Red Hat Process Automation Manager 7.0

Managing and monitoring business processes in Business Central

Last Updated: 2020-05-05

Red Hat Process Automation Manager 7.0 Managing and monitoring business processes in Business Central

Red Hat Customer Content Services
brms-docs@redhat.com

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Abstract

This document explains how to manage and monitor your running business processes in Red Hat Process Automation Manager 7.0.

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PREFACE

As a process administrator, you can use Business Central in Red Hat Process Automation Manager to manage and monitor process instances and tasks running on a number of projects. From Business Central you can start a new process instance, verify the state of all process instances, and abort processes. You can view the list of jobs and tasks associated with your processes, as well as understand and communicate any process errors.

Prerequisites

- Installed Red Hat JBoss Enterprise Application Platform 7.1.0. See *Red Hat JBoss EAP 7.1.0 Installation Guide*.
- Installed Red Hat Process Automation Manager. For more information, see the *Planning a Red Hat Process Automation Manager installation*.
- Red Hat Process Automation Manager is running and you can log in to Business Central with the **process-admin** role. For more information, see the *Planning a Red Hat Process Automation Manager installation*.

CHAPTER 1. MONITOR BUSINESS PROCESSES

Red Hat Process Automation Manager provides real-time monitoring for your business processes and includes the following capabilities:

- Business managers can monitor processes in real time.
- Customers can monitor the current status of their requests.
- Administrators can easily monitor any errors related to process execution.

CHAPTER 2. PROCESS DEFINITIONS

After you have created, configured, and deployed your project that includes your business processes, you can view the list of all the process definitions in **Menu → Manage → Process Definitions**. You can refresh the list of deployed process definitions at any time by clicking the refresh button in the upper-right corner.

The process definition list shows all the available process definitions that are deployed into the platform. Click on any of the process definitions listed to show the corresponding process definition details. This displays information about the process definition, such as if there is a sub-process associated with it, or how many users and groups exist in the process definition.

In the process definition details section, you can click the **Diagram** tab to view associated BPMN2-based diagram of the process definition . You can also deploy a new process instance for the process definition by clicking the **New Process Instance** button in the upper-right corner.

CHAPTER 3. STARTING A PROCESS INSTANCE FROM BUSINESS CENTRAL

After a project has been deployed to the Process Server, you can start a new process instance from Business Central. You can start a new process instances in Business Central in two ways:

Prerequisite

- A project with a process definition has been deployed in Business Central.

3.1. STARTING A PROCESS INSTANCE FROM THE PROCESS DEFINITIONS PAGE

A process instance can be started from the **Manage Process Definitions** page. This is useful for environments where you are working with several projects or process definitions at the same time.

Procedure

1. Click **Menu → Manage → Process Definitions**.
2. Select the process definition for which you want to start a new process instance from the list. The details page of the definition opens.
3. Click the **New Process Instance** button in the upper-right corner to start a new process instance.
4. Provide any required information for the process instance.
5. Click **Submit** to create the process instance.
6. View the new process instance in the **Manage Process Instances** list under **Menu → Manage → Process Instances**.

3.2. STARTING A PROCESS INSTANCE FROM THE PROCESS INSTANCES PAGE

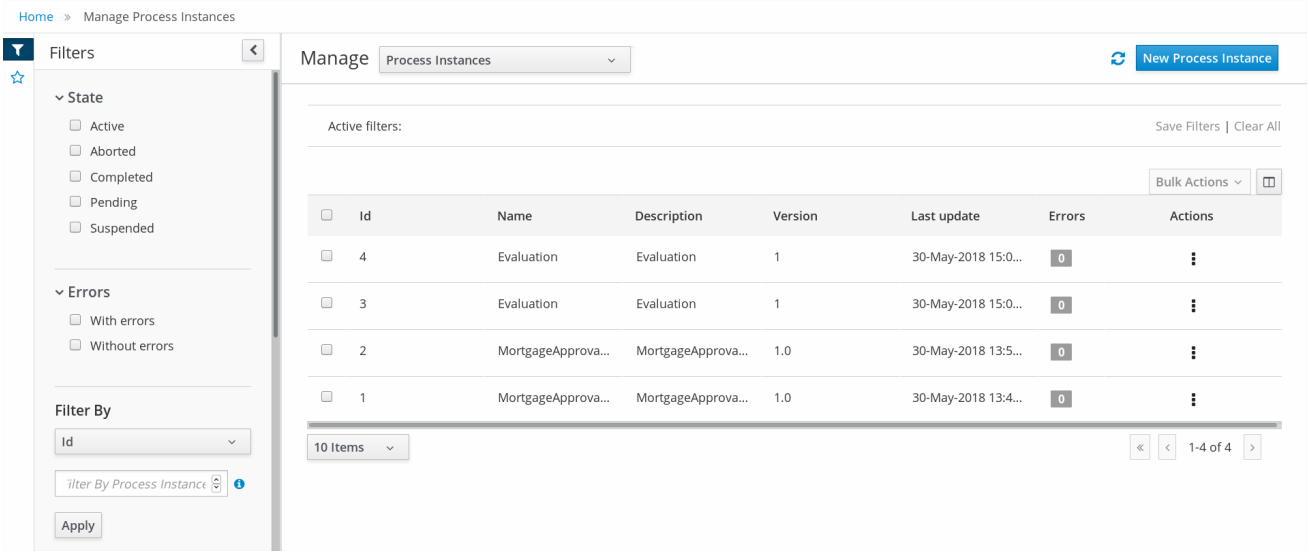
You can create new process instances or view the list of all the running process instances in the **Manage Process Instances** list under **Menu → Manage → Process Instances**.

1. Click **Menu → Manage → Process Instances**.
2. Click the **New Process Instance** button in the upper-right corner and select the process definition for which you want to start a new process instance from the drop-down list.
3. Provide any information required to start a new process instance.
4. Click **Start** to create the process instance.
   The new process instance appears in the **Manage Process Instances** list.

After a process has been started, you can view the list of process instances running in your project in the **Manage Process Instances** page by clicking **Menu → Manage → Process Instances**.

CHAPTER 4. VIEW PROCESS INSTANCE DETAILS

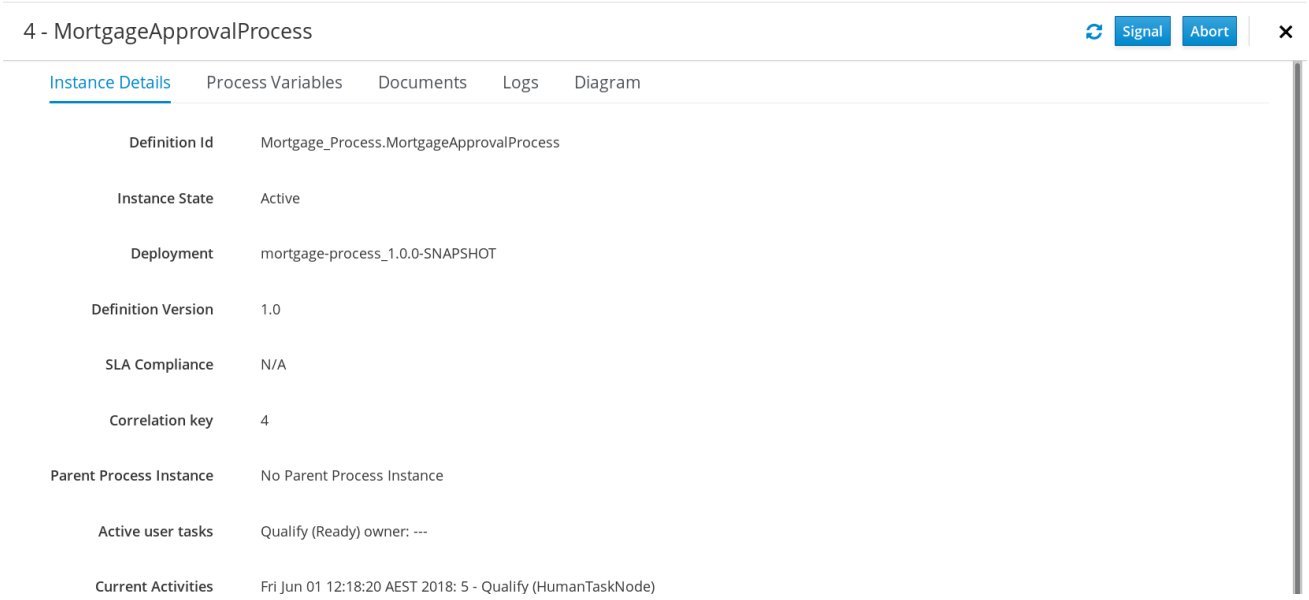
Figure 4.1. Features in the Manage Process Instances page



