Legal Information

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  - Configuring Workflow Manager Using the AdminStudio Configuration Wizard
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- Editing the Configuration File: web.config

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- Database Connection String for ASP Pages
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- Recursive Group Search
- Accounts to Use for Auto Assignment
- AdminStudio Active Directory Group

### Extending Workflow Manager

### Using the IPlugin Interface
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.

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

**Table 1-1 • Workflow Manager 2016 / AdminStudio Enterprise Server 2016 Help Library**

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

---

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<th>Task</th>
<th>Content</th>
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<td><strong>Using Workflow Manager</strong></td>
<td>Information on using Workflow Manager is presented in the following sections:</td>
</tr>
<tr>
<td></td>
<td>- <strong>Getting Started</strong>—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></td>
<td>- <strong>About Workflow Manager</strong>—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></td>
<td>- <strong>Submitting and Monitoring Workflow Requests</strong>—Includes procedures that are related to submitting, monitoring, and reporting on workflow requests.</td>
</tr>
<tr>
<td></td>
<td>- <strong>Completing Workflow Requests</strong>—Includes procedures that are related to performing and completing workflow request tasks.</td>
</tr>
<tr>
<td></td>
<td>- <strong>Performing Administrative Tasks</strong>—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><strong>Workflow Manager Reference</strong></td>
<td>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><strong>Generating and Viewing Reports in Report Center</strong></td>
<td>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><strong>AdminStudio Configuration Wizard</strong></td>
<td>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>
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</table>
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 Software Orders Department. You can also obtain your license file from the Flexera Software 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 Software 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.
To activate Workflow Manager:

1. Launch the Configuration Wizard by opening the following file that is installed with Workflow Manager:
   C:\AdminStudioWebComponents_2016\Support\Config\Config.exe
2. Open the Activation panel.
3. Click the browse button and select the license file that you obtained from Flexera Software.
4. Finish the wizard to save your entry.

Starting the Product

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

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.

![Workflow Manager / AdminStudio Enterprise Server Navigation Bar Menu](image)

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

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

**Table 1-2 • Navigation Bar Selections**

<table>
<thead>
<tr>
<th>Menu</th>
<th>Heading</th>
<th>Menu Selection</th>
<th>Product</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home</td>
<td>Options</td>
<td>Dashboard</td>
<td>WFM</td>
<td>See <em>Viewing Dashboard Reports</em>.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Getting Started</td>
<td>WFM</td>
<td>See <em>Getting Started</em>.</td>
</tr>
<tr>
<td>Menu</td>
<td>Heading</td>
<td>Menu Selection</td>
<td>Product</td>
<td>Description</td>
</tr>
<tr>
<td>----------------------</td>
<td>------------------------------</td>
<td>---------------------------------------</td>
<td>---------</td>
<td>------------------------------------------------------------------</td>
</tr>
<tr>
<td>Workflows</td>
<td>Workflow Requests</td>
<td>Submit Workflow Requests</td>
<td>WFM</td>
<td>See Submitting a Workflow Request.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>All Workflow Requests</td>
<td>WFM</td>
<td>See All Workflow Requests Page.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Workflow Requests Assigned to Me</td>
<td>WFM</td>
<td>See Workflow Requests Assigned To Me Page.</td>
</tr>
<tr>
<td></td>
<td>Work Assignments</td>
<td>View Assignments By Account</td>
<td>WFM</td>
<td>See Assignments By Account Page</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Assign Work</td>
<td>WFM</td>
<td>See Work Assignment Listing Page.</td>
</tr>
<tr>
<td></td>
<td>My Notifications</td>
<td>My Default Project Notifications</td>
<td>WFM</td>
<td>See My Default Project Notifications Page.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>My Workflow Notifications</td>
<td>WFM</td>
<td>See My Workflow Notifications Page.</td>
</tr>
<tr>
<td>Issues</td>
<td>Open Issues</td>
<td>All Open Issues</td>
<td>WFM</td>
<td>See Issues Pages.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Recently Created Issues</td>
<td>WFM</td>
<td>See Issues Pages.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Recently Created Critical Issues</td>
<td>WFM</td>
<td>See Issues Pages.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Recently Responded Issues</td>
<td>WFM</td>
<td>See Issues Pages.</td>
</tr>
<tr>
<td></td>
<td>Closed Issues</td>
<td>Recently Closed Issues</td>
<td>WFM</td>
<td>See Issues Pages.</td>
</tr>
</tbody>
</table>
### Table 1-2 • Navigation Bar Selections (cont.)

<table>
<thead>
<tr>
<th>Menu</th>
<th>Heading</th>
<th>Menu Selection</th>
<th>Product</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reports</td>
<td>Standard Reports</td>
<td>All Reports</td>
<td>WFM</td>
<td>See All Reports Page.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Request Detail Report</td>
<td>WFM</td>
<td>See Request Detail Report.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Project SLA Report</td>
<td>WFM</td>
<td>See Project SLA Report.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Workflow Request Summary Report</td>
<td>WFM</td>
<td>See Workflow Requests Summary Report.</td>
</tr>
<tr>
<td>Custom Reports</td>
<td>Create Custom Workflow Manager Report</td>
<td>WFM</td>
<td>See Creating a Custom Report.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Create Workflow Manager Activity Report</td>
<td>WFM</td>
<td>See Creating an Activity Report.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Create Custom SQL Query Report</td>
<td>WFM / ASES</td>
<td>See Generating a Custom SQL Query Report.</td>
<td></td>
</tr>
<tr>
<td>AdminStudio Reports</td>
<td>Search Packages</td>
<td>WFM / ASES</td>
<td>See Viewing Package Reports.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Application Catalog Reports</td>
<td>WFM / ASES</td>
<td>See Viewing AdminStudio Application Catalog Reports.</td>
<td></td>
</tr>
</tbody>
</table>
### Table 1-2 • Navigation Bar Selections (cont.)

<table>
<thead>
<tr>
<th>Menu</th>
<th>Heading</th>
<th>Menu Selection</th>
<th>Product</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administration</td>
<td>Design</td>
<td>Projects</td>
<td>WFM</td>
<td>See Project Administration Page.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Templates</td>
<td>WFM</td>
<td>See Creating a New Template and Template Administration Page.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Approvals</td>
<td>WFM</td>
<td>See Managing Approval Templates and Approval Administration Page.</td>
</tr>
<tr>
<td>Configuration</td>
<td>Workflow Status</td>
<td>WFM</td>
<td></td>
<td>See Managing Workflow Status Values</td>
</tr>
<tr>
<td></td>
<td>External Email</td>
<td>WFM</td>
<td></td>
<td>See External Email Address Administration Page.</td>
</tr>
<tr>
<td></td>
<td>Settings</td>
<td>WFM</td>
<td></td>
<td>See Modifying Default SLA Calendar Settings.</td>
</tr>
</tbody>
</table>
Overview of the Navigation Bar

Table 1-2 • Navigation Bar Selections (cont.)

<table>
<thead>
<tr>
<th>Menu</th>
<th>Heading</th>
<th>Menu Selection</th>
<th>Product</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Settings</td>
<td>Configuration</td>
<td>Accounts and Groups</td>
<td>WFM / ASES</td>
<td>See Account Administration Page.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Roles</td>
<td>WFM / ASES</td>
<td>See Role Administration Page.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Email Templates</td>
<td>WFM</td>
<td>See Email Template Administration Page.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Companies</td>
<td>WFM</td>
<td>See Company/Business Unit Administration Page.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>External Web Services</td>
<td>WFM</td>
<td>See External Web Services Administration Page.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>External Data Sources</td>
<td>WFM</td>
<td>See External Data Sources Administration Page.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Directory Service Attributes</td>
<td>WFM</td>
<td>See Directory Service Attributes Administration Page.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Company Preferences</td>
<td>WFM</td>
<td>See Setting Preferences on the Company Preferences Page.</td>
</tr>
</tbody>
</table>

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 1-2: 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>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pagination</td>
<td>Control the rows per page, and easily navigate through pages in a list.</td>
</tr>
<tr>
<td>Sorting Lists</td>
<td>Show data rows in the order you prefer, including sorts across multiple rows.</td>
</tr>
<tr>
<td>Managing Columns in a List</td>
<td>You can arrange the visibility and order of columns in a list to suit your preferences.</td>
</tr>
<tr>
<td>Grouping Items in Lists</td>
<td>You can easily create groups within existing lists.</td>
</tr>
<tr>
<td>Searching in Lists</td>
<td>A search is one way to limit the amount of data transferred from the central database to your browser.</td>
</tr>
<tr>
<td>Using Filters to Limit Data Size</td>
<td>Explains that there are several different ways to manage filters.</td>
</tr>
<tr>
<td>Exporting a List</td>
<td>Lists in the management view, configured to your taste, can be exported in several formats.</td>
</tr>
</tbody>
</table>

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.

💡 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.
To navigate through pages:

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

   ![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.

      ![Pagination control]

      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.

   ![Sort indicator arrow]

   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.
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.

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.
Using Lists

**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: ![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: ![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.

![Search field above lists](image)

**Figure 1-3:** 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:

<table>
<thead>
<tr>
<th>Rule</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Searching is always case insensitive.</td>
<td>Searching for <strong>acrolinx</strong> matches acrolinx, Acrolinx, and AcroLinx.</td>
</tr>
<tr>
<td>Word completion normally applies.</td>
<td>Searching for <strong>support</strong> returns results containing supporting and</td>
</tr>
<tr>
<td></td>
<td>supported. It will not return anything containing only unsupported</td>
</tr>
<tr>
<td></td>
<td>(because “support” is not at the start of that word). The search</td>
</tr>
<tr>
<td></td>
<td>match is “begins with”, but not “contains”.</td>
</tr>
<tr>
<td></td>
<td><strong>Tip</strong> • When you later add filters to your results, you can use other</td>
</tr>
<tr>
<td></td>
<td>tests like Contains in the filters (see Using Filters to Limit Data Size).</td>
</tr>
<tr>
<td>Multi-word searches apply word completion to each word, in any order.</td>
<td>Searching for <strong>off micro</strong> will return Microsoft Office, and would also return Redmond offices of Microsoft.</td>
</tr>
<tr>
<td>Multi-word searches apply to one column at a time.</td>
<td>Searching for <strong>off micro</strong> 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 <strong>Publisher</strong> set to Microsoft and <strong>Name</strong> set to just Office, because there is no single column that the search terms entirely match.</td>
</tr>
</tbody>
</table>
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>
<thead>
<tr>
<th>Filter Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Using the Quick Filter Button</strong></td>
<td>This extra button in the header row enables you to quickly filter the list by selecting one of the listed values.</td>
</tr>
<tr>
<td><strong>Using the Header Filter</strong></td>
<td>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.</td>
</tr>
</tbody>
</table>
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.

![Example of Simple Filter](image)

**Figure 1-4:** 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.

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 1-5: Help Button

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

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

Contacting Us

Flexera Software 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.flexerasoftware.com
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 Report Center Permissions
## Administration and Report Center Permissions

AdminStudio Enterprise Server and Workflow Manager have the following permissions:

<table>
<thead>
<tr>
<th>Feature</th>
<th>Right</th>
<th>This right grants permission to...</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approval View</td>
<td>View</td>
<td>See the Approval Administration page.</td>
</tr>
<tr>
<td></td>
<td>Edit</td>
<td>Modify an existing approval template, including adding or removing users.</td>
</tr>
<tr>
<td></td>
<td>Add</td>
<td>Add/delete an approval template.</td>
</tr>
<tr>
<td>Directory Services View</td>
<td>View</td>
<td>See the Administration/Directory Services tab and view the Directory Services page, the Directory Services List page, and the Directory Services Attributes Administration page.</td>
</tr>
<tr>
<td></td>
<td>Edit</td>
<td>Modify an existing directory service.</td>
</tr>
<tr>
<td></td>
<td>Add</td>
<td>Create a new directory service.</td>
</tr>
<tr>
<td></td>
<td>Delete</td>
<td>Remove an existing directory service.</td>
</tr>
<tr>
<td>Email Templates Edit</td>
<td>Edit</td>
<td>Modify email templates.</td>
</tr>
<tr>
<td>External Data Sources Edit</td>
<td>Edit</td>
<td>View and modify the settings on the External Data Sources tab.</td>
</tr>
<tr>
<td>Global Email Administration View</td>
<td>View</td>
<td>See the External Email Address Administration page.</td>
</tr>
<tr>
<td></td>
<td>Edit</td>
<td>Modify the settings on the External Email Address Administration page.</td>
</tr>
<tr>
<td>People</td>
<td>View</td>
<td>See the Account Administration and Account Details pages.</td>
</tr>
<tr>
<td></td>
<td>Edit</td>
<td>Modify an existing account.</td>
</tr>
<tr>
<td></td>
<td>Add</td>
<td>Create a new account and import accounts from a directory service.</td>
</tr>
<tr>
<td></td>
<td>Delete</td>
<td>Remove an existing account.</td>
</tr>
</tbody>
</table>
### Table 2-1 • AdminStudio Enterprise Server and Workflow Manager Permissions

<table>
<thead>
<tr>
<th>Feature</th>
<th>Right</th>
<th>This right grants permission to...</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Roles</strong></td>
<td>View</td>
<td>See the Role Administration and Role Details pages.</td>
</tr>
<tr>
<td></td>
<td>Edit</td>
<td>Modify an existing role.</td>
</tr>
<tr>
<td></td>
<td>Copy</td>
<td>Duplicate an existing role.</td>
</tr>
<tr>
<td></td>
<td>Add</td>
<td>Create an existing role.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Note</strong> • You must have this permission in order to be able to upgrade an existing Application Catalog.</td>
</tr>
<tr>
<td>Email Notify Enabled</td>
<td></td>
<td>Enable email notification.</td>
</tr>
<tr>
<td><strong>Report Center / All Reports</strong></td>
<td>Edit</td>
<td>Modify an existing custom report.</td>
</tr>
<tr>
<td></td>
<td>Add</td>
<td>Create a new custom report by making a selection under Custom Reports on the Reports menu.</td>
</tr>
<tr>
<td></td>
<td>Delete</td>
<td>Remove an existing custom report.</td>
</tr>
<tr>
<td><strong>Report Center / Package Reports</strong></td>
<td>View</td>
<td>See the Search Packages page and view Package Reports.</td>
</tr>
</tbody>
</table>
# 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 2-2 • Workflow Manager Permissions**

<table>
<thead>
<tr>
<th>Category</th>
<th>Right</th>
<th>This right grants permission to...</th>
</tr>
</thead>
<tbody>
<tr>
<td>Workflow Request</td>
<td>View</td>
<td>See the Properties and Issues tabs on the Workflow Request page for an existing workflow request.</td>
</tr>
<tr>
<td></td>
<td>Edit</td>
<td>Modify an existing workflow request.</td>
</tr>
<tr>
<td></td>
<td>Copy</td>
<td>Duplicate an existing workflow request.</td>
</tr>
<tr>
<td></td>
<td>Add</td>
<td>Create a new workflow request.</td>
</tr>
<tr>
<td></td>
<td>Delete</td>
<td>Remove an existing workflow request.</td>
</tr>
<tr>
<td>Monitor Workflow Progress</td>
<td>View Related Workflows</td>
<td>See the Progress tab of the Workflow Request page, and complete workflow steps.</td>
</tr>
<tr>
<td></td>
<td>Add Related Workflows</td>
<td>Link one workflow request to another on the Related Workflows tab</td>
</tr>
<tr>
<td></td>
<td>Deleted Related Workflow Links</td>
<td>Unlink related workflows.</td>
</tr>
<tr>
<td></td>
<td>Edit Workflow Due Period</td>
<td>Modify the Workflow due period field on the Properties tab of the Workflow Request page.</td>
</tr>
<tr>
<td></td>
<td>View Properties</td>
<td>See the Properties tab of the Workflow Request page.</td>
</tr>
<tr>
<td></td>
<td>View Uploaded Files</td>
<td>See the Uploaded Files tab of the Workflow Request page.</td>
</tr>
<tr>
<td></td>
<td>View Downloadable Files</td>
<td>See the Downloadable Files tab of the Workflow Request page.</td>
</tr>
</tbody>
</table>
### Table 2-2 • Workflow Manager Permissions

<table>
<thead>
<tr>
<th>Category</th>
<th>Right</th>
<th>This right grants permission to...</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Workflow Request</strong> (Continued)</td>
<td>View Documents</td>
<td>See the Documents tab of the Workflow Request page.</td>
</tr>
<tr>
<td></td>
<td>Upload Documents</td>
<td>Upload documents on the Documents tab of the Workflow Request page.</td>
</tr>
<tr>
<td></td>
<td>Delete Documents</td>
<td>Delete documents on the Documents tab of the Workflow Request page.</td>
</tr>
<tr>
<td></td>
<td>Download Documents</td>
<td>Download documents on the Documents tab of the Workflow Request page.</td>
</tr>
<tr>
<td><strong>Calendar Settings</strong></td>
<td>View</td>
<td>See the Calendar Settings Administration page.</td>
</tr>
<tr>
<td></td>
<td>Edit</td>
<td>Modify calendar settings.</td>
</tr>
<tr>
<td><strong>Consumer Company</strong></td>
<td>View</td>
<td>See the list of existing consumer companies, and view their details.</td>
</tr>
<tr>
<td></td>
<td>Edit</td>
<td>Update details of an existing consumer company.</td>
</tr>
<tr>
<td></td>
<td>Add</td>
<td>Create a new consumer company.</td>
</tr>
<tr>
<td></td>
<td>Delete</td>
<td>Remove an existing consumer company.</td>
</tr>
<tr>
<td><strong>Issues</strong></td>
<td>View</td>
<td>See the Issues tab of the Workflow Requests page, and drill through to see details of an individual issue.</td>
</tr>
<tr>
<td></td>
<td>Respond</td>
<td>Respond to an existing issue.</td>
</tr>
<tr>
<td></td>
<td>Add</td>
<td>Create a new E-mail or Knowledge Base issue.</td>
</tr>
<tr>
<td></td>
<td>Close</td>
<td>Close an existing E-mail or Knowledge Base issue.</td>
</tr>
<tr>
<td></td>
<td>Add/Close Critical Issue</td>
<td>Create and close Critical issues.</td>
</tr>
<tr>
<td><strong>My Notifications</strong></td>
<td>View</td>
<td>See the My Notifications pages: My Default Project Notifications and My Workflow Notifications.</td>
</tr>
<tr>
<td></td>
<td>Edit</td>
<td>Modify settings on the My Default Project Notifications and My Workflow Notifications pages.</td>
</tr>
<tr>
<td><strong>Workflow and Template Permissions</strong></td>
<td>View</td>
<td>See the permission and email settings on the Template Details and Project Details pages.</td>
</tr>
<tr>
<td></td>
<td>Edit</td>
<td>Modify the permission and email settings on the Template Details and Project Details pages.</td>
</tr>
</tbody>
</table>
Chapter 2  Managing Roles and Permissions
AdminStudio and Workflow Manager Roles and Permissions

Table 2-2 • Workflow Manager Permissions

<table>
<thead>
<tr>
<th>Category</th>
<th>Right</th>
<th>This right grants permission to...</th>
</tr>
</thead>
<tbody>
<tr>
<td>Projects</td>
<td>View</td>
<td>See the Project Administration page, and see (but not update) project details on the Project Details page.</td>
</tr>
<tr>
<td></td>
<td>Edit</td>
<td>Update details of an existing project.</td>
</tr>
<tr>
<td></td>
<td>Add</td>
<td>Create a new project.</td>
</tr>
<tr>
<td></td>
<td>Delete</td>
<td>Remove an existing project.</td>
</tr>
<tr>
<td>Search</td>
<td>Simple Search</td>
<td>Enter keywords in search box on the Home page to search for a workflow request by name.</td>
</tr>
<tr>
<td></td>
<td>Advanced Search</td>
<td>Search for workflow requests by specifying multiple criteria on the Filter Your Search menu.</td>
</tr>
<tr>
<td>Task Approval</td>
<td>Approve on Behalf</td>
<td>Enables user to approve a workflow step with a Step Type of Approval Task on behalf of any and all users.</td>
</tr>
<tr>
<td>Templates</td>
<td>View</td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td>Copy</td>
<td>Duplicate an existing template.</td>
</tr>
<tr>
<td></td>
<td>Add</td>
<td>Modify an existing template and create a new one.</td>
</tr>
<tr>
<td>Terminology</td>
<td>View</td>
<td>See and modify system terminology.</td>
</tr>
<tr>
<td>Work Assignment</td>
<td>View</td>
<td>See a list of existing work assignments on the View Assignments by Account page.</td>
</tr>
<tr>
<td></td>
<td>Assign</td>
<td>Assign work on the Assign Work page.</td>
</tr>
<tr>
<td>Workflow Administrator Company</td>
<td>View</td>
<td>See the list of existing administrator companies, and view and update administrator company details.</td>
</tr>
<tr>
<td></td>
<td>Add</td>
<td>Create a new administrator company.</td>
</tr>
</tbody>
</table>
AdminStudio Client Tools Permissions

The AdminStudio client tools have the following permissions:

<table>
<thead>
<tr>
<th>Category</th>
<th>Right</th>
<th>This right grants permission to...</th>
</tr>
</thead>
<tbody>
<tr>
<td>Workflow Status Management</td>
<td>View</td>
<td>See the Workflow Status Administration page and see (but not modify) workflow status details on the Edit Workflow Status page.</td>
</tr>
<tr>
<td></td>
<td>Edit</td>
<td>Update workflow status details on the Edit Workflow Status page.</td>
</tr>
<tr>
<td></td>
<td>Add</td>
<td>Create a new workflow status.</td>
</tr>
<tr>
<td></td>
<td>Delete</td>
<td>Remove an existing workflow status.</td>
</tr>
</tbody>
</table>

AdminStudio Client Tools Permissions

<table>
<thead>
<tr>
<th>Category</th>
<th>Right</th>
<th>This right grants permission to...</th>
</tr>
</thead>
<tbody>
<tr>
<td>AdminStudio Client Interface</td>
<td>Edit</td>
<td>View and edit the projects on the Process Assistants tab that are assigned to him.</td>
</tr>
<tr>
<td>Process Assistants Tab</td>
<td>Create</td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td>Delete</td>
<td>Delete a project from the Process Assistants tab.</td>
</tr>
<tr>
<td>AdminStudio Client Interface</td>
<td>View</td>
<td>View existing workflows using the Process Template Editor.</td>
</tr>
<tr>
<td>Process Template Editor</td>
<td>Edit</td>
<td>Modify existing workflows using the Process Template Editor.</td>
</tr>
<tr>
<td></td>
<td>Create</td>
<td>Create a new workflow using the Process Template Editor.</td>
</tr>
<tr>
<td></td>
<td>Delete</td>
<td>Delete a workflow from the Process Template Editor.</td>
</tr>
<tr>
<td>AdminStudio Client Interface</td>
<td>Add</td>
<td>Add a new tool to the Tools tab.</td>
</tr>
<tr>
<td>Tools Tab</td>
<td>Edit</td>
<td>Modify the properties of an existing tool on the Tools tab.</td>
</tr>
<tr>
<td></td>
<td>Delete</td>
<td>Delete an existing tool on the Tools tab.</td>
</tr>
</tbody>
</table>
### Table 2-3 • AdminStudio Client Tools Permissions

<table>
<thead>
<tr>
<th>Category</th>
<th>Right</th>
<th>This right grants permission to...</th>
</tr>
</thead>
<tbody>
<tr>
<td>AdminStudio</td>
<td>Modify Tools Options Dialog</td>
<td>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.</td>
</tr>
<tr>
<td>Client Interface</td>
<td>Change Default Application Catalog</td>
<td>Permits user to edit the Make this the default shared Application Catalog option on the Connect Application Catalog dialog box.</td>
</tr>
<tr>
<td>General</td>
<td>Select Tests to Execute</td>
<td>Permits user to edit the selections on the Select Tests to Execute dialog box.</td>
</tr>
<tr>
<td>Application Manager / Conflict Solver</td>
<td>Run Analysis</td>
<td>Perform conflict analysis on a package.</td>
</tr>
<tr>
<td></td>
<td>Resolve</td>
<td>Resolve any automatically resolvable conflicts found during conflict analysis on a package.</td>
</tr>
<tr>
<td></td>
<td>Modify Rules</td>
<td>Open the Rules Viewer and create and edit new rules.</td>
</tr>
<tr>
<td>Modify Data</td>
<td></td>
<td>Create new groups, rename existing groups, and modify group properties.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Permits user to cut and paste a group to a new location.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Permits user to copy/cut and paste a package into a new group.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Permits user to modify options on the Resolution Options dialog box.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Permits user to edit a package Description on the Products View.</td>
</tr>
<tr>
<td>Application Manager / Conflict Solver</td>
<td>Delete</td>
<td>Delete a package from the Application Catalog.</td>
</tr>
<tr>
<td>Package</td>
<td>Import</td>
<td>Import a package into the Application Catalog.</td>
</tr>
<tr>
<td></td>
<td>Modify Extended Attributes</td>
<td>Modify a package's metadata on the Extended Attribute view.</td>
</tr>
<tr>
<td></td>
<td>Delete History</td>
<td>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).</td>
</tr>
</tbody>
</table>
Chapter 2 Managing Roles and Permissions

AdminStudio and Workflow Manager Roles and Permissions

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.

---

**Table 2-3 • AdminStudio Client Tools Permissions**

<table>
<thead>
<tr>
<th>Category</th>
<th>Right</th>
<th>This right grants permission to...</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application Manager Other</td>
<td>Run Merge Wizard</td>
<td>No longer used.</td>
</tr>
<tr>
<td></td>
<td>Run Validation</td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td>Scan for Dependencies</td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td>Run Directory Monitoring</td>
<td>Use <strong>Package Auto Import</strong> to monitor a directory location on the network (or a local directory) and automatically import or re-import packages in that directory.</td>
</tr>
<tr>
<td></td>
<td>Run Best Practices</td>
<td>Use Test Center to evaluate source packages to see if they meet Windows Installer best practices rules.</td>
</tr>
<tr>
<td></td>
<td>Modify Tools Options Dialog</td>
<td>Open the Application Manager <strong>Options</strong> dialog box and set options.</td>
</tr>
<tr>
<td></td>
<td>Change Application Catalog</td>
<td>Connect to a different Application Catalog by selecting <strong>Connect</strong> on the <strong>Application Manager</strong> menu. Without this permission, this selection is disabled.</td>
</tr>
<tr>
<td>OS Security Patch Wizard</td>
<td>Import Patch</td>
<td>Use <strong>Import Wizard</strong> to import Windows operating system patches into the Application Catalog.</td>
</tr>
<tr>
<td></td>
<td>Run Analysis</td>
<td>Use the <strong>Patch Impact Analysis Wizard</strong> to analyze the impact of installing an OS Security patch on user machines.</td>
</tr>
<tr>
<td>Software Repository</td>
<td>Overwrite</td>
<td>Import a duplicate package into the Software Repository, overwriting the existing version.</td>
</tr>
</tbody>
</table>
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 2-4 • Default System Roles**

<table>
<thead>
<tr>
<th>Role Name</th>
<th>Company Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Configuration Manager</td>
<td>Workflow Consumer</td>
<td>Use for people managing the software configuration of computers in the enterprise, whose responsibilities may include deployment of software.</td>
</tr>
<tr>
<td>License Manager</td>
<td>Workflow Consumer</td>
<td>Use for people managing the license compliance of software throughout the enterprise.</td>
</tr>
<tr>
<td>Consumer Project Manager</td>
<td>Workflow Consumer</td>
<td>Use for people managing the requests submitted by workflow consumers.</td>
</tr>
<tr>
<td>Workflow Project Manager</td>
<td>Workflow Administrator</td>
<td>Use for people managing the completion of the submitted requests.</td>
</tr>
</tbody>
</table>
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.
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.

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.
Chapter 2  Managing Roles and Permissions

Roles Reference

Figure 2-1:  Role Administration Page

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

Table 2-5  •  Role Administration Page

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

For more information, see System Roles.

Role Copy Page

Use the Role Copy page to copy an existing System or Account role.
Figure 2-2: Role Copy Page

The following fields are available on the Role Copy page:

Table 2-6 • Fields on the Role Copy Page

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

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 2-3: Role Details Page
The following fields are available on the **Role Details** page:

**Table 2-7 • Fields on the Role Details Page**

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Role name</td>
<td>A brief description of the role. Roles belonging to a given company must all have distinct names.</td>
</tr>
<tr>
<td>Role company</td>
<td>The company that the role belongs to. This field is read-only except when you are creating a new role.</td>
</tr>
<tr>
<td>Role Description</td>
<td>Identify the purpose of the role.</td>
</tr>
<tr>
<td>Role Permissions list</td>
<td>Select the specific areas of the product that this role is to access. Expand out the tree for detailed information about the permissions available.</td>
</tr>
<tr>
<td></td>
<td>• Selecting a check-box automatically selects all child check-boxes.</td>
</tr>
<tr>
<td></td>
<td>• Similarly, deselecting any check-box automatically deselects all children.</td>
</tr>
<tr>
<td></td>
<td>• You can enable access to all features in the product by clicking the Select All button, or remove all access by clicking Clear All.</td>
</tr>
</tbody>
</table>

For more information about available permissions, see [Role Permission Lists](#).
Chapter 2  Managing Roles and Permissions

Roles Reference
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 clients 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 3-1 • Sample Workflow Manager Users With Their Assigned Roles**

<table>
<thead>
<tr>
<th>User Type</th>
<th>User Name</th>
<th>Role</th>
<th>How They User Workflow Manager</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumer Company Users</td>
<td><a href="mailto:user@company.com">user@company.com</a></td>
<td>User</td>
<td>• Submit workflow requests</td>
</tr>
<tr>
<td></td>
<td><a href="mailto:user@requester.com">user@requester.com</a></td>
<td>Application User</td>
<td>• Monitor the progress of their workflow requests</td>
</tr>
<tr>
<td></td>
<td><a href="mailto:lm@company.com">lm@company.com</a></td>
<td>License Manager</td>
<td>• Manage a company's license compliance</td>
</tr>
<tr>
<td></td>
<td><a href="mailto:cm@company.com">cm@company.com</a></td>
<td>Configuration Manager</td>
<td>• Manages a company's software distribution.</td>
</tr>
<tr>
<td></td>
<td><a href="mailto:pm@requester.com">pm@requester.com</a></td>
<td>Project Manager</td>
<td>• Monitor the progress of all of the workflow requests submitted by his company</td>
</tr>
<tr>
<td></td>
<td><a href="mailto:tester@requester.com">tester@requester.com</a></td>
<td>UA Tester</td>
<td>• User acceptance tester.</td>
</tr>
</tbody>
</table>
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.

Table 3-1 • Sample Workflow Manager Users With Their Assigned Roles

<table>
<thead>
<tr>
<th>User Type</th>
<th>User Name</th>
<th>Role</th>
<th>How They Use Workflow Manager</th>
</tr>
</thead>
</table>
| Administrator           | repackager@servicer.com | Repackager | • Perform workflow request tasks  
| Company Users           |                   |        | • 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 |

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Task  

To create a new account:

2. Click Add. The Account Details page opens.

![Account Details](image)

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:

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:**

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.

---


### 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
• Viewing or Changing an Existing Directory Service Connection
• Deleting an Existing Directory Service Connection

### 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:

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:

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.
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 3-1: Example of Fields Populated With Directory Services Attributes](image)

**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.
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 service attribute, you will be unable to delete it.

To delete an existing directory service attribute:

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>
<thead>
<tr>
<th>Method</th>
<th>Description</th>
<th>Related Topics</th>
</tr>
</thead>
</table>
| 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 3-2 • Login Methods (cont.)

<table>
<thead>
<tr>
<th>Method</th>
<th>Description</th>
<th>Related Topics</th>
</tr>
</thead>
</table>
| 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. | - 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. | - 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 |

**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.*

**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.
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.

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:**


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:**


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

<table>
<thead>
<tr>
<th>Task</th>
<th>To configure a guest account:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Manually create a new account in Workflow Manager to use as the guest account. See Creating a New Account for further information.</td>
</tr>
<tr>
<td>2.</td>
<td>Assign your new account to roles with limited permissions. See Managing Roles and Permissions for more information.</td>
</tr>
</tbody>
</table>

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 your new account in the following location of the web.config file:

```xml
<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.
Chapter 3  Managing Accounts and Directory Services

Managing Account Logins

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

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 3-2: Logging in Using Guest Access Option
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 3-3 • Accounts and Directory Services Reference

<table>
<thead>
<tr>
<th>Page</th>
<th>Subpages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Account Administration Page</td>
<td>• Account Details Page</td>
</tr>
<tr>
<td></td>
<td>• Directory Services Import Page</td>
</tr>
<tr>
<td>Directory Services</td>
<td>• Add Directory Service Connection Page</td>
</tr>
<tr>
<td>Administration Page</td>
<td></td>
</tr>
<tr>
<td>Directory Services</td>
<td>• Add Directory Service Attributes Page</td>
</tr>
<tr>
<td>Attributes Administration Page</td>
<td></td>
</tr>
</tbody>
</table>

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 3-3:** 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 3-4 • Account Administration Page Options**

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add</td>
<td>Click to access the Account Details Page, where you can add a new account.</td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Directory Service Account/Group Import</td>
<td>Click to access the Directory Services Import Page, where you can import an account or group from a directory service.</td>
</tr>
</tbody>
</table>
| 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.                                                                                   |

Figure 3-4: 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 3-5 • Account Details Page Fields**

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Company</td>
<td>[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.</td>
</tr>
<tr>
<td>Account Name</td>
<td>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: <a href="mailto:username@companyname.com">username@companyname.com</a>.</td>
</tr>
<tr>
<td>Status</td>
<td>If you wish this account to interact with Workflow Manager / AdminStudio Enterprise Server, select <strong>Active</strong>. The <strong>Inactive</strong> option disables this account. See Disabling an Account for further information.</td>
</tr>
<tr>
<td>Password</td>
<td>Enter a password for this account. To ensure you did not misspell the password you entered in the <strong>Password</strong> field, re-enter it in the <strong>Confirm password</strong> field. You will be unable to save your changes unless you enter matching passwords in the <strong>Password</strong> and <strong>Confirm Password</strong> fields.</td>
</tr>
<tr>
<td>Email</td>
<td>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 <strong>Confirm email</strong> field.</td>
</tr>
<tr>
<td>Location</td>
<td>Optionally, enter a geographic location that you can use to group accounts together, such as <strong>New York Office</strong> or <strong>Midwest Region</strong>.</td>
</tr>
<tr>
<td>Roles</td>
<td>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.</td>
</tr>
</tbody>
</table>
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.

![Directory Services Import Page]

**Figure 3-5:** 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 3-6 • Directory Services Account/Group Add View**

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Select a Directory Service</td>
<td>Choose the directory service containing the account or group you want to import.</td>
</tr>
<tr>
<td></td>
<td><img src="http://example.com" alt="Note" /> • For information on defining a Directory Service Connection, see Creating a New Directory Service Connection.</td>
</tr>
<tr>
<td>Select Group or User</td>
<td>Specify whether you are importing a <strong>User</strong> (a single account) or a <strong>Group</strong>.</td>
</tr>
</tbody>
</table>
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.

---

### Table 3-6 • Directory Services Account/Group Add View (cont.)

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Filter Directory Service List</td>
<td>Select one of the following:</td>
</tr>
<tr>
<td>• Show All — Select this option to select your account from a list of all accounts and groups in the directory service.</td>
<td></td>
</tr>
<tr>
<td>• 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 (<em>) and enter P</em> in the Filter list by box.</td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pick group/user in the list below</td>
<td>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.</td>
</tr>
</tbody>
</table>

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

**Table 3-7 • Directory Services Administration Page Options**

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>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.</td>
<td></td>
</tr>
<tr>
<td>Description</td>
<td>A more detailed description of the directory service.</td>
<td></td>
</tr>
<tr>
<td>Type</td>
<td>Identifies this directory service as either Windows Active Directory or Novell eDirectory.</td>
<td></td>
</tr>
<tr>
<td>Host Name</td>
<td>The name or IP address of the server on which this directory service is running.</td>
<td></td>
</tr>
</tbody>
</table>


**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 3-7: Edit Directory Service Connection Page
The following fields are available on the **Add/Edit Directory Service Connection** page:

**Table 3-8 • Add/Edit Directory Service Connection Page Fields**

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use to authenticate users?</td>
<td>Select Yes to include this directory service in the <strong>Domain</strong> 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 <strong>Domain</strong> list.</td>
</tr>
<tr>
<td><strong>Note</strong></td>
<td>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.</td>
</tr>
<tr>
<td>Directory service name</td>
<td>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.</td>
</tr>
<tr>
<td>Description</td>
<td>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.</td>
</tr>
<tr>
<td>Directory service type</td>
<td>Select the type of directory service you are integrating with. The following options are available.</td>
</tr>
<tr>
<td></td>
<td>• Active Directory</td>
</tr>
<tr>
<td></td>
<td>• Novell eDirectory</td>
</tr>
<tr>
<td>Directory service host</td>
<td>The name or IP address of the server on which this directory service is running.</td>
</tr>
<tr>
<td>Directory service port</td>
<td>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.</td>
</tr>
<tr>
<td>Base distinguished name</td>
<td>Enter the base distinguished name (DN) to identify the root node of this directory service.</td>
</tr>
<tr>
<td></td>
<td>For example, for MyCompany, the base DN could be: dc=“MyCompany”, dc=“com”</td>
</tr>
<tr>
<td>Domain name</td>
<td>Enter the domain name of this directory service.</td>
</tr>
</tbody>
</table>
### Table 3-8 • Add/Edit Directory Service Connection Page Fields (cont.)

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Use secure socket layer (SSL)?</strong></td>
<td>Select Yes if this directory service is configured to use Secure Socket Layer (SSL). Connect anonymously?</td>
</tr>
<tr>
<td>Connect anonymously?</td>
<td>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.</td>
</tr>
<tr>
<td>Admin distinguished name</td>
<td>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 <code>domainName\userName</code> format.</td>
</tr>
<tr>
<td>Password</td>
<td>The password associated with the credentials specified in Admin Distinguished Name.</td>
</tr>
<tr>
<td>Group class name</td>
<td>Enter the object class name used to identify groups in this directory service. Default values are:</td>
</tr>
<tr>
<td></td>
<td>• For Active Directory: <code>group</code></td>
</tr>
<tr>
<td></td>
<td>• For Novell eDirectory: <code>groupofnames</code></td>
</tr>
<tr>
<td>Group name attribute</td>
<td>Enter an attribute used by this directory service to name groups. The default value for both Active Directory and Novell eDirectory is <code>cn</code>.</td>
</tr>
<tr>
<td>Group member attribute</td>
<td>Enter an attribute used by this directory service to define member groups. Default values are:</td>
</tr>
<tr>
<td></td>
<td>• For Active Directory: <code>member</code></td>
</tr>
<tr>
<td></td>
<td>• For Novell eDirectory: <code>uniquemember</code></td>
</tr>
<tr>
<td>User class name</td>
<td>Enter the object class name used by this directory service for user accounts. Default values are:</td>
</tr>
<tr>
<td></td>
<td>• For Active Directory: <code>user</code></td>
</tr>
<tr>
<td></td>
<td>• For Novell eDirectory: <code>inetorgperson</code></td>
</tr>
<tr>
<td>User name attribute</td>
<td>Enter the attribute used by this directory service to identify user accounts. Default values are:</td>
</tr>
<tr>
<td></td>
<td>• For Active Directory: <code>samaccountname</code></td>
</tr>
<tr>
<td></td>
<td>• For Novell eDirectory: <code>uid</code></td>
</tr>
<tr>
<td>Save has added a new row.</td>
<td>Click to save your entries and return to the Directory Services Administration Page.</td>
</tr>
<tr>
<td>Update and import (User/Group)</td>
<td>Click to save your entries and open the Directory Services Import Page.</td>
</tr>
</tbody>
</table>
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 3-9 • Directory Services Attributes Administration Page Options

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Directory Service Attribute</td>
<td>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.</td>
</tr>
<tr>
<td>Attribute Alias</td>
<td>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.</td>
</tr>
</tbody>
</table>

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 3-8: Directory Services Attributes Administration Page
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 3-9: Add Directory Service Attributes Page**

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

**Table 3-10 • Add Directory Service Attributes Page Options**

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Directory service</td>
<td>Select the directory service whose attribute you want to make available to workflow templates from the <strong>Directory Service</strong> list. Refer to <strong>Creating a New Directory Service Connection</strong> for more information about setting up connections to your directory services.</td>
</tr>
<tr>
<td>Attribute name</td>
<td>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 <code>employeeNumber</code> or <code>documentAuthor</code>.</td>
</tr>
<tr>
<td>Attribute alias</td>
<td>Enter a more user-friendly identifier for the attribute in the <strong>Attribute Name</strong> field. For example, you may want to identify the <code>documentAuthor</code> attribute as <strong>Author</strong> in Workflow Manager.</td>
</tr>
</tbody>
</table>
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:

![Example of Fields Populated With Directory Services Attributes](image)

**Figure 3-10**: 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.

---

**Table 3-10**: Add Directory Service Attributes Page Options (cont.)

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Save</td>
<td>Click to register the defined directory service attribute.</td>
</tr>
</tbody>
</table>

**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:

![Example of Fields Populated With Directory Services Attributes](image)

**Figure 3-10**: 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.
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 4-1 • Workflow Manager User Documentation**

<table>
<thead>
<tr>
<th>Topic</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Getting Started</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>About Workflow Manager</strong></td>
<td>Explains Workflow Manager concepts.</td>
</tr>
</tbody>
</table>
### Using Workflow Manager

#### 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

---

**Table 4-1 • Workflow Manager User Documentation (cont.)**

<table>
<thead>
<tr>
<th>Topic</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Using Workflow Manager</strong></td>
<td>Includes how to perform the following tasks:</td>
</tr>
<tr>
<td></td>
<td>• <strong>Submitting and Monitoring Requests</strong>—Includes procedures that are related to submitting, monitoring, and reporting on Requests. See Submitting and Monitoring Workflow Requests.</td>
</tr>
<tr>
<td></td>
<td>• <strong>Completing Requests</strong>—Includes procedures that are related to performing Request tasks. See Completing Workflow Requests.</td>
</tr>
<tr>
<td></td>
<td>• <strong>Generating and Viewing Workflow Manager Reports</strong>—Explains how to view existing reports or create custom reports, and how to export report data. See Generating and Viewing Workflow Manager Reports.</td>
</tr>
<tr>
<td></td>
<td>• <strong>Performing Administrative Tasks</strong>—Includes administrative procedures such as creating users and groups, defining roles and permissions, directory services configuration, creating templates and projects. See Performing Administrative Tasks.</td>
</tr>
<tr>
<td><strong>Workflow Manager Reference</strong></td>
<td>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>
</tbody>
</table>
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 4-1: 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.

<table>
<thead>
<tr>
<th>Task</th>
<th>To login to Super User account and change password:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Login to Workflow Manager using the following credentials:</td>
</tr>
<tr>
<td></td>
<td><strong>User Name</strong>: suams</td>
</tr>
<tr>
<td></td>
<td><strong>Password</strong>: suams</td>
</tr>
</tbody>
</table>
2. On the **Settings** menu, click **Accounts and Groups**. The **Account Administration** page opens.

3. Click on suams. The **Account Details** page opens.

![Account Details](image)

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.

![Company/Business Unit Administration](image)

**Figure 4-2:** 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.

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

Figure 4-3: System Roles
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:

![Workflow Request page](image)

**Figure 4-4:** 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.

![Workflow Manager Templates](image)

**Figure 4-5:** 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 4-6: 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 Software HelpNet, an online library of Flexera Software product documentation:


**PDFs**

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

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

**Knowledge Base**

Additional help may be available by searching the Flexera Software 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. 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.

![Dashboard Report](image)

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

- **Request Assignments**—Total number of workflow request assignments broken down by user.
- **Open Issues**—List of all open issues.

![Figure 4-7: Dashboard Report](image)
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.

![Company and Project Selection List](image)

**Figure 4-8:** 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.

![Workflow Manager Dashboard Page](image)

**Figure 4-9:** 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_2016\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>
<thead>
<tr>
<th>Table 4-2 • About AdminStudio Workflow Manager Topics</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Topic</strong></td>
</tr>
<tr>
<td>Benefits of Using Workflow Manager</td>
</tr>
<tr>
<td>Workflow Manager Concepts</td>
</tr>
<tr>
<td>About the Default Workflow Templates</td>
</tr>
<tr>
<td>Customizing Workflow Manager for Your Organization</td>
</tr>
<tr>
<td>Searching for Accounts</td>
</tr>
<tr>
<td>How Dates and Times are Displayed</td>
</tr>
<tr>
<td>Performing a Search</td>
</tr>
<tr>
<td><strong>Description</strong></td>
</tr>
<tr>
<td>Lists the many benefits of using Workflow Manager to monitor and control the software packaging, deployment, and management process across your enterprise.</td>
</tr>
<tr>
<td>Familiarizes you with the following Workflow Manager concepts:</td>
</tr>
</tbody>
</table>
|   • Workflow Templates  
   • Projects  
   • Workflow Requests  
   • Companies  
   • Workflow Families  
   • About FlexNet Manager Suite |
| Describes each of the default workflow templates that are installed with the application. |
| Lists the way that you can customize Workflow Manager to communicate with users, both administrators and consumers. |
| Explains how the account search controls work throughout Workflow Manager. |
| Explains how Workflow Manager displays dates and times in different time zones and languages. |
| 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 4-3 • Workflow Manager Concepts

<table>
<thead>
<tr>
<th>Concept</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Workflow Templates</td>
<td>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.</td>
</tr>
<tr>
<td>Projects</td>
<td>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.</td>
</tr>
<tr>
<td>Workflow Requests</td>
<td>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.</td>
</tr>
<tr>
<td>Companies</td>
<td>Describes the two types of Workflow Manager users: workflow consumers and workflow administrators.</td>
</tr>
</tbody>
</table>
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:

![Workflow Request Page]

**Figure 4-10:** 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 4-11: Phase Which is a Branching Point](image)

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 4-4 • Steps Involved in the Software Request Template**

<table>
<thead>
<tr>
<th>#</th>
<th>Task</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Consumer requests an application</td>
<td>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.</td>
</tr>
<tr>
<td>2</td>
<td>Administrator reviews the application request</td>
<td>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.</td>
</tr>
<tr>
<td>3</td>
<td>Acknowledgment sent to consumer</td>
<td>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.</td>
</tr>
<tr>
<td>4</td>
<td>License manager reviews the application request</td>
<td>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.</td>
</tr>
</tbody>
</table>
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 4-5 • Steps Involved in the Software Removal Template**

<table>
<thead>
<tr>
<th>#</th>
<th>Task</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>License manager checks for an unused application</td>
<td>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.</td>
</tr>
<tr>
<td>2</td>
<td>Administrator reviews the request</td>
<td>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.</td>
</tr>
<tr>
<td>3</td>
<td>Software owner reviews the request</td>
<td>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.</td>
</tr>
</tbody>
</table>
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 2016.

This template was upgraded in AdminStudio 2016 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**.

<table>
<thead>
<tr>
<th>Task</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 License manager is notified</td>
<td>Whether the software owner 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.</td>
</tr>
<tr>
<td>5 Installation is deallocated from the license</td>
<td>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.</td>
</tr>
<tr>
<td>6 Configuration manager is notified</td>
<td>Finally, if required, the workflow administrator can send a notification to the configuration manager, so the uninstallation of the unused software can be organized.</td>
</tr>
</tbody>
</table>
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 2016.

This template was upgraded in AdminStudio 2016 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.

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 4-12: References Icon

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

Figure 4-13: 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_2016\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:

![Customizable Workflow Step Completion Dialog Box](image)

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**

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_2016\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](#).

### 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.

![Select Account to Assign](image-url)

**Figure 4-15:** 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).

   ![Account Name](image)

   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.

     ![Account Name](image)

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

     ![Select Account to Assign](image)

     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](image)

   **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.

<table>
<thead>
<tr>
<th>Task</th>
<th>To perform a search:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>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.</td>
</tr>
<tr>
<td>2.</td>
<td>Select the categories that you want to include in the search, and click enter. The results are listed by category.</td>
</tr>
<tr>
<td>3.</td>
<td>Click on a category name to expand/collapse the listing.</td>
</tr>
<tr>
<td>4.</td>
<td>Click on a result link to open that page.</td>
</tr>
</tbody>
</table>
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. Click **Add**. The **Workflow Request** page opens and you are prompted to specify some information.

![Data Entry](image)

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.

6. 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.

7. 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.
To copy an existing 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 copy. The Workflow Requests page opens.

3. Open the Properties tab.

4. Click Copy. The Copy Workflow Request page opens.

5. In the Workflow Name field, enter a name to uniquely identify this new workflow request.

6. [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.

7. [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.

8. 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.

![Workflow Request Page](image)

**Figure 4-16: Workflow Request Page**

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

**Task**

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**.

<table>
<thead>
<tr>
<th>Task</th>
<th><strong>To open a Workflow Report:</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Open a workflow request's <strong>Workflow Request</strong> page, as described in Opening a Workflow Request's Workflow Request Page.</td>
</tr>
<tr>
<td>2.</td>
<td>Click the <strong>View Workflow Report</strong> link in the <strong>Action</strong> menu. The <strong>Workflow Report</strong> opens. For more information about the information displayed on the <strong>Workflow Report</strong>, see Workflow Report.</td>
</tr>
</tbody>
</table>
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.

   ![Workflow Requests Screen]

   Use column filters to search for a specific workflow request.

   ![Workflow Request Details]

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 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 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 not 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:

![Example of a Workflow Request’s SLA Status Path](image)

**Figure 4-17**: 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.

![Stop Clock Button](image)

**Figure 4-18**: 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 4-19:** 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. This is done 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:

   ![Select Account to Assign](image)

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.

<table>
<thead>
<tr>
<th>Role Name</th>
<th>Assigned To</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Manager</td>
<td>Not Assigned</td>
</tr>
<tr>
<td>Repackager</td>
<td>Not Assigned</td>
</tr>
<tr>
<td>SCAadmin</td>
<td>Not Assigned</td>
</tr>
<tr>
<td>System Administrator</td>
<td><a href="mailto:anderson@company.com">anderson@company.com</a>, <a href="mailto:anderson@company.com">anderson@company.com</a></td>
</tr>
<tr>
<td>Tech Lead</td>
<td>Not Assigned</td>
</tr>
</tbody>
</table>

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.

**Viewing All Workflow Request Assignments**

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

**Task**

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**.

![Assignments By Account](image)

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 4-6 • Methods of Updating a Request

<table>
<thead>
<tr>
<th>Task</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Completing a Workflow Step</td>
<td>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.</td>
</tr>
<tr>
<td>Sending Additional Email Notifications</td>
<td>Add comments and/or additional recipients to email notifications for a workflow step.</td>
</tr>
<tr>
<td>Rolling Back to a Previous Workflow Step</td>
<td>Roll back to a previous workflow step, so that this step (and all subsequent steps) must be repeated.</td>
</tr>
<tr>
<td>Editing a Completed Workflow Step</td>
<td>Update the information entered in a data entry step.</td>
</tr>
</tbody>
</table>

Completing a Workflow Step

When you have finished working on a workflow step and want to mark it as complete, perform the following steps.

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.

![Complete Step](image)

**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 **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**.
• **Update History**—You are prompted to enter information to document this workflow phase.

![Update History](image)

**Additional notifications**

When a workflow step is completed, an email notification is sent to pre-configured recipients. To send this email to additional recipients, enter a list of email addresses (separated by commas). You can also add an extra comment to the body of the email sent to these recipients.

- **Additional email recipients** (optional):
- **Additional email comments** (optional):

![Additional Email](image)

• **Work Assignment**—The **Assignment Details** page opens, and you are prompted to assign people from your administrator company to roles associated with this workflow request.

• **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.

![Data Entry](image)

**Figure 4-20:** 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.

![Data Entry](image)

**Figure 5:** “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.

**Workflow Manager**

**Approval Task Notification**

<table>
<thead>
<tr>
<th>Application Name:</th>
<th>Photoshop CS5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approval Workflow Step:</td>
<td>Review/Send For Approval</td>
</tr>
</tbody>
</table>

Click **Approve** or **Reject** to either approve or reject this workflow step.

Click **Workflow Progress** to view the workflow progress for this application.

**Figure 4-1:** 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:

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:
   
   ```xml
   <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**

<table>
<thead>
<tr>
<th>Application Name:</th>
<th>Microsoft Expression Blend</th>
</tr>
</thead>
<tbody>
<tr>
<td>Workflow Step:</td>
<td>Application Request Review/Analyze Portfolio for Application</td>
</tr>
</tbody>
</table>

Click on **Advance Workflow** to complete this “normal step” and advance the workflow.

Click **Workflow Progress** to view the workflow progress for this application.

Figure 4-2: 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.

   ![Rollback Step Dialog Box]

   **Rollback reason**
   
Enter the reason for rolling back the progress of this workflow request.

   **Rollback will undo all items following and including the selected item.**

   **Additional notifications**
   
   When a workflow step is rolled back, an email notification is sent to pre-configured recipients. To also send an email to additional recipients, enter a comma-separated list of email addresses and any comments that you want to include.

   **Additional email recipients (optional):**

   **Additional email comments (Optional):**

   ![Rollback Button]

   **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 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 4-3: 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 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.

![Issue Response Example]

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:

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:

   ![Upload document button](image)

   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.

<table>
<thead>
<tr>
<th></th>
<th>Name</th>
<th>Size</th>
<th>File Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>WFMUpdate.log</td>
<td>380.53 KB</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Todo.txt</td>
<td>1.11 KB</td>
<td>2</td>
</tr>
</tbody>
</table>

**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:

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:

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_2016\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.

<table>
<thead>
<tr>
<th>Task</th>
<th>To unlink a related workflow request:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Open the Workflow Request page of the request that you want to unlink a workflow request from.</td>
</tr>
<tr>
<td>2.</td>
<td>Open the Related Workflows tab.</td>
</tr>
<tr>
<td>3.</td>
<td>Select the check box to the left of the workflow request(s) that you want to unlink.</td>
</tr>
<tr>
<td>4.</td>
<td>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.</td>
</tr>
</tbody>
</table>

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 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.
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.
Chapter 4 Using Workflow Manager
Performing Administrative Tasks

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.

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.

<table>
<thead>
<tr>
<th>Task</th>
<th>To mark a project as inactive:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>In the navigation bar, click <strong>Projects</strong> in the <strong>Administration</strong> menu. The <strong>Project Administration</strong> page opens.</td>
</tr>
<tr>
<td>2.</td>
<td>Click on the name of the project that you want to delete. The <strong>Project Details</strong> page for that project opens.</td>
</tr>
<tr>
<td>3.</td>
<td>Open the <strong>Project Information</strong> tab.</td>
</tr>
<tr>
<td>4.</td>
<td>Set the <strong>Status</strong> field to <strong>Inactive</strong>. A message will appear warning you that all workflow requests associated with your project will also have their status set to <strong>Inactive</strong>.</td>
</tr>
<tr>
<td>5.</td>
<td>Click <strong>OK</strong> to acknowledge the message.</td>
</tr>
<tr>
<td>6.</td>
<td>Click <strong>Save</strong>. Your modification is saved, and the <strong>Project Details</strong> page closes.</td>
</tr>
</tbody>
</table>

- **Tip** • For details about sorting or filtering the project list, see Using Lists.

- 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**
- **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**
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:

![Workflow Request Page]

**Figure 4-4:** 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 4-5: Phase Which is a Branching Point](image)

**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_2016\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.

![Data Groups Diagram]

**Figure 4-6:** 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 4-7: “When collected?” Option](image)

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.

![Data Group Details](image)

**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:

<table>
<thead>
<tr>
<th>Data Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Workflow Manager Data Type</td>
<td>If this is a standard data group, meaning that you are going to define its data elements in Workflow Manager, select this option.</td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>Data Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AdminStudio Data Type</td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td>• Selecting the <strong>AdminStudio Data Type</strong> enables you to share application-related data between AdminStudio and Workflow Manager.</td>
</tr>
<tr>
<td></td>
<td>• 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.</td>
</tr>
<tr>
<td></td>
<td>• 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.</td>
</tr>
</tbody>
</table>

**Note** • The default Extended Attributes Description File is: C:\AdminStudio Shared\EA_Default.xml.
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. From the Data Type list box, select the type of data entry field you want to add. You have the following options:

<table>
<thead>
<tr>
<th>Data Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Text Entry Box</strong></td>
<td>A single-line, editable text box.</td>
</tr>
<tr>
<td></td>
<td>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.</td>
</tr>
<tr>
<td><strong>Text Area</strong></td>
<td>A multi-line, scrollable, and editable text box.</td>
</tr>
<tr>
<td><strong>Single Selection</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>Multiple Selection</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>Check Box</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>Radio Button</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>Date</strong></td>
<td>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.</td>
</tr>
</tbody>
</table>
### Data Type

<table>
<thead>
<tr>
<th>Data Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Document Upload, Application Upload, Dependency Upload</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>Downloadable File Upload</strong></td>
<td>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 <strong>Downloadable Files</strong> tab for the given workflow request.</td>
</tr>
<tr>
<td><strong>Directory Service</strong></td>
<td>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 <strong>Directory Service</strong> is selected in the <strong>Data Type</strong> field, two additional fields appear: the <strong>Directory Services</strong> list, where you pick the directory service that contains the attribute that you want to use, and the <strong>Data Element</strong> list, where you select the attribute that you want to map to.</td>
</tr>
<tr>
<td><strong>Dynamic Pick List</strong></td>
<td>A selection list which is populated with values from an operator-supplied XML file. When this option is selected, the <strong>Data Source File</strong> 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 <strong>Column Value to Submit</strong> field. By default, the first column is selected. When a data element with a data type of <strong>Dynamic Pick List</strong> is displayed in a workflow request, the consumer is prompted to click a link to make a selection. When the consumer clicks the <strong>Click to Select</strong> link, the <strong>Dynamic Pick List</strong> 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 <strong>OK</strong>, the selected values populate the field, with distinct values separated by pipes. See <strong>Dynamic Pick List Data Type Options</strong> for more information.</td>
</tr>
</tbody>
</table>
### 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.*

<table>
<thead>
<tr>
<th>Data Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<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 <strong>DB Driven Type</strong> from the <strong>Data Type</strong> list, three new fields appear:</td>
</tr>
<tr>
<td></td>
<td>- <strong>External Datasource</strong>—Select a database connection that was defined on the <strong>External Data Sources Administration</strong> page. See <strong>Managing External Data Sources</strong> for more information.</td>
</tr>
<tr>
<td></td>
<td>- <strong>SQL Query</strong>—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.</td>
</tr>
<tr>
<td></td>
<td>- <strong>Persisted Column</strong>—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 <strong>DB-Driven Type Data Type Options</strong> for more information.</td>
</tr>
</tbody>
</table>
7. 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.

8. 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

9. 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.

10. If you selected Dynamic Pick List, choose the XML data source for your pick list from the Data Source File field. This field lists all of the XML source files that have been copied to the C:\AdminStudioWebComponents_2016\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.

11. 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.

12. If you selected DB Driven Type, fill in the External Data Source, SQL Query, and Persisted Column fields, as described in the table above.

13. 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.

14. 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.

15. 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.

16. Finally, click the Create button to add the data element to the Data Group tree.

17. Repeat the above steps to add more data elements to the data group.

18. Repeat the steps outlined in Creating a New Data Group if you want to add more data groups.

19. 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.

```
Workflow Phase Details

*Name: [blank]
*Type: Data Entry Phase
*Sort order: 10

Workflow phase branching

*Define a condition for workflow branching: [Yes] [No]
Link to next phase: --Select a Value--

Create  Cancel  Delete
```

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.

6. Click the Create button. The workflow phase name is added to the Workflow Phase tree.
7. 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.

8. Enter a name for your workflow step in the **Description** field.

9. 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.

10. 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.

11. 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.
Performing Administrative Tasks

12. Click Create. The new workflow step is now listed as a child of your workflow phase in the Workflow Phase tree.

13. 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. Leave the Define a condition for workflow branching? option set to No.

8. 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---.
9. Click the **Create** button to add your new workflow phase to the **Workflow Phase** tree.

10. 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.

11. Enter a name for your step in the **Description** field.

12. From the **Step type** list, select one of the following options:

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>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 <strong>Step Validation</strong> dialog. This dialog will display the HTML file you specify in the <strong>Popup HTML File</strong> 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.</td>
</tr>
<tr>
<td>Update History</td>
<td>To complete this step, the workflow administrator will need to enter a comment in the <strong>Update History</strong> dialog box. This step is typically used as the last on a workflow phase, to document the completion of the phase.</td>
</tr>
<tr>
<td>Work Assignment</td>
<td>This step prompts the workflow administrator to use the <strong>Assignment Details</strong> page to assign people from his or her own company to roles associated with this workflow request.</td>
</tr>
<tr>
<td>Script Execution</td>
<td>When a workflow administrator clicks the name of this workflow step on the <strong>Workflow Request</strong> page, an operator-specified executable file is launched. This executable could be a batch file, an <strong>.exe</strong> file, a VB Script file, or any other type of executable that will run on the Workflow Manager server. Selecting this option causes, the <strong>Script Path</strong> 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_2016\wwwroot\ScriptFiles. If there are no appropriate executable files in this directory, you will be prompted to upload one.</td>
</tr>
</tbody>
</table>

**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.
### Custom Web Page

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 **http://** or **https://**). By default, **Custom Site URL** is set to a custom web page that is shipped with Workflow Manager:

```
http://<yourWorkflowManagerWebServer>/CustomWorkflow/TestCustomWorkflow.aspx
```

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 **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.

### Allocate Software License

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.
### 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](#).
13. 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.

14. 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.

15. 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.

16. 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.

17. If you selected the Script Execution step type, select the name of an executable file from the Script path field.

18. 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.

19. 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.
20. 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.

21. Optionally, provide information to conditionally display this workflow step. See Setting Up Conditional Display of Data Groups, Data Elements, or Workflow Steps for details.

22. Click Create. The new workflow step is now listed in the Workflow Phase tree, as a child of your new workflow phase.

23. To add more workflow phases, or to add more workflow steps to an existing phase, repeat the steps above.

24. 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.

25. 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:

**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:

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.
5. 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:

   ![Workflow phase branching](image)

   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 4-8 • Steps to Set Up Automatic Rollback to a Workflow Step

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1: Create template</td>
<td>Create a workflow template with multiple workflow phases and steps, as described in Creating a New Template.</td>
</tr>
<tr>
<td>Step 2: Create automatic rollback data element</td>
<td>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.</td>
</tr>
</tbody>
</table>
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:

<table>
<thead>
<tr>
<th>Task</th>
<th>To create a data element to use for automatic rollback:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Begin creating a template as described in Creating a New Template.</td>
</tr>
<tr>
<td>2.</td>
<td>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.</td>
</tr>
<tr>
<td>3.</td>
<td>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:</td>
</tr>
<tr>
<td></td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td>c. Set the Use to define conditions/branching option to Yes.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 3: Create workflow step that asks “automatic rollback” question</td>
<td>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.</td>
</tr>
</tbody>
</table>
d. Set the Define a condition for automatic rollback? option to Yes. Additional fields are displayed: Rollback Value and Rollback to:

![Data Element Details]

<table>
<thead>
<tr>
<th>Rollback Value</th>
<th>Rollback to</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>Request Approved→Purchase software ▼</td>
</tr>
<tr>
<td>No</td>
<td>Request Denied→Inform requester of decl ▼</td>
</tr>
</tbody>
</table>

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.

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.

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:

<table>
<thead>
<tr>
<th>Task</th>
<th>To apply the conditional display condition to a data group, data element, or workflow step:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Complete the steps in Creating a Data Element to Use for Conditional Display and Collecting the Conditional Data Element.</td>
</tr>
<tr>
<td>2.</td>
<td>Begin creating a workflow phase as described in Creating Subsequent Workflow Phases.</td>
</tr>
<tr>
<td>3.</td>
<td>In the <strong>Data group condition</strong>, <strong>Data element condition</strong>, or <strong>Workflow step condition</strong> area of a data group, data element, or workflow step, respectively, click <strong>Define Condition</strong>.</td>
</tr>
<tr>
<td>4.</td>
<td>From the <strong>Condition Item</strong> list which appears, select the conditional data element you defined earlier. The values of that data element are automatically displayed in the <strong>Selections</strong> list.</td>
</tr>
<tr>
<td>5.</td>
<td>From the <strong>Selections</strong> 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 Shif key or Ctr key while clicking.</td>
</tr>
<tr>
<td>6.</td>
<td>Click <strong>Update</strong> to save the data group, data element, or workflow step.</td>
</tr>
</tbody>
</table>

*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:

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 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 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.

- **Parameters**—If the web method takes parameters, the Parameters field will appear, listing the parameters which need to be supplied.
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](#).
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.

