Red Hat Process Automation Manager 7.5

Configuring Business Central settings and properties

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Abstract

This document describes how to customize and manage the various features of Business Central in Red Hat Process Automation Manager 7.5.

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PREFACE

As an administrator, you can customize the following on the admin **Settings** page:

- **Roles**: Set the home page, priority, and permissions of a role.
- **Groups**: Set the home page, priority, and permissions of a group as well as create and delete groups.
- **Users**: Create and delete users, add or remove groups and roles from users, and view user permissions.
- **Artifacts**: View M2 repository artifacts, upload artifacts, view, and download JAR files.
- **Data Sources**: Add, update, or delete data sources and database drivers.
- **Data Sets**: Create, modify, or delete data sets.
- **Projects**: View and edit project preferences such as file export properties, space properties, default values, and advanced GAV properties.
- **Artifact Repository**: Manage artifact repository properties.
- **Languages**: Set the Business Central language.
- **Process Administration**: Set the default pagination option in Business Central.
- **Process Designer**: Set diagram editor properties.
- **SSH Keys**: Add or delete SSH keys.
- **Service Tasks Administration**: Enable or disable default service tasks and upload custom service tasks.
- **Profiles**: Set the workbench profile as **Planner and Rules** or **Full**.

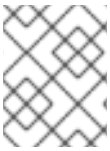
Prerequisites

- Red Hat JBoss Enterprise Application Platform 7.2.0 is installed. For more information, see *Red Hat JBoss Enterprise Application Platform 7.2 Installation Guide*.
- Red Hat Process Automation Manager is installed and running. For more information, see *Installing and configuring Red Hat Process Automation Manager on Red Hat JBoss EAP 7.2* .
- You are logged in to Business Central with the **admin** user role.

CHAPTER 1. USER AND GROUP MANAGEMENT

Business Central defines three types of entities for security management: users, groups, and roles. You can assign permissions to both roles and groups. You can assign the following roles in Business Central:

- **process-admin**
- **manager**
- **admin**
- **analyst**
- **developer**
- **user**



NOTE

User roles in the application Role Registry have a role identifier, whereas user groups do not.

Use Business Central to create and manage as many users and groups as you require. A user must be assigned to at least one user-specific role to log in to Business Central. User privileges depend on permissions from the groups and roles that the user is a member of. Note that the role or group priority is considered if a user has several roles or groups assigned to it.

1.1. CREATING USERS

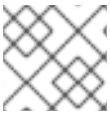
User privileges and settings are controlled by the roles assigned to a user and the groups that a user belongs to. You can create any number of users in Business Central.

NOTE

Do not create a user called **unknown** in process engine or Process Server. The **unknown** user account is a reserved system name with superuser access. The **unknown** user account performs tasks related to the SLA violation listener when there are no users logged in.

Procedure

1. In Business Central, select the **Admin** icon in the top-right corner of the screen and select **Users**.
2. Click **New user**, enter a user name, and then click **Next**.
3. To assign roles to the user, click the **Roles** tab, click **Add Roles**, select the desired roles, and click **Add to selected roles**.
4. Optionally, to assign groups to the user, click the **Groups** tab, click **Add to groups**, select the desired groups, and click **Add to selected groups**.
5. Click **Create**.
6. Click **Yes** to set a password for the user, enter a desired password, and click **Change**.



NOTE

The user must have at least one role to access Business Central.

1.2. EDITING USERS

You can change the group and role of a user using the **Users** option on the Business Central **Settings** page. All user permissions are based on the group and role permissions of the user. You can view the user permissions from the **Permissions** tab.

Procedure

1. In Business Central, select the **Admin** icon in the top-right corner of the screen and select **Users**.
2. From the **All users** list, click the user you want to edit. The user details display in the right pane.
3. Click **Edit** to perform any of the following tasks:
   - To change the groups of a user, click the **Groups** tab, click **Add to groups**, select the groups you want the user to be part of, click **Add to selected groups**, and click **Save**.
   - To change the roles of a user, click the **Roles** tab, click **Add roles**, select the roles you want to assign to the user, click **Add to selected roles**, and click **Save**.
   - To view the user permissions, click the **Permissions** tab and expand the attributes.
   - To change the password, click **Change Password**, enter the new password, and click **Change**.
   - To delete the user, click **Delete** and then click **Yes** to confirm removal.

1.3. CREATING GROUPS

In Business Central, you can use groups to control permissions for a collection of users. You can create as many groups as you want but a group must have at least one user.

Procedure

1. In Business Central, select the **Admin** icon in the top-right corner of the screen and select **Groups**.
2. Click **New group**, enter a group name, and then click **Next**.
3. Select the users that you want to add to this group, and then click **Add selected users**. The newly created group is listed under **All groups**.

1.4. EDITING GROUPS

You can edit the attribute of a group such as home page, priority, and permissions according to your requirements. From the **Groups** option on the Business Central **Settings** page, you can modify or delete a group.

Procedure

1. In Business Central, select the **Admin** icon in the top-right corner of the screen and select **Groups**.
2. From the **All groups** list, click the group that you want to edit. The user details display in the right pane.
3. Select the home page from the **Home Page** list.
4. Select the priority from the **Priority** list.
5. In the **Permissions** section, expand the resource attribute and change its permission.

NOTE

You can add exceptions to **Pages**, **Editor**, **Spaces**, and **Projects** permissions.

6. Click **Save** to apply the changes.

CHAPTER 2. SECURITY MANAGEMENT

Security management is the process of managing users, groups, and permissions. You can control access to Business Central resources and features from the Business Central Security management page.

Business Central defines three types of entities for security management: users, groups, and roles. You can assign permissions to both roles and groups. A user inherits permissