
Link to next phase	Select the existing phase that you want to follow this phase in the Workflow. ***Note •** This option is displayed only if the **Define a condition for workflow branching?** option is set to **No**.* ***Caution •** Even though phases are listed in a specific order in the phase/step tree, they are not automatically linked together. If you create a phase but fail to link it to a preceding phase, it will not be visible in the workflow.* ***Tip •** The easiest way to link phases is to create all of the phases first, and then edit each of them to link the phases together.*
Select the branching condition	Select a **Data Element** to use as the branching condition. If one the following is true, the **Select the branching condition** list will be empty: • You have not created a data group with the When collected? option set to **Later in the workflow**. • You have created a data group with the **When Collection?** option set to **Later in the workflow** but that data group does not contain a data element with the **Data Type** of **Single Selection List** or **Radio Button**. • You have created a data group with the **When Collection?** option set to **Later in the workflow** and the data group contains a data element with the **Data Type** of **Single Selection List** or **Radio Button**, but the **Use to define conditions/branching** option for that data element is set to **No**. ***Note •** This option is displayed only if the **Define a condition for workflow Branching?** option is set to **Yes**.*
Condition Value / Next Phase List	If the **Define a condition for workflow branching?** option is set to **Yes** and you have selected a data element from the **Select the branching condition** list, a table displaying the possible values for that data element is displayed: • **Condition Value**—Lists all of the possible responses for the data element that was selected. • **Next Phase**—For each **Condition Value** listed, select the phase that will be displayed to users who selected that value.
Create / Update	Click to save your entries.
Delete	Delete this workflow phase.

Workflow Step Details View

On the **Step Details** tab of the **Workflow Step Details** view, which opens when you create a new workflow step or edit an existing workflow step on the **Template Details** page, you build the workflow steps of a workflow phase.

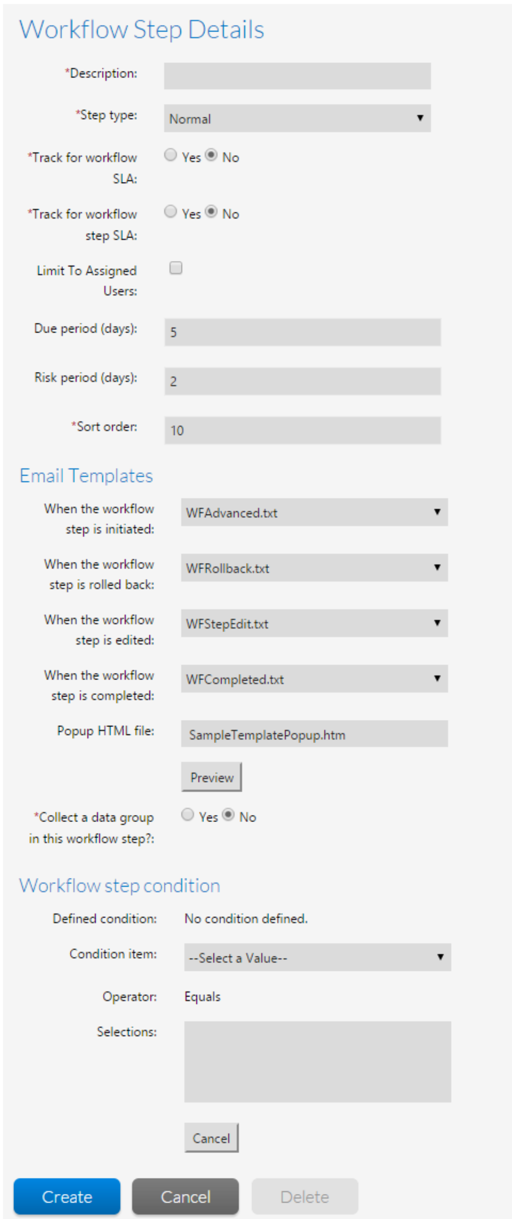


Figure 7-66: Workflow Step Details View

The **Workflow Step Details** view consists of the following options:

Table 7-57 • Workflow Phases View / Workflow Steps Area Options

Option	Description
Workflow Step description	Enter a label to identify this workflow step.
Step Type	Select one of the following step types: • Data Entry/Edit • Normal • Update History • Work Assignment • Script Execution • Custom Web Page • Approval Task • Automated Import • Automated Validation • Automated Conflict Analysis • Allocate Software License • Deallocate Software License • Custom Automated Task For detailed information on each of these step types, see Workflow Step Types.
Track for Workflow SLA	Select this option to instruct Workflow Manager to include the time spent to perform this workflow step in the SLA calculations for the entire workflow request (shown on the **Projects Report**). Clear this selection to exclude the time spent on this workflow step from SLA calculations. For example, if a workflow phase included a workflow step such as “Receive Customer Approval”—which does require any work to be performed by the administrator— you may want to clear this option so that the time spent waiting for approval would not be included in SLA calculations for this workflow request. ***Note •*** *SLA (Service Level Agreement) time tracking is used to determine the status of a request (or a single workflow step) in relationship to its SLA due date as either: On Time, At Risk, Late, Completed on Time, or Completed Late. See Calculating SLA Status for more information.*

Table 7-57 • Workflow Phases View / Workflow Steps Area Options (cont.)

Option	Description
Track for Workflow Step SLA	Select this option and enter a numeric value in the **Due Period** and **Risk Period** fields to instruct Workflow Manager to send out an email alert and change the workflow step's **SLA Status** (shown in the **Workflow Steps SLA Report**) when a duration threshold is reached. ***Important •*** *It is recommended that this option should be selected only for tasks that are critical for the completion of the workflow for which immediate notification of a delay is important.* If this option is not selected, no email alerts will be sent out regarding this workflow step and it will not be listed on the Workflow Steps SLA Report. ***Note •*** *SLA (Service Level Agreement) time tracking is used to determine the status of a request (or a single workflow step) in relationship to its SLA due date as either: On Time, At Risk, Late, Completed on Time, or Completed Late. See Calculating SLA Status for more information.*
Limit To Assigned Users	If this option is selected, only users who are assigned to this workflow request are permitted to edit this step. If this option is not selected, all users who belong to the role that has edit permission on this workflow request are permitted to edit this step. ***Note •*** *In order for assigned users with edit permission on a workflow request to receive email notifications, email notification needs to be enabled for the workflow step.*
Due Period	The elapsed time (in days) after the workflow step becomes the current step that it should be completed in order to be SLA compliant. If it is not completed by this date, its SLA status would be `Late` and an email alert would be sent out. This field is enabled if **Track for Workflow Step SLA** is also selected.
Risk Period	The elapsed time (in days) after which this workflow step should be considered at risk of not being completed on time (corresponds to SLA status of `At Risk`). This field is enabled if **Track for Workflow Step SLA** is also selected.
Sort Order	Enter a number to determine where this workflow step will appear in the workflow step list, with lower numbers appearing higher in the list.
Popup HTML File	If you selected **Normal** as **Step Type**, enter the name of the HTML file that you want the **Step Validation** dialog box to display. Click **Preview** to view the specified HTML file.
Email Templates	Select the email template to use when this workflow step is **Initiated, rolled back, edited, or completed**. For more information on email templates, see Managing Email Notifications.

Table 7-57 • Workflow Phases View / Workflow Steps Area Options (cont.)

Option	Description
Collect a data group in this workflow step?	If you want to collect a data group in this workflow step, select **Yes** and select a data group name from the **Select the Data Group** list. ***Important** • If you have not created a Data Group with the **When collected?** option set to **Later in the workflow**, the **Select the Data Group** list will be empty.*

Workflow Step Types

You can define a workflow step with any of the following step types:

- Data Entry/Edit
- Normal
- Update History
- Work Assignment
- Script Execution
- Custom Web Page
- Approval Task
- Automated Import
- Automated Validation
- Automated Conflict Analysis
- Allocate Software License
- Deallocate Software License
- Custom Automated Task
- AdminStudio Integration
- AdminStudio Reports
- Application Catalog Reports

Data Entry/Edit

Select this option to specify that user input is required to complete this workflow step. This is the only option listed when you create the first workflow step in the first workflow phase of a template.

This step is completed when the administrator or consumer enters the data defined in this template's data group when they submit the workflow request. If you are defining a workflow step other than the first one in the first workflow phase, this option is not listed.

Normal

When this workflow step is performed, the administrator takes some action, and then, optionally, records the amount of time that it took to complete this step. The **Instruction** tab of the **Step Validation** dialog box displays the HTML file that was selected in the **Popup HTML File** field; the **Time Entry** tab displays the **Time spent unit** option buttons, and a **Elapsed Time** edit box. If the user does not enter the time spent, `0 minutes` will be recorded for this workflow step.

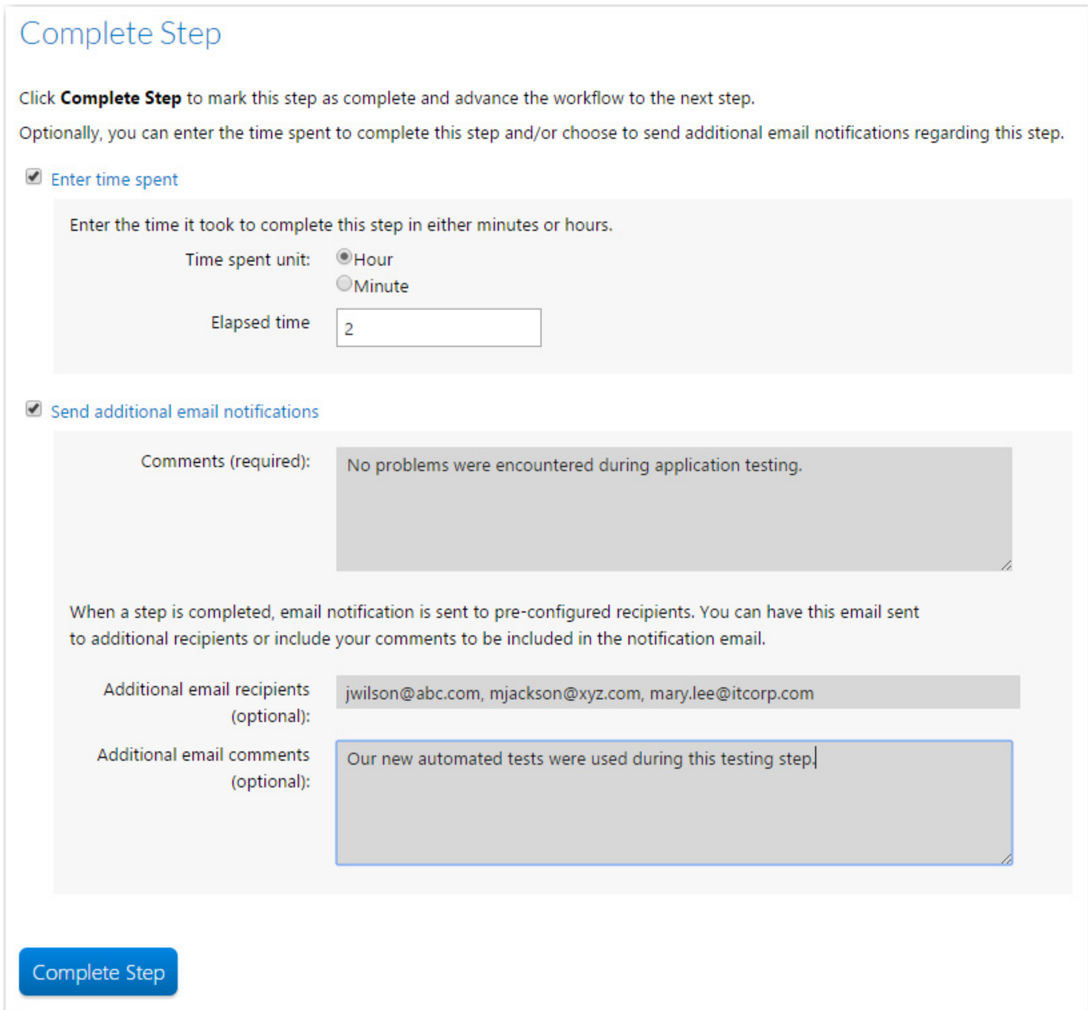


Figure 7-67: Normal Workflow Step

Update History

When this workflow step is performed, the administrator is prompted to enter a comment to complete this step. The **Step Validation** dialog box displays a text box and **OK** and **Cancel** buttons. This step type is typically used as the last step in a workflow phase to document the completion of the phase.

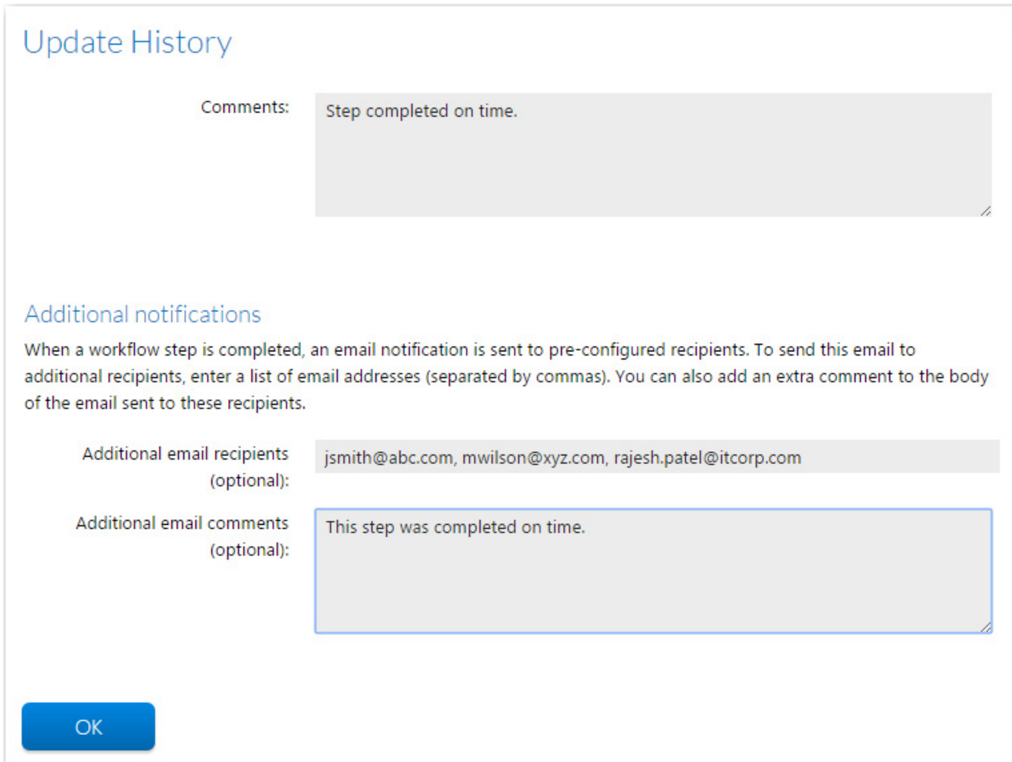


Figure 7-68: Update History Workflow Step

Work Assignment

When this workflow step is performed, the **Assignment Details** page opens and the workflow administrator is prompted to assign a person from their company to roles associated with this workflow request. For more information, see Assigning Users to Workflow Requests.

Script Execution

When a user clicks this workflow step name on the **Workflow Request** page, a user-specified executable file is launched. This executable could be a batch file, an .EXE, a VB Script file, or any type of executable that will run on the Server. When this step type option is selected, the **Script Path** list appears listing all of the script files that a Workflow Manager Administrator has uploaded to the Workflow Manager Web Server location:

```
C:\AdminStudioWebComponents_2019\wwwroot\ScriptFiles
```

If no script files have been uploaded, the list is disabled and you are prompted to upload an executable to the directory.

***Note** • When a Script Execution workflow step is initiated, Workflow Manager launches the executable, logs the event in the Workflow Manager database, and advances the workflow. However, Workflow Manager will not display or log any status information about the process that was launched.*

Custom Web Page

When a user clicks this workflow step name on the **Workflow Request** page, Workflow Manager will launch a user-specified URL address in a new browser window. The user then inputs or processes the information at this external URL. When this **Step Type** option is selected, the **Custom Site URL** text box appears where you enter the external URL address. When the user has performed the tasks indicated on the Custom Web Page, data will be sent back to Workflow Manager that will automatically mark this step complete and advance the workflow.

By default, **Custom Site URL** is set to a Custom Web Page that is shipped with Workflow Manager:

```
C:\AdminStudioWebComponents_2019/wwwroot/CustomWorkFlow/TestCustomWorkFlow.aspx
```

You can use this Web Page for testing prior to entering the URL of your Custom Web Page.

The user writing the Custom Web Page is responsible for calling the methods necessary to pass data to Workflow Manager. The `AdvanceWFMinorStep` method is used to advance the workflow step, the `EditWFMinorStep` method is used to make it possible to change the data collected during this step without performing a rollback, and the `RollbackWFMinorStep` is used to perform a rollback. See Configuring a Custom Web Page for detailed instructions.

Approval Task

When a user clicks this workflow step name on the **Workflow Request** page, the **Approval** dialog box opens, prompting the user or a series of users to approve the workflow step.

***Note** • Users can also approve a workflow step with a **Step Type** of **Approval Task** by clicking a link in an email that they receive when their approval level becomes active.*

A workflow step with a **Step Type** of **Approval Task** is specified as one of the following approval types:

- **Linear**—Approvals need to take place sequentially, one after the other, according to assigned **Level**.
    - If there is more than one user assigned to a level, then everyone in that level must approve the workflow step before it can proceed to the next level of approvers, but they can approve it in any order.
    - If an LDAP group or a role is specified as the **Approver**, everyone in that group/role has to approve the workflow step before it can proceed to the next level, but the members of that group/role can approve it in any order.
- **Pool**—Only one approver is required, even if multiple approvers are listed. Anyone (or any member of a listed group/role) can approve the workflow step. The **Level** field is ignored.
- **Linear In Pool**—Approvals need to take place sequentially, one after the other, according to assigned **Level**, but if there is more than one user assigned to a level or if there is a group assigned to a level, only one user of the assigned users (or only one member of the group/role) needs to approve it.
- **Parallel**—All listed users (and all users in listed groups/roles) must approve the workflow step before it can proceed, but not in any specific order. The **Level** field is ignored.

See Defining an Approval Task Workflow Step for detailed instructions.

Restrictions Regarding Approval Tasks When Editing Workflow Templates That Have Existing Workflow Requests

There are special restrictions regarding **Approval Task** workflow steps when editing workflow templates that have existing workflow requests:

- You cannot add a new workflow step with the **Step Type** of **Approval Task**.

- You cannot change the **Step Type** of an existing non-approval workflow step to **Approval Task**.
- You cannot change the **Step Type** of an existing approval workflow step to something other than **Approval Task**.
- You cannot delete a workflow step with a **Step Type** of **Approval Task**.

Automated Import

When a user clicks this workflow step name on the **Workflow Request** page, Workflow Manager will run a user-supplied IPlugin assembly that will programmatically import a package that was uploaded in a previous workflow step into the Application Catalog. After the IPlugin assembly completes, data will be sent back to Workflow Manager that will automatically mark this step complete and advance the workflow.

***Important** • In order for Workflow Manager to successfully perform an **Automated Import** workflow step, a Windows Installer package must have been uploaded to Workflow Manager in a previous workflow step in that Workflow.*

In the **Custom Site URL** text box, which appears when you select **Automated Import**, enter the external URL address to the page containing the code that runs the IPlugin assembly. By default, **Custom Site URL** is set to a page that is shipped with Workflow Manager:

```
http://172.17.11.150/CustomWorkflow/AutomatedImportStep.aspx
```

For additional information on setting up an Automated Import workflow step, see the following topics:

- For information on how to create a workflow template that contains automated workflow steps, see Defining Automated AdminStudio Workflow Steps That Use the iPlugin Interface.
- For information on how to set up Workflow Manager automation, see Setting Up IPlugin Automation in Workflow Manager.

Automated Validation

When a user clicks this workflow step name on the **Workflow Request** page, Workflow Manager will run a user-supplied IPlugin assembly that will programmatically validate a package that was imported in a previous workflow step. After the IPlugin assembly completes, data will be sent back to Workflow Manager that will automatically mark this step complete and advance the workflow.

***Important** • In order to successfully perform an **Automated Validation** workflow step, the following two statements need to be true:*

- *A Windows Installer package must have been uploaded to Workflow Manager in a previous workflow step in that Workflow.*
- *An **Automated Validation** Workflow step must be preceded by an Automated Import workflow step.*

In the **Custom Site URL** text box, which appears when you select **Automated Validation**, enter the external URL address to the page containing the code that runs the IPlugin assembly. By default, **Custom Site URL** is set to a page that is shipped with Workflow Manager:

```
http://172.17.11.150/CustomWorkflow/AutomatedValidationStep.aspx
```

For additional information on setting up an **Automated Import** workflow step, see the following topics:

- For information on how to create a workflow template that contains automated workflow steps, see Defining Automated AdminStudio Workflow Steps That Use the iPlugin Interface.
- For information on how to set up Workflow Manager automation, see Setting Up IPlugin Automation in Workflow Manager.

Automated Conflict Analysis

When a user clicks this workflow step name on the **Workflow Request** page, Workflow Manager will run a user-supplied IPlugin assembly that will programmatically perform conflict analysis on a package that was imported in a previous workflow step. After the IPlugin assembly completes, data will be sent back to Workflow Manager that will automatically mark this step complete and advance the workflow.

Important • *In order to successfully perform an **Automated Conflict Analysis** workflow step, the following two statements need to be true:*

- *A Windows Installer package must have been uploaded to Workflow Manager in a previous workflow step in that Workflow.*
- *An **Automated Conflict Analysis** workflow step must be preceded by an Automated Import workflow step.*

In the **Custom Site URL** text box, which appears when you select **Automated Conflict Analysis**, enter the external URL address to the page containing the code that runs the IPlugin assembly. By default, **Custom Site URL** is set to a page that is shipped with Workflow Manager:

```
http://172.17.11.150/CustomWorkflow/AutomatedConflictCheckStep.aspx
```

For additional information on setting up an **Automated Import** workflow step, see the following topics:

- For information on how to create a workflow template that contains automated workflow steps, see Defining Automated AdminStudio Workflow Steps That Use the iPlugin Interface.
- For information on how to set up Workflow Manager automation, see Setting Up IPlugin Automation in Workflow Manager.

Allocate Software License

A workflow step of type **Allocate Software License** involves a web service call to FlexNet Manager Suite. Such a step can be included in a workflow after a software license and computer or end-user are selected in an earlier data entry step; completing the step then involves allocating the chosen computer or end-user to the selected software license.

When you are completing this step, you will be presented with a dialog detailing the proposed allocation. You need to approve the allocation by clicking the **Allocate** button, at which point the dialog closes.and the step is marked as complete. You will need a web service connection to FlexNet Manager Suite before you can complete this step.

For more information, see Defining an Allocate Software License Workflow Step.

Important • *In order for this step to work correctly, it is important that your workflow template also contains **Web Service Call** data elements which return end-user, computer and software license for the workflow consumer to select. These elements must be named and configured the same way as in the default **Software Request** global template installed with Workflow Manager. You might find it helpful to copy the **Software Request** global template and modify it, if you want to use the **Allocate Software License** step in your own templates.*

Deallocate Software License

A workflow step of type **Deallocate Software License** involves a web service call to FlexNet Manager Suite. Such a step can be included in a workflow after a software license allocated to a computer or end-user is selected in an earlier data entry step. Completing the step then involves deallocating the chosen computer or end-user from the selected software license.

When you are completing this step, you will be presented with a dialog detailing the proposed deallocation. You need to approve the deallocation by clicking the **Deallocate** button, at which point the dialog closes.and the step is marked as complete. You will need a web service connection to FlexNet Manager Suite before you can complete this step.

For more information, see Defining a Deallocate Software License Workflow Step.

***Important** • In order for this step to work correctly, it is important that your workflow template also contains a **Web Service Call** data element which returns unused software license allocations for the workflow consumer to select. This element must be named and configured the same way as in the default **Software Removal** global template installed with Workflow Manager. You might find it helpful to copy the **Software Removal** global template and modify it, if you want to use the **Deallocate Software License** step in your own templates.*

Custom Automated Task

Workflow tasks often require you to launch other executables or tasks which are performed outside of Workflow Manager itself. Using a **Custom Automated Task** workflow step, you can instruct Workflow Manager to automatically execute a task outside of Workflow Manager and advance the workflow to the next step, all without manual intervention.

You could use a **Custom Automated Task** workflow step to execute some custom code that would update a third party database. But, even without writing any custom code, you can use the provided sample **Custom Automated Task** for a workflow step that would simply mark the step complete, which would trigger automatic email notification (if notification is configured to occur whenever a workflow step is completed).

By default, the **Custom Automated Task Status** dialog box, which opens after a **Custom Automated Task** workflow step has completed, notifies the user that the step was completed successfully. However, you can create your own ASPX page that would, for example, query a third party system and display results.

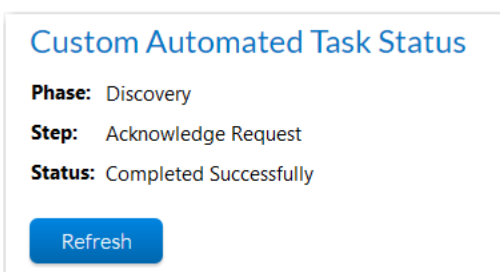


Figure 7-69: Default Custom Automated Task Status Dialog Box

For detailed instructions on setting up a workflow step with a **Step Type** of **Custom Automated Task**, see Defining a Custom Automated Task Workflow Step.

AdminStudio Integration

***Edition** • This feature is available when you have purchased AdminStudio Enterprise Edition.*

Workflow Manager leverages AdminStudio's web services APIs to provide out-of-the-box support for enhanced automation data elements/workflow steps that make it possible to execute many AdminStudio tasks, such as:

- Importing a package into the Application Catalog and performing testing
- Viewing test results
- Setting the target environment
- Setting packaging formats
- Setting distribution points
- Publishing applications
- Viewing reports
- Viewing and setting application properties

This enhanced integration helps AdminStudio users leverage the built-in functionality of Workflow Manager, including approvals, email, issues, conditional logic, custom pages, reports, and integration with AdminStudio Inventory and Rationalization and FlexNet Manager Suite.

When you select a data type of **AdminStudio Integration**, you are prompted to specify the task that you want to at to the workflow request by selecting one of the following tasks from the **AdminStudio Task** list:

Table 7-58 • AdminStudio Task Options for AdminStudio Integration Workflow Step

Task	Description
Package import	Select this task to process the import of packages to AdminStudio that were selected by the requester in a previous workflow step that collected a data element with one of the following data types: • **AdminStudio Package Upload** • **AdminStudio Package Upload from Import Path** When you select this type, you need to specify the following additional parameters: • **Group**—Select the name of the data element that will specify the name of the group in the AdminStudio Application Catalog into which you want to import the packages. • **PackagePath**—Select the name of the **AdminStudio Package Upload** or **AdminStudio Package Upload from Import Path** data element that specified the packages to import. ***Note •*** *If a group name containing an underscore character is specified for the* ***Group*** *data element, AdminStudio will create an additional subdirectory for the portion of the name after the underscore. For example, if a group name of* `WFMApplications` *was entered, the packages would be imported into a group in the Application Catalog named* `WFMApplications`*. However, if* `WFM_Applications` *was specified, the packages would be imported into a subgroup named* `Applications` *in a group named* `WFM`*.* ***Note •*** *For more information, see Importing New Packages into AdminStudio.*
Run package tests	Select this task to run AdminStudio tests on packages that were selected by the requester in a previous workflow step that collected a data element with one of the following data types: • **AdminStudio Package Upload** • **AdminStudio Package Upload from Import Path** • **Existing AdminStudio Package** When you select this type, you need to specify the following additional parameter: • **PackagePath**—Select the name of the data element that specified the packages to test. ***Note •*** *For more information, see Testing Packages and Viewing Test Results.*

Table 7-58 • AdminStudio Task Options for AdminStudio Integration Workflow Step

Task	Description
Get test results	Select this task to display in the workflow request the AdminStudio test results of packages that were selected by the requester in a previous workflow step and that were tested in a previous workflow step using the **Run package tests** task type. When you select this type, you need to specify the following additional parameter: • **PackagePath**—Select the name of the data element that specified the packages that were tested. ***Note*** • *For more information, see Testing Packages and Viewing Test Results.*
Publish application	Select this task to distribute packages that were selected by the requester in a previous workflow step to a distribution system configured in AdminStudio. When you select this type, you need to specify the following additional parameters: • **Application ID**—Set this parameter to the name of the data element that you have added to import packages or select existing packages. • **TargetGroup**—Set this parameter to the name of the data element that you have added to specify the distribution system group name. • **Connection Name**—Set this parameter to the name of the data element that you have added to specify the distribution system connection. ***Note*** • *For more information, see Distributing Packages.*

Note • *For detailed information on using this step type, see Defining Automated AdminStudio Integration Workflow Steps.*

Important • *AdminStudio does not need to be installed on the same machine as Workflow Manager to use this integration. The only requirement is that AdminStudio and Workflow Manager must be connected to the same Application Catalog database.*

AdminStudio Reports

You can use an **AdminStudio Reports** workflow step to display in a workflow request AdminStudio reports that are specific to the packages associated with the workflow request. These are the same reports that are displayed on the Workflow Manager **Application Catalog Reports** page.

To display AdminStudio reports in a workflow step, first associate packages with a workflow request, as described in Selecting Existing AdminStudio Packages or Importing New Packages into AdminStudio. Then you need to create a workflow step with a step type of **AdminStudio Reports** and select the reports that you want to display from the **Select Report Type** list.

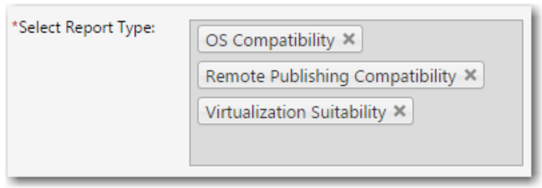


Figure 7-70: Select Report Type Field for an AdminStudio Reports Workflow Step

When an **AdminStudio Reports** workflow step is displayed in a workflow request, information specific to the packages associated with the workflow request is displayed. If multiple report types have been specified in this workflow step, each report type is displayed in a new column. Just as you can do in AdminStudio, you can click on an icon to see more detailed results.

Note • *For detailed information on using this step type, see Adding Reports to Workflow Requests.*

Application Catalog Reports

You can use an **Application Catalog Reports** workflow step to display in a workflow request Application Catalog reports that display information on the entire Application Catalog. These are the same reports that are displayed on the Workflow Manager **Application Catalog Reports** page.

To display Application Catalog reports in a workflow step, create a workflow step with a step type of **Application Catalog Reports** and select the reports that you want to display from the **Select Report Type** list.

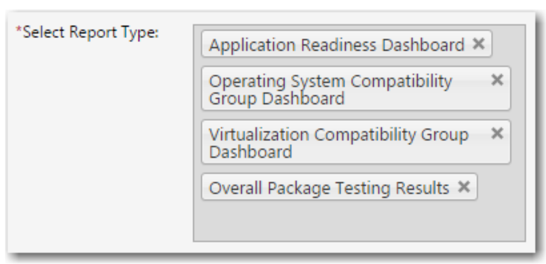


Figure 7-71: Select Report Type Field for an Application Catalog Reports Workflow Step

If you have added custom `.rdlc` reports to Workflow Manager, those reports would also be available for selection in the **Select Report Type** list.

When an **Application Catalog Reports** workflow step is displayed in a workflow request, users are prompted to click links to open each of the selected reports. When you click on one of the links, the reports opens in a new window.

Note • *For detailed information on using this step type, see Adding Reports to Workflow Requests.*

Workflow Step Condition Area

You can use the properties in the **Workflow Step Condition** area to make the display of this workflow step be conditional upon the data collected during this Workflow.

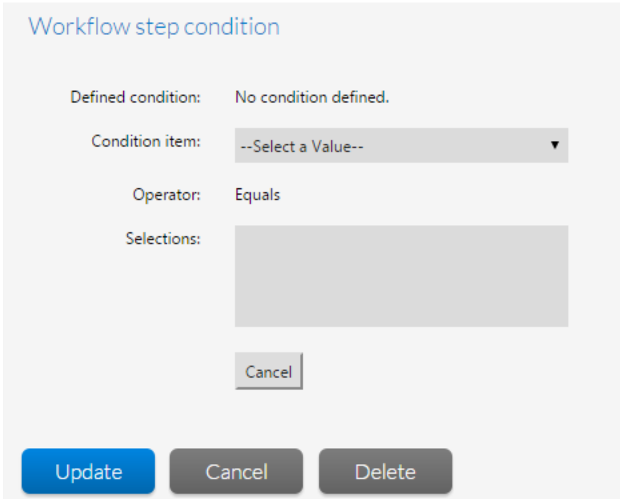


Figure 7-72: Workflow Step Condition Area

The **Workflow Step Condition** area includes the following options:

Table 7-59 • Workflow Step Condition Area

Option	Description
Defined Condition	Lists any conditions that are assigned to this workflow step. ***Note •*** *If you are editing a template that is in use, this field is not available.*
Define Condition	Click to display the condition definition fields (**Condition Item**, **Operator, Selections**), where you can define a condition to determine whether or not this workflow step is displayed. For more information, see Setting Up Conditional Display of Data Groups, Data Elements, or Workflow Steps. ***Note •*** *If you are editing a template that is in use, this field is not available.*
Condition Item	If any of the data groups in this template includes a data element that has its **Use to define conditions/branching** option set to **Yes**, that data element will be listed in the **Condition Item** list. From the **Condition Item** list, select the data element you want to use to determine if this workflow step is displayed. • Data elements are listed in the following format: *Data Group - Data Element*. • If no data elements in this template are defined with the **Use to define conditions/branching** option selected, the **Condition Item** list will be empty. For more information, see Setting Up Conditional Display of Data Groups, Data Elements, or Workflow Steps.

Table 7-59 • Workflow Step Condition Area (cont.)

Option	Description
Operator	This field is set to **Equals** to indicate how to read this condition. For example: • IF `Data Element` EQUALS `value(s)` THEN display this workflow step • IF `Operating System` EQUALS `Windows XP` THEN display this workflow step
Selections	Lists all values defined for the selected data element.
Save	Click to create the new condition or update an existing condition.
Clear	Click to remove all conditions that have been defined.
Cancel	Click to close the expanded Defined Condition area without saving any changes.

Permission and Notification Tabs of Template Details Page

You can assign permissions and email notification settings on a workflow template, and its individual workflow phases and steps, on the **Permission** and **Notification** tabs of the **Template Details** page. Then, when you create a project using that workflow template, the settings from the template would be copied to the project.

Note *• If you want to customize permission and email notification settings on an individual workflow request, you can still do that on the* ***Notifications*** *tab of the Workflow Request page.*

Permission Tab

The **Permission** tab is available whenever a data group, data element, workflow phase, or workflow step is selected in the list.

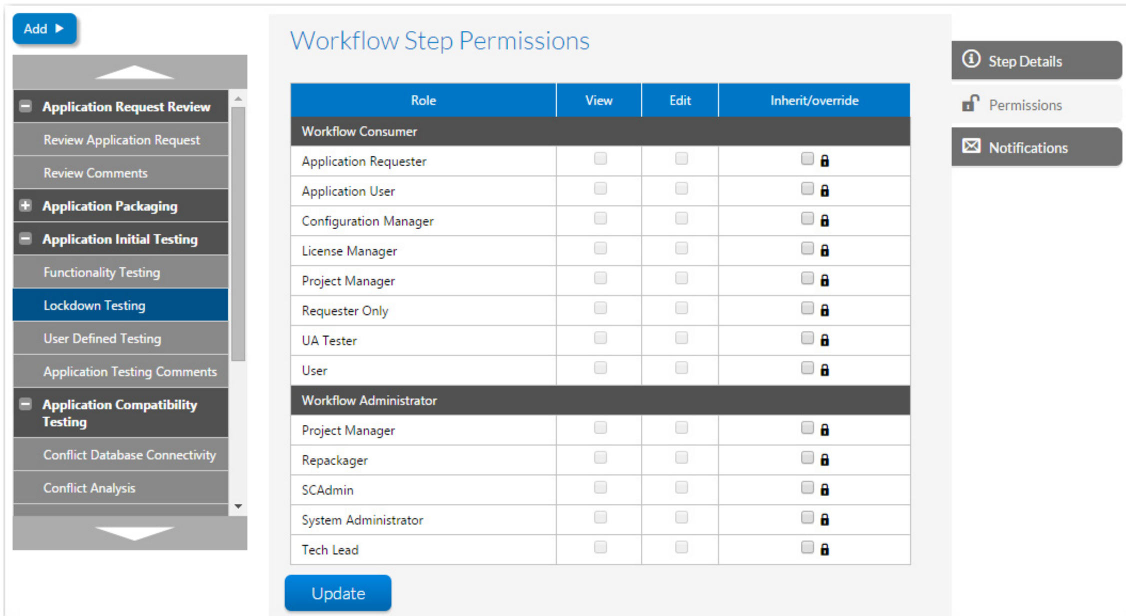


Figure 7-73: Permission Tab of Workflow Phase Details View of the Template Details Page

The **Permission** tab includes the following permission-related options:

Table 7-60 • Permission Tab Options

Option	Description
Workflow Phase and Step List	Listing of all of the workflow phases, workflow steps, data groups, and data elements defined in the selected template. You select items in this list to assign role permissions.
Role	Lists all of the roles in the consumer and administrator companies.

Table 7-60 • Permission Tab Options (cont.)

Option	Description
Permission Columns	When any of the workflow phase or data group nodes are selected, and you open the **Permission** tab of the **Template Details** page, checkboxes are listed in the **Read** and **Write** columns for each listed role. Selections you make on a workflow phase/data group are inherited by their child workflow steps/data elements, but these settings can be overridden. To set a permission for a data element/workflow step that is different from the permission for the associated data group/workflow phase, do the following: ***To override an inherited permission:*** **1.** Select the data element or workflow step in the tree control on the left. The check boxes in the **Read** and **Write** columns are disabled. **2.** Next to the **Role** that you want to edit, click the lock icon to unlock the check boxes. You are notified that the role permission is inherited from the parent item and asked to confirm that you wish to stop this inheritance. **3.** Click **OK**. The check boxes are now enabled. **4.** Make desired selections in the **Read** and **Write** columns. **5.** Click **Update**.

Tip *• You can use this feature to restrict what sort of work a person has permission to do. For example, to restrict persons with the role of "Quality Control" to work only on quality-control-related workflow steps, assign that role the **View** and **Edit** permissions for quality control related steps and no permission for any other steps.*

Notification Tab

The **Notification** tab is available whenever a workflow phase or workflow step is selected in the list.

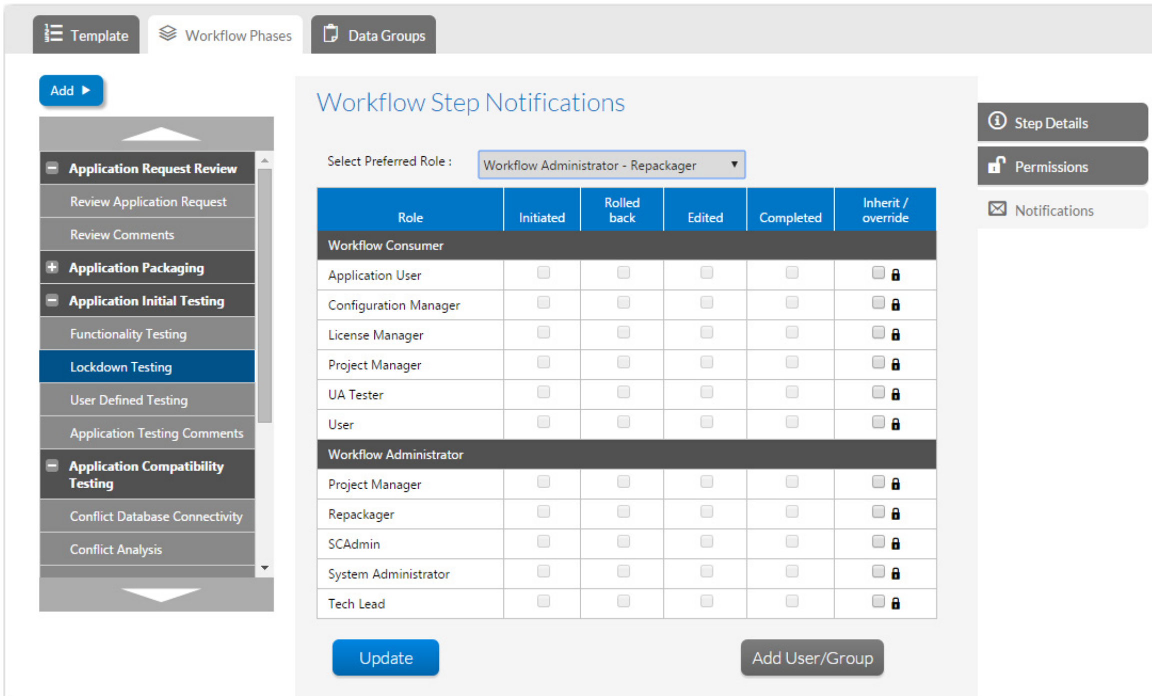


Figure 7-74: Notification Tab of Workflow Phase Details View of the Template Details Page

The **Notification** tab includes the following permission-related options:

Table 7-61 • Notification Tab Options

Option	Description
Workflow Phase and Step List	Listing of all of the workflow phases, workflow steps, data groups, and data elements defined in the selected template. You select workflow phases or workflow steps in this list to assign email notification settings.
Select Preferred Role	Multiple roles can be assigned email notification permission on the same workflow phase or step. By default, notification emails are sent to users assigned to roles that have email notification permission on a workflow step, even those assigned to roles that do not have edit permission on that workflow step. • **If a role is selected from this list**, when a notification email is sent out, the email address of the user assigned to this preferred role for the workflow step is listed in the **To** field, while all other email recipients are listed in the **CC** field. • **If no role is selected from this list**, when a notification email is sent out, all email recipients are listed in the **To** field of the email.

Table 7-61 • Notification Tab Options (cont.)

Option	Description
Notification Columns	When a workflow phase or step is selected, and you open the **Notification** tab of the **Template Details** page, checkboxes are listed in the **Initiated**, **Rolled Back**, **Edited**, and **Completed** columns for each listed role. Selections you make on a workflow phase are inherited by their child workflow steps, but these settings can be overridden. To make a notification settings on a workflow step that is different from the selection made for its parent workflow phase, do the following: ***To override an inherited permission:*** **1.** Select the workflow step in the tree control on the left. The check boxes in the notification columns are disabled. **2.** Next to the **Role** that you want to edit, click the lock icon to unlock the check boxes. You are notified that the role setting is inherited from the parent item and asked to confirm that you wish to stop this inheritance. **3.** Click **OK**. The check boxes are now enabled. **4.** Make desired selections in the **Initiated**, **Rolled Back**, **Edited**, and **Completed** columns. **5.** Click **Update**.

Workflow Status Administration Page

The **Workflow Status Administration** page lists each of the workflow status values available to be assigned to workflow requests. You can view this page by opening the **Administration** group in the navigation bar and clicking **Workflow Status** in the **Environment Settings** subgroup.

Use this page to:

- Drill through to a page showing the details of a single workflow status, where you may either update (see Viewing or Changing an Existing Workflow Status) or delete (see Deleting a Workflow Status) that status
- Create a new workflow status (see Creating a New Workflow Status).

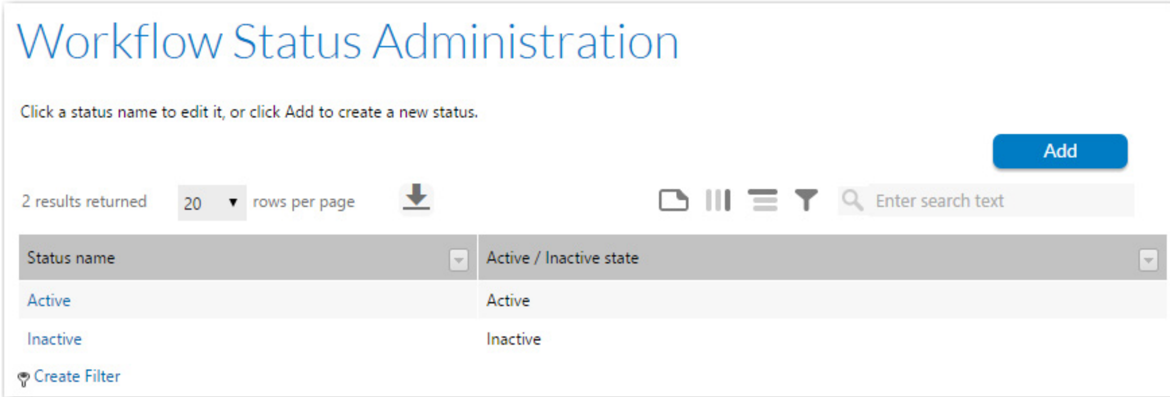


Figure 7-75: Workflow Status Administration Page

The **Workflow Status Administration** page lists the following workflow status details:

Table 7-62 • Workflow Status Administration Page Properties

Property	Description
Status Name	The actual workflow status value.
Active/Inactive State	Each workflow status is assigned a state of either **Active** or **Inactive**, to determine how workflow requests with this status behave. **Inactive** workflow requests will not be displayed in reports or searches.

Add/Edit Workflow Status Page

The **New/Edit Workflow Status** page allows you to view and update the details of an individual workflow status, or to add a new status. Also use this page to remove an existing workflow status which is no longer required.

***Tip** • The default **Active** and **Inactive** status values cannot be deleted, although they can be renamed.*

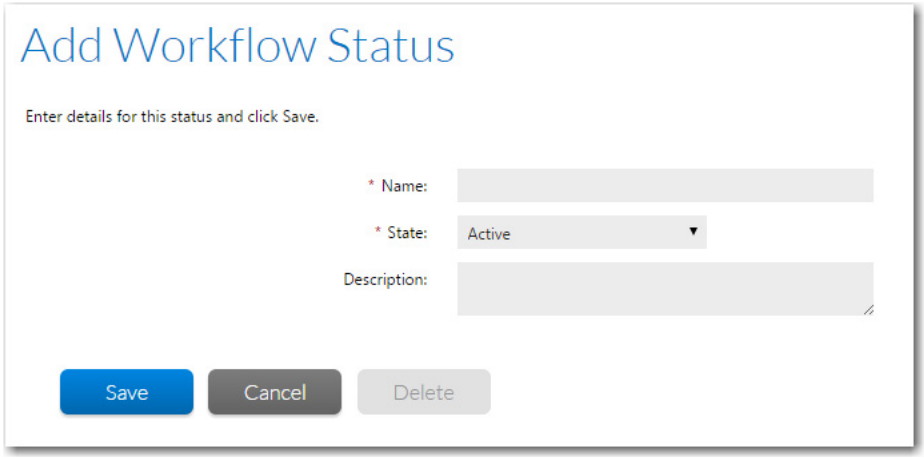


Figure 7-76: Edit Workflow Status Page

The following fields are available on the **New/Edit Workflow Status** page.

Table 7-63 • New/Edit Workflow Status Page Properties

Property	Description
Name	The actual workflow status value.
State	Assign this to either **Active** or **Inactive**, to determine how workflow requests with this status behave. **Inactive** workflow requests will not be displayed in reports or searches. ***Tip •*** *You will be unable to update the **State** of the two default status values.*
Description	Some comments about the workflow status, which might be helpful to other workflow administrators.

Approval Administration Page

An approval template can be associated to a workflow step that has a **Step type** of **Approval Task**. When a user clicks the name of this workflow step on the **Workflow Request** page, the **Approval** dialog box opens, prompting the user or a series of users to approve the workflow step. Additionally, email notifications are sent to listed approvers, enabling them to approve or reject the step via email.

The **Approval Administration** page lists all approval templates defined in the system. You can view this page by clicking **Approvals** on the **Administration** menu of the navigation bar.

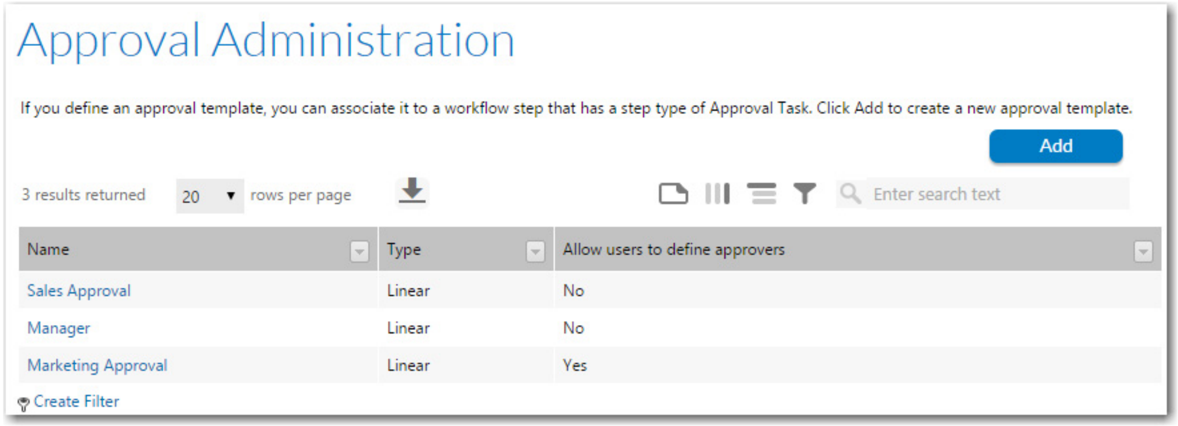


Figure 7-77: Approval Administration Page

On the **Approval Administration** page, you can create a new approval template or edit an existing one:

- Creating an Approval Template
- Editing an Approval Template
- Deleting an Approval Template

The **Approval Administration** page includes the following options:

Table 7-64 • Approval Administration Page

Option	Description
Add	Click to open the Edit Approval Template Page where you can define a new approval template.
Name	Name of approval template. Click Select next to this name to open the template on the **Edit Approval Template** page.