---

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:

<table>
<thead>
<tr>
<th>Task</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>To define a Custom Automated Task workflow step:</strong></td>
</tr>
<tr>
<td>1. Open a workflow template on the Template Details page, as described in Creating a New Template.</td>
</tr>
<tr>
<td>2. Add a new workflow step.</td>
</tr>
<tr>
<td>3. Enter a name for this workflow step in the Workflow Step Description field.</td>
</tr>
<tr>
<td>4. Set Step type to Custom Automated Task.</td>
</tr>
<tr>
<td>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: <a href="http://IPADDRESS/CustomWorkflow/CustomAutomatedTaskStatus.aspx">http://IPADDRESS/CustomWorkflow/CustomAutomatedTaskStatus.aspx</a></td>
</tr>
</tbody>
</table>

**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:

![Custom Automated Task Status](image)

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 Software 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:

```csharp
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");

        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);
    }
    catch
    {
        // Handle exception
    }
}
```
Performing Administrative Tasks

```csharp
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**

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.

\[\text{\textbf{Note}} \bullet \text{See also Restrictions Regarding Approval Tasks When Editing Workflow Templates That Have Existing Workflow Requests.}\]

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:

```
```

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 4-9 • Custom Web Page Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ApplicationID</td>
<td>The unique identifier for the workflow request in the Workflow Manager database.</td>
</tr>
<tr>
<td>WFMajorItemID</td>
<td>The unique identifier for the workflow phase in the Workflow Manager database.</td>
</tr>
<tr>
<td>WFMinorItemID</td>
<td>The unique identifier for the workflow step in the Workflow Manager database.</td>
</tr>
<tr>
<td>PersonID</td>
<td>The unique identifier in the Workflow Manager database for the account of the person currently completing the workflow request.</td>
</tr>
<tr>
<td>MinorType</td>
<td>The workflow step type, which always needs to be set to 10 (Custom Step Type).</td>
</tr>
<tr>
<td>EditType</td>
<td>Your custom web page may perform differently, depending on what mode it is called in. Choose one of the following modes:</td>
</tr>
<tr>
<td></td>
<td>• New—The web page is being launched for the first time in this workflow request</td>
</tr>
<tr>
<td></td>
<td>• Edit—The web page has been previously submitted, but the person completing the request needs to update some information</td>
</tr>
<tr>
<td></td>
<td>• Read Only—Indicates a read only state.</td>
</tr>
</tbody>
</table>

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 4-10 • Custom Web Page Web Method: AdvanceWFMinorStep**

<table>
<thead>
<tr>
<th>Parameter Type</th>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input</td>
<td>strAppID</td>
<td>The unique identifier for the workflow request in the Workflow Manager database.</td>
</tr>
<tr>
<td></td>
<td>strWFMajorItemID</td>
<td>The unique identifier for the workflow phase in the Workflow Manager database, which contains the workflow step launching your web page.</td>
</tr>
<tr>
<td></td>
<td>strWFMinorItemID</td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td>strPersonID</td>
<td>The unique identifier in the Workflow Manager database for the account of the person currently completing the workflow request.</td>
</tr>
<tr>
<td></td>
<td>nWFMinorType</td>
<td>The workflow step type - always needs to be set to 10 (Custom Step Type).</td>
</tr>
<tr>
<td>Output</td>
<td>boolean</td>
<td>The return value of AdvanceWFMinorStep should be:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- <strong>True</strong> if the workflow step was advanced without error</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- <strong>False</strong> if the workflow step was not advanced, or the method threw an error.</td>
</tr>
</tbody>
</table>
RollbackWFMinorStep

This method rolls back the workflow request to the workflow step which launches your workflow request.

Table 4-11 • Custom Web Page Web Method: RollbackWFMinorStep

<table>
<thead>
<tr>
<th>Parameter Type</th>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input</td>
<td>strAppID</td>
<td>The unique identifier for the workflow request in the Workflow Manager database.</td>
</tr>
<tr>
<td></td>
<td>strWFMajorItemID</td>
<td>The unique identifier for the workflow phase in the Workflow Manager database, which contains the workflow step launching your web page.</td>
</tr>
<tr>
<td></td>
<td>strWFMinorItemID</td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td>strPersonID</td>
<td>The unique identifier in the Workflow Manager database for the account of the person currently completing the workflow request.</td>
</tr>
<tr>
<td></td>
<td>nWFMinorType</td>
<td>The workflow step type - always needs to be set to 10 (Custom Step Type).</td>
</tr>
</tbody>
</table>

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 4-12 • Custom Web Page Web Method: EditWFMinorStep**

<table>
<thead>
<tr>
<th>Parameter Type</th>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input</td>
<td>strAppID</td>
<td>The unique identifier for the workflow request in the Workflow Manager database.</td>
</tr>
<tr>
<td></td>
<td>strWFMajorItemID</td>
<td>The unique identifier for the workflow phase in the Workflow Manager database, which contains the workflow step launching your web page.</td>
</tr>
<tr>
<td></td>
<td>strWFMinorItemID</td>
<td>The unique identifier for the workflow step in the Workflow Manager database which launches your web page.</td>
</tr>
<tr>
<td></td>
<td>strPersonID</td>
<td>The unique identifier in the Workflow Manager database for the account of the person currently completing the workflow request.</td>
</tr>
<tr>
<td></td>
<td>nWFMinorType</td>
<td>The workflow step type - always needs to be set to <strong>10 (Custom Step Type)</strong>.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Output</th>
<th>boolean</th>
<th>The return value of EditWFMinorStep should be:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>• <strong>True</strong> if the workflow step was updated without error</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• <strong>False</strong> if the workflow step was not able to be updated, or the method threw an error.</td>
</tr>
</tbody>
</table>

**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.

```csharp
//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.lblMinorTypeTxt.Text = HttpContext.Current.Request.QueryString["MinorType"]; this.strWFMinorType = HttpContext.Current.Request.QueryString["MinorType"]; //Person Id
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 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 "web servicelocation/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 following

// 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.

![Email Template Options on Workflow Step Details View](image)
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, Dependency Upload, or Downloadable File Upload, the person completing the workflow request will be presented with an 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** • 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.

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 4-11: “Existing AdminStudio Package” Data Element in a Workflow Step / Initial View](image)

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 4-12: Existing Packages in AdminStudio Page](image)
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.

![Data Entry](image)

**Figure 4-13:** “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 to 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 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 4-14: 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 4-15: “AdminStudio Package Upload” Data Element in a Workflow Step
When the you click the **Upload Workflow files** button, the **File Upload** dialog box opens.

![File Upload Dialog Box / No Files Selected](image)

**Figure 4-16:** 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.

![File Upload Dialog Box / Files Selected](image)

**Figure 4-17:** File Upload Dialog Box / Files Selected

When you have finished selecting files, click **Upload**. Progress messages will be listed.

![File Upload Dialog Box / Upload Complete](image)

**Figure 4-18:** File Upload Dialog Box / Upload Complete
You then click **Close** to return to the workflow step and 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 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.

![Data Entry Image]

**Figure 4-19:** “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.

![Data Entry](image)

**Figure 4-20:** “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:

<table>
<thead>
<tr>
<th>Task</th>
<th>To create a workflow step to upload a directory of packages:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Open a workflow template on the <strong>Template Details</strong> page, as described in <strong>Creating a New Template</strong>.</td>
</tr>
<tr>
<td>2.</td>
<td>Add a new data element to a data group, either one collected at initial submission or later in the workflow.</td>
</tr>
<tr>
<td>3.</td>
<td>Enter a name for this data element in the <strong>Description</strong> field.</td>
</tr>
</tbody>
</table>
4. Set **Data type** to *AdminStudio Package Upload from Import Path*.

![Data Element Details](image)

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* 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 4-21: Package Import is In Progress Page](image1.png)

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 4-22: Package Import is Complete Page](image2.png)

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:

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 4-23: 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.

![Running Package tests](image)

**Figure 4-24:** 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**

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**.

   ![Workflow Step Details](image)

   **AdminStudio Integration**

   **API method parameters**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Data Element</th>
<th>Default Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>PackageId</td>
<td>Select Existing AdminStudio R.</td>
<td></td>
</tr>
</tbody>
</table>

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 Summary Results](image)

**Figure 4-25:** 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.

![Data Element Details](image)

**Figure 4-26:** 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 4-27: 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.

![Data Element Details]

**Figure 4-28:** 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.

![Select Options]

**Figure 4-29:** Adding Package Formats to the List
When this data element is displayed in a workflow request, the user will be able to make selections from a drop-down list.

**Figure 4-30:** “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*.
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 4-32**: 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.

**Figure 4-33**: “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.

![Workflow Step Details](image)

**Figure 4-34:** 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.

![View AdminStudio Reports](image)

**Figure 4-35**: 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 4-36**: 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.

![Workflow Step Details]

Figure 4-37: 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 4-38**: 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 4-39**: 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 4-40: 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.

![Enter Data and Complete Step](image)

**Figure 4-41:** 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.

![Data Element Details](image)

**Figure 4-42:** 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.

![Enter Data and Complete Step](image)

**Figure 4-43:**  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.

![Workflow Step Details](image)

**Figure 4-44:** 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>
<thead>
<tr>
<th>Step Type</th>
<th>Default Custom Site URL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automated Import</td>
<td>http://SITE_IP_ADDRESS/CustomWorkflow/AutomatedImportStep.aspx</td>
</tr>
<tr>
<td>Automated Validation</td>
<td>http://SITE_IP_ADDRESS/CustomWorkflow/AutomatedValidationStep.aspx</td>
</tr>
<tr>
<td>Automated Conflict Analysis</td>
<td>http://SITE_IP_ADDRESS/CustomWorkflow/AutomatedConflictCheckStep.aspx</td>
</tr>
</tbody>
</table>

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:

   - Click Preview to preview the templates.
   - 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 by 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 checkboxes 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 4-45: 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.

![Template Details](image)

**Figure 4-46:** 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 4-47: 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 4-48: 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 will no longer be allowed to update all of the template’s details. 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 4-14 • Updating an In-Use Template

<table>
<thead>
<tr>
<th>Component</th>
<th>Permitted to Change</th>
<th>Not Permitted to Change</th>
<th>Delete?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Template</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Name text field</td>
<td>Template Type combo box</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Folder text field</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Status combo box</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Global Template check box</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Data Group</td>
<td>Data Group Name text field</td>
<td>Data Type combo box</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Sort Order text field</td>
<td>When collected? radio buttons</td>
<td></td>
</tr>
<tr>
<td>Data Element (Standard)</td>
<td>Description text field</td>
<td>Data Type combo box</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Required radio buttons</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sort Order text field</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Help Text text field</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Additional fields specific to the element’s data type</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Data Element (Branching)</td>
<td>Description text field</td>
<td>Data Type combo box</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Required radio buttons</td>
<td>Used to Define Conditions/Branching radio buttons</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sort Order text field</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Help Text text field</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Additional fields specific to the element’s data type</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
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.

Table 4-14 • Updating an In-Use Template

<table>
<thead>
<tr>
<th>Component</th>
<th>Permitted to Change</th>
<th>Not Permitted to Change</th>
<th>Delete?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Workflow phase</td>
<td>Workflow Phase Name text field</td>
<td>Phase Type combo box</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Sort Order text field</td>
<td>Define a condition for workflow branching? radio button</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Select the branching condition combo box and associated grid</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Link to next phase combo box</td>
<td></td>
</tr>
</tbody>
</table>

| Workflow step       | Workflow Step Description text field     | Sort Order text field (sometimes)              | Yes     |
|                    | 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          |                                                |         |
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:

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:

<table>
<thead>
<tr>
<th>Task</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>To run a template script against a Workflow Manager database:</strong></td>
</tr>
<tr>
<td>1. Follow the steps in Exporting a Template to an SQL Server Script to export a template to an SQL Server script file.</td>
</tr>
<tr>
<td>2. Copy the script file to a location accessible to the Workflow Manager database that you want to copy the template into.</td>
</tr>
<tr>
<td>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:</td>
</tr>
<tr>
<td>a. Open the script file in a text editor.</td>
</tr>
<tr>
<td>b. Locate the <code>@updatedBy</code> parameter, which identifies the person that created the workflow. It will appear in a line similar to the following:</td>
</tr>
<tr>
<td>c. Replace the identifier with the <code>PersonID</code> value from the <code>AMS_Person</code> table which represents your account (or the account of the person who you want to be registered as the creator of the template).</td>
</tr>
<tr>
<td>d. Locate the <code>@servicerCompanyID</code> 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:</td>
</tr>
<tr>
<td>e. Replace the identifier with the <code>servicerCompanyID</code> of the desired workflow administrator company from the <code>AMS_Company</code> table.</td>
</tr>
<tr>
<td>f. Save the script file.</td>
</tr>
</tbody>
</table>

**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:

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.

![Image of reorder level dialog box]

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:

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.

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.

```
Data Element Details
```

![Data Element Details](image)

```
Data element condition
```

![Data element condition](image)

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"/>
```

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 Software 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
- Setting Email Notification Defaults for Workflow Requests
- Overriding Default Email Notification Settings for an Individual Workflow Request
- Adding Accounts or Groups to an Email Notification List
- Adding External Email Addresses to an Email Notification List
- Deleting an Account, Group, or External Email Address From an Email Notification List
- Configuring Manual Email Notifications
- Managing My Notifications

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>
<thead>
<tr>
<th>Event Category</th>
<th>Events</th>
</tr>
</thead>
<tbody>
<tr>
<td>Workflow phase or step</td>
<td>Is initiated, rolled back to, updated, or completed.</td>
</tr>
<tr>
<td>Workflow request</td>
<td>Has its status changed.</td>
</tr>
<tr>
<td>Data</td>
<td>Is submitted, rejected, or updated.</td>
</tr>
<tr>
<td>Issue</td>
<td>Is submitted or rejected.</td>
</tr>
<tr>
<td>Project</td>
<td>Is nearing or passing its Service Level Agreement (SLA) due date.</td>
</tr>
</tbody>
</table>
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 4-16 • Automatic and Manual Email Notification Events**

<table>
<thead>
<tr>
<th>Events</th>
<th>Automatic Project &amp; Workflow Request Defaults</th>
<th>Automatic Workflow Request Overrides</th>
<th>Manual Notification During a Workflow Request</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data is submitted or rejected</td>
<td>N/A</td>
<td>Workflow Request Notifications Override page</td>
<td>N/A</td>
</tr>
<tr>
<td>Issue is submitted or responded to</td>
<td>N/A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Workflow status is changed</td>
<td>N/A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project is nearing or passing its SLA due date</td>
<td>N/A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Specific workflow phase or step is initiated</td>
<td>N/A</td>
<td>Workflow Request Notifications Override page</td>
<td>N/A</td>
</tr>
<tr>
<td>Rollback to a specific workflow phase or step</td>
<td>N/A</td>
<td>Workflow Request Notifications Override page</td>
<td>Rollback Workflow Item dialog</td>
</tr>
<tr>
<td>Specific workflow phase or step is edited</td>
<td>N/A</td>
<td>Workflow Request Notifications Override page</td>
<td>Update History dialog</td>
</tr>
<tr>
<td>Specific workflow phase or step is completed</td>
<td>N/A</td>
<td>Workflow Request Notifications Override page</td>
<td>Workflow Request Notifications Override page</td>
</tr>
<tr>
<td>Data group is edited</td>
<td>N/A</td>
<td>N/A</td>
<td>Edit Data dialog</td>
</tr>
<tr>
<td>Workflow phase or step is completed</td>
<td>N/A</td>
<td>N/A</td>
<td>Update History dialog Workflow Step Completion dialog</td>
</tr>
</tbody>
</table>
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**.

![Workflow Request Notifications Override](image)

**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.

![Add Account/Group](image)

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.

![Role/Account/Email Address](image)

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.

重要作用 • 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).

![External Email Address Administration](image)

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.

   ![Screen Shot](image.png)

   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.

![Update History Step Completion Area](image)

**Figure 4-49:** 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.

![Completing a Normal Workflow Step](image)

**Figure 4-50:** 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.

![Rollback Step Dialog Box](image)

**Figure 4-51:** 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 4-52: 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

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 4-17 • Workflow Manager Default Email Templates

<table>
<thead>
<tr>
<th>Category</th>
<th>Template Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>System templates</td>
<td>ApplicationStatusChanged.txt</td>
<td>Sent when the <strong>Status</strong> of a workflow request has changed, such as from <strong>Active</strong> to <strong>Inactive</strong>.</td>
</tr>
<tr>
<td></td>
<td>ApprovalTask.txt</td>
<td>Sent when a workflow step with a <strong>Step Type</strong> 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.</td>
</tr>
<tr>
<td></td>
<td>DataChanged.txt</td>
<td>Sent when someone edits a workflow request’s previously submitted (and accepted) data.</td>
</tr>
<tr>
<td></td>
<td>DataChangedNewRequest.txt</td>
<td>Sent when someone submits data for a new workflow request.</td>
</tr>
<tr>
<td></td>
<td>IssueCreation.txt</td>
<td>Sent when a new issue has been created for a workflow request.</td>
</tr>
<tr>
<td></td>
<td>IssueResponse.txt</td>
<td>Sent when a workflow request’s existing issue has been responded to.</td>
</tr>
<tr>
<td></td>
<td>NewSLABreakage.txt</td>
<td>Sent when a workflow request is past due the due date defined in the Service Level Agreement (SLA).</td>
</tr>
<tr>
<td></td>
<td>NewSLARisk.txt</td>
<td>Sent when a workflow request is at risk of exceeding the due date defined in the Service Level Agreement (SLA).</td>
</tr>
<tr>
<td></td>
<td>StepLevelSLAAtRisk.txt</td>
<td>Sent when a workflow step is at risk of exceeding the due date defined in the Service Level Agreement (SLA).</td>
</tr>
<tr>
<td></td>
<td>StepLevelSLABreakage.txt</td>
<td>Sent when a workflow step is past due the due date defined in the Service Level Agreement (SLA).</td>
</tr>
<tr>
<td></td>
<td>NormalStep.txt</td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td>UpdateHistory.txt</td>
<td>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.</td>
</tr>
</tbody>
</table>
Table 4-17 • Workflow Manager Default Email Templates

<table>
<thead>
<tr>
<th>Category</th>
<th>Template Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Workflow step templates</td>
<td>WFAdvanced.txt</td>
<td>Default email template to send when a workflow step is advanced.</td>
</tr>
<tr>
<td></td>
<td>WFCompleted.txt</td>
<td>Default email template to send when a workflow step is completed.</td>
</tr>
<tr>
<td></td>
<td>WFRollback.txt</td>
<td>Default email template to send when a workflow step is rolled back.</td>
</tr>
<tr>
<td></td>
<td>WFStepEdit.txt</td>
<td>Default email template to send when a workflow step is edited.</td>
</tr>
</tbody>
</table>

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:

```html
<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:

```html
<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:

<table>
<thead>
<tr>
<th>Task</th>
<th>To create a new email template:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Task</th>
<th>To edit an email template:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>In the navigation bar, click <strong>Email Templates</strong> in the <strong>Settings</strong> menu. The <strong>Email Template Administration</strong> page opens, and lists all existing email templates.</td>
</tr>
<tr>
<td>2.</td>
<td>Click <strong>Add</strong>. The <strong>Email Template Details</strong> page opens, displaying an empty text editor window.</td>
</tr>
<tr>
<td>3.</td>
<td>Enter text as described in <strong>Editing an Existing Email Template</strong></td>
</tr>
</tbody>
</table>
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:

![Email Template Details](image)

**Figure 4-53:** 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 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

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.

![Properties Tab Image]

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
<?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 4-18 • XML Elements in the sla.xml File

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SLACompanies</td>
<td>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.</td>
</tr>
<tr>
<td>Company</td>
<td>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.</td>
</tr>
<tr>
<td>CustomAttribute</td>
<td>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.</td>
</tr>
<tr>
<td>Value</td>
<td>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: &lt;Value ID=&quot;NT&quot;&gt;4&lt;/Value&gt; will increment the Workflow due period by 4 days, when the workflow consumer selects the value NT from the OS data element.</td>
</tr>
</tbody>
</table>
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_2016\wwwroot\bin\IPlugin.dll
   - C:\AdminStudioWebComponents_2016\wwwroot\bin\IPlugin2.dll

3. Obtain the following file from Flexera Software 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_2016\wwwroot\bin\Plugins

7. Locate the sla.xml file in the following directory:

8. Open the sla.xml file using a text editor of your choice.

The default sla.xml file contains the following:

```xml
<?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:

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.

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.
4. Click Save.

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.
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.

<table>
<thead>
<tr>
<th>Task</th>
<th>To delete an existing workflow status:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>In the navigation bar, click Workflow Status on the Administration menu. The Workflow Status Administration page opens.</td>
</tr>
<tr>
<td>2.</td>
<td>Click on the workflow status that you want to edit. The Edit Workflow Status page opens.</td>
</tr>
<tr>
<td>3.</td>
<td>Click the Delete button. You are prompted to confirm the deletion.</td>
</tr>
<tr>
<td>4.</td>
<td>Click OK. The Edit Workflow Status page closes, and your workflow status is no longer visible on the Workflow Status Administration page.</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Task</th>
<th>To create a new workflow family:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>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:</td>
</tr>
<tr>
<td></td>
<td>• If you are a workflow consumer, click Submit Workflow Request on the Workflows menu. The Submit Workflow Request page opens.</td>
</tr>
<tr>
<td></td>
<td>• If you are a workflow administrator, do one of the following:</td>
</tr>
<tr>
<td></td>
<td>• 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.</td>
</tr>
<tr>
<td></td>
<td>• To submit a new workflow request, click Submit Workflow Request on the Workflows menu. The Submit Workflow Request page opens.</td>
</tr>
<tr>
<td>2.</td>
<td>Click the Create New button next to the Workflow Family field. You are prompted to enter a name for the new workflow family.</td>
</tr>
</tbody>
</table>

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.

![Database-Driven Data Element Displayed in a Workflow Request](image)

**Figure 4-54**: 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.

![Web Service Call Data Element](image)

**Figure 4-55**: 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.

![External Web Services Administration](image)

**Figure 4-56**: 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.

 temas

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.
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:

<table>
<thead>
<tr>
<th>Tag Name</th>
<th>Purpose of Folder</th>
</tr>
</thead>
<tbody>
<tr>
<td>InstallationUploadDirectory</td>
<td>This directory contains files uploaded during the completion of a workflow request, using a data element of type Application Upload.</td>
</tr>
<tr>
<td>DocumentUploadDirectory</td>
<td>This directory contains files uploaded during the completion of a workflow request, using a data element of type Document Upload.</td>
</tr>
<tr>
<td>DependencyUploadDirectory</td>
<td>This directory contains files uploaded during the completion of a workflow request, using a data element of type Dependency Upload.</td>
</tr>
<tr>
<td>CustomerDownloadDirectory</td>
<td>This directory contains files that can be downloaded from the Downloadable Files sub-tab of a workflow request's Workflow Request page.</td>
</tr>
<tr>
<td>IssueFileUploadDirectory</td>
<td>This directory contains files associated with an issue raised during the course of a workflow request.</td>
</tr>
</tbody>
</table>

   For example, the contents of `DirectoryConfig.xml` might look like this:

   ```xml
   <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_2016\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_2016\Support\Config\Config.exe
Chapter 4 Using Workflow Manager
Performing Administrative Tasks

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 4-19 • AdminStudio and Workflow Manager Integration

<table>
<thead>
<tr>
<th>Topic</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Using Automated Workflow Steps to</td>
<td>Workflow Manager leverages AdminStudio's web APIs to</td>
</tr>
<tr>
<td>Perform AdminStudio Tasks</td>
<td>provide out-of-the-box support for enhanced automation</td>
</tr>
<tr>
<td></td>
<td>workflow steps that make it possible to execute many</td>
</tr>
<tr>
<td></td>
<td>AdminStudio tasks including:</td>
</tr>
<tr>
<td></td>
<td>• Importing a package into the Application Catalog and</td>
</tr>
<tr>
<td></td>
<td>performing testing</td>
</tr>
<tr>
<td></td>
<td>• Viewing test results</td>
</tr>
<tr>
<td></td>
<td>• Setting the target environment</td>
</tr>
<tr>
<td></td>
<td>• Setting packaging formats</td>
</tr>
<tr>
<td></td>
<td>• Setting distribution points</td>
</tr>
<tr>
<td></td>
<td>• Publishing applications</td>
</tr>
<tr>
<td></td>
<td>• Viewing reports</td>
</tr>
<tr>
<td></td>
<td>• Viewing and setting application properties</td>
</tr>
<tr>
<td></td>
<td>For more</td>
</tr>
<tr>
<td>Using iPlugin to Automatically Perform</td>
<td>You can use the IPlugin interface to import packages</td>
</tr>
<tr>
<td>AdminStudio Tasks in a Workflow Request</td>
<td>into the Application Catalog and perform validation</td>
</tr>
<tr>
<td></td>
<td>and conflict analysis as part of a Workflow Manager</td>
</tr>
<tr>
<td></td>
<td>workflow step via command line using AdminStudio</td>
</tr>
<tr>
<td></td>
<td>Application Manager.</td>
</tr>
</tbody>
</table>
Chapter 4  Using Workflow Manager
Performing Administrative Tasks

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.

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.

Table 4-19 • AdminStudio and Workflow Manager Integration (cont.)

<table>
<thead>
<tr>
<th>Topic</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connecting the AdminStudio Client Tools to the AdminStudio Enterprise Server Application Catalog</td>
<td>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.</td>
</tr>
<tr>
<td>Associating a Workflow Manager Request with a Package</td>
<td>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.</td>
</tr>
<tr>
<td>Sharing AdminStudio Extended Attribute Data With Workflow Manager Workflows</td>
<td>You can define an AdminStudio data group so that Data elements are automatically created based upon the elements defined in the Adminstudio Extended Attributes XML file.</td>
</tr>
<tr>
<td>Defining a Workflow Manager Phase as an AdminStudio Workflow Project</td>
<td>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.</td>
</tr>
</tbody>
</table>
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.

![Select AdminStudio Enterprise Server URL](image)

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.

![Connect Application Catalog](image)
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:

- **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.

<table>
<thead>
<tr>
<th>Task</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>To associate a package with a request from Application Manager:</strong></td>
</tr>
<tr>
<td>1. Open AdminStudio Application Manager and connect to the AdminStudio Enterprise Server Application Catalog.</td>
</tr>
<tr>
<td>2. On the <strong>Catalog</strong> tab, right-click on a package in the tree and select <strong>Associate with Workflow Manager Workflow Request</strong> from the shortcut menu. The <strong>Associate with Workflow Manager Workflow Request</strong> dialog box opens.</td>
</tr>
<tr>
<td>3. From the list, select the name of the workflow request that you want to associate with this package and click <strong>OK</strong>.</td>
</tr>
</tbody>
</table>

### 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.
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
<?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>
  </AttributeDetails>
</Extended_Attribute>
```
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.

![Extended Attributes View](image)

**Figure 4-57**: 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 4-58: 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 4-59:* 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 4-60:* 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 4-61: Workflow Phase with AdminStudio Integration

When a **Workflow Phase** is defined as an **AdminStudio Phase**, the following occurs:

<table>
<thead>
<tr>
<th>Event</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AdminStudio users can be assigned to workflow steps</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>Progress is displayed on the Workflow Request page</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>Progress can be decreased</strong></td>
<td>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.</td>
</tr>
</tbody>
</table>

*Note*: If an AdminStudio Project is complete, it can no longer be changed.

<table>
<thead>
<tr>
<th>Event</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AdminStudio Workflow Phase can be rolled back</strong></td>
<td>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.</td>
</tr>
</tbody>
</table>
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.
Report Center provides reporting capability for both AdminStudio and Workflow Manager. You can use Report Center 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 5-1 • AdminStudio and Workflow Manager Reports in Report Center

<table>
<thead>
<tr>
<th>Product</th>
<th>Available Reports</th>
</tr>
</thead>
<tbody>
<tr>
<td>AdminStudio Reports</td>
<td>Report Center provides a centralized view of all of the information regarding packages in your Application Catalog. See Generating and Viewing AdminStudio Reports.</td>
</tr>
<tr>
<td></td>
<td>• Package Reports—Includes detailed information on individual packages in the Application Catalog. See Viewing Package Reports.</td>
</tr>
<tr>
<td></td>
<td>• 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.</td>
</tr>
<tr>
<td></td>
<td>• 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.</td>
</tr>
</tbody>
</table>
Chapter 5 Generating and Viewing Reports in Report Center

Generating and Viewing AdminStudio Reports

Edition • Report Center is included with AdminStudio Enterprise Edition and with Workflow Manager.

You can use Report Center to obtain a centralized view of all of the information regarding packages in your AdminStudio Application Catalog. Because Report Center is a Web application, it can be easily accessed by a geographically dispersed workforce without requiring any software installation or data transfer. Report Center 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 Report Center is presented in the following sections:

Table 5-2 • Information About Generating AdminStudio Reports

<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Viewing Package Reports</td>
<td>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.</td>
</tr>
</tbody>
</table>
Edition • Report Center is included with AdminStudio Enterprise Edition and with Workflow Manager.

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

### Table 5-2 • Information About Generating AdminStudio Reports

<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generating a Custom SQL Query Report for AdminStudio</td>
<td>Explains how to enter an SQL query to specify the data to be displayed in a custom report.</td>
</tr>
<tr>
<td>Generating a Custom Stored Procedure Report for AdminStudio</td>
<td>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.</td>
</tr>
<tr>
<td>Viewing AdminStudio Application Catalog Reports</td>
<td>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.</td>
</tr>
</tbody>
</table>

### Viewing Package Reports

Edition • Report Center 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.

### Searching for a Package on the Search Packages Page

Edition • Report Center 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 5-3 • Package Attribute Search Fields

<table>
<thead>
<tr>
<th>Metadata</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Package Code</td>
<td>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: <code>{xxxxxxxx-xxxx-xxxx-xxxx-xxxxxxxxxxxxx}</code> where each X character is a hex digit (0 through 9 or uppercase A through F).</td>
</tr>
<tr>
<td>Product Code</td>
<td>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: <code>{xxxxxxxx-xxxx-xxxx-xxxx-xxxxxxxxxxxxx}</code> where each X character is a hex digit (0 through 9 or uppercase A through F).</td>
</tr>
<tr>
<td>Upgrade Code</td>
<td>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: <code>{xxxxxxxx-xxxx-xxxx-xxxx-xxxxxxxxxxxxx}</code> where each X character is a hex digit (0 through 9 or uppercase A through F).</td>
</tr>
<tr>
<td>Setup File Name</td>
<td>Name of the file that was imported into the Application Catalog.</td>
</tr>
<tr>
<td>Comments</td>
<td>Enter the text of any comments associated with the package.</td>
</tr>
<tr>
<td>Extended Attributes</td>
<td>Enter the value of any of the Extended Attributes associated with the package.</td>
</tr>
</tbody>
</table>

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.

Package Content
You can search for packages in a catalog based on one or more of any of the following Package Content metadata:

Table 5-4 • Package Content Search Fields

<table>
<thead>
<tr>
<th>Metadata</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>File</td>
<td>Enter the file name of one of the files in the package.</td>
</tr>
</tbody>
</table>
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 5-5 • Workflow Request Attributes Search Fields**

<table>
<thead>
<tr>
<th>Metadata</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Enter the name of the package’s associated workflow request.</td>
</tr>
<tr>
<td>Upload Date</td>
<td>Enter the date the workflow request was created.</td>
</tr>
<tr>
<td>Due Date</td>
<td>Enter the date the workflow request is scheduled to be completed, based upon its value for Application Due Period.</td>
</tr>
<tr>
<td>Risk Date</td>
<td>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.</td>
</tr>
<tr>
<td>Due Period</td>
<td>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.</td>
</tr>
<tr>
<td>End Date</td>
<td>Enter the date the workflow request was completed.</td>
</tr>
</tbody>
</table>

**Information Included in Package Reports**

*Edition • Report Center 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* • *Report Center 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.
The Package Summary Information View lists the following information:

**Table 5-6 • Package Report / Package Summary Information**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product Name</td>
<td>Name assigned to the package.</td>
</tr>
<tr>
<td>Manufacturer</td>
<td>Company that authored the package.</td>
</tr>
<tr>
<td>Import Date</td>
<td>The date and time the package was imported into the Application Catalog.</td>
</tr>
<tr>
<td>Unresolved Conflicts</td>
<td>The number of detected conflicts, generated during conflict analysis of this package, which have not yet been resolved—either automatically or manually.</td>
</tr>
<tr>
<td>Product Version</td>
<td>Version of package that is recorded in the package's Windows Installer file.</td>
</tr>
<tr>
<td>Product Language</td>
<td>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.</td>
</tr>
<tr>
<td>In Software Repository</td>
<td>Indicates whether or not this package and its associated files are managed by the Software Repository.</td>
</tr>
</tbody>
</table>
Files View

Edition • Report Center 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.

![Package Report / Files View](image)

For each file, the following information is listed:

**Table 5-7 • Package Report / Files Information**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>File</td>
<td>Name of file included with this package.</td>
</tr>
<tr>
<td>Target Directory</td>
<td>Name of directory where the file is installed.</td>
</tr>
<tr>
<td>Version</td>
<td>Version number of the file.</td>
</tr>
<tr>
<td>File Size</td>
<td>Size of the installed file.</td>
</tr>
<tr>
<td>Component</td>
<td>Component that the file is associated with.</td>
</tr>
</tbody>
</table>
Chapter 5 Generating and Viewing Reports in Report Center

Generating and Viewing AdminStudio Reports

Registry View

*Edition* • Report Center 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.

![Registry View](http://172.17.5.167 - Package Report - Microsoft Internet Explorer)

**Figure 5-3: Package Report / Registry View**

For each registry entry, the following information is listed:

**Table 5-8 • Package Report / Registry Information**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Root</td>
<td>Identifies the predefined “root” key that contains the registry entry.</td>
</tr>
<tr>
<td>Key</td>
<td>A registry key.</td>
</tr>
<tr>
<td>Name</td>
<td>Name identifying the registry entry.</td>
</tr>
<tr>
<td>Value</td>
<td>The string of data that defines the value of the key.</td>
</tr>
<tr>
<td>Component</td>
<td>Package component that the registry entry is associated with.</td>
</tr>
</tbody>
</table>
Shortcuts View

Edition • Report Center 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 5-4: Package Report / Shortcuts View

For each shortcut, the following information is listed:

Table 5-9 • Package Report / Shortcuts Information

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Name identifying the shortcut.</td>
</tr>
<tr>
<td>Target Directory</td>
<td>Directory and executable that the shortcut invokes.</td>
</tr>
<tr>
<td>Component</td>
<td>Component associated with the shortcut.</td>
</tr>
</tbody>
</table>

ODBC Drivers View

Edition • Report Center 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 5-5: Package Report / ODBC Drivers View

For each ODBC driver, the following information is listed:

Table 5-10 • Package Report / ODBC Drivers Information

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Driver</td>
<td>Name of an Open Database Connectivity (ODBC) driver in the package. Each database type has its own ODBC driver.</td>
</tr>
<tr>
<td>Description</td>
<td>Description of the ODBC driver identifying its associated database type.</td>
</tr>
<tr>
<td>File</td>
<td>File associated with the ODBC driver.</td>
</tr>
<tr>
<td>Component</td>
<td>Component associated with the ODBC driver.</td>
</tr>
</tbody>
</table>

ODBC DS View

Edition • Report Center 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 5-6: Package Report / ODBC Data Sources View

For each ODBC DS, the following information is listed:

Table 5-11 • Package Report / ODBC DS Information

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data Source</td>
<td>Name of the ODBC data source, which identifies the source database type and provides information on how to connect to that database.</td>
</tr>
<tr>
<td>Description</td>
<td>Identifies the database type.</td>
</tr>
<tr>
<td>Driver Description</td>
<td>Name of this ODBC data source's associated ODBC driver.</td>
</tr>
<tr>
<td>Component</td>
<td>Component that this ODBC data source is affiliated with.</td>
</tr>
</tbody>
</table>

Extended Attributes View

Edition • Report Center 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.
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Figure 5-7: Package Report / Extended Attributes View

For each Extended Attribute, the following information is listed:

Table 5-12 • Package Report / Extended Attributes Information

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Name identifying the attribute.</td>
</tr>
<tr>
<td>Value</td>
<td>Content entered for the attribute.</td>
</tr>
</tbody>
</table>

Validation View

Edition • Report Center 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 5-8: Package Report / Validation View

For each error or warning, the following information is listed:

Table 5-13 • Package Report / Validation Information

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICE Rule</td>
<td>Name of ICE Rule that generated an error or warning message.</td>
</tr>
<tr>
<td>Description</td>
<td>Error or warning message.</td>
</tr>
<tr>
<td>Error Level</td>
<td>Indicates the severity of the message as either being a Warning or an Error.</td>
</tr>
<tr>
<td></td>
<td>• Errors—Package authoring that will cause incorrect behavior.</td>
</tr>
<tr>
<td></td>
<td>• Warnings—Package authoring that could possibly cause incorrect behavior. Warnings can also report unexpected side-effects of package authoring.</td>
</tr>
</tbody>
</table>

Conflicts View

Edition • Report Center 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.
Generating and Viewing AdminStudio Reports

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Figure 5-9: Package Report / Conflicts View

For each error, the following information is listed:

Table 5-14 • Package Report / Conflicts Information

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACE Rule</td>
<td>Name of ACE Rule that generated the message.</td>
</tr>
<tr>
<td>Description</td>
<td>Message generated during conflict analysis.</td>
</tr>
<tr>
<td>Target Package</td>
<td>Package that conflicted with this package.</td>
</tr>
</tbody>
</table>

History View

Edition • Report Center 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 5-10: Package Report / History View

For each action, the following information is listed:

Table 5-15 • Package Report / History Information

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date</td>
<td>Day and time the event occurred.</td>
</tr>
<tr>
<td>Action</td>
<td>Identifies the event that occurred.</td>
</tr>
<tr>
<td>User</td>
<td>Identifies the user who executed the event.</td>
</tr>
<tr>
<td>Description</td>
<td>Description of the event that occurred.</td>
</tr>
</tbody>
</table>

Dependencies View

*Edition* • Report Center 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.
Generating and Viewing AdminStudio Reports

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Generating and Viewing AdminStudio Reports

For each dependency, the following information is listed:

Table 5-16 • Package Report / Dependencies Information

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Name of a file associated with this package that has dependencies with files used by other products or operating systems in the Application Catalog.</td>
</tr>
<tr>
<td>Path</td>
<td>Location where this dependent file is installed.</td>
</tr>
<tr>
<td>Size</td>
<td>Size of the dependent file.</td>
</tr>
<tr>
<td>Version</td>
<td>Version of the dependent file.</td>
</tr>
</tbody>
</table>

Properties View

Edition • Report Center 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.
Navigating Through a Package Report

Edition • Report Center 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:

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.
Chapter 5  Generating and Viewing Reports in Report Center
Generating and Viewing AdminStudio Reports

Figure 5-14: 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.

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 • Report Center 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:
Chapter 5  Generating and Viewing Reports in Report Center

Generating and Viewing AdminStudio Reports

Figure 5-16: 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 Report Center 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

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 • Report Center 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 Report Center 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 Report Center SQL Queries**

In Report Center searches, the `LIKE` operator is always used. You can combine the `LIKE` operator with a wildcard character, and the following rules apply:

**Table 5-17 • Wildcard Support in Report Center Queries**

<table>
<thead>
<tr>
<th>Situation</th>
<th>Rule</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>When no wildcards are used</strong></td>
<td>If you do not enter a wildcard character in the <strong>Search</strong> box, then Report Center 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 <code>test</code> anywhere in the file name, and you entered <strong>test</strong> in the <strong>Search</strong> box, it would be interpreted by Report Center as: <code>*test*</code> And the following files would be found: MyTestFile and TestFile</td>
</tr>
<tr>
<td><strong>When wildcards are used</strong></td>
<td>You can specify a * wildcard in the <strong>Search</strong> box to narrow the search results. For example, if you are searching for a file name that includes the word <code>test</code>, but does not begin with it, and you entered <strong>test</strong> in the <strong>Search</strong> box, MyTestFile would be returned, but not TestFile.</td>
</tr>
</tbody>
</table>
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.


   ![Create Custom Stored Procedure Report](image)

   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.
Workflow Manager ships with a default stored procedure named `usp_getreadonlyworkflows`. In this stored procedure, the following predefined parameters are supported:

**Table 6 • Predefined Parameters**

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>@ApplicationID</td>
<td>List of all the workflow request names.</td>
</tr>
<tr>
<td>@ApplicationID_Completed</td>
<td>List of all the workflow request names which are already completed.</td>
</tr>
<tr>
<td>@ApplicationID_InProgress</td>
<td>List of all the workflow request names which are in progress.</td>
</tr>
</tbody>
</table>
| @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
<?xml version="1.0" encoding="UTF-8"?>
<StoredProcParams>
  <!-- can provide list of all template names no global templates-->
  <Parameter>
    <Key>TemplateName</Key>
    <Label>Template Name</Label>
    <Value>
      <![CDATA[
      SELECT TEMPLATEID AS VALUE, TEMPLATENAME AS TEXT FROM AMS_TEMPLATES WHERE sCOMPANYID IN ( SELECT DISTINCT sc.CompanyID FROM AMS_Company scp WITH (NOLOCK), AMS_ServiceCompanyJoin sc WITH (NOLOCK) WHERE scp.CompanyID = ['[CompanyID']])]]>
    </Value>
  </Parameter>
  <![CDATA[
  SELECT CONTRACTID AS VALUE, CONTRACTNAME AS TEXT FROM AMS_Contracts WHERE COMPANYID IN ( SELECT DISTINCT sc.CompanyID FROM AMS_Company scp WITH (NOLOCK), AMS_ServiceCompanyJoin sc WITH (NOLOCK) WHERE scp.CompanyID = ['[CompanyID']])]]>
  <Parameter>
    <Key>ProjectID</Key>
    <Label>Project Name</Label>
    <Value>
      <![CDATA[
      SELECT CONTRACTID AS VALUE, CONTRACTNAME AS TEXT FROM AMS_Contracts WHERE COMPANYID IN ( SELECT DISTINCT sc.CompanyID FROM AMS_Company scp WITH (NOLOCK), AMS_ServiceCompanyJoin sc WITH (NOLOCK) WHERE scp.CompanyID = ['[CompanyID']])]]>
    </Value>
  </Parameter>
</StoredProcParams>
```

Figure 7: StoredProcParams.xml File

This file installed in the following location:

C:\AdminStudioWebComponents_2016\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 • Report Center is included with AdminStudio Enterprise Edition and with Workflow Manager.**

On the Application Catalog Reports page, you can view a wide array of reports containing summary information on the Windows Installer, App-V, and iOS, Android, and Windows Phone 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.
Application Catalog Reports

Figure 5-1: 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 Apple iOS, Google Android, and Microsoft Windows Phone mobile apps, reports on feature use, risk assessment, device compatibility, and 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.

For more information, see Viewing Application Testing and Analysis Reports on the Report Center Tab in the AdminStudio Help Library.

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.

![All Reports](image)

**Figure 5-2:** 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 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.

#### 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 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.

#### 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

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:

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.

Generating a Workflow Requests Summary Report

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:

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.

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:

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.

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 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.

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 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.
To generate a Workflow Steps SLA Report:


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.

Additional information is provided in this section that may help you generate custom reports:

- **Wildcard Support in Report Center SQL Queries**—You can combine the SQL LIKE operator with wildcard characters to perform searches. See Wildcard Support in Report Center 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.
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

The Activity Report lists a record for each time one of the following activities occurs during the completion of a request:

Table 5-1 • Activities Listed in the Activity Report

<table>
<thead>
<tr>
<th>Activity</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Request Name Change</td>
<td>Occurs when a user edits the Workflow Name field on the Properties tab of the Workflow Request page and clicks Update.</td>
</tr>
<tr>
<td>Request Status Changed</td>
<td>Occurs when a user edits the Status of a request on the Properties tab of the Workflow Request page and clicks Update.</td>
</tr>
<tr>
<td>Data Acceptance Begins</td>
<td>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).</td>
</tr>
<tr>
<td></td>
<td>Note • This event occurs simultaneously with the Data Submission Complete event.</td>
</tr>
<tr>
<td>Data Acceptance Cancel</td>
<td>Occurs when a Workflow Administrator clicks the Reject Data button to reject the data submitted during a request's Data Entry Step.</td>
</tr>
<tr>
<td></td>
<td>Each time data is rejected, three activities are recorded:</td>
</tr>
<tr>
<td></td>
<td>• Data Acceptance Cancel</td>
</tr>
<tr>
<td></td>
<td>• Data Rejected</td>
</tr>
<tr>
<td></td>
<td>• Data Submission Begins</td>
</tr>
<tr>
<td>Data Acceptance Complete</td>
<td>Occurs when a Workflow Administrator clicks the Accept Data button after reviewing the data submitted during a request's Data Entry Step.</td>
</tr>
<tr>
<td>Data Changed</td>
<td>Occurs when a user clicks Update after editing data that was submitted as part of a request.</td>
</tr>
<tr>
<td>Data Edit</td>
<td>Occurs when a user clicks the name of a Data Entry Workflow Step, and then clicks the Edit Data button.</td>
</tr>
</tbody>
</table>
### Table 5-1 • Activities Listed in the Activity Report (cont.)

<table>
<thead>
<tr>
<th>Activity</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data Rejected</td>
<td>Occurs when a Workflow Administrator clicks the <strong>Reject Data</strong> button to reject the data submitted during a request's Data Entry Step.</td>
</tr>
<tr>
<td></td>
<td>Each time data is rejected, three activities are recorded:</td>
</tr>
<tr>
<td></td>
<td>• Data Acceptance Cancel</td>
</tr>
<tr>
<td></td>
<td>• Data Rejected</td>
</tr>
<tr>
<td></td>
<td>• Data Submission Begins</td>
</tr>
<tr>
<td>Data Submission Begins</td>
<td>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 <strong>Submit</strong> button is clicked.</td>
</tr>
<tr>
<td><strong>Note</strong> • 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 <strong>Workflow Request</strong> page.</td>
<td></td>
</tr>
<tr>
<td>Data Submission Complete</td>
<td>Occurs when a user clicks the <strong>Submit</strong> 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).</td>
</tr>
<tr>
<td><strong>Note</strong> • This event occurs simultaneously with the Data Acceptance Begins event.</td>
<td></td>
</tr>
<tr>
<td>SLA Start</td>
<td>Occurs when a user clicks the <strong>Start Clock</strong> button on the <strong>Workflow Request</strong> page to restart monitoring of SLA time for the current workflow step.</td>
</tr>
<tr>
<td>SLA Stop</td>
<td>Occurs when a user clicks the <strong>Stop Clock</strong> button on the <strong>Workflow Request</strong> page to stop monitoring of SLA time for the current workflow step.</td>
</tr>
<tr>
<td>Workflow Phase Begins</td>
<td>Occurs when the last workflow step in the previous workflow phase is completed.</td>
</tr>
<tr>
<td>Workflow Phase Cancel</td>
<td>Occurs when all workflow steps in a workflow phase are rolled back.</td>
</tr>
<tr>
<td>Workflow Phase Complete</td>
<td>Occurs when the last Workflow Step of a Workflow Phase is completed.</td>
</tr>
<tr>
<td>Workflow Step Begins</td>
<td>Occurs when the previous Workflow Step in a Workflow is completed.</td>
</tr>
<tr>
<td>Workflow Step Cancel</td>
<td>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.</td>
</tr>
</tbody>
</table>
Table 5-1 • Activities Listed in the Activity Report (cont.)

<table>
<thead>
<tr>
<th>Activity</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Workflow Step Complete</td>
<td>Occurs when a Workflow Step is completed, one of the following events occurs (depending upon the Step Type):</td>
</tr>
<tr>
<td></td>
<td>• <strong>Data Entry/Edit</strong>—Occurs when a user clicks <strong>Submit</strong> after entering the required data.</td>
</tr>
<tr>
<td></td>
<td>• <strong>Normal</strong>—Occurs when a user clicks <strong>OK</strong> after entering time information on the <strong>Step Validation</strong> dialog box.</td>
</tr>
<tr>
<td></td>
<td>• <strong>Update History</strong>—Occurs when a user clicks <strong>OK</strong> after entering information on the Update History dialog box to document a Workflow Step/Phase.</td>
</tr>
<tr>
<td></td>
<td>• <strong>Workflow Assignment</strong>—Occurs when a user clicks <strong>Apply</strong> on the <strong>Assignment Details</strong> page after assigning a user to roles associated with this Request.</td>
</tr>
<tr>
<td></td>
<td>• <strong>Script Execution</strong>—Occurs when a user clicks this Workflow Step name on the <strong>Workflow Request</strong> page, which launches a user-specified executable file.</td>
</tr>
<tr>
<td></td>
<td>• <strong>Custom Web Page</strong>—Occurs when a user clicks this Workflow Step name on the <strong>Workflow Request</strong> page, which opens a user-specified URL address in a new browser window.</td>
</tr>
<tr>
<td>Workflow Step Rollback</td>
<td>Occurs when a user enters a reason for rollback and clicks the <strong>Rollback</strong> button on the <strong>Rollback Workflow Item</strong> dialog box (which is opened by clicking the check mark next to the name of a completed Workflow Step).</td>
</tr>
</tbody>
</table>

Information that Can Be Included in an Activity Report

Each time an activity occurs, the following information is recorded:

Table 5-2 • Available Activity Report Fields

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activity Date</td>
<td>Date and time that an activity occurred.</td>
</tr>
<tr>
<td>Activity Name</td>
<td>Name of event that was recorded. See Activities Displayed in the Activity Report for a complete list.</td>
</tr>
<tr>
<td>Activity Owner</td>
<td>User who was “assigned” to the Workflow Step that was active when the activity occurred; the user who performed the activity.</td>
</tr>
<tr>
<td>Workflow Name</td>
<td>Name of the request that the activity was associated with.</td>
</tr>
<tr>
<td>Data Major</td>
<td>Name of the data group that contains a data element that was modified.</td>
</tr>
<tr>
<td>Data Minor</td>
<td>Name of the data element that was modified.</td>
</tr>
<tr>
<td>New Value</td>
<td>Modified value of the edited data element.</td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>Task</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>To generate a new Custom SQL Query report:</strong></td>
</tr>
<tr>
<td>1. In the navigation bar, click <strong>Create Custom SQL Query Report</strong>. The <strong>Enter SQL Query</strong> panel of the <strong>Create Custom SQL Query Report</strong> page opens.</td>
</tr>
<tr>
<td>2. Enter the SQL query which is to retrieve data for your report into the <strong>Custom SQL Query</strong> text field to retrieve the data for this report. Click the <strong>Test</strong> button to verify the query syntax.</td>
</tr>
<tr>
<td><em>Note • Refer to <strong>Enter SQL Query Panel</strong> for information about Workflow Manager database tables which you might want to return data from.</em></td>
</tr>
<tr>
<td>3. Click <strong>Next</strong>. The <strong>Specify general information</strong> panel opens.</td>
</tr>
<tr>
<td>4. Enter a <strong>Report name</strong> and <strong>Description</strong> to clearly identify the contents and purpose of this report. This name and description will be listed on the <strong>All Reports</strong> page.</td>
</tr>
<tr>
<td>5. Decide which roles should have the right to view your report, selecting them from the <strong>Roles</strong> tree</td>
</tr>
<tr>
<td>6. Click <strong>Next</strong>. The <strong>Save and preview report</strong> panel opens, summarizing the information that will be used to create your report.</td>
</tr>
<tr>
<td>7. Click <strong>Save and preview</strong>. Your report is generated. The report will now also appear in the list on the <strong>All Reports</strong> page.</td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>Task</th>
<th>To generate a Custom Stored Procedure report:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Open the AMS_CustomReports table and enter the names of the stored procedures you want to use to generate reports.</td>
</tr>
<tr>
<td></td>
<td><em>Note</em> • For more information on stored procedures, see SQL Stored Procedures in Microsoft TechNet.</td>
</tr>
<tr>
<td></td>
<td><em>Note</em> • This panel is customizable per customer need. The filters shown on the screen are based up on the parameters required by the stored procedure.</td>
</tr>
<tr>
<td>3.</td>
<td>Select a stored procedure from the list and specify any other requested information.</td>
</tr>
<tr>
<td>4.</td>
<td>Click Next. The Step 2: Specify general information panel opens.</td>
</tr>
</tbody>
</table>
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 Report Center SQL Queries**

*Edition* • This feature is available in Workflow Manager only.
In Report Center 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 5-3 • Wildcard Support in Report Center Queries**

<table>
<thead>
<tr>
<th>Situation</th>
<th>Rule</th>
<th>Example</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>When no wildcards are used</strong></td>
<td>If you do not enter a wildcard character in the Search box, then Report Center 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 <strong>test</strong> in the Search box, Report Center would interpret this as <em>test</em> and would return any records containing the word test (including MyTestFile and TestFile).</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>When wildcards are used</strong></td>
<td>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 <strong>test</strong> but do not begin with it, enter <em>test</em> in the Search box. Then records with the word MyTest would be returned, but not records with the word TestFile</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**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 ASTIsActive = 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 ASTIsActive = 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

```sql
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 are at risk of being completed late.

