FLEXera

Workflow Manager 2017
Release Notes

Originally released November 2017; updated to include Updates 1 and 2, released 3 September 2018

Introduction

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.

When IT-wide processes such as preparing application for deployment, migrations, and license optimization are managed poorly, expensive errors can occur, resulting in costly delays, lost productivity, and overspending. Workflow Manager standardizes, coordinates, and streamlines the management of applications through the entire enterprise lifecycle, reducing costs and maximizing productivity.

Workflow Manager supports both AdminStudio Suite and FlexNet Manager Suite for Enterprises. IT teams of every size use Workflow Manager to coordinate software asset management—from application packaging and deployment, though software licensing and optimization after deployment. Workflow Manager can manage desktop management processes, such as preparing for Windows migrations and application virtualization, as well as procurement, auditing, and retirement of software assets.

New Features Update 2

Workflow Manager 2017 Update 2 includes the following new features:

- Specify Time Off on the Time Off Administration Page

- Edit Custom Tables to Allow Record Changes

- View Detailed List of Workflow Requests

Specify Time Off on the Time Off Administration Page

In WorkFlow Manager 2017 Update 2, you can specify the beginning and end date for your time off requests on the Time Off Administration page.

Figure 1: Time Off Administration Page

Edit Custom Tables to Allow Record Changes

In WorkFlow Manager 2017 Update 2, Workflow Administrators will be able to change records in any table in Workflow Manager.

The Custom Table Editor in the Workflow Manager provides a way to edit custom tables that may be created to work with the iPlugin DLL or custom web pages.
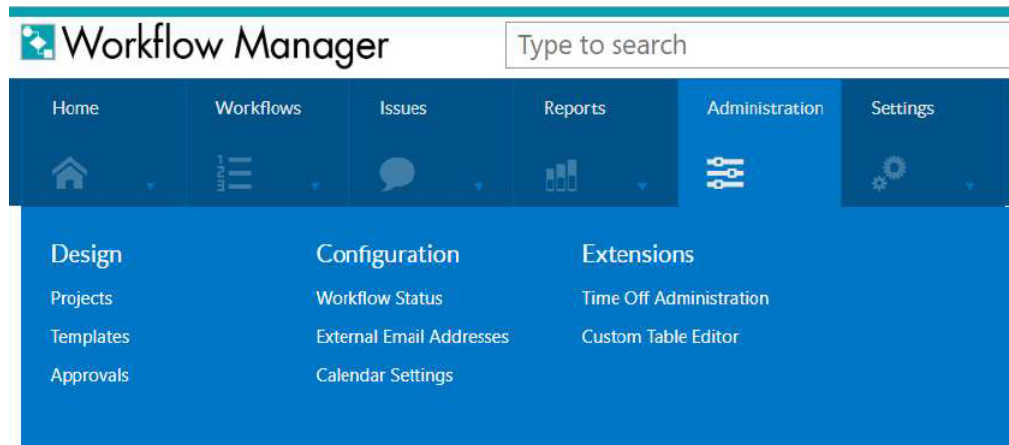
Figure 2: Custom Table Editor Menu Item on Administration Menu

View Detailed List of Workflow Requests

In Workflow Manager 2017 Update 2, you can click on the workflow requests that are Open, Late, At Risk, or On Time to view the detailed list of requests.
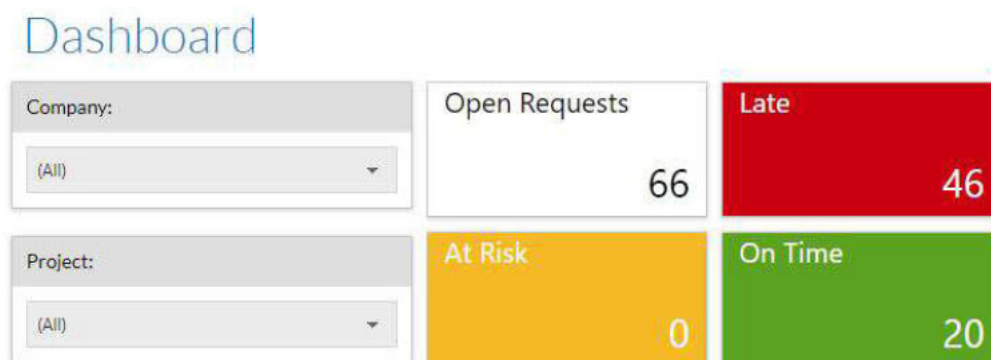
Figure 3: Workflow Request Status on Dashboard

You can also click on the open issues to either Respond or Close Issue.

Figure 4: Open Requests Page

New Features Update 1

Workflow Manager 2017 Update 1 includes the following new features:

- Support to Import Transforms with MSI Package

- Distribute the Same Package to Different SCCM Environments

- Allow Users to Delete a Workflow or Set the Status

Support to Import Transforms with MSI Package

In Workflow Manager 2017 Update 2, when you import an MSI package from AdminStudio to Workflow Manager, the .msp or/and .mst patch files can be selected in order to be applied with the MSI package.
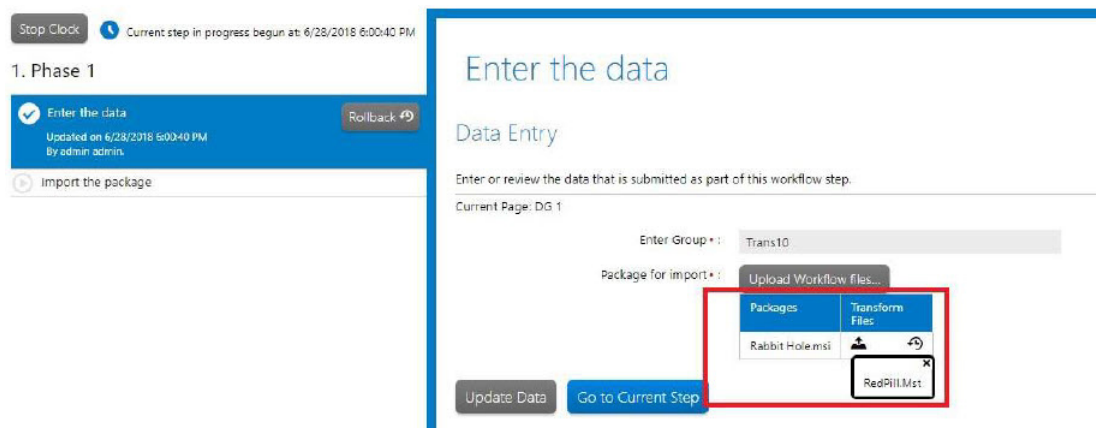
Figure 5: Selecting Patches During Import

Distribute the Same Package to Different SCCM Environments

In Workflow Manager 2017 Update 2, you can publish a package from AdminStudio to multiple SCCM environments.

Figure 6: Selecting the SCCM Environment

Figure 7: Publishing to Multiple SCCM Environments

Allow Users to Delete a Workflow or Set the Status

In Workflow Manager 2017 Update 2, users can assign the workflow status either an **Active** or **Inactive** state. The user can also delete the workflow.

Figure 8: Assigning Workflow Status on the Properties Tab of Workflow Request Page

New Features Workflow Manager 2017

Workflow Manager 2017 includes the following new features:

- AdminStudio Application Catalog and Package Reports Now Visible to Users in Consumer Companies

- Work Assignment Screens Now Only Display Roles Relevant to the Current Workflow Step

- New Menu Item to Copy an Existing Workflow Request

- Ability to Add Configurable Menu Items to the Workflow Manager Navigation Bar

- Ability to Add Configurable Menu Items to the Workflow Progress Options Menu

- Now Able to Specify Internal Name for Data Elements for Use in Custom Reporting

- New Data Element Data Type, Contact, to Enable Predictive Search for Contacts on Data Entry Screens

- New Time Off Functionality Enables Scheduled Time Off to Be Displayed on Work Assignment Screens

- Workflow Step Name is Now Displayed in the Workflow Step Panel

- Data Group Name Now Displayed on Data Entry Screens

- ValidateDataGroup and ValidateRequest Events Were Added to the iPlugin Interface

AdminStudio Application Catalog and Package Reports Now Visible to Users in Consumer Companies

Note • This feature was tracked in issues IOJ-1758828 and IOJ-1813902.

In Workflow Manager 2017 Update 1, users from Consumer companies can now view AdminStudio Application Catalog and Package reports. Previously, these reports could only be viewed by users in Administrator companies.
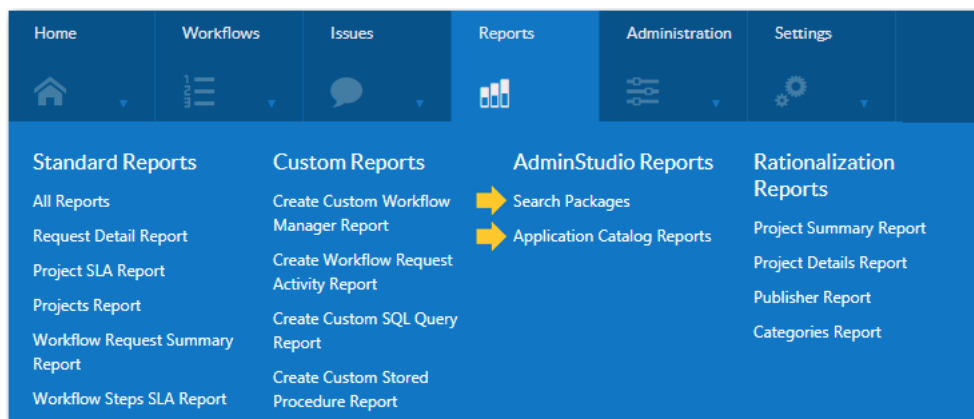
Figure 9: Application Catalog Reports Menu Item

Application Catalog Reports Now Visible to Users in Consumer Companies

In previous releases, users in Administrator companies could view the standard Application Catalog reports and any custom RDLC reports that had been added by selecting the **Application Catalog Reports** menu item under **AdminStudio Reports** on the **Reports** tab. The **Application Catalog Reports** menu item was not displayed for users in Consumer companies.

In Workflow Manager 2017, users in Consumer companies can now also view the **Application Catalog Reports** menu item, enabling them to view the following reports:

- **Standard Application Catalog reports**, a wide array of reports containing summary information on packages in the AdminStudio Application Catalog and the results of compatibility and best practices testing. These reports give you insight into the readiness of those packages for distribution and for conversion to virtual packages.

- **All custom RDLC reports** that have been added, as described in Creating Custom Reports in the AdminStudio Help Library.

Package Reports Now Visible to Users in Consumer Companies

In previous releases, users in Administrator companies could view Package reports by selecting the **Search Packages** menu item under **AdminStudio Reports** on the **Reports** tab. The **Search Packages** menu item was not displayed for users in Consumer companies.

In Workflow Manager 2017, users in Consumer companies can now also view the **Search Packages** menu item, enabling them to view Package reports, which list detailed package information for packages that have been imported into the AdminStudio Application Catalog.

Work Assignment Screens Now Only Display Roles Relevant to the Current Workflow Step

Note • This feature was tracked in issue IOJ-1759712.

In previous releases, when assigning work as part of a workflow step (for workflow steps with a step type of **Work Assignment**), all roles were listed in the workflow step details area, making it difficult to easily see which roles apply to the current workflow step.

In Workflow Manager 2017, only those roles you specify when defining the workflow step will be listed in the workflow step details area.

When you create a workflow step with a step type of **Work Assignment**, there is a new field named **Please Select a Role** where you can select only the roles relevant to that workflow step.
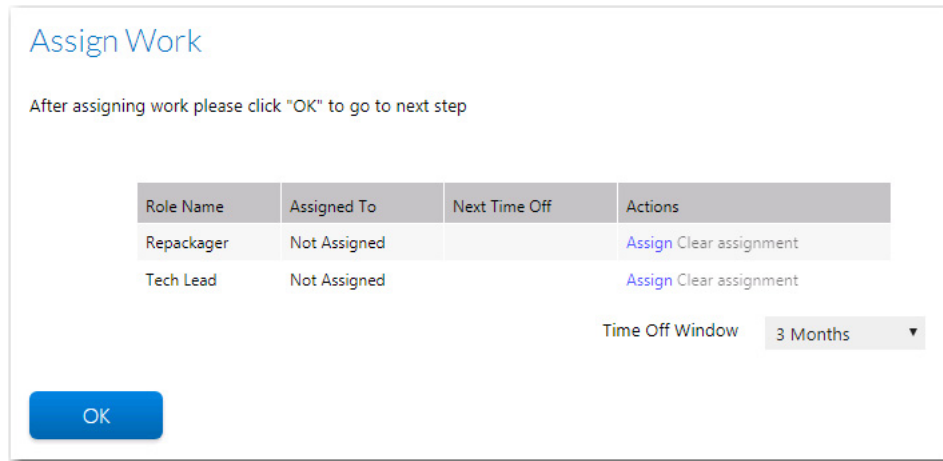
Figure 10: Selecting Roles for a Work Assignment Workflow Step

When that workflow step is displayed in a workflow request, only the roles that you specified will be listed.