You can view all process instances under **Menu → Manage → Process Instances**. Each row in the **Manage Process Instances** list represents a process instance from a particular process definition. Each execution is differentiated from all the others by the internal state of the information that the process is manipulating.

In order to view this information, you can click on any one of the process instances and view the corresponding details.

The process instance page provides several tabs with run time information related to the process.



- The **Instance Details** tab: This gives you a quick overview about what is going on inside the process. It displays the current state of the instance and the current activity that is being executed.

- The **Process Variables** tab: This displays all of the process variables that are being manipulated by the instance, with the exception of the variables that contain documents. Additionally, you can edit the process variable value and view its history.

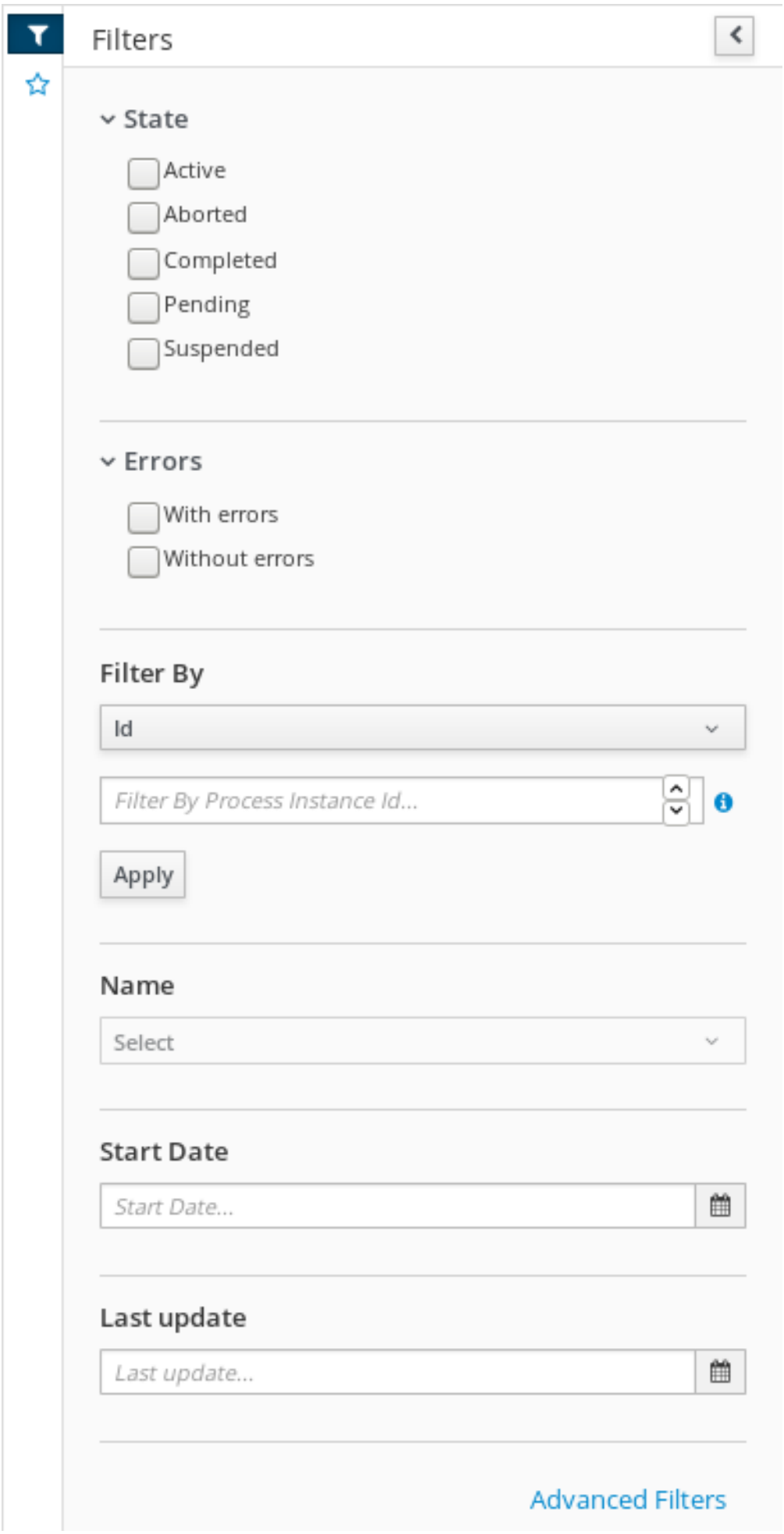
- The **Documents** tab: This displays process documents if the process contains a variable of the type **org.jbpm.Document**. This enables easy access, download, and manipulation of the attached documents.
- The **Logs** tab: This displays business and technical logs for the respective end users.
- The **Diagram** tab: This tracks the progress of the process instance through the BPMN2 diagram. The node or nodes of the process flow that are in progress are highlighted in red.

For information on user credentials and conditions to be met to access Intelligent Process Server run time data, see the *Planning a Red Hat Process Automation Manager installation* .

CHAPTER 5. PROCESS INSTANCE FILTERING

Access the **Process Instances** list by clicking **Menu → Manage → Process Instances**.

Figure 5.1. Filtering Process Instances - Default View



Process instances can be filtered on the following attributes:

Id

Filter by process instance ID.
Input: **Numeric**

Initiator

Filter by the user ID of the process instance initiator.
The user ID is a unique value, and depends on the ID management system.

Input: **String**

Correlation key

Filter by correlation key. For more information about correlation keys, see the Red Hat Process Automation Manager Development Guide.
Input: **String**

Description

Filter by process instance description.
Input: **String**

State

Filter by different states. You can select more than one status to display results that meet any of the selected states. Removing the status filter displays all processes, regardless of status.
The following filter states are available:

- Active
- Aborted
- Completed
- Pending
- Suspended

Errors

Filter by process instances with or without errors.

Name

Filter by project name.

Date and time filtering

Start Date

When the process was started.

Last Update

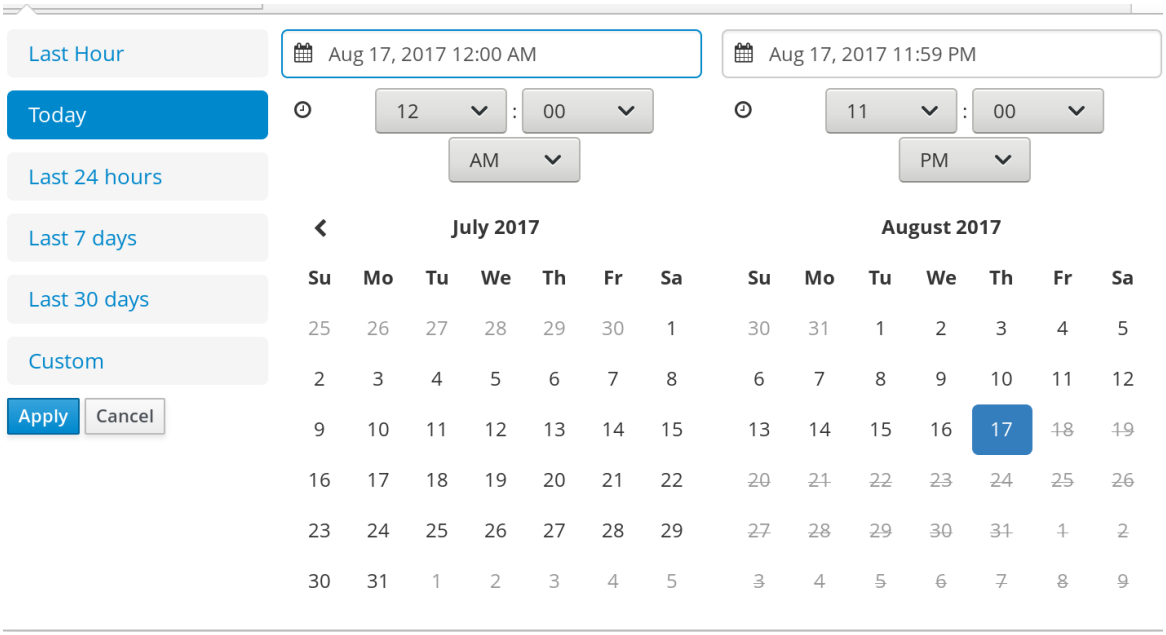
When the process was updated or modified.

Each of these filters have the following quick filter options:

- Last Hour

- Today
- Last 24 Hours
- Last 7 Days
- Last 30 Days
- Custom
  Selecting **Custom** date and time filtering opens a calendar tool for selecting a date and time range.

Figure 5.2. Process Instances Search by Date Range



5.1. SEARCHING PROCESS INSTANCES BASED ON BUSINESS DATA

You can add process variables as columns in the process instance list in order to enable flexible filtering of process instances based on business data:

1. Log in to Business Central and click **Menu → Manage → Process Instances**.
2. In the **Manage Process Instances** page, click the button on the left to open the list of process instance filter options.
3. At the bottom of the **Filters** list, click **Advanced Filters**.
4. In the **New Process Instance List** dialog box, perform the following:
   a. Provide the name and description for your search process instance list.
   b. Add a new query filter:
      i. Click **Add New**.
      ii. From the list of filter values, select **processId** and **equalsTo**.
      iii. Provide a valid **processId** value and click **Ok**.

A new filter is created and immediately applied to the process instances list. It is also saved in the **Saved Filters** list. You can access saved filters by clicking on the left side of the **Manage Process Instances** page.

5.2. CREATING A CUSTOM PROCESS INSTANCE LIST

You can view the list of all the running process instances in the Process Instance List under **Menu → Manage → Process Instances**.

From this page, you can manage the instances during run time and monitor their execution. You can customize which columns are displayed, the number of rows displayed per page, and filter the results.

Use the following procedure to create a custom process instance list:

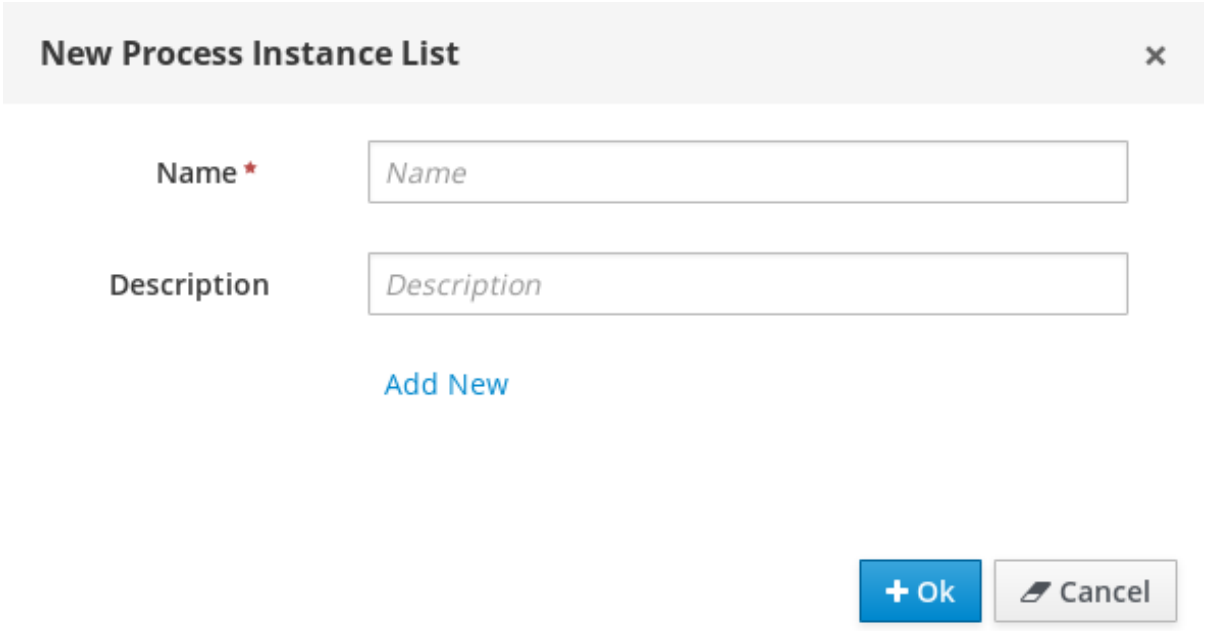
Prerequisite

- A project with a process definition has been deployed in Business Central.

Procedure

1. Log in to Business Central and click **Menu → Manage → Process Instances**.
2. In the **Manage Process Instances** page, click the button on the left to open the list of process instance filter options.
3. At the bottom of the **Filters** list, click **Advanced Filters**.
   The following **New Process Instance List** dialog box opens:

   Figure 5.3. New Process Instance List



4. In the **New Process Instance List** window, fill in the **Name** (this is the name of the saved filter).
5. Click **Add New**.

a. From the list of filter values, select the appropriate filter condition and its value. You can add more filters by clicking **Add New**.

b. Once you have specified all your filter conditions, click **Ok**.
A new filter is created and saved in the **Saved Filters** list. You can access saved filters by clicking on the left side of the **Manage Process Instances** page.

5.3. ABORTING A PROCESS INSTANCE USING BUSINESS CENTRAL

Use the following procedure to abort a process instance from Business Central:

Procedure

1. Click **Menu → Manage → Process Instances** to view the list of available process instances.
2. Select the process instance you want to abort from the list.
3. In the process details page, click the **Abort** button in the upper-right corner.

5.4. SIGNALING PROCESS INSTANCES FROM BUSINESS CENTRAL

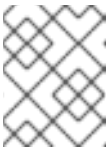
You can signal a process instance from Business Central.

Prerequisite

- A project with a process definition has been deployed in Business Central.

Procedure

1. In Business Central, click **Menu → Manage → Process Instances**.
2. Locate the required process instance, click the button and select **Signal** from the drop-down menu.
3. Fill the following fields:
   - **Signal Name**: corresponds to the **SignalRef** or **MessageRef** attributes of the signal. This field is required.



NOTE

You can also send a **Message** event to the process. To do so, add the **Message-** prefix in front of the **MessageRef** value.

   - **Signal Data**: corresponds to data accompanying the signal. This field is optional.

NOTE

When using the Business Central user interface, you can only signal Signal intermediate catch events.