GetAtRiskApplicationCount

```sql
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. See Exporting a List.

Report Center 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:


- **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 5-3:** 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 5-4: Reports on the All Reports Page (List View)

The All Reports page includes the following icons:

Table 5-4 • All Reports Page Icons

<table>
<thead>
<tr>
<th>Icons</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Edit Icon" /></td>
<td>Click to edit the report.</td>
</tr>
<tr>
<td><img src="image" alt="View Icon" /></td>
<td>Click to view the report.</td>
</tr>
<tr>
<td><img src="image" alt="Delete Icon" /></td>
<td>Click to delete the report.</td>
</tr>
<tr>
<td><img src="image" alt="List/Card Icon" /></td>
<td>Use to toggle between list and card view.</td>
</tr>
</tbody>
</table>
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 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 5-5: 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 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.

### Table 5-5 • Projects Report Page Options

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Company</td>
<td>Select the company that you want to report on.</td>
</tr>
<tr>
<td>Project</td>
<td>Choose one of the company’s projects from this list, or select <strong>View for all</strong> to return information about all of a company’s projects.</td>
</tr>
<tr>
<td>SLA status</td>
<td>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.</td>
</tr>
</tbody>
</table>

**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 5-6 • Projects Report Information

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Summary</td>
<td>General project properties and SLA settings.</td>
</tr>
<tr>
<td>Workflow Requests by SLA Status</td>
<td>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.</td>
</tr>
<tr>
<td>Workflow Request Progress</td>
<td>This section includes the following pie charts:</td>
</tr>
<tr>
<td>Overview</td>
<td>• SLA Compliance Summary—Pie chart illustrating the number of workflow requests associated with this project with a given SLA status.</td>
</tr>
<tr>
<td></td>
<td>• Current Phase Status—Pie chart illustrating the number of active workflow requests associated with this project in a given phase.</td>
</tr>
<tr>
<td>Workflow Request Progress</td>
<td>Lists of in-progress workflow requests in each workflow phase, grouped by SLA status.</td>
</tr>
<tr>
<td>View Workflow Requests Summary</td>
<td>Click to open the Workflow Requests Summary Report for this project.</td>
</tr>
</tbody>
</table>
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 5-7 • Workflow Requests Summary Report Page Options**

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Company</strong></td>
<td>Select the company that you want to view a report on.</td>
</tr>
<tr>
<td><strong>Include</strong></td>
<td>Select one of the following options to specify which requests to include in this report:</td>
</tr>
<tr>
<td></td>
<td>• <strong>Single Workflow Request</strong>—Select this option to return information about only one workflow request, which you select from the associated combo box.</td>
</tr>
<tr>
<td></td>
<td>• <strong>Multiple Workflow Requests</strong>—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.</td>
</tr>
<tr>
<td><strong>Additional Metadata Filter Conditions</strong></td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td>If you select this checkbox, the metadata filter fields appear, and you should do the following:</td>
</tr>
<tr>
<td></td>
<td>• <strong>Metadata Field</strong>—Select the data element that you want to filter by from the list.</td>
</tr>
<tr>
<td></td>
<td>• <strong>Conditional Value &amp; Values List</strong>—Enter a value for the selected Metadata Field in the Condition Value box or select a value from the Values List (when available).</td>
</tr>
<tr>
<td></td>
<td>• <strong>Operator</strong>—Select the appropriate Operator from the list (AND or OR).</td>
</tr>
<tr>
<td></td>
<td>You can filter by up to four Metadata Fields.</td>
</tr>
<tr>
<td><strong>View Report</strong></td>
<td>Click to generate and display the Workflow Requests Summary Report.</td>
</tr>
</tbody>
</table>

**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.
Chapter 5 Generating and Viewing Reports in Report Center

The following information is included in a Workflow Requests Summary Report:

**Table 5-8 • Workflow Requests Summary Report Information**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administrator Company</td>
<td>Identifies the administrator company associated with these workflow requests.</td>
</tr>
<tr>
<td>Selected Workflow Requests</td>
<td>List of the SLA status values included in this report.</td>
</tr>
<tr>
<td>Workflow Requests</td>
<td>List of workflow requests associated with this administrator company. The list includes the following information:</td>
</tr>
<tr>
<td></td>
<td>• Workflow—Hyperlinked workflow request name. Click the name to open the Workflow Request page for that workflow request.</td>
</tr>
<tr>
<td></td>
<td>• Start Date—The date the workflow request was submitted.</td>
</tr>
<tr>
<td></td>
<td>• Due Date—The date the workflow request is due to be completed, in order to meet SLA requirements.</td>
</tr>
<tr>
<td></td>
<td>• End Date—The actual date the workflow request was completed.</td>
</tr>
<tr>
<td></td>
<td>• Progress Status—The phase type of the workflow request’s current workflow phase.</td>
</tr>
<tr>
<td></td>
<td>• SLA Status—The workflow request’s SLA Status. One of On Time, At Risk, Late, Completed Late, or Completed On Time.</td>
</tr>
<tr>
<td></td>
<td>• Elapsed Time—The amount of time elapsed since the workflow request was submitted, excluding any periods when the SLA clock was stopped.</td>
</tr>
<tr>
<td></td>
<td>• 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.</td>
</tr>
<tr>
<td></td>
<td>• Company—The name of the workflow consumer’s company.</td>
</tr>
<tr>
<td></td>
<td>• Project—Hyperlinked name of the project associated with this workflow request. Click the name to open the Projects Report for that project.</td>
</tr>
</tbody>
</table>

**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.
Request Detail Report

The initial view of the Request Detail Report includes the following options:

**Table 5-9 • Request Detail Report Options**

<table>
<thead>
<tr>
<th><strong>Option</strong></th>
<th><strong>Description</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Company/Business Unit Name</td>
<td>Select the name of the company or business unit that you want to view SLA information for.</td>
</tr>
<tr>
<td>Template</td>
<td>Select the name of the workflow template used by the workflow requests that you want to view SLA information for.</td>
</tr>
<tr>
<td><strong>Important</strong></td>
<td>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.</td>
</tr>
<tr>
<td>Project Name</td>
<td>Select the name of the project that is associated with the workflow requests that you want to view SLA information for.</td>
</tr>
<tr>
<td><strong>Important</strong></td>
<td>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.</td>
</tr>
<tr>
<td>Date Range From</td>
<td>Identify the date range for which you want to view workflow request data.</td>
</tr>
<tr>
<td>Date Range To</td>
<td></td>
</tr>
<tr>
<td>View Report</td>
<td>Click to generate the Request Detail Report using the specified criteria.</td>
</tr>
</tbody>
</table>

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.
Chapter 5 Generating and Viewing Reports in Report Center

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 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 5-7: Project SLA Report / Initial View

The initial view of the Project SLA Report includes the following options:

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Template</td>
<td>Select the name of the Workflow Template used by the project or projects that you want to view SLA information for.</td>
</tr>
</tbody>
</table>

**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.
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 5-8: 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 5-9: 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 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.


The Workflow Steps SLA Report lists the following details:

Table 5-11 • Workflow Steps SLA Report

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Only include Workflow Steps in active Workflow Requests</td>
<td>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.</td>
</tr>
<tr>
<td>Project</td>
<td>Project associated with this workflow request.</td>
</tr>
</tbody>
</table>
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 5-12 • Package Attribute Search Fields

<table>
<thead>
<tr>
<th>Metadata</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Package Code</td>
<td>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: <code>{xxxxxxxx-xxxx-xxxx-xxxx-xxxxxxxxxxxxxxx}</code> where each X character is a hex digit (0 through 9 or uppercase A through F).</td>
</tr>
<tr>
<td>Product Code</td>
<td>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: <code>{xxxxxxxx-xxxx-xxxx-xxxx-xxxxxxxxxxxxxxx}</code> where each X character is a hex digit (0 through 9 or uppercase A through F).</td>
</tr>
<tr>
<td>Upgrade Code</td>
<td>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: <code>{xxxxxxxx-xxxx-xxxx-xxxx-xxxxxxxxxxxxxsxxxxx}</code> where each X character is a hex digit (0 through 9 or uppercase A through F).</td>
</tr>
<tr>
<td>Setup File Name</td>
<td>Name of the Windows Installer (.msi) file that was imported into the Application Catalog.</td>
</tr>
<tr>
<td>Comments</td>
<td>Enter the text of any comments associated with the package.</td>
</tr>
<tr>
<td>Extended Attributes</td>
<td>Enter the value of any of the Extended Attributes associated with the package.</td>
</tr>
</tbody>
</table>

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.

Package Content

You can search for packages in a catalog based on one or more of any of the following Package Content metadata:

Table 5-13 • Package Content Search Fields

<table>
<thead>
<tr>
<th>Metadata</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>File</td>
<td>Enter the file name of one of the files in the Windows Installer package.</td>
</tr>
</tbody>
</table>
Table 5-13 • Package Content Search Fields (cont.)

<table>
<thead>
<tr>
<th>Metadata</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Registry Key</td>
<td>Enter a registry key to search on.</td>
</tr>
<tr>
<td>Registry Value</td>
<td>Enter a registry value to search on.</td>
</tr>
<tr>
<td>INI File</td>
<td>Enter any changes to an <code>.ini</code> file that are made when the product is installed.</td>
</tr>
<tr>
<td>Shortcut</td>
<td>Enter any shortcuts that are created when the product is installed.</td>
</tr>
</tbody>
</table>

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 5-14 • Request Attributes Search Fields

<table>
<thead>
<tr>
<th>Metadata</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Enter the name of the package's associated request.</td>
</tr>
<tr>
<td>Upload Date</td>
<td>Date the request was submitted.</td>
</tr>
<tr>
<td>Due Date</td>
<td>Enter the date the request is scheduled to be completed, based upon its value for Application Due Period.</td>
</tr>
<tr>
<td>Risk Date</td>
<td>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.</td>
</tr>
<tr>
<td>Due Period</td>
<td>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.</td>
</tr>
<tr>
<td>End Date</td>
<td>Enter the date the request was completed.</td>
</tr>
</tbody>
</table>

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 Report Center 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 **Report Center** group in the navigation bar.

**Application Catalog Reports**

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.

For more information, see Viewing Application Testing and Analysis Reports on the Report Center Tab in the AdminStudio Help Library.
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 Report Center 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 5-15 • Package Report / Package Summary Information**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product Name</td>
<td>Name assigned to the package.</td>
</tr>
<tr>
<td>Manufacturer</td>
<td>Company that authored the package.</td>
</tr>
<tr>
<td>Import Date</td>
<td>The date and time the package was imported into the Application Catalog.</td>
</tr>
<tr>
<td>Unresolved Conflicts</td>
<td>The number of detected conflicts, generated during conflict analysis of this package, which have not yet been resolved—either automatically or manually.</td>
</tr>
<tr>
<td>Product Version</td>
<td>Version of package that is recorded in the package’s Windows Installer file.</td>
</tr>
<tr>
<td>Product Language</td>
<td>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.</td>
</tr>
<tr>
<td>In Software Repository</td>
<td>Indicates whether or not this package and its associated files are managed by the Software Repository.</td>
</tr>
</tbody>
</table>
Files View

The **Files** view lists 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 5-16 • Package Report / Files Information**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>File</td>
<td>Name of file included with this package.</td>
</tr>
<tr>
<td>Target Directory</td>
<td>Name of directory where the file is installed.</td>
</tr>
<tr>
<td>Version</td>
<td>Version number of the file.</td>
</tr>
<tr>
<td>File Size</td>
<td>Size of the installed file.</td>
</tr>
<tr>
<td>Component</td>
<td>Component that the file is associated with.</td>
</tr>
</tbody>
</table>

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 5-17 • Package Report / Registry Information**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Root</td>
<td>Identifies the predefined “root” key that contains the registry entry.</td>
</tr>
<tr>
<td>Key</td>
<td>A registry key.</td>
</tr>
<tr>
<td>Name</td>
<td>Name identifying the registry entry.</td>
</tr>
<tr>
<td>Value</td>
<td>The string of data that defines the value of the key.</td>
</tr>
<tr>
<td>Component</td>
<td>Package component that the registry entry is associated with.</td>
</tr>
</tbody>
</table>

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 5-18 • Package Report / Shortcuts Information**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Name identifying the shortcut.</td>
</tr>
<tr>
<td>Target Directory</td>
<td>Directory and executable that the shortcut invokes.</td>
</tr>
<tr>
<td>Component</td>
<td>Component associated with the shortcut.</td>
</tr>
</tbody>
</table>
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 5-19 • Package Report / ODBC Drivers Information**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Driver</td>
<td>Name of an Open Database Connectivity (ODBC) driver in the package. Each database type has its own ODBC driver.</td>
</tr>
<tr>
<td>Description</td>
<td>Description of the ODBC driver identifying its associated database type.</td>
</tr>
<tr>
<td>File</td>
<td>File associated with the ODBC driver.</td>
</tr>
<tr>
<td>Component</td>
<td>Component associated with the ODBC driver.</td>
</tr>
</tbody>
</table>

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 5-20 • Package Report / ODBC DS Information**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data Source</td>
<td>Name of the ODBC data source, which identifies the source database type and provides information on how to connect to that database.</td>
</tr>
<tr>
<td>Description</td>
<td>Identifies the database type.</td>
</tr>
<tr>
<td>Driver Description</td>
<td>Name of this ODBC data source’s associated ODBC driver.</td>
</tr>
<tr>
<td>Component</td>
<td>Component that this ODBC data source is affiliated with.</td>
</tr>
</tbody>
</table>

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 5-21 • Package Report / Extended Attributes Information**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Name identifying the attribute.</td>
</tr>
<tr>
<td>Value</td>
<td>Content entered for the attribute.</td>
</tr>
</tbody>
</table>
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 5-22 • Package Report / Validation Information

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICE Rule</td>
<td>Name of ICE Rule that generated an error or warning message.</td>
</tr>
<tr>
<td>Description</td>
<td>Error or warning message.</td>
</tr>
<tr>
<td>Error Level</td>
<td>Indicates the severity of the message as either being a Warning or an Error.</td>
</tr>
<tr>
<td></td>
<td>• Errors—Package authoring that will cause incorrect behavior.</td>
</tr>
<tr>
<td></td>
<td>• Warnings—Package authoring that could possibly cause incorrect behavior.</td>
</tr>
<tr>
<td></td>
<td>Warnings can also report unexpected side-effects of package authoring.</td>
</tr>
</tbody>
</table>

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 5-23 • Package Report / Conflicts Information

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACE Rule</td>
<td>Name of ACE Rule that generated the message.</td>
</tr>
<tr>
<td>Description</td>
<td>Message generated during conflict analysis.</td>
</tr>
<tr>
<td>Target Package</td>
<td>Package that conflicted with this package.</td>
</tr>
</tbody>
</table>

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 5-24 • Package Report / History Information

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date</td>
<td>Day and time the event occurred.</td>
</tr>
<tr>
<td>Action</td>
<td>Identifies the event that occurred.</td>
</tr>
<tr>
<td>User</td>
<td>Identifies the user who executed the event.</td>
</tr>
<tr>
<td>Description</td>
<td>Description of the event that occurred.</td>
</tr>
</tbody>
</table>
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 5-25 • Package Report / Dependencies Information

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Name of a file associated with this package that has dependencies with files used by other products or operating systems in the Application Catalog.</td>
</tr>
<tr>
<td>Path</td>
<td>Location where this dependent file is installed.</td>
</tr>
<tr>
<td>Size</td>
<td>Size of the dependent file.</td>
</tr>
<tr>
<td>Version</td>
<td>Version of the dependent file.</td>
</tr>
</tbody>
</table>

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.

Create Custom Stored Procedure Report

Step 1: Select Stored procedure

![Select Stored Procedure Panel](image)

**Figure 5-11:** 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.
Create Custom Workflow Manager Report

Step 1: Select report objects

Figure 5-12: 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.
Create Custom Workflow Manager Report

Step 2: Select report fields

![Select Report Fields Panel]

**Figure 5-13:** 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 5-14: Define Report Filters Panel

The Define Report Filters panel includes the following properties:

Table 5-26 • Select Report Filters Panel of the Reports Wizard

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Available Fields</td>
<td>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.</td>
</tr>
</tbody>
</table>
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.
Create Custom Workflow Manager Report

Step 4: Templates

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.
Click the **Test Query** button to verify the query syntax, and click **Next** to proceed.

**Wildcard Support in Report Center SQL Queries**

In Report Center searches, the LIKE operator is always used. You can combine the LIKE operator with a wildcard character, and the following rules apply:

**Table 5-27 • Wildcard Support in Report Center Queries**

<table>
<thead>
<tr>
<th>Situation</th>
<th>Rule</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>When no wildcards are used</strong></td>
<td>If you do not enter a wildcard character in the <strong>Search</strong> box, then Report Center performs a &quot;LIKE&quot; search, which searches for any occurrence of that text anywhere in the item that is being searched for.</td>
</tr>
<tr>
<td></td>
<td>For example, if you are searching for a file name that has the word test anywhere in the file name, and you entered <strong>test</strong> in the <strong>Search</strong> box, it would be interpreted by Report Center as:</td>
</tr>
<tr>
<td></td>
<td><em>test</em></td>
</tr>
<tr>
<td></td>
<td>And the following files would be found:</td>
</tr>
<tr>
<td></td>
<td>MyTestFile and TestFile</td>
</tr>
<tr>
<td><strong>When wildcards are used</strong></td>
<td>You can specify a * wildcard in the <strong>Search</strong> box to narrow the search results.</td>
</tr>
<tr>
<td></td>
<td>For example, if you are searching for a file name that includes the word <strong>test</strong>, but does not begin with it, and you entered <strong>test</strong> in the <strong>Search</strong> box, MyTest would be returned, but not TestFile.</td>
</tr>
</tbody>
</table>
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 5-17: 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 5-18: Save and Preview Report Panel

On the **Save and Preview Report** panel of the Reports Wizard, the following information is listed:

Table 5-28 • Save and Preview Report Panel

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Report Name</td>
<td>Name of report.</td>
</tr>
<tr>
<td>Report Fields</td>
<td>List of fields that you selected to be included in this report.</td>
</tr>
<tr>
<td>Template Data</td>
<td>A list of the Template data you selected to be in this report.</td>
</tr>
<tr>
<td>Filters</td>
<td>A list of filters applied to this report.</td>
</tr>
</tbody>
</table>
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.
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 6-1 • Workflow Manager Reference

<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Navigation Bar</td>
<td>Describes the items available on the navigation bar.</td>
</tr>
<tr>
<td>Home Page</td>
<td>Describes the items available on the Home page and its tabs: Dashboard and Getting Started.</td>
</tr>
<tr>
<td>Workflow Request Related Pages</td>
<td>Describes the pages and views used to submit a request, perform workflow request tasks, and check on a request’s progress.</td>
</tr>
<tr>
<td>Administration Pages</td>
<td>Describes the pages and views used to perform Workflow Manager administrative tasks.</td>
</tr>
<tr>
<td>Dialog Boxes</td>
<td>Specific help for each pop-up dialog box in Workflow Manager is covered in this section.</td>
</tr>
<tr>
<td>Configuring Workflow Manager</td>
<td>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.</td>
</tr>
<tr>
<td>Extending Workflow Manager</td>
<td>A list of the officially supported mechanisms for extending the functionality of Workflow Manager.</td>
</tr>
</tbody>
</table>
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.

![Workflow Manager / AdminStudio Enterprise Server Navigation Bar Menu](image)

Figure 6-1: Workflow Manager / AdminStudio Enterprise Server Navigation Bar Menu

### Table 6-1 • Workflow Manager Reference (cont.)

<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Using the IPlugin Interface</td>
<td>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.</td>
</tr>
<tr>
<td>Web Services</td>
<td>Explains how to use the Workflow Manager web services.</td>
</tr>
<tr>
<td>Workflow Manager Caching Logic</td>
<td>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.</td>
</tr>
<tr>
<td>Workflow Manager Installation Issues</td>
<td>Points you to information you can find in the <em>Workflow Manager Installation Guide</em>.</td>
</tr>
</tbody>
</table>
The Workflow Manager / AdminStudio Enterprise Server navigation bar menu contains the following selections:

Table 6-2 • Navigation Bar Selections

<table>
<thead>
<tr>
<th>Menu</th>
<th>Heading</th>
<th>Menu Selection</th>
<th>Product</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home</td>
<td>Options</td>
<td>Dashboard WFM</td>
<td>WFM</td>
<td>See Viewing Dashboard Reports.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Getting Started WFM</td>
<td>WFM</td>
<td>See Getting Started.</td>
</tr>
<tr>
<td>Workflows</td>
<td>Workflow Requests</td>
<td>Submit Workflow Requests WFM</td>
<td>WFM</td>
<td>See Submitting a Workflow Request.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>All Workflow Requests WFM</td>
<td>WFM</td>
<td>See All Workflow Requests Page.</td>
</tr>
<tr>
<td>Work</td>
<td>Assignments</td>
<td>View Assignments By Account WFM</td>
<td>WFM</td>
<td>See Assignments By Account Page</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Assign Work WFM</td>
<td>WFM</td>
<td>See Work Assignment Listing Page.</td>
</tr>
<tr>
<td>My</td>
<td>Notifications</td>
<td>My Default Project Notifications WFM</td>
<td>WFM</td>
<td>See My Default Project Notifications Page.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>My Workflow Notifications WFM</td>
<td>WFM</td>
<td>See My Workflow Notifications Page.</td>
</tr>
<tr>
<td>Issues</td>
<td>Open Issues</td>
<td>All Open Issues WFM</td>
<td>WFM</td>
<td>See Issues Pages.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Recently Created Issues WFM</td>
<td>WFM</td>
<td>See Issues Pages.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Recently Created Critical Issues WFM</td>
<td>WFM</td>
<td>See Issues Pages.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Recently Responded Issues WFM</td>
<td>WFM</td>
<td>See Issues Pages.</td>
</tr>
<tr>
<td></td>
<td>Closed Issues</td>
<td>Recently Closed Issues WFM</td>
<td>WFM</td>
<td>See Issues Pages.</td>
</tr>
<tr>
<td>Menu</td>
<td>Heading</td>
<td>Menu Selection</td>
<td>Product</td>
<td>Description</td>
</tr>
<tr>
<td>------------------------------</td>
<td>------------------------------</td>
<td>--------------------------------</td>
<td>--------------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>Reports</td>
<td>Standard Reports</td>
<td>All Reports</td>
<td>WFM</td>
<td>See <a href="#">All Reports Page</a>.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Request Detail Report</td>
<td>WFM</td>
<td>See <a href="#">Request Detail Report</a>.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Project SLA Report</td>
<td>WFM</td>
<td>See <a href="#">Project SLA Report</a>.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Projects Report</td>
<td>WFM</td>
<td>See <a href="#">Projects Report</a>.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Workflow Request Summary Report</td>
<td>WFM</td>
<td>See <a href="#">Workflow Requests Summary Report</a>.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Workflow Steps SLA Report</td>
<td>WFM</td>
<td>See <a href="#">Workflow Steps SLA Report</a>.</td>
</tr>
<tr>
<td></td>
<td>Custom Reports</td>
<td>Create Custom Workflow Manager Report</td>
<td>WFM</td>
<td>See <a href="#">Creating a Custom Report</a>.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Create Workflow Manager Activity Report</td>
<td>WFM</td>
<td>See <a href="#">Creating an Activity Report</a>.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Create Custom SQL Query Report</td>
<td>WFM / ASES</td>
<td>See <a href="#">Generating a Custom SQL Query Report</a>.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Create Custom Stored Procedure</td>
<td>WFM / ASES</td>
<td>See <a href="#">Generating a Custom Stored Procedure Report</a>.</td>
</tr>
<tr>
<td></td>
<td>AdminStudio Reports</td>
<td>Search Packages</td>
<td>WFM / ASES</td>
<td>See <a href="#">Viewing Package Reports</a>.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Application Catalog Reports</td>
<td>WFM / ASES</td>
<td>See <a href="#">Viewing AdminStudio Application Catalog Reports</a>.</td>
</tr>
<tr>
<td>Menu</td>
<td>Heading</td>
<td>Menu Selection</td>
<td>Product</td>
<td>Description</td>
</tr>
<tr>
<td>----------------------</td>
<td>-------------</td>
<td>----------------</td>
<td>---------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Administration</strong></td>
<td>Design</td>
<td>Projects</td>
<td>WFM</td>
<td>See Project Administration Page.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Templates</td>
<td>WFM</td>
<td>See Creating a New Template and Template Administration Page.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Approvals</td>
<td>WFM</td>
<td>See Managing Approval Templates and Approval Administration Page.</td>
</tr>
<tr>
<td><strong>Configuration</strong></td>
<td></td>
<td>Workflow Status</td>
<td>WFM</td>
<td>See Managing Workflow Status Values</td>
</tr>
<tr>
<td></td>
<td></td>
<td>External Email</td>
<td>WFM</td>
<td>See External Email Address Administration Page.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Calendar Settings</td>
<td>WFM</td>
<td>See Modifying Default SLA Calendar Settings.</td>
</tr>
<tr>
<td><strong>Settings</strong></td>
<td>Configuration</td>
<td>Accounts and Groups</td>
<td>WFM / ASES</td>
<td>See Account Administration Page.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Roles</td>
<td>WFM / ASES</td>
<td>See Role Administration Page.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Email Templates</td>
<td>WFM</td>
<td>See Email Template Administration Page.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Companies</td>
<td>WFM</td>
<td>See Company/Business Unit Administration Page.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>External Web Services</td>
<td>WFM</td>
<td>See External Web Services Administration Page.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>External Data Sources</td>
<td>WFM</td>
<td>See External Data Sources Administration Page.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Directory Service Attributes</td>
<td>WFM</td>
<td>See Directory Service Attributes Administration Page.</td>
</tr>
</tbody>
</table>
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 6-2: Icon Only View of Navigation Bar](image)

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.
Dashboard

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 6-4: 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 6-5: 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 Software Knowledge Base.

Figure 6-6: 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 6-3 • Workflow Request Related Pages

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Workflow Requests Page</td>
<td>List of all workflow requests.</td>
</tr>
<tr>
<td>Workflow Requests Assigned To Me Page</td>
<td>List those workflow requests whose current workflow step is assigned to you (the signed-in user).</td>
</tr>
<tr>
<td>Assignments By Account Page</td>
<td>List of all workflow assignments which are currently in progress.</td>
</tr>
<tr>
<td>Workflow Request Page</td>
<td>Used to view data entry, workflow, issues, and associated file information for a selected request.</td>
</tr>
<tr>
<td>Copy Workflow Request Page</td>
<td>Used to copy an existing workflow request.</td>
</tr>
<tr>
<td>Workflow Report</td>
<td>Contains detailed information about a workflow request's progress, including its history and SLA (Service Level Agreement) status.</td>
</tr>
<tr>
<td>Submit Workflow Request Page</td>
<td>Used to submit a new workflow request.</td>
</tr>
<tr>
<td>Work Assignment Listing Page</td>
<td>Used by workflow administrators to assign a workflow request task to a role.</td>
</tr>
<tr>
<td>My Notifications Pages</td>
<td>View a list of your current email notification event subscriptions, and choose to unsubscribe from existing events or subscribe to additional events.</td>
</tr>
<tr>
<td>Issues Pages</td>
<td>Lists issues filtered by the following whether they are open, closed, and/or critical.</td>
</tr>
<tr>
<td>Search Results Page</td>
<td>Lists the results of using the search engine to perform a search.</td>
</tr>
</tbody>
</table>

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.

![Workflow Manager](image)

**Figure 6-7: All Workflow Requests Page**

The **All Workflow Requests** page lists the following workflow details:

**Table 6-4 • All Workflow Requests Page Options**

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>A short description of the workflow request.</td>
</tr>
<tr>
<td>Sequence No.</td>
<td>A unique identifier for the workflow request, consisting of a workflow request prefix (WF by default) and an integer.</td>
</tr>
<tr>
<td>Project</td>
<td>The name of the project this workflow request is associated with.</td>
</tr>
<tr>
<td>Company</td>
<td>The name of the company this workflow request is associated with.</td>
</tr>
<tr>
<td>Status</td>
<td>The workflow request’s status, either <strong>Active</strong> or <strong>Inactive</strong>.</td>
</tr>
<tr>
<td>Current Phase</td>
<td>The phase of the workflow which is currently active.</td>
</tr>
<tr>
<td>Assigned</td>
<td>Displays <strong>Yes</strong> if someone has been assigned to this workflow request, and <strong>No</strong> otherwise.</td>
</tr>
<tr>
<td>Create Date</td>
<td>The date the workflow request was submitted.</td>
</tr>
</tbody>
</table>

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.

![Workflow Requests Assigned To Me Page](image)

**Figure 6-8: Workflow Requests Assigned To Me Page**

The **All Workflow Requests** page lists the following workflow details:

**Table 6-5 • All Workflow Requests Page Options**

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>A short description of the workflow request.</td>
</tr>
<tr>
<td>Number</td>
<td>A unique identifier for the workflow request, consisting of a workflow request prefix (WF by default) and an integer.</td>
</tr>
<tr>
<td>Project</td>
<td>The name of the project this workflow request is associated with.</td>
</tr>
<tr>
<td>Company</td>
<td>The name of the company this workflow request is associated with.</td>
</tr>
<tr>
<td>Status notes</td>
<td>Type of phase which is currently active, such as Data Entry Phase or Work Phase.</td>
</tr>
<tr>
<td>Current phase</td>
<td>The phase of the workflow which is currently active.</td>
</tr>
<tr>
<td>Assigned</td>
<td>Displays <strong>Yes</strong> if someone has been assigned to this workflow request, and <strong>No</strong> otherwise.</td>
</tr>
<tr>
<td>Create date</td>
<td>The date the workflow request was submitted.</td>
</tr>
</tbody>
</table>
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.

**Assignments By Account**

The **Assignments** page contains the following workflow details.

**Table 6-6 • Assignments Page Options**

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Role Name</td>
<td>The name of the role through which you are assigned to the workflow request.</td>
</tr>
<tr>
<td>Workflow Name</td>
<td>The name of a workflow request to which you are assigned.</td>
</tr>
<tr>
<td>Due Date</td>
<td>The date that the workflow request is due to be completed.</td>
</tr>
<tr>
<td>Workflow Phase</td>
<td>The name of the workflow request’s active workflow phase.</td>
</tr>
<tr>
<td>Workflow Step</td>
<td>The name of the workflow request’s active workflow step.</td>
</tr>
<tr>
<td>Status</td>
<td>The status of the workflow, one of:</td>
</tr>
<tr>
<td></td>
<td>• <strong>Data Entry Phase</strong>—The workflow is in its initial submission phase.</td>
</tr>
<tr>
<td></td>
<td>• <strong>Request Approved</strong>—The workflow request has been approved by an administrator.</td>
</tr>
<tr>
<td></td>
<td>• <strong>Work Phase</strong>—The workflow is in progress, and is up to a standard phase, with no restrictions.</td>
</tr>
<tr>
<td></td>
<td>• <strong>Consumer Acceptance Phase</strong>—The workflow is awaiting the consumer’s approval, before it is marked as complete.</td>
</tr>
<tr>
<td></td>
<td>• <strong>Last Phase</strong>—The workflow request is in its final administrative phase.</td>
</tr>
</tbody>
</table>
Workflow Request Page

The Workflow Request page is 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 6-10: Workflow Request Page

Use the various tabs of this page to perform the following tasks:

Table 6-7 • Tasks Performed on the Tabs of the Workflow Request Page (Administrator)

<table>
<thead>
<tr>
<th>Tab</th>
<th>Task</th>
</tr>
</thead>
<tbody>
<tr>
<td>Progress Tab</td>
<td>Monitor the progress of the request.</td>
</tr>
<tr>
<td>Properties Tab</td>
<td>Review and update the general properties of the workflow, and copy the workflow if desired.</td>
</tr>
<tr>
<td>Notifications Tab</td>
<td>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.</td>
</tr>
<tr>
<td>Related Workflows Tab</td>
<td>Associate workflow requests with other workflow requests, or review existing associations.</td>
</tr>
<tr>
<td>Issues Tab</td>
<td>Raise or respond to an issue related to the request.</td>
</tr>
</tbody>
</table>
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.

**Table 6-7 • Tasks Performed on the Tabs of the Workflow Request Page (Administrator)**

<table>
<thead>
<tr>
<th>Tab</th>
<th>Task</th>
</tr>
</thead>
<tbody>
<tr>
<td>Downloadable Files Tab and Uploaded Files Tab</td>
<td>Review documentation uploaded while completing the workflow request.</td>
</tr>
<tr>
<td>Documents Tab</td>
<td>Access documents that are stored in the Workflow Manager database, and upload documents to store in the database.</td>
</tr>
</tbody>
</table>

**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 6-11: 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:

![Phase Navigation Bar](image)

**Figure 6-12:** 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:

![Phase With a Branch Point](image)

**Figure 6-13:** 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.

![Workflow Step Area](image)

**Figure 6-14:** 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.

![Workflow Step Panel](image)

**Figure 6-15:** 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:

**Phase Icon Legend**
- Number of steps in phase
- Current phase
- Phase is complete

**Step Icon Legend**
- Current step
- Future step
- Completed step

**Figure 6-16:** Icons Used on Workflow Progress Tab
Options Menu

This Options menu available on the Progress tab also provides you with the following options:

Table 6-8 • Progress Tab Options Menu

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>View Documents</td>
<td>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.</td>
</tr>
<tr>
<td>View Assignments</td>
<td>Opens the Assignment Details page, allowing you to make work assignments for this workflow request. See Assignment Details Page for more information.</td>
</tr>
<tr>
<td>View Report</td>
<td>Opens the Workflow Report, summarizing the state of the workflow request. See Workflow Report for more information.</td>
</tr>
</tbody>
</table>

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.

![Image: Stop Clock Button]

Figure 6-17: 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.

![Image: Start Clock Button]

Figure 6-18: 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 6-19: Workflow Request Page / Properties Tab

The following fields are available on the **Properties** tab:

**Table 6-9 • Workflow Request Page (Administrator) / Properties Tab**

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Workflow name</strong></td>
<td>A short description of the workflow request.</td>
</tr>
<tr>
<td><strong>Workflow number</strong></td>
<td>(Read-only) A unique numerical identifier for the workflow. This number is generated by Workflow Manager.</td>
</tr>
<tr>
<td><strong>Folder location</strong></td>
<td>(Read-only) A link to the directory on the Workflow Manager file server, where documents and files associated with this workflow request are uploaded.</td>
</tr>
<tr>
<td></td>
<td>When you hover over this link, the complete path name is visible. To copy the link, right-click on the link and select <strong>Copy link address</strong> from the shortcut menu. If you click on this link, the location will be opened in a new window.</td>
</tr>
<tr>
<td><strong>Company name</strong></td>
<td>(Read-only) The name of the company that the person who submitted this request belongs to.</td>
</tr>
<tr>
<td>Option</td>
<td>Description</td>
</tr>
<tr>
<td>----------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Project name</td>
<td>(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.</td>
</tr>
<tr>
<td>Status summary</td>
<td>(Read Only) Identifies the active workflow phase of this request as being in one of the following four statuses:</td>
</tr>
<tr>
<td></td>
<td>• Data Entry Phase</td>
</tr>
<tr>
<td></td>
<td>• Work Phase</td>
</tr>
<tr>
<td></td>
<td>• Migration Complete</td>
</tr>
<tr>
<td></td>
<td>• Deployment Complete</td>
</tr>
<tr>
<td>Workflow due date</td>
<td>(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.</td>
</tr>
<tr>
<td></td>
<td>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.</td>
</tr>
<tr>
<td>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.</td>
<td></td>
</tr>
<tr>
<td>Workflow end date</td>
<td>The date that the workflow request was completed. This field is editable only if all phases in the workflow have been completed.</td>
</tr>
<tr>
<td>Workflow family</td>
<td>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.</td>
</tr>
<tr>
<td>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.</td>
<td></td>
</tr>
</tbody>
</table>
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.

- 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.

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.

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Status</td>
<td>Select the status that you want to assign to the workflow request.</td>
</tr>
<tr>
<td></td>
<td>• <strong>Workflow Status</strong> is a user-configurable field used to assign metadata to a request. This metadata can be used when performing searches and generating reports.</td>
</tr>
<tr>
<td></td>
<td>• By default, Workflow Manager is installed with two statuses: Active and Inactive.</td>
</tr>
<tr>
<td></td>
<td>• The Workflow Manager Administrator can create a new workflow status, and assign it either an Active or Inactive state.</td>
</tr>
<tr>
<td></td>
<td>• 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.</td>
</tr>
<tr>
<td>Associated package</td>
<td>Click the Change button to associate this workflow request to a package in the AdminStudio Enterprise Server Application Catalog database.</td>
</tr>
<tr>
<td></td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td>• Click the name of the associated package to view its Package Report.</td>
</tr>
<tr>
<td></td>
<td>• Click Clear to remove the association with this package.</td>
</tr>
<tr>
<td>Exclude weekends?</td>
<td>(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.</td>
</tr>
<tr>
<td>Workflow due period</td>
<td>Number of days after its submission date that this workflow request should be completed (in order to be in SLA compliance).</td>
</tr>
<tr>
<td>Workflow at risk period</td>
<td>Number of days after its submission date that this workflow request will be considered At Risk of not meeting its due date.</td>
</tr>
<tr>
<td></td>
<td>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.</td>
</tr>
<tr>
<td>Send emails at workflow risk</td>
<td>When “at risk” workflow requests are identified, select whether to send out an email notification of this by selecting Yes or No.</td>
</tr>
</tbody>
</table>
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.
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 6-21:** 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 6-10 • Related Workflows Tab**

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Workflow Name</td>
<td>A short description of the associated workflow request.</td>
</tr>
<tr>
<td>Workflow number</td>
<td>A unique numerical identifier for the workflow.</td>
</tr>
</tbody>
</table>
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.

### Table 6-10 • Related Workflows Tab

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Company name</td>
<td>The name of the company that the person who submitted this request belongs to.</td>
</tr>
<tr>
<td>Project name</td>
<td>The name of the project associated with this workflow request.</td>
</tr>
<tr>
<td>Status</td>
<td>Identifies the status of this workflow request, either Active or Inactive by default.</td>
</tr>
<tr>
<td>Project status</td>
<td>Identifies the status of the associated project, either Active or Inactive by default.</td>
</tr>
<tr>
<td>Workflow phase</td>
<td>The name of the currently active phase of the associated workflow request.</td>
</tr>
</tbody>
</table>

### Related Workflows List

Figure 6-22: 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 6-11 • Related Workflows Dialog Box Properties**

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Workflow name</td>
<td>A short description of the associated workflow request.</td>
</tr>
<tr>
<td>Workflow number</td>
<td>A unique numerical identifier for the workflow.</td>
</tr>
<tr>
<td>Company name</td>
<td>The name of the company that the person who submitted this request belongs to.</td>
</tr>
<tr>
<td>Project name</td>
<td>The name of the project associated with this workflow request.</td>
</tr>
<tr>
<td>Workflow status</td>
<td>Identifies the status of this workflow request, either <strong>Active</strong> or <strong>Inactive</strong> by default.</td>
</tr>
<tr>
<td>Project status</td>
<td>Identifies the status of the project that this workflow request belongs to as either <strong>Active</strong> or <strong>Inactive</strong>.</td>
</tr>
<tr>
<td>Workflow phase</td>
<td>Lists the name of the active workflow phase for this request.</td>
</tr>
<tr>
<td>Site name</td>
<td>For deployment workflows, the site where this request is being deployed.</td>
</tr>
</tbody>
</table>

**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 6-23: Workflow Request Page / Issues Tab](image)

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 6-12 • Workflow Request Page / Issues Tab / Issue List**

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Issue title</td>
<td>A short description of the issue.</td>
</tr>
<tr>
<td>View/Respond</td>
<td>Click to open the <strong>Issue Details</strong> view for the issue.</td>
</tr>
<tr>
<td>Attach File</td>
<td>Click to access the <strong>File Upload Dialog Box</strong>, 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 <strong>Uploaded Files Tab</strong>.</td>
</tr>
<tr>
<td>Issue type</td>
<td>Identifies the type of issue as one of:</td>
</tr>
<tr>
<td></td>
<td>• <strong>Knowledge Base</strong>—The issue is posted on the <strong>Issues</strong> tab of the workflow request.</td>
</tr>
<tr>
<td></td>
<td>• <strong>E-mail</strong>—The issue is posted on the <strong>Issues</strong> tab, and an email is sent out to the people associated with this workflow request,</td>
</tr>
<tr>
<td></td>
<td>• <strong>Critical</strong>—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.</td>
</tr>
<tr>
<td>Issue date</td>
<td>The date the issue was raised.</td>
</tr>
<tr>
<td>Created by</td>
<td>The account name of the person who raised the issue.</td>
</tr>
<tr>
<td>Owner</td>
<td>The person assigned to resolve this issue.</td>
</tr>
<tr>
<td>Issue due date</td>
<td>The date that the person creating this issue wanted it resolved by.</td>
</tr>
<tr>
<td>Issue status</td>
<td>Indicates the current state of the issue:</td>
</tr>
<tr>
<td></td>
<td>• <strong>New</strong>—Issue has not been responded to.</td>
</tr>
<tr>
<td></td>
<td>• <strong>Responded</strong>—Issue has been responded to.</td>
</tr>
<tr>
<td></td>
<td>• <strong>Closed</strong>—Issue has been resolved.</td>
</tr>
</tbody>
</table>
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):

![Issue Details View](image)

Table 6-13 • Workflow Request Page / Issues Tab / Issue Details View / Existing Issue

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Issue title</td>
<td>Short description of issue that was entered by the person who created the issue.</td>
</tr>
<tr>
<td>Workflow name</td>
<td>Name of workflow associated with the issue.</td>
</tr>
</tbody>
</table>

Note • For more information, see Responding to or Closing an Issue.
Table 6-13 • Workflow Request Page / Issues Tab / Issue Details View / Existing Issue (cont.)

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Issue type</td>
<td>Indicates the type of issue, such as Email, Knowledge Base, or Critical.</td>
</tr>
<tr>
<td>Issue date</td>
<td>Date issue was created.</td>
</tr>
<tr>
<td>Issue due date</td>
<td>Due date assigned to this issue when it was created.</td>
</tr>
<tr>
<td>Owner</td>
<td>Name of the user assigned to this issue.</td>
</tr>
<tr>
<td>Created by</td>
<td>Name of person who created this issue.</td>
</tr>
<tr>
<td>Status</td>
<td>Indicates whether this issue is New (has not been responded to), Responded (issue has been responded to), or Closed.</td>
</tr>
<tr>
<td>Issue message text</td>
<td>Issue content.</td>
</tr>
<tr>
<td>Respond</td>
<td>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.)</td>
</tr>
<tr>
<td>Close Issue</td>
<td>Click to change the status of this issue to Closed.</td>
</tr>
</tbody>
</table>

Issue Details View: New Issue

When you click New on the Issues tab, the Issue Details view appears below the list, where you create a new issue.

![Issue Details View (New Issue)](image)

Figure 6-25: Issue Details View (New Issue)
The **Issue Details** view for a new issue contains the following information:

**Table 6-14 • Workflow Request Page / Issues Tab / Issue Details View / New Issue**

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Issue title</strong></td>
<td>Enter a short abstract of the issue to identify this issue in listings.</td>
</tr>
<tr>
<td><strong>Issue text box</strong></td>
<td>Enter the text of this issue.</td>
</tr>
<tr>
<td><strong>Issue type</strong></td>
<td>Specify one of the following issue types:</td>
</tr>
<tr>
<td></td>
<td><strong>Knowledge Base</strong>—Select if you want to post this issue on the <strong>Issues</strong> tab but do not want to send a notification email to anyone.</td>
</tr>
<tr>
<td></td>
<td>• A Knowledge Base issue is used to share information between several users in a discussion board forum.</td>
</tr>
<tr>
<td></td>
<td>• Other users must open the <strong>Issues</strong> tab to read it.</td>
</tr>
<tr>
<td></td>
<td>• Each time someone responds to an issue, their response is listed below the original issue on the <strong>Issues</strong> tab.</td>
</tr>
<tr>
<td></td>
<td><strong>Email</strong>—Select <strong>Email</strong> if you want to send a notification email to all users with permission on this project.</td>
</tr>
<tr>
<td></td>
<td>• You use the <strong>Email</strong> type for issues that you do not consider critical, but which require that people associated with this project be notified.</td>
</tr>
<tr>
<td></td>
<td>• When you create an <strong>Email</strong> issue, the issue is posted on the <strong>Issues</strong> tab and a notification email is sent to all users who are members of roles that are selected in the <strong>Issue Submitted</strong> column of the <strong>Notification</strong> tab of the <strong>Template Details</strong> view for this workflow request's associated workflow template.</td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Issue type</strong></td>
<td><strong>Critical</strong>—Select Critical if you want to stop all work on this workflow request until the issue is resolved.</td>
</tr>
<tr>
<td>(continued)</td>
<td>• Only users who have edit permission for a workflow step will be able to create a Critical issue for that Step.</td>
</tr>
<tr>
<td></td>
<td>• 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.</td>
</tr>
<tr>
<td></td>
<td>• 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.</td>
</tr>
<tr>
<td></td>
<td>• Before any steps can be performed on this workflow request, a user with edit permission on this workflow step must close the issue.</td>
</tr>
<tr>
<td></td>
<td>• The amount of time it takes to close a Critical issue is tracked and is listed on the Workflow Report.</td>
</tr>
</tbody>
</table>

**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>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Issue due date</strong></td>
<td>To assign a due date to this issue, click the calendar icon and select a date.</td>
</tr>
<tr>
<td><strong>Owner</strong></td>
<td>[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.</td>
</tr>
<tr>
<td><strong>Save</strong></td>
<td>Click to create the issue. The issue is then listed on the Issues tab.</td>
</tr>
</tbody>
</table>
• **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 6-26: All Open Issues Page

The **Issues** pages displays the following information:

### Table 6-15 • Issues Pages Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Filter List by Status</td>
<td>Use to filter the list by issue status.</td>
</tr>
<tr>
<td>Show All Data</td>
<td>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.</td>
</tr>
<tr>
<td>Issue title</td>
<td>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).</td>
</tr>
<tr>
<td>Workflow name</td>
<td>Which workflow request the issue was raised for.</td>
</tr>
<tr>
<td>Issue type</td>
<td>The type of issue, one of Knowledge Base, E-mail, Critical or Response.</td>
</tr>
<tr>
<td>Issue date</td>
<td>When the issue was raised or the response posted.</td>
</tr>
<tr>
<td>Created by</td>
<td>Who raised the issue or posted the response.</td>
</tr>
<tr>
<td>Owner</td>
<td>Who has been assigned to resolve the issue.</td>
</tr>
<tr>
<td>Issue due date</td>
<td>When the person raising the issue would like it resolved by.</td>
</tr>
<tr>
<td>Issue message text</td>
<td>The full description of the issue, or the text of the response.</td>
</tr>
</tbody>
</table>
Filtering the Issues

The issues that are displayed on an Issues page depends upon the selection made in the Filter List by Status list.

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 your 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, 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 6-16 • Workflow Request Page / Uploaded Files Tab

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Download</td>