Figure 11: Selected Roles Listed for a Work Assignment Workflow Step

New Menu Item to Copy an Existing Workflow Request

Note • This feature was tracked in issue IOJ-1760484.

In previous releases, if you wanted to copy an existing workflow request, you had to open the **Properties** tab of an existing workflow request's **Workflow Request** page and then click the **Copy** button.

In Workflow Manager 2017, a new menu item entitled **Copy an Existing Workflow Request** has been added to the **Workflows** tab, making it much easier to quickly copy an existing request.
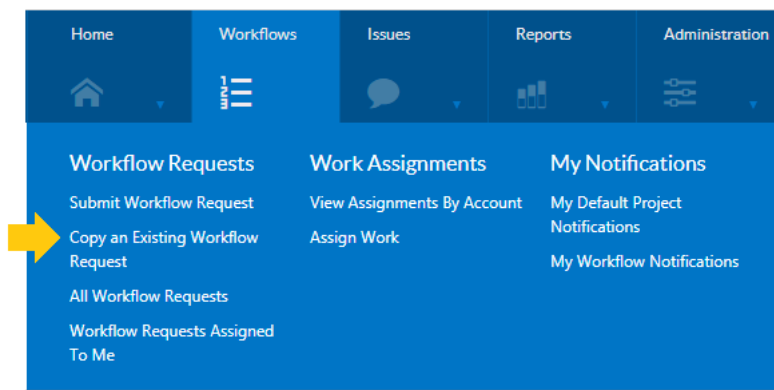
Figure 12: Copy an Existing Workflow Request

When you select **Copy an Existing Workflow Request**, a new view entitled **Copy Workflow Request** opens.
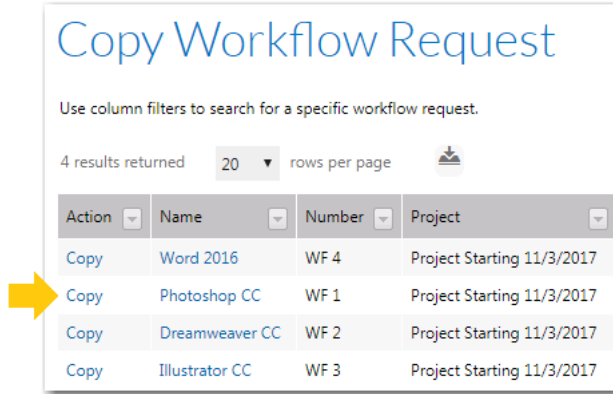
Figure 13: Copy Workflow Request View

To copy an existing request, click **Copy** in the **Action** column next to the name of the workflow request that you want to copy. You will then be prompted to enter a name for the new workflow request.

Ability to Add Configurable Menu Items to the Workflow Manager Navigation Bar

Note • *This feature was tracked in issues IOJ-1823608 and IOJ-1829610.*

In previous releases, you were unable to add any new menu items to the tabs in the Workflow Manager navigation bar, such as to the **Administration** tab below.
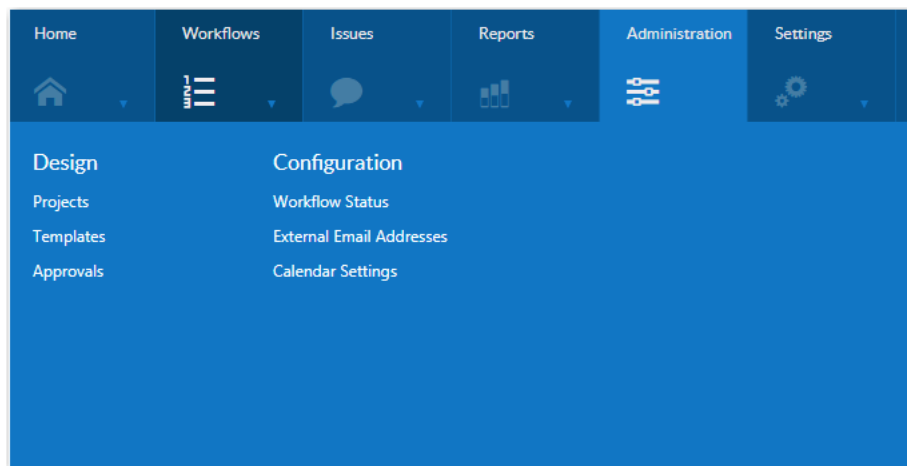
Figure 14: Workflow Manager Administration Tab

In Workflow Manager 2017, you can now add new menu items by editing the `NavExtension.xml` file and specifying the following information:

- Name of the top-level tab, such as **Administration**.

- Name of the heading of the menu group, such as **View Tables**.

- Name of the menu item, such as **Custom SQL Tables**.

- A URL link for the menu item.

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

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

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

   `C:\AdminStudioWebComponents_2017\wwwroot\NavExtension\NavBar_Extensions.xml`

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

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

   After you save this file and open Workflow Manager in a new browser window, you will notice that several new workflow items are added to the **Administration** tab: **Test Menu** and **Test Menu two**.
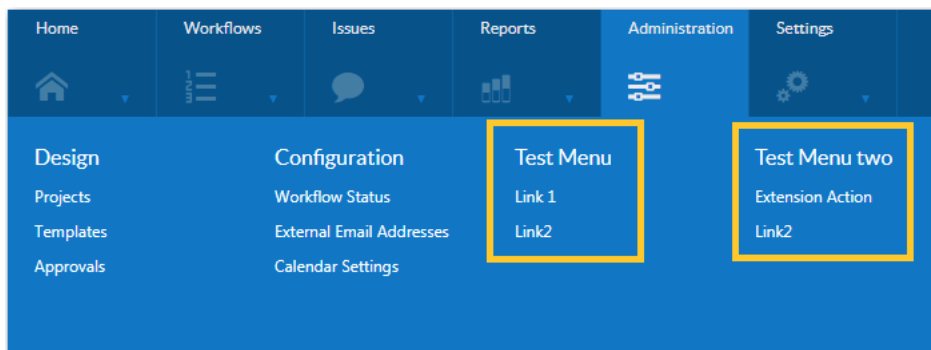
3. Locate the `<Name>` element under `<Main>`. By default, `<Name>` is set to `Administration`.

