# Workflow Designer

## User Guide

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# What is Workflow Designer?

Workflow Designer provides administrators with the ability to graphically create queues and routes for their workflow processes, create rules and scripts to help manage items as they move through queues, customize workflow views, and more.

In Workflow Designer, you set queue-specific privileges that give users and groups the ability to add, process, archive, delete, or remove workflow items.

# What is a workflow view?

A workflow process view is a mechanism that displays workflow items according to the view definition that you create for your users.

Workflow views are available at the process or queue level. You can create a view for each process in your environment. In addition, you can define a single view for each queue in a process.

In Workflow Designer, you can configure workflow views that are preset to display only the columns your users need to see or work with, including custom property columns. You can also predefine sort order and grouping of items within the view. This feature saves time for users, who are no longer required to manually adjust the columns, sorting, and grouping each time they display search results.

When you configure process and queue views, the following conditions apply to the search results grid:

- When both user defined process and queue views are present, the queue view is the view that displays.
- When there is a user defined process view, but there are no user defined queue views, the process view is the view that displays.
- When neither a process nor a queue view is defined, a system view displays.
- Changes you make to views while in ImageNowExplorer revert to the defined process or queue view when you end a client session. To save your changes, create a private filter.

You can also define document, folder, and task views in View Designer and folder content views in Management Console.

# What is a workflow process?

A workflow process is a series of queues, routes, tasks, and rules reflecting the review path a workflow item must take in order to meet the sign off and approval requirements of your work group.

Queues and routes are the basic building blocks of a workflow process. Queues are connected by routes, and you can apply rules, alarms, and actions to your process in order to meet more advanced requirements. Each department in an organization can manage its own process.

There are three major types of workflow processes:

- `Ad-hoc workflow` Used by dynamic workgroups that run individual processes for each item, which typically relies heavily on e-mail and the use of alerts.
- `Transaction-based workflow` This is a task-based workflow that usually involves lengthy and complicated processes, such as loan or claims processing, that involves multiple document and folder types and a high level of customization.
- `Document-centric workflow` Focus is on the document as the unifying object in the workflow process. Documents are associated with owners, applications, rules, and routes.

For example, an accounts payable process typically involves invoice processing. To review invoices over a certain dollar amount requiring a higher level of approval, you can create your own process with tasks and rules that capture this subset of invoices for special review.

# Get started

## Queue action icons

When a queue has one or more actions, you can identify which queues in the process diagram are associated with these actions by the icons visible in the queue. The actions represented by these icons are described in the following table.

| Action Icon | Icon Type | Description |
|---|---|---|
| | Enabled alarm | The queue has at least one enabled alarm. |
| | Inactive alarm | The queue has one or more inactive alarms. No enabled alarms are associated with the queue. |
| | Inbound action | The queue has an inbound action. |
| | Within queue action | The queue has a within queue action. |
| | Outbound action | The queue has an outbound action. |
| | Inbound and outbound actions | The queue has an inbound action and an outbound action. |
| | Inbound and within queue actions | The queue has an inbound action and an action within the queue. |

| Action Icon | Icon Type | Description |
|---|---|---|
| | Within queue and outbound actions | The queue has an action within the queue and an outbound action. |
| | All three action types | The queue has one of each action type. There is an outbound, inbound, and a within action on this queue. |

## Queue menu bar

You can open a specific pane in the Queue Properties dialog box for any queue in Workflow Designer. When you right-click a queue, the following options are available.

| Name | Description |
|---|---|
| Actions | Opens the Actions pane for this queue. |
| Alarms | Opens the Alarms pane for this queue. |
| Appearance | Opens the Appearance pane for this queue. |
| Applications | Opens the Applications pane for this queue. |
| Forms | Opens the Forms pane for this queue. This option is available only when a Worksheets or Forms license is installed on your system. |
| Properties | Opens the Properties pane for this queue. |
| Queues | Opens the Queues pane for this queue. This option is available for super queues only. |
| Reasons | Opens the Reasons pane for this queue. |
| Removal | Opens the Removal pane for this queue. |
| Routes | Opens the Routes pane for this queue. |
| Sub Queues | Opens the Sub Queues pane for this pane. This option is available for super queues only. |

| Name | Description |
|---|---|
| Users | Opens the Users pane for this queue. This option is available only for work and super queues. |
| Convert to Sub Queue | Converts this queue to a sub queue. This option is available for work queues only. At least one super queue must exist in the process. |
| Convert to Work Queue | Converts this queue to a work queue. This option is available for system queues only. |
| Move to Process | Moves this queue to another process. This option is available for work, system, and super queues. |

## Change process diagram settings

You can change the settings for a process diagram to include gridlines, force queues and routes to snap to gridlines, and more. To change process diagram settings, complete the following steps.

The options on the Grid toolbar can have unexpected results so you may want to test the effects on a small process before trying it on a larger process as there is no undo feature in Workflow Designer.

1. On the **Grid** toolbar, perform one of the following actions.
   - To turn the display of the gridlines on or off for the process diagram, click the **Toggle Grid** button.
   - To force queues and routes to line up with the process diagram gridlines, click the **Snap to Grid** button.
   - To disable users from moving any objects, such as queues or routes, on the process diagram, click the **Toggle Grid Read Only** button.
   - To enable shadows for objects on the process diagram, click the **Enable Shadows** button.

# Customize workflow settings

## Customize task pane buttons

You can customize the Task pane buttons by selecting the amount of buttons to display and which buttons to display. To customize the Task pane buttons, complete the following steps.

1. Open the workflow process for which you want to customize **Task** pane buttons.
2. To show the **Task** pane, click **View > Task Pane**.
3. On the **Task** pane, complete one or both of the following actions.
   - To show more or fewer task pane buttons, click the **Configure buttons** drop-down and then click

**Show More Buttons** or **Show Fewer Buttons**.

- To add or remove task pane buttons, click the **Configure buttons** drop-down, point to **Add or Remove Buttons**, and then click **Queues**, **Routes**, or **Actions**.

# Define sort order of a workflow view

You can preset the order of workflow item sorting as part of a view definition. To define the sort order of a workflow view, complete the following steps.

1. In **Workflow Designer**, double-click the workflow queue.
2. In the **View Preview** window, right-click the heading of the column on which you are sorting.
3. Click **Sort Ascending** or **Sort Descending**.

# Turn workflow pane auto hide on

You can configure workflow panes to hide automatically when you are not using them. To turn workflow pane auto hide on, complete the following steps.

1. In the **Task** pane, click the **Auto Hide** button.
2. In the **Overview** pane, click the **Auto Hide** button.

**Result** If the pin button shows the pin facing down, auto hide is off.

**Next** If the pane is docked, hold the mouse button over the pane tab on the left side of the workflow grid until the pane is undocked.

# Delete text or comments from a process

To delete text or comments from a workflow process, complete the following step.

1. In **Workflow Designer**, in the process diagram, select the text or comments box that you want to delete.
2. Press `DELETE`.

# Enable a removal method

You can enable Perceptive Content to automatically archive, remove, or delete items from a workflow queue after a specified amount of time. To enable a removal method, complete the following steps.

When you select the Archive or Remove from workflow method, the document or folder associated with the item remains in the Perceptive Content system.

1. Double-click the queue.
2. In the **Queue Properties** dialog box, in the left pane, click **Removal**.
3. In the right pane, under **Select a removal method below**, complete one of the following actions.

| Situation | Steps |
| --- | --- |
| To allow an item to stay in the queue indefinitely. | • Select **None**. |
| To remove the item but retain the item history for reporting purposes. | • Select **Archive**. Note that archiving may not occur when a Within Queue action is set for the queue. |
| To remove the item and its history from workflow. | • Select **Remove from workflow**. |
| To delete the item, item history, and associated document from Perceptive Content. | • Select **Delete from system**. |

4. Under **Selected removal method will be applied for items older than**, set the **Days**, **Hours**, or **Minutes** that an item remains in this queue before it is archived, removed, or deleted.

# Queues

## Draw a container around queues

Containers let you highlight one or more queues to indicate a relationship or grouping between them. If you have many queues in a process, this color-coding option makes it easier to identify parts of your process quickly. To draw a container around queues, complete the following steps.

1. On the **Grid** toolbar, click **Draw Container**.
2. Click and drag around the queues to draw a container.
3. Optional. To change the default container background or border color, complete the following substeps.
    1. Verify that the **Box Properties** pane is displayed. If it is not displayed, click **View > Box Properties**.
    2. Select the container you want to change.
    3. In the **Box Properties** pane, under **Box Color**, select a **Background** or **Border** color.

## Turn on queue shadow effect

To create a three-dimensional effect on each workflow object in a process diagram, complete the following step.

- On the Grid toolbar, click the Enable Shadows button.

# Workflow Agent performance tuning

You can tune Workflow Agent to accommodate environments of different sizes. For systems that have complex workflow processes, we highly recommend that your system administrator optimizes workflow performance and throughput. Workflow Agent provides various configuration settings that you can adjust to improve performance.

## Workflow Agent queue processing

Each Workflow Agent polls available queues for work after a set duration. Once the duration has elapsed, queues are acquired by a running Workflow Agent and checked for any outstanding work items. If there are work items that need processing, then Workflow Agent selects a subset of the work items to work on. The number of work items selected are based on the average time it takes a work item to complete. This ensures that longer running work items do not starve out work items for other queues. If an acquired queue does not have any work that needs processing, then polling for the queue will not occur again until after the `empty.queue.delay.seconds` setting has elapsed.

## Worker tuning

The `num.workers` setting determines how many worker threads each Workflow Agent can use to simultaneously process work items. This setting also governs the number of queues that an agent is able to monitor for work items at one time. If a system has a large number of workflow queues, we recommend increasing this setting based on available system resources. System administrators need to ensure that they do not increase this value past the capabilities of the host system, otherwise they can introduce throttling which greatly reduces throughput.

The `num.workers` setting determines how many worker threads each Workflow Agent can use to simultaneously process work items. By default, this setting also governs the number of queues that an agent is able to monitor for work items at one time. If a system has a large number of workflow queues, we recommend increasing this setting based on available system resources. System administrators need to ensure that they do not increase this value past the capabilities of the host system, otherwise they can introduce throttling which greatly reduces throughput.

A reasonable initial value for `num.workers` is based on the number of cores of the host that the agent is running on.

The `manual.lease.semantics.enabled`and `workflow.leases.per.instance` settings have been introduced to decouple the lease limit from the `num.workers` setting. It is recommended that system administrators enable this functionality to ensure that queues can be monitored in a timely fashion without having to increase the `num.workers` past the recommended limits for the host.

If `manual.lease.semantics.enabled` is TRUE, a reasonable initial default value for `workflow.leases.per.instance`is number of `workflow queues / number of workflow running instances`. This will ensure that all workflow queue s will be monitored for work in a timely fashion.

work.queue.type.work.items.minimum and work.queue.type.work.items.maximum can be adjusted to ensure that the number of work items can be appropriately regulated. If you have a lot of long running work, you can increase throughput by adjusting work.queue.type.work.items.minimumto ensure that at least this number of work items is consistently pulled off for work. These work items will be split across the minimum.work.item.batches to be able to control the degree of parallelism for these work items, when the number of items pulled does not exceed the batch.work.items.maximum. If you have queues with a lot of quick action items, the work.queue.type.work.items.maximum setting can be adjusted to limit the number of items that are pulled for work at one time. The max degree of parallelization for this queue s action type will be work.queue.type.work.items.maximum / batch.work.items.maximum. It is recommended for initial tuning that this not exceed the number of configured worker threads and can be adjusted as necessary to meet throughput targets.

## Puller tuning

The num.pullers settings determines how many queues can simultaneously be polled for work by each Workflow Agent If you have a large number of queues, you should increase this setting to ensure all queues can be polled within the empty.queue.delay.seconds time period.

A reasonable initial value for num.pullers is 3.

The agent.sleep.duration.seconds setting should be updated to 1. This increases the rate at which queues are checked for work.

## Empty queue delay tuning

After worker tuning and puller tuning, it may be beneficial to increase the empty.queue.delay.seconds setting based on the current limitations of the system. If you have a large number of action queues in the system and your Workflow Agent State Next Run Time Spreads are not able to get near the empty.queue.delay.seconds setting's value, increasing this value adjusts the targeted delay between work items to better represent the capabilities of the system. You can also adjust this setting if a large number of inactive queues exist in the system, increasing this value minimizes the number of times that an empty queue needs to be polled for work.

## Determining workflow health

**Workflow Agent state next run time spread**

You can monitor the IN_WF_AGENT_STATE table to check the health of a system. The relevant information that can be derived is by looking at the NEXT_RUN_TIME column of the records. If these records are processed in a timely manner, the expectation is that the difference between the MAX(NEXT_RUN_TIME) and MIN(MIN_RUN_TIME) record without a lease is near the empty.queue.delay.seconds time. The following SQL statements can be used to derive the MAX and MIN records in the table.

```
-- Microsoft SQL Server and Oracle

select MIN(NEXT_RUN_TIME) from inuser.IN_WF_AGENT_STATE where AGENT_LOCK is
null;
```

```
select MAX(NEXT_RUN_TIME) from inuser.IN_WF_AGENT_STATE where AGENT_LOCK is
null;
```

Once these values are retrieved, they can be subtracted to derive the standard time wait for a workflow queue action to be processed.

The following statement can be used to show how many work action queues are eligible to be processed but have not yet been. A high value indicates that the system is over saturated and needs to be tuned further by adjusting the num.workers and num.pullers settings.

```
-- Microsoft SQL Server

select count(*) from inuser.IN_WF_AGENT_STATE where AGENT_LOCK is null and
NEXT_RUN_TIME < GETUTCDATE();

-- Oracle

select count(*) from inuser.IN_WF_AGENT_STATE where AGENT_LOCK is null and
NEXT_RUN_TIME < SYS_EXTRACT_UTC(CURRENT_TIMESTAMP);
```

# Application plans

## Enable application plan linking on a queue

Enabling application plan linking on a queue allows your application plan to assign location, folder, and document property values to captured documents within the queue. To enable application plan linking on a queue, complete the following steps.

1. Double-click the queue.
2. In the **Queue Properties** dialog box, in the left pane, click **Applications**.
3. In the right pane, click the **Application Plans** tab.
4. Select the **Allow linking from this queue** check box.
5. In the **Available Plans** list, select the application plan you want to link from, and then click **Add**. Repeat this step for each application plan you want.

   Selecting this check box prevents overwriting the existing values in any of the document keys. This includes replacing an existing value with no value. Without this selected, every key is updated, based on the configuration of the application plan, even if a field is undefined in the application plan. An undefined key will overwrite (null) a value stored from the capture profile.
6. Optional. Click the **Key Attributes** tab and select the **Update only empty key values** check box.
7. Optional. Modify the key attributes privileges if needed. Key attributes include **Location**, **Name**, **Field1**, **Field2**, **Field3**, **Field4**, **Field5**, **Type**, and **Document** and **Folder Custom Properties**.
   - To enable an attribute setting, click the column in front of the attribute until the green icon appears.
   - To disable an attribute setting, click the column in front of the attribute until there is no green icon.
8. Click **OK**.