Table 7-64 • Approval Administration Page

Option	Description
Type	Identifies the template as one of the following approval types: • **Linear**—Approvals need to take place sequentially, one after the other, according to assigned **Level**. If there is more than one user assigned to a level, then everyone in that level must approve the workflow step before it can proceed to the next level of approvers, but they can approve it in any order. If an LDAP group or a role is specified as an **Approver**, everyone in that group/role has to approve the workflow step before it can proceed to the next level, but the members of that group/role can approve it in any order. • **Pool**—Only one approver is required, even if multiple approvers are listed. Anyone (or any member of a listed group/role) can approve the workflow step. The **Level** field is ignored. • **Linear In Pool**—Approvals need to take place sequentially, one after the other, according to assigned **Level**, but if there is more than one user assigned to a level or if there is a group assigned to a level, only one user of the assigned users (or only one member of the group/role) needs to approve it. • **Parallel**—All listed users (and all users in listed groups/roles) must approve the workflow step before it can proceed, but not in any specific order. The **Level** field is ignored.
Allow users to define approvers	Identifies whether the **Allow users to define approvers** option is selected for the approval template. If this option is selected, when a user opens the **Approval** dialog box to approve this workflow step, that dialog box will include an **Add Approver** button, which enables the user to add a new user or group of users to the approval list.

Edit Approval Template Page

The **Edit Approval Template** page, which is opened from the **Approval Administration** page by either clicking **Add** or clicking on an existing template, is used to define approval templates. On this page, you can define a new approval template or edit an existing template.

Important • *If you edit an approval template that is already in use in an active workflow request, the changes made to the approval template affect only new workflow requests. For existing workflow requests, the approvers remain the same that existed when the step was first initiated.*

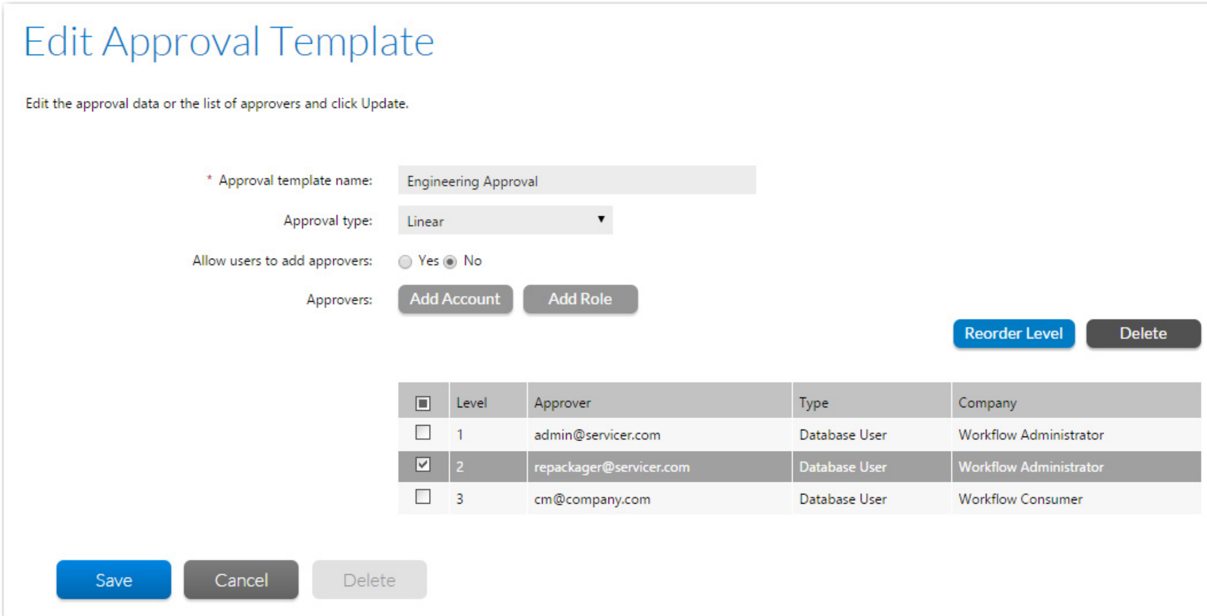


Figure 7-78: Edit Approval Template Page

The following options are available on the **Edit Approval Template** page:

Table 7-65 • Edit Approval Template Page

Option	Description
Approval template name	Identifies the approval template.

Table 7-65 • Edit Approval Template Page

Option	Description
Approval type	Select one of the following approval types: • **Linear**—Approvals need to take place sequentially, one after the other, according to assigned **Level**. If there is more than one user assigned to a level, then everyone in that level must approve the workflow step before it can proceed to the next level of approvers, but they can approve it in any order. If an LDAP group or a role is specified as an **Approver**, everyone in that group/role has to approve the workflow step before it can proceed to the next level, but the members of that group/role can approve it in any order. • **Pool**—Only one approver is required, even if multiple approvers are listed. Anyone (or any member of a listed group/role) can approve the workflow step. The **Level** field is ignored. • **Linear In Pool**—Approvals need to take place sequentially, one after the other, according to assigned **Level**, but if there is more than one user assigned to a level or if there is a group assigned to a level, only one user of the assigned users (or only one member of the group/role) needs to approve it. • **Parallel**—All listed users (and all users in listed groups/roles) must approve the workflow step before it can proceed, but not in any specific order. The **Level** field is ignored.
Allow users to add approvers	If this option is selected, when a user opens the **Approval** dialog box to approve this workflow step, that dialog box will include an **Add Approver** button, which enables the user to add a new user or group of users to the approval list. When the user clicks the **Add Approver** button, the **Add Account/Group** dialog box opens. New users can be added if there are already existing users listed and also if there are no users listed.

Table 7-65 • Edit Approval Template Page

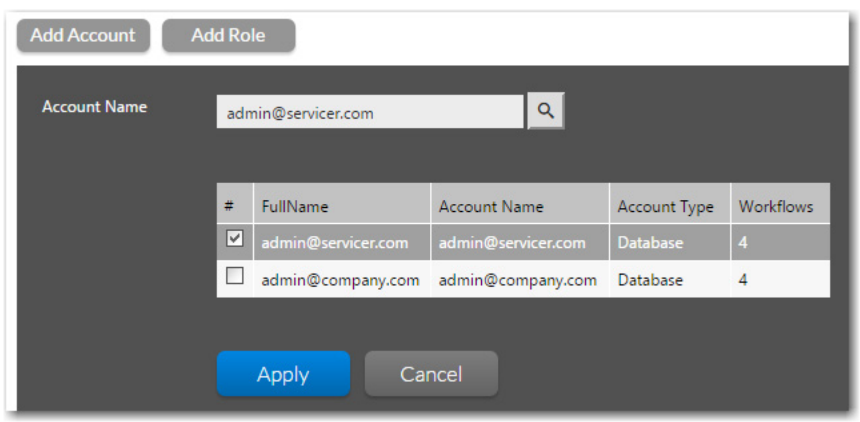
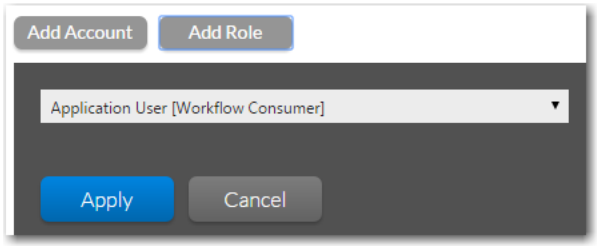
Option	Description
List of approvers	User accounts, user account groups, and roles that have been added using the **Add Account** and **Add Role** buttons are listed here. For each entry, the following information is listed: • **Level**—If the **Approval Type** is **Linear** or **Linear in Pool** and there is more than one account/role/group listed in this list, the **Level** field is used to determine the order that the users must approve the workflow step. If multiple levels are defined (such as 1, 2, 3), users at Level 2 are not permitted to approve the workflow step until a user from Level 1 has approved it. If the **Approval Type** is **Pool** or **Parallel**, this field is ignored. • **Approver**—Name of the selected account, group, or role. • **Type**—Identifies the type of listed approver as either **Database User**, **LDAP User**, **LDAP Group**, or **Role.** • **Company**—Company that the selected approver belongs to. To delete an approver from the list, select its check box and then click **Delete**.
Add Account	Click to open the **Account Name** search area where you can add a database user, LDAP user, or LDAP group to the **Approvers** list. To search for an account name, enter the first few letters of the desired account in the **Account Name** box, and then click the Search button (magnifying glass icon). Accounts matching the search text are then listed below. Select an account in the search results list and click **Apply** to add the account to the list of approvers. If you do not any text in the **Account Name** box, the complete list of accounts will be listed when you click the Search button.  ***Note •*** *You cannot select a user account by entering its name directly in the **Account Name** box. You must search for an account and select it from the search results list in order to add it to the **Approvers** list.*

Table 7-65 • Edit Approval Template Page

Option	Description
Add Role	Click to display a list of roles that you can add to the **Approvers** list. Select a role from the list and click **Apply**. 
Reorder Level	To reorder the levels of the accounts or roles in the approvers list, select an item in the list and click this button. An editable **Level** field is displayed. For more information, see Reordering the Levels in an Approval Template.
Remove from List	To remove an approver from the approver list, select an item in the list and click this button.
Delete	Click to delete the open approval template. ***Note •*** *If an approval template is in use, then deletion is disabled. You are only permitted to add or remove users/groups/roles.*

External Data Sources Administration Page

The **External Data Sources Administration** page lists the connections defined in Workflow Manager to external Oracle or SQL Server databases. You can view this page by clicking **External Data Sources** in the **Settings** menu of the navigation bar.

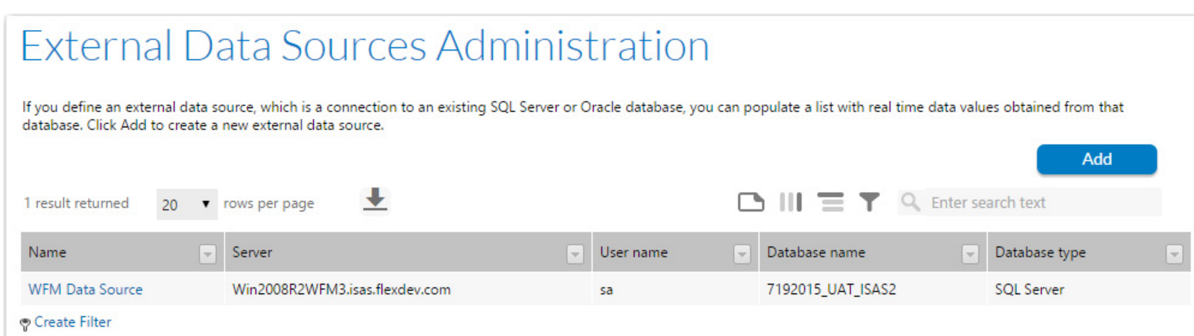


Figure 7-79: External Data Sources Administration Page

On the **External Data Sources Administration** page, you can create a new database connection or update or delete an existing database connection.

- Creating a New Data Source Connection
- Viewing or Changing an Existing Data Source Connection
- Deleting a Data Source Connection

If you define a connection to an external data source, you can choose to populate a single-selection list displayed on a request with *real time* data values obtained from an associated database. To populate a single-selection list with data from an external data source, you have to:

- **Define an external data source**, as explained in Creating a New Data Source Connection.
- **Create a data element with a data type of DBDriven Type**, as explained in the DB Driven Type portion of the Defining Data Elements procedure.

Note • *For more information, see About External Data Sources.*

The **External Data Sources Administration** page displays the following database connection details:

Table 7-66 • External Data Sources Administration Page Options

Option	Description
Name	A short description of the database connection. ***Note*** • *This name is listed in the **External Data Source** list on the **Data Element Details** view of the **Data Groups** tab when defining **DBDriven Type** data element on the **Template Details** page*
Server	For SQL Server, the name or IP address of the server hosting the database. For Oracle, the local Net Service name.
User name	The account name that should be used to connect to the database.
Database name	The name of the database on the database server which you are connecting to.
Database type	The type of database, either **SQL Server** or **Oracle**.

Add/Edit External Data Source Page

If you define a connection to an external data source, you can choose to populate a single-selection list displayed on a request with *real time* data values obtained from an associated SQL Server or Oracle database.

You enter the connection information for a data source connection on the **Add/Edit External Data Source** page, which is opened by clicking **Add** on the **External Data Sources Administration** page.

On the **Add/Edit External Data Source** page, you can also view and update the details of an existing external data source connection and can remove an existing connection which is no longer required.

***Note** • To populate a single-selection list with data from an external data source, first you have to define an external data source connection, as described in Creating a New Data Source Connection, and then you have to create a data element with a **Data Type** of **DBDriven type**, as explained in the DB Driven Type portion of the Defining Data Elements procedure. For more information, see About External Data Sources.*

The following options are available on the **Add/Edit External Data Source** page:

Table 7-67 • Add/Edit External Data Source Page

Option	Description
Database type	Select the type of database you are connecting to: **SQL Server** or **Oracle**.
Datasource name	Enter a user-friendly name to identify this data source within Workflow Manager. ***Note** • This name will be listed in the **External Data Source List** on the **Data Element Details** view when defining **DB Driven Type** Data Element.*
Server	For SQL Server, enter the name or IP address of the database server you want to connect to. For Oracle, enter the local Net Service name.
Username	Enter the account name that will be used to connect to your database.
Password	Enter the password associated with the account name you want to use to connect to the database.
Database name	(SQL Server only) Enter the name of the database on the database server that you want to connect to.

Email Template Administration Page

Workflow Manager sends notification emails when certain events occur, such as when a workflow step is advanced, edited, completed, or rolled back; when an issue is created or responded to; or when a workflow request is past due. You can customize the content and design of these email notification messages and using Workflow Manager’s email template administration interface.

The **Email Template Administration** page, which is accessed by clicking **Email Templates** on the **Settings** menu of the navigation bar, lists the all of the existing email templates.

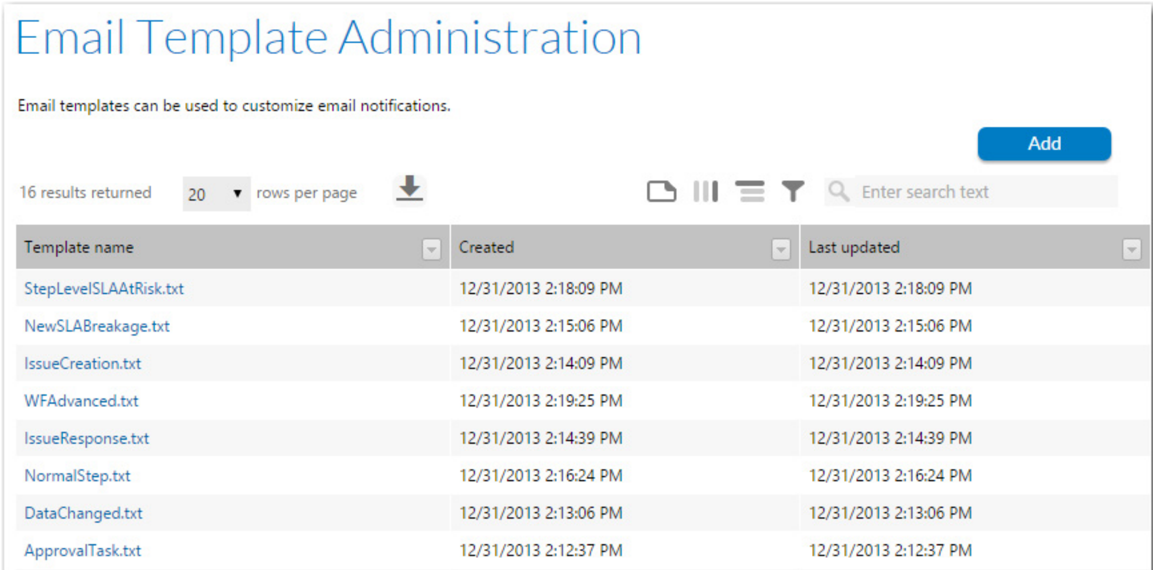


Figure 7-80: Email Template Administration Page

From the **Email Template Administration** page, you can open an existing email template or create a new email template. The **Email Template Administration** page includes the following properties:

Table 7-68 • Email Template Administration Page Properties

Property	Description
Add	Click to add a new email template.
Template name	Name that identifies the email template.
Created	Date the email template was created.
Last updated	Date the email template was last edited.

Email Template Details Page

On the **Email Template Details** page, which is opened by clicking **Select** (next to an existing email template) or **Add** (to create a new email template) on the **Email Templates Administration** page, you can create, edit, and format an email template.

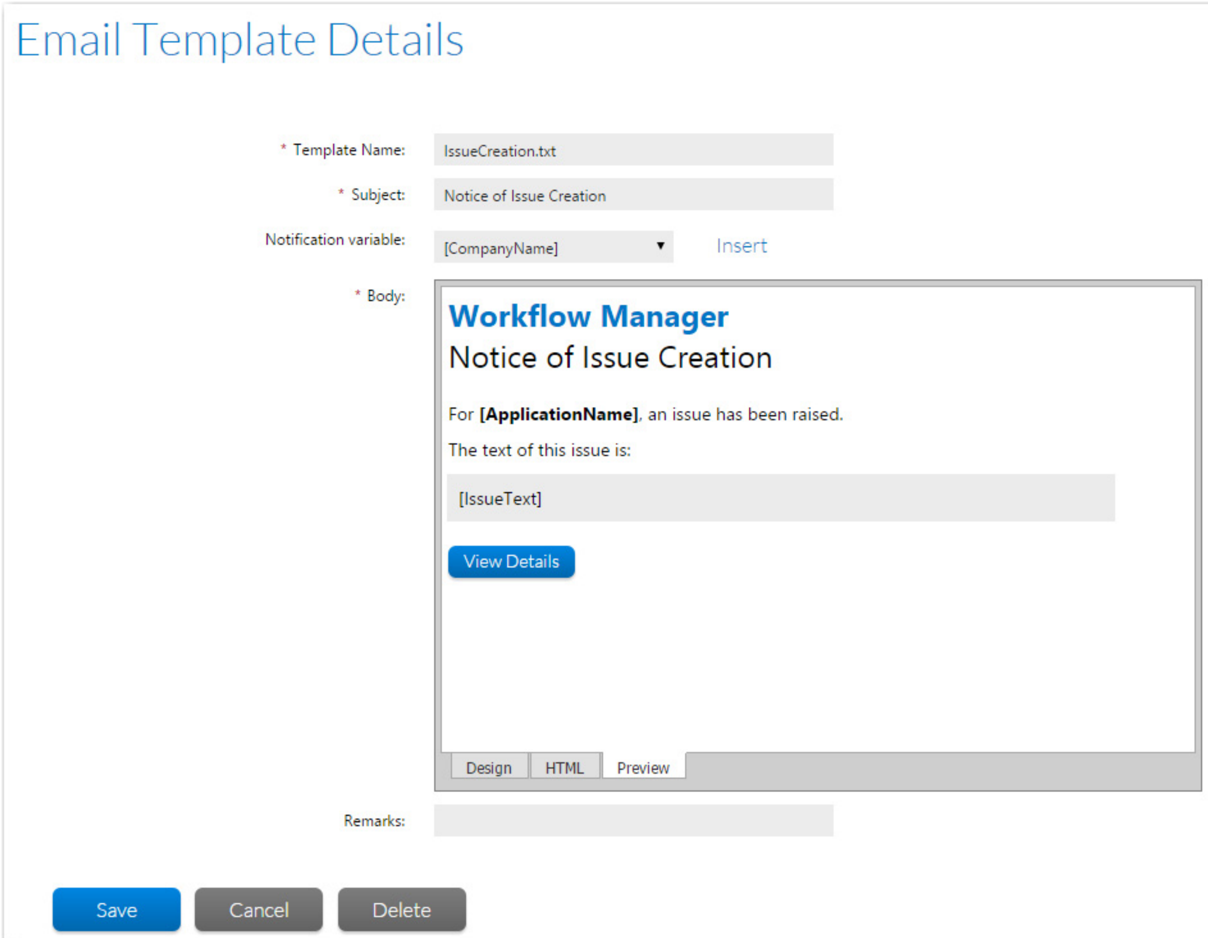


Figure 7-81: Email Template Details Page

Available Views

The text editor on the **Email Template Details** page provides the following views of the selected email template:

- **Design**—Displays an editable view of the text, tables, and images of the email template. Design view gives you an idea of how the email will look when it is opened by the recipient, but it is not rendered accurately: table cell borders are visible, and not all embedded CSS styles are applied.
- **HTML**—Displays an editable view of the HTML code of the email template.
- **Preview**—Displays a non-editable preview of how an email created using this template will look when it is opened by the recipient. Table cell borders are not visible, and embedded .CSS styles are applied.

You switch between these three views by clicking on the tabs at the bottom of the window:

Properties

The **Email Template Details** page includes the following properties:

Table 7-69 • Email Template Details Page Properties

Property	Description
Template name	Enter a name to uniquely identify the email template. This name will be displayed on the **Email Template Administration** page. ***Important •*** *When editing one of the default email templates (which were installed with Workflow Manager), it is strongly recommended that you do not edit this field. If you do edit it, you will also need to update its associated entry in the web.config file, as described in Email Template Settings. Do not rename the* `ApprovalTask.txt` *email template; its location cannot be updated in the* `web.config` *file.*
Subject	Enter the text that you want to appear in the email's Subject line. ***Note •*** *You can type in notification variables into the Subject field, as described in Using Notification Variables in Email Templates.*
Notification variable	Because email templates need to include information specific to the workflow request, project, or issue that the email is about, you may need to insert notification variables into an email template as placeholders. These variables are replaced with the appropriate values when the email is sent. To insert a variable, place the cursor in the text editor, select an item from the **Notification Variable** list and click **Insert**. For detailed information, see Using Notification Variables in Email Templates.
Body	Text editor where you enter the text of the email. See Available Views.
Remarks	Enter notes or comments to identify the purpose of this email template, if desired.

External Web Services Administration Page

In a workflow template, you define the information that you want to gather when a workflow request is submitted by creating data groups containing one or more data elements. Each data group is displayed as a screen of questions, where the data elements define the questions. In some cases, you may want to limit the workflow consumer to choose one item from a combo box, or from a list of options displayed in a grid. One way to populate such combo boxes and grids is to return data using a web method, via a web service. You would do this by completing the following steps:

- Defining a connection to an external web service with an appropriate web method.
- Creating a new data item for a template with a Data type of **Web Service Call**, and configure it to return data from your chosen web service.

The **External Web Services Administration** page lists the connections defined in Workflow Manager to external web services. You can view this page by clicking **External Web Services** in the **Administration** menu in the navigation bar.

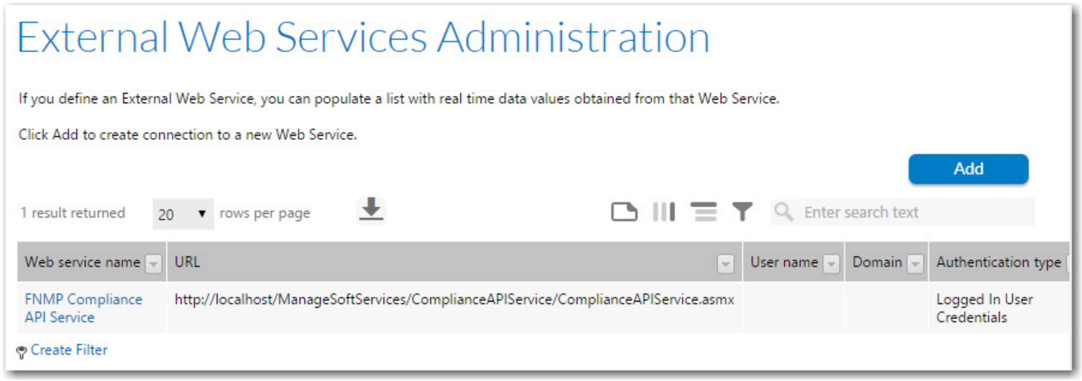


Figure 7-82: External Web Services Administration Page

On the **External Web Services Administration** page, you can update or delete an existing web service connection or create a new web service connection.