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

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

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

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

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

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

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

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

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

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

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

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

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

11. Save the `NavBar_Extensions.xml` file, and then open Workflow Manager in a new browser window. The new menu item will now be listed in the menu.
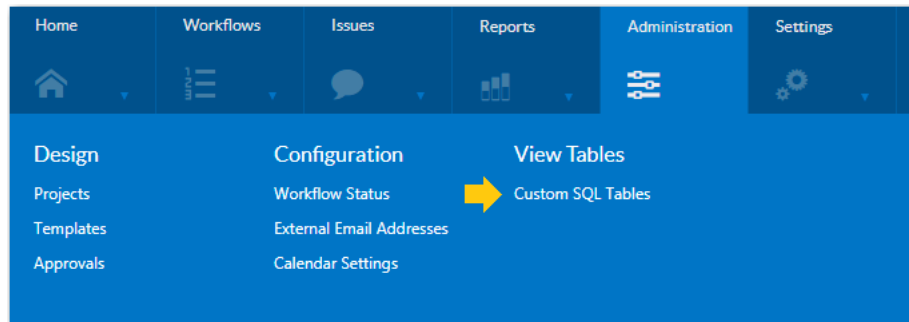
12. To add custom menu items to *second* main tab of the navigation menu, make a copy of the entire `<Main>` element in the `NavBar_Extensions.xml` file, change the `<Name>` element to another one of the main menu tabs (such as **Reports**) and then specify the `<SubItem>` and `<ItemList>` elements as described above.

Ability to Add Configurable Menu Items to the Workflow Progress Options Menu

Note • This feature was tracked in issue IOJ-1823616.

In Workflow Manager 2017, you can now add custom menu items to the **Options** menu on the **Progress** tab of the **Workflow Request** page.
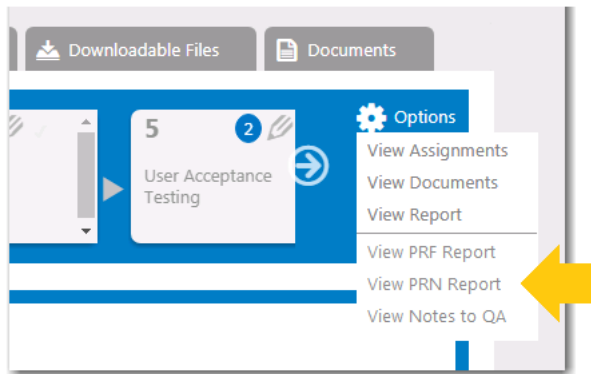
Figure 15: Custom Items on Options Menu of Progress Tab of Workflow Request View

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

- Record Fields in AMS_CustomWorkflowLink Table

- Using the LinkUrl Field to Specify Menu Item URLs

- Using the ControllName and ActionName Fields to Specify Menu Item URLs

Record Fields in AMS_CustomWorkflowLink Table

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

Table 1 • Fields in the AMS_CustomWorkFlowLink table

Field	Description
linkId	A unique identifier (GUID) that uniquely identifies the record in the table.
CompanyID	A foreign key from the `AMS_Company` table. Workflow Manager only shows menu items associated with the current user's company.
LinkText	The text that Workflow Manager will show on the **Options** menu.
LinkUrl	The URL to which Workflow Manager will navigate. This URL can be either of the following: • **Absolute URL**, such as `http://www.server.com` • **Relative URL**, such as `/CustomWorkflow/Report.aspx` *Note • Leave this field blank if you are using the **ActionName** and **ControllName** fields.*

LinkTarget	The value for the target attribute on the link. Valid values include:
	
	`_blank`
	`_self`
	`_parent`
	`_top`

LinkParameter	Unused
ActionName	The MVC action name. *Note • Leave this field blank if you are using the **LinkUrl** field.*
ControllName	The MVC controller name. *Note • Leave this field blank if you are using the **LinkUrl** field.*

The following table shows example records.

<p align="center">**Table 2 •** Example Records for the AMS_CustomWorkflowLink Table</p>

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

Using the LinkUrl Field to Specify Menu Item URLs

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

Table 3 • Arguments Added to a URL

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

The resulting URL will be similar to this one:

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

Using the ControllName and ActionName Fields to Specify Menu Item URLs

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

Table 4 • Arguments Added to an MVC URL

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

The resulting MVC URL will be similar to this one:
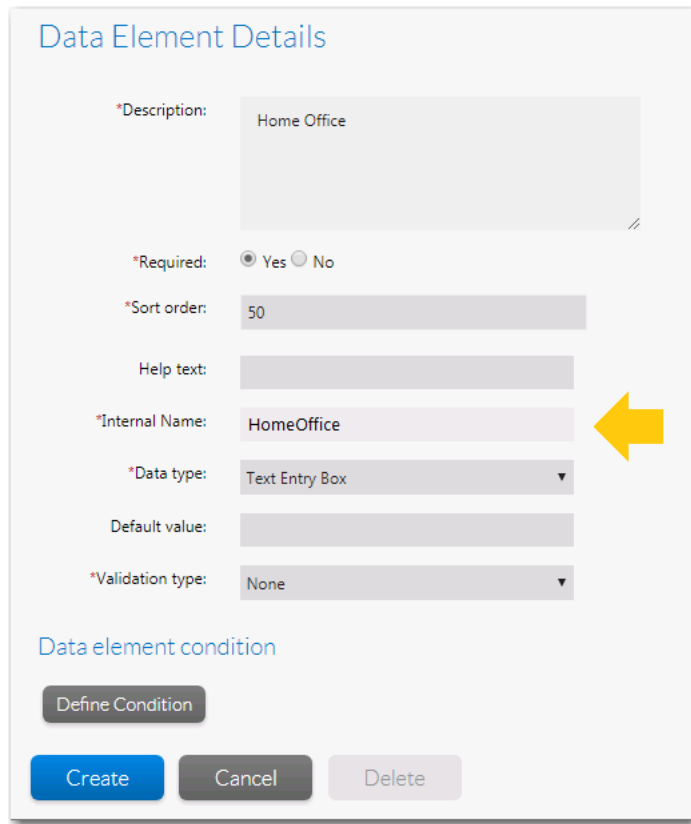
`http://MyServer:81/WFProgress/copy?a=ee278931-b80c-4c48-a6bf-ad39411dc9e1&cid=06d14575-fb0c-40e4-9d94-1a0129e08692&pid=ed7aa499-4b72-4617-934b-76ce8ae69b53`

Now Able to Specify Internal Name for Data Elements for Use in Custom Reporting

In previous releases, if you created a custom report that displays data elements, the only way to refer to a specific data element was to use its name or its GUID (`DataMinorItemID`).