## Enable application plan validation on a queue

Enabling application plan validation on a queue allows Perceptive Content to validate workflow items against your application plan when they are routed forward or back in the workflow process. To enable application plan validation on a queue, complete the following steps.

1. Double-click the queue.
2. In the **Queue Properties** dialog box, in the left pane, click **Applications**.
3. In the right pane, click the **Application Plans** tab.
4. Under **Host Validation**, select the **Validate workflow items against application plan when routing forward** check box if you want the document key validated when workflow items are routed forward to the next queue in the process.
5. Select the **Validate workflow items against application plan when routing back** check box if you want the document key validated when workflow items are routed back to the queue they last came from in the process.
6. In the **Validation** application plan list, select the application plan you want to use for validation.

   Selecting this check box prevents overwriting the existing values in any of the document keys. This includes replacing an existing value with no value. Without this selected, every key is updated, based on the configuration of the application plan, even if a field is undefined in the application plan. An undefined key will overwrite (null) a value stored from the capture profile.
7. Optional. Click the **Key Attributes** tab and modify the key attributes privileges if needed. Key attributes include **Location**, **Name**, **Field1**, **Field2**, **Field3**, **Field4**, **Field5**, **Type**, and **Document** and **Folder Custom Properties**.
   - To enable an attribute setting, click the column in front of the attribute until the green icon appears.
   - To disable an attribute setting, click the column in front of the attribute until there is no green icon.
8. Click **OK**.

## Modify application plan key attributes

You can modify the application plan key attribute settings for a queue to make the fields modifiable, allow them to remain blank, and to allow host entry validation. To modify application plan key attributes, complete the following steps.

**Prerequisite** You must enable application plan linking or application plan validation on the queue for these settings to take effect.

1. In **Workflow Designer**, double-click the queue.
2. In the **Queue Properties** dialog box, in the left pane, click **Applications**, and then in the right pane, click the **Key Attributes** tab.
3. Optional. Select the **Update only empty key values** check box.

   Selecting this check box prevents overwriting the existing values in any of the document keys. This includes replacing an existing value with no value. Without this selected, every key is updated, based on the configuration of the application plan, even if a field is undefined in the application plan. An undefined key will overwrite (null) a value stored from the capture profile.

4. Modify the key attributes privileges if needed. Key attributes include **Location**, **Name**, **Field1**, **Field2**, **Field3**, **Field4**, **Field5**, **Type**, and **Document and Folder Custom Properties**.
   - To enable an attribute setting, click the column in front of the attribute until appears.
   - To disable an attribute setting, click the column in front of the attribute until there is no green icon.

   **Note:** Modifying settings for the **Location**attribute affects the **Drawer** and **Path** fields in the **Properties** pane in **ImageNowViewer**. For example, with the appropriate privileges in place, enabling the **Modifiable** setting allows the user to move a document from a drawer to a folder from the **Properties** pane. After a user saves the path, the **Path** field replaces the **Drawer** field.
5. Click **OK**.

# Work with processes

## What is a workflow process?

A workflow process is a series of queues, routes, tasks, and rules reflecting the review path a workflow item must take in order to meet the sign off and approval requirements of your work group.

Queues and routes are the basic building blocks of a workflow process. Queues are connected by routes, and you can apply rules, alarms, and actions to your process in order to meet more advanced requirements. Each department in an organization can manage its own process.

There are three major types of workflow processes:

- `Ad-hoc workflow` Used by dynamic workgroups that run individual processes for each item, which typically relies heavily on e-mail and the use of alerts.
- `Transaction-based workflow` This is a task-based workflow that usually involves lengthy and complicated processes, such as loan or claims processing, that involves multiple document and folder types and a high level of customization.
- `Document-centric workflow` Focus is on the document as the unifying object in the workflow process. Documents are associated with owners, applications, rules, and routes.

For example, an accounts payable process typically involves invoice processing. To review invoices over a certain dollar amount requiring a higher level of approval, you can create your own process with tasks and rules that capture this subset of invoices for special review.

## Create a workflow process

A workflow process contains a series of tasks and rules reflecting the review path a workflow item must take in order to meet the sign off and approval requirements of your work group. To create a workflow process, complete the following steps.

1. In **Management Console**, in the left pane, under **Select Department**, select a department from the list.
2. In the left pane, click **Workflow**.

3. In the right pane, on the **Workflow** tab, click **New**.
4. In the **Add Process** dialog box, type a name and an optional description.

   The description appears in the ToolTip for the process.
5. Click **OK**.

**Next** Create queues, routes, and rules to define the components in your new workflow process in Workflow Designer.

# Create a process view

A workflow process view displays workflow items according to the view definition that you create for your users at the process level in Workflow Designer. To create a workflow process view, complete the following steps.

1. In **Workflow Designer**, click **File > Properties**.
2. In the **Process Properties** dialog box, in the **Name** box, type a unique name.
3. Optional. In the **Description** box, type a short description.
4. Under **Appearance**, complete one or more of the following actions:

| Situation | Action |
|---|---|
| Set preferences for how columns and statistics display in the view | 1. Click the **Preview** button.<br>2. In the **View Preview** window, make any needed adjustments, such as adding or resizing columns.<br>3. Click **OK**. |
| Set maximum results that display in the view | • In the **Maximum results** list, type or select a number. |
| Set the view to automatically run | • Select the **Automatically run this view** check box. |
| Restore the default view, which removes your changes | • Click the **Restore Default View** button. |

5. Click **OK**.

# Rename a workflow process

To change the name of a workflow process, complete the following steps.

1. In **Management Console**, in the left pane, under **Select Department**, select a department from the list.
2. In the left pane, click **Workflow**.

3. In the right pane, on the **Workflow** tab, select a process and then click **Rename**.
4. Enter a new name for your process.

# Modify a workflow process

To modify a workflow process, complete the following steps.

**Prerequisite** All other users must close the process.

1. In **Management Console**, in the left pane, under **Select Department**, select a department from the list.
2. In the left pane, click **Workflow**.
3. In the right pane, on the **Workflow** tab, select a process and then click **Modify**.
4. When you are finished modifying your workflow process, close **Workflow Designer**.

# Delete a workflow process

To delete a workflow process and remove all workflow items in its associated queues from workflow, complete the following steps.

**Prerequisite** All users must close the process before it can be deleted.

1. In **Management Console**, in the left pane, under **Select Department**, select a department from the list.
2. In the left pane, click **Workflow**.
3. On the **Workflow** tab, select a process and then click **Delete**.
4. In the **Delete Process** confirmation box, to remove items from the queues in this process and then delete the process, select the **Remove all items from workflow and then delete this process** check box and then click **Yes**.

# Hide Workflow Designer components

When you work with a process, you can hide components such as comments, containers, and routes. To hide Workflow Designer components, complete the following steps.

When you open a process, all components are selected and appear in Workflow Designer by default.

1. In **Workflow Designer**, on the **View** menu, point to **Components** and complete one or more of the following actions.
   - To hide all comments that appear in a process, clear the **Comments** check box.
   - To hide all containers that appear in a process, clear the **Containers** check box.
   - To hide routes, point to **Routes** and then clear the **Auto**, **Conditional**, **Conditional Parallel**, or **System** check box. To hide all routes in the process, clear the **All** check box.
   - To hide all text that appears in the process, clear the **Text** check box.

# Add text or comments to a process

You can add text or comments to a workflow process to provide supporting information relating to the process. The Text option adds text to the process diagram, while the Comment option adds text with a surrounding border. To add text or comments to a workflow process, complete the following steps.

1. On the **Grid** toolbar, perform one of the following actions.
   - Click the **Add Comment** button.
   - Click the **Text** button.
2. Click and drag a text box in the area you want to add text.
3. Perform one of the following actions.
   - To add a text that is not a comment, double-click inside the box in order to begin typing.
   - To add a comment, type your message.
4. Click outside of the text box to see your results.

# Create a route between processes

A route can connect a workflow queue in one process to a workflow queue in a different process. To create a route between workflow processes, complete the following steps.

1. In **Workflow Designer**, complete the following substeps.
   1. Double-click the queue from which you want to start the route.
   2. In the **Queue Properties** dialog box, in the left pane, click **Routes**.
   3. On the **Routes Out** tab, click **Add**.
   4. In the **Add Route Out** dialog box, click the **Destination** tab.
   5. In the **Business Process** list, click the process to which you want to create a route.
   6. Under **Available queues**, select the queue you want to route to and click **Add**.
   7. Repeat the previous substeps for each queue to which you want to create a route.
2. Click **OK** twice.

# Use overview pane to locate queues

The workflow Overview pane helps you locate specific objects on process diagrams quickly. To use the Overview pane to locate queues, complete the following steps.

1. In the **Overview** pane, use the scrollbars to locate the area of the process diagram you want to access.
2. In the pane, click that area to move to the corresponding area on the process diagram.

# Print a workflow process

To print a copy of the workflow process as it appears on the process diagram, complete the following steps.

1. To print the workflow process, click **File > Print**.
2. On the **Print** dialog box, make any desired changes to the print properties and settings and then click **OK**.

## Zoom in or out of process diagram

To zoom in on or out of a process diagram, complete the following steps.

1. On the **Grid** toolbar, perform one of the following actions:
   - Click the **Zoom In** button.
   - Click the **Zoom Out** button.
2. Repeat the previous step to continue zooming in or out until you reach the desired zoom level.

## Export a process drawing

From Workflow Designer, you can export workflow process drawings to bitmap files. To export a process drawing, complete the following steps.

1. In **Workflow Designer**, click **File > Export**.
2. In the **Save As** dialog box, complete the following substeps.
   1. In the **Save in** list, select the location to which to save the exported file.
   2. In the **File name** list, type a file name.
   3. In the **Save as type** list, verify that **Bitmap** is selected.
   4. Click **Save**.
3. Close **Workflow Designer**.

# Work with queues

## What is a queue?

Queues are one of the basic building blocks of a workflow process.

A workflow process is comprised of queues and routes that move items through your business processes. A workflow item is the base component for workflow and it references a specific document or folder in Perceptive Content. It is routed from queue to queue until it reaches its destination. These queues are linked by routes.

Automated system queues - An Automated system queue (ASQ) is a predefined queue that performs a specific action. For example, a Content ASQ automatically submits items to Content Server. A Transfer ASQ sends items in the queue to the Object Storage Manager set that you specify when creating the queue.

- `Super queues` - A Super queue redistributes workflow items to a collection of distinct queues that perform the same workflow function. These sub queues reduce the number of alarms, routes, and rules needed.
- `System queues` - A System queue performs an action that does not require user intervention. For example, a queue that automatically prints documents or faxes. The action is usually performed with a rule or script.
- `Work queues` - A Work queue is a queue that is assigned to one or more users who are performing the same action upon the same workflow items within the queue.

- `Complete queue property` - This queue property sets the queue as the final queue in a process. Any work, system, or super queue is allowed to be a Complete queue.
- `Join queue property` - This queue property rejoins workflow items that have been routed in parallel. Any work, system or super queue is allowed to be a Join queue.

# What is a super queue?

A super queue is a queue that redistributes workflow items to a distinct collection of sub queues that perform the same workflow function.

Super queues reduce the management of alarms, routes, actions, and rules by centralizing the administration of the queues contained within the super queue. The queues within a super queue are unique queues that work in parallel to process documents for a specific business function. For example, AP approval is a specific business function.

Super queues provide the following benefits:

- Shorter process setup times
- Significant reduction in the management overhead for queues, alarms and routes
- Sub queues are transparent to the workflow user
- Sub queue users are automatically assigned the necessary privileges
- Sub queues can be created manually or automatically

# What is queue conversion?

The queue conversion tool allows you to easily redesign an existing workflow process.

You can use the queue conversion tool to convert a work queue to a sub queue or to convert a system queue to a work queue within the same process. The work queue to sub queue conversion is used to simplify a workflow process. You can convert multiple work queues that are performing the same function to sub queues by adding them to a super queue. The system to work queue conversion provides additional flexibility for changing a process. Use this conversion type when you want the ability to scan into a system queue.

As part of the conversion process, workflow items that exist in the work and system queues are transferred to the new queue type. Additionally, after the conversion process completes, the work and system queues are removed from the process and no longer appear in Workflow Designer.

# Types of queue actions

Use queue actions when you want specific events to occur on workflow items. You can assign three types of actions to queues: the inbound queue action, the within queue action, and the outbound queue action. The following table describes these action types in more detail.

**Inbound queue action**

Inbound actions are applied as workflow items enter the queue. You can specify an interval of time to wait before the inbound action occurs by selecting or entering a number in the Process after box and designating the period, such as minutes or seconds in the Period box. You must enter a number larger than zero in the Process after box. The workflow item does not display to users as being in this queue until the inbound action is executed.

You can use iScript for inbound actions but not workflow rules.

If you have a case where one document key value is updated based on the value of another document key. For example, if Field3 = X, set Field1 to Y.

**Within queue action**

Within queue action are applied as workflow items remain in the queue for a specified interval of time. Specify the interval unit in minutes, hours, or days in the Waiting Period section.

You can either use iScript or workflow routing rules.

To route a workflow item to different queues based on a condition or set of conditions, you can construct a conditional routing rule for the routing queue that accomplishes this action.

**Outbound queue action**

Outbound actions apply as items leave the queue.

You can use iScript for outbound actions, but not for workflow rules.

If you need a stamp annotation added to each workflow item as it leaves the queue, you can write an iScript to accomplish this action.

# What are automated system queues?

Automated system queues (ASQs) are queues that perform a specific action on the items you route to them.

ASQs automate actions that previously required a custom iScript. The Content ASQ submits items to Content Server the Transfer ASQ saves documents in an OSM set specified by the queue, and the Convert Form ASQ converts supplemental and stand-alone forms from HTML to TIF.

ASQs appear in the Queues pane in Workflow Designer and require minimal configuration. To configure an ASQ, you select the process and queue to which to send items when the automated action is complete. You can route items to ASQs using all of the supported routing options, including sequential, sequential auto, parallel, or parallel conditional routes. Depending on the action ASQ performs, you might require additional product installation and licensing. For example, to submit items to a Content ASQ, you must install and license Content Server. If you do not have a Content Server license, the Content ASQ does not appear in Workflow Designer.

# What are Connect ASQs?

The Connect automation system queue (ASQ) sends web service notifications to your business applications.

Suppose you are the AP Manager and want to reduce the time and cost associated with processing invoices. To meet these requirements, you implement an Connect ASQ. As an invoice enters this queue, Perceptive Content sends a web service notification to the business application URI (Uniform Resource Identifier). The business application receives the data you configure, such as invoice header and GL distribution information, and creates the necessary payables invoice transaction, payment batch, and associated GL distributions. Your business application can route the item to the success or failure queue depending on the process results using a route item message sent to Integration Server.