- Creating a New Web Service Connection
- Viewing or Changing an Existing Web Service Connection
- Defining a Web Service Call Element

The **External Web Services Administration** page displays the following web service connection details:

Table 7-70 • External Web Services Administration Page

Option	Description
Web service name	A short description of the web service connection.
URL	The location of the web service.
User name	If you provide a specific account name to authenticate with the web service, that account name appears here. Otherwise, this field is blank.
Domain	If you provide a specific account name to authenticate with the web service, the domain associated with that account name appears here. Otherwise, this field is blank.

Table 7-70 • External Web Services Administration Page

Option	Description
Authentication type	The type of authentication that will be used to connect to the web service. One of: • **Anonymous**—All calls to the web service will be made anonymously. • **Logged in user credentials**—The details of the person currently logged in to Workflow Manager will be provided to the web service. • **Use system account**—Use the system account that was specified during post-installation configuration using the AdminStudio Configuration Wizard. For more information, see AdminStudio Configuration Wizard help library at: http://helpnet.flexerasoftware.com/adminstudiocw2016/ • **Use credentials provided below**—A specific account name and password has been provided, and all attempts to connect to the web service will use these details.

Add/Edit External Web Service Page

The **External Web Service Administration** page allows you to view and update the details of an individual web service connection. Also use this page to remove an existing web service connection which is no longer required.

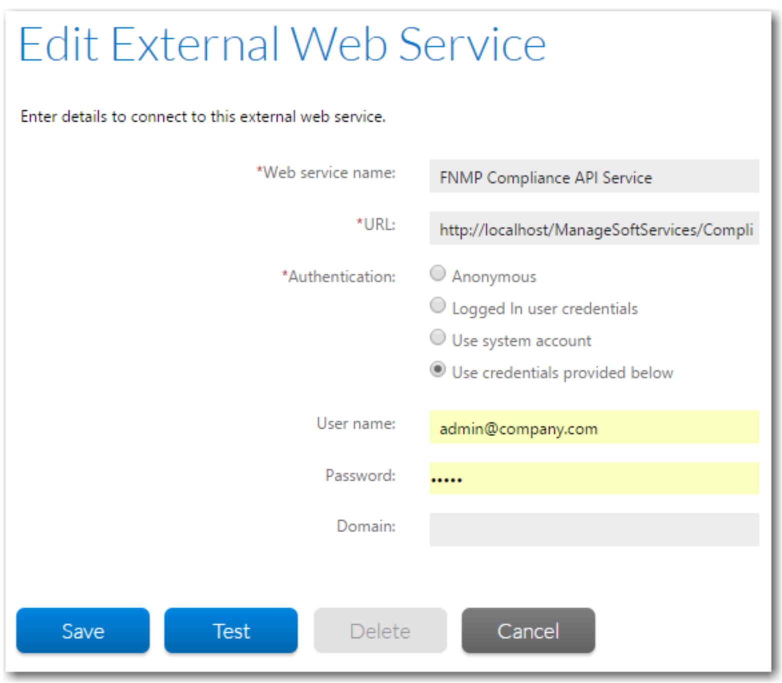


Figure 7-83: Edit External Web Service Page

The following options are available on the **Edit External Web Service** page.

Table 7-71 • Edit External Web Service Page

Option	Description
Web Service Name	A brief description of the web service.
URL	The location of the web service server.
Authentication	The type of authentication that will be used to connect to the web service. One of: • **Anonymous**—All calls to the web service will be made anonymously. • **Logged In user credentials**—The details of the person currently logged in to Workflow Manager will be provided to the web service. Use this option if you want different information to be returned from the web service depending on the rights and permissions of individuals. If you select this authentication type, make sure that you set the following setting in the `web.config` file to `true`: `<identity impersonate="false"></identity>` By default, this setting is set to `false`. • **Use system account**—Use the system account that was specified during post-installation configuration using the AdminStudio Configuration Wizard. For more information, see AdminStudio Configuration Wizard help library at: http://helpnet.flexerasoftware.com/adminstudiocw2016/ • **Use credentials provided below**—Use the specific account name and password provided in the **User name**, **Password**, and **Domain** fields to connect to the web service.

Once you enter connection details, you may click the **Test** button to verify the information. Workflow Manager will attempt to connect to the web service using the details provided, and if successful, will return the list of available web methods for your convenience.

If Workflow Manager is unable to connect to your web service, an error message will be displayed instead, and you will need to check your connection details, or the status of the web service server itself. Note that you will be unable to save a web service connection if Workflow Manager is unable to validate your connection details, so make sure the server is available before attempting to register a connection with Workflow Manager.

Time Off Administration Page

You can use Workflow Manager's Time Off functionality to display future time off for administrator users on work assignment screens that are part of a workflow step. This enables managers to assign resources accordingly. Users enter time off records on the **Time Off Administration** page. Also, users with the **Time Off Admin** role permission can submit time off records for other users on this page.

To open the **Time Off Administration** page, select **Time Off** on the **Settings** menu.

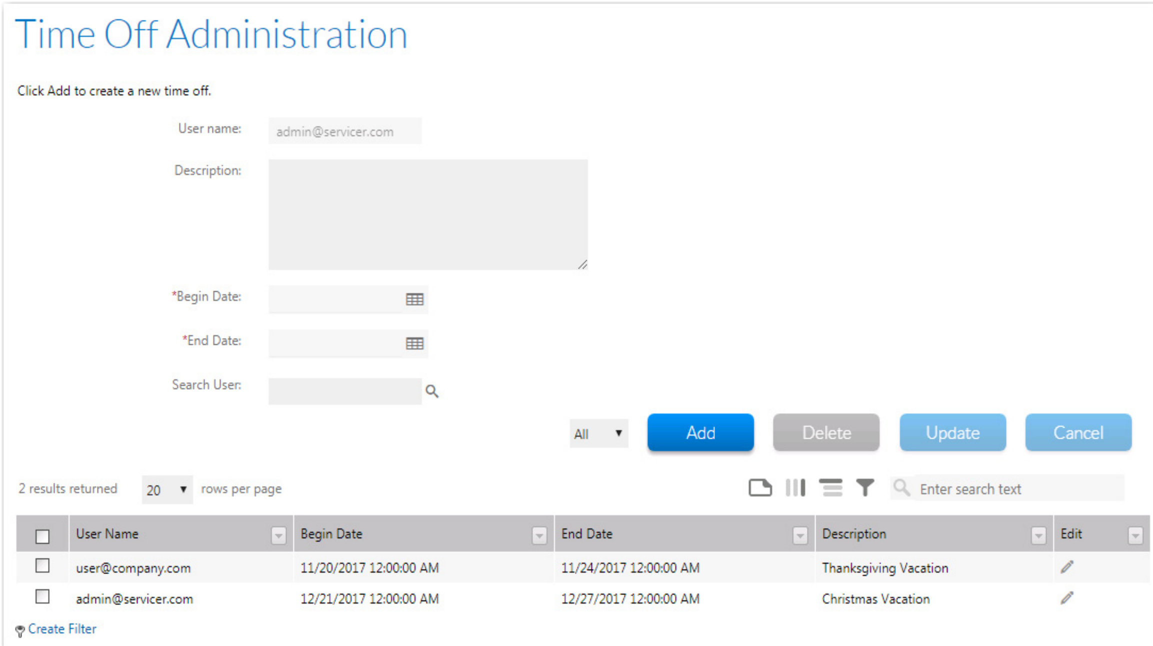


Figure 7-84: Time Off Administration

All users can create and view their own time off records. However, to see time off records for all users who are members of the administrator company or one of its associated consumer companies, the user must belong to a role that has the **Time Off Admin** role permission. For more information, see Workflow Manager Permissions.

- **Users without Time Off Admin role permission** can only submit a time off record for themselves. The logged in user's name appears in the **User name** field and is not editable.
- **Users with Time Off Admin role permission** can also submit time off records for other users, by searching for and selecting a user in using the **Search User** field.

The **Time Off Administration** page includes the following properties.

Table 7-72 • Time Off Administration Properties

Property	Description
User name	Displays the read-only user name of the logged on user.
Description	Enter a description of the time off record that you are submitting, such as **Vacation**, **Jury Duty**, **Conference**, etc.
Begin Date	Use to specify the beginning date and start time of the time off period
End Date	Use to specify the end date and end time of the time off period.
Search User	For users with proper role permissions, use this field to search for a user that you want to submit a time off record on behalf of.
All / Active	Toggle between listed all users or only active users.

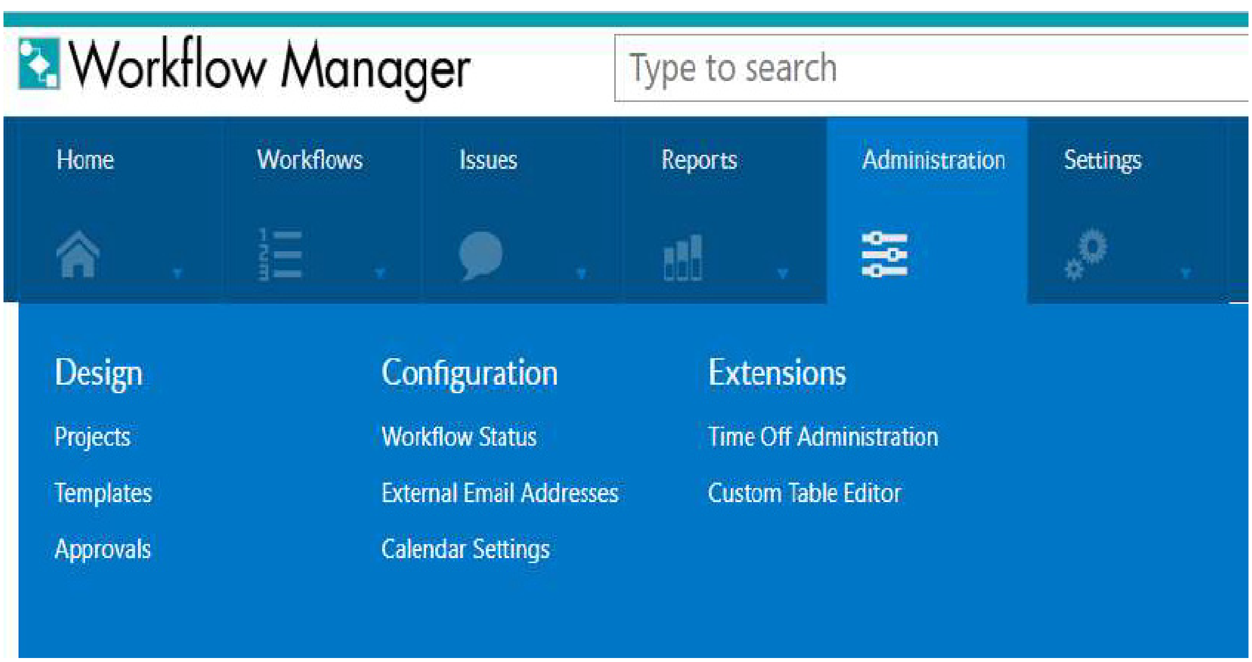
Table 7-72 • Time Off Administration Properties

Property	Description
Add	Click to submit the time off record. The time off record will appear in the list on the lower portion of the page.
Delete	Click to delete the time off record.
Update	Click to update the edits made to a time off record.
Listing	Listing of your submitted time off records. For users with proper role permissions, the submitted time off records for all users are also listed. The following information is listed: ● User Name ● Begin Date / End Date ● Description To edit one of these records, click the icon in the **Edit** column.

Custom Table Editor Administration Page

The workflow administrators can change records in any table in the Workflow Manager.

The Custom Table Editor in Workflow Manager provides a way to edit custom tables that may be created to work with the iPlugin DLL or custom web pages.



Dialog Boxes

To learn about a specific Workflow Manager dialog box, click on one of the links below:

- Approval Dialog Box
- Dynamic Pick List Dialog Box
- File Upload Dialog Box
- Template Validation Results Dialog Box
- Web Service Results Dialog Box

Approval Dialog Box

If a workflow step has a **Step Type** of **Approval Type**, when a user clicks the workflow step on the **Workflow Request** page, the **Approval** dialog box opens.

The **Approval** dialog box includes the following properties:

Table 7-73 • Approval Dialog Box

Property	Description
Approval Workflow Step Name	The **Workflow Step Description** assigned to this workflow step when it was defined on the **Workflow Step Details** view is listed at the top of this dialog box.
Approval Type	Identifies the workflow step as one of the following **Approval Types**: • **Linear**—Approvals need to take place sequentially, one after the other, according to assigned **Level**. If there is more than one user assigned to a level, then everyone in that level must approve the workflow step before it can proceed to the next level of approvers, but they can approve it in any order. If an LDAP group or a role is specified as the **Approver**, everyone in that group/role has to approve the workflow step before it can proceed to the next level, but the members of that group/role can approve it in any order. • **Pool**—Only one approver is required, even if multiple approvers are listed. Anyone (or any member of a listed group/role) can approve the workflow step. The **Level** field is ignored. • **Linear In Pool**—Approvals need to take place sequentially, one after the other, according to assigned **Level**, but if there is more than one user assigned to a level or if there is a group assigned to a level, only one user of the assigned users (or only one member of the group/role) needs to approve it. • **Parallel**—All listed users (and all users in listed groups/roles) must approve the workflow step before it can proceed, but not in any specific order. The **Level** field is ignored.

Table 7-73 • Approval Dialog Box (cont.)

Property	Description
Approval Status	Identifies the status of this approval workflow step as one of the following: • **Approval Pending**—This workflow step needs additional approvals before it will be completed. • **Approved**—This workflow step has received all required approvals. • **Rejected**—This workflow step was rejected by one of the assigned approvers.
Level	If the **Approval Type** is **Linear** or **Linear in Pool** and there is more than one account/role/group listed in this list, the **Level** field is used to determine the order that the users must approve the workflow step. If multiple levels are defined (such as 1, 2, 3), users at Level 2 are not permitted to approve the workflow step until a user from Level 1 has approved it. If the **Approval Type** is **Pool** or **Parallel**, this field is ignored.
Approver	Name of the account, group, or role that has been assigned as an approver on this workflow step.
Status	Identifies the current status of the user/group/role's approval as one of the following: • **Pending since [DATE and TIME]**—Identifies when this approver's level became active. • **Approved on [DATE and TIME]**—Identifies the time when the approver approved this workflow step. • **Rejected on [DATE and TIME]**—Identifies the time when the approver rejected this workflow step. • **Not Scheduled**—Indicates that this approver's level is not yet active, meaning that previous level(s) of approver(s) need to approve the workflow step before this user is permitted to do so.
Action	Lists buttons the approver can click to **Approve** or **Reject** this workflow step. If the button is disabled, either the approval/rejection has already occurred, or that the approver's level is not yet active.

Dynamic Pick List Dialog Box

When a data element defined with a data type of Dynamic Pick List is rendered (either during the submission of a request or as part of a subsequent workflow step), this dialog box opens when a user clicks the Click to Select link next to the data element.

The Dynamic Pick List dialog box contains a searchable and sortable list of the data in an XML data source file that was specified when the data element was defined. An XML data source file can have multiple columns, but only one column value is passed to Workflow Manager when an item is selected. By default, the value in the first column of the XML file is passed to Workflow Manager for each selected item, but a different column can be selected when the data element is defined.

After the user selects one or multiple items in the Dynamic Pick List and clicks OK, the selected values then populate the text area, with entries separated by pipes.

***Note** • You can use the Search for [TEXT] in [COLUMN NAME] feature to quickly find the list items that you want to select. See Using Lists for more information.*

File Upload Dialog Box

The **File Upload** dialog is displayed when you click the **Attach File** link next to an issue on either the **All Open Issues** page, or on the **Issues** tab of the **Workflow Request** page for a workflow request. Use this page to upload files relevant to your issue. The **File Upload** dialog box is also displayed when uploading packages as part of an **AdminStudio Integration** workflow step.

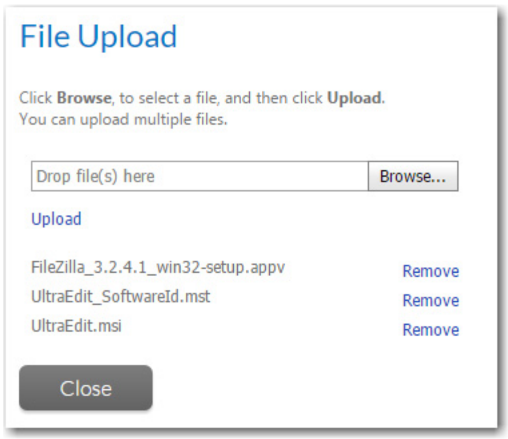


Figure 7-85: File Upload Dialog Box

On the **File Upload** dialog box, you can upload one or multiple files. Click Browse and select all of the files you want to upload, and then click **Upload** to start uploading the files in list. Progress indicators are displayed and you are notified when the upload is complete.

Table 7-74 • File Upload Dialog Box Options

Option	Description
Browse	Click to select a file to upload. Each file you select is added to the list. At this point, the files are not yet uploaded. There is no limit on the number of files you can upload.
Remove	Click to remove a selected file from the list.
Upload	Click to start uploading the files in the list. Until you click this button, no files are uploaded to Workflow Manager.
Close	Click to close this dialog box.

***Note •** You can upload files of any size without causing a time-out error. When uploading a file, Workflow Manager streams the data into a disk file instead of receiving the entire upload request in memory, so the only limitation to file size would be the amount of free disk space at the location of the uploaded files.*

Template Validation Results Dialog Box

The **Template Validation Results** dialog box opens when you select **Validate Template** on the options menu on the **Template Details** page.

When you click **Validate Template**, Workflow Manager analyzes the current template to determine if it is ready for use. Then, the **Template Validation Results** dialog box opens stating whether or not the template is valid. If it is invalid, the reasons will be listed.

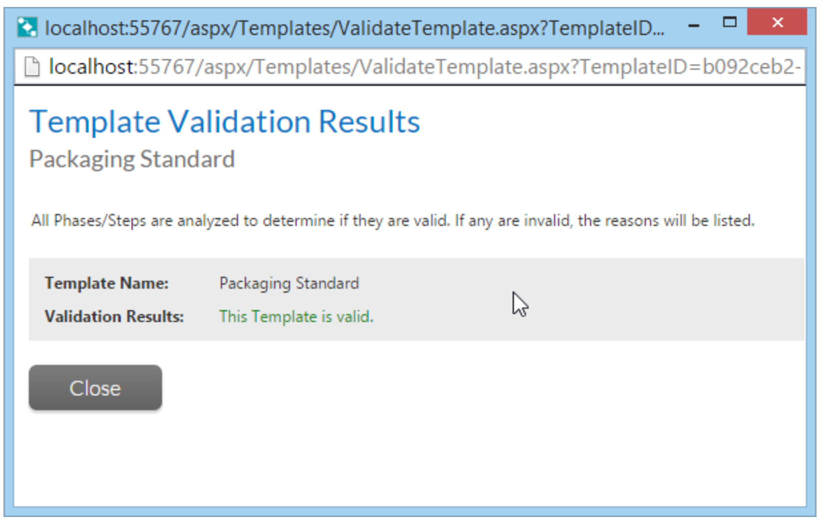


Figure 7-86: Template Validation Results Dialog Box

A template would be invalid, for example, if a workflow phase does not contain any workflow steps, or if a data group did not contain any data elements, etc.

Web Service Results Dialog Box

A data element of type **Web Service Call** returns information from across a web service connection. The data returned can be presented to you either in a standard combo box, or, if the data is more complicated, in a grid from which the consumer may choose one item. **Web Service Call** elements whose data is presented in a grid appear on the **Workflow Request** page as a multi-line, non-editable text field with a **Click to Select** hyperlink next to it.

Clicking the hyperlink opens a new browser window, which lists, in grid format, the data returned by the web service method associated with the item.

Locate the item in the grid which you want to assign to your data element, filtering and sorting the grid as required (see Using Lists for more information). You may also filter the information displayed in the grid by using the **Enter Search String** field above the grid and clicking the **Search** button. The search text you enter can appear in any position within the searchable fields. Searchable fields vary depending on the web method.

Once you select an item from the grid, the page will close, and the data you selected will appear in your text item.

Configuring Workflow Manager

Explains how to use the AdminStudio Configuration Wizard to perform initial configuration steps and to update those settings.

- Configuring Workflow Manager Using the AdminStudio Configuration Wizard
- Setting Preferences on the Company Preferences Page
- Editing the Configuration File: web.config

Configuring Workflow Manager Using the AdminStudio Configuration Wizard

After Workflow Manager was installed, the AdminStudio Configuration Wizard automatically launched and prompted you to enter the required configuration settings. For information on these settings and modifying them, see the AdminStudio Configuration Wizard help library at:

http://helpnet.flexerasoftware.com/adminstudiocw2016/

Setting Preferences on the Company Preferences Page

You can perform some Workflow Manager configuration tasks by editing the Workflow Manager configuration file (`web.config`), which is located in the following directory:

`C:\AdminStudioWebComponents_2019\wwwroot`

However, you can easily modify many common company-specific configuration settings on the **Company Preferences** page, which is opened by selecting **Company Preferences** on the **Settings** menu and then clicking on a company name.

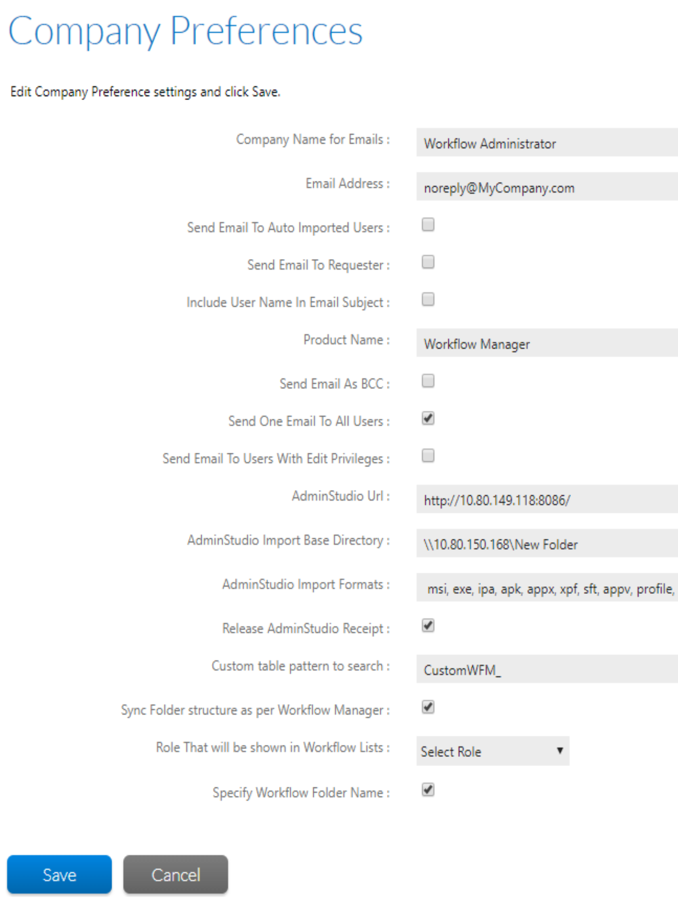


Figure 7-87: Company Preferences Page

The **Company Preferences** page includes the following properties.

Table 7-75 • Company Preferences Page Properties

Property	Description
Company Name for Emails	Enter the company name that is used in the body of Workflow Manager emails. This is usually set to the name of the primary administrator company.
Email Address	Enter the Workflow Manager system email address. All emails sent by Workflow Manager will be from this email address.
Send Email To Auto Imported Users	Select this option to instruct Workflow Manager to end email notifications to all automatically imported members of a directory service group that was set to receive email notifications.
Send Email To Requester	Select this option to send a confirmation email to the workflow request submitter once the request has been submitted successfully.
Include User Name in Email Subject	Select this option to include the assigned user’s name in the email subject line of a notification email.