- If you used the name, then the report would break if someone changed the name in the template.
- If you used the GUID, then the report would break if you made a copy of the template and ran the report on a workflow linked to the new template.

In Workflow Manager 2017, in order to be able to create reports that continue to work—even after creating a new template or changing the name of the data element, a new field was added to the **Data Element Details** view, named **Internal Name**. In this field, you can enter a human readable, stable name that can be used by custom reports to refer to data elements.

Figure 16: New Internal Name Field

The value entered into the **Internal Name** field is stored in a new column, `DataMinorItemInternalDesc`, of the `AMS_DataMinorItemTpl` table.

New Data Element Data Type, Contact, to Enable Predictive Search for Contacts on Data Entry Screens

Note • *This feature was tracked as issue IOJ-1829463.*

When entering data for a workflow request, you are frequently prompted to specify one or more contacts that are related to the workflow request. These contacts will not participate in the workflow process, so it is not appropriate to assign them to roles.

To address this need, in Workflow Manager 2017, you can add contacts to workflow requests as data elements, using a new data element data type of **Contact**. This enables you to store the contact's name, user name, e-mail address, and phone numbers in data element values.

Figure 17: New "Contact" Data Type

When you add a data element with the data type of **Contact**, the following fields are displayed in the data entry screen of the workflow request, prompting the requester to add contact information.

Figure 18: Contact Data Element / No Directory Services Connection

For a data element with a data type of **Contact**, Workflow Manager displays contact data fields (**Name**, **E-mail**, **Phone**, **Mobile**, and **Username**) as normal text fields, allowing users to edit their values.

After you have submitted contact information in one or more workflow requests, the next time you submit a workflow request and enter a character in one of the "contact" fields (one based on a data element with the data type of **Contact**), a menu will appear prompting you to select previously-entered contact information that matches the text that you have entered.

Figure 19: Predictive Search Menu

New Time Off Functionality Enables Scheduled Time Off to Be Displayed on Work Assignment Screens

Note • This feature was tracked in issues IOJ-1829619, IOJ-1829620, and IOJ-1829622.

Workflow Manager 2017 has a new time off feature that enables scheduled time off for users to be displayed on work assignment screens that are part of a workflow step. This enables managers to assign resources accordingly.

Entering Time Off

In Workflow Manager 2017, users can enter time off records on the **Time Off Administration** page. To enter time off, select **Time Off** on the **Settings** menu.
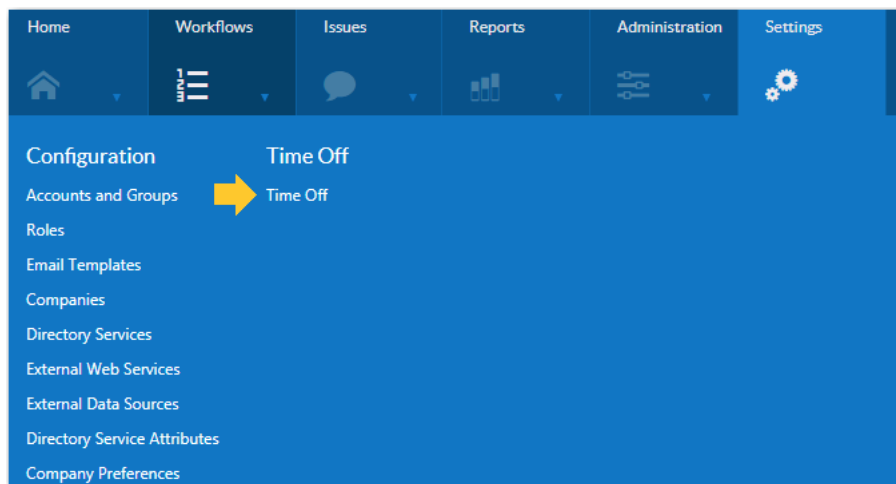
Figure 20: New Time Off Menu Item

Users enter time off records on the new **Time Off Administration** page.

Figure 21: Time Off Administration Page

All users can create and view their own time off records. However, to see time off records for all users who are members of the administrator company or one of its associated consumer companies, the user must belong to a role that has the **Time Off Admin** role permission. For more information, see New Time Off Role Permission.

- **Users without Time Off Admin role permission** can only submit a time off record for themselves. The logged in user's name appears in the **User name** field and is not editable.

- **Users with Time Off Admin role permission** can also submit time off records for other users, by searching for and selecting a user in using the **Search User** field.

Displaying Future Time Off on Work Assignment Screens

When completing a **Work Assignment** workflow step, after a user is assigned to a role, that user's scheduled time off for the selected **Time Off Window** is displayed in the in the **Next Time Off** column.

If, after assigning a user to a role, the manager sees that the selected user has upcoming time off scheduled, the manager can choose to assign another user to the role who is available.

You can adjust the time period by making a selection from the **Time Off Window** menu.

*Note • You can also view a user's scheduled time off in the **Next Time Off** column in the search grid when searching for a user to assign to a role.*

New Time Off Role Permission

All users can create and view their own time off records. However, a new role permission has been added to Workflow Manager to give a user permission to see time off records for all users who are members of the administrator company or one of its associated consumer companies. The new role permission is named **Admin** under **Time Off Admin**, and can be assigned to a role on the **Workflow Manager** tab of the **Role Details** page.
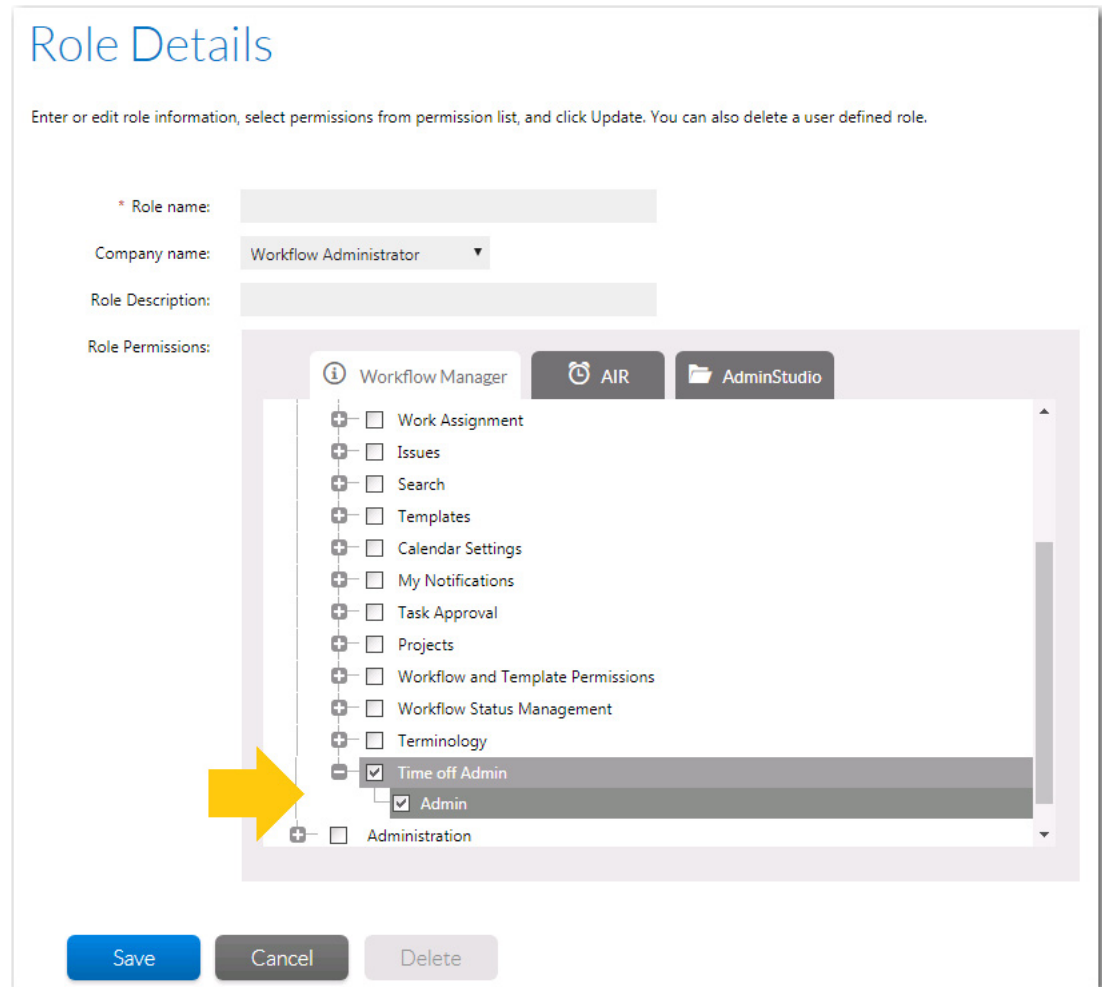
Figure 22: Time Off Role Permission on Role Details Page

Workflow Step Name is Now Displayed in the Workflow Step Panel

Note • *This feature was tracked as issue IOJ-1829634.*

In previous releases, the name of the selected workflow step on the **Progress** tab of the **Workflow Request** page was only displayed in the workflow step area on the left side of the screen, making it difficult to know which workflow step was selected.

In Workflow Manager 2017, the workflow step name is now displayed in the workflow step details area (where workflow steps are completed).
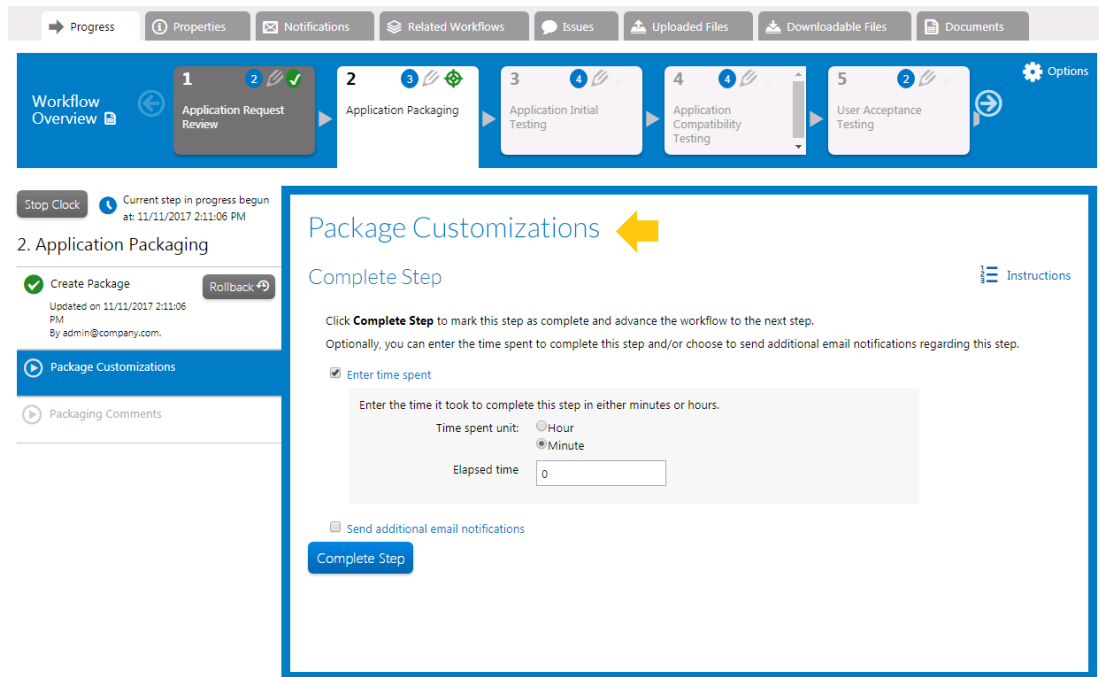
Figure 23: Workflow Step Name Displayed in Workflow Step Details Area