<td>Click this link to download the file.</td>
</tr>
</tbody>
</table>
Table 6-16 • Workflow Request Page / Uploaded Files Tab (cont.)

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Client File Path</td>
<td>The location of the uploaded file.</td>
</tr>
<tr>
<td>Server File Name</td>
<td>The name of the uploaded file on the Workflow Manager file server.</td>
</tr>
<tr>
<td>Upload Date</td>
<td>The date the file was uploaded.</td>
</tr>
<tr>
<td>File Size</td>
<td>The size of the file (bytes).</td>
</tr>
<tr>
<td>File Status</td>
<td>Whether the file was uploaded, or just linked as an external file to the workflow request. One of:</td>
</tr>
<tr>
<td></td>
<td>• <strong>Uploaded</strong>—The file is uploaded to the Workflow Manager file server)</td>
</tr>
<tr>
<td></td>
<td>• <strong>External</strong>—This record represents a link to an external file)</td>
</tr>
<tr>
<td></td>
<td>• <strong>Deleted</strong>—The file had been uploaded, but has now been deleted).</td>
</tr>
<tr>
<td>File Type</td>
<td>The type of file. One of:</td>
</tr>
<tr>
<td></td>
<td>• <strong>Issue Uploaded File</strong>—The file was uploaded as an attachment to an issue)</td>
</tr>
<tr>
<td></td>
<td>• <strong>APP</strong>—The file is an application)</td>
</tr>
<tr>
<td></td>
<td>• <strong>DEP</strong>—The file is a dependency file)</td>
</tr>
<tr>
<td></td>
<td>• <strong>DOC</strong>—The file is some other miscellaneous type of file, like a word processing document, an image, a spreadsheet, and so on).</td>
</tr>
</tbody>
</table>

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.
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>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Client File Path</td>
<td>The location of the uploaded file.</td>
</tr>
<tr>
<td>Server File Name</td>
<td>The name of the uploaded file on the Workflow Manager file server.</td>
</tr>
<tr>
<td>Upload Date</td>
<td>The date the file was uploaded.</td>
</tr>
<tr>
<td>File Size</td>
<td>The size of the file (bytes).</td>
</tr>
</tbody>
</table>

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 6-28: 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 6-18 • Documents Toolbar

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open</td>
<td>Click to open the selected file.</td>
</tr>
<tr>
<td>Refresh</td>
<td>Click to refresh the listing.</td>
</tr>
<tr>
<td>Delete</td>
<td>Click to delete the selected file.</td>
</tr>
<tr>
<td>Upload</td>
<td>Click to open the Upload dialog box to upload a document.</td>
</tr>
<tr>
<td>Upload New Version of:</td>
<td>Select this option to upload a new version of the selected file.</td>
</tr>
<tr>
<td>File Name</td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td>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.</td>
</tr>
<tr>
<td>View Previous Versions</td>
<td>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.</td>
</tr>
<tr>
<td>Filename</td>
<td>File name of uploaded file.</td>
</tr>
<tr>
<td>Size</td>
<td>Size of uploaded file.</td>
</tr>
<tr>
<td>File Version</td>
<td>Number of versions of the uploaded file that exists.</td>
</tr>
</tbody>
</table>
Upload Area

On the Upload area, 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.

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 6-19 • Upload Dialog Box

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Browse</td>
<td>Click to select a file to upload. The maximum file size is 10 MB.</td>
</tr>
<tr>
<td></td>
<td>• If the Upload New Version of option is selected, select a new version of an</td>
</tr>
<tr>
<td></td>
<td>existing file. This file is not required to have the same name as the existing version.</td>
</tr>
<tr>
<td></td>
<td>• 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.</td>
</tr>
</tbody>
</table>

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 6-19 • Upload Dialog Box

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>File extensions allowed</td>
<td>Lists the file extensions of the files that you are permitted to upload. By default, this is set to <em>.</em>. However, this value is configurable by editing the following setting in the web.config file: <code>&lt;add key=&quot;SearchPatterns&quot; value=&quot;*.*&quot;&gt;&lt;/add&gt;</code></td>
</tr>
<tr>
<td>Remove</td>
<td>Click to remove the selected file.</td>
</tr>
<tr>
<td>Add</td>
<td>This button is disabled.</td>
</tr>
<tr>
<td>Upload</td>
<td>Click to upload the file to the database.</td>
</tr>
</tbody>
</table>

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 6-30: File Version History Area

The File Version History area includes the following options:

Table 6-20 • File Version History Area

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>File Name</td>
<td>Name of the version of the document.</td>
</tr>
<tr>
<td>File Version</td>
<td>Identifies the version of the document.</td>
</tr>
<tr>
<td>Size</td>
<td>Size of that version of the document.</td>
</tr>
<tr>
<td>Original File Name</td>
<td>Name of the document when it was originally uploaded.</td>
</tr>
<tr>
<td>User Name</td>
<td>User who uploaded that version of the document.</td>
</tr>
<tr>
<td>Uploaded Date</td>
<td>Date document version was uploaded.</td>
</tr>
</tbody>
</table>
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.

![Copy Workflow Request](image)

**Figure 6-31**: Copy Workflow Request

This page is accessed by clicking **Copy** on the **Properties** tab of the **Workflow Request** page.

The following fields are included:

**Table 6-21 • Copy a Workflow Request Page**

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Company Name</strong></td>
<td>(Administrator only) Name of company that submitted this request.</td>
</tr>
<tr>
<td><strong>Workflow Name</strong></td>
<td>Enter a unique name to identify the new workflow request</td>
</tr>
<tr>
<td><strong>Copy the Workflow Progress State</strong></td>
<td>(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.</td>
</tr>
<tr>
<td><strong>Link with source Request</strong></td>
<td>(Administrator only) Select this option if you want to link the copy to the original request. Linked requests are listed on the <strong>Related Applications</strong> tab.</td>
</tr>
<tr>
<td><strong>Copy</strong></td>
<td>Click to create the copy of the request.</td>
</tr>
</tbody>
</table>
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.

![Workflow Report](image)

**Figure 6-32:** 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 6-22 • Workflow Report Details**

<table>
<thead>
<tr>
<th>Report Section</th>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Information</td>
<td>Requesting Company</td>
<td>The name of the company submitting the request.</td>
</tr>
<tr>
<td></td>
<td>Project Name</td>
<td>The name of the project this workflow request is associated with.</td>
</tr>
<tr>
<td></td>
<td>Project ID</td>
<td>A unique identifier for the project.</td>
</tr>
<tr>
<td></td>
<td>Workflow</td>
<td>The name of the workflow request.</td>
</tr>
<tr>
<td></td>
<td>Iteration Count</td>
<td>The number of times steps in this workflow have been repeated. Every time the workflow is rolled back, this count increments by 1.</td>
</tr>
<tr>
<td></td>
<td>Start Date</td>
<td>The date this workflow request was first submitted.</td>
</tr>
<tr>
<td></td>
<td>Due Date</td>
<td>The date that this workflow request needs to be completed in order to remain SLA (Service Level Agreement) compliant.</td>
</tr>
<tr>
<td></td>
<td>Risk Date</td>
<td>The date when this workflow request will be considered to be at risk of not meeting its SLA due date.</td>
</tr>
<tr>
<td></td>
<td>End Date</td>
<td>The date the workflow request was completed (blank if still active).</td>
</tr>
<tr>
<td></td>
<td>Elapsed Time</td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td>Account Entered Time</td>
<td>The total time spent completing a workflow step, as entered on the Step Validation dialogs.</td>
</tr>
<tr>
<td></td>
<td>SLA Time</td>
<td>The total elapsed SLA time.</td>
</tr>
<tr>
<td>General Information</td>
<td>Workflow Status Summary</td>
<td>The type of the currently active phase for the workflow request.</td>
</tr>
<tr>
<td></td>
<td>SLA Compliance</td>
<td>The status of the request. One of: On Time, At Risk, Late, Completed On Time, or Completed Late.</td>
</tr>
<tr>
<td></td>
<td>Business Hours Per Day</td>
<td>The length of a standard business day, used to calculated the elapsed time for SLA calculations.</td>
</tr>
</tbody>
</table>

*Note • For more information, see [Stopping and Restarting the SLA Clock](#).*
### Table 6-22 • Workflow Report Details

<table>
<thead>
<tr>
<th>Report Section</th>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Workflow Phase Summary</strong></td>
<td>Workflow Phase</td>
<td>The name of the workflow phase.</td>
</tr>
<tr>
<td></td>
<td>% Complete</td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td>Start Date</td>
<td>The date this phase was started.</td>
</tr>
<tr>
<td></td>
<td>End Date</td>
<td>The date this phase was completed (blank if it is not yet completed.</td>
</tr>
<tr>
<td></td>
<td>Elapsed Time</td>
<td>How long the phase has been active, or the time taken to complete the phase if it is already completed.</td>
</tr>
<tr>
<td></td>
<td>SLA Time</td>
<td>The total elapsed SLA time.</td>
</tr>
<tr>
<td></td>
<td>Account Entered Time</td>
<td>The time taken to complete this phase, as entered on the Step Validation dialogs.</td>
</tr>
<tr>
<td><strong>Workflow Steps Summary</strong></td>
<td>Workflow Phase</td>
<td>The name of the workflow phase that the workflow step belongs to.</td>
</tr>
<tr>
<td></td>
<td>Workflow Step</td>
<td>The name of the workflow step.</td>
</tr>
<tr>
<td></td>
<td>End Date</td>
<td>The date this step was completed (blank if it is not yet completed.</td>
</tr>
<tr>
<td></td>
<td>Elapsed Time</td>
<td>How long the step has been active, or the time taken to complete the step if it is already completed.</td>
</tr>
<tr>
<td></td>
<td>SLA Time</td>
<td>The total elapsed SLA time.</td>
</tr>
<tr>
<td></td>
<td>Account Entered Time</td>
<td>The time taken to complete this step, as entered on a Step Validation dialog.</td>
</tr>
<tr>
<td><strong>Workflow Metadata</strong></td>
<td>Data Element</td>
<td>The name of the data element.</td>
</tr>
<tr>
<td></td>
<td>Data Value</td>
<td>The value entered in the data element.</td>
</tr>
</tbody>
</table>
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:

<table>
<thead>
<tr>
<th>Report Section</th>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Workflow History</td>
<td>Workflow Phase</td>
<td>The name of the workflow phase.</td>
</tr>
<tr>
<td></td>
<td>Workflow Step</td>
<td>The name of the workflow step.</td>
</tr>
<tr>
<td></td>
<td>Activity</td>
<td>The activity that took place.</td>
</tr>
<tr>
<td></td>
<td>Old Value</td>
<td>If the value of a data element was changed during this activity, the original value of that element.</td>
</tr>
<tr>
<td></td>
<td>New Value</td>
<td>If the value of a data element was changed during this activity, the new value of that element.</td>
</tr>
</tbody>
</table>
Table 6-22 • Workflow Report Details

<table>
<thead>
<tr>
<th>Report Section</th>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Issues</td>
<td></td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>This Issue Summary grid has the following fields:</td>
</tr>
<tr>
<td></td>
<td>Issue type</td>
<td>The type of issue raised (E-mail, Knowledge Base or Critical).</td>
</tr>
<tr>
<td></td>
<td>Total Issues</td>
<td>The number of issues raised of the specified type.</td>
</tr>
<tr>
<td></td>
<td>Total Closed Issues</td>
<td>The number of issues of this type which were resolved.</td>
</tr>
<tr>
<td></td>
<td>Total Open Issues</td>
<td>The number of issues of this type which are still open.</td>
</tr>
<tr>
<td></td>
<td>Total Time Spent on Closed Issues</td>
<td>The total time spent resolving closed issues.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The Issue Details grid has the following fields:</td>
</tr>
<tr>
<td></td>
<td>Issue title</td>
<td>A short description of the issue.</td>
</tr>
<tr>
<td></td>
<td>Issue Status</td>
<td>The current state of the issue (New, Responded, or Closed).</td>
</tr>
<tr>
<td></td>
<td>Issue type</td>
<td>The type of issue (Knowledge Base, E-mail or Critical).</td>
</tr>
<tr>
<td></td>
<td>Created By</td>
<td>The person who raised the issue.</td>
</tr>
<tr>
<td></td>
<td>Owner</td>
<td>The person responsible for resolving the issue.</td>
</tr>
<tr>
<td></td>
<td>Issue due date</td>
<td>The date the person raising the issue wanted it resolved by.</td>
</tr>
<tr>
<td></td>
<td>Closed Date</td>
<td>The date the issue was resolved (blank if still active).</td>
</tr>
<tr>
<td></td>
<td>Closed By</td>
<td>The person who resolved the issue.</td>
</tr>
<tr>
<td></td>
<td>Elapsed Time</td>
<td>The amount of time taken to resolve the issue.</td>
</tr>
<tr>
<td></td>
<td>Phase</td>
<td>The workflow phase active when this issue was closed.</td>
</tr>
<tr>
<td></td>
<td>Step</td>
<td>The workflow step active when this issue was closed.</td>
</tr>
</tbody>
</table>

**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>
<thead>
<tr>
<th>Table 6-23 • Submit Workflow Request Page Options</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Option</strong></td>
</tr>
<tr>
<td>Project</td>
</tr>
<tr>
<td>Workflow Name</td>
</tr>
</tbody>
</table>
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.
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 6-24 • Work Assignment Listing Page Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Workflow Number</td>
<td>A unique identifier for the workflow, consisting of a workflow request prefix (WF by default) and an integer.</td>
</tr>
<tr>
<td>Workflow Name</td>
<td>A short description of the workflow request.</td>
</tr>
<tr>
<td>Status</td>
<td>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).</td>
</tr>
<tr>
<td>Company Name</td>
<td>The company that the person who submitted this request belongs to.</td>
</tr>
<tr>
<td>Project Name</td>
<td>The name of the project this workflow is associated with.</td>
</tr>
<tr>
<td>Workflow Family</td>
<td>The category that this workflow request belongs to.</td>
</tr>
<tr>
<td>Status Summary</td>
<td>The status of the workflow, one of:</td>
</tr>
<tr>
<td></td>
<td>• Workflow Complete</td>
</tr>
<tr>
<td></td>
<td>• Data Entry Phase</td>
</tr>
<tr>
<td></td>
<td>• Last Phase</td>
</tr>
<tr>
<td></td>
<td>• Merging Workflow Steps</td>
</tr>
<tr>
<td></td>
<td>• Work Phase</td>
</tr>
<tr>
<td>Workflow Phase</td>
<td>The name of the workflow request’s active workflow phase.</td>
</tr>
<tr>
<td>Workflow Step</td>
<td>The name of the workflow request’s active workflow step.</td>
</tr>
<tr>
<td>Upload Date</td>
<td>The date the workflow request was submitted.</td>
</tr>
</tbody>
</table>

### 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 6-34: Assignment Details Page

The Assignment Details page includes the following options:

Table 6-25 • Assignment Details Page Options

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General Information</strong></td>
<td>Identifies the workflow request:</td>
</tr>
<tr>
<td></td>
<td>• <strong>Company</strong>—Name of the consumer company associated with this workflow request.</td>
</tr>
<tr>
<td></td>
<td>• <strong>Current Workflow</strong>—Name of this workflow request’s associated workflow template.</td>
</tr>
<tr>
<td></td>
<td>• <strong>Project</strong>—Name of the project that this workflow request is associated with.</td>
</tr>
<tr>
<td></td>
<td>• <strong>Workflow Name</strong>—Name of the workflow request.</td>
</tr>
<tr>
<td></td>
<td>• <strong>Current Phase</strong>—Current phase of the workflow request.</td>
</tr>
</tbody>
</table>
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.
Figure 6-35: Assignments By Account Page

The Assignments By Account page contains the following workflow details.

Table 6-26 • Assignments By Account Page Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Workflow Name</td>
<td>A short description of the workflow request.</td>
</tr>
<tr>
<td>Status</td>
<td>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).</td>
</tr>
<tr>
<td>Company Name</td>
<td>The company that the person who submitted this request belongs to.</td>
</tr>
<tr>
<td>Project Name</td>
<td>The name of the project this workflow is associated with.</td>
</tr>
<tr>
<td>Workflow Family</td>
<td>The category that this workflow request belongs to.</td>
</tr>
<tr>
<td>Status Summary</td>
<td>The status of the workflow, one of:</td>
</tr>
<tr>
<td></td>
<td>• Workflow Complete</td>
</tr>
<tr>
<td></td>
<td>• Data Entry Phase</td>
</tr>
<tr>
<td></td>
<td>• Last Phase</td>
</tr>
<tr>
<td></td>
<td>• Merging Workflow Steps</td>
</tr>
<tr>
<td></td>
<td>• Work Phase</td>
</tr>
<tr>
<td>Workflow Phase</td>
<td>The name of the workflow request’s active workflow phase.</td>
</tr>
<tr>
<td>Workflow Step</td>
<td>The name of the workflow request’s active workflow step.</td>
</tr>
<tr>
<td>Upload Date</td>
<td>The date the workflow request was submitted.</td>
</tr>
</tbody>
</table>
My Notifications Pages

Users can be subscribed to receive email notification when any of the following events occur:

Table 6-27 • Event Sources

<table>
<thead>
<tr>
<th>Project Level Events</th>
<th>Workflow Step Level Events</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Data Submitted/Rejected</td>
<td>• Workflow Step Initiated</td>
</tr>
<tr>
<td>• Issue Submitted</td>
<td>• Workflow Step Rolled Back</td>
</tr>
<tr>
<td>• Issue Responded</td>
<td>• Workflow Step Edited</td>
</tr>
<tr>
<td>• Workflow Status Changed</td>
<td>• Workflow Step Completed</td>
</tr>
<tr>
<td>• SLA At Risk/Failed</td>
<td></td>
</tr>
</tbody>
</table>

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 My Notifications subgroup.

Two email notification views are provided:

Table 6-28 • My Notifications Pages

<table>
<thead>
<tr>
<th>Page</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>My Default Project Notifications Page</td>
<td>Lists the email notification event subscriptions that were assigned to you at the workflow template level via role or group or account name.</td>
</tr>
<tr>
<td></td>
<td>• <strong>How were they assigned?</strong>—Email notification settings are defined on the Notification tab of a workflow template’s Template Details page.</td>
</tr>
<tr>
<td></td>
<td>• <strong>When are they applied?</strong>—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).</td>
</tr>
</tbody>
</table>
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.

![My Default Project Notifications](image)

**Figure 6-36: 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**.

---

**My Workflow Notifications**

Email notifications per request, that you are currently subscribed to are listed including those that were assigned via Roles or Groups), and those assigned explicitly.

To unsubscribe from an email notification subscription, clear the checkbox in the Status column. If the Status column is disabled, contact your System Administrator and ask for permission to modify your notification subscriptions.

---

**Figure 6-37**: 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**
Click View/Respond to view, respond to, or close that 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.

Select the categories that you want to include in the search, and click enter. The results are listed by category.
Figure 6-40: 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 6-29 • Administration Related Pages

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calendar Settings Administration Page</td>
<td>Specify the calendar settings to use when reporting on request compliance with project Service Level Agreement (SLA) due dates.</td>
</tr>
<tr>
<td>Company/Business Unit Administration Page</td>
<td>Create and edit companies.</td>
</tr>
<tr>
<td>External Email Address Administration Page</td>
<td>Review and add external email addresses.</td>
</tr>
<tr>
<td>Project Administration Page</td>
<td>Create or edit a project.</td>
</tr>
<tr>
<td>Template Administration Page</td>
<td>Create, edit, or copy a template.</td>
</tr>
<tr>
<td>Template Details Page</td>
<td>Add and edit workflow phases, workflow steps, data groups, and data elements.</td>
</tr>
</tbody>
</table>
Table 6-29 • Administration Related Pages (cont.)

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Workflow Status Administration Page</td>
<td>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.</td>
</tr>
<tr>
<td>Approval Administration Page</td>
<td>Create, update, or delete approval templates.</td>
</tr>
<tr>
<td>External Data Sources Administration Page</td>
<td>Create, update, or delete a database connection.</td>
</tr>
<tr>
<td>Email Template Administration Page</td>
<td>Create, update, or delete an email template.</td>
</tr>
<tr>
<td>External Web Services Administration Page</td>
<td>Create, update, or delete a connection to an external web service.</td>
</tr>
</tbody>
</table>

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 6-41: 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 6-30 • Calendar Settings Administration Page

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length of a work day</td>
<td>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.</td>
</tr>
</tbody>
</table>

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.
Chapter 6  Workflow Manager Reference
Administration Pages

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).

![Company/Business Unit Administration](image)

**Figure 6-42:** Company/Business Unit Administration Page

The **Company/Business Unit Administration** page displays the following company details:

**Table 6-31 • Company/Business Unit Administration Page**

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Company/Business Unit Name</td>
<td>The name of the company or department.</td>
</tr>
</tbody>
</table>

---

Table 6-30 • Calendar Settings Administration Page (cont.)

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exclude weekends?</td>
<td>Select this option to exclude weekend days (Saturday and Sunday) from SLA calculations.</td>
</tr>
<tr>
<td>Existing holidays</td>
<td>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.</td>
</tr>
<tr>
<td>New holiday</td>
<td>To add a holiday to the list, enter a <strong>Holiday Name</strong> and <strong>Date</strong>, and click <strong>Add</strong>.</td>
</tr>
<tr>
<td>Remove Selected Holiday</td>
<td>To delete a holiday from the list, select that holiday's check box and click <strong>Remove Selected Holiday</strong>.</td>
</tr>
</tbody>
</table>
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.

![Company/Business Unit Details](image)

**Figure 6-43:** Company/Business Unit Details Page

The Company/Business Unit Details page includes the following options:

**Table 6-32 • Company/Business Unit Details Page Options**

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Company/Business Unit Name</td>
<td>A unique name for the company.</td>
</tr>
</tbody>
</table>
Table 6-32 • Company/Business Unit Details Page Options (cont.)

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Company ID</strong></td>
<td>An optional identifier for the company. This could be a department number, or an identifier in your CRM software.</td>
</tr>
<tr>
<td><strong>Location</strong></td>
<td>A zone or location associated with your company (such as Chicago or Zone 1, for example).</td>
</tr>
<tr>
<td><strong>This is a workflow administrator company</strong></td>
<td>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 using the Super User account and are creating a new consumer company or editing an existing one, this field will not be displayed.</td>
</tr>
<tr>
<td><strong>Is a workflow family owner?</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>Workflow families</strong></td>
<td>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.</td>
</tr>
</tbody>
</table>

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.

![External Email Address Administration](image)

**Figure 6-44: 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 6-33 • External Email Address Administration Page Options**

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add</td>
<td>Click to open the <strong>Edit/Add External Email Address Page</strong> where you may specify a new email address to register with Workflow Manager.</td>
</tr>
<tr>
<td>External email address</td>
<td>List of the external email addresses that have been added. Click the email address to open the <strong>Edit/Add External Email Address Page</strong>, where you may update or remove an existing email address.</td>
</tr>
</tbody>
</table>
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.

![Add External Email Address Page](image)

**Figure 6-45:** 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.
Figure 6-46: Project Administration Page

The Project Administration page lists the following company details:

Table 6-34 • Project Administration Page Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project name</td>
<td>A short description of the project.</td>
</tr>
<tr>
<td>Company name</td>
<td>The name of the consumer company this project is associated with.</td>
</tr>
<tr>
<td>Template</td>
<td>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.</td>
</tr>
<tr>
<td>Consumer contact</td>
<td>The account of the person in the workflow consumer company who should be contacted with any inquires about this project.</td>
</tr>
<tr>
<td>Administrator contact</td>
<td>The account of the person in your workflow administrator company who should be contacted with any inquires about this project.</td>
</tr>
<tr>
<td>Status</td>
<td>The status of the project, either Active or Inactive. You cannot create workflow requests against Inactive projects.</td>
</tr>
</tbody>
</table>

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.

![Project Details Page / General Information Tab](image)

**Figure 6-47**: Project Details Page / General Information Tab
The following options are available on the **General Information** tab of the **Project Details** page.

### Table 6-35 • General Information Tab of Project Details Page

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project name</td>
<td>A short description for the project.</td>
</tr>
<tr>
<td>Company/business unit</td>
<td>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.</td>
</tr>
<tr>
<td>Workflow request prefix</td>
<td>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 <strong>WR</strong>.</td>
</tr>
<tr>
<td>Template</td>
<td>Choose the workflow template that you want all workflow requests associated with this project to use.</td>
</tr>
<tr>
<td>Consumer contact</td>
<td>Record the account name of the workflow consumer who should be contacted with any queries related to this project. Click the <strong>Assign Consumer Contact</strong> button to open the <strong>Select User</strong> window and search for an appropriate account. See Searching for Accounts for details.</td>
</tr>
<tr>
<td>Administrator contact</td>
<td>Record the account name of the workflow administrator who should be contacted with any queries related to this project. Click the <strong>Assign Administrator Contact</strong> button to open the <strong>Select User</strong> window and search for an appropriate account. See Searching for Accounts for details.</td>
</tr>
</tbody>
</table>

### 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.
The following options are available on the **Project Information** tab of the **Project Details** page.

**Table 6-36 • Project Information Tab of Project Details Page**

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Status</strong></td>
<td>The status of a project can be either <strong>Active</strong> or <strong>Inactive</strong>. Workflow requests can only be assigned to active projects.</td>
</tr>
<tr>
<td></td>
<td><strong>Tip</strong> • Changing the status of the project also automatically updates the status of all of its associated workflow requests.</td>
</tr>
</tbody>
</table>
The **SLA Information** tab of the **Project Details** page is where you specify settings to enforce project and workflow request deadlines.

### Table 6-36 • Project Information Tab of Project Details Page

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allow new workflows</td>
<td>If a project’s status is set to <strong>Inactive</strong>, then all of its associated active workflow requests are also made inactive.</td>
</tr>
<tr>
<td></td>
<td>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 <strong>Status</strong> set to <strong>Active</strong> but set its <strong>Allow new Workflows</strong> property to <strong>No</strong>.</td>
</tr>
<tr>
<td></td>
<td>With this property set to <strong>No</strong>, 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.</td>
</tr>
<tr>
<td>Workflows</td>
<td>This read-only field lists the number of active and inactive workflows associated with this project.</td>
</tr>
<tr>
<td>Project ID</td>
<td>An optional identifier for the project. This could be an internal project tracking number, or an identifier in your CRM software.</td>
</tr>
<tr>
<td>Project locator</td>
<td>Not currently in use.</td>
</tr>
</tbody>
</table>

**SLA Information**

The **SLA Information** tab of the **Project Details** page is where you specify settings to enforce project and workflow request deadlines.
Figure 6-49: Project Details Page / SLA Information Tab

The following options are available on SLA Information tab of the Project Details page.

Table 6-37 • SLA Information Tab of Project Details Page

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Workflow due period</td>
<td>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.</td>
</tr>
<tr>
<td>Workflow at risk period</td>
<td>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.</td>
</tr>
<tr>
<td>Start date</td>
<td>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.</td>
</tr>
</tbody>
</table>
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.

### Table 6-37 • SLA Information Tab of Project Details Page

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>End date</strong></td>
<td>The date when the project (and all of its associated workflow requests) is estimated to be completed.</td>
</tr>
<tr>
<td><strong>Tip</strong></td>
<td><em>The information entered in this field is not currently used in any Workflow Manager calculations.</em></td>
</tr>
<tr>
<td><strong>Send email at workflow risk</strong></td>
<td>Set this field to Yes if you want email notifications to be sent out when a workflow request passes its at risk date.</td>
</tr>
</tbody>
</table>

Figure 6-50: Project Details Page / Work Week Information Tab
The following options are available on the **Work Week Information** tab of the **Project Details** page.

### Table 6-38 • Work Week Information Tab of Project Details Page

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Length of a work day</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>Exclude weekends</strong></td>
<td>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.</td>
</tr>
</tbody>
</table>

*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.*

### 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 6-51: Project Details Page / Holiday Information Tab

The following options are available on the **Holiday Information** page.

**Table 6-39 • Holiday Information Tab of Project Details Page**

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Existing holidays</strong></td>
<td>List of holidays that have already been defined.</td>
</tr>
</tbody>
</table>

*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.

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Holiday name</strong></td>
<td>Enter a holiday name, elect a date, and then click <strong>Add</strong> to add a holiday to the <strong>Existing holidays</strong> list.</td>
</tr>
<tr>
<td><strong>Date</strong></td>
<td></td>
</tr>
</tbody>
</table>
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.

![Project Details Page / Automatic Work Assignment Tab](image)

**Figure 6-52**: Project Details Page / Automatic Work Assignment Tab
The following options are available on the **Automatic Work Assignment** tab of the **Project Details** page.

<table>
<thead>
<tr>
<th>Table 6-40 • Automatic Work Assignment Tab of Project Details Page Options</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Option</strong></td>
</tr>
<tr>
<td>Data element that captures user account</td>
</tr>
<tr>
<td>Role to be auto assigned</td>
</tr>
</tbody>
</table>

**Important** • To use the automatic work assignment feature, users must be logged in using Windows NT authentication.

---

**Additional Links**

The following links are available on the Project Details page:

<table>
<thead>
<tr>
<th>Table 6-41 • Project Details View Links</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Option</strong></td>
</tr>
<tr>
<td>Add/Edit Policy Documents</td>
</tr>
</tbody>
</table>

---

**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](#).
The Template Administration page lists the following template details:

**Table 6-42 • Template Administration Page Properties**

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Template name</td>
<td>A unique identifier for the template.</td>
</tr>
<tr>
<td>Data sections</td>
<td>The number of data groups defined for this template.</td>
</tr>
<tr>
<td>Workflow phases</td>
<td>The number of phases defined for this template.</td>
</tr>
<tr>
<td>Created</td>
<td>When this workflow template was created.</td>
</tr>
<tr>
<td>Last updated</td>
<td>When this workflow template was last modified.</td>
</tr>
<tr>
<td>Updated by</td>
<td>The account name of the person who last modified the workflow template.</td>
</tr>
</tbody>
</table>
Copy Template Page

Using the Copy Template page, which opens when you click Copy on the Template Administration page, you can copy an existing template.

### Table 6-42 • Template Administration Page Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Library</td>
<td>The state of the template. One of:</td>
</tr>
<tr>
<td></td>
<td>• <strong>Global</strong>—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.</td>
</tr>
<tr>
<td></td>
<td>• <strong>Private</strong>—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.</td>
</tr>
<tr>
<td></td>
<td>• <strong>In use Via Project</strong>—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.</td>
</tr>
<tr>
<td></td>
<td>• <strong>In use</strong>—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 you cannot edit others.</td>
</tr>
</tbody>
</table>

**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.  

<table>
<thead>
<tr>
<th>Workflows</th>
<th>The number of workflow requests created using this template.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Status</td>
<td>Identifies the template as either Active or Inactive.</td>
</tr>
</tbody>
</table>
The Copy Template page includes the following options:

Table 6-43 • Template Administration / Copy Template View Options

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Copy from</td>
<td>Select the name of the template that you want to copy from this list.</td>
</tr>
<tr>
<td>Copy to</td>
<td>Enter a name to identify the new template.</td>
</tr>
<tr>
<td>Target</td>
<td>Select the target location for this copied template:</td>
</tr>
<tr>
<td></td>
<td>• <strong>Current database</strong>—Select this option to create a copy of this template in the currently open Workflow Manager database.</td>
</tr>
<tr>
<td></td>
<td>• <strong>SQL Script</strong>—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 <strong>Enter the Filename</strong> is displayed. Enter an appropriate name for this SQL script and click <strong>Copy</strong>. It is not necessary to enter the <strong>.sql</strong> 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.</td>
</tr>
<tr>
<td>Copy role permissions</td>
<td>Select this option to copy the workflow template’s role permission settings. If this option is not selected, the default permission settings will be used.</td>
</tr>
</tbody>
</table>

**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 6-43  •  Template Administration / Copy Template View Options (cont.)

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Copy</td>
<td>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.</td>
</tr>
<tr>
<td>Copy</td>
<td>Click to copy the template and return to the Template Administration page, where the new template will be listed.</td>
</tr>
</tbody>
</table>

**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.

Template Report

The Template Report opens when you select View Template Report on the template options menu on the Template Details page.

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 6-56: 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 6-57: 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 6-44** • Template Details Page

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Displays the name of the template.</td>
</tr>
</tbody>
</table>
| 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>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data Group and Workflow Phase Tree</td>
<td>Expandable list of all of the data groups and workflow phases defined in the template. data group and workflow phase names.</td>
</tr>
<tr>
<td></td>
<td>When you click on the plus sign next to the data group or workflow phase name, its child elements are listed.</td>
</tr>
<tr>
<td></td>
<td>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:</td>
</tr>
<tr>
<td></td>
<td>• Template Properties View</td>
</tr>
<tr>
<td></td>
<td>• Data Group Details View</td>
</tr>
<tr>
<td></td>
<td>• Data Element Details View</td>
</tr>
<tr>
<td></td>
<td>• Workflow Phase Details View</td>
</tr>
<tr>
<td></td>
<td>• Workflow Step Details View</td>
</tr>
</tbody>
</table>

*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>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
</table>
| **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**. |
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 6-58: Template Properties View on the Template Details Page

The Template Properties view includes the following properties and options:

Table 6-46 • Template Properties View

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Name</strong></td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td>• <strong>Creating a new template</strong>—Enter a unique name for this new template.</td>
</tr>
<tr>
<td></td>
<td>• <strong>Editing an existing private template</strong>—You can edit the template name.</td>
</tr>
<tr>
<td></td>
<td>• <strong>Viewing a global template</strong>—You can view the template name, but you cannot edit it.</td>
</tr>
<tr>
<td><strong>Folder</strong></td>
<td>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.</td>
</tr>
</tbody>
</table>
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 6-59: 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 6-60: 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 6-47 • Data Group Details View

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data Group Name</td>
<td>Enter a unique name to identify this data group.</td>
</tr>
<tr>
<td>Data Type</td>
<td>Select one of the following:</td>
</tr>
<tr>
<td></td>
<td>• Workflow Manager Data Type—Select if you are going to define the data elements of this data group in Workflow Manager.</td>
</tr>
<tr>
<td></td>
<td>• 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</td>
</tr>
<tr>
<td></td>
<td>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.</td>
</tr>
<tr>
<td>Note</td>
<td>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.</td>
</tr>
<tr>
<td>Sort Order</td>
<td>Enter a number to identify where this data group will appear in the data group list, with lower numbers appearing higher in the list.</td>
</tr>
<tr>
<td>When collected?</td>
<td>Specify when you want to collect this data group by selecting one of the following:</td>
</tr>
<tr>
<td></td>
<td>• At initial submission—The data group will be collected when the workflow request is submitted.</td>
</tr>
<tr>
<td></td>
<td>• 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.</td>
</tr>
<tr>
<td>Data Items n</td>
<td>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.</td>
</tr>
<tr>
<td>Update</td>
<td>Click to add the new data group or save the changes you have made to an existing data group.</td>
</tr>
</tbody>
</table>
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 6-61: Data Group Condition Area

The Data Group Condition area includes the following fields:

Table 6-48 • Data Group Condition Area

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Defined Condition</td>
<td>Lists any conditions that are assigned to this data group.</td>
</tr>
<tr>
<td>Note</td>
<td><em>If you are editing a template that is in use, this field is not available.</em></td>
</tr>
<tr>
<td>Define Condition</td>
<td>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.</td>
</tr>
<tr>
<td>Note</td>
<td><em>If you are editing a template that is in use, this field is not available.</em></td>
</tr>
</tbody>
</table>
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 6-62: Data Element Details View

The Data Element Details view includes the following options:

**Table 6-49 • Data Element Details View**

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Enter a description to identify the type of data that is being collected in this data element.</td>
</tr>
<tr>
<td>Required</td>
<td>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.</td>
</tr>
<tr>
<td>Sort order</td>
<td>Enter a number to identify where this data element will appear in the data elements list, with lower numbers appearing higher in the list.</td>
</tr>
</tbody>
</table>
You can define a data element with any of the following data types:

Table 6-50 • Available Data Element Data Types

<table>
<thead>
<tr>
<th>Data Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text Entry Box</td>
<td>A single-line, editable text box.</td>
</tr>
<tr>
<td></td>
<td>To validate the data that a user enters into this text box, set the Validation Type option to Mask or Regular Expression.</td>
</tr>
<tr>
<td></td>
<td>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.</td>
</tr>
<tr>
<td>Text Area</td>
<td>A multi-line, scrollable, and editable text box.</td>
</tr>
</tbody>
</table>
### Table 6-50 • Available Data Element Data Types (cont.)

<table>
<thead>
<tr>
<th>Data Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single Selection</td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td><strong>Important</strong> • Because a user can only select one value, Single Selection lists can be used to control branching.</td>
</tr>
<tr>
<td>Multiple Selection</td>
<td>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.</td>
</tr>
<tr>
<td>Check Box</td>
<td>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.</td>
</tr>
<tr>
<td>Radio Button</td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td><strong>Important</strong> • Because a user can only select one value, Radio Buttons can be used to control branching.</td>
</tr>
<tr>
<td>Date</td>
<td>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.</td>
</tr>
<tr>
<td>Document Upload,</td>
<td>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.</td>
</tr>
<tr>
<td>Application Upload,</td>
<td></td>
</tr>
<tr>
<td>Dependency Upload</td>
<td></td>
</tr>
<tr>
<td>Downloadable File Upload</td>
<td>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.</td>
</tr>
<tr>
<td>Directory Service</td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td>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.</td>
</tr>
</tbody>
</table>
**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.

**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 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 *LastName* and *JobTitle* and *EmployeeID* 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.

**Web Service Call**

Select this option to return information from across a web service connection. For more information, see the *Web Service Results Dialog Box*.

---

**Table 6-50 • Available Data Element Data Types (cont.)**

<table>
<thead>
<tr>
<th>Data Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dynamic Pick List</td>
<td>A selection list which is populated with values from a user-supplied XML file. When this option is selected, the <em>Data Source File</em> field appears, where you specify the XML file that you want to use,...</td>
</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 <em>DB Driven Type</em> from the <em>Data Type</em> list, three new fields appear:...</td>
</tr>
</tbody>
</table>
| Web Service Call    | Select this option to return information from across a web service connection. For more information, see the *Web Service Results Dialog Box*.

---

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Table 6-50 • Available Data Element Data Types (cont.)

<table>
<thead>
<tr>
<th>Data Type</th>
<th>Description</th>
</tr>
</thead>
</table>
| 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 Workflow files** 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 6-50 • Available Data Element Data Types (cont.)

<table>
<thead>
<tr>
<th>Data Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AdminStudio Package Upload from Import Path</strong></td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td>Note • The root path to this import directory is specified in the <strong>AdminStudio Import Base Directory</strong> field on the <strong>Company Preferences</strong> page. See Setting Preferences on the Company Preferences Page.</td>
</tr>
<tr>
<td></td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td>Note • The supported deployment types that can be imported into AdminStudio are described in <strong>Supported Package Deployment Types for Import</strong>.</td>
</tr>
<tr>
<td></td>
<td>Note • For more information, see <strong>Uploading Packages from a Directory</strong>.</td>
</tr>
<tr>
<td><strong>Existing AdminStudio Package</strong></td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td>Note • For more information, see <strong>Selecting Existing AdminStudio Packages</strong>.</td>
</tr>
</tbody>
</table>
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.

Table 6-50 • Available Data Element Data Types (cont.)

<table>
<thead>
<tr>
<th>Data Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Set AdminStudio Property</td>
<td>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.</td>
</tr>
</tbody>
</table>

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 6-50 • Available Data Element Data Types (cont.)

<table>
<thead>
<tr>
<th>Data Type</th>
<th>Description</th>
</tr>
</thead>
</table>
| 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.
Data Type-Specific Properties

The Data Element Details view includes the following properties, depending upon the selected Data Type:

Table 6-50 • Available Data Element Data Types (cont.)

<table>
<thead>
<tr>
<th>Data Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AdminStudio Package Formats</td>
<td>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.</td>
</tr>
<tr>
<td>AdminStudio Target Environments</td>
<td>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.</td>
</tr>
<tr>
<td>AdminStudio Distribution Connections</td>
<td>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.</td>
</tr>
</tbody>
</table>
Properties Common to Multiple Data Types

The following data element options are common to multiple data types:

Table 6-51 • Data Element Details View

<table>
<thead>
<tr>
<th>Option</th>
<th>Displayed for Data Types ...</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Default Value</td>
<td>Text Entry Box,</td>
<td>To set default values for text fields, selection lists, radio buttons, or dates, use this option:</td>
</tr>
<tr>
<td></td>
<td>Text Area,</td>
<td>• <strong>For text boxes</strong>, if you would like text to appear in this text field by default, enter that text here.</td>
</tr>
<tr>
<td></td>
<td>Single Selection,</td>
<td>• <strong>For selection lists</strong>, if you would like one of the selections to be selected by default, make a selection from this list.</td>
</tr>
<tr>
<td></td>
<td>Multiple Selection,</td>
<td>• <strong>For dates</strong>, you click the calendar icon and select a date.</td>
</tr>
<tr>
<td></td>
<td>Radio Button,</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Check Box,</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Date</td>
<td></td>
</tr>
<tr>
<td>Use to define conditions/branching</td>
<td>Single Selection,</td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td>Radio Button</td>
<td></td>
</tr>
<tr>
<td>Define a condition for automatic rollback?</td>
<td>Single Selection,</td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td>Radio Button</td>
<td></td>
</tr>
<tr>
<td>Selection list items</td>
<td>Single Selection,</td>
<td>Enter the items in the list control (if you selected <strong>Single Selection</strong> or <strong>Multiple Selection</strong> in the Data Type field)</td>
</tr>
</tbody>
</table>
The following additional options are displayed when the Data Type is set to Text Entry Box:

### Table 6-52 • Text Entry Box Data Type Validation Options

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
</table>
| 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:  
(###)-(###)-(###)
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.

### DB-Driven Type Data Type Options

#### Table 6-53 • DB-Driven Type Data Type Options

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>External Data Source</td>
<td>Select a database connection that was defined on the External Data Sources Administration page. See Creating a New Data Source Connection.</td>
</tr>
</tbody>
</table>
| 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 6-54 • Dynamic Pick List Data Type Options

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
</table>
| **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.

<table>
<thead>
<tr>
<th>Column Value to Submit</th>
<th>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.</th>
</tr>
</thead>
</table>

**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.

![Data element condition](image_url)

**Figure 6-63:** Data Element Condition Area
The **Data Element Condition** area includes the following options:

### Table 6-55 • Data Element Condition Area

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Defined Condition</td>
<td>Lists any conditions that are assigned to this data element.</td>
</tr>
<tr>
<td><strong>Note</strong></td>
<td>If you are editing a template that is in use, this field is not available.</td>
</tr>
<tr>
<td>Define Condition</td>
<td>Click to display the condition definition fields (<strong>Condition Item</strong>, <strong>Operator</strong>, <strong>Selections</strong>), 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.</td>
</tr>
<tr>
<td><strong>Note</strong></td>
<td>If you are editing a template that is in use, this field is not available.</td>
</tr>
<tr>
<td>Condition Item</td>
<td>If any of the data groups in this template includes a data element that has its <strong>Use to define conditions/branching</strong> option set to <strong>Yes</strong>, that data element will be listed in the <strong>Condition Item</strong> list. From the <strong>Condition Item</strong> list, select the data element you want to use to determine if this data element is displayed.</td>
</tr>
<tr>
<td></td>
<td>• Data elements are listed in the following format: <strong>Data Group - Data Element</strong>.</td>
</tr>
<tr>
<td></td>
<td>• If no data elements in this template are defined with the <strong>Use to define conditions/branching option</strong> selected, the <strong>Condition Item</strong> list will be empty. For more information, see Setting Up Conditional Display of Data Groups, Data Elements, or Workflow Steps.</td>
</tr>
<tr>
<td>Operator</td>
<td>This field is set to <strong>Equals</strong> to indicate how to read this condition. For example:</td>
</tr>
<tr>
<td></td>
<td>• IF <strong>Data Element</strong> <strong>EQUALS</strong> <strong>Value(s)</strong> THEN display this data element</td>
</tr>
<tr>
<td></td>
<td>• IF <strong>Operating System</strong> <strong>EQUALS</strong> <strong>Windows XP</strong> THEN display this data element</td>
</tr>
<tr>
<td>Selections</td>
<td>Lists all values defined for the selected data element.</td>
</tr>
<tr>
<td>Save</td>
<td>Click to create the new condition or update an existing condition.</td>
</tr>
<tr>
<td>Clear</td>
<td>Click to remove all conditions that have been defined.</td>
</tr>
<tr>
<td>Cancel</td>
<td>Click to close the expanded Defined Condition area without saving any changes.</td>
</tr>
</tbody>
</table>

### 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.
The Workflow Phase Details view consists of the following options:

### Table 6-56 • Workflow Phase Details View

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Workflow Phase Name</td>
<td>Enter a name to identify this workflow phase.</td>
</tr>
</tbody>
</table>
**Table 6-56 • Workflow Phase Details View (cont.)**

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase Type</td>
<td>Select one of the following options to identify the workflow phase type:</td>
</tr>
<tr>
<td></td>
<td>• Data Entry Phase—Phase containing the data collection step that is required when submitting a request.</td>
</tr>
<tr>
<td></td>
<td>• Work Phase—Standard phase that has no restrictions.</td>
</tr>
<tr>
<td></td>
<td>• Customer Acceptance Phase—Phase that requires Customer approval to be completed.</td>
</tr>
<tr>
<td></td>
<td>• Last Phase—Phase including administrative tasks after Customer project has been completed.</td>
</tr>
<tr>
<td></td>
<td>• AdminStudio Workflow—Phase is performed in its entirety as an AdminStudio project.</td>
</tr>
</tbody>
</table>

**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:

```xml
<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.

<table>
<thead>
<tr>
<th>Sort Order</th>
<th>Enter a number to determine where this workflow phase will appear in the workflow phase list, with lower numbers appearing higher in the list.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Define a condition for workflow branching?</th>
<th>Select one of the following options:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• No—Select No to create a standard, non-branching workflow phase.</td>
</tr>
<tr>
<td></td>
<td>• Yes—Select Yes to define this workflow phase as a workflow branch or merge phase. When you select Yes, additional options are displayed.</td>
</tr>
</tbody>
</table>

**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.
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 of 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 6-65: Workflow Step Details View
The **Workflow Step Details** view consists of the following options:

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Workflow Step description</td>
<td>Enter a label to identify this workflow step.</td>
</tr>
<tr>
<td>Step Type</td>
<td>Select one of the following step types:</td>
</tr>
<tr>
<td></td>
<td>• Data Entry/Edit</td>
</tr>
<tr>
<td></td>
<td>• Normal</td>
</tr>
<tr>
<td></td>
<td>• Update History</td>
</tr>
<tr>
<td></td>
<td>• Work Assignment</td>
</tr>
<tr>
<td></td>
<td>• Script Execution</td>
</tr>
<tr>
<td></td>
<td>• Custom Web Page</td>
</tr>
<tr>
<td></td>
<td>• Approval Task</td>
</tr>
<tr>
<td></td>
<td>• Automated Import</td>
</tr>
<tr>
<td></td>
<td>• Automated Validation</td>
</tr>
<tr>
<td></td>
<td>• Automated Conflict Analysis</td>
</tr>
<tr>
<td></td>
<td>• Allocate Software License</td>
</tr>
<tr>
<td></td>
<td>• Deallocate Software License</td>
</tr>
<tr>
<td></td>
<td>• Custom Automated Task</td>
</tr>
<tr>
<td>Track for Workflow SLA</td>
<td>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.</td>
</tr>
</tbody>
</table>

*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.
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.
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.

![Complete Step](image)

Figure 6-66: 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 6-67: 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_2016\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:


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:
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 6-68: 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 attach to the workflow request by selecting one of the following tasks from the **AdminStudio Task** list:

### Table 6-58 • AdminStudio Task Options for AdminStudio Integration Workflow Step

<table>
<thead>
<tr>
<th>Task</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Package import</strong></td>
<td>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:</td>
</tr>
<tr>
<td></td>
<td>• AdminStudio Package Upload</td>
</tr>
<tr>
<td></td>
<td>• AdminStudio Package Upload from Import Path</td>
</tr>
<tr>
<td></td>
<td>When you select this type, you need to specify the following additional parameters:</td>
</tr>
<tr>
<td></td>
<td>• <strong>Group</strong>—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.</td>
</tr>
<tr>
<td></td>
<td>• <strong>PackagePath</strong>—Select the name of the <strong>AdminStudio Package Upload</strong> or <strong>AdminStudio Package Upload from Import Path</strong> data element that specified the packages to import.</td>
</tr>
</tbody>
</table>

**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 **WFMAplications** was entered, the packages would be imported into a group in the Application Catalog named **WFMAplications**. 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.*

### 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.*

---

#### Table 6-58 • AdminStudio Task Options for AdminStudio Integration Workflow Step

<table>
<thead>
<tr>
<th>Task</th>
<th>Description</th>
</tr>
</thead>
</table>
| **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. |
| **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. |
| **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 *Testing Packages and Viewing Test Results.*
**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.

![Select Report Type Field for an AdminStudio Reports Workflow Step](image)

**Figure 6-69:** 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.
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.
The **Workflow Step Condition** area includes the following options:

**Table 6-59 • Workflow Step Condition Area**

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Defined Condition</td>
<td>Lists any conditions that are assigned to this workflow step.</td>
</tr>
<tr>
<td></td>
<td><em>Note</em> • If you are editing a template that is in use, this field is not available.</td>
</tr>
<tr>
<td>Define Condition</td>
<td>Click to display the condition definition fields (<strong>Condition Item, Operator, Selections</strong>), 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.</td>
</tr>
<tr>
<td></td>
<td><em>Note</em> • If you are editing a template that is in use, this field is not available.</td>
</tr>
<tr>
<td>Condition Item</td>
<td>If any of the data groups in this template includes a data element that has its <strong>Use to define conditions/branching</strong> option set to <strong>Yes</strong>, that data element will be listed in the <strong>Condition Item</strong> list. From the <strong>Condition Item</strong> list, select the data element you want to use to determine if this workflow step is displayed.</td>
</tr>
<tr>
<td></td>
<td>• Data elements are listed in the following format: <strong>Data Group - Data Element</strong>.</td>
</tr>
<tr>
<td></td>
<td>• If no data elements in this template are defined with the <strong>Use to define conditions/branching</strong> option selected, the <strong>Condition Item</strong> list will be empty. For more information, see Setting Up Conditional Display of Data Groups, Data Elements, or Workflow Steps.</td>
</tr>
<tr>
<td>Operator</td>
<td>This field is set to <strong>Equals</strong> to indicate how to read this condition. For example:</td>
</tr>
<tr>
<td></td>
<td>• IF Data Element EQUALS value(s) THEN display this workflow step</td>
</tr>
<tr>
<td></td>
<td>• IF Operating System EQUALS Windows XP THEN display this workflow step</td>
</tr>
<tr>
<td>Selections</td>
<td>Lists all values defined for the selected data element.</td>
</tr>
<tr>
<td>Save</td>
<td>Click to create the new condition or update an existing condition.</td>
</tr>
<tr>
<td>Clear</td>
<td>Click to remove all conditions that have been defined.</td>
</tr>
<tr>
<td>Cancel</td>
<td>Click to close the expanded Defined Condition area without saving any changes.</td>
</tr>
</tbody>
</table>
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.

![Permission Tab of Workflow Phase Details View of the Template Details Page](image)

**Figure 6-72:** Permission Tab of Workflow Phase Details View of the Template Details Page

The Permission tab includes the following permission-related options:

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Workflow Phase and Step List</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>Role</strong></td>
<td>Lists all of the roles in the consumer and administrator companies.</td>
</tr>
</tbody>
</table>
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.

---

### Table 6-60 • Permission Tab Options (cont.)

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Permission Columns</strong></td>
<td>When any of the workflow phase or data group nodes are selected, and you open the <strong>Permission</strong> tab of the Template Details page, checkboxes are listed in the <strong>Read</strong> and <strong>Write</strong> 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:</td>
</tr>
</tbody>
</table>

---

**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**.
Figure 6-73: Notification Tab of Workflow Phase Details View of the Template Details Page

The Notification tab includes the following permission-related options:

Table 6-61 • Notification Tab Options

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Workflow Phase and Step List</td>
<td>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.</td>
</tr>
<tr>
<td>Select Preferred Role</td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td>• <strong>If a role is selected from this list</strong>, 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.</td>
</tr>
<tr>
<td></td>
<td>• <strong>If no role is selected from this list</strong>, when a notification email is sent out, all email recipients are listed in the To field of the email.</td>
</tr>
</tbody>
</table>
Table 6-61 • Notification Tab Options (cont.)

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Notification Columns</strong></td>
<td>When a workflow phase or step is selected, and you open the <strong>Notification</strong> tab of the <strong>Template Details</strong> page, checkboxes are listed in the <strong>Initiated</strong>, <strong>Rolled Back</strong>, <strong>Edited</strong>, and <strong>Completed</strong> 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:</td>
</tr>
</tbody>
</table>

**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.
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 6-74: Workflow Status Administration Page

The Workflow Status Administration page lists the following workflow status details:

Table 6-62 • Workflow Status Administration Page Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Status Name</td>
<td>The actual workflow status value.</td>
</tr>
<tr>
<td>Active/Inactive</td>
<td>Each workflow status is assigned a state of either Active or Inactive, to</td>
</tr>
<tr>
<td>State</td>
<td>determine how workflow requests with this status behave. Inactive workflow</td>
</tr>
<tr>
<td></td>
<td>requests will not be displayed in reports or searches.</td>
</tr>
</tbody>
</table>

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 6-75: Edit Workflow Status Page

The following fields are available on the **New/Edit Workflow Status** page.

**Table 6-63 • New/Edit Workflow Status Page Properties**

<table>
<thead>
<tr>
<th><strong>Property</strong></th>
<th><strong>Description</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>The actual workflow status value.</td>
</tr>
<tr>
<td>State</td>
<td>Assign this to either <strong>Active</strong> or <strong>Inactive</strong>, to determine how workflow requests with this status behave. <strong>Inactive</strong> workflow requests will not be displayed in reports or searches.</td>
</tr>
<tr>
<td>Description</td>
<td>Some comments about the workflow status, which might be helpful to other workflow administrators.</td>
</tr>
</tbody>
</table>

**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 6-76: 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 6-64 • Approval Administration Page

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add</td>
<td>Click to open the Edit Approval Template Page where you can define a new approval template.</td>
</tr>
<tr>
<td>Name</td>
<td>Name of approval template. Click Select next to this name to open the template on the Edit Approval Template page.</td>
</tr>
</tbody>
</table>
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.
The following options are available on the **Edit Approval Template** page:

### Table 6-65 • Edit Approval Template Page

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approval template name</td>
<td>Identifies the approval template.</td>
</tr>
</tbody>
</table>
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.
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.

![Add Account and Add Role](image)

**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 6-65 • Edit Approval Template Page

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add Role</td>
<td>Click to display a list of roles that you can add to the Approvers list. Select a role from the list and click Apply.</td>
</tr>
<tr>
<td>Reorder Level</td>
<td>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.</td>
</tr>
<tr>
<td>Remove from List</td>
<td>To remove an approver from the approver list, select an item in the list and click this button.</td>
</tr>
<tr>
<td>Delete</td>
<td>Click to delete the open approval template.</td>
</tr>
</tbody>
</table>

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.

![External Data Sources Administration](image)

Figure 6-78: 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 6-66 • External Data Sources Administration Page Options

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>A short description of the database connection.</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Server</th>
<th>For SQL Server, the name or IP address of the server hosting the database. For Oracle, the local Net Service name.</th>
</tr>
</thead>
<tbody>
<tr>
<td>User name</td>
<td>The account name that should be used to connect to the database.</td>
</tr>
<tr>
<td>Database name</td>
<td>The name of the database on the database server which you are connecting to.</td>
</tr>
<tr>
<td>Database type</td>
<td>The type of database, either SQL Server or Oracle.</td>
</tr>
</tbody>
</table>

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 6-67 • Add/Edit External Data Source Page

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Database type</td>
<td>Select the type of database you are connecting to: SQL Server or Oracle.</td>
</tr>
<tr>
<td>Datasource name</td>
<td>Enter a user-friendly name to identify this data source within Workflow Manager.</td>
</tr>
<tr>
<td></td>
<td><em>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.</em></td>
</tr>
<tr>
<td>Server</td>
<td>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.</td>
</tr>
<tr>
<td>Username</td>
<td>Enter the account name that will be used to connect to your database.</td>
</tr>
<tr>
<td>Password</td>
<td>Enter the password associated with the account name you want to use to connect to the database.</td>
</tr>
<tr>
<td>Database name</td>
<td>(SQL Server only) Enter the name of the database on the database server that you want to connect to.</td>
</tr>
</tbody>
</table>
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 6-68 • Email Template Administration Page Properties**

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Add</strong></td>
<td>Click to add a new email template.</td>
</tr>
<tr>
<td><strong>Template name</strong></td>
<td>Name that identifies the email template.</td>
</tr>
<tr>
<td><strong>Created</strong></td>
<td>Date the email template was created.</td>
</tr>
<tr>
<td><strong>Last updated</strong></td>
<td>Date the email template was last edited.</td>
</tr>
</tbody>
</table>

**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.
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>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Template name</td>
<td>Enter a name to uniquely identify the email template. This name will be displayed on the <strong>Email Template Administration</strong> page.</td>
</tr>
<tr>
<td><strong>Important</strong></td>
<td>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 <strong>Email Template Settings</strong>. Do not rename the <strong>ApprovalTask.txt</strong> email template; its location cannot be updated in the <strong>web.config</strong> file.</td>
</tr>
<tr>
<td>Subject</td>
<td>Enter the text that you want to appear in the email’s Subject line.</td>
</tr>
<tr>
<td><strong>Note</strong></td>
<td>You can type in notification variables into the Subject field, as described in <strong>Using Notification Variables in Email Templates</strong>.</td>
</tr>
<tr>
<td>Notification variable</td>
<td>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 <strong>Notification Variable</strong> list and click <strong>Insert</strong>. For detailed information, see <strong>Using Notification Variables in Email Templates</strong>.</td>
</tr>
<tr>
<td>Body</td>
<td>Text editor where you enter the text of the email. See <strong>Available Views</strong>.</td>
</tr>
<tr>
<td>Remarks</td>
<td>Enter notes or comments to identify the purpose of this email template, if desired.</td>
</tr>
</tbody>
</table>

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 6-70 • Email Template Predefined Values

<table>
<thead>
<tr>
<th>Replaceable value</th>
<th>Replaced with...</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMS_Application.ApplicationLName</td>
<td>The name of the workflow request.</td>
</tr>
<tr>
<td>AMS_Application.DueDate</td>
<td>The date the workflow request is due to be completed.</td>
</tr>
<tr>
<td>AMS_Application.NewIssues</td>
<td>The number of issues raised for the workflow request which are not yet responded to.</td>
</tr>
<tr>
<td>AMS_Application.TotalIssues</td>
<td>The total number of issues raised for the workflow request.</td>
</tr>
<tr>
<td>AMS_Application.UploadBy</td>
<td>The account name of the person who submitted the workflow request.</td>
</tr>
<tr>
<td>AMS_Application.UploadDate</td>
<td>The date the workflow request was submitted.</td>
</tr>
</tbody>
</table>

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
<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 ApplicationRecord.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:
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.

![External Web Services Administration](image)

**Figure 6-81:** 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 6-71 • External Web Services Administration Page

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Web service name</td>
<td>A short description of the web service connection.</td>
</tr>
<tr>
<td>URL</td>
<td>The location of the web service.</td>
</tr>
<tr>
<td>User name</td>
<td>If you provide a specific account name to authenticate with the web service, that account name appears here. Otherwise, this field is blank.</td>
</tr>
<tr>
<td>Domain</td>
<td>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.</td>
</tr>
<tr>
<td>Authentication type</td>
<td>The type of authentication that will be used to connect to the web service. One of:</td>
</tr>
<tr>
<td>Anonymous</td>
<td>All calls to the web service will be made anonymously.</td>
</tr>
<tr>
<td>Logged in user credentials</td>
<td>The details of the person currently logged in to Workflow Manager will be provided to the web service.</td>
</tr>
<tr>
<td>Use system account</td>
<td>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: <a href="http://helpnet.flexerasoftware.com/adminstudiocw2016/">http://helpnet.flexerasoftware.com/adminstudiocw2016/</a></td>
</tr>
<tr>
<td>Use credentials provided below</td>
<td>A specific account name and password has been provided, and all attempts to connect to the web service will use these details.</td>
</tr>
</tbody>
</table>

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 6-82: Edit External Web Service Page

The following options are available on the **Edit External Web Service** page.

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Web Service Name</strong></td>
<td>A brief description of the web service.</td>
</tr>
<tr>
<td><strong>URL</strong></td>
<td>The location of the web service server.</td>
</tr>
</tbody>
</table>
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.

### 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 6-73 • Approval Dialog Box**

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approval Workflow Step Name</td>
<td>The <strong>Workflow Step Description</strong> assigned to this workflow step when it was defined on the <strong>Workflow Step Details</strong> view is listed at the top of this dialog box.</td>
</tr>
<tr>
<td>Approval Type</td>
<td>Identifies the workflow step as one of the following <strong>Approval Types</strong>:&lt;br&gt;  • <strong>Linear</strong>—Approvals need to take place sequentially, one after the other, according to assigned <strong>Level</strong>.&lt;br&gt;  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.&lt;br&gt;  If an LDAP group or a role is specified as the <strong>Approver</strong>, 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.&lt;br&gt;  • <strong>Pool</strong>—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 <strong>Level</strong> field is ignored.&lt;br&gt;  • <strong>Linear In Pool</strong>—Approvals need to take place sequentially, one after the other, according to assigned <strong>Level</strong>, 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.&lt;br&gt;  • <strong>Parallel</strong>—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 <strong>Level</strong> field is ignored.</td>
</tr>
<tr>
<td>Approval Status</td>
<td>Identifies the status of this approval workflow step as one of the following:&lt;br&gt;  • <strong>Approval Pending</strong>—This workflow step needs additional approvals before it will be completed.&lt;br&gt;  • <strong>Approved</strong>—This workflow step has received all required approvals.&lt;br&gt;  • <strong>Rejected</strong>—This workflow step was rejected by one of the assigned approvers.</td>
</tr>
<tr>
<td>Level</td>
<td>If the <strong>Approval Type</strong> is <strong>Linear</strong> or <strong>Linear in Pool</strong> and there is more than one account/role/group listed in this list, the <strong>Level</strong> 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.&lt;br&gt;  If the <strong>Approval Type</strong> is <strong>Pool</strong> or <strong>Parallel</strong>, this field is ignored.</td>
</tr>
</tbody>
</table>
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 6-83: 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 6-74 • File Upload Dialog Box Options

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Browse</td>
<td>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.</td>
</tr>
<tr>
<td>Remove</td>
<td>Click to remove a selected file from the list.</td>
</tr>
<tr>
<td>Upload</td>
<td>Click to start uploading the files in the list. Until you click this button, no files are uploaded to Workflow Manager.</td>
</tr>
<tr>
<td>Close</td>
<td>Click to close this dialog box.</td>
</tr>
</tbody>
</table>

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.
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_2016\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.