Table 7-75 • Company Preferences Page Properties

Property	Description
Product Name	To customize the name of this application, enter a value other than Workflow Manager.
Send Email As BCC	Select this option to prevent email recipients from seeing the email addresses of other users that are receiving the same email.
Send One Email To All Users	Select this option to instruct Workflow Manager to send one email notification to all specified users. If this option is not selected, individual emails will be sent to all specified users. In other words, instead of sending out one email to 25 people, Workflow Manager will send out 25 emails to 25 people.
Send Email To Users With Edit Privileges	By default, if there are no email notifications defined on any workflow phase or step, Workflow Manager will not send any email notifications upon step completion. However, if you select this option, Workflow Manager will send email notifications to all assigned users who have edit permission on the next workflow step (even though no email notifications are defined).
AdminStudio Url	If AdminStudio is configured with the Flexera Service Gateway, then during Workflow Manager installation, the AdminStudio URL will be entered in this field. ***Note** • Make sure the AdminStudio Url is in the format* **http://10.20.40.200:8086** *with no slash at the end*
AdminStudio Import Base Directory	When importing packages into the AdminStudio Application Catalog as part of a workflow step, the packages to be imported need to copied to a subdirectory of this directory. By default, the value of this property is: `C:\AdminStudioWebComponents_2019\SHAREPATH\UNCPath` This path is initially set using the Configuration Wizard immediately after Workflow Manager installation. As soon as a workflow request is created, Workflow Manager automatically creates a subdirectory inside this base directory for that request using the following naming convention: *`WorkflowRequestName_WFnn`* Examples are `Perforce_WF19` or `Lightroom_WF10`.

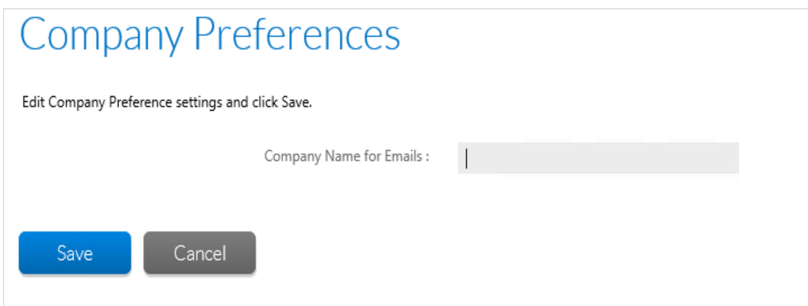
Table 7-75 • Company Preferences Page Properties

Property	Description
AdminStudio Import Formats	To specify the import formats you want to Workflow Manager to support, edit the list of file extensions in this field. File extensions are listed without the preceding period and are separated by commas. Workflow Manager supports importing most of the deployment types that are supported by AdminStudio: • Microsoft Windows Installer package (.msi) • Installation package (.exe) • VMware ThinApp virtual package (.exe) • Apple iOS mobile application (.ipa) • Google Android mobile application (.apk) • Microsoft Windows Store application (.appx) • Symantec Workspace virtual package (.xpf) • Microsoft App-V 4.x virtual package (.sft) • Microsoft App-V 5.x virtual package (.appv) • Citrix XenApp virtual package (.profile) • Mac OS X disk image (.dmg) • Mac OS X installer package (.pkg)
Release AdminStudio Receipt	When Workflow Manager, when performing an AdminStudio Integration workflow step, calls the AdminStudio API, the AdminStudio API returns a Receipt ID that helps keep track of transactions. • **If this option is selected**, then Workflow Manager calls another API to release these Receipt IDs. • **If this option is not selected** and Receipt IDs are not released, then they keep adding to database size. Receipt IDs, if not released, can help keep a history of transactions. ***Note** • It is recommended that this option be selected.*

Table 7-75 • Company Preferences Page Properties

Property	Description
Specify Workflow Folder Name	Select this option to instruct Workflow Manager to ask for a desired folder name while submitting a workflow request. The workflow folder will be created in a name which user enters in the **Workflow folder name** field. If this option is not selected, user can not see the field **Workflow folder name.** By default, workflow folder will be created with a name entered in the **Workflow request name** field. ***Note •*** *To know, how to use the field workflow folder name, and the folder path where workflow folders will get created, see Submitting a Workflow Request.*

Note • *Consumer company users can only edit* ***Company Name for Emails*** *property.*



Editing the Configuration File: web.config

The Workflow Manager Configuration file, named `web.config`, is located in the Workflow Manager Web Application `wwwroot` directory.

The settings that are defined in the `web.config` file are presented in the following sections:

- Connection Settings
- Timeout Settings
- Request-Related Settings
- Email Settings
- List Settings
- Account and Group Settings

Connection Settings

The following connection settings are defined in `web.config`:

- Workflow Manager Web Server URL

- FlexNet Manager Suite Server
- Database Connection String for ASP.net Pages
- Database Connection String for ASP Pages
- Web Service Bridge to AdminStudio

Workflow Manager Web Server URL

The installer creates this entry to store the Workflow Manager website IP address that you provided during installation:

```
<add key="AMSWebServer" value="http://localhost/"></add>
```

Edit this value to modify the Workflow Manager website IP address.

FlexNet Manager Suite Server

The installer creates this entry to store the FlexNet Manager Suite Server IP address that you provided during installation:

```
<add key="FNMPServer" value="172.18.24.223"></add>
```

Edit this value to modify the FlexNet Manager Suite Server IP address.

Database Connection String for ASP.net Pages

Workflow Manager uses the value of `connectionStrings` setting in the `web.config` file to connect to the Workflow Manager database from `ASP.net` pages.

The default value of this setting is:

```
<connectionStrings>
   <add name="DefaultConnectionString" connectionString="Data Source=SERVERNAME;
   Initial Catalog=CATALOGNAME;Persist Security Info=True;User ID=sa;Password=sa"
   providerName="System.Data.SqlClient"/>
</connectionStrings>
```

The first connection string, `DefaultConnectionString`, is used to describe the database that needs to be connected to from ASP.net pages.

The second connection string, `StandardConnectionString`, is used by the Report Control in Report Center.

To modify the database connection string for ASP.net pages, perform the following steps.

Task ***To modify the database connection string for ASP.net pages:***

1. Open the `wwwroot` directory of the Workflow Manager installation and open `web.config` in a text editor.
2. Locate the `connectionStrings` portion of this file.

```
<connectionStrings>
   <add name="DefaultConnectionString" connectionString="Data Source=TESTLABSQL2K;
   Initial Catalog=WM31T035;Persist Security Info=True;User ID=sa;Password=sa"
   providerName="System.Data.SqlClient"/>
</connectionStrings>
```

3. The first connection string, `DefaultConnectionString`, is used to describe the database that needs to be connected to from ASP.net pages. Modify this connection string by using the following syntax:

String	Default	How to Modify
Data Source	`Data Source=TESTLABSQL2K;`	Replace the default value for `Data Source` with the name of the database that you want to connect to: `Data Source=MYDATABASE;`
Initial Catalog	`Initial Catalog=WM31T035;`	The `Initial Catalog` string is used internally by AdminStudio Enterprise Server and should not be modified.
Persist Security Info	`Persist Security Info=True;`	The `Persist Security Info` string specifies whether the connection persists (caches) the password information used while connecting, and should not be modified.
User ID	`User ID=sa;`	Replace the value of `User ID` with a valid User ID for the specified database: `User ID=myuserid;`
Password	`Password=sa;`	Replace the value of `Password` with a valid password for the specified database and User ID: `Password=mypassword;`

4. The second connection string, `StandardConnectionString`, is used by the Report Control in Report Center. Modify this connection string by using the following syntax:

String	Default	How to Modify
Data Source	`Data Source=TESTLABSQL2K;`	Replace the default value for `Data Source` with the name of the database that you want to connect to: `Data Source=MYDATABASE;`
Persist Security Info	`Persist Security Info=True;`	The `Persist Security Info` string specifies whether the connection persists (caches) the password information used while connecting, and should not be modified.
User ID	`User ID=sa;`	Replace the value of `User ID` with a valid User ID for the specified database: `User ID=myuserid;`
Password	`Password=sa;`	Replace the value of `Password` with a valid password for the specified database and User ID: `Password=mypassword;`

Database Connection String for ASP Pages

Workflow Manager uses the value of `SQLConnectionString` setting in the `web.config` file to connect to the Workflow Manager database from `.asp` pages. The default value of this setting is:

```
<!--Database connection string for ASP pages-->
<add key="SQLConnectionString" value="Driver={SQL Server}; server=.; database=wm; uid=sa; pwd=sa; Max
Pool Size=50000;"/>
```

To modify the database connection string for `.asp` pages, perform the following steps.

Task ***To modify the database connection string for .asp pages:***

1. Open the `wwwroot` directory of the Workflow Manager installation and open `web.config` in a text editor.
2. Locate the `Database connection string for ASP pages` portion of this file.

   ```
   <add key="SQLConnectionString" value="Driver={SQL Server}; server=.; database=wm; uid=sa; pwd=sa;
   Max Pool Size=50000;"/>
   ```

3. Modify the database connection string using the following syntax:

String	Default	How to Modify
Server Name	`server=.;`	Replace the default value for `server` (a period) with the name of the server that contains the database that you want to connect to: `server=myservername;`
Database Name	`database=wms;`	Replace the value for `database` with the name of the database that you want to connect to: `database=mydatabasename;`
User ID	`uid=sa;`	Replace the value of `uid` with a valid User ID for the specified database: `uid=myuserid;`
Password	`pwd=sa`	Replace the value of `pwd` with a valid password for the specified database and User ID: `pwd=mypassword;`

Web Service Bridge to AdminStudio

As explained in Integrating AdminStudio and Workflow Manager, you can integrate Workflow Manager with AdminStudio to make software packaging procedures easier and more efficient. Integration with AdminStudio enables you to:

- **Launch Workflow Manager inside of the AdminStudio interface**.
- **Define a Workflow Manager Workflow Phase as an AdminStudio Workflow Project**, and receive progress notification from AdminStudio as the project Steps are completed.
- **Share application-related data between AdminStudio and Workflow Manager** using AdminStudio extended attributes and Workflow Manager data groups.

- **Open the AdminStudio Report Center from the Workflow Manager All Reports page** and view reports that give you a centralized view of information regarding packages in the Application Catalog.

The default value of the `AttributeBridgeWebServiceUrl` setting in `web.config` is:

```
<!--This is a Web service talk to the AdminStudio Web service to import the extended attributes. It was
used by ASP pages, now it is used by .net pages (this service can be removed later)-->
<add key="AttributeBridgeWebServiceUrl" value="http://localhost/ASInterfaceBridge/
AttributeBridge.asmx"/>
```

Task ***To modify this setting:***

1. Open the `wwwroot` directory of the Workflow Manager installation and open `web.config` in a text editor.
2. Locate the `AttributeBridgeWebServiceUrl` portion of this file.

   ```
   <add key="AttributeBridgeWebServiceUrl" value="http://localhost/ASInterfaceBridge/
   AttributeBridge.asmx"/>
   ```

3. To modify the IP address of the connection to AdminStudio, change the root directory of the URL (`http://localhost` in this example) to the new IP address. For example:

   ```
   <add key="AttributeBridgeWebServiceUrl" value="http://178.22.333.44/ASInterfaceBridge/
   AttributeBridge.asmx"/>
   ```

Timeout Settings

The following timeout settings are defined in `web.config`:

- HTTP Request Length and Execution Timeout
- Login Page Timeout Value
- System Session Mode Value
- Set System Authentication to “Forms”

HTTP Request Length and Execution Timeout

You can specify the maximum file upload size supported by ASP.NET, and the maximum time that a request is allowed to execute before being automatically shut down by ASP.NET. To do this, you modify the `maxRequestLength` and `maxAllowedContentLength` settings in the web.config file.

The default value of these settings in `web.config` are:

```
<httpRuntime maxRequestLength="629145600" executionTimeout="2400" requestValidationMode="2.0" />
<requestLimits maxAllowedContentLength="629145600" />
```

Task ***To modify these settings:***

1. Open the `wwwroot` directory of the Workflow Manager installation and open `web.config` in a text editor.
2. Locate the `maxRequestLength` portion of this file:

```
<httpRuntime maxRequestLength="629145600" executionTimeout="2400" requestValidationMode="2.0" />
```

3. To specify the maximum file upload size supported by ASP.NET, edit the value for `maxRequestLength`. This limit can be used to prevent denial of service attacks caused by users posting large files to the server. By default, the value is `629145600`.

4. To specify the maximum number of seconds that a request is allowed to execute before being automatically shut down by ASP.NET, edit the value for `executionTimeout`. By default, the value is `2400`.

5. Locate the `maxAllowedContentLength` portion of the `web.config` file.

```
<requestLimits maxAllowedContentLength="629145600" />
```

6. To specify the maximum file size, edit the value for `maxAllowedContentLength`. By default, the value is `629145600`.

Login Page Timeout Value

The LoginPageTimeOut setting identifies the length of time that you can leave the login page open before it times out. The default value of this setting in `web.config` is:

```
<!--If a user keeps the login page open for too long, he will run into an error as the system's session
is time out. This LoginPageTimeOut setting will change the front login page after the time valued (in
minutes), so the user has to re-visit the site and obtain a new session.-->
<add key="LoginPageTimeOut" value="19.5" />
```

Task ***To modify this setting:***

1. Open the `wwwroot` directory of the Workflow Manager installation and open `web.config` in a text editor.

2. Locate the `LoginPageTimeOut` portion of this file.

```
<add key="LoginPageTimeOut" value="19.5" />
```

3. Set the value to the number of minutes that the login page can remain open before it times out and requires the user to refresh the login screen to obtain a new session. Set this value to match the timeout value you specified for System Session Mode Value.

System Session Mode Value

You can change the session timeout value by editing the `sessionState timeout` value in the `web.config` file. The default value of this setting in `web.config` is:

```
<!--Set system session mode-->
<sessionState timeout="20" mode="InProc" stateConnectionString="tcpip=127.0.0.1:42424"
sqlConnectionString="data source=127.0.0.1;Trusted_Connection=yes" cookieless="false"  />
```

Task ***To change the session timeout value:***

1. Open the `wwwroot` directory of the Workflow Manager installation and open `web.config` in a text editor.

2. Locate the `sessionState timeout` portion of this file:

```
<sessionState timeout="20" mode="InProc" stateConnectionString= "tcpip=127.0.0.1:42424"
sqlConnectionString="data source=127.0.0.1; Trusted_Connection=yes" cookieless="false"  />
```

3. Change the value specified for `sessionState timeout="nn"` to the new timeout value, in minutes. Set this value to match the timeout value you specified for Login Page Timeout Value.

Set System Authentication to “Forms”

You can set the `forms timeout` value to specify the number of minutes a user can be inactive before Workflow Manager automatically logs them out of a session. The default value of this setting in `web.config` is:

```
<!-- Set the system authentication to "Forms"-->
<authentication mode="Forms" >
<forms timeout="20" name="AMMS.ASPXAUTH" loginUrl="login.aspx" protection="All" path="/" />
</authentication>
```

Task ***To modify this setting:***

1. Open the `wwwroot` directory of the Workflow Manager installation and open `web.config` in a text editor.
2. Locate the `forms timeout` portion of this file:

```
<authentication mode="Forms" >
<forms timeout="20" name="AMMS.ASPXAUTH" loginUrl="login.aspx" protection="All" path="/" />
</authentication>
```

3. Set the `timeout` value to the number of minutes a user can be inactive before Workflow Manager automatically logs them out of a session.

Request-Related Settings

The following workflow request-related settings are defined in `web.config`:

- Auto-Acceptance of Submitted Data
- Guest System Access
- Setting the Default AdminStudio User Work Assignment
- Project Summary Page Workflow Percentage Display Setting
- Project Report Time Spent on Each Phase Display Setting
- File Share Location: Root Folder for Uploading and Downloading Files
- SLA Disable/Enable Flag
- Option to Navigate to Workflow Request Page From Assignments Panel of Home Page
- Display of “Skip Required Entries for Now” Option

Auto-Acceptance of Submitted Data

By default, each time someone submits data as part of a request, that data needs to be accepted or rejected before that workflow step can be marked complete.

The default value of this setting in `web.config` is `0`, meaning that submitted data must be accepted manually:

```
<add key="AutoAcceptApplicationSubmissions" value="0"></add>
```

If you change the value of this setting to `1`, submitted data would always be automatically accepted, meaning that the **Accept Data** and **Reject Data** buttons would not appear.

Task ***To turn on the auto-acceptance feature:***

1. Open the `wwwroot` directory of the Workflow Manager installation and open `web.config` in a text editor.
2. Locate the `AutoAcceptApplicationSubmissions` portion of this file:

   ```
   <add key="AutoAcceptApplicationSubmissions" value="0"></add>
   ```

3. Set the `AutoAcceptApplicationSubmissions` value to `1`:

   ```
   <add key="AutoAcceptApplicationSubmissions" value="1"></add>
   ```

Guest System Access

You can set up a Guest account to permit users without Workflow Manager login credentials to access features – such as viewing Reports or searching for a request – without entering a User ID or Password.

The default value of this setting in `web.config` is:

```
<!-- Guest System Access -->
<add key="GuestAccount" value="" />
```

Task ***To specify the Guest Account:***

1. Create a new Workflow Manager user to use as the Guest Account.
2. Open the `wwwroot` directory of the Workflow Manager installation and open `web.config` in a text editor.
3. Locate the `GuestAccount` portion of this file:

   ```
   <add key="GuestAccount" value="" />
   ```

4. Set the `GuestAccount` value to the name of the Workflow Manager user that you just created:

   ```
   <add key="GuestAccount" value="username@companyname.com" />
   ```

Setting the Default AdminStudio User Work Assignment

You can modify the `ASProjectOwner` setting to specify which AdminStudio user is automatically assigned to an AdminStudio project that is created as part of a Workflow Manager phase. The default value of this setting in `web.config` is:

```
<!--Default AdminStudio project owner-->
<add key="ASProjectOwner" value="admin@servicer.com" />
```

By default, an AdminStudio project is automatically assigned to the AdminStudio user named `admin@servicer.com`.

Task ***To set the default AdminStudio user Work Assignment:***

1. Open the `wwwroot` directory of the Workflow Manager installation and open `web.config` in a text editor.
2. Locate the Default AdminStudio project owner portion of this file:

```
<add key="ASProjectOwner" value="admin@servicer.com" />
```

3. Edit the following line:

```
<add key="ASProjectOwner" value="admin@servicer.com" />
```

Project Summary Page Workflow Percentage Display Setting

You can edit the `ApplicationListQuickView` setting to specify whether or not you want the percentage complete value to be displayed on the Workflow Manager **Project Summary** page. The default value of this setting in `web.config` is `True`, which means that the Workflow percentage will *not* be displayed on the **Project Summary** page:

```
<!--In the Project Summary page, the system will not display the WF percentage in order to show the page
quickly, if this value is set to "True"-->
<add key="ApplicationListQuickView" value="True" />
```

While it might be helpful to see the percentage complete value of a workflow phase on the **Project Summary** page, it could cause performance delays if you are viewing a long list of projects and workflow requests.

Task ***To modify this setting:***

1. Open the `wwwroot` directory of the Workflow Manager installation and open `web.config` in a text editor.
2. Locate the ApplicationListQuickView portion of this file:

```
<add key="ApplicationListQuickView" value="True" />
```

3. To turn on the display of percentage complete on the **Project Summary** page, set this value to `False`:

```
<add key="ApplicationListQuickView" value="False" />
```

Project Report Time Spent on Each Phase Display Setting

You can edit the `ShowPhaseAvgTimeInProjectRpt` setting to specify whether or not you want the average time spent by workflow requests in each phase to be displayed on the **Project Report**. The default value of this setting in `web.config` is `0`, which means that the average time spent will *not* be displayed on the **Project Report**:

```
<!-- ShowPhaseAvgTimeInProjectRpt-->
<!-- 0 means Project Report does not show Average Time Spent by Applications on each Phase-->
<!-- 1 means Project Report shows Average Time Spent by Applications on each Phase-->
<add key="ShowPhaseAvgTimeInProjectRpt" value="0" />
```

While it might be helpful to see the average time spent by workflow requests in each phase to be displayed on the **Project Report**, it could cause performance delays if you are generating a **Project Report** that includes multiple projects.

Task ***To modify this setting:***

1. Open the `wwwroot` directory of the Workflow Manager installation and open `web.config` in a text editor.
2. Locate the ShowPhaseAvgTimeInProjectRpt portion of this file:

   ```
   <add key="ShowPhaseAvgTimeInProjectRpt" value="0" />
   ```

3. To turn on the display of average time spent by workflow requests in each phase, set this value to 1:

   ```
   <add key="ShowPhaseAvgTimeInProjectRpt" value="1" />
   ```

File Share Location: Root Folder for Uploading and Downloading Files

You can modify the `FileShareRoot` setting in the `web.config` file to specify the Workflow Manager file share location, the root folder for uploading files to and downloading files from Workflow Manager. The `FileShareRoot` location is initially set on the **File Share** panel of the Workflow Manager installer.

```
<!--Root folder for uploading and downloading files-->
<add key="FileShareRoot" value="\\[MYDRIVE]\WFMFileShare"/>
```

Note • *For information on viewing and editing the directory structure of the file share location, see Specifying Directory Structure of File Share.*

To modify the file share location, perform the following steps:

Task ***To modify this setting:***

1. Open the `wwwroot` directory of the Workflow Manager installation and open `web.config` in a text editor.
2. Locate the `FileShareRoot` folder portion of this file:

   ```
   <add key="FileShareRoot" value="\\[MYDRIVE]\WFMFileShare"/>
   ```

3. Modify the FileShareRoot value to include the new location of the file server, such as:

   ```
   <add key="FileShareRoot" value="\\myserver12\SharedFiles"/>
   ```

   Note • *Make sure that the directory you specify is shared and that the Workflow Manager System Account has “modify” permissions on this directory.*

SLA Disable/Enable Flag

The `SLADisabled` key in the `web.config` file is no longer used by Workflow Manager.

Option to Navigate to Workflow Request Page From Assignments Panel of Home Page

By default, when you click on a workflow request in the **Assignments** panel of the administrator **Home** page, the **Assignment Details** page for that request opens. If you instead would like to open the **Workflow Request** page for that workflow request, you can modify the `showApplicationProgress` setting.

The default value of this setting in `web.config` is:

```
<!--To navigate to Application_Progress page on click of Application_Request set to 0, set to 1 to
navigate to Work Assignment page-->
<add key="showApplicationProgress" value="1"></add>
```

Task ***To navigate to Workflow Request page instead of Assignment Details page:***

1. Open the `wwwroot` directory of the Workflow Manager installation and open `web.config` in a text editor.
2. Locate the `showApplicationProgress` portion of this file:

   ```
   <add key="showApplicationProgress" value="1"></add>
   ```

3. Set the value to **`0`**.

Display of "Skip Required Entries for Now" Option

When a workflow request collects data in the first workflow step or in subsequent workflow steps, sometimes the user needs to answer questions on multiple pages (each defined in a separate data group) before submitting the data to complete the step. Some of these pages may include questions specified as required.

The user can click **Next** to scroll through all of the pages in a data entry workflow step even if required questions on one or more pages have not been answered. When the user clicks **Submit** on the last data entry page, if there are any unanswered "required" questions, an error message will appear, listing the questions that need to be answered. The user can then click the page name to return to that page and answer those questions.

Regarding postponing the answering of required questions, you have two options:

- **User is required to select the "Skip required entries for now" option**—You can configure Workflow Manager so that the user is required to select the **Skip required entries for now** option in order to be able to proceed to the next page when required questions have not been answered.

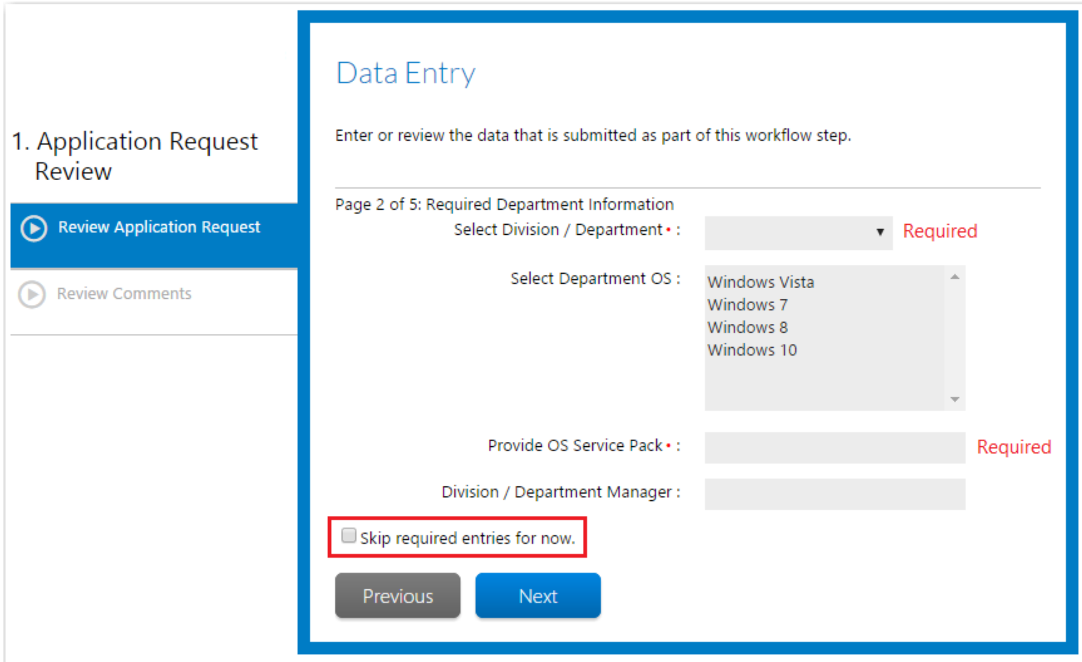


Figure 7-88: "Skip required entries for now" Option

- **Automatically enable ability to skip required entries**—You can configure Workflow Manager so that the **Skip required entries for now** option is not displayed, and the user is automatically permitted to proceed to the next page of questions even though "required" questions remain unanswered.