To use the Connect ASQ, you must configure the *connect.uri* setting in the *inserverWorkflow.ini* file, to define the REST endpoint that is invoked for each item in the queue. If the *connect.uri* setting is not present, the Connect ASQ queue displays but does not process any items. Additionally, to access Perceptive Content from your business application, you must have an Integration Server license.

# What are Convert Form ASQs?

A Convert Form ASQ is a queue that converts stand-alone and supplemental form types from HTML to TIF.

Converting a form to TIF gives you the ability to annotate or email that form. For example, suppose you are the director of HR and your department uses a form to capture employee 401K benefit information. When an employee requests a copy of this information, you can email him or her the TIF version of the form.

Workflow Designer's Convert Form ASQ functionality uses form sets to determine which forms to convert. To define a set, you select a form and the presentation template for the TIF. You can define an unlimited number of form sets for each Convert Form ASQ. If you route a form to a Convert Form queue and no form set for that form exists, the conversion process does not occur and Perceptive Content routes the form to the Success Action queue.

After the conversion process is complete, Perceptive Content appends the TIF to the original form. The form type determines the page placement of the TIF.

# Convert an Integration ASQ to a Connect ASQ

To send web service notifications from Perceptive Content you must use a Connect ASQ. You have the option to convert Integration ASQs to Connect ASQs using the inUpgradeUtil `convert-integration-queues` command. To run the inUpgradeUtil `convert-integration-queues` command complete the following steps.

1. On the **Perceptive Content Server**complete one of the following actions.
   - In Windows 32-bit, open a Command Prompt window and change to the *[drive:] \inserver\bin* directory.
   - In Windows 64-bit, open a Command Prompt window and change to the *[drive:]\inserver\bin64* directory.
   - In Unix, change to the *$(IMAGENOWDIR)/bin* directory.

   **Note:** To view detailed information about a specific inUpgradeUtil command, at the prompt enter

`inUpgradeUtil --cmd-help convert-integration-queues`. For more information, see the Run INUpgradeUtil commands topic of Manage Content help.

# What are Integration ASQs?

Creation of new Integration ASQs has been deprecated for Perceptive Content 7.2.1 and future versions. Existing Integration ASQs can be modified but new Integration ASQs cannot be created. To send web service notifications from Perceptive Content you must use a Connect ASQ which supports the use of REST APIs instead of SOAP. Existing Integration ASQs can be converted to Connect ASQs utilizing the `inUpgradeUtil convert-integration-queues`command.

The Integration automation system queue (ASQ) sends web service notifications to your business applications.

Suppose you are the AP Manager and want to reduce the time and cost associated with processing invoices. To meet these requirements, you implement an Integration ASQ. As an invoice enters this queue, Perceptive Content sends a web service notification to the business application URI (Uniform Resource Identifier) using the Envoy service operation name you define. The business application receives the data you configure, such as invoice header and GL distribution information, and creates the necessary payables invoice transaction, payment batch, and associated GL distributions. After this process is complete, your business application sends a success response using Message Agent, and Perceptive Content routes the invoice to the success queue.

To use the Integration ASQ, you must have an Envoy license. If this license is not present, the Integration ASQ queue displays but does not process any items. Additionally, to access Perceptive Content from your business application, you must have a Message Agent license.

# What are ASQ consumable operations?

ASQ consumable operations are remote service operations that can be consumed by an Integration ASQ.

Integration ASQs can consume any remote service operation that meets the following parameter requirements:

- Must have no more than 128 characters.
- Must include ITEM_ID, QUEUE_ID, QUEUE_NAME, FAILURE_QUEUE_ID, FAILURE_QUEUE_ NAME, SUCCESS_QUEUE_ID, and SUCCESS_QUEUE_NAME.

Using the URI you provide, Envoy service retrieves a list of all remote service operations associated with that URI. All ASQ consumable operations are displayed in bold.

# Integration ASQ parameter map variables

When you route an item to the Integration ASQ, you can use a parameter map to send properties associated with that item to the web service endpoint. The Integration ASQ supports a predefined list of document, folder, workflow item, and custom property variables.

**Note:** Creation of new Integration ASQs has been deprecated for Perceptive Content 7.2.1 and future

versions. Existing Integration ASQs can be modified but new Integration ASQs cannot be created. To send web service notifications from Perceptive Content you must use a Connect ASQ which supports the use of REST APIs instead of SOAP. Existing Integration ASQs can be converted to Connect ASQs utilizing the inUpgradeUtil command.

## Custom Property Variables

This table lists and describes custom property data types. You can map all custom property data types except a composite property or an array of properties from an Integration ASQ.

| Data Type | Description |
|---|---|
| Date | Represents a date value |
| Flag | Represents a boolean value |
| List | Represents a predefined list value |
| Number | Represents a decimal number value |
| String | Represents a text field value |
| User | Represents a user name value |

## Document Variables

This table lists document variables and their descriptions.

| Variable Name | Description |
|---|---|
| Drawer | Represents the Drawer value |
| Field1 | Represents the Field1 value |
| Field2 | Represents the Field2 value |
| Field3 | Represents the Field3 value |
| Field4 | Represents the Field4 value |
| Field5 | Represents the Field5 value |

| Variable Name | Description |
|---|---|
| Type | Represents the document type |
| Name | Represents the document name |
| Creation Time | Represents the document creation time |
| Notes | Represents the notes associated with a document |

## Folder Variables

This table lists folder variables and their descriptions.

| Variable Name | Description |
|---|---|
| Type | Represents the folder type |
| Name | Represents the folder name |
| Creation Time | Represents the folder creation time |

## Workflow Item Variables

This table lists workflow item variables and their descriptions.

| Variable Name | Description |
|---|---|
| Workflow Item Type | Represents the item type: document or folder |
| Object ID | Represents the document or folder ID |
| Added to Workflow | Represents the time when a document or folder was added to workflow |
| Queue Start Time | Represents the time when an item was added to the current queue |
| Routed From | Represents the queue from which the item was last routed |
| Workflow By | Represents the name of the user who added or |

| Variable Name | Description |
|---|---|
| | routed the item to the current queue |
| Priority | Represents the item priority: high, normal, or low |

# Form types and Convert Form ASQs

This table lists each type of form and describes the page placement for that form type after it is converted from HTML to TIF using a Convert Form ASQ.

| Form Type | Page Placement |
|---|---|
| Stand-alone form (no attachments) | Appends the TIF to the form as page 2. |
| Stand-alone form (with attachments) | Appends the TIF to the form as the last page. |
| Supplemental form | Appends the TIF to the form as the last page. |

# Manage users

## Add a user to a queue

To add a user or group to a workflow queue and assign queue privileges, complete the following steps.

1. Double-click the queue.
2. In the **Queue Properties** dialog box, in the left pane, select **Users** and then click **Add**.
3. Perform one of the following actions.
   - On the **Users** tab, under **Available Users**, select a user and then click **Add**.
   - On the **Groups** tab, under **Available Groups**, select a group and then click **Add**.
4. Click **OK**.
5. In the **Queue Properties** dialog box, click under the column for the privilege you want to assign to the user or group.
6. Click **OK**.

## Promote user to queue lead

When you designate users as Queue Leads, you grant them all privileges for the queue and authorize them to change the status of workflow items to "Idle." To promote a user to Queue Lead, complete the following steps.

1. Double-click the queue.
2. In the **Queue Properties** dialog box, in the left pane, select **Users**.

3. Select the user or group and then click **Promote**.
4. Click **OK**.

### Remove a user from a queue

To remove a user from a workflow queue, complete the following steps.

1. Double-click the queue you want.
2. In the **Queue Properties** dialog box, in the left pane, select **Users**.
3. Select the user or group and then click **Remove**.
4. Click **OK**.

## Create queues

### Create a work queue

A Work queue is a queue that is assigned to one or more users who are performing the same action upon the same workflow items within the queue. To create a Work queue, complete the following steps.

This procedure outlines the minimal steps required to create a work queue.

1. In **Workflow Designer**, in the left pane, under **Queues**, select the **Work** queue and then drag it to the right in your process diagram.
2. Double-click the queue to modify its properties.
3. In the **Queue Properties** dialog box, in the left pane, select **Properties**.
4. In the right pane, in the **Name** box, enter the name for your work queue.
5. If you want to define a Join queue, select the **Join queue** check box.

   **Note:** A Join Queue is one that rejoins a workflow item that you route in parallel by creating two or more copies (siblings) of the original item. When they arrive in the Join queue, the items are rejoined as the one workflow item that existed prior to the split.

6. To define this queue as the last queue in the process, select the **Complete** queue check box.

   As an item is routed into a **Complete** queue, its status is then changed to "completed."
7. Click **OK**.
8. Repeat these steps for each work queue you want to use in your process.

### Create a super queue

A Super queue redistributes workflow items to a collection of distinct queues that perform the same workflow function. These sub queues reduce the number of alarms, routes, and rules needed.

1. In **Workflow Designer**, in the left pane, under **Queues**, click **Super** and drag it to the right in your process diagram.
2. Double-click the queue to modify its properties.
3. In the **Super Queue Properties** dialog box, in the left pane, click **Properties**.

4. In the right pane, in the **Name** box, enter the name for your super queue.
5. In the left pane, click **Sub Queues**.
6. In the right pane, click **New**.
7. In the **New Sub Queues** dialog box, complete one of the following actions.

| Situation | Action |
|---|---|
| Create manual queues | 1. On the **General** tab, click **Manual queue creation**and type a name in the **Name** box.<br>2. On the **Users and Groups** tab, click **Add**.<br>3. In the **Select Users and Groups** dialog box, on the **Users** tab, select each user you want to assign to this queue, click **Add**, and then click **OK**.<br>4. In the **Select Users and Groups** dialog box, on the **Groups** tab, select each group you want to assign to this queue, click **Add**, and then click **OK**. |
| Create automatic queues, which creates a separate queue for each selected user and group using their user or group name for the subqueue name. | 1. On the **General** tab, click **Automatic queue creation** so that the queue is named for you by **Workflow Designer**.<br>2. On the **Users and Groups** tab, click **Add**.<br>3. In the **Select Users and Groups** dialog box, on the **Users** tab, select each user you want to assign to this queue and click **Add**.<br>4. In the **Select Users and Groups** dialog box, on the **Groups** tab, select each group you want to assign to this queue, click **Add**, and click **OK**. |

8. Click **OK**.

## Create a system queue

A System queue performs an action that does not require user intervention. For example, a System queue may be a queue that automatically prints documents or faxes. The action is usually performed with a rule or script. To create a system queue, complete the following steps.

This procedure outlines the minimal steps required to create the different queue types. For setting some of the more advanced queue properties, refer to the topics in the Queue Properties section.

1. In the **Workflow Designer** window, in the left pane, under **Queues**, select the **System** queue and then drag it to the right in your process diagram.
2. Double-click the queue to modify its properties.

3. In the **Queue Properties** dialog box, in the left pane, select **Properties**.
4. In the right pane, in the **Name** box, enter the name for your system queue.
5. In the left pane, click **Actions**.
6. In the right pane, on the **Inbound**, **Within Queue**, or **Outbound** tab, in the **Action** list, select the script or rule you want to use.
7. Click **OK**.
8. Repeat these steps for each system queue you want to use in your process.

## Create a transfer queue

A Transfer queue is an Automated System Queue that sends items in the queue to the Object Storage Manager (OSM) set that you specify when creating the queue. To create a Transfer queue, complete the following steps.

**Prerequisite** Before performing this procedure, you must create two queues: one queue for successful transfers to the OSM set and another queue for processing unsuccessful transfers.

1. In **Workflow Designer**, in the left pane, under **Queues**, select the **Transfer automated system** queue and then drag it to the right in your process diagram.
2. Double-click the queue to modify its properties.
3. In the **Queue Properties** dialog box, in the right pane, under **Details**, in the **Name** box, enter the name of the queue.
4. Under **Automated Action**, complete the following substeps.
    1. To designate the process and queue for items successfully processed in this queue, in the **Success Action** list, select a process in the **Process** list and then select a queue in the **Queue** list.
    2. To designate the process and queue for items that are not successfully processed in this queue, in the **Failure Action** list, select a process in the **Process** list and then select a queue in the **Queue** list.

    **Note:** The transfer queue references the OSM set by name. Ensure the target OSM set and the original OSM set are named identically.
5. In the **OSM** list, select the **OSM** set in which **ImageNow Server** saves the documents.

## Create a Connect ASQ

A Connect automated system queue (ASQ) is a queue that sends web service notifications to any business application. To create a Connect ASQ, complete the following steps.

**Prerequisite** Before performing this procedure, you must create two queues: one queue for successfully processed items and another queue for processing unsuccessful items.

This procedure assumes there is a configured *connect.uri* setting in the *inserverWorkflow.ini* file that defines the REST endpoint invoked for each item in the queue.

1. In the **Workflow Designer** window, in the left pane, under **Queues**, select **Connect ASQ** and drag it to

the right in your process diagram.

2. Double-click the queue to modify its properties.
3. In the **Queue Properties** dialog box, in the right pane, under **Details**, in the **Name** box, enter the name of the queue.
4. Under **Automated Action**, complete the following substeps.
    1. To designate the process and destination queue for items successfully processed in this queue, in the **Success Action** list, select a process in the **Process** list and select a queue in the **Queue** list.
    2. To designate the process and destination queue for items that are not successfully processed in this queue, in the **Failure Action** list, select a process in the **Process** list and select a queue in the **Queue** list.
    3. To set the number of days that items remain in this queue after the business application receives a successful call for those items, in the **Route After (Days)** box, type a number.

       By default, Perceptive Content routes items to the failure queue after one day. If your business application does not place a web service call for an item, that item remains in the Connect ASQ for the number of days you specify in the **Route After (Days)** box.

    **Note:** You cannot assign a sub queue as a success or failure action queue.
5. Click **OK**.

## Create a Convert Form ASQ

A Convert Form queue is an Automated System Queue (ASQ) that converts stand-alone and supplemental form types from HTML to TIFF. Converting a form to TIFF gives you the ability to annotate or email that form. To create a Convert Form ASQ, complete the following steps.

**Prerequisite** Before performing this procedure, you must create two queues: one queue for successful conversions and another queue for processing unsuccessful conversions.

1. In **Workflow Designer**, in the left pane, under **Queues**, select the **Convert Form** automated system queue (ASQ) and then drag it to the right in your process diagram.
2. Double-click the queue to modify its properties.
3. In the **Queue Properties** dialog box, under **Details**, in the **Name** box, enter the name of the queue.
4. Under **Automated Action**, complete the following substeps.
    1. To designate the process and queue for items successfully processed in this queue, in the **Success Action** list, select a process in the **Process** list and then select a queue in the **Queue** list.
    2. To designate the process and queue for items that are not successfully processed in this queue, in the **Failure Action** list, select a process in the **Process** list and then select a queue in the **Queue** list.