![Company Preferences Page](image)

**Figure 6-85:** Company Preferences Page
The **Company Preferences** page includes the following properties.

**Table 6-75 • Company Preferences Page Properties**

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Company Name for Emails</td>
<td>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.</td>
</tr>
<tr>
<td>Email Address</td>
<td>Enter the Workflow Manager system email address. All emails sent by Workflow Manager will be from this email address.</td>
</tr>
<tr>
<td>Send Email To Auto Imported Users</td>
<td>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.</td>
</tr>
<tr>
<td>Send Email To Requester</td>
<td>Select this option to send a confirmation email to the workflow request submitter once the request has been submitted successfully.</td>
</tr>
<tr>
<td>Include User Name in Email Subject</td>
<td>Select this option to include the assigned user’s name in the email subject line of a notification email.</td>
</tr>
<tr>
<td>Product Name</td>
<td>To customize the name of this application, enter a value other than Workflow Manager.</td>
</tr>
<tr>
<td>Send Email As BCC</td>
<td>Select this option to prevent email recipients from seeing the email addresses of other users that are receiving the same email.</td>
</tr>
<tr>
<td>Send One Email To All Users</td>
<td>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.</td>
</tr>
<tr>
<td>Send Email To Users With Edit Privileges</td>
<td>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).</td>
</tr>
<tr>
<td>AdminStudio Url</td>
<td>If AdminStudio is configured with the Flexera Service Gateway, then during Workflow Manager installation, the AdminStudio URL will be entered in this field.</td>
</tr>
</tbody>
</table>
**Table 6-75 • Company Preferences Page Properties**

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>**AdminStudio Import Base</td>
<td>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:</td>
</tr>
<tr>
<td><strong>Directory</strong></td>
<td>C:\AdminStudioWebComponents_2016\SHAREPATH\UNCPath</td>
</tr>
<tr>
<td></td>
<td>This path is initially set using the Configuration Wizard immediately after Workflow Manager installation.</td>
</tr>
<tr>
<td></td>
<td>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:</td>
</tr>
<tr>
<td></td>
<td>$WorkflowRequestName_WFnn$</td>
</tr>
<tr>
<td></td>
<td>Examples are Perforce_WF19 or Lightroom_WF10.</td>
</tr>
<tr>
<td><strong>AdminStudio Import Formats</strong></td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td>Workflow Manager supports importing most of the deployment types that are supported by AdminStudio:</td>
</tr>
<tr>
<td></td>
<td>• Microsoft Windows Installer package (.msi)</td>
</tr>
<tr>
<td></td>
<td>• Installation package (.exe)</td>
</tr>
<tr>
<td></td>
<td>• VMware ThinApp virtual package (.exe)</td>
</tr>
<tr>
<td></td>
<td>• Apple iOS mobile application (.ipa)</td>
</tr>
<tr>
<td></td>
<td>• Google Android mobile application (.apk)</td>
</tr>
<tr>
<td></td>
<td>• Microsoft Windows Store application (.appx)</td>
</tr>
<tr>
<td></td>
<td>• Symantec Workspace virtual package (.xpf)</td>
</tr>
<tr>
<td></td>
<td>• Microsoft App-V 4.x virtual package (.sft)</td>
</tr>
<tr>
<td></td>
<td>• Microsoft App-V 5.x virtual package (.appv)</td>
</tr>
<tr>
<td></td>
<td>• Citrix XenApp virtual package (.profile)</td>
</tr>
<tr>
<td></td>
<td>• Mac OS X disk image (.dmg)</td>
</tr>
<tr>
<td></td>
<td>• Mac OS X installer package (.pkg)</td>
</tr>
</tbody>
</table>
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

**Table 6-75 • Company Preferences Page Properties**

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Release AdminStudio Receipt</td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td>- If this option is selected, then Workflow Manager calls another API to release these Receipt IDs.</td>
</tr>
<tr>
<td></td>
<td>- 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.</td>
</tr>
</tbody>
</table>

*Note • It is recommended that this option be selected.*

**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=W31TO35;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:

<table>
<thead>
<tr>
<th>String</th>
<th>Default</th>
<th>How to Modify</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data Source</td>
<td>Data Source=TESTLABSQL2K;</td>
<td>Replace the default value for Data Source with the name of the database that you want to connect to: Data Source=MYDATABASE;</td>
</tr>
</tbody>
</table>
### Configuring Workflow Manager

#### 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:

<table>
<thead>
<tr>
<th>String</th>
<th>Default</th>
<th>How to Modify</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Initial Catalog</strong></td>
<td>Initial Catalog=WM31T035;</td>
<td>The Initial Catalog string is used internally by AdminStudio Enterprise Server and should not be modified.</td>
</tr>
<tr>
<td><strong>Persist Security Info</strong></td>
<td>Persist Security Info=True;</td>
<td>The Persist Security Info string specifies whether the connection persists (caches) the password information used while connecting, and should not be modified.</td>
</tr>
<tr>
<td><strong>User ID</strong></td>
<td>User ID=sa;</td>
<td>Replace the value of User ID with a valid User ID for the specified database: User ID=myuserid;</td>
</tr>
<tr>
<td><strong>Password</strong></td>
<td>Password=sa;</td>
<td>Replace the value of Password with a valid password for the specified database and User ID: Password=mypassword;</td>
</tr>
</tbody>
</table>

4. The second connection string, **StandardConnectionString**, is used by the Report Control in Report Center. Modify this connection string by using the following syntax:

<table>
<thead>
<tr>
<th>String</th>
<th>Default</th>
<th>How to Modify</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Data Source</strong></td>
<td>Data Source=TESTLABSQL2K;</td>
<td>Replace the default value for Data Source with the name of the database that you want to connect to: Data Source=MYDATABASE;</td>
</tr>
<tr>
<td><strong>Persist Security Info</strong></td>
<td>Persist Security Info=True;</td>
<td>The Persist Security Info string specifies whether the connection persists (caches) the password information used while connecting, and should not be modified.</td>
</tr>
<tr>
<td><strong>User ID</strong></td>
<td>User ID=sa;</td>
<td>Replace the value of User ID with a valid User ID for the specified database: User ID=myuserid;</td>
</tr>
<tr>
<td><strong>Password</strong></td>
<td>Password=sa;</td>
<td>Replace the value of Password with a valid password for the specified database and User ID: Password=mypassword;</td>
</tr>
</tbody>
</table>
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.

3. Modify the database connection string using the following syntax:

<table>
<thead>
<tr>
<th>String</th>
<th>Default</th>
<th>How to Modify</th>
</tr>
</thead>
<tbody>
<tr>
<td>Server Name</td>
<td>server=.;</td>
<td>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;</td>
</tr>
<tr>
<td>Database Name</td>
<td>database=wms;</td>
<td>Replace the value for database with the name of the database that you want to connect to: database=mydatabasename;</td>
</tr>
<tr>
<td>User ID</td>
<td>uid=sa;</td>
<td>Replace the value of uid with a valid User ID for the specified database: uid=myuserid;</td>
</tr>
<tr>
<td>Password</td>
<td>pwd=sa</td>
<td>Replace the value of pwd with a valid password for the specified database and User ID: pwd=mypassword;</td>
</tr>
</tbody>
</table>

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:
<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:

```xml
<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:

   ```xml
   <httpRuntime maxRequestLength="629145600" executionTimeout="2400" requestValidationMode="2.0"/>
   <requestLimits maxAllowedContentLength="629145600"/>
   ```

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.

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:

```xml
<add key="LoginPageTimeOut" value="19.5" />
```

--- 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.

**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:

```xml
<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 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.

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.

**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:

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:

```xml
<!-- 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:

   ```xml
   <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:

```xml
<add key="AutoAcceptApplicationSubmissions" value="0"/>
```

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.
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:
   ```xml
   <add key="AutoAcceptApplicationSubmissions" value="0"></add>
   ```
3. Set the AutoAcceptApplicationSubmissions value to 1:
   ```xml
   <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:

```xml
<!-- Guest System Access -->
<add key="GuestAccount" value="" />
```

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:
   ```xml
   <add key="GuestAccount" value="" />
   ```
4. Set the GuestAccount value to the name of the Workflow Manager user that you just created:
   ```xml
   <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:

```xml
<!-- 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.

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:
   ```xml
   <add key="ASProjectOwner" value="admin@servicer.com"/>
   ```
3. Edit the following line:

```xml
<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:

```xml
<!--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:

```xml
<add key="ApplicationListQuickView" value="True" />
```
3. To turn on the display of percentage complete on the *Project Summary* page, set this value to `False`:

```xml
<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*:

```xml
<!-- 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:

```xml
<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.

<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:

<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:
   
   ```xml
   <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 6-86: “Skip required entries for now” Option](image-url)
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:

```xml
<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:

```xml
schexch.abccompany.com
```

The default value of this setting in web.config is:

```xml
<!--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:

   ```xml
   <add key="AMSSMTPServer" value="smtp.yourcompany.com"/>
   ```

3. Set the value to the name of your email server, such as:

   ```xml
   <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:

```xml
<add key="SmtpAuthenticationType" value="0" /></add>
```

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:

```xml
<add key="SmtpAuthenticationType" value="0" />
```
3. Enter one of the following values for the SmtpAuthenticationType key:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Enter this value if you do not want to perform authentication on Workflow Manager email.</td>
</tr>
<tr>
<td>1</td>
<td>Enter this value if you want to use the basic (clear text) authentication mechanism to authenticate Workflow Manager email.</td>
</tr>
<tr>
<td>2</td>
<td>Enter this value if you want to use the NTLM authentication mechanism to authenticate Workflow Manager email.</td>
</tr>
</tbody>
</table>

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:

```xml
<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:

```xml
<!-- 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:
   ```xml
   <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:

```xml
<!-- 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:
   ```xml
   <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 PersistGridSettings setting in the web.config file. The default value of this setting in web.config is 1 (enabled):

```xml
<add key="PersistGridSettings" value="1"></add>
```

If you do not want these modifications to a list persisted, change the PersistGridSettings 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.

![Filtering a Large List](image)

The GridViewFilterRowMode setting in the web.config file controls filtering behavior.

```xml
<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:

```xml
<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 RecursiveGroupSearch property to false.

The default value of this setting in web.config is:

```xml
<add key="RecursiveGroupSearch" 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:

```xml
<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 Process 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:

```xml
<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 6-76 • Methods to Extend Workflow Manager**

<table>
<thead>
<tr>
<th>Topic</th>
<th>Description</th>
</tr>
</thead>
</table>
| 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. |
| Using Replaceable Parameters in Email Templates | Explains how to use replaceable parameters in Workflow Manager email templates that are replaced with data before an email is sent. |
| 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. |
| 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
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.
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_2016\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>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>strAppId</td>
<td>Application ID of the workflow request</td>
</tr>
<tr>
<td>strAppXMLInfo</td>
<td>Contains the application info XML</td>
</tr>
</tbody>
</table>

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>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>strAppId</td>
<td>Application ID of the newly submitted workflow request</td>
</tr>
<tr>
<td>strAppXMLInfo</td>
<td>Contains the application info XML</td>
</tr>
</tbody>
</table>

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 6-79 • AppMetaDataChanged Method Parameters**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>strAppId</td>
<td>Application ID of the workflow request</td>
</tr>
<tr>
<td>strAppXMLInfo</td>
<td>Contains the application info XML</td>
</tr>
</tbody>
</table>

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 6-80 • AppRepackageApproved Method Parameters**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>strAppId</td>
<td>ID of the workflow request.</td>
</tr>
<tr>
<td>strAppXMLInfo</td>
<td>Contains the application info XML</td>
</tr>
</tbody>
</table>

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>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>strAppId</td>
<td>ID of the workflow request.</td>
</tr>
<tr>
<td>strAppXMLInfo</td>
<td>Contains the application info XML</td>
</tr>
</tbody>
</table>

AppWorkflowStepComplete Method

This method is called whenever a workflow step is completed.

**Syntax**

This method has the following syntax:

```csharp
AAppWorkflowStepComplete(string strAppId, string strAppXMLInfo)
```

**Parameters**

This method implements the following parameters:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>strAppId</td>
<td>ID of the workflow request.</td>
</tr>
<tr>
<td>strAppXMLInfo</td>
<td>Contains the application info XML</td>
</tr>
</tbody>
</table>

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 6-83 • AsyncOperationCompleted Method Parameters**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ApplicationID</td>
<td>A known value.</td>
</tr>
<tr>
<td>OperationType</td>
<td>Step type identifier, which maps to the type of RunAsync method called.</td>
</tr>
<tr>
<td>OperationResults</td>
<td>Large XML based string with detailed information about how the operation performed.</td>
</tr>
</tbody>
</table>

**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:

```xml
<ApplicationInfo>
  <CompanyName>Requester</CompanyName>
  <AppId>876fb7b8-c51b-4aba-a3bc-7f19f7aebd8e</AppId>
  <AppSName>AppName</AppSName>
  <AppLName>AppNameLong</AppLName>
  <UserName>7b31351c-f90c-4966-a61b-4d4626d86037</UserName>
  <StepID>e2c568c9-b9a6-46df-aecd-26c715cb277f</StepID>
  <PhaseID>da1f2878-de05-471b-8043-45b6290c7e6c</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 6-84 • XML Data Passed to IPlugin Methods**

<table>
<thead>
<tr>
<th>Data Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;CompanyName&gt;</td>
<td>Name of company that submitted this workflow request.</td>
</tr>
</tbody>
</table>
### Table 6-84 • XML Data Passed to IPlugin Methods (cont.)

<table>
<thead>
<tr>
<th>Data Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;AppId&gt;</td>
<td>Number that uniquely identifies this workflow request in the database.</td>
</tr>
<tr>
<td></td>
<td><strong>Note</strong>: This number is not the Request number that is displayed in the Workflow Manager interface.</td>
</tr>
<tr>
<td>&lt;AppSName&gt;</td>
<td>First eight characters of the name of the workflow request that was entered at submission.</td>
</tr>
<tr>
<td>&lt;AppLName&gt;</td>
<td>Full name of the workflow request that was entered at submission.</td>
</tr>
<tr>
<td>&lt;UserName&gt;</td>
<td>User ID of the user who submitted this workflow request.</td>
</tr>
<tr>
<td>&lt;StepID&gt;</td>
<td>GUID that uniquely identifies the workflow step that this event is associated with.</td>
</tr>
<tr>
<td>&lt;PhaseID&gt;</td>
<td>GUID that uniquely identifies the phase in this workflow request that this event is associated with.</td>
</tr>
<tr>
<td>&lt;StepName&gt;</td>
<td>Name of workflow step that this event is associated with</td>
</tr>
<tr>
<td>&lt;StepType&gt;</td>
<td>Step type of workflow step that this event is associated with</td>
</tr>
<tr>
<td>&lt;BinaryFiles&gt;</td>
<td>Identifies the beginning of a group of uploaded files.</td>
</tr>
<tr>
<td>&lt;BinaryFile&gt;</td>
<td>Identifies the beginning of a group of elements that identify one uploaded file. There is one &lt;BinaryFile&gt; element for each uploaded file.</td>
</tr>
<tr>
<td>&lt;BinaryName&gt;</td>
<td>Name of file that was uploaded.</td>
</tr>
<tr>
<td>&lt;BinarySize&gt;</td>
<td>Size of the uploaded file.</td>
</tr>
<tr>
<td>&lt;BinaryType&gt;</td>
<td>Identifies the file type of the uploaded file.</td>
</tr>
<tr>
<td>&lt;BinarySavedLocation&gt;</td>
<td>Location where file the was uploaded.</td>
</tr>
<tr>
<td>&lt;Metadatas&gt;</td>
<td>Identifies the beginning of a group of data elements that were collected as part of this workflow request.</td>
</tr>
<tr>
<td>&lt;Metadata&gt;</td>
<td>Identifies the beginning of a one data element that was collected as part of this workflow request. There is one &lt;Metadata&gt; element for each data element submitted.</td>
</tr>
<tr>
<td>&lt;DataName&gt;</td>
<td>Name of data element.</td>
</tr>
<tr>
<td>&lt;DataValue&gt;</td>
<td>Value entered for that data element.</td>
</tr>
</tbody>
</table>
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**
- **Steps to Achieve Automation**
- **Advanced Configuration Options**

### 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:

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_2016\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_2016\wwwroot\plugins` folder.
6. Restart IIS. Your custom code should now be executing on various WFM events.

### Table 6-84 • XML Data Passed to IPlugin Methods (cont.)

<table>
<thead>
<tr>
<th>Data Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>&lt;DataChanged&gt;</code></td>
<td>Identifies whether the data has been updated after it was submitted.</td>
</tr>
<tr>
<td></td>
<td>- <strong>No</strong>—Data has not been updated.</td>
</tr>
<tr>
<td></td>
<td>- <strong>Yes</strong>—Data has been updated.</td>
</tr>
</tbody>
</table>
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
- Step 2: Write Code to Read These Values
- Step 3: Encrypt the `web.config` File

**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.

```
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:

   ```xml
   <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:

   ```xml
   <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:

   ```csharp
   object oSection = System.Configuration.ConfigurationManager.GetSection("IPluginSettings");
   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_2016\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_2016\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
Clicking on one of these links on the Integration web services page opens a page that provides detailed information on the selected web method:
Workflow Manager has the following web services methods:

**Table 6-85 • Workflow Manager Web Services Methods**

<table>
<thead>
<tr>
<th>Method</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Authenticate</td>
<td>Authenticates NT users.</td>
</tr>
<tr>
<td>AuthenticateDbUser</td>
<td>Authenticates database users.</td>
</tr>
<tr>
<td>CreateWorkflowRequest</td>
<td>Creates a workflow request for the given project and stores it on the</td>
</tr>
<tr>
<td></td>
<td>session.</td>
</tr>
<tr>
<td>GetDataElement</td>
<td>Gets workflow metadata for workflow request currently stored in the</td>
</tr>
<tr>
<td></td>
<td>session.</td>
</tr>
<tr>
<td>GetDataGroupElements</td>
<td>Returns a list of data group elements for a data group with columns ID,</td>
</tr>
<tr>
<td></td>
<td>Value, DataType, IsRequired.</td>
</tr>
<tr>
<td>GetDataGroups</td>
<td>Returns a list of data groups for a project with columns ID and Value.</td>
</tr>
</tbody>
</table>
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
<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>
```
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>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>LDAPSearchLimit</td>
<td>This setting limits how many records are returned from Active Directory.</td>
</tr>
<tr>
<td></td>
<td>If there is no search filter, Workflow Manager will only get the number of</td>
</tr>
<tr>
<td></td>
<td>records defined by the LDAPSearchLimit setting (default is 1000). This limit</td>
</tr>
<tr>
<td></td>
<td>is needed to prevent Workflow Manager from searching the Active Directory of</td>
</tr>
<tr>
<td></td>
<td>the entire enterprise.</td>
</tr>
<tr>
<td></td>
<td>The value of this setting can be increased as needed until time outs start</td>
</tr>
<tr>
<td></td>
<td>to occur.</td>
</tr>
<tr>
<td>LDAPSearchPageSize</td>
<td>This setting comes into play when there is a search filter given. If the</td>
</tr>
<tr>
<td></td>
<td>value of this setting is a positive non-zero number, then Workflow Manager</td>
</tr>
<tr>
<td></td>
<td>ignores the LDAPSearchLimit setting and gets all the users.</td>
</tr>
<tr>
<td></td>
<td>The value of the LDAPSearchPageSize setting determines the number of records</td>
</tr>
<tr>
<td></td>
<td>the Active Directory search sends back per search cycle (the number of</td>
</tr>
<tr>
<td></td>
<td>records that are retrieved each time Workflow Manager queries the Active</td>
</tr>
<tr>
<td></td>
<td>Directory server). This value does not come into play during normal searches.</td>
</tr>
</tbody>
</table>

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.*
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 Workflow 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 Software website:

https://flexeracommunity.force.com/customer/CCDocumentation
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 7-1 • AdminStudio Configuration Wizard

<table>
<thead>
<tr>
<th>Wizard Panel</th>
<th>Task</th>
</tr>
</thead>
<tbody>
<tr>
<td>Welcome Panel</td>
<td>[Post-installation only] Choose the which settings you want to update:</td>
</tr>
<tr>
<td></td>
<td>• Create/update AdminStudio database</td>
</tr>
<tr>
<td></td>
<td>• Activate AdminStudio license</td>
</tr>
<tr>
<td></td>
<td>• Configure Flexera Service Gateway</td>
</tr>
<tr>
<td></td>
<td>• Configure Inventory Beacon</td>
</tr>
<tr>
<td></td>
<td>• Update website configuration settings (Advanced)</td>
</tr>
<tr>
<td>Create or Update an AdminStudio Database Panel</td>
<td>Create or update the application's associated database.</td>
</tr>
<tr>
<td>Set Default Connection Panel</td>
<td>Set the default connection information for web site users.</td>
</tr>
<tr>
<td>Activation Panel</td>
<td>Upload the product license file.</td>
</tr>
<tr>
<td>Configuration Settings: Flexera Service Gateway Panel</td>
<td>Connect to the Flexera Service Gateway and enter your Access Token to communicate with the Application Recognition Service / FlexNet Manager Suite Cloud.</td>
</tr>
</tbody>
</table>
Table 7-1 • AdminStudio Configuration Wizard

<table>
<thead>
<tr>
<th>Wizard Panel</th>
<th>Task</th>
</tr>
</thead>
<tbody>
<tr>
<td>Configuration Settings: Microsoft Configuration Manager</td>
<td>Enter Microsoft System Center Configuration Manager settings.</td>
</tr>
<tr>
<td>Configuration Settings: Active Directory</td>
<td>Enter Active Directory settings.</td>
</tr>
<tr>
<td>Configuration Settings: Network Share Panel</td>
<td>[Post-installation only] Use to provide System Account credentials, and the location of the file share.</td>
</tr>
<tr>
<td>Configuration Settings: Visual</td>
<td>[Post-installation only] Use to enable or disable the application and/or assign quick list view.</td>
</tr>
<tr>
<td>Configuration Settings: Administrative</td>
<td>[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.</td>
</tr>
<tr>
<td>Configuration Complete Panel</td>
<td>View configuration messages and close the wizard.</td>
</tr>
</tbody>
</table>

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

Contacting Us

Flexera Software 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.flexerasoftware.com
Welcome Panel

The Welcome panel is only displayed when you launch the AdminStudio Configuration Wizard manually after installation.

On the Welcome panel, you choose which settings you want to update:

**Table 7-2 • Welcome Panel Options**

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Create/update AdminStudio database</td>
<td>Select to display the Create or Update an AdminStudio Database Panel.</td>
</tr>
<tr>
<td>Activate AdminStudio license</td>
<td>Select to display the Activation Panel.</td>
</tr>
<tr>
<td>Configure Flexera Service Gateway</td>
<td>Select to display the Configuration Settings: Flexera Service Gateway Panel.</td>
</tr>
<tr>
<td>Configure Inventory Beacon</td>
<td>Select to display the Configuration Settings: Network Share Panel.</td>
</tr>
<tr>
<td>Update website configuration settings (Advanced)</td>
<td>Select to display the Configuration Settings: Network Share Panel, Configuration Settings: Visual, and Configuration Settings: Administrative panels.</td>
</tr>
</tbody>
</table>
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.

![Create or Update an AdminStudio Database Panel](image)

**Figure 7-2:** Create or Update an AdminStudio Database Panel

The Create or Update an AdminStudio Database panel includes the following properties:

**Table 7-3 • Create or Update an AdminStudio Database Panel / AdminStudio Configuration Wizard**

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Option</td>
<td>Select one of the following options:</td>
</tr>
<tr>
<td></td>
<td>- Create a new database</td>
</tr>
<tr>
<td></td>
<td>- Update/connect to an existing Workflow Manager or AdminStudio database</td>
</tr>
<tr>
<td>Server</td>
<td>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.</td>
</tr>
</tbody>
</table>
Table 7-3 • Create or Update an AdminStudio Database Panel / AdminStudio Configuration Wizard

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
</table>
| 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.  

| 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.

![Set Default Connection Panel](image)

**Figure 7-3:** Set Default Connection Panel

The **Set Default Connection** panel includes the following properties:

**Table 7-4 • Set Default Connection Panel / AdminStudio Configuration Wizard**

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Server</strong></td>
<td>The SQL Server that you specified on the Create or Update an AdminStudio Database Panel is listed here in read-only format.</td>
</tr>
<tr>
<td><strong>Authentication</strong></td>
<td>Select one of the following options:</td>
</tr>
<tr>
<td></td>
<td>• Windows Authentication</td>
</tr>
<tr>
<td></td>
<td>• Server Authentication</td>
</tr>
<tr>
<td><strong>User ID and Password</strong></td>
<td>Enter credentials that the Web Site Application Pool will run as in order to access the database.</td>
</tr>
<tr>
<td><strong>Database</strong></td>
<td>The database name that you specified on the Create or Update an AdminStudio Database Panel is listed here in read-only format.</td>
</tr>
</tbody>
</table>
Activation Panel

On the **Activation** panel, you upload your AdminStudio license file.

![Activation Panel](image)

**Figure 7-4:** Activation Panel

The Activation panel includes the following properties:

**Table 7-5 • Activation Panel / AdminStudio Configuration Wizard**

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AdminStudio license file</td>
<td>Click the browse button and select the license file that you obtained from Flexera Software.</td>
</tr>
<tr>
<td>License information</td>
<td>After you have uploaded your license file, a description of the rights of that license will be listed, including the following information:</td>
</tr>
<tr>
<td></td>
<td>• <strong>License for</strong>—Name of license owner.</td>
</tr>
<tr>
<td></td>
<td>• <strong>License Expiration</strong>—License expiration status, which will list an expiration date.</td>
</tr>
<tr>
<td></td>
<td>• <strong>Functionality Licensed</strong>—Name of the application or functionality that this license entitles you to use.</td>
</tr>
</tbody>
</table>
Chapter 7  AdminStudio Configuration Wizard
Configuration Settings: Flexera Service Gateway Panel

Configuration Settings: Flexera Service Gateway Panel

AdminStudio and Workflow Manager communicate with other Flexera Software 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.

![Configuration Settings: Flexera Service Gateway]

The Configuration Settings: Flexera Service Gateway panel includes the following properties:

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gateway Host Name</td>
<td>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.</td>
</tr>
<tr>
<td>Access Token</td>
<td>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.</td>
</tr>
<tr>
<td>Application Recognition Service URL</td>
<td>Enter the URL to the AdminStudio Inventory and Rationalization's Application Recognition Service component.</td>
</tr>
</tbody>
</table>
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.

**Table 7-6 • Configuration Settings: Flexera Service Gateway Panel / AdminStudio Configuration Wizard**

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advanced</td>
<td>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.</td>
</tr>
<tr>
<td>Test</td>
<td>Click to validate the Flexera Service Gateway connection information.</td>
</tr>
</tbody>
</table>

**Figure 7-6: Configuration Settings: Microsoft Configuration Manager Panel**

The Configuration Settings: Microsoft Configuration Manager panel includes the following properties:

**Table 7-7 • Configuration Settings: Microsoft Configuration Manager Panel / AdminStudio Configuration Wizard**

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connection Name</td>
<td>Enter a name for this new connection to a System Center Configuration Manager server or select an existing connection from the list.</td>
</tr>
</tbody>
</table>
Table 7-7 • Configuration Settings: Microsoft Configuration Manager Panel / AdminStudio Configuration Wizard

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Server</td>
<td>Enter the name of your System Center Configuration Manager server or select it from the list.</td>
</tr>
<tr>
<td>Authentication</td>
<td>Select one of the following options to specify the type of authentication you will use to connect to the System Center Configuration Manager server:</td>
</tr>
<tr>
<td></td>
<td>• Server Authentication</td>
</tr>
<tr>
<td></td>
<td>• Windows Authentication with Impersonation</td>
</tr>
<tr>
<td>User ID</td>
<td>Enter valid credentials per the Authentication choice you made:</td>
</tr>
<tr>
<td>Password</td>
<td>• Server Authentication—Enter valid credentials to login to your System Center Configuration Manager server.</td>
</tr>
<tr>
<td></td>
<td>• 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.</td>
</tr>
<tr>
<td>Database</td>
<td>Enter the name of your System Center Configuration Manager database.</td>
</tr>
<tr>
<td>Test</td>
<td>Click to test the connection to the System Center Configuration Manager server.</td>
</tr>
</tbody>
</table>
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.

![Configuration Settings: Active Directory Panel]

**Figure 7-7**: Configuration Settings: Active Directory Panel

The **Configuration Settings: Active Directory** panel includes the following properties:

**Table 7-8 • Create or Update an AdminStudio Database Panel / AdminStudio Configuration Wizard**

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connection name</td>
<td>Enter the name of your enterprise’s Active Directory connection.</td>
</tr>
<tr>
<td>Domain or domain</td>
<td>Enter the fully qualified DNS of the domain or domain controller. If this</td>
</tr>
<tr>
<td>controller</td>
<td>field is not specified, the current domain will be used.</td>
</tr>
<tr>
<td>User name</td>
<td>Enter the user name of an operator who has permission to retrieve account/group</td>
</tr>
<tr>
<td></td>
<td>information and authenticate an account against this directory service, in the</td>
</tr>
<tr>
<td></td>
<td>domainName\userName format.</td>
</tr>
<tr>
<td>Password</td>
<td>The password associated with the credentials specified in the <strong>User name</strong></td>
</tr>
<tr>
<td></td>
<td>field.</td>
</tr>
</tbody>
</table>
Configuration Settings: Network Share Panel

On the **Configuration Settings: Network Share** panel, you specify a domain account and location for a file share directory.

The **Configuration Settings: Network Share** panel includes the following properties:

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>User name</td>
<td>Enter a user name and password for the system account. Enter the user name in <code>DOMAIN_NAME\USER_NAME</code> format.</td>
</tr>
<tr>
<td>Password</td>
<td></td>
</tr>
<tr>
<td>Local file share directory will be created and shared on network</td>
<td>Select this option if your file share location is on the local machine.</td>
</tr>
<tr>
<td>Local file share install directory</td>
<td>Enter the local file share directory path.</td>
</tr>
<tr>
<td>Network share name</td>
<td>Specify the name of the shared directory when it is viewed from other machines in the network.</td>
</tr>
<tr>
<td>UNC path to existing shared folder on local or remote machine</td>
<td>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.</td>
</tr>
</tbody>
</table>
Configuration Settings: Visual

On the Configuration Settings: Visual panel, you can enable or disable quick list view and set the report option number.

Figure 7-9: Configuration Settings: Visual

The Configuration Settings: Visual panel includes the following properties:

Table 7-10 • Configuration Settings: Visual Panel / AdminStudio Configuration Wizard

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enable application list quick view</td>
<td>Not currently used.</td>
</tr>
<tr>
<td>Enable assignment list quick view</td>
<td>Not currently used.</td>
</tr>
<tr>
<td>Report options</td>
<td>Not currently used.</td>
</tr>
</tbody>
</table>
Configuration Settings: Administrative

On the Configuration Settings: Administrative panel, you specify several administrative settings.

![Configuration Settings: Administrative Panel](image)

**Figure 7-10:** Configuration Settings: Administrative

The Configuration Settings: Administrative panel includes the following properties:

**Table 7-11 • Configuration Settings: Administrative Panel / AdminStudio Configuration Wizard**

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rollback keep condition</td>
<td>Not currently used.</td>
</tr>
<tr>
<td>Disable step-level SLA</td>
<td>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.</td>
</tr>
<tr>
<td>Show performance parameters</td>
<td>Not currently used.</td>
</tr>
<tr>
<td>Login page timeout value</td>
<td>Identifies the length of time that you can leave the login page open before it times out.</td>
</tr>
<tr>
<td>Default AdminStudio user work assignment</td>
<td>Specify which AdminStudio user is automatically assigned to an AdminStudio project that is created as part of a Workflow Manager phase.</td>
</tr>
<tr>
<td>SMTP Server Address</td>
<td>Enter the address of your email server.</td>
</tr>
</tbody>
</table>
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.

Table 7-11 • Configuration Settings: Administrative Panel / AdminStudio Configuration Wizard

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Web Server Address</td>
<td>Edit to modify the Workflow Manager website IP address. By default, it is <a href="http://localhost/">http://localhost/</a>.</td>
</tr>
</tbody>
</table>

Figure 7-11: Configuration Complete Panel
A

about 314, 316
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  updating 64
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  creating 379
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  creating 378
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  creating new accounts 61
  creating new roles 50
  deleting accounts 66
  deleting directory service attributes 72
  deleting directory service connections 69
  deleting roles 52
  importing accounts 62
  managing directory service attributes 70
  managing directory service connections 67
  managing directory services 66, 67
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  reviewing directory service connections 85
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  updating directory service connections 69
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