The `SkipRequiredElements` setting in the `appSettings` section of the `web.config` file determines whether or not the **Skip required entries for now** option is displayed:

```
<add key="SkipRequiredElements" value="0" />
```

The `SkipRequiredElements` setting has two possible values:

- **User required to select an option to proceed**—If the `SkipRequiredElements` setting is set to 0, the user will be required to select the **Skip required entries for now** option on each data entry screen that contains a required field in order to proceed to the next page of questions even though "required" questions remain unanswered. (Default)
- **User not required to select an option to proceed**—If the `SkipRequiredElements` setting is set to 1, the **Skip required entries for now** option will not be displayed on each data entry screen that contains a required field, and the user is automatically permitted to proceed to the next page of questions even though "required" questions remain unanswered.

Email Settings

The following email settings are defined in `web.config`:

- Workflow Manager Email Server URL
- SMTP Authentication Type
- Email Template Settings
- System Support Email Address

Workflow Manager Email Server URL

The AMSSMTPServer setting in the web.config file should be set to the address of your email server, such as:

```
schexch.abccompany.com
```

The default value of this setting in web.config is:

```
<!--Email Server URL-->
<add key="AMSSMTPServer" value="smtp.yourcompany.com"/></add>
```

Task ***To modify this setting:***

1. Open the wwwroot directory of the Workflow Manager installation and open web.config in a text editor.
2. Locate the AMSSMTPServer portion of this file:

```
<add key="AMSSMTPServer" value="smtp.yourcompany.com"/>
```

3. Set the value to the name of your email server, such as:

```
<add key="AMSSMTPServer" value="schexch.abccompany.com"/>
```

SMTP Authentication Type

The value that is entered for SmtpAuthenticationType determines if Workflow Manager email is authenticated and how it is authenticated.

The default value of this setting in web.config is:

```
<!-- SMTP Authentication Type-->
<!-- 0 means "Perform no authentication"-->
<!-- 1 means "Use the basic (clear text) authentication mechanism"-->
<!-- 2 means "Use the NTLM authentication mechanism."-->
<add key="SmtpAuthenticationType" value="0" /></add>
```

Task ***To modify this setting:***

1. Open the wwwroot directory of the Workflow Manager installation and open web.config in a text editor.
2. Locate the SMTP Authentication Type portion of this file:

```
<add key="SmtpAuthenticationType" value="0" />
```

3. Enter one of the following values for the SmtpAuthenticationType key:

Value	Description
0	Enter this value if you do not want to perform authentication on Workflow Manager email.
1	Enter this value if you want to use the basic (clear text) authentication mechanism to authenticate Workflow Manager email.
2	Enter this value if you want to use the NTLM authentication mechanism to authenticate Workflow Manager email.

Email Template Settings

Important • *In previous releases, email templates were stored on the Workflow Manager server in the* `Workflow Manager\wwwroot\EmailTemplate` *directory, and to add a new email template, you would just copy and edit one of the existing text files in that directory. Starting with Workflow Manager 2013 R2, the email template text files are stored in the Workflow Manager database, and you must use the Workflow Manager interface to edit email templates and create new ones, as described in Managing Email Templates.*

Specifying the Default Email Templates for Email Notifications

You can specify the default email templates for both system events and workflow-step-related events.

System Events

For some system events, such as when an issue is created or when the status of a workflow request has changed, Workflow Manager sends out an email notification. For each event, Workflow Manager will use the email template specified in the following section of the `web.config` file for that event:

```
<add key="IssueCreationTemplate" value="IssueCreation.txt" />
<add key="IssueResponseTemplate" value="IssueResponse.txt" />
<add key="DataChangedTemplate" value="DataChanged.txt" />
<add key="SLABreakageTemplate" value="NewSLABreakage.txt" />
<add key="SLARiskTemplate" value="NewSLARisk.txt" />
<add key="StepLevelSLAAtRisk" value="StepLevelSLAAtRisk.txt" />
<add key="StepLevelSLABreakage" value="StepLevelSLABreakage.txt" />
<add key="DataChangedTemplateNewRequest" value="DataChangedNewRequest.txt" />
<add key="ApplicationStatusChangedTemplate" value="ApplicationStatusChanged.txt" />
<add key="NormalStepTemplate" value="NormalStep.txt" />
<add key="UpdateHistoryTemplate" value="UpdateHistory.txt" />
```

If you want Workflow Manager to use a different email template that you have created using the Email Template Administration interface (as described in Creating a New Email Template), edit this section of the `web.config` file to point to the desired email template.

Workflow Step Events

In the **Email Templates** area of the **Workflow Step Details** page, you are prompted to specify the email template you want to use when that step is initiated, rolled back, edited, or completed. By default, an appropriate email template is selected. To change the default selection, edit the following section of the `web.config` file.

```
<add key="WFAdvancedTemplate" value="WFAdvanced.txt" />
<add key="WFRollbackTemplate" value="WFRollback.txt" />
<add key="WFStepEditTemplate" value="WFStepEdit.txt" />
<add key="WFCompletedTemplate" value="WFCompleted.txt" />
```

System Support Email Address

You can modify the `SupportEmail` setting in `web.config` to indicate the email address that your users can use to contact on-site Workflow Manager support. The default value of this setting in `web.config` is:

```
<!--system support email address-->
<add key="SupportEmail" value="noreply@installshield.com"/>
```

Task ***To modify this setting:***

1. Open the `wwwroot` directory of the Workflow Manager installation and open `web.config` in a text editor.
2. Locate the `SupportEmail` portion of this file:

```
<add key="SupportEmail" value="noreply@installshield.com"/>
```

3. Specify the System Support email address that you want to use.

List Settings

The following list settings are defined in the `web.config` file:

- Default Number of Lines Displayed in Lists
- Specifying the Default Font for Lists
- Turning Off the Persistence of Grid Settings
- Turning Off Auto Filtering of Workflow Manager Lists

Default Number of Lines Displayed in Lists

You can edit the `ApplicationGridSize` value to specify the number of lines that are displayed in listings. The default value of this setting in `web.config` is:

```
<!--In the project summary page, number of lines shows up in the data grid-->
<add key="ApplicationGridSize" value="45" />
```

Task ***To modify this setting:***

1. Open the `wwwroot` directory of the Workflow Manager installation and open `web.config` in a text editor.
2. Locate the ApplicationGridSize portion of this file:

```
<add key="ApplicationGridSize" value="45" />
```

3. Specify the number of lines that you want to be displayed in listings.

Specifying the Default Font for Lists

You can modify the `WebGridFontName` value in the `web.config` file to set the default font that is used in Workflow Manager data listings. The default value of this setting in `web.config` is:

```
<!-- Default Font Name for WebGrid-->
<add key="WebGridFontName" value="Tahoma" />
```

Task ***To modify this setting:***

1. Open the `wwwroot` directory of the Workflow Manager installation and open `web.config` in a text editor.
2. Locate the `WebGridFontName` portion of this file:

   ```
   <add key="WebGridFontName" value="Tahoma" />
   ```

3. Specify the name of the font you want Workflow Manager to use in all listings.

Turning Off the Persistence of Grid Settings

By default, when you group, sort or alter the columns in a Workflow Manager list, the changes are persisted on a per-operator basis. These changes remain in effect even after you refresh a page, even when you exit a page and return to it later, and even after you log out of the system and log back in later. This feature is controlled by the `PersistGridSetings` setting in the web.config file. The default value of this setting in `web.config` is **1** (enabled):

```
<add key="PersistGridSettings" value="1"></add>
```

If you do not want these modifications to a list persisted, change the `PersistGridSetings` value in the `web.config` file to **0** to disable this feature.

Turning Off Auto Filtering of Workflow Manager Lists

When using the filter controls to filter any of the lists in Workflow Manager (such as on the **All Workflow Requests** page), you can specify whether you want to auto filter rows as soon as you start typing the first few characters in the filter box or when you press Enter. When filtering large lists, you may want to only initiate filtering after you are finished entering characters in the filter box and you press Enter.

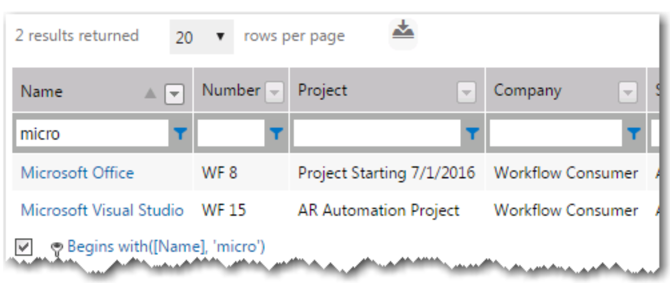


Figure 7-89: Filtering a Large List

The `GridViewFilterRowMode` setting in the web.config file controls filtering behavior.

```
<add key="GridViewFilterRowMode" value="1" />
```

Set the `GridViewFilterRowMode` setting to one of the following values:

- **1**—Perform data filtering when you click Enter. (Default)
- **0**—Perform data filtering automatically soon after you enter a few characters in the filter box.

Account and Group Settings

The following account and group settings are defined in the web.config file:

- Show Only Assigned Users in AdminStudio
- Recursive Group Search
- Accounts to Use for Auto Assignment
- AdminStudio Active Directory Group

Show Only Assigned Users in AdminStudio

When a workflow template includes a workflow phase with a **Phase Type** of **AdminStudio Workflow**, that phase is performed in its entirety as an AdminStudio project. When the AdminStudio client tool is connected to the AdminStudio Enterprise Server/Workflow Manager database, the Process Assistants tab displays a list of Workflow Manager users.

By default, all AdminStudio Enterprise Server/Workflow Manager users are listed. To restrict this list to display only those users who have work assignments, change the value of ShowOnlyAssignedUsersInAS to **1**.

The default value of this setting in web.config is:

```
<add key="ShowOnlyAssignedUsersInAS" value="0"></add>
```

Recursive Group Search

When you perform a search for a directory services user in Workflow Manager, if the imported group contains subgroups, Workflow Manager, by default, will perform a recursive search through the parent group and all of its subgroups.

However, if your directory service connection has an extensive hierarchy of groups and subgroups, this recursive group search may cause you to experience performance issues. Therefore, if you want Workflow Manager to only search the parent group, you should set the RecurssiveGroupSearch property to **false**.

The default value of this setting in web.config is:

```
<add key="RecurssiveGroupSearch" value="true"></add>
```

Accounts to Use for Auto Assignment

When setting up automatic work assignment in a project when using a FNMP Compliance API Service connection, in order to extract the user data, you need to expose the web method of GetCustomView and set the customViewID to -40000.

By default. Workflow Manager is set to search for the customViewID of -40000, To change that default value you can edit the value of the FNMPUserIDCustomViews key in the web.config file. The default value of this setting in web.config is:

```
<add key="FNMPUserIDCustomViews" value="-40000"></add>
```

You can separate multiple values by a semicolon.

AdminStudio Active Directory Group

When a workflow template includes a workflow phase with a **Phase Type** of **AdminStudio Workflow**, that phase is performed in its entirety as an AdminStudio project. You can then assign an AdminStudio user to that workflow phase on the **Assignment Details** page.

When the AdminStudio client tool is connected to the Workflow Manager database, the AdminStudio **Process Assistants** tab displays a list of Workflow Manager users—both database users and Active Directory users—along with their assigned projects.

In order to instruct AdminStudio to list only those Active Directory users that use AdminStudio on the P**rocess Assistants** tab, you need to set the `AdminStudioADGroup` property in the `web.config` file to the name of the Active Directory group that the AdminStudio users belong to. For example:

```
<add key="AdminStudioADGroup" value="ASADGroupName"></add>
```

If you do not supply an AdminStudio Active Directory user group, the AdminStudio **Process Assistants** tab will display all Workflow Manager users, which could be a large list.

By default, no AdminStudio Active Directory group is set in `web.config`.

Extending Workflow Manager

The following are the officially supported mechanisms for extending Workflow Manager:

Table 7-76 • Methods to Extend Workflow Manager

Topic	Description
Using the IPlugin Interface	The **IPlugin** interface is the interface your custom plugins should implement. The interface defines some standard callback methods which will be called by Workflow Manager during the course of workflow request submission and Workflow advancement. Your custom implementation of this plugin can have custom code to link these events with external systems. Topics include: • How to Use the IPlugin Interface • IPlugin Methods • Data Passed in XML to IPlugin Methods • Setting Up IPlugin Automation in Workflow Manager • Defining Automated AdminStudio Workflow Steps That Use the iPlugin Interface
Defining a Database-Driven Data Element	Explains how to create a single-selection list data element that is populated with real time data values obtained from an associated SQL Server database.
Configuring a Custom Web Page	Explains how to create a workflow template with a workflow step that will launch a user-specified custom Web page. When the user has performed the tasks indicated on the custom Web page, data will be sent back to Workflow Manager that will automatically mark this step complete and advance the workflow.

Table 7-76 • Methods to Extend Workflow Manager

Topic	Description
Generating a Custom SQL Query Report	Explains how to generate a Report Center report by entering an SQL Query to retrieve data from the Workflow Manager database.

Using the IPlugin Interface

The **IPlugin** interface is the interface your custom plugins should implement. The interface defines some standard callback methods which will be called by Workflow Manager during the course of workflow request submission and Workflow advancement. Your custom implementation of this plugin can have custom code to link these events with external systems.

For more information on using the IPlugin interface, see the following:

- How to Use the IPlugin Interface
- IPlugin Methods
- Data Passed in XML to IPlugin Methods
- Setting Up IPlugin Automation in Workflow Manager

How to Use the IPlugin Interface

The `IPlugin.Test.csproj` solution file can be used as a basis to build Enterprise business logic. To use the IPlugin interface to create custom functionality, perform the following steps.

Task ***To modify the IPlugin solution file:***

1. Obtain the `IPlugin.Test.csproj` solution file from Flexera Technical Support and copy it into a directory where you can edit the project.
2. Open Visual Studio .NET and open the `IPlugin.Test.csproj` solution file.
3. Modify the code using the methods described in IPlugin Methods
4. In Visual Studio .NET, click the **Build** button. A file named `IPlugin.Test.dll` is created in that solution's `Output` directory.
5. Copy the `IPlugin.Test.dll` file from the `Output` directory to the following directory:

   `C:\AdminStudioWebComponents_2019\wwwroot\bin\Plugins`

IPlugin Methods

The **IPlugin** interface implements the following methods:

- AppBinariesSubmitted Method
- AppRequestSubmitted Method

- AppMetaDataChanged Method
- AppRepackageApproved Method
- AppWorkflowStepInitiated Method
- AppWorkflowStepComplete Method
- AsyncOperationCompleted Method

AppBinariesSubmitted Method

This method is called for an event when application binaries are submitted. This callback can be used to trigger external events when application binaries are uploaded via a Workflow.

Syntax

This method has the following syntax:

```
AppBinariesSubmitted(System.String,System.String)
```

Parameters

This method implements the following parameters:

Table 7-77 • AppBinariesSubmitted Method Parameters

Parameter	Description
strAppId	Application ID of the workflow request
strAppXMLInfo	Contains the application info XML

AppRequestSubmitted Method

This method is a callback for an event when workflow request is submitted. This callback can be used to trigger external events/notifications when a new workflow request is submitted.

Syntax

This method has the following syntax:

```
AppRequestSubmitted(System.String,System.String)
```

Parameters

This method implements the following parameters:

Table 7-78 • AppRequestSubmitted Method Parameters

Parameter	Description
strAppId	Application ID of the newly submitted workflow request

Table 7-78 • AppRequestSubmitted Method Parameters

Parameter	Description
strAppXMLInfo	Contains the application info XML

AppMetaDataChanged Method

This method is called when application metadata is changed after being accepted. Use this callback to get notifications of any metadata change after a request has been submitted.

Syntax

This method has the following syntax:

```
AppMetaDataChanged(System.String,System.String)
```

Parameters

This method implements the following parameters:

Table 7-79 • AppMetaDataChanged Method Parameters

Parameter	Description
strAppId	Application ID of the workflow request
strAppXMLInfo	Contains the application info XML

AppRepackageApproved Method

This method is called when a workflow request is completed. Use this callback to trigger external events/notifications when a workflow request is completed.

Syntax

This method has the following syntax:

```
AppRepackageApproved(System.String,System.String)
```

Parameters

This method implements the following parameters:

Table 7-80 • AppRepackageApproved Method Parameters

Parameter	Description
strAppId	ID of the workflow request.
strAppXMLInfo	Contains the application info XML

AppWorkflowStepInitiated Method

This method is called whenever a workflow step is initiated.

Syntax

This method has the following syntax:

```
AppWorkflowStepInitiated(System.String,System.String)
```

Parameters

This method implements the following parameters:

Table 7-81 • AppWorkflowStepInitiated Method Parameters

Parameter	Description
strAppId	ID of the workflow request.
strAppXMLInfo	Contains the application info XML

AppWorkflowStepComplete Method

This method is called whenever a workflow step is completed.

Syntax

This method has the following syntax:

```
AAppWorkflowStepComplete(string strAppId, string strAppXMLInfo)
```

Parameters

This method implements the following parameters:

Table 7-82 • AppWorkflowStepComplete Method Parameters

Parameter	Description
strAppId	ID of the workflow request.
strAppXMLInfo	Contains the application info XML

AsyncOperationCompleted Method

The `AsyncOperationCompleted` method is called when an automated workflow step or operation is finished. It is called only in response to the previous calling of one of the `RunAsync` methods (`RunAsyncImport`, `RunAsyncConflicts`, or `RunAsyncValidate`).

Syntax

This method has the following syntax:

```
AsyncOperationCompleted(string ApplicationID, string OperationType, string OperationResults)
```

Parameters

This method implements the following parameters:

Table 7-83 • AsyncOperationCompleted Method Parameters

Parameter	Description
ApplicationID	A known value.
OperationType	Step type identifier, which maps to the type of RunAsync method called.
OperationResults	Large XML based string with detailed information about how the operation performed.

ValidateDataGroup

The `ValidateDataGroup` method is called when a user clicks the **Next** button on the initial data entry screen of a Workflow Request. Workflow Manager also calls this event when the user clicks the **Submit** button on steps that collect a data group later in the workflow.

Syntax

This method has the following syntax:

```
ValidateDataGroup(string strAppId, ref string strAppXMLInfo)
```

Parameters

This method implements the following parameters:

Table 7-84 • ValidateDataGroup Method Parameters

Parameter	Description
strAppId	Application ID of the current workflow request.
strAppXMLInfo	XML formatted string for the current data group.

Example of strAppXMLInfo for ValidateDataGroup

The following is an example of a `strAppXMLInfo` string for `ValidateDataGroup`, with a returned message.

```
<ApplicationInfo>
   <CompanyName>Flexera</CompanyName>
   <AppId>d037b0db-8f09-430c-84c6-abb8413bf745</AppId>
   <AppSName>Plugin Wor</AppSName>
   <AppLName>Plugin Workflow</AppLName>
   <UserName>admin@servicer.com</UserName>
   <StepID>6391226d-aead-48b0-9942-24254364e163</StepID>
   <PhaseID>758d8dc4-ff9e-4a28-9b95-808a47469ec6</PhaseID>
   <StepName>Step1</StepName>
   <StepType>0</StepType>
   <DataGroups DataGroupName="DataGroup1">
```

```
        <DataElement>
            <DataElementId>97a825fb-35de-43ba-9d31-a3a99da1b81f</DataElementId>
            <DataElementName>Element1</DataElementName>
            <DataElementValue>asdf</DataElementValue>
            <Message>This data element Ram should be less than 10GB</Message>
            <IsValid>false</IsValid>
        </DataElement>
    </DataGroups>
</ApplicationInfo>
```

Return Values

The ValidateDataGroup event returns the following:

- **True / False**—Boolean (True/False) value to indicate whether all of the data values are valid.
- **Messages**—A set of error messages (strings) to display on the screen.

If ValidateDataGroup returns a False value to indicate that a data element is invalid, Workflow Manager does not advance to the next screen.

ValidateRequest

The ValidateRequest method is called when a user clicks the **Submit Request** button on the final data entry screen at the beginning of the workflow. Workflow Manager passes the names of the data elements and their values so that the function can validate them.

Syntax

This method has the following syntax:

```
ValidateRequest(string strAppId, ref string strAppXMLInfo)
```

Parameters

This method implements the following parameters:

Table 7-85 • ValidateRequest Method Parameters

Parameter	Description
strAppId	Application ID of the current workflow request.
strAppXMLInfo	XML formatted string for the current workflow request.

Example of strAppXMLInfo for ValidateRequest

The following is an example of a strAppXMLInfo string for ValidateRequest, with returned messages.

```
<ApplicationInfo>
    <CompanyName>Niranjan</CompanyName>
    <AppId>d037b0db-8f09-430c-84c6-abb8413bf745</AppId>
    <AppSName>Plugin Wor</AppSName>
    <ApplName>Plugin Workflow</ApplName>
    <UserName>admin@servicer.com</UserName>
    <StepID>6391226d-aead-48b0-9942-24254364e163</StepID>
```

```
   <DataGroups>
      <DataGroup DataGroupName="DataGroup2">
         <DataElement>
            <DataElementId>8e71a923-d9ca-463e-b397-d271a31d4430</DataElementId>
            <DataElementName>ram</DataElementName>
            <DataElementValue>6</DataElementValue>
            <Message>The data element Ram should be less than 5GB</Message>
            <IsValid>false</IsValid>
         </DataElement>
      </DataGroup>
      <DataGroup DataGroupName="DataGroup1">
         <DataElement>
            <DataElementId>97a825fb-35de-43ba-9d31-a3a99da1b81f</DataElementId>
            <DataElementName>Element1</DataElementName>
            <DataElementValue>asdf</DataElementValue>
            <Message />
            <IsValid />
         </DataElement>
      </DataGroup>
      <DataGroup DataGroupName="DataGroup5">
         <DataElement>
            <DataElementId>c3d1b2d7-767c-4fa7-9b63-fe01ab9e88e4</DataElementId>
            <DataElementName>processor</DataElementName>
            <DataElementValue>4</DataElementValue>
            <Message>The data element Processor should be less than 3GHZ</Message>
            <IsValid>false</IsValid>
         </DataElement>
      </DataGroup>
      <DataGroup DataGroupName="DataGroup3">
         <DataElement>
            <DataElementId>730eb7a0-ea80-45f3-a69c-be846912b9e7</DataElementId>
            <DataElementName>harddisk</DataElementName>
            <DataElementValue>300</DataElementValue>
            <Message>The data element harddisk should be less than 200GB</Message>
            <IsValid>false</IsValid>
         </DataElement>
      </DataGroup>
      <DataGroup DataGroupName="DataGroup4">
         <DataElement>
            <DataElementId>607ad242-16d8-4f0f-bdae-8d94e60fa7a7</DataElementId>
            <DataElementName>Normal Element</DataElementName>
            <DataElementValue>44</DataElementValue>
            <Message />
            <IsValid />
         </DataElement>
      </DataGroup>
   </DataGroups>
</ApplicationInfo>
```

Return Values

The `ValidateRequest` event returns the following:

- **True / False**—Boolean (True/False) value to indicate whether all of the values are valid.
- **Messages**—A set of error messages (strings) to display on the screen.

If `ValidateRequest` returns a False value, indicating that at least one value is invalid, Workflow Manager does not advance to the next screen.