       You cannot assign a sub queue as a success or failure action queue.
    3. To create a form set, under **Select Form and Presentation**, click **Add**.
    4. To designate the form to convert, select a form in the **Form** list and then to designate the

presentation template for the TIFF, select a presentation in the **Presentation** list.

If a form does not have any associated presentations, that form does not appear in the **Form** list. Only presentations assigned in the **Components** pane for a form appear in the **Presentation** list.

5. Optional. To create additional forms sets, click **Form and Presentation** and then in the right column, click the **Insert Form Set+** button. Repeat the previous substep to complete the form set.
6. Optional. To prevent a custom **javascript** from rendering during the conversion process, under **Conversion Options** in the **Execute Javascript** list, select **Disabled**.

   Disabling javascript on a form in this queue ensures that the server does not become unresponsive while waiting for the javascript to load. However, disabling javascript may also cause the system to convert the form without populating all of the appropriate data.
7. Click **OK**.

# Modify queues

## About copying queues

The copy queue functionality allows you to copy one or more queues within the same process.

You can copy work, system, super, and automated system queues. In addition to copying the queue, you can copy all queue property components, such as actions, alarms, reasons, and users, or just the components you need. The paste option you select determines the components you copy.

## About moving queues

The move functionality in Workflow Designer allows you to move a queue from its current process to any process in your system.

When you move a queue, Workflow Designer retains that queue's property components, such as alarms, routes, and users. You can move automated system (ASQ), work, system, and super queues. Use the move functionality when you want to reuse your existing queues.

For example, suppose you are the Accounts Payable (AP) director and your current AP process contains work queues for both the AP and Accounts Receivable (AR) departments. You decide to create a separate process for the AR department. Instead of recreating queues, routes, and queue properties for the new AR process, you can simply move the AR department queues from the AP process to the AR process. Because the move functionality preserves the users, routes, and alarms, the AR department can immediately begin to use the new AR process.

## Rename a queue

To rename a queue, complete the following steps.

1. Double-click the queue.
2. In the **Queue Properties** dialog box, in the **Name** field, select the existing text, and then type your new queue name.
3. Click **OK**.

## Copy a queue

You can copy a queue and all related components except for in routes. To copy a queue, complete the following steps.

1. In the **Workflow Designer** process diagram, select one or more queues to copy, right-click, and then click **Copy**.
2. Move the pointer to an empty space in the process diagram, right-click, and then complete one of the following actions.

| Situation | Steps |
|---|---|
| To copy all components to the new queue | • Click **Paste**. |
| To select the components you want to copy to the new queue | 1. Click **Paste Special**.<br>2. In the **Paste Special** dialog box, under **Select a queue component**, clear the check boxes for the components you do not want to copy.<br>3. Click **OK**. |

   The new queue appears in the process diagram. If you selected the Routes component in the previous step, defined out routes also appear.

## Delete a queue

To delete a workflow queue, complete the following steps.

1. In the process diagram, select the queue you want to delete and then press `DELETE`.
2. In the confirmation prompt, click **Yes**.

## Modify a sub queue on a super queue

To modify a sub queue on a super queue, complete the following steps.

1. Double-click the super queue.
2. In the **Super Queue Properties** dialog box, in the left pane, click **Sub Queues**.
3. In the right pane, select the sub queue you want to modify and then click **Modify**.
4. Modify the following settings as needed.
   - In the **Modify Sub Queue** dialog box, on the **General** tab, type a new name for your sub queue in the **Name** box.
   - On the **Users and Groups** tab, select the users or groups you want to remove and then click **Remove**.
   - To add additional users or groups, click **Add**.

- In the **Select Users and Groups** dialog box, on the **Users** tab, search for and select the additional users you want to have access to this sub queue, click **Add**, and then click **OK**.
- In the **Select Users and Groups** dialog box, on the **Groups** tab, search for and select the additional groups you want to have access to this sub queue, click **Add**, and then click **OK**.

5. In the **Modify Sub Queue** dialog box, click **OK**.

## Move a queue in a process

To move a queue to a new location in the process diagram, complete the following step.

- Select the queue you want to move and drag it to a new location in the process diagram.

## Move queues to another process

You can move work queues, system queues, and super queues between workflow processes. When you move a queue, Workflow Designer also moves the in and out routes for that queue. To move a queue to another process, complete the following steps.

1. In the **Workflow Designer** process diagram, right-click the queues you want to move, and then click **Move to Process**.
2. In the **Move Queue** dialog box, in the **Select a process** list, select the process to which you want to move the queue and then click **OK**.

## Delete a sub queue from a super queue

To delete a sub queue from a super queue, complete the following steps.

1. In the **Super Queue Properties** dialog box, in the left pane, click **Sub Queues**.
2. In the right pane, select the sub queue you want to delete and then click **Delete**.
3. Click **OK**.

## Move or delete several workflow objects

You can move or delete workflow objects individually or simultaneously. To move or delete multiple workflow objects simultaneously, complete the following steps.

1. In the workflow process diagram, complete one of the following actions.
   - To select several items at once, press `CTRL` and click each queue and route.
   - Drag a box around the items you want to select.
   - To select all items in the process diagram, press `CTRL + A`.
2. To delete the selected objects, press `DELETE`.
3. In the confirmation prompt, click **Yes**.
4. To move the selected objects, hold the pointer over one of the selected item until it becomes a cross-hair, and then drag the items where you want them in the process diagram.

# Configure queues

## Set a queue as a join queue

A Join queue rejoins a workflow item that you route in parallel by creating two or more copies (siblings) of the original item. When the items arrive in the Join queue, they become one workflow item again. Any work, system or super queue is allowed to be a Join queue. To set a queue as a Join queue, complete the following steps.

1. Double-click the queue you want to designate as the join queue.
2. In the **Queue Properties** dialog box, in the left pane, select **Properties**.
3. In the right pane, select the **Join queue** check box.
4. Click **OK**.

## Set a queue as a complete queue

A complete queue is the last queue in a workflow process. When an item reaches this queue, it's status is "Complete." Any work, system, or super queue is allowed to be a Complete queue. To set a queue as a complete queue, complete the following steps.

1. Double-click the queue.
2. In the **Queue Properties** dialog box, in the left pane, click **Properties**.
3. In the right pane, click the **Queue** tab.
4. Select the **Complete queue** check box.
5. Click **OK**.

## Enable route back on a queue

Enabling the Route Back setting on a queue allows users to route a workflow item back to its previous queue. To enable Route Back on a queue, complete the following steps.

1. Double-click the queue.
2. In the **Queue Properties** dialog box, in the left pane, select **Properties**.
3. In the right pane, select the **Allow route back from this queue** check box.
4. Click **OK**.

## Enable route recall on a queue

Enabling the Route Recall setting on a queue allows users to recall a workflow item after it is routed to another queue. To enable Route Recall on a queue, complete the following steps.

1. Double-click the queue.
2. In the **Queue Properties** dialog box, in the left pane, select **Properties**.
3. In the right pane, select the **Enable route recall** check box.
4. In the **Recall period** box, type or select the number of seconds this feature is available.
5. Click **OK**.

## Enable route from anywhere on a queue

A Workflow Process manager may designate a work queue or system queue as a route from anywhere destination for workflow items within the same process.

Designating a queue as a route from anywhere destination allows users with process privileges on any queue in the process to route items from those queues to the designated queue. Users do not need the route anywhere privilege to send items to that queue. To enable Route From Anywhere on a queue, complete the following steps.

1. Double-click the queue.
2. In the **Queue Properties** dialog box, in the left pane, select **Properties**.
3. In the right pane, select the **Enable queue as route from anywhere destination** check box.
4. Click **OK**.

## Enable sub queue routing on a super queue

Within a super queue, you can allow workflow item routing to occur between sub queues. With this feature enabled, a user clicks Route Forward and routes an item to another sub queue in the Peer Routes list. To enable sub queue routing on a super queue, complete the following steps.

1. Double-click the super queue.
2. In the **Super Queue Properties** dialog box, in the left pane, verify that **Properties** is selected.
3. In the right pane, on the **Queue** tab, under the **Sub Queue Routing** section, select the **Allow routing between sub queues** check box.
4. Click **OK**.

## Convert a work queue to a sub queue

The queue conversion tool allows you to easily redesign an existing workflow process by converting a work queue to a sub queue. To convert a queue, complete the following steps.

**Prerequisite** This procedure requires a workflow process with at least one super queue.

1. Right-click the work queue you want to convert to a sub queue.
2. Point to **Convert to Sub Queue** and then select the super queue you want.
3. If there are more than ten super queues in this process and you do not see the super queue you want, in the **Convert to Sub Queue** list, click **More**.
4. In the **Convert to Sub Queue** dialog box, in the super queue list, select the super queue you want and then click **OK**.

   In the confirmation dialog box, the following message appears:
   `A sub queue will be added to <super queue>. All process users will be transferred to the new sub queue."`
5. Verify that the correct super queue appears and then click **Convert**.

   The work queue you converted no longer displays in **Workflow Designer**.
6. Open the super queue to which the work queue was converted.

7. In the **Queue Properties** dialog box, in the left pane, click **Queues** and verify that the work queue is listed as a sub queue.
8. Click **OK** to close the **Queue Properties** dialog box.

## Convert a system queue to a work queue

The queue conversion tool allows you to easily redesign an existing workflow process by converting a system queue to a work queue. To convert a queue, complete the following steps.

1. Right-click the system queue you want to convert to a work queue and then click **Convert to Work Queue**.

   In the confirmation dialog box, the following message appears:
   `Converting a system queue to a work queue may cause some of the actions to fail. Please make sure the action will not interfere with user interactions before you proceed.`
2. Click **Convert**.
3. To confirm that the conversion was successful, double-click the queue you converted.
4. In the **Queue Properties** dialog box, in the left pane, verify that **Properties** is selected. In the right pane, under the General section, verify that in the **Type list**, **Work** appears.

   The **Type list** is unavailable and appears dimmed.
5. In the **Queue Properties** dialog box, select the options you want for this queue and click **OK**

**Result** Action pane options are not retained as part of the system to work queue conversion. Other queue properties, including alarms, application plans, reasons, and removal options are converted. System queue routes are retained when converted to a work queue. As part of the conversion process, workflow items that exist in the system queue at the time of conversion are transferred to the work queue.

## Associate a form with a workflow queue

When you associate a form with a queue, users can complete a form for a workflow item as part of the queue processing. To associate a form with a workflow queue, complete the following steps.

Displaying a folder as a form replaces any forms previously attached to any workflow queue with the form you select in this procedure.

1. In **Workflow Designer**, select a queue and then press `ENTER`.
2. In the **Queue Properties** dialog box, in the left pane, click **Forms**.
3. You can perform the following associations.
   - To attach forms to this queue, click **Add**, in the **Select Forms** dialog box, select the forms you want to add and then click **OK**.
   - To remove a form from this queue, select the form in the list and then click **Remove**.
   - To change the default form associated with this queue, select the form in the list and click **Set as Default**.
4. Repeat the previous steps for any additional queues.
5. When you are done associating forms, click **OK**.

# Search

## Search for a queue in Workflow Designer

To quickly locate a queue in a process, you can search by queue name. The matching queue and its outbound routes appear highlighted. To search for a queue, complete the following steps.

You cannot locate sub queues with this search.

1. In **Workflow Designer**, on the **Find** toolbar, in the **Find** box, enter all or part of a queue name. As you type, **Workflow Designer** brings the matching queue into focus in the process diagram.
2. Optional. When there is a name match for multiple queues, to move to the next queue in alphabetical order, click the **Next** button. To return to any of the previous matching queues, click the **Previous** button.

# Alarms

## What is a workflow alarm?

A workflow alarm can alert one or more users of a critical task that needs to be performed or that is now ready to be performed in a queue.

You can add Email, Perceptive Content Icon, Message Center, and Audible alarms to a queue to alert users. For example, you can send an email alarm to the AP manager if the document property value is set to Reject. Another kind of alert could be created that would show the AP manager that an item was routed from Legal Review to the current queue. Alarms are useful because they relieve the user from having repeated inspections of the status of multiple queues to determine whether critical tasks have been performed within a certain time frame.

## Define conditions for a rule statement

To add conditions to a statement in a routing or alarm rule, complete the following steps.

1. In **Workflow Designer**, in the **Actions** pane, click **Manage Actions**.
2. Select a rule and click **Modify**.
3. In the **Rules Editor** dialog box, select the statement and click **Modify**.
4. In the **Statement Editor**, under **Conditions**, perform one or both of the following actions.
   - To modify the existing condition, click the blue underlined text.
   - To add a new condition, click the **Add** button.
5. In the **Constrain by** list, select the kind of constraint to set up the lists you need in the **Type**, **Field**, and **Operator** boxes.
6. In the **Type** list, verify that **Normal** is selected.
7. In the **Field** list, click the field for the comparison.
8. In the **Operator** list, select the operator to use in the comparison.
9. In the **Value** box, enter or select a value to use with the operator when comparing against the field and

click **OK**.

10. Optional. Repeat these steps for any additional condition rows.

## Configure email notifications

To configure the SMTP server that Perceptive Content uses to send all system email notifications, complete the following steps.

1. On the **ImageNow Server** computer, navigate to *[drive:]**inserver\etc***.
2. Open the *inserverNotification.ini* file with a text editor.
3. In the `[Email]` section, complete the following substeps.
   1. Type the server URL in the `smtp.server.url` setting.
   2. Set the `smtp.validate.certificates` setting to TRUE if using STARTTLS or the SMTPS protocol for implicit TLS.
   3. Set `smtp.use.starttls` to TRUE if using STARTTLS on the SMTP server.
   4. Type the username and password in the `smtp.username` and `smtp.password` settings if the SMTP server is using basic authentication.
   5. Type the email address from where the system is delivering the emails in the`smtp.from` setting.
4. Save and close the *inserverNotification.ini* file.

```
[Email]
   smtp.server.url=smtp://<mailserver>:<port>
   smtp.validate.certificates=TRUE
   smtp.use.starttls=FALSE
   smtp.username=username
   smtp.password=password
   smtp.from=exampleaddress@exampledomain.com
```

## Create an email alarm overview

An email alarm causes an email message to be sent to a person or group through an SMTP server. To create an email alarm, complete the following steps.

1. Create an alarm rule.
2. Addarulestatement.
3. Define conditions for a rule statement.
4. Create a queue link email alarm.
5. Activate an email rule.
6. Configure email notifications.
7. Test an alarm.

## Activate an email rule

To activate the rule you associated to an email alarm, complete the following steps.