5.5. ASYNCHRONOUS SIGNAL EVENTS

When several process instances from different process definitions are waiting for the same signal, they are executed sequentially in the same thread. But, if one of those process instances throws a runtime exception, all the other process instances are affected and usually result in a rolled back transaction. To avoid this situation, Red Hat Process Automation Manager supports using asynchronous signals events for:

- Throwing intermediate signal events
- End events

5.5.1. Configuring asynchronous signals for intermediate events

Intermediate events drive the flow of a business process. Intermediate events are used to either catch or throw an event during the execution of the business process. An intermediate event handles a particular situation that occurs during process execution. A throwing signal intermediate event produces a signal object based on the defined properties.

You can configure an asynchronous signal for intermediate events in Business Central.

Prerequisites

- You have created a project in Business Central and it contains at least one business process asset.
- A project with a process definition has been deployed in Business Central.

Procedure

1. Open a business process asset.
2. In the process designer canvas, drag and drop the **Intermediate Signal** from the left toolbar.
3. Click the **Properties** icon on the upper-right side of the screen to open the **Properties** panel.
4. Expand the **Data Assignments** section.
5. Click the box under the **Assignments** sub-section. The **Task Data I/O** dialog box opens.
6. Click **Add** next to **Data Inputs and Assignments**
7. Enter a name of the throw event as **async** in the **Name** field.
8. Leave the **Data Type** and **Source** fields blank.
9. Click **OK**.

It will automatically set the executor service on each session. This ensures that each process instance is signaled in a different transaction.

5.5.2. Configuring asynchronous signals for end events

End events indicate the completion of a business process. All end events, with the exception of the none and terminate end events, are throw events. A throwing signal end event is used to finish a process or subprocess flow. When the execution flow enters the element, the execution flow finishes and produces

a signal identified by its **SignalRef** property.

You can configure an asynchronous signal for end events in Business Central.

Prerequisites

- You have created a project in Business Central and it contains at least one business process asset.
- A project with a process definition has been deployed in Business Central.

Procedure

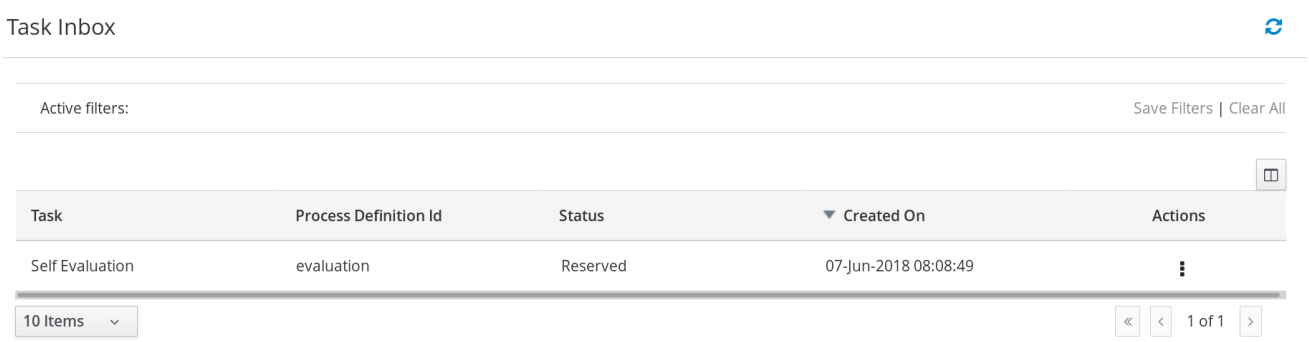
1. Open a business process asset.
2. In the process designer canvas, drag and drop the **End Signal** from the left toolbar.
3. Click the **Properties** icon on the upper-right side of the screen to open the **Properties** panel.
4. Expand the **Data Assignments** section.
5. Click the box under the **Assignments** sub-section. The **Task Data I/O** dialog box opens.
6. Click **Add** next to **Data Inputs and Assignments**
7. Enter a name of the throw event as **async** in the **Name** field.
8. Leave the **Data Type** and **Source** fields blank.
9. Click **OK**.

It will automatically set the executor service on each session. This ensures that each process instance is signaled in a different transaction.

5.6. MANAGING TASKS

The **Task Inbox** can be accessed in Business Central by clicking **Menu → Track → Task Inbox**. Tasks that are assigned to the current user appear in the **Task Inbox**. You can click on a task to open and begin working on it.

A user task can be assigned to a particular user, multiple users, or to a group. If assigned to multiple users or a group it appears in the task Lists of all assigned users and any of the possible actors can claim the task. When a task is assigned to another user it no longer appears in your the **Task Inbox**.



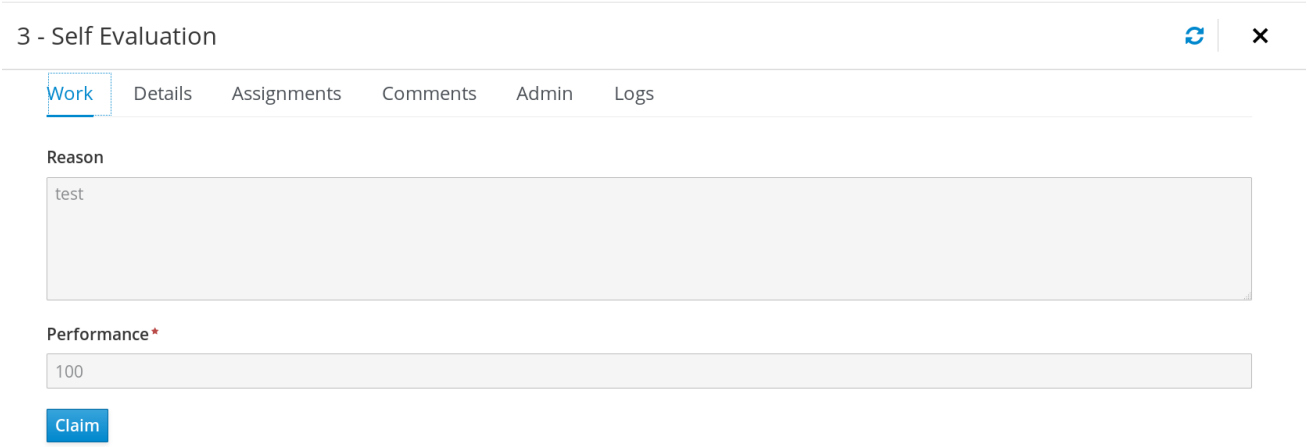
Business administrators can view and manage all user tasks from the **Tasks** page in Business Central, located under **Menu → Manage → Tasks**. Users with the **admin** or **process-admin** role can access the **Tasks** page but do not have access rights to view and manage tasks by default.

To manage all the tasks, a user must be specified as a process administrator by defining any of the following conditions:

- User is specified as **task admin user**. The default value is **Administrator**.
- User belongs to the task administrators group. The default value is **Administrators**.

You can configure the user and user group assignment with the **org.jbpm.ht.admin.user** and **org.jbpm.ht.admin.group** system properties.

You can open view and modify the details of a task, such as the due date, the priority or the task description, by clicking on a task in the list. The following tabs are available in the task page:



- **Work**: Displays basic details about the task and the task owner. You can click the **Claim** button to claim the task. To undo the claim process, click the **Release** button.
- **Details**: Displays information such as task description, status, and due date.
- **Assignments**: Displays the current owner of the task and allows you to delegate the task to another person or group.
- **Comments**: Displays comments added by task user(s). It allows you to delete an existing comment and add a new comment.
- **Logs**: Displays task logs containing task life cycle events (such as task started, claimed, completed), updates made to task fields (such as task due date and priority).

You can filter the tasks based on the filter parameters available by clicking the on the left side of the page. For more information about filtering, see Chapter 5, *Process instance filtering*.

In addition to these, you can create custom filters to filter tasks based on the query parameters you define. For further information about custom tasks filters, see Section 5.7, "Creating custom task filters".

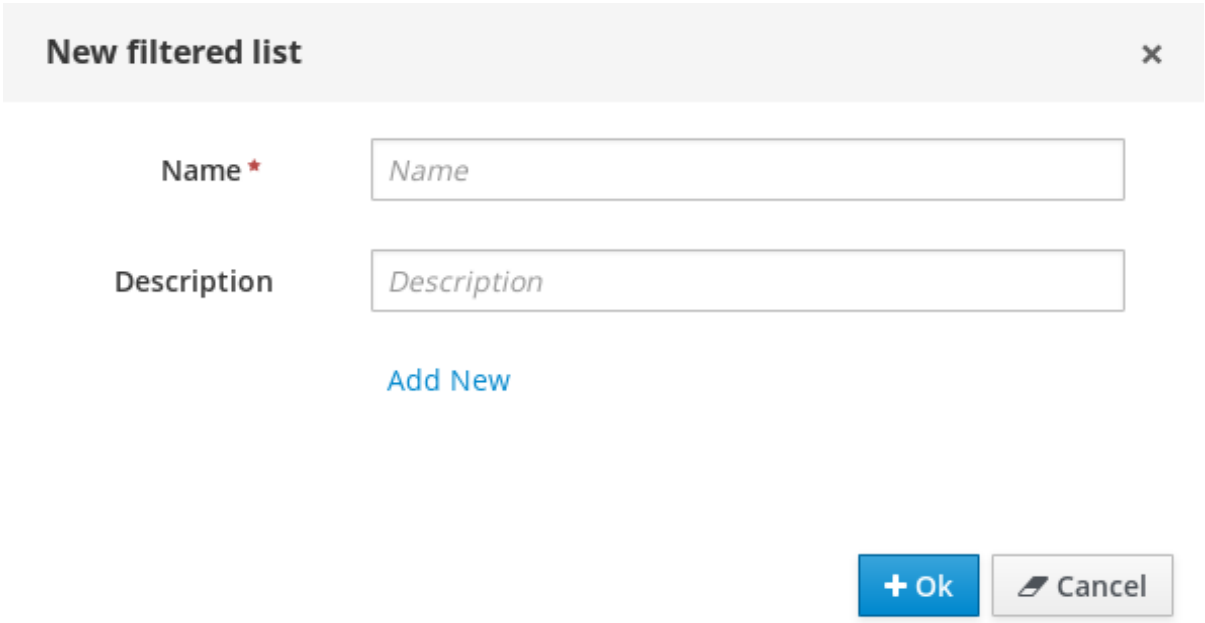
5.7. CREATING CUSTOM TASK FILTERS

You can create a custom task filter based on a provided query in the **Manage Tasks** page. To open this page, click **Menu → Manage → Tasks**.

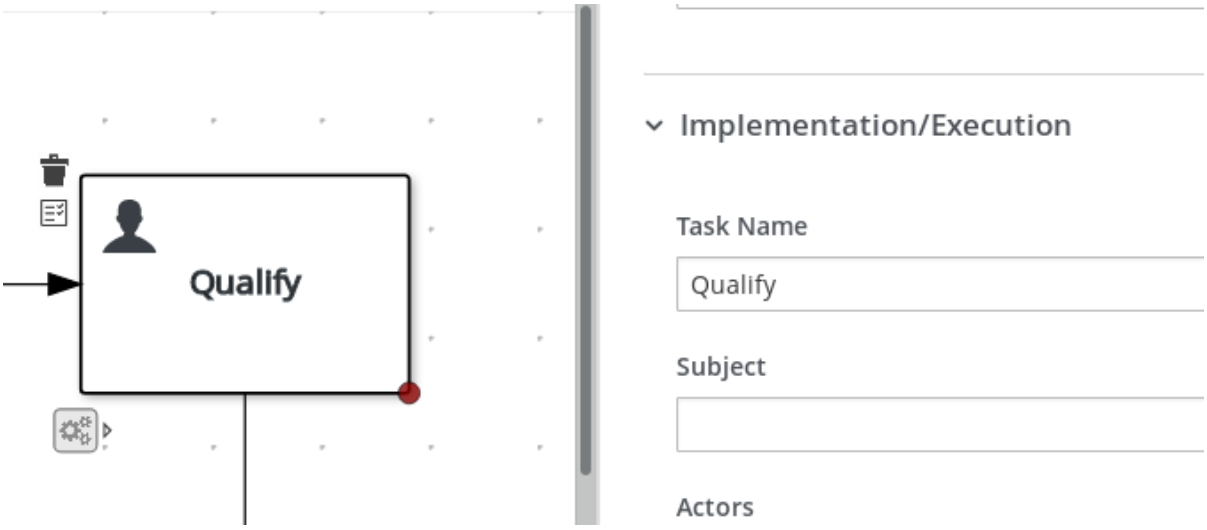
The following procedure shows how to create a custom filter to be added to the list of saved filters.

Procedure: Filtering Tasks by Name

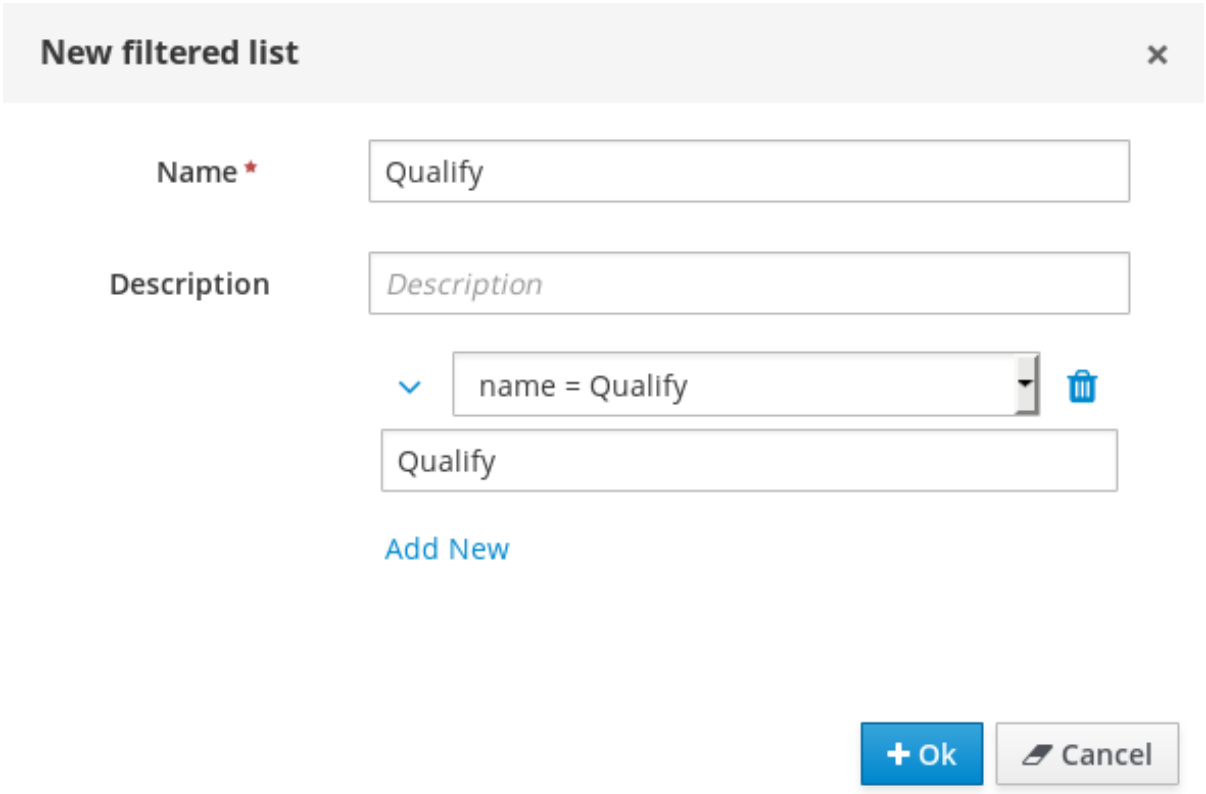
1. In Business Central, select **Menu → Manage → Tasks**
2. Click the button on the left side of the **Manage Tasks** page.
3. Click **Advanced Filters** at the bottom of the filters list.
   The **New filtered list** pop-up window is displayed.