Data Passed in XML to IPlugin Methods

When IPlugin methods pass workflow request data to the Workflow Manager database, it is in the following XML format:

```
<ApplicationInfo>
    <CompanyName>Requester</CompanyName>
    <AppId>876fb7b8-c51b-4aba-a3bc-7f19f7aebdae</AppId>
    <AppSName>AppName</AppSName>
    <AppLName>AppNameLong</AppLName>
    <UserName>7b31351c-f90c-4966-a61b-4d4626d86037</UserName>
    <StepID>e2c568c9-b9a6-46df-aecd-20c715cb277f</StepID>
    <PhaseID>da1f2878-de05-471b-8043-45b62990c7e6</PhaseID>
    <StepName>SomeWorkflowStep</StepName>
    <StepType>14</StepType>
    <BinaryFiles>
        <BinaryFile>
            <BinaryName />
            <BinarySize />
            <BinaryType />
            <BinarySavedLocation />
        </BinaryFile>
    </BinaryFiles>
    <MetaDatas>
        <MetaData>
            <DataName>Name</DataName>
            <DataValue>Ravneet</DataValue>
            <DataChanged>NO</DataChanged>
        </MetaData>
    </MetaDatas>
</ApplicationInfo>
```

The following table describes the elements contained in this XML file:

Table 7-86 • XML Data Passed to IPlugin Methods

Data Element	Description
<CompanyName>	Name of company that submitted this workflow request.
<AppId>	Number that uniquely identifies this workflow request in the database. ***Note** • This number is not the Request number that is displayed in the Workflow Manager interface.*
<AppSName>	First eight characters of the name of the workflow request that was entered at submission.
<AppLName>	Full name of the workflow request that was entered at submission.

Table 7-86 • XML Data Passed to IPlugin Methods (cont.)

Data Element	Description
<UserName>	User ID of the user who submitted this workflow request.
<StepID>	GUID that uniquely identifies the workflow step that this event is associated with.
<PhaseID>	GUID that uniquely identifies the phase in this workflow request that this event is associated with.
<StepName>	Name of workflow step that this event is associated with
<StepType>	Step type of workflow step that this event is associated with
<BinaryFiles>	Identifies the beginning of a group of uploaded files.
<BinaryFile>	Identifies the beginning of a group of elements that identify one uploaded file. There is one `<BinaryFile>` element for each uploaded file.
<BinaryName>	Name of file that was uploaded.
<BinarySize>	Size of the uploaded file.
<BinaryType>	Identifies the file type of the uploaded file.
<BinarySavedLocation>	Location where file the was uploaded.
<Metadatas>	Identifies the beginning of a group of data elements that were collected as part of this workflow request.
<Metadata>	Identifies the beginning of a one data element that was collected as part of this workflow request. There is one `<Metadata>` element for each data element submitted.
<DataName>	Name of data element.
<DataValue>	Value entered for that data element.
<DataChanged>	Identifies whether the data has been updated after it was submitted. • **No**—Data has not been updated. • **Yes**—Data has been updated.

Setting Up IPlugin Automation in Workflow Manager

You can use the IPlugin interface to import packages into the Application Catalog and perform validation and conflict analysis as part of a Workflow Manager workflow step via command line using AdminStudio Application Manager.

This feature enables Workflow Manager to provide a programmatic way to automate the performance of conflict detection and resolution on a Windows Installer package in a specific Application Catalog database.

Prerequisites

For the IPlugin functionality to work, the **AMS System User**—which is impersonated for IPlugin functionality—needs to be part of the **Administrators** and **IIS_IUSRS** groups on the Workflow Manager Server machine.

Steps to Achieve Automation

To set up Workflow Manager automation, perform the following steps:

Task ***To set up automation:***

1. Obtain the `EndUserIPlugin.Test.csproj` file from Flexera Technical Support.
2. References to the following three binaries need to be added in the project. All of these binaries can be found in the `C:\AdminStudioWebComponents_2019\wwwroot\bin` folder.
    - Adminstudio.Public.dll
    - IPlugin.dll
    - IPlugin2.dll
3. Once the references are added to the above DLLs, the solution should now build.
4. Once built, you can start overriding the callbacks in the Test solution to suit your customizations.
5. Once the `IPlugin.Test2.dll` is built, copy that DLL to the `C:\AdminStudioWebComponents_2019\wwwroot\plugins` folder.
6. Restart IIS. Your custom code should now be executing on various WFM events.

Advanced Configuration Options

You might need to impersonate to an Administrator user for validation and conflict analysis operations. For this, users generally need to store the Admin user name and password in the `web.config` file in clear text. Since this could be a security risk, it is advised to encrypt just this part of the `web.config` file. Sample changes shown below will help you achieve this.

Step 1: Make Changes to the web.config File

To store your user name/password in the `web.config` file, it is advised to do so in a new custom section in the main `web.config` file of Workflow Manager. This is achieved by modifying the existing `web.config` in two places.

Task ***To store your user name/password in the web.config file:***

1. Locate `<configuration>` at the top of the `web.config` file. Immediately after this tag, add the following:

```
<configSections>
   <section name="IPluginSettings" type="System.Configuration.NameValueSectionHandler" />
</configSections>
```

2. Scroll to the bottom of `web.config`, and place the following, immediately *before* the closing `<configuration>` tag:

```
<IPluginSettings>
   <add key="IPluginUserName" value="SomeAdminUser" />
   <add key="IPluginPassword" value="AdminPassword" />
   <add key="IPluginDomain" value="YourDomainORYourLocalMachine" />
</IPluginSettings>
```

3. Save the `web.config` file, and try to open Workflow Manager.

   If you receive an error about **web.config**, make sure the above changes were done in the right places.

Step 2: Write Code to Read These Values

Now that you have your custom section in the `web.config` file, your next step is to write code to read these values in your IPlugin code. To read these values, use the following snippet:

```
object oSection = System.Configuration.ConfigurationManager.GetSection("IPluginSettings");

System.Collections.Specialized.NameValueCollection IPluginSettings =
   oSection as System.Collections.Specialized.NameValueCollection;

string UserName = IPluginSettings["IPluginUserName"];
string Password = IPluginSettings["IPluginPassword"];
.
.
.
```

Step 3: Encrypt the Web.config File

Once you have this working, you then need to encrypt the entries in the `web.config` file so that they are not in clear text. This is done using the .NET 2.0 Framework executable.

Task ***To encrypt the entries in the web.config file:***

1. On the web server, open a command line and change the directory to:

```
<WindowsVolume>\Windows\Microsoft.NET\Framework\v2.0.50727
```

2. Run the following:

```
aspnet_regiis.exe -pef IPluginSettings "<WFM Location>\wwwroot"
```

   The above assumes your custom section in IPlugin is named `IPluginSettings` and your `web.config` file is in the `C:\AdminStudioWebComponents_2019\wwwroot` location.

   You should see a `Succeeded!` message if encryption worked.

3. Open your `web.config` file and confirm that your custom section is now encrypted.

   Now, to access the encrypted values, certain rights needs to be given to the user under which the web application is running. This is done to allow the application to access the RSA Key Stores.

4. On the same command line above, run the following command:

   ```
   aspnet_regiis.exe -pa "NetFrameworkConfigurationKey" "IUSR_MACHINENAME"
   ```

   `IUSR_MACHINENAME` is the user under which the web application is running. This user can be found under Directory Security settings in IIS for the Workflow Manager web site.

Once the above steps are successful, you can now read the values from the encrypted section in `web.config`. ASP.NET will automatically, at runtime, decrypt these values for you.

Web Services

Workflow Manager has a set of web services methods that you can use. For detailed information, see the Integration web services page:

`C:\AdminStudioWebComponents_2019\wwwroot\Webservicesroot\Integration.asmx`

For example, if you access Workflow Manager using an IP address, such as `http://111.22.33.444`, you would enter the following URL to open the Integration web services page:

`http://111.222.33.444/Webservicesroot/Integration.asmx`

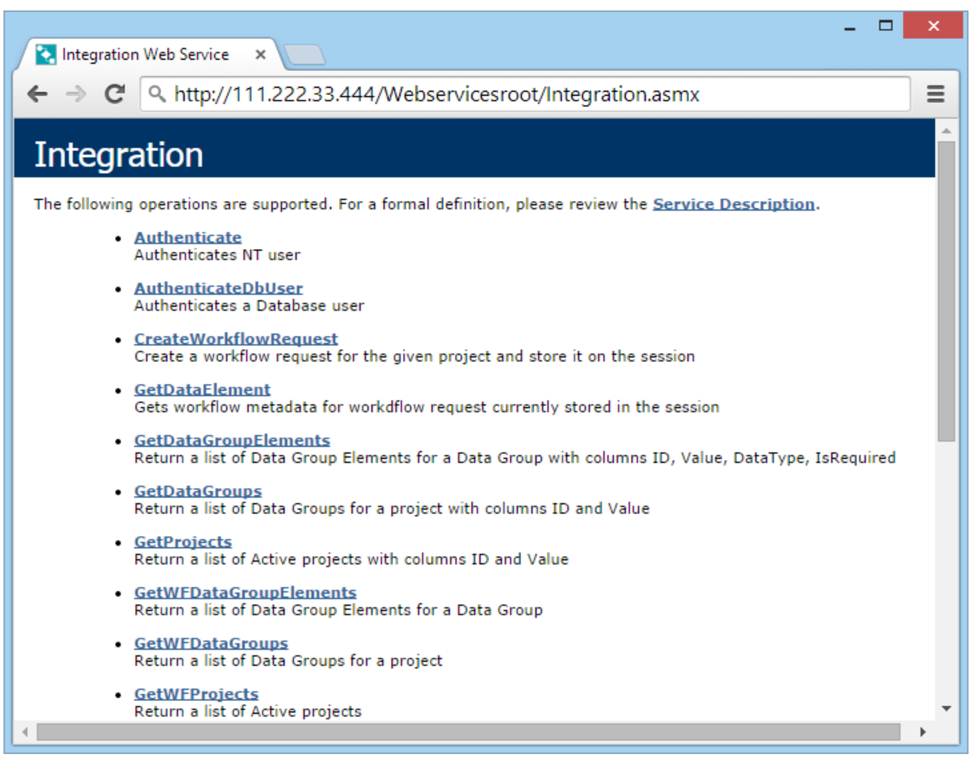


Figure 7-90: Integration Web Services Page

Clicking on one of these links on the Integration web services page opens a page that provides detailed information on the selected web method:

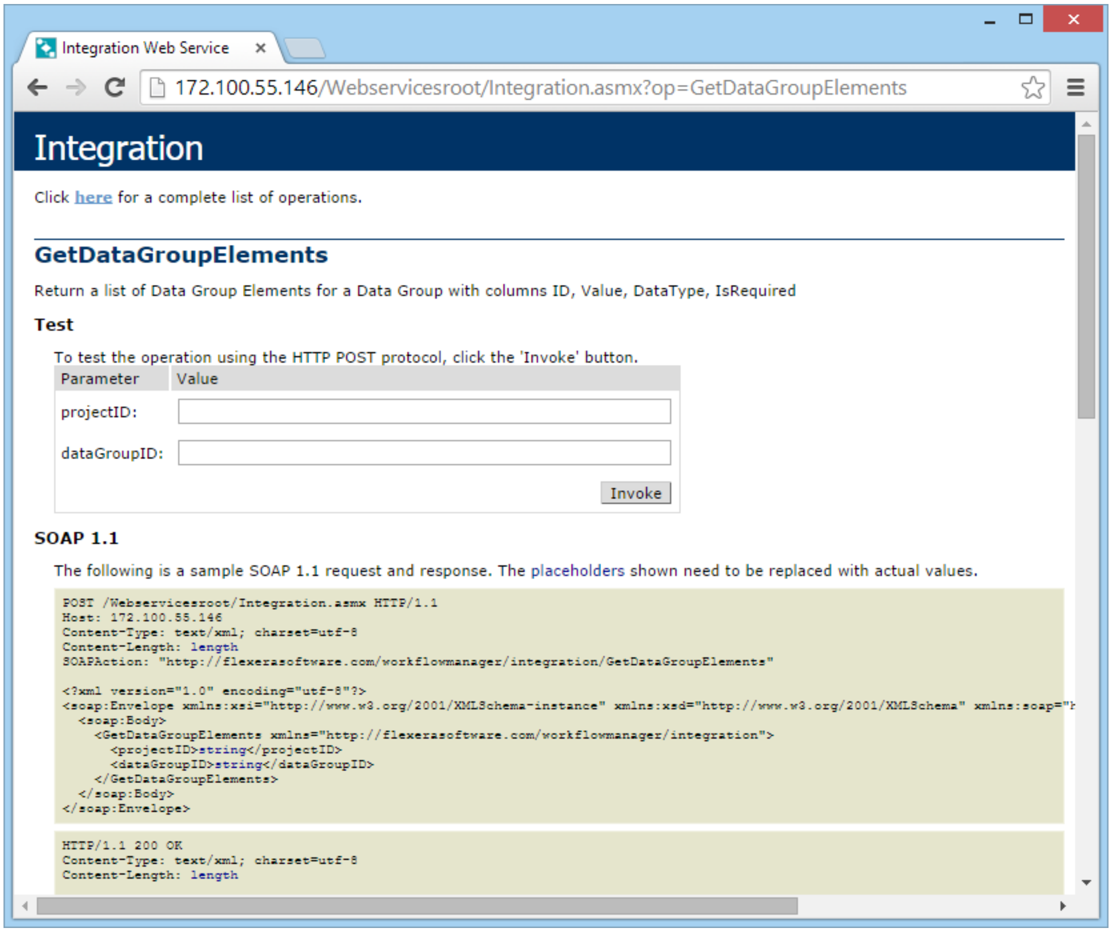


Figure 7-91: Information on GetDataGroupElements Web Method

Workflow Manager has the following web services methods:

Table 7-87 • Workflow Manager Web Services Methods

Method	Description
Authenticate	Authenticates NT users.
AuthenticateDbUser	Authenticates database users.
CreateWorkflowRequest	Creates a workflow request for the given project and stores it on the session.
GetDataElement	Gets workflow metadata for workflow request currently stored in the session.
GetDataGroupElements	Returns a list of data group elements for a data group with columns `ID`, `Value`, `DataType`, `IsRequired`.
GetDataGroups	Returns a list of data groups for a project with columns `ID` and `Value`.
GetProjects	Returns a list of active projects with columns `ID` and `Value`.

Table 7-87 • Workflow Manager Web Services Methods (cont.)

Method	Description
GetWFDataGroupElements	Returns a list of data group elements for a data group.
GetWFDataGroups	Returns a list of data groups for a project.
GetWFProjects	Returns a list of active projects.
GetWorkflowIDFromSession	Gets the workflow ID.
GetWorkflowNameFromSession	Gets the application name.
GetWorkflowStatus	Gets the workflow request status.
LoadWorkflowRequest	Loads the workflow request in the current session.
SetDataElement	Sets workflow metadata for workflow request currently stored in the session.
SetMultipleDataElements	Sets values of multiple data elements for multiple data groups of workflow request currently stored in the session. ***Note •*** *For more information, see SetMultipleDataElements.*
SubmitWorkflowRequest	Submit the application request currently stored in the session

SetMultipleDataElements

You can use the `SetMultipleDataElements` web method to populate the values of multiple data elements for multiple data groups of the workflow request currently stored in the session.

You use the `SetMultipleDataElements` web method along with an XML file containing the data group names, data element names, and values, such as the following:

```
<XML>
    <DataGroup Name="DG1">
        <Element Name="S1" Value="value"/>
        <Element Name="S2" Value="value"/>
        <Element Name="S3" Value="value"/>
        <Element Name="S4" Value="value"/>
        <Element Name="S5" Value="value"/>
        <Element Name="S6" Value="value"/>
        <Element Name="S7" Value="value"/>
        <Element Name="S8" Value="value"/>
    </DataGroup>
    <DataGroup Name="DG2">
        <Element Name="S1" Value="2"/>
    </DataGroup>
</XML>
```

Note • These XML tags are case sensitive.

When you then call the `SubmitWorkflowRequest` web method to submit the workflow request, the data will be populated.

Note • If you want to accept the data as well, pass the value `True`..

Workflow Manager Caching Logic

To help reduce the amount of time it takes to search Active Directory, Workflow Manager caches the results of searches for users belonging to a specific role. In this cache, Workflow Manager saves the search results of the **CompanyID** + **RoleID** subset that was searched.

This cache gets cleared several times:

- **When the Microsoft IIS Application Pool recycles**—This cache is cleared periodically when the web server is idle and the Microsoft IIS Application Pool recycles. In this case, all of the data in the cache is lost.
- **When the Account page is edited**—This cache is cleared each time the Workflow Manager Account page is edited for any account.

Every time the cache is cleared, there will be a hit in performance for the first user who tries to perform a search while the cache is built again.

Search Settings in web.config

There are two settings in the `web.config` file that affect caching: **LDAPSearchLimit** and **LDAPSearchPageSize**.

Table 7-88 • Search Settings in web.config

Setting	Decription
LDAPSearchLimit	This setting limits how many records are returned from Active Directory. If there is no search filter, Workflow Manager will only get the number of records defined by the **LDAPSearchLimit** setting (default is 1000). This limit is needed to prevent Workflow Manager from searching the Active Directory of the entire enterprise. The value of this setting can be increased as needed until time outs start to occur.
LDAPSearchPageSize	This setting comes into play when there is a search filter given. If the value of this setting is a positive non-zero number, then Workflow Manager ignores the **LDAPSearchLimit** setting and gets all the users. The value of the **LDAPSearchPageSize** setting determines the number of records the Active Directory search sends back per search cycle (the number of records that are retrieved each time Workflow Manager queries the Active Directory server). This value does not come into play during normal searches.

Ignoring the Cache and Searching the All Active Directory Records

The **LDAPSearchLimit** setting affects the number of records in the cache; Workflow Manager only stores the number of records from a **CompanyID + RoleID** subset that are found up to the limit defined by this setting.

Therefore, there might be a scenario where the Active Directory user you are trying to find by using a filter search is not being found because that user is not in the stored cache. In this case, you should ignore the cache by prefixing the **~** character to your search string (such as **`~Ravi`**). When **~** is used as a prefix, Workflow Manager ignores the cache and searches Active Directory for the user with that search pattern. After you perform a filter search using the **~** character, those search results are added to the cache (if they were not already in the cache).

The number of records that are returned performing this type of search depends upon the following:

- If the **LDAPSearchPageSize** is defined, Workflow Manager tries to return all of the users; there can be timeouts if Active Directory is large.
- If the **LDAPSearchPageSize** setting is zero, then a search will return only the number of records defined by the **LDAPSearchLimit** setting.

Workflow Manager Installation Issues

The *Workflow Manager Installation Guide* includes information on the following issues:

- Hardware and software requirements
- Required NTFS permissions
- Required user rights assignment for the Workfklow Manager web server
- Installing the Workflow Manager Web site software
- Setting up the File Share Server
- Assigning permissions on the SMTP Server
- Installing the Workflow Manager Web Portal software
- Manually installing Workflow Manager
    - Set up the virtual directories
    - Enable buffering and session state
    - Create database manually
- Assigning static IP addresses to a Server

A copy of the Workflow Manager Installation Guide PDF can be downloaded from the Documentation Center on the Flexera website:

https://flexeracommunity.force.com/customer/CCDocumentation

8

AdminStudio Configuration Wizard

You use the AdminStudio Configuration Wizard to activate the product; connect to a Microsoft SQL Server database, System Center Configuration Manager, and the Flexera Service Gateway; and perform other configuration tasks.

The AdminStudio Configuration Wizard is automatically launched after AdminStudio Inventory and Rationalization or Workflow Manager installation, and can also be launched at any time after installation, as described in Launching the AdminStudio Configuration Wizard. Standard panels are displayed during installation, and additional advanced panels can be displayed after installation.

The AdminStudio Configuration Wizard consists of the following panels.

Table 8-1 • AdminStudio Configuration Wizard

Wizard Panel	Task
Welcome Panel	[Post-installation only] Choose the which settings you want to update: ● Create/update AdminStudio database ● Activate AdminStudio license ● Configure Flexera Service Gateway ● Configure Inventory Beacon ● Update website configuration settings (Advanced)
Create or Update an AdminStudio Database Panel	Create or update the application's associated database.
Set Default Connection Panel	Set the default connection information for web site users.
Activation Panel	Upload the product license file.
Configuration Settings: Flexera Service Gateway Panel	Connect to the Flexera Service Gateway and enter your Access Token to communicate with the Application Recognition Service / FlexNet Manager Suite Cloud.

Table 8-1 • AdminStudio Configuration Wizard

Wizard Panel	Task
Configuration Settings: Microsoft Configuration Manager	Enter Microsoft System Center Configuration Manager settings.
Configuration Settings: Active Directory	Enter Active Directory settings.
Configuration Settings: Network Share Panel	[Post-installation only] Use to provide System Account credentials, and the location of the file share.
Configuration Settings: Visual	[Post-installation only] Use to enable or disable the application and/or assign quick list view.
Configuration Settings: Administrative	[Post-installation only] Use to enable or disable the step-level SLA. It also enables you to set the login page time out value, and the default AdminStudio user work assignment user.
Configuration Complete Panel	View configuration messages and close the wizard.

Launching the AdminStudio Configuration Wizard

You can launch the Configuration Wizard at any time by opening the following file that is installed with AdminStudio Inventory and Rationalization / Workflow Manager:

```
C:\AdminStudioWebComponents_2016\Support\Config\Config.exe
```

Welcome Panel

The **Welcome** panel is only displayed when you launch the AdminStudio Configuration Wizard manually after installation.

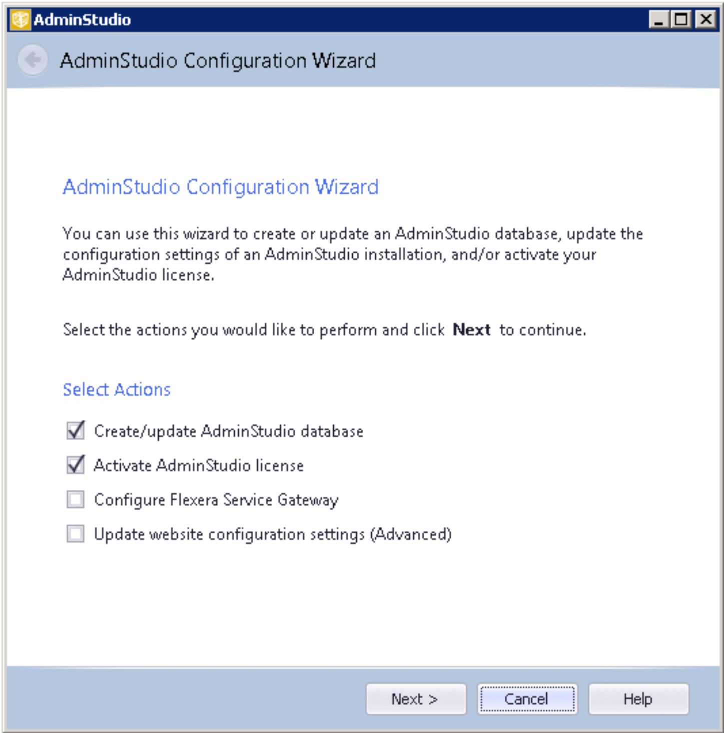


Figure 8-1: Welcome Panel

On the **Welcome** panel, you choose the which settings you want to update:

Table 8-2 • Welcome Panel Options

Option	Description
Create/update AdminStudio database	Select to display the Create or Update an AdminStudio Database Panel.
Activate AdminStudio license	Select to display the Activation Panel.
Configure Flexera Service Gateway	Select to display the Configuration Settings: Flexera Service Gateway Panel.
Configure Inventory Beacon	Select to display the Configuration Settings: Network Share Panel.
Update website configuration settings (Advanced)	Select to display the Configuration Settings: Network Share Panel, Configuration Settings: Visual, and Configuration Settings: Administrative panels.

Create or Update an AdminStudio Database Panel

On the **Create or Update an AdminStudio Database** panel, you specify a database server and database name, and also enter the information required to login to that database.