1. In **Workflow Designer**, in the **Actions** pane, click **Manage Actions**.
2. Select a rule and click **Modify**.
3. In the **Statement Editor** dialog box, to create a statement for your rule, under **Statements**, click **New**
4. In the **Rules Editor** dialog box, click **Active** and then click **OK**.
5. To close the **Rules Editor** dialog box, click **OK**.
6. In the **Alarm Settings** dialog box, in the **Alarm Rule** list, select the alarm rule you just created and then click **OK**.
7. In the **Select Alarms** dialog box, select the alarm you just created, and then click **Add**.
8. In the **Queue Properties** dialog box, verify that your email alarm is in the list, with a Queue Status of Enabled and an Alarm Status of Active.
9. If you do not see the **Alarm Status** column, click **Columns**. In the **Columns** dialog box, select the **Alarm Status** check box, and then click **OK**.
10. In the **Queue Properties** dialog box, click **OK**.

# Create a queue link overview

To create a workflow email alarm that includes a link to the queue that triggered the alarm, complete the following procedures.

1. Configure queue link settings.
2. Configure email notifications.
3. Create an alarm rule.
4. Addarulestatement.
5. Define conditions for a rule statement.
6. Create a queue link email alarm.
7. Modify rule statement conditions.
8. Activate an email rule.
9. Add a rule action to a queue.
10. Testanalarm.

## Configure queue link settings

To configure Alarm Agent to send email notifications with workflow queue links, complete the following steps.

1. On the **ImageNow Server** computer, navigate to the *[drive:]**inserver****etc*** folder.
2. Open the *inserverAlarm.ini* file in a text editor, and in the `[Email]` section, set the `queue.email.link` setting to `0` to include an **Perceptive Content** link.

   **Example** `queue.email.link=0,` , or

   Perceptive Content applies this setting to all queue link email alarms.

3. Save and close the *inserverAlarm.ini* file.

### Create a queue link email alarm

To create a queue link email alarm for items that meet the conditional statements that you previously defined, complete the following steps.

1. In the **Statement Editor** dialog box, under **Actions**, click **Add > Send email**.
2. In the **Email Alarm** dialog box, in the **Alarm name** box, type a name for the alarm.
3. Under **Email Header**, in the **From** field, type an address.
4. Optional. In the **To** field, type an email address. Enter addresses in this field only when you want to email a user who is not assigned to the queue, such as a Department Manager who is not a process user.
5. Select the **Email all users in the queue** check box to email all queue users.
6. Optional. Type addresses in the **Cc** or **Bcc** fields as necessary.
7. Under **Email Message**, in the **Subject** field, click **Add to Subject** and in the **Insert** list, select the option you want, such as Queue Name, and then click **OK**.
8. In the **Subject** field, next to %Queue_Name%, type the text you want to appear.
9. In the **Body** field, click **Add to Body** and in the **Insert** list, select the option you want.
10. Under **Email Interval**, set the interval for the time period you want between alarms. For testing purposes, set the interval to 4 or 5 minutes.

    If you set the interval for <X> days, Perceptive Content does not send another email for 24 hours.

## Create an icon alarm overview

You can create an alarm that changes the state of the Perceptive Content icon in the upper-left corner of the Perceptive Content toolbar. When you set this alarm, the icon changes from static to flashing, in a color and flashing frequency of your choice. To create an Perceptive Content icon alarm, complete the following sequence of procedures.

1. Create an alarm rule.
2. Add a rule statement.
3. Define conditions for a rule statement.
4. Define an icon alarm action.
5. Activate a rule.
6. Test an alarm.

## Create a Message Center alarm

When an alarm is assigned to a Message Center action, the alarm presents a message on the Perceptive Content toolbar when a predefined condition is met in a queue. To assign an existing alarm to a Message Center action, complete the following steps.

**Note** Message Center, Icon, and Audible alarms are not activated for owners, managers, or users with the Department Privileges > Manage > Workflow Processes privilege.

1. In **Workflow Designer**, double-click the queue.
2. In the **Queue Properties** dialog box, in the left pane, click **Alarms**.
3. In the right pane, click **Modify**.
4. In the **Select Alarms** dialog box, select an alarm and click **Modify**.
5. In the **Alarm Settings** dialog box, in the **Alarm Rule** list, select **Edit Rules**.
6. In the **Rules** dialog box, select a rule and click **Modify**.
7. In the **Rules Editor** dialog box, select a statement and click **Modify**.
8. In the **Statement Editor** dialog box, under **Actions**, click **Add > Message Center**.
9. In the **Message Center Alarm** dialog box, in the **Alarm name** box, type a name.
10. Click **Add to Title**.
11. In the **Insert** dialog box, click **Queue Name > OK**.
12. In the **Message Center Alarm**dialog box, in the **Message Title** box, after the `%Queue_Name%` statement, type a message such as Attention!
13. Click **Add to Body**.
14. In the **Insert** dialog box, click **Queue Name > OK**.
15. In the **Message Center Alarm** dialog box, in the **Body** box, type some text around the query logic so the incoming **Message Center** contains a full sentence, such as There is an Invoice in the %Queue_ Name% Queue.
16. Click **OK** until you return to **Workflow Designer**.

## Create an audible alarm overview

To create an audible alarm that plays when workflow queue conditions are met, complete the following sequence of procedures.

**Note** Message Center, Icon, and Audible alarms are not activated for owners, managers, or users with the Department Privileges > Manage > Workflow Processes privilege.

1. Create an alarm rule.
2. Add a rule statement.
3. Define conditions for a rule statement.
4. Define an audible alarm action.
5. Activate a rule.
6. Add a rule action to a queue.
7. Test an alarm.

## Create an alarm rule

To create an alarm that notifies the user when certain workflow conditions are met, complete the following steps.

1. In **Workflow Designer**, in the **Tasks** pane, click **Actions**.
2. Click **Manage Actions**.

3. In the **Action Settings** dialog box, on the **Rules** tab, click **New**.
4. In the **Rules Editor**, in the **Rules name** box, type a name.
5. In the **Rule type** list, select **Alarm rule**.
6. Click **OK** until you return to **Workflow Designer**.

## Change an alarm rule for a queue alarm

To change the alarm rule for a queue alarm, complete the following steps.

1. Double-click the queue you want.
2. In the **Queue Properties** dialog box, in the left pane, select **Alarms**.
3. In the right pane, in the alarms list, select the alarm you want to replace, and then click **Modify**.
4. On the **Alarm Settings** dialog box, in the **Alarm Rule** list, select the alarm rule you want to use instead.
5. Click **OK**.

## Define an audible alarm action

To define an audible action for a statement in an alarm rule, complete the following steps.

**Note** Message Center, Icon, and Audible alarms are not activated for owners, managers, or users with the Department Privileges > Manage > Workflow Processes privilege.

1. In **Workflow Designer**, in the **Task** pane, click **Actions**.
2. In the **Action Settings** dialog box, on the **Rules** tab, select the rule and click **Modify**.
3. In the **Rules Editor** dialog box, under **Statements**, select the statement and click **Modify**.
4. In the **Statement Editor** dialog box, under **Actions**, click **Add > Play sound**.
5. In the **Audible Alarm** dialog box, complete the following substeps.
    1. In the **Alarm name** box, type an alarm name.
    2. Under **Sound Selection**, select a predefined sound or browse to the WAV file location.
    3. Optional. To preview the audible alarm sound, click **Listen to it**.
    4. To set the time between each audible alarm, in the **In minutes, time between play** box, type a number.
6. Click **OK** until you return to **Workflow Designer**.

## Define an icon alarm action

To define the icon behavior in a statement for an Perceptive Content icon alarm rule, complete the following steps.

1. In **Workflow Designer**, in the **Tasks** pane, click **Actions**.
2. In the **Action Settings** dialog box, on the **Rules** tab, select the alarm rule and click **Modify**.
3. In the **Statement Editor**, select the statement and click **Modify**.
4. Under **Actions**, click **Add > Flash icon**.
5. In the **Icon Alarm** dialog box, complete the following substeps.

1. In the **Alarm name** box, type a name for the alarm.
2. Under **Set-up**, select the color you want and then shift the **Frequency** slider to the frequency you want.
3. Click **OK**.

6. Click **OK** until you return to **Workflow Designer**.

## Enable or disable an alarm on a queue

To enable or disable an alarm on a queue, complete the following steps.

1. Open the process containing the queue for which you want to enable or disable an alarm.
2. Double-click the queue you want.
3. In the **Queue Properties** dialog box, in the left pane, select **Alarms**.
4. In the right pane, in the alarms list, select the alarm you want to enable or disable.
5. Complete one of the following actions.
   - To enable the alarm, click **Enable**.
   - To disable the alarm, click **Disable**.

## Modify alarm settings

To modify alarm settings for an alarm assigned to a workflow queue, complete the following steps.

**Note** Message Center, Icon, and Audible alarms are not activated for owners, managers, or users with the Department Privileges > Manage > Workflow Processes privilege.

1. In **Workflow Designer**, double-click the queue containing the alarm you want to modify.
2. In the **Queue Properties** dialog box, in the left pane, select **Alarms**.
3. In the right pane, in the alarms list, select the alarm you want to modify, and then click **Modify**.
4. In the **Alarm Settings** dialog box, modify the following settings as needed.
   - In the **Name** field, type a new alarm name.
   - In the **Timeout Period** field, adjust the timeout period for the alarm by typing or selecting a new timeout period.
   - In the **Status** field, change the alarm status by clicking **Active** or **Inactive**.
   - In the **Alarm Rule** list, select the alarm rule you want to use instead. Select **Edit Rules** if you want to create a new alarm rule to use with this alarm or edit the current alarm rule.
5. Click **OK**.

## Remove an alarm from a queue

To remove an alarm from a queue, complete the following steps.

1. Double-click the queue you want.
2. In the **Queue Properties** dialog box, in the left pane, select **Alarms**.
3. In the right pane, in the alarms list, select the alarm you want to remove and then click **Remove**.

## Set alarm priority for a queue

Alarms for a queue are prioritized according to the order in which the alarms are created. To change the alarm priority for a queue, complete the following steps.

1. Double-click the queue.
2. In the **Queue Properties** dialog box, in the left pane, select **Alarms**.
3. In the right pane, in the alarms list, select an existing alarm and click either the **Move Up** or **Move Down** button to change its priority.
4. Repeat the previous step for each alarm until all of the alarms are ordered in your preferred priority.

   Alarms have priority from the top down in the alarms list.

## Show or hide alarm columns

You can determine which alarm columns display globally for all queues in all processes. To show or hide alarm columns, complete the following steps.

1. Double-click any queue.
2. In the **Queue Properties** dialog box, in the left pane, select **Alarms**.
3. Click the **Columns** button.
4. In the **Columns** dialog box, select the check boxes for the columns you want to display and clear any check boxes for columns you want to hide.
5. Click **OK**.

## Test an alarm

To test an email, icon, or audible alarm that you created in Workflow Designer, complete the following steps.

1. On the **Perceptive Content** toolbar, click the **Workflow** arrow, point to your process, and then select the queue where you added the alarm.
2. Verify that there are some workflow items in the queue that meet the conditions you defined in your rule, and then complete one of the following actions.

| Situation | Steps |
| --- | --- |
| Test an email alarm | 1. Check your email account. You should receive an email with a Subject field of the name you gave to the alarm and a body text message such as the following: There are 5 email items in the email queue.<br>2. Select all the workflow items, right-click, point to **Workflow**, and then click **Route Forward**.<br>3. In the **Route Forward** dialog box, select a |

| Situation | Steps |
| --- | --- |
| | queue and then click **Route**. This clears the alarm state for the queue. |
| Test an audible alarm | • Verify the sounds plays if the alarm condition is true. |
| Test an icon alarm | • Verify the Perceptive Content icon flashes if the alarm condition is true. |

# Routes

## What is a route?

A route is one of the basic building blocks of a workflow process.

Routes connect workflow queues. They can be inbound or outbound or both. Routes connect queues contained in the same process and between processes.

The type of route you define depends on how you need to process items between workflow queues. The following table describes the route types available in Workflow Designer.

| Type | Description |
| --- | --- |
| Conditional | A conditional route is a route that is determined by rules that occur dynamically in the process. The next queue in the process is determined by information received by the workflow process. For example, in an approval process where an invoice over $5,000 must go to the Finance Director, the process automatically routes invoices greater than that amount to the Finance Director. |
| Inter-process | An inter-process route allows you to route items from a queue in one workflow process to a queue in another workflow process. |
| Load balance | A load balance route processes high volumes of items, such as ten thousand or more items per day, and allows you to route items using distribution. The distribution option you select determines how Perceptive Content routes your items. You can choose to route using a high volume load-balancing algorithm that distributes approximately the same number of items among the destination queues. As an example, when you define four destination queues and there are 20,000 items, this distribution option routes approximately 25 percent of items to each queue. Alternatively, you can choose to route items to the destination queue with the fewest number of items. This option means that the faster a user processes items, the |

| Type | Description |
|---|---|
| | more items he or she receives. |
| Parallel | A parallel route allows multiple actions to take place at the same time. Multiple processing of the same document can occur and be brought together at a specified queue. When all processes are completed, the next action is initiated. With a parallel route, a workflow item is routed to more than one queue at the same time and when all actions on the item (sibling) are complete, the sibling items are routed forward and rejoined in a join queue. Items you route into a queue in parallel cannot be routed to another parallel route because they are already split. |
| Parallel conditional | A parallel conditional route is a route that allows multiple actions to take place at the same time and also allows you to place conditions on the route. |
| Peer | A peer route allows you to route items between sub queues within a super queue. |
| Sequential | A sequential route is a clearly defined route with little variation. One action must be completed before the workflow item is routed to the next queue. Manual routes are used when there is more than one queue an item might be routed to next. Requires the user to select the destination queue from the available routes list. |
| Sequential auto | A sequential auto route is a clearly defined route with no variation. One action must be completed before the workflow item is routed to the next queue. Automatic routes require no additional user interaction after the Route button is clicked. There is only one queue the item can route to next, so it is automatically sent to that queue. |

## Create a route

Routes connect workflow queues. They can be inbound or outbound or both. You can route workflow items to a queue contained in the same process or to a queue in a different process. To create a route, complete the following steps.

You can only create load balance, sequential, sequential auto, and parallel routes using the Task Pane. To create conditional or parallel conditional routes, refer to those topics.

1. In **Workflow Designer**, in the **Task** pane, click **Routes**.
2. On the **Grid** toolbar, verify that the **Normal Routes** button is selected.
3. In the **Routes** pane, select a route type.
4. Click on the queue where you want the route to begin and drag your cursor to the queue where you want

the route to end.

5. Repeat these steps to create all routes within your workflow process.

## Create a parallel route overview

A parallel route allows multiple actions to take place at the same time on a single workflow item. In a parallel route, a workflow item is routed to more than one queue at the same time and when all actions on the item are complete, the sibling items are routed forward and rejoined in a join queue. To create a parallel route, complete the following sequence of procedures.

**Prerequisite** Before completing this sequence of procedures, you must have at a workflow process with at least four queues.