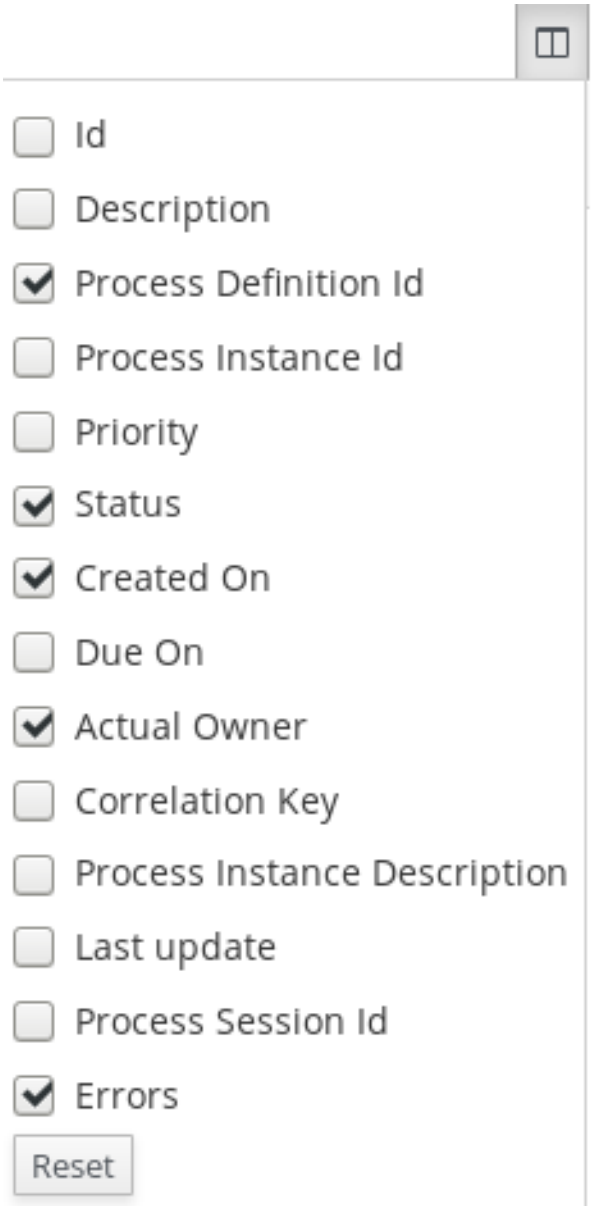
4. Fill in the **Name** (this is the name of the saved filter).
5. Click **Add New**.
6. In the **Select column** drop-down menu, choose **name**.
   The content of the drop-down menu changes to **name != value1**.
7. Click on the drop-down menu again and choose **equals to**.
8. Rewrite the value of the text field to the name of the task you want to filter. Note that the name must match the value defined in the business process. See the following screenshot:



9. Click **Ok**.



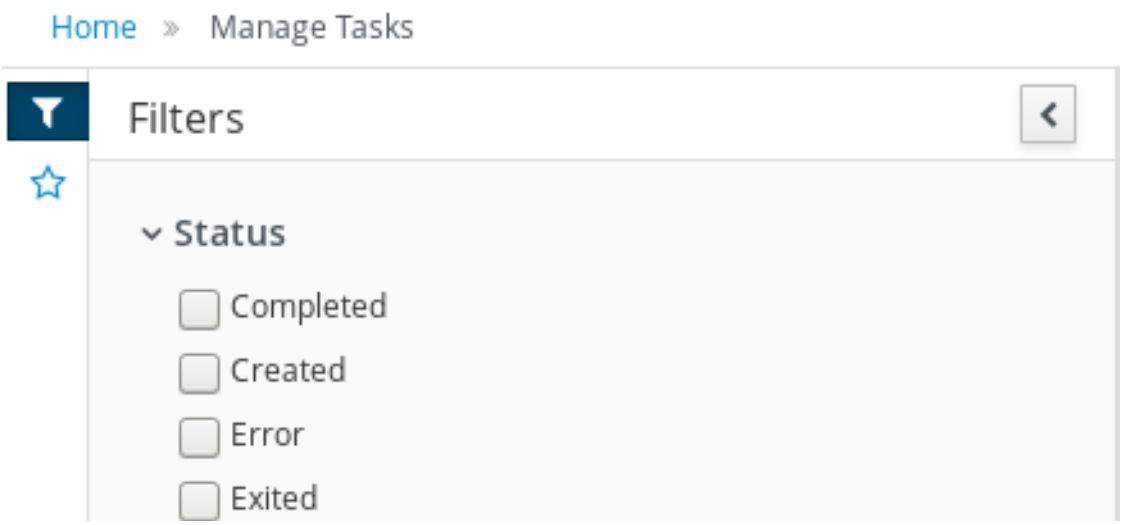
After the filter with a specified restriction is applied, the set of configurable columns is based on the specific custom task filter and contains the following column options:

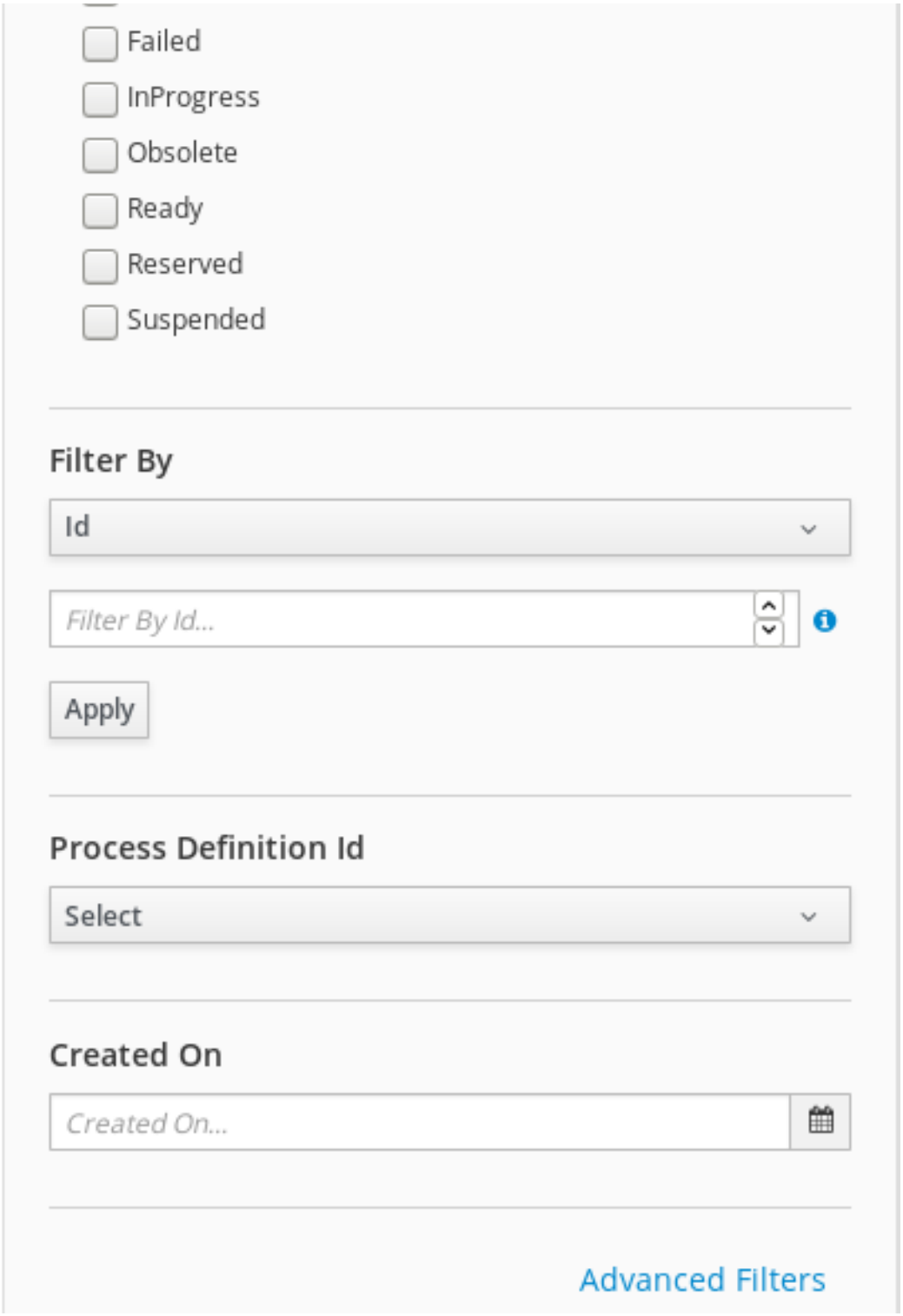


5.8. TASK FILTERING

Access the **Manage Tasks** list by clicking **Menu → Manage → Tasks**. This page provides a full list of tasks across all processes.

Figure 5.4. Filtering Tasks - Default View





+ The **Manage Tasks** page is only available to administrators and process administrators.

Tasks can be filtered on the following attributes:

Id

Filter by process instance ID.
Input: **Numeric**

Task

Filter by task name.
Input: **String**

Correlation key

Filter by correlation key. For more information about correlation keys, see the Red Hat Process Automation Manager Development Guide.
Input: **String**

Actual Owner

Filter by the task owner.
The actual owner refers to the user responsible for executing the task. The search is based on user ID, which is a unique value and depends on the ID management system.

Input: **String**

Process Instance Description

Filter by process instance description.
Input: **String**

Status

Filter by task status. You can select more than one status to display results that meet any of the selected states. Removing the status filter displays all processes, regardless of status.
The following filter states are available:

- Completed
- Created
- Error
- Exited
- Failed
- InProgress
- Obsolete
- Ready
- Reserved
- Suspended

Process Name

Filter by process name.

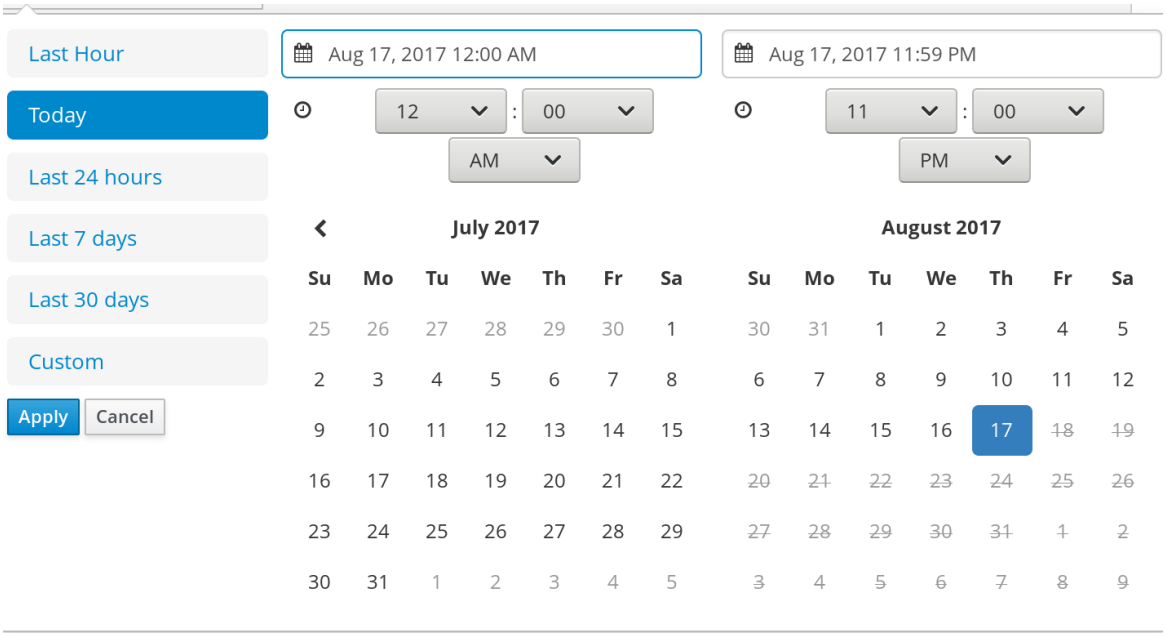
Created On

Filtering by date or time.
This filter has the following quick filter options:

- Last Hour
- Today
- Last 24 Hours

- Last 7 Days
- Last 30 Days
- Custom
  Selecting **Custom** date and time filtering opens a calendar tool for selecting a date and time range.

Figure 5.5. Search by Date



CHAPTER 6. EXECUTION ERROR MANAGEMENT

When an execution error occurs the process stops and rolls back to the most recent stable state (the closest safe point) and continues its execution. If an error of any kind is not handled by the process the entire transaction rolls back, leaving the process instance in the previous wait state. Any trace of this is only visible in the logs, and usually displayed to the caller who sent the request to the process engine.

Users with process administrator (**process-admin**) or administrator (**admin**) roles are able to access error messages in Business Central, which has the following features:

- Better traceability
- Visibility in case of critical processes
- Reporting and analytics based on error situations
- External system error handling and compensation

Configurable error handling is responsible for receiving any technical errors thrown throughout the process engine execution (including task service). The following technical exceptions apply:

- Anything that extends **java.lang.Throwable**.
- Process level error handling and any other exceptions not previously handled.

There are several components that make up the error handling mechanism and allow a pluggable approach to extend its capabilities.

The process engine entry point for error handling is the **ExecutionErrorManager**. This is integrated with RuntimeManager, which is then responsible for providing it to underlying components - **KieSession** and **TaskService**. From the API point of view, **ExecutionErrorManager** gives access to:

- **ExecutionErrorHandler** - the primary mechanism for error handling.
- **ExecutionErrorStorage** - pluggable storage for execution error information.

6.1. VIEW PROCESS EXECUTION ERRORS IN BUSINESS CENTRAL

In Business Central, there are two pages where administrators are made aware of process errors: the **Manage Process Instances** page and the **Manage Execution Errors** page. These can be accessed using the following Business Central navigation:

- **Menu → Manage → Process Instances**.
- **Menu → Manage → Execution Errors**.

In the **Manage Process Instances** page, the **Errors** column displays the number of errors, if any, for the current process instance. Use the following process to view the error messages.

Prerequisite

An error has occurred while running a process in Business Central.

Procedure

1. In the **Process Instances** page, hover over the number shown in the **Errors** column.

2. Click on the number of errors shown in the **Errors** column to navigate to the **Manage Execution Errors** page.

The **Manage Execution Errors** page shows a list of errors for all process instances.

6.2. MANAGE EXECUTION ERRORS

By definition, every error that is caught and stored is unacknowledged, meaning that it is to be handled by someone or something (in case of automatic error recovery). Errors are filtered on the basis of whether or not they have been acknowledged. Acknowledging an error saves the user information and time stamp for traceability.

You can access the **Error Management** view at any time.

1. In Business Central, click **Menu → Manage → Execution Errors**.

2. Select an error from the list to open the **Details** tab. This displays information about the error or errors.

3. Click the **Acknowledge** button to acknowledge and clear the error. The error can still be viewed later by selecting **Yes** on the **Acknowledged** filter in the **Manage Execution Errors** page.

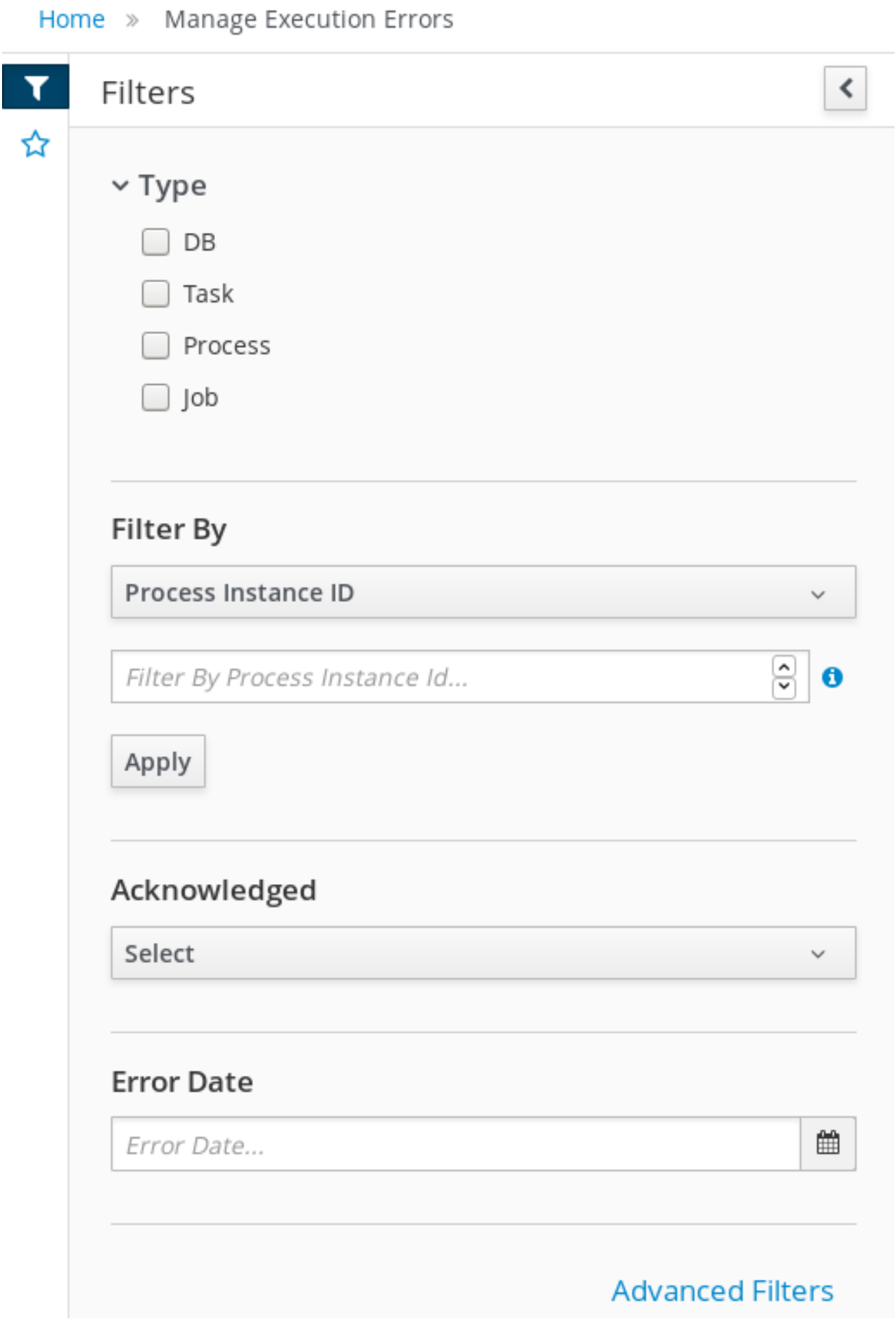
4. If the error was related to a task, a **Go to Task** button is displayed.
   Click the **Go to Task** button to view the associated job information in the **Manage Tasks** page.

   The **Manage Tasks** page allows you to restart, reschedule, or retry the corresponding task.

6.3. ERROR FILTERING

Access the **Execution Errors** List by clicking **Menu → Manage → Execution Errors**.

Figure 6.1. Filtering Errors - Default View



Execution errors can be filtered on the following attributes:

Type

Filter by errors by type. You can select multiple type filters. Removing the status filter displays all processes, regardless of status.
The following filter states are available:

- DB
- Task
- Process
- Job

Process Instance Id

Filter by process instance ID.
Input: **Numeric**

Job Id

Filter by job ID. The job id is created automatically when the job is created.
Input: **Numeric**

Id

Filter by process instance ID.
Input: **Numeric**

Acknowledged

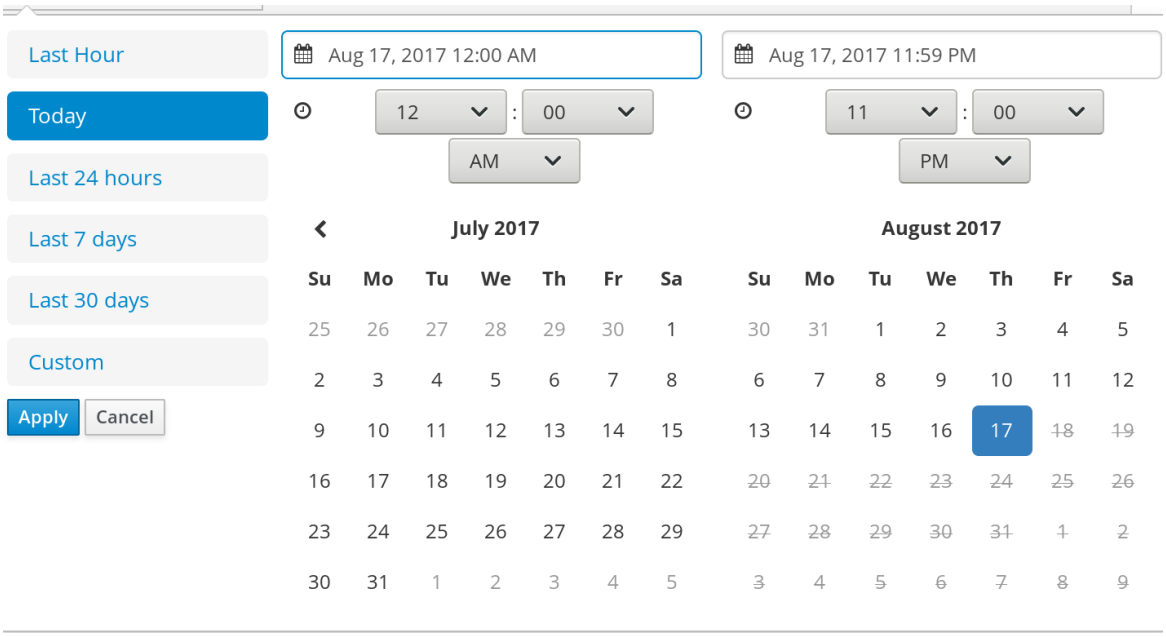
Filter errors that have been or have not been acknowledged.

Error Date

Filtering by the date or time that the error occurred.
This filter has the following quick filter options:

- Last Hour
- Today
- Last 24 Hours
- Last 7 Days
- Last 30 Days
- Custom
  Selecting **Custom** date and time filtering opens a calendar tool for selecting a date and time range.

Figure 6.2. Search by Date



APPENDIX A. VERSIONING INFORMATION

Documentation last updated on: Monday, October 1, 2018.