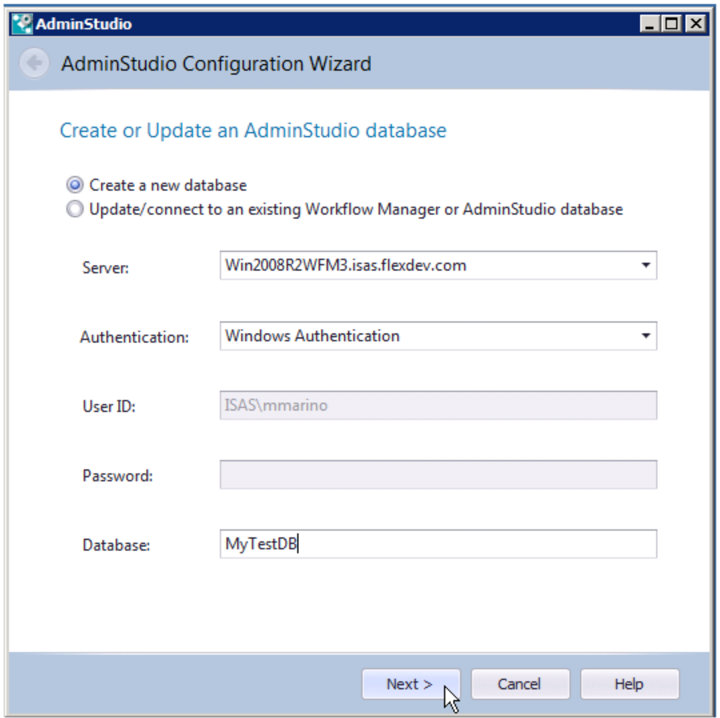


Figure 8-2: Create or Update an AdminStudio Database Panel

The **Create or Update an AdminStudio Database** panel includes the following properties:

Table 8-3 • Create or Update an AdminStudio Database Panel / AdminStudio Configuration Wizard

Property	Description
Option	Select one of the following options: • **Create a new database** • **Update/connect to an existing Workflow Manager or AdminStudio database**
Server	Either select a server from the list of available SQL Servers on the network, or manually enter the name of the SQL Server to which you want to connect.
Authentication	Select one of the following options: • **Windows Authentication**—Choose to use Windows network authentication (your network login ID) to log into this database. • **Server Authentication**—Choose to use SQL Server login identification for authentication. If you choose this option, you need to also enter the appropriate **User ID** and **Password**. ***Note* • Workflow Manager / App Portal integration only**—*If you plan to integrate Workflow Manager with App Portal, you must use Windows Authentication. Also, anonymous and forms authentication needs to be turned off for the site in IIS.*

Table 8-3 • Create or Update an AdminStudio Database Panel / AdminStudio Configuration Wizard

Property	Description
Database	If creating a new database, enter its name. If connecting to an existing database, enter its name or select the database name from the list.

Set Default Connection Panel

On the Set Default Connection panel, you need to enter the credentials that the Web Site Application Pool will run as in order to access the database.

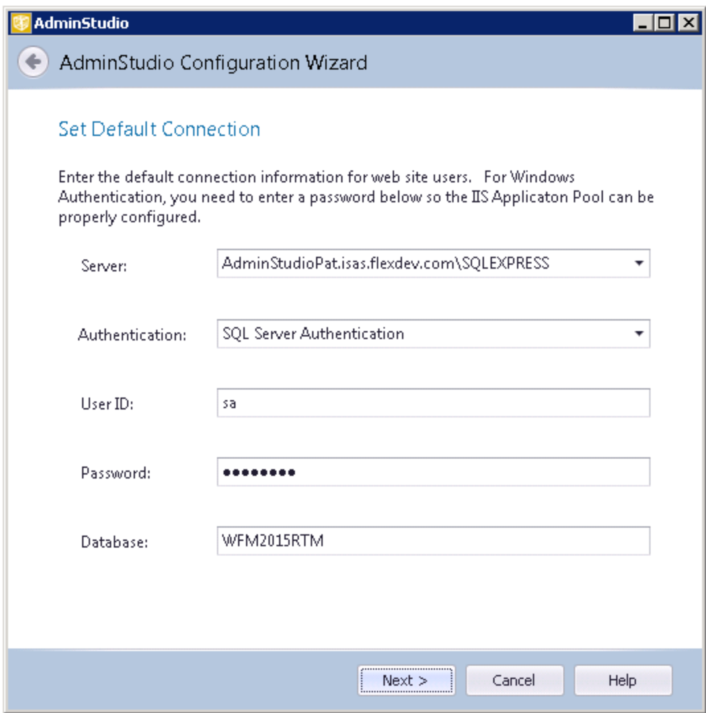


Figure 8-3: Set Default Connection Panel

The **Set Default Connection** panel includes the following properties:

Table 8-4 • Set Default Connection Panel / AdminStudio Configuration Wizard

Property	Description
Server	The SQL Server that you specified on the Create or Update an AdminStudio Database Panel is listed here in read-only format.
Authentication	Select one of the following options: ● **Windows Authentication** ● **Server Authentication**

Table 8-4 • Set Default Connection Panel / AdminStudio Configuration Wizard

Property	Description
User ID and Password	Enter credentials that the Web Site Application Pool will run as in order to access the database.
Database	The database name that you specified on the Create or Update an AdminStudio Database Panel is listed here in read-only format.

Activation Panel

On the **Activation** panel, you upload your AdminStudio license file.

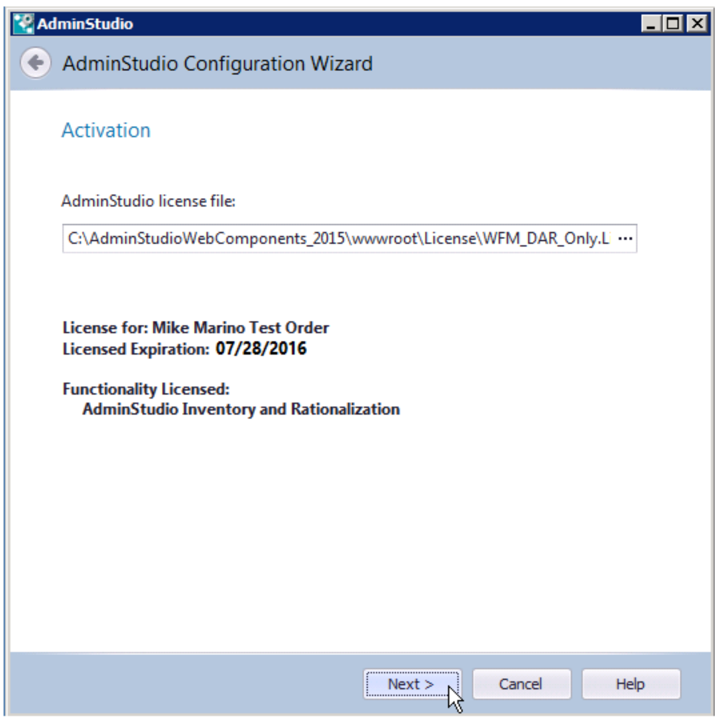


Figure 8-4: Activation Panel

The Activation panel includes the following properties:

Table 8-5 • Activation Panel / AdminStudio Configuration Wizard

Property	Description
AdminStudio license file	Click the browse button and select the license file that you obtained from Flexera.

Table 8-5 • Activation Panel / AdminStudio Configuration Wizard

Property	Description
License information	After you have uploaded your license file, a description of the rights of that license will be listed, including the following information: • **License for**—Name of license owner. • **License Expiration**—License expiration status, which will list an expiration date. • **Functionality Licensed**—Name of the application or functionality that this license entitles you to use.

Configuration Settings: Flexera Service Gateway Panel

AdminStudio and Workflow Manager communicate with other Flexera products through the Flexera Service Gateway. On the **Configuration Settings: Flexera Service Gateway** panel, you enter connection information for the Flexera Service Gateway, and enter your Access Token and URL to the AdminStudio Inventory and Rationalization Application Resource Service.

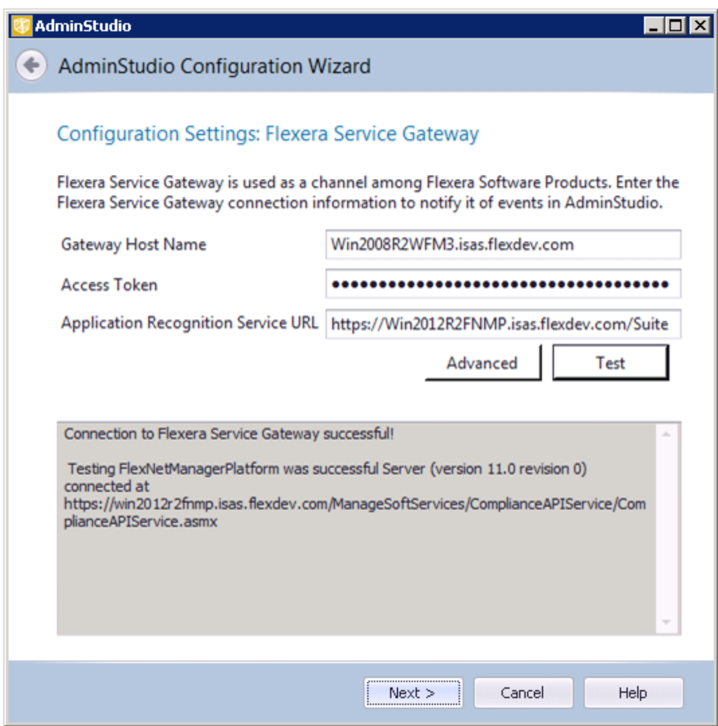


Figure 8-5: Configuration Settings: Flexera Service Gateway

The **Configuration Settings: Flexera Service Gateway** panel includes the following properties:

Table 8-6 • Configuration Settings: Flexera Service Gateway Panel / AdminStudio Configuration Wizard

Property	Description
Gateway Host Name	This field is automatically populated with the current machine name because the Flexera Service Gateway was installed on this machine as part of the installation process.
Access Token	Enter the **Access Token** that you obtained when preparing to install this product. This Access Token enables AdminStudio Inventory and Rationalization's Rationalization Manager component to communicate with the Application Recognition Service component.
Application Recognition Service URL	Enter the URL to the AdminStudio Inventory and Rationalization's Application Recognition Service component.
Advanced	By default, the user name and login to the Flexera Service Gateway is `admin / admin`. If you would like to change this default, click **Advanced** and enter a new user name and password.
Test	Click to validate the Flexera Service Gateway connection information.

Configuration Settings: Microsoft Configuration Manager

On the **Configuration Settings: Microsoft Configuration Manager** panel, you enter connection information to your Microsoft System Center Configuration Manager server.

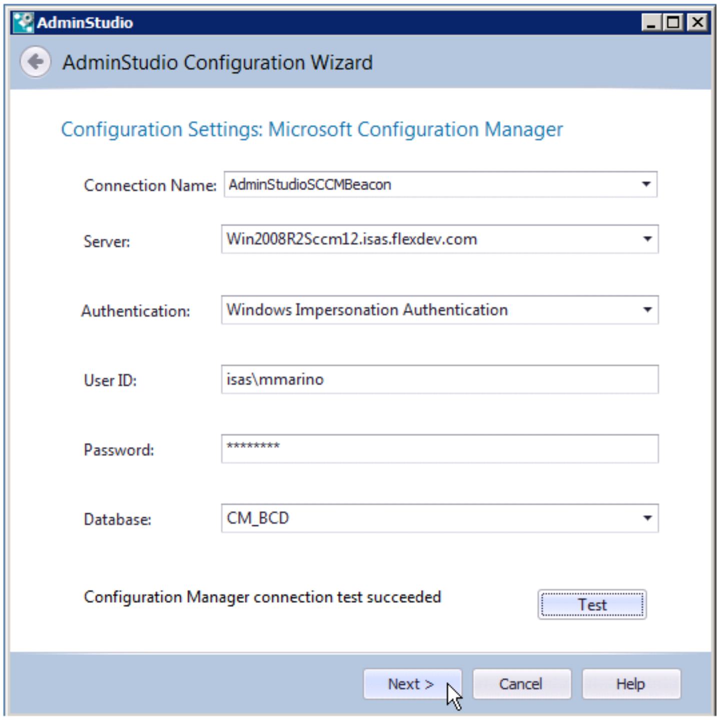


Figure 8-6: Configuration Settings: Microsoft Configuration Manager Panel

The **Configuration Settings: Microsoft Configuration Manager** panel includes the following properties:

Table 8-7 • Configuration Settings: Microsoft Configuration Manager Panel / AdminStudio Configuration Wizard

Property	Description
Connection Name	Enter a name for this new connection to a System Center Configuration Manager server or select an existing connection from the list.
Server	Enter the name of your System Center Configuration Manager server or select it from the list.
Authentication	Select one of the following options to specify the type of authentication you will use to connect to the System Center Configuration Manager server: • **Server Authentication** • **Windows Authentication with Impersonation**
User ID **Password**	Enter valid credentials per the **Authentication** choice you made: • **Server Authentication**—Enter valid credentials to login to your System Center Configuration Manager server. • **Windows Authentication with Impersonation**—Enter the user name and password of a network user that has permission to logon to System Center Configuration Manager server via Windows Authentication.

Table 8-7 • Configuration Settings: Microsoft Configuration Manager Panel / AdminStudio Configuration Wizard

Property	Description
Database	Enter the name of your System Center Configuration Manager database.
Test	Click to test the connection to the System Center Configuration Manager server.

Configuration Settings: Active Directory

On the **Configuration Settings: Active Directory** panel, you enter connection information to your enterprise's Active Directory. AdminStudio Inventory and Rationalization will pull user names from Active Directory to associate with application usage information from System Center Configuration Manager.

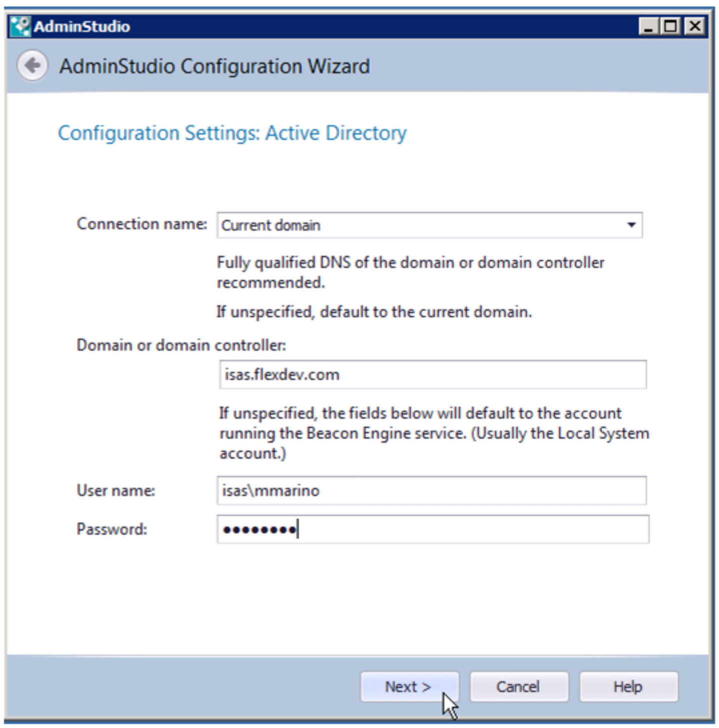


Figure 8-7: Configuration Settings: Active Directory Panel

The **Configuration Settings: Active Directory** panel includes the following properties:

Table 8-8 • Create or Update an AdminStudio Database Panel / AdminStudio Configuration Wizard

Property	Description
Connection name	Enter the name of your enterprise's Active Directory connection.
Domain or domain controller	Enter the fully qualified DNS of the domain or domain controller. If this field is not specified, the current domain will be used.

Table 8-8 • Create or Update an AdminStudio Database Panel / AdminStudio Configuration Wizard

Property	Description
User name	Enter the user name of an operator who has permission to retrieve account/group information and authenticate an account against this directory service, in the `domainName\userName` format.
Password	The password associated with the credentials specified in the **User name** field.

Configuration Settings: Network Share Panel

On the **Configuration Settings: Network Share** panel, you specify a domain account and location for a file share directory.

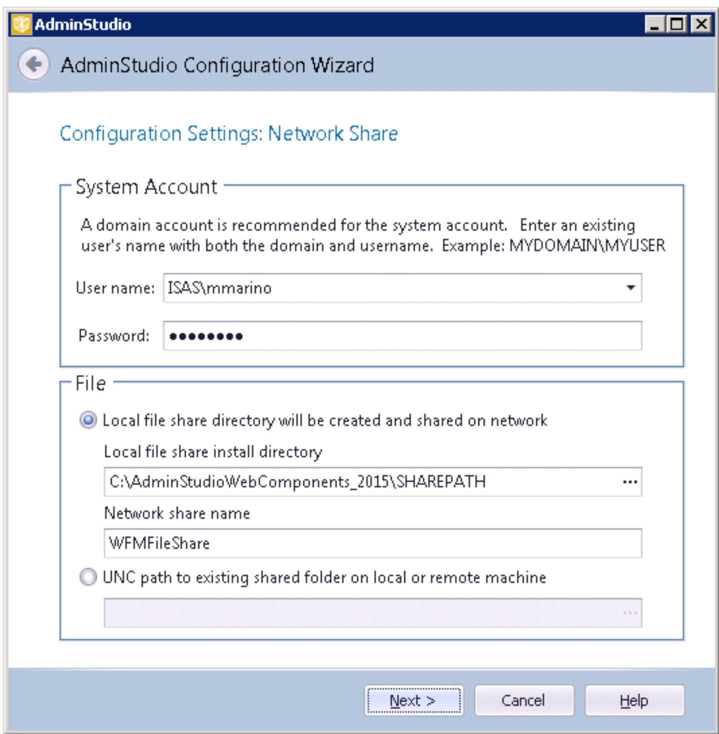


Figure 8-8: Configuration Settings: Network Share

The **Configuration Settings: Network Share** panel includes the following properties:

Table 8-9 • Configuration Settings: Network Share Panel / AdminStudio Configuration Wizard

Property	Description
User name **Password**	Enter a user name and password for the system account. Enter the user name in `DOMAIN_NAME\USER_NAME` format.

Table 8-9 • Configuration Settings: Network Share Panel / AdminStudio Configuration Wizard

Property	Description
Local file share directory will be created and shared on network	Select this option if your file share location is on the local machine.
Local file share install directory	Enter the local file share directory path.
Network share name	Specify the name of the shared directory when it is viewed from other machines in the network.
UNC path to existing shared folder on local or remote machine	Select this option if your file share location is in a shared folder on a local or remote machine, and enter the location in UNC path format.

Configuration Settings: Visual

On the **Configuration Settings: Visual** panel, you can enable or disable quick list view and set the report option number.

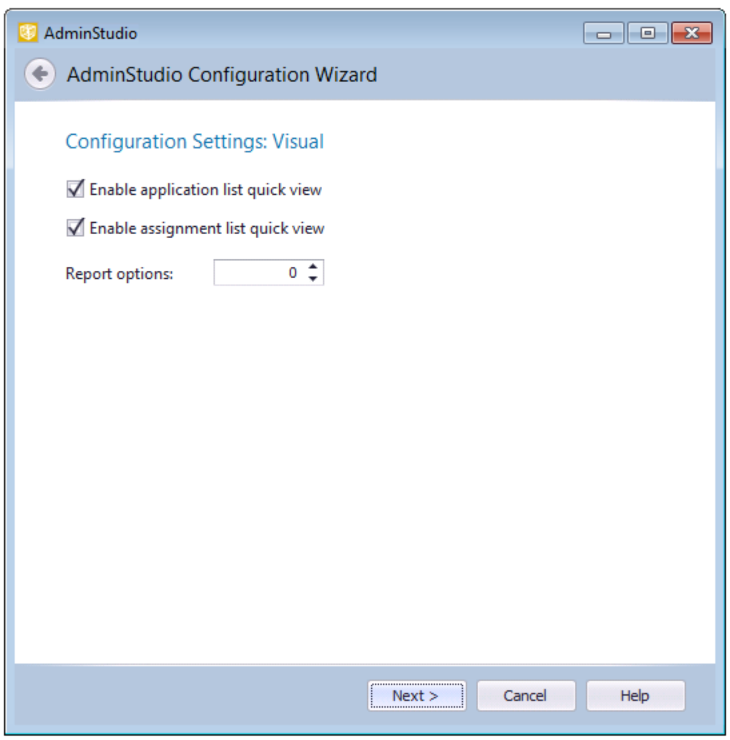


Figure 8-9: Configuration Settings: Visual

The **Configuration Settings: Visual** panel includes the following properties:

Table 8-10 • Configuration Settings: Visual Panel / AdminStudio Configuration Wizard

Property	Description
Enable application list quick view	Not currently used.
Enable assignment list quick view	Not currently used.
Report options	Not currently used.

Configuration Settings: Administrative

On the **Configuration Settings: Administrative** panel, you specify several administrative settings.

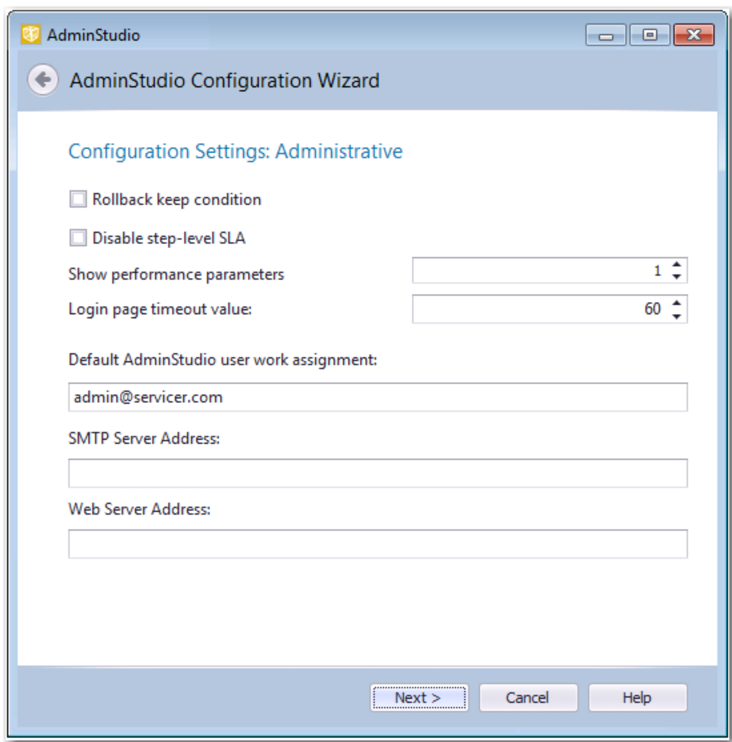


Figure 8-10: Configuration Settings: Administrative

The **Configuration Settings: Administrative** panel includes the following properties:

Table 8-11 • Configuration Settings: Administrative Panel / AdminStudio Configuration Wizard

Property	Description
Rollback keep condition	Not currently used.

Table 8-11 • Configuration Settings: Administrative Panel / AdminStudio Configuration Wizard

Property	Description
Disable step-level SLA	If this option is selected, the **Track for Workflow SLA** option on the Template Details view is not available. That means that all workflow steps will be included in SLA calculations.
Show performance parameters	Not currently used.
Login page timeout value	Identifies the length of time that you can leave the login page open before it times out.
Default AdminStudio user work assignment	Specify which AdminStudio user is automatically assigned to an AdminStudio project that is created as part of a Workflow Manager phase.
SMTP Server Address	Enter the address of your email server.
Web Server Address	Edit to modify the Workflow Manager website IP address. By default, it is `http://localhost/`.

Configuration Complete Panel

On the **Configuration Complete** panel, configuration messages are listed. You are notified when configuration is complete. Click **Finish** to close the wizard.

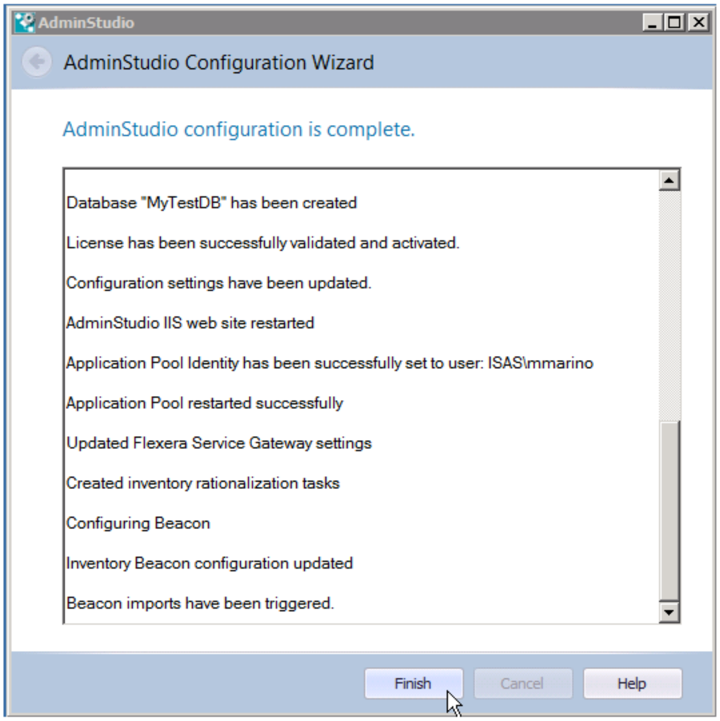


Figure 8-11: Configuration Complete Panel

9

Index

A

D

E

F

G

H

I

L

S

T

U

V

X