1. Add an outbound parallel route.
2. Set a queue as a join queue.
3. Test a parallel route.

### Add an outbound parallel route

To add a route out of a queue that routes an item to multiple queues in parallel, complete the following steps.

1. In **Workflow Designer**, double-click the queue.
2. In the **Queue Properties** dialog box, in the left pane, click **Routes**.
3. In the right pane, on the **Routes Out** tab, click **Add**.
4. In the **Add Route Out** dialog box, do the following substeps.
    1. On the **General** tab, in the **Name** box, type a name for the route.
    2. In the **Type** list, select **Parallel**.
    3. Optional. To enable ad-hoc parallel routing from this queue, select the **Enable ad-hoc parallel routing** check box.

       If you select this option, when routing forward from this queue, the user can parallel route to one or more of the queues selected in the **Available queues** list.
5. On the **Destination** tab, perform the following substeps.
    1. In the **Business Process** list, select a process.
    2. In the **Available queues** list, select the queues for this parallel route and click **Add**.
    3. Click **OK**.
6. On the **Routes Out** tab, in the route list, verify that the parallel route name and the queues you selected appear.
7. Click **OK** until you return to **Workflow Designer**.

## Remove a route

To remove a route from a queue, complete the following steps.

1. Double-click the queue you want to link to another process.
2. In the **Queue Properties** dialog box, click **Routes**.

3. On the **Routes Out** tab, select a route, and then click **Remove**.

   **Note:** You cannot remove conditional or parallel routes from the Route In tab.

4. Click **OK**.

## Delete a route

To delete a route from a workflow process, complete the following step.

1. In **Workflow Designer**, select the route you want to delete.
2. Press `DELETE`.

## Set a default route for a queue

If more than one outgoing route is available for a queue, you can designate one of the routes as the default route. To set a default route for a queue, complete the following steps.

1. Double-click the queue.
2. In the **Queue Properties** dialog box, in the left pane, click **Routes**.

   **Note:** The default route is automatically set in the Route Forward dialog box.

3. On the **Routes Out** tab, in the **Route Name** list, select the route you want to set as the default for this queue and then click **Make Default**.

   **Note:** This functionality is not available for routes to super queues. Therefore, super queue routes do not appear in the Route Name list.

4. Click **OK**.

## Restrict access on a route

You can restrict users and groups from having access to a route in a workflow process. To restrict access on a route, complete the following steps.

1. Double-click the queue that uses the route you want to modify.
2. In the **Queue Properties** dialog box, click **Routes**.
3. On the **Routes Out** tab, select the route you want to modify from the list, and then click **Modify**.
4. In the **Modify Route Out** dialog box, if you are a Workflow Manager, restrict users from the queue. On the **Restrictions** tab, select any users or groups in the available users and available groups lists that you want to prevent from using this route, and then click **Add**.
5. Click **OK** until you return to the process diagram.

### Change route style

To change the style of the route arrows in a workflow process diagram, complete the following step.

- On the Grid toolbar, click one of the following route style buttons.
  - Orthogonal Routes
  - Normal Routes
  - Curved Routes

### View all the routes for a queue

From the workflow process diagram, you can view all routes for a queue. To view all routes for a queue, complete the following steps.

1. Open the process containing the queues and routes you want to view.
2. Click to select the queue for which you want to view all the corresponding routes.

**Result** The routes will appear in bold, easily apparent compared to all other routes in your process diagram.

## Work with reason lists

### What is a reason list?

Reason lists provide users the ability to indicate why they are putting a workflow item on hold.

When putting an item on hold in a workflow queue, users are prompted to select a reason from a reason list. As manager of a workflow process, you control the contents of every On Hold reason list. You can define a reason list as part of a workflow queue's properties.

### Modify or rename a reason list for putting an item on hold

Reason lists are created to provide users with predefined reasons for putting workflow items on hold. To modify a reason list for putting an item on hold, complete the following steps.

1. Complete one of the following actions, depending on the situation.

| Situation | Steps |
|---|---|
| Modify a hold reason list in **Management Console** | 1. In **Management Console**, in the left pane, under **Select Department**, select a department from the list.<br>2. In the left pane, click **Workflow**.<br>3. Click the **Reason Lists** tab.<br>4. Click the list you want to change and then click **Modify**. |

| Situation | Steps |
| --- | --- |
| Modify a hold reason list in **Workflow Designer** | 1. Double-click the queue.<br>2. In the **Queue Properties** dialog box, click **Reasons** in the left pane.<br>3. In the **Select a reason list to use when placing items On Hold in this queue** list, click the list you want to change and then click **Modify**. |

2. In the **Reason List** dialog box, on the **General** tab, change the name and description if necessary.

   **Note:** You cannot change the name of a system list (Apply Signature, Void/Expire Digital ID, or Void Signature).

3. To make the reason list inactive, clear the **Is active** check box.

   **Note:** You cannot disable a system list.

4. In the **List Members** tab, add, remove, or rearrange reasons.
5. Click **OK**.

## Add a reason list for putting an item on hold

When putting an item on hold in a workflow queue, the user must select the reason for the change from a reason list. To create and edit a reason list, complete the following steps.

1. Complete one of the following actions, depending on the situation.

| Situation | Steps |
| --- | --- |
| Create a hold reason list in Perceptive Content | 1. In **Management Console**, in the left pane, under **Select Department**, select a department from the list.<br>2. In the left pane, click **Workflow**.<br>3. On the **Reason Lists** tab, click **New**. |
| Create a hold reason list in **Workflow Designer** | 1. In **Workflow Designer**, double-click the queue.<br>2. In the **Queue Properties** dialog box, click **Reasons > New**. |

2. In the **Reason List** dialog box, type a name and optional description for the reason list and then leave the **Is active** check box selected.

3. On the **List Members** tab, add, remove, and rearrange reasons as necessary.
4. Click **OK**.

# Work with statistics

## What are statistics?

Statistics are calculations such as the maximum, minimum, and average of all the values in a specific column that appear in the search results for the view.

You can define statistics for any document view, folder view, task view, record view, or record folder view for which you have management privileges. You cannot define statistics for a public filter or a related view.

For any folder type for which you have management privileges, you can create a view that determines the appearance of the folder content results in Folder Viewer. You can also create a statistic for a workflow view, which defines the appearance when viewing the contents of a workflow queue. When you define a set of statistics for a folder content or workflow view, the statistics appear in a pane below the search results grid. In the statistics pane, you can view the statistics, highlight the search results in the grid that apply to the statistic, and, if only one document or folder matches the statistic value, open the document or folder.

The following examples demonstrate some ways you can use view statistics.

Accounts Payable: Theresa is an Accounts Payable administrator who wants to quickly view the total of all the invoices in her "OpenInvoices" view. This view contains a custom property column which stores the invoice amount for each document. Because it is a numeric custom property, Theresa adds a Sum statistic on this custom property column named "Total open amount". Every time she runs a search using this view, she sees the total invoice amount of all the documents returned by the search in the statistics pane.

Admissions: Sam is an Admissions director who wants to view the average ACT score of the students who applied to his university in the current academic year. His student folder view contains a custom property column which stores the ACT score for each student and a date range that spans the current academic year. Because the view uses a numeric custom property, Sam adds an Average statistic on this custom property column named "Average ACT."

Healthcare: Dr. Lovelace wants to quickly view the next task he is responsible for in his folder view that lists all his patients with document deficiencies. His view administrator adds a Next statistic to the task due date column in the view. When Dr. Lovelace logs in, he can quickly see the date the next task is due, highlight the document associated with the task, and open it in ImageNowViewer.

To view records functionality, you must install a Records Manager license.

# Data types for statistical functions

The statistical functions you can define depend on the data type of the column values. To add a statistic for a custom property column, you must first add the custom property column to the view. The following statistics are available for the specified data types.

## Statistical functions

### Average

***This function calculates the average of the column values.***

**Column value data type**

Numeric

**Sample columns**

Summary Task Count

*<Number custom property>*

### Count

***This function counts the number of values in the search results grid that match the selected variable (you must select a variable for this statistical function).***

**Column value data type**

String, list, flag

**Sample columns**

Folder Name

In Workflow

*<List custom property>*

*<String custom property>*

*<Flag custom property>*

### Count Future

***This function counts the number of the column's date values that occur in the future.***

**Column value data type**

Date

**Sample columns**

Next Task Due

Due Date

*<Date custom property>*

## Count Past

***This function counts the number of the column's date values that occur in the past.***

**Column value data type**

Date

**Sample columns**

Created

Last Viewed

*<Date custom property>*

## First

***This function distinguishes the earliest date in the column's search results.***

**Column value data type**

Date

**Sample columns**

Modified

Checked Out

*<Date custom property>*

## Last

***This function distinguishes the latest date in the column's search results.***

**Column value data type**

Date

**Sample columns**

Checked In

Assigned

*<Date custom property>*

## Maximum

***This function distinguishes the largest numeric value in the column's search results.***

**Column value data type**

Numeric

**Sample columns**

Pages

*<Number custom property>*

## Median

***The function distinguishes the middle value in the column's search results.***

**Column value data type**

**Sample columns**

Current Version

*<Number custom property>*

## Minimum

***This function distinguishes the smallest numeric value in the column's search results.***

**Column value data type**

Numeric

**Sample columns**

Days Until Due

*<Number custom property>*

## Mode

***This function distinguishes the most frequently occurring numeric value in the column's search results.***

**Column value data type**

Numeric

**Sample columns**

Summary Task Count

*<Number custom property>*

## Next

***This function distinguishes the next sequential date value in the column's search results.***

**Column value data type**

Date

**Sample columns**

Status Changed

*<Date custom property>*

## Previous

***This function distinguishes the previous sequential date value in the column's search results.***

**Column value data type**

Date

**Sample columns**

Completed

*<Date custom property>*

## Sum

***This function calculates the total of the values in the column's search results.***

**Column value data type**

Numeric

**Sample columns**

Pages

*<Number custom property>*

## Add view statistics overview

The configuration of a view statistic differs based on the data value type you select. You can create statistics for document, folder, folder content, record, task, and workflow views. To create a statistic for a view, complete any of the following procedures.

- Add a statistic for a date value.
- Add a statistic for a flag value.
- Add a statistic for a list value.
- Add a statistic for a numeric value.
- Add a statistic for a string value.

## Add a statistic for a date value

You can display the newest, oldest, or next date value in a list of search results, or display the total number of dates in the past or dates in the future. To add a statistic for a date value, complete the following steps.

**Prerequisite** Before you can add a statistic for a date custom property value, you must first add the custom property column to the view.

1. Access the view preview using one of the following methods.

| Situation | Steps |
|---|---|
| Create a date statistic for a view | 1. Open the view in **View Designer**.<br>2. In **View Designer**, click **View > Preview**. |
| Create a date statistic for a container content view | 1. In **Management Console**, in the left pane, select **Folder Types**.<br>2. In the right pane, select the folder type and click **Modify**.<br>3. In the **Folder Type** dialog box, on the **Appearance** tab, click the **Preview** button. |
| Create a date statistic for a workflow queue view | 1. Open the workflow process in **Workflow Designer**.<br>2. Double-click the queue to open the **Queue Properties** window.<br>3. In the **Queue Properties** window, in the left pane, select **Appearance**.<br>4. In the right pane, click **Preview**. |
| Create a date statistic for a workflow process view | 1. Open the workflow process in **Workflow Designer**. |

| Situation | Steps |
|---|---|
| | 2. Click **File > Properties**.<br>3. In the **Process Properties** dialog box, under **Appearance**, click **Preview**. |

2. In the **Preview** pane, click the **Statistics** button.
3. In the **Statistics** dialog box, click **Add**.
4. Under **Label**, type a label that describes the statistical function to appear in the search results grid.

   **Example** If adding a statistic to view the next task due date, type `Next task due`.
5. Under **Column**, select the view column with the date values.
6. Under **Function**, select one of the following options depending on the display variable you want to show:

| Situation | Steps |
|---|---|
| Total number of dates in the future | • Select **Count Future**. |
| Total number of dates in the past | • Select **Count past**. |
| Oldest date value | • Select **First**. |
| Newest date value | • Select **Last**. |
| The next future date | • Select **Next**. |
| The most recent date | • Select **Previous**. |

7. Optional. Under **Caption**, select the value to display when the statistic only applies to one search result.

   **Example** If a **Previous** statistic shows the last viewed item, and you want to quickly display the user name of the user who viewed the item, you can use the **Caption** column to select the **Last Viewed By** user.
8. Optional. To reorder the statistic, click the **Move Up** or **Move Down** button until the statistic reaches the desired position.
9. Click **OK**.

   The statistic appears below the grid in the **Preview** pane.
10. In the **Preview** pane, click the **Run** button to test the statistic's performance.

## Add a statistic for a flag value

You can add a statistic that distinguishes the number of search results that have a true or false (boolean) value. To add a statistic for a flag value, complete the following steps.

**Prerequisite** Before you can add a statistic for a flag custom property value, you must add the flag custom property column to the view.

1. Access the view preview using one of the following methods.

| Situation | Steps |
|---|---|
| Create a date statistic for a view | 1. Open the view in **View Designer**.<br>2. In **View Designer**, click **View > Preview**. |
| Create a date statistic for a container content view | 1. In **Management Console**, in the left pane, select **Folder Types**.<br>2. In the right pane, select the folder type and click **Modify**.<br>3. In the **Folder Type** dialog box, on the **Appearance** tab, click the **Preview** button. |
| Create a date statistic for a workflow queue view | 1. Open the workflow process in **Workflow Designer**.<br>2. Double-click the queue to open the **Queue Properties** window.<br>3. In the **Queue Properties** window, in the left pane, select **Appearance**.<br>4. In the right pane, click **Preview**. |
| Create a date statistic for a workflow process view | 1. Open the workflow process in **Workflow Designer**.<br>2. Click **File > Properties**.<br>3. In the **Process Properties** dialog box, under **Appearance**, click **Preview**. |

2. In the **Preview** pane, click the **Statistics** button.
3. In the **Statistics** dialog box, click **Add**.
4. Under **Label**, type a label that describes the statistical function to appear in the search results grid.

   **Example** If adding a statistic to count the number of documents or records assigned to a retention policy, type `Documents in Retention` or `Records in Retention`.
5. Under **Column**, select the view column with the flag values.
6. Under **Function**, select **Count**.

7. Under **Variable**, select whether you want to count the results that meet the TRUE condition or the FALSE condition.
8. Optional. Under **Caption**, select the value to display when the statistic applies to only one search result.

   **Example** If there is one version-controlled item in your search results, and you want to quickly display the user who marked the item private, you can use the **Caption** column to select the **Private By** user.
9. Optional. To reorder the statistic, click the **Move Up** or **Move Down** button until the statistic reaches the desired position.
10. Click **OK**.

    The statistic appears below the grid in the **Preview** pane.
11. In the **Preview** pane, click the **Run** button to test the statistic's performance.

## Add a statistic for a list value

You can add a Count statistic that distinguishes a unique value of a list custom property. To add a statistic for a list value, complete the following steps.

**Prerequisite** Before you can add a statistic for a list value, you must first add the list custom property column to the view.

1. Access the view preview using one of the following methods.

| Situation | Steps |
|---|---|
| Create a date statistic for a view | 1. Open the view in **View Designer**.<br>2. In **View Designer**, click **View > Preview**. |
| Create a date statistic for a container content view | 1. In **Management Console**, in the left pane, select **Folder Types**.<br>2. In the right pane, select the folder type and click **Modify**.<br>3. In the **Folder Type** dialog box, on the **Appearance** tab, click the **Preview** button. |
| Create a date statistic for a workflow queue view | 1. Open the workflow process in **Workflow Designer**.<br>2. Double-click the queue to open the **Queue Properties** window.<br>3. In the **Queue Properties** window, in the left pane, select **Appearance**.<br>4. In the right pane, click **Preview**. |

| Situation | Steps |
| --- | --- |
| Create a date statistic for a workflow process view | 1. Open the workflow process in **Workflow Designer**.<br>2. Click **File > Properties**.<br>3. In the **Process Properties** dialog box, under **Appearance**, click **Preview**. |

2. In the **Preview** pane, click the **Statistics** button.
3. In the **Statistics** dialog box, click **Add**.
4. Under **Label**, type a label that describes the statistical function to appear in the search results grid.

   **Example** If you have a list custom property to select the fiscal quarter associated with an invoice and you want to add a statistic to show fourth quarter invoices, type `Invoices in Q4`.
5. Under **Column**, select the list custom property.
6. Under **Function**, select **Count**.

   **Note: Count** is the only statistical function for list values.
7. In the **Variable** list, select an item from the list to use for the statistic.
8. Optional. Under **Caption**, select the value to display when the statistic applies to only one search result.

   **Example** If there is only one item added to workflow during the month of January, and you want to quickly display the user who added the item to workflow, you can use the **Caption** column to select the workflow user.
9. Optional. To reorder the statistic, click the **Move Up** or **Move Down** button until the statistic reaches the desired position.
10. Click **OK**.

    The statistic appears below the grid in the **Preview** pane.
11. In the **Preview** pane, click the **Run** button to test the statistic's performance.

## Add a statistic for a numeric value

You can display the average, sum, median, or mode statistic that distinguishes numeric values, such as the number of tasks or a custom property that stores an amount value. To add a statistic for a numeric value, perform the following steps.

**Prerequisite** Before you can add a statistic for a flag custom property value, you must add the flag custom property column to the view.

1. Access the view preview using one of the following methods.

| Situation | Steps |
|---|---|
| Create a date statistic for a view | 1. Open the view in **View Designer**.<br>2. In **View Designer**, click **View > Preview**. |
| Create a date statistic for a container content view | 1. In **Management Console**, in the left pane, select **Folder Types**.<br>2. In the right pane, select the folder type and click **Modify**.<br>3. In the **Folder Type** dialog box, on the **Appearance** tab, click the **Preview** button. |
| Create a date statistic for a workflow queue view | 1. Open the workflow process in **Workflow Designer**.<br>2. Double-click the queue to open the **Queue Properties** window.<br>3. In the **Queue Properties** window, in the left pane, select **Appearance**.<br>4. In the right pane, click **Preview**. |
| Create a date statistic for a workflow process view | 1. Open the workflow process in **Workflow Designer**.<br>2. Click **File > Properties**.<br>3. In the **Process Properties** dialog box, under **Appearance**, click **Preview**. |

2. In the **Preview** pane, click the **Statistics** button.
3. In the **Statistics** dialog box, click **Add**.
4. Under **Label**, type a label that describes the statistical function to appear in the search results grid.

   **Example** If adding a statistic to view the average amount of invoices, type `Average invoice amount`.
5. Under **Column**, select the view column with the flag values.
6. Under **Function**, select the display variable you want to show.
7. Optional. Under **Caption**, select the value to display when the statistic applies to only one search result.

   **Example** If a **Maximum** statistic displays the invoice with the highest amount, and you want to quickly display the user name of the user who last viewed the invoice, you can use the **Caption** column to select the **Last Viewed By** user.
8. Optional. To reorder the statistic, click the **Move Up** or **Move Down** button until the statistic reaches the desired position.

9. Click **OK**.
   The statistic appears below the grid in the **Preview** pane.
10. In the **Preview** pane, click the **Run** button to test the statistic's performance.

## Add a statistic for a string value

You can add a non-case sensitive Count statistic that distinguishes string values, such as a task template or drawer name. To add a statistic for a string value, which you can add at the view or filter level, perform the following steps.

**Prerequisite** Before you can add a statistic for a flag custom property value, you must add the flag custom property column to the view.

1. Access the view preview using one of the following methods.

| Situation | Steps |
|---|---|
| Create a date statistic for a view | 1. Open the view in **View Designer**.<br>2. In **View Designer**, click **View > Preview**. |
| Create a date statistic for a container content view | 1. In **Management Console**, in the left pane, select **Folder Types**.<br>2. In the right pane, select the folder type and click **Modify**.<br>3. In the **Folder Type** dialog box, on the **Appearance** tab, click the **Preview** button. |
| Create a date statistic for a workflow queue view | 1. Open the workflow process in **Workflow Designer**.<br>2. Double-click the queue to open the **Queue Properties** window.<br>3. In the **Queue Properties** window, in the left pane, select **Appearance**.<br>4. In the right pane, click **Preview**. |
| Create a date statistic for a workflow process view | 1. Open the workflow process in **Workflow Designer**.<br>2. Click **File > Properties**.<br>3. In the **Process Properties** dialog box, under **Appearance**, click **Preview**. |

2. In the **Preview** pane, click the **Statistics** button.
3. In the **Statistics** dialog box, click **Add**.
4. Under **Label**, type a label that describes the statistical function to appear in the search results grid.

**Example** If adding a statistic to count the number of items scanned by the department manager, type `Scanned by Manager`.

5. Under **Column**, select the view column with the string values.
6. Under **Function**, select Count.

   **Note:** Count is the only statistical function for string values.

7. Under **Variable**, type the value for the statistic, such as the drawer name or task template name.
8. Optional. Under **Caption**, select the value to display when the statistic applies to only one search result.

   **Example** If there is only one items for a specific vendor in your workflow process, and you want to quickly determine if it is an invoice or a purchase order, you can use the **Caption** column to show the **Document Type**.

9. Optional. To reorder the statistic, click the **Move Up** or **Move Down** button until the statistic reaches the desired position.
10. Click **OK**. The statistic appears below the grid in the **Preview** pane.
11. In the **Preview** pane, click the **Run** button to test the statistic's performance.

## Modify a statistic

To modify the components of a statistic defined for a view, complete the following steps.

1. Access the view preview using one of the following methods.

| Situation | Steps |
|---|---|
| Create a date statistic for a view | 1. Open the view in **View Designer**.<br>2. In **View Designer**, click **View > Preview**. |
| Create a date statistic for a container content view | 1. In **Management Console**, in the left pane, select **Folder Types**.<br>2. In the right pane, select the folder type and click **Modify**.<br>3. In the **Folder Type** dialog box, on the **Appearance** tab, click the **Preview** button. |
| Create a date statistic for a workflow queue view | 1. Open the workflow process in **Workflow Designer**.<br>2. Double-click the queue to open the **Queue Properties** window.<br>3. In the **Queue Properties** window, in the left pane, select **Appearance**. |

| Situation | Steps |
|---|---|
| | 4. In the right pane, click **Preview**. |
| Create a date statistic for a workflow process view | 1. Open the workflow process in **Workflow Designer**.<br>2. Click **File > Properties**.<br>3. In the **Process Properties** dialog box, under **Appearance**, click **Preview**. |

2. In the **Preview** pane, click the **Statistics** button and then, in the **Statistics** dialog box, click the row of the statistic you want to change.
3. Do one of the following actions.
   - To change the statistic definition, highlight the statistic row and then modify the components you want to change.
   - To reposition the statistic, click **Move Up** to move it ahead of the preceding statistic, or click **Move Down** to move it after the following statistic.
4. Click **OK**.
5. In the **Preview** pane, click the **Run** button to test the statistic's performance.

## Remove a statistic

To remove a statistic from a view, complete the following steps.

1. Access the view preview using one of the following methods.

| Situation | Steps |
|---|---|
| Create a date statistic for a view | 1. Open the view in **View Designer**.<br>2. In **View Designer**, click **View > Preview**. |
| Create a date statistic for a container content view | 1. In **Management Console**, in the left pane, select **Folder Types**.<br>2. In the right pane, select the folder type and click **Modify**.<br>3. In the **Folder Type** dialog box, on the **Appearance** tab, click the **Preview** button. |
| Create a date statistic for a workflow queue view | 1. Open the workflow process in **Workflow Designer**.<br>2. Double-click the queue to open the **Queue** |

| Situation | Steps |
| --- | --- |
| | **Properties** window.<br>3. In the **Queue Properties** window, in the left pane, select **Appearance**.<br>4. In the right pane, click **Preview**. |
| Create a date statistic for a workflow process view | 1. Open the workflow process in **Workflow Designer**.<br>2. Click **File > Properties**.<br>3. In the **Process Properties** dialog box, under **Appearance**, click **Preview**. |

2. In the **Preview** pane, click the **Statistics** button.
3. In the **Statistics** dialog box, click the row of the statistic you want to remove and click **Remove**.
4. Click **Yes** in the confirmation prompt and then, in the **Statistics** dialog box, click **OK**.

**Result** Removing a statistic does not remove the column from the view.

# Work with rules and scripts

## What are rules and scripts?

Rules and scripts help you manage items as you move them through workflow queues.

In Workflow Designer, rules let you create conditional alarms and routes. Typically, you would use workflow rules to set up alarms and to route items through your work queues. You can create rules and specify conditions in order to trigger an event on a queue. There are two types of rules: Routing and Alarm. Once you have created your rules, you set the order in which you want to apply them, and then you activate them.

Scripts are typically used when you want to automate actions such as to printing, faxing or emailing. You might also use a script to strip elements from a numeric string, such as slashes from a telephone number or hyphens from a social security number.

You can define rules and scripts as part of a queue's properties.

## Add a rule action to a queue

To add a routing or alarm rule to a workflow queue as a within queue action, complete the following steps.

1. Double-click the queue.
2. In the **Queue Properties** dialog box, in the left pane, do one of the following actions.

| Situation | Steps |
| --- | --- |
| To add a routing rule to the queue | 1. Click **Actions**.<br>2. In the right pane, on the **Within Queue** tab, in the **Action** list, select the routing rule.<br>3. Optional. Set a waiting period that must elapse before the action is executed by selecting or typing a number in the **Skip items in queue less than** box, and then in the list, select the duration type of minutes, hours, or days. |
| To add an alarm to the queue | 1. Click **Alarms**.<br>2. In the right pane, click **Add**.<br>3. In the **Select Alarm** dialog box, click **New**.<br>4. In the **Alarm Settings** dialog box, type a name for the rule.<br>5. Verify the **Status** is set to **Active**.<br>6. In the **Alarm rule** list, select the alarm rule and click **OK**.<br>7. In the **Select Alarms** dialog box, select the alarm and click **Add**. |

**Note:** The **Timeout Period** for alarm rules only applies if the client loses communication with Alarm Agent. Contact Perceptive Software Product Support before changing this setting.

3. Click **OK** until you return to **Workflow Designer**.

# Rules

## Create a conditional route overview

To route items between workflow queues based on a set of conditions, complete the following procedures.

1. Create a routing rule.
2. Add a rule statement.
3. Modify rule statement conditions.
4. Modify a routing rule statement action.
5. Activate a rule.
6. Create a conditional route.

### Create a routing rule

To create a routing rule used to route items between workflow queues, complete the following steps.

1. In **Workflow Designer**, in the **Tasks** pane, click **Actions**.
2. Click **Manage Actions**.
3. In the **Action Settings** dialog box, on the **Rules** tab, click **New**.
4. In the **Rules Editor**, in the **Rules name** box, type a name.
5. Click **OK** until you return to **Workflow Designer**.

### Add a rule statement

To copy a statement for a workflow routing rule to simplify new statement creation, complete the following steps.

1. In **Workflow Designer**, in the **Tasks** pane, click **Actions**.
2. Click **Manage Actions**.
3. In the **Action Settings** dialog box, on the **Rules** tab, select the rule you want to modify and then click **Modify**.
4. In the **Rules Editor**, under **Statements**, click **New**.
5. In the **Statement Editor**, edit the rule name, define conditions, and set statement actions.
6. Click **OK** until you return to **Workflow Designer**.

### Modify rule statement conditions

To modify the conditions associated with a statement that is part of a workflow routing rule, complete the following steps.

1. In **Workflow Designer**, in the **Tasks** pane, click **Actions**.
2. Click **Manage Actions**.
3. In the **Action Settings** dialog box, on the **Rules** tab, select the rule you want to modify and then click **Modify**.
4. In the **Rules Editor**, under **Statements**, select a statement and click **Modify**.

5. In the **Statement Editor**, complete any of the following actions.

| Situation | Steps |
|---|---|
| Add statement conditions | 1. Under **Conditions**, click the **Add** button and create the conditions you want to use with this rule.<br>2. Repeat step for each condition you want to create. |
| Change statement conditions | 1. Under **Conditions**, double-click the condition and modify the condition.<br>2. Repeat step for each condition you want to change. |
| Remove statement conditions | 1. Under **Conditions**, select the condition.<br>2. Click the **Delete** button.<br>3. Repeat steps for each condition you want to delete. |
| Reorder statement conditions | 1. Under **Conditions**, select the condition.<br>2. Click the **Move Up** or **Move Down** button.<br>3. Repeat step for each condition you want to change. |
| Group or upgroup statement conditions | 1. Under **Conditions**, select the condition or conditions.<br>2. Click the **Group** or **Ungroup** button.<br>3. Repeat step for each condition you want to change. |
| Change a statement condition operator | • Under **Conditions**, click the **AND** or **OR** operator. |

6. Click **OK** until you return to **Workflow Designer**.

**Modify a routing rule statement action**

To to modify the action for a statement in a workflow routing rule, complete the following steps.

1. In **Workflow Designer**, in the **Actions** pane, click **Manage Actions**.
2. In the **Action Settings** dialog box, on the **Rules** tab, select the routing rule you want to modify and click **Modify**.

3. In the **Rules Editor** dialog box, under **Statements**, select the statement and click **Modify**.
4. In the **Statement Editor**, under **Actions**, select the action and click **Modify**.
5. If modifying a routing action, in the **Queues** dialog box, as necessary, select a workflow process and add or remove queues.
6. If modifying a **Set custom property** action, in the **Set Custom Property** dialog box, as necessary, select a custom property from the list and then, under **Set value to**, complete one of the following options.
   - In the **Supplied value** field, type a value or select one from the list.
   - To set the selected property to another property of the same type, select **Property** and then select a value from the list.