Data Group Name Now Displayed on Data Entry Screens

In Workflow Manager, for each data group defined in a workflow template, a separate data entry screen is displayed to the requester when submitting a workflow request based on that template. For example, if a workflow template has five data groups, such as in the **Data Group Details** screen below, the requester will be prompted to submit information on five screens.
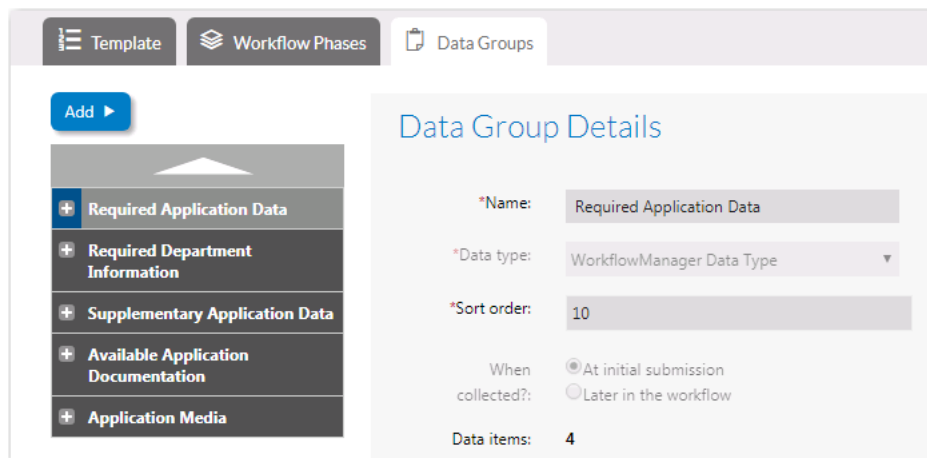
Figure 24: Data Groups in a Workflow Template

In Workflow Manager 2017, the data group name is now displayed at the top of the data entry screen, in a drop down list labeled **Current Page**.
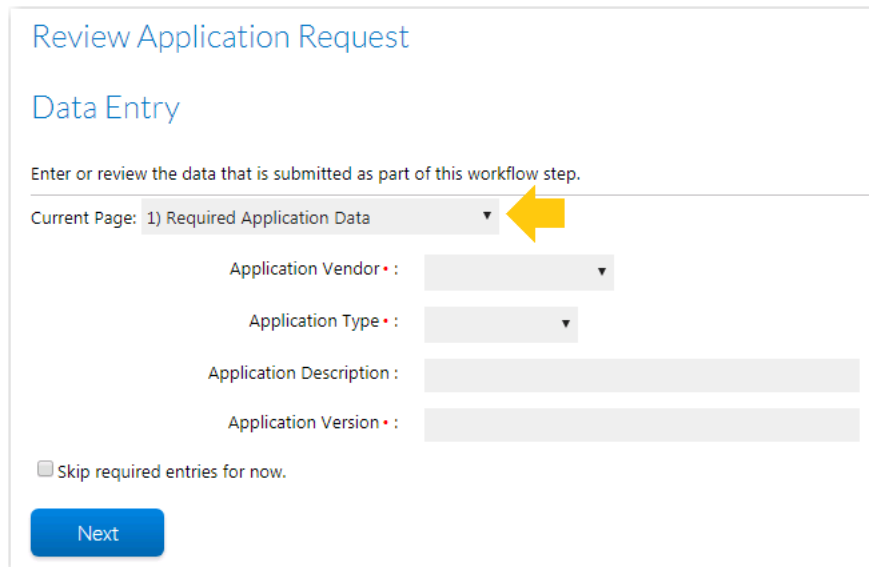
Figure 25: Current Page Field on Data Entry Screen

You can select a page from the list to jump to a different entry screen.

ValidateDataGroup and ValidateRequest Events Were Added to the iPlugin Interface

Note • *This feature was tracked in issue IOJ-1824904.*

In Workflow Manager 2017, two events were added to the iPlugin interface, which you can now use when writing custom plug-ins:

- ValidateDataGroup

- ValidateRequest

Note • *The IPlugin interface is the interface your custom plug-ins 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 plug-in can have custom code to link these events with external systems.*

ValidateDataGroup

Workflow Manager calls the `ValidateDataGroup` event when a user clicks the **Next** button on the initial data entry screen of a Workflow Request. Workflow Manager also calls this event when the user clicks the **Submit** button on steps that collect a data group later in the workflow.

The `ValidateDataGroup` event returns the following:

- Boolean (true/false) value to indicate whether all of the data values are valid.

- A set of error messages (strings) to display on the screen.

If `ValidateDataGroup` returns a false value to indicate that a data element is invalid, Workflow Manager does not advance to the next screen.

ValidateRequest

Workflow Manager calls the `ValidateRequest` event when a user clicks the **Submit Request** button on the final data entry screen at the beginning of the workflow. If `ValidateRequest` returns a false value, indicating that at least one value is invalid, Workflow Manager does not advance to the next screen.

Workflow Manager passes the names of the data elements and their values so that the function can validate them. Workflow Manager also displays the error message returned from `ValidateRequest` and `ValidateDataGroup`.

Note • For more information on `ValidateDataGroup` *and* `ValidateRequest`, *see the Workflow Manager Help Library.*

Resolved Issues

This section lists the customer issues that were resolved in the following releases of Workflow Manager:

- Update 2

- Update 1

- Workflow Manager 2017

Update 2

This section lists the customer issues that were resolved in Workflow Manager 2017 Update 2.

Issue	Description
IOJ-1835626	Email Notifications for certain phases\steps were being sent upon completion to users\Roles when Completed checkbox is Not checked for notifications.
IOJ-1857638	After you create a template and add a new role, the check boxes for the new role is empty by default in the Workflow Phase Permissions.
IOJ-1800604	A specific template (NSR 2) is not being rolled back as the rollback button is not working in the rollback dialog box.
IOJ-1874263	Approval Task step not working as expected, rejecting will advance the step/phase.
IOJ-1876585	There has been a typo found in NormalStep.cshtml and CustomPage.cshtml.
IOJ-1872509	If a user is selected in the auto assignment and run back and forth to complete the phase, the user should be re-selected in the auto assignment.

Update 1

This section lists the customer issues that were resolved in Workflow Manager 2017 Update 1.

Issue	Description
IOJ-1863285	Unable to access links from WFM when using a single sign on.
IOJ-1841457	Using the "Application Upload" and "AdminStudio Package Upload" data elements in the same workflow causes a conflict that will not allow the workflow to progress until the original package is deleted.