   You cannot set a list or flag custom property to a property of the same type. To set a property to a blank value, leave the field blank or select the blank value from the list.
7. Click **OK** to return to the **Rules Editor**.
8. In the **Rules Editor**, if you have more than one statement, reorder the statements as necessary.

   Statement processing stops after any statement evaluates true, so the order of the statements is important if an item could evaluate true for more than one statement. The statement order determines the processing priority.
9. Under **Status**, click **Active** and then click **OK** until you return to **Workflow Designer**.

#### Activate a rule

To make a routing or alarm rule active, complete the following steps.

1. In **Workflow Designer**, in the **Tasks** pane, click **Actions**.
2. Click **Manage Actions**.
3. In the **Action Settings** dialog box, on the **Rules** tab, select the rule you want to modify and then click **Modify**.
4. In the **Rules Editor**, under **Status**, select **Active**.
5. Click **OK** until you return to **Workflow Designer**.

#### Create a conditional route

To create an outbound route for a workflow that routes item to specified queues based on a condition, complete the following steps.

1. Double-click the queue.
2. In the **Queue Properties** window, in the left pane, click **Routes**.
3. In the right pane, on the **Routes Out** tab, click **Add**.
4. In the **Add Route Out** dialog box, on the **General** tab, in the **Name** box, type a name for your route.
5. In the **Type** list, select **Conditional**.
6. Optional. In the **Conditions** list, select **Edit Rules...**. In the **Rules** dialog box, complete any of the following substeps.
   1. To create a new rule, click **New...**, and in the **Rules Editor** dialog box, define the Rule name, Rule type, and Statements for the rule, and click **OK**..

2. To modify an existing rule, select the rule, and click **Modify**. In the **Rules Editor** dialog box, edit the Rule name, Rule type, and Statements for the rule, and click **OK**.
3. To share the rule with another department, click **Share**. In the **Share <Rule name>** dialog box, check the boxes of the departments you want to share the reason list with, and then click **OK**.

7. In the **Condition** list, select the conditional routing rule.
8. Click **OK** until you return to **Workflow Designer**.

## Create a conditional parallel route overview

A conditional parallel routing rule is evaluated when you manually route an item forward. To create an outgoing conditional parallel route for a workflow queue, complete the following sequence of procedures.

1. Create a conditional parallel routing rule.
2. Create a conditional parallel route.
3. Set a queue as a join queue.
4. Test conditional parallel routing.

### Create a conditional parallel routing rule

To create a routing rule you can define for a conditional parallel route, complete the following steps.

1. In **Workflow Designer**, in the **Actions** pane, click **Manage Actions**.
2. In the **Action Settings** dialog box, on the **Rules** tab, click **New**.
3. In the **Rules Editor** dialog box, in the **Rule name** box, type a name.
4. In the **Rule type** box, click **Routing rule**.
5. Under **Statements**, click **New** and complete the following substeps.
   1. In the **Statement Editor**, in the **Statement name** box, type a name.
   2. Under **Conditions**, click the **Add** button and create the conditions you want to use with this rule.
6. Under **Actions**, complete any of the following steps.
   1. To route the workflow items to a queue when the item meets the conditions, click **Add > Route To**.
   2. To set a custom property value when the item meets conditions, click **Add > Set custom property**.
7. If routing to a queue, in the **Queues** dialog box, select a workflow process and queue and click **Add**.
8. If setting a custom property value, in the **Set Custom Property** dialog box, select a custom property from the list and then, under **Set value to**, complete one of the following options.
   - In the **Supplied value** field, type a value or select one from the list.
   - To set the selected property to another property of the same type, select **Property** and then select a value from the list.

   You cannot set a list or flag custom property to a property of the same type. To set a property to a blank value, leave the field blank or select the blank value from the list.
9. Click **OK** to return to the **Rules Editor**.

10. In the **Rules Editor**, if you have more than one statement, reorder the statements as necessary.

    Statement processing stops after any statement evaluates true, so the order of the statements is important if an item could evaluate true for more than one statement. The statement order determines the processing priority.
11. Under **Status**, click **Active** and then click **OK** until you return to **Workflow Designer**.

### Create a conditional parallel route

To create an outbound route that conditionally routes a workflow item in parallel to another queue, complete the following steps.

1. Double-click the queue for which you want to create the outbound route.
2. In the **Queue Properties** dialog box, in the left pane, click **Routes**.
3. In the right pane, on the **Routes Out** tab, click **Add**.
4. In the **Add Route Out** dialog box, on the **General** tab, in the **Name** box, type a name.
    1. In the **Condition** list, select the conditional parallel route you created in the previous procedure and click **OK**.
5. In the **Type** list, select **Conditional Parallel**.
6. Optional. In the **Conditions** list, select **Edit Rules...**. In the **Rules** dialog box, complete any of the following substeps.
    1. To create a new rule, click **New...**, and in the **Rules Editor** dialog box, define the Rule name, Rule type, and Statements for the rule, and click **OK**..
    2. To modify an existing rule, select the rule, and click **Modify**. In the **Rules Editor** dialog box, edit the Rule name, Rule type, and Statements for the rule, and click **OK**.
    3. To share the rule with another department, click **Share**. In the **Share <Rule name>** dialog box, check the boxes of the departments you want to share the reason list with, and then click **OK**.
7. In the **Condition** list, select the conditional routing rule.
8. In the **Queue Properties** dialog box, click **OK**.

### Test conditional parallel routing

To determine whether items are evaluated and routed in correctly in a conditional parallel process, complete the following steps.

1. Add an item to the first queue in your parallel workflow process.
2. Route the workflow item through the conditional route.
3. Ensure that the workflow item siblings end up in the correct queues according to whether the workflow item met the conditional rule.
4. In the parallel queues, verify that each parallel queue has a sibling of the workflow item that is supposed to have a sibling.
5. In the parallel queues, route each sibling to the Join queue in the process.
6. In the queue you designated as the Join queue, verify that the workflow siblings have joined together. If you see `Waiting for siblings`, then at least one sibling still needs to be routed to the Join queue.

## Create an out of office event rule overview

To create a routing or alarm rule for use with an out of office event in workflow, complete the following procedures.

1. Verify the queue user has an active out of office event configured in **Management Console**.
2. Create a routing rule or Create an alarm rule.
3. Add a rule statement.
4. Create an out of office rule statement condition.
5. Optional. Modify rule statement conditions.
6. Modify a routing rule statement action.
7. Reorder rule statements.
8. Activate a rule.
9. Add a rule action to a queue.
10. Test an alarm.

### Create an out of office rule statement condition

To create a condition for a statement associated with an out of office alarm or routing rule in workflow, complete the following steps.

1. In **Workflow Designer**, in the **Tasks** pane, click **Actions**.
2. Click **Manage Actions**.
3. In the **Action Settings** dialog box, on the **Rules** tab, select the rule you want to modify and then click **Modify**.
4. In the **Rules Editor**, under **Statements**, complete one of the following options.
   - To add the out of office condition to an existing statement, select the statement and click **Modify**.
   - To add the out of office condition to a new statement, click **New**.
5. In the **Statement Editor**, under **Conditions**, click the **Add** button and then, in the **Add Condition** dialog box, complete the following substeps.
   1. In the **Constrain by** list, select **Status**.
   2. In the **Field** list, select **Queue is unattended**.
   3. In the **Operator** list, select **is equal to**.
   4. In the **Value** list, select **Yes**.
   5. Click **OK**.
6. Click **OK** until you return to **Workflow Designer**.

## Modify a rule overview

From the Rules Editor, you can create statements, change the order of statements, change the attributes of a statement, remove statements, or disable rules. To modify a rule, complete any of the following procedures.

- Reorder rule statements.
- Add a rule statement.
- Copy a rule statement.
- Delete a rule statement.
- Modify rule statement conditions.
- Modify a routing rule statement action.

## Routing and alarm rule conditions

The following tables contain the condition and action options for routing and alarm rules in Workflow Designer. Applied as inbound, within queue, or outbound actions, rule conditions are evaluated as you route items into, within, or out of workflow queues. A rule can contain multiple conditions and actions. To activate a rule, you must configure at least one condition and one action.

**Note** Message Center, Icon, and Audible alarms are not activated for owners, managers, or users with the Department Privileges > Manage > Workflow Processes privilege.

**Conditions**

To automatically route a workflow item or to trigger an alarm, you must define a condition. The following table lists conditions, explains whether the condition is available for routing or alarm rules, lists configuration criteria, and gives an example of how to use the condition. By default, the condition under the Required for Alarm Rules column must be configured with the alarm condition.

If you delete an element used in a rule condition, such as a document type or a workflow queue, Workflow Designer automatically disables the rule. In the Statement Editor for the routing or alarm rule, the disabled condition appears as (invalid condition).

## Content property

***A property value associated with a workflow item, such as a document key or type.***

**Type**

Routing rule

Alarm rule

**Criteria**

Select Drawer, Field1, Field2, Field3, Field4, Field5, Document type, Name, or Type

To use a custom property as a routing condition, define a custom property that is directly assigned to the document or folder type and that is not part of a composite custom property. If you define a composite property as a routing condition, that condition is evaluated as FALSE and the items are not routed.

**Example**

```
IF Drawer is equal to Default
```

## Custom property

***A custom property value associated with a workflow item.***

**Type**

Routing rule

Alarm rule

**Criteria**

is equal to, is not equal to, is less than, is greater than, is less than or equal to, is greater than or equal to

**Example**

```
IF Amount is equal to 100
```

## Status

***A status associated with the workflow item.***

**Type**

Routing rule

Alarm rule

**Criteria**

Select Has required documents, Folder status, Digital signature status, Summary task status, Item priority, or Queue is unattended

**Example**

```
IF Priority is equal to Low
```

## Task property

***A property of a task associated with the workflow item.***

**Type**

Routing rule

Alarm rule

**Criteria**

Select Task due date, Task status, Summary task due date, or Summary task status

**Example**

```
IF Task state is equal to any task with state Assigned
```

## User

***A user who performs an action on the workflow item.***

**Type**

Routing rule

Alarm rule

**Criteria**

Select Created by, Digital signature user, or Routing user

**Example**

```
IF Creation user is equal to LWalker
```

## Workflow item property

***A property of the item in the workflow process or queue.***

**Type**

Routing rule

Alarm rule

**Criteria**

Queue item count, Creation time, Time in queue, or Routed from queue

**Example**

```
IF Time in queue is equal to 2 Days
```

### Actions

To complete a rule statement, you must select an action. You can use the routing actions to specify the queue where an item is routed and to set a custom property value for that item. With alarm rules, you choose the type of alarms you want users to receive. The following table lists actions, explains whether the condition is available for routing or alarm rules, lists configuration criteria, and gives an example of how to use the condition.

## Route to *<specified queue>*

***Route to a specific queue if rule conditions are met, such as `IF the queue contains at least <X> workflow items.`***

**Type**

Routing rule

**Criteria**

Select any queue from an existing process.

**Example**

```
THEN Route to Insurance: Approved
```

## Set custom property

***Set a custom property value if rule conditions are met, such as `IF the queue contains at least <X> workflow items.`***

**Type**

Routing rule

**Criteria**

Select a date, number, string, flag, list, or user custom property

**Example**

```
ALWAYS Set custom property Invoice Status to 'Paid'
```

## Send *<email>*

***Send an email if rule conditions are met, such as `IF the queue contains at least <X> workflow items.`***

**Type**

Alarm rule

**Criteria**

Enter alarm name, e-mail header information, e-mail message, and select e-mail interval.

**Example**

```
THEN E-mail Heads up!
```

## *<Message Center>*

***Display a message in the Message Center if rule conditions are met, such as `IF the queue contains at least <X> workflow items.`***

**Type**

Alarm rule

**Criteria**

Enter alarm name, message title, and message body.

**Example**

```
THEN Notify Time's up
```

## Flash *<icon>*

***Flash the ImageNow icon if rule conditions are met, such as `IF the queue contains at least <X> workflow items.`***

**Type**

Alarm rule

**Criteria**

Enter alarm name, choose alarm color, and alarm frequency.

**Example**

```
THEN Flash icon Ready for Review
```

## Play *<sound>*

***Play an audible alarm when rule conditions are met, such as `IF the queue contains at least <X> workflow items.`***

**Type**

Alarm rule

**Criteria**

Enter alarm name, choose a WAV file, and play interval.

**Example**

```
THEN Play sound Limit Exceeded
```

### Remove a rule

To remove a rule from a workflow process, complete the following steps.

1. From the **Workflow DesignerTask** pane, click **Actions**.
2. In the **Task** pane, click **Manage Actions**.
3. In the **Rules** dialog box, select the rule you want to remove, and then click **Remove**.
4. When prompted to verify that you want to remove this rule, click **Yes**.
5. Click **OK** and return to **Workflow Designer**.

### Reorder rule statements

To modify a workflow routing rule by reordering the statements in the rule, complete the following steps.

1. In **Workflow Designer**, in the **Tasks** pane, click **Actions**.
2. Click **Manage Actions**.
3. In the **Action Settings** dialog box, on the **Rules** tab, select the rule you want to modify and then click **Modify**.
4. In the **Rules Editor**, under **Statements**, select a statement.
5. Click **Move Up** or **Move Down** as necessary.
6. Click **OK** until you return to **Workflow Designer**.

## Scripts

### Add a script to a process

To add a script to a workflow process, complete the following steps.

1. From the **Workflow Designer** task pane, click **Actions**.
2. In the task pane, click **Manage Actions**.
3. In the **Action Settings** dialog box, click the **iScripts** tab.
4. On the **iScripts** tab, click **Add**.
5. On the **Select iScripts** dialog box, select the server script you want to add, and then click **OK** until you return to **Workflow Designer**.

**Result** You do not need to restart Workflow Agent or any other server agents after you add an iScript in Workflow Designer.

### Remove a script

To remove a script from a queue, complete the following steps.

1. Double-click the queue from which you want to remove a script.

2. In the **Queue Properties** dialog box, click **Actions**.
3. In the **Action** list containing the script you want to remove, click **Edit Actions**.
4. In the **Action Settings** dialog box, on the **iScripts** tab, select a script, and then click **Remove**.
5. Click **OK** until you return to **Workflow Designer**.

## Run a script upon opening a workflow item

You can create a VBScript that executes each time a workflow item is open. This is a global script that executes for all workflow queues in all workflow processes that exist on the ImageNow Server you are running. To run a script upon opening a workflow item, complete the following steps.

1. Open a workflow item.
2. In **ImageNowViewer**, click **Workflow > Page Load Script**.
3. In the **Workflow Page Load Script** dialog box, type in your VBScript, and then click **OK**.
4. Close the item, and then in the confirmation box, click **Yes**.