Workflow Manager 2017

This section lists the customer issues that were resolved in Workflow Manager 2017:

Issue	Description
IOJ-1758828	Make the Reports > Application Catalog Reports menu item visible to all users, including users in consumer companies.
IOJ-1759712	Request ability to display only relevant roles when completing a Work Assignment workflow step.
IOJ-1760484	Make it easier and quicker to copy an existing workflow request.
IOJ-1811140	Popup HTML file does not look for files in correct subfolder folder during preview.
IOJ-1813902	Make the Reports > Search Packages menu item visible to all users, including users in consumer companies.
IOJ-1823608 **IOJ-1829610**	Request to be able to add configurable menu items to the main navigation bar.
IOJ-1823616	Request to be able to add configurable menus items to the Options menu on the Progress tab of the Workflow Request page.
IOJ-1824904	Request to add ValidateDataGroup and ValidateRequest events to iPlugin interface.
IOJ-1827554	Request ability to specify internal name for data elements for use in custom reporting.
IOJ-1829463	When adding contacts as part of a data entry step, request ability to perform a predictive search for contacts from directory service.
IOJ-1829619 **IOJ-1829620** **IOJ-1829622**	Request addition of "time off" functionality to enable users to enter future time off and to enable future time off to be displayed on work assignment screens.
IOJ-1829634	Request to display the workflow step name in the workflow step panel area.

System Requirements

This section lists the system requirements for Workflow Manager.

- Workflow Manager Web Server

- Workflow Manager / AdminStudio Database Server

- File Share Server

- Workflow Manager End User Computers

- Portal Web Server for Intranet Clients

- Portal Web Server for Internet Clients

- Workflow Manager System Account Requirements

Workflow Manager Web Server

The following table lists the system requirements for the Web server that hosts the Workflow Manager Data Web service and the actual Workflow Manager Web site.

Item	Description
Processor	32-bit or 64-bit processor at 2 GHz or greater. *Note •* *Workflow Manager runs in 32-bit mode on a 64-bit OS.*
RAM	4 GB or greater (8 GB preferred)
Hard Disk Space	100 GB or greater
Operating System	Windows Server 2008 R2 or later / English base language (Windows Server 2012 preferred)
IIS	IIS 7.0 or later
.NET Framework	.NET Framework 4.6.1 or later
ASP.NET	ASP.NET 4.0.30319 or later
MSXML	MSXML 6.0 *Note •* *MSXML is installed by the Workflow Manager installer.*

Workflow Manager / AdminStudio Database Server

This following table lists the recommended system configuration for a Workflow Manager/AdminStudio Application Catalog database server:

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Note • While minimum requirements are listed below, the recommended system configuration for a database server is dependent upon the number of users and the number of packages that will be imported into the Application Catalog database

Item	Description
Processor	32-bit or 64-bit processor at 2 GHz or greater
RAM	4 GB or greater (8 GB preferred)
Hard Disk Space	80 GB or greater
Operating System	Windows Server 2008 R2 or later (Windows Server 2012 preferred)
Database Software	SQL Server 2008 R2 or later databases, including SQL Server 2012 and SQL Server 2014 (latest version preferred) • **Dictionary sort order**—SQL Server must be installed with case-insensitive dictionary sort order 52 on Code Page 1252 for non-Unicode data. For more information, use the `sp_helpsort` T-SQL command, which returns the following: `Latin1-General, case-insensitive, accent-sensitive, kanatype-insensitive, width-insensitive for Unicode Data, SQL Server Sort Order 52 on Code Page 1252 for non-Unicode data` • **Collation setting**—`SQL_Latin1_General_CP1_CI_AS` is the required collation setting for AdminStudio database server. It is the only supported collation. 📄 *Note • Before attempting to connect to an existing Microsoft SQL Server, open SQL Server Configuration Manager and make sure that the following three protocols are enabled:* • *Shared Memory* • *Named Pipes* • *TCP/IP*

File Share Server

This following table lists the system requirements for the machine that stores Workflow Manager's uploaded source files and the repackaged output files:

Item	Description
Processor	2 GHz or greater
RAM	2 GB or greater
Hard Disk Space	1 TB or greater
Operating System	Windows Server 2008 R2 or later

Workflow Manager End User Computers

This following table lists the recommended system configuration for a Workflow Manager 2017 end user machine:

Item	Description
Browser	• Microsoft Internet Explorer 9.0 or later • Chrome for Windows 33.0 or later • Firefox for Windows 25.0 or later • Safari for Mac OS X and iOS
Monitor Resolution	1024 x 768 pixels or higher

Portal Web Server for Intranet Clients

A portal is not required to support Windows NT authentication. You can enable Windows NT authentication directly on the web site.

Single sign-on is only supported when the user that logs into IIS has been imported into the Workflow Manager database using Active Directory. The administrator can either import the complete group or only one user. If a complete group is imported, then all the members of the group can be logged into Workflow Manager using single sign-on.

The system requirements for this machine are the same as for the Workflow Manager Web Server.

Portal Web Server for Internet Clients

For better security and to manage access to the Workflow Manager Web Server, it is recommend to also set up a portal Web server for Internet clients.

If Workflow Manager needs to be accessed over the Internet, it is recommended to set up a portal Web server, residing in a demilitarized zone (DMZ). This Web server:

- accepts the requests from the Internet clients,

- forwards them to the Workflow Manager,

- gets responses from the Workflow Manager, and

- forwards them to the clients

You can configure the Workflow Manager to entertain the request only if it is coming from the Portal Web server, and otherwise reject the request. The Portal Web server manages access to Workflow Manager and ensures that clients are not able to access any data or documents without logging in.

The system requirements for this machine are the same as for Workflow Manager Web Server.

Workflow Manager System Account Requirements

The AMS_SYSTEM account on the Workflow Manager server requires the following privileges:

- **IIS_WPG group member**—Must be a member of the local IIS_WPG group (or IIS_USRS) on the web server.

- **Modify permissions on file share**—Must have "modify" permissions on the Workflow Manager file share.

- **Email permissions**—Must have permission to send e-mail through the SMTP server.

- **Active Directory query permission**—Must have permission to query Active Directory.

- **Local Administrators group member**—If Workflow Manager will be calling any of the AdminStudio Platform APIs in the iPlugin DLL, the AMS_SYSTEM account must be a member of the local Administrators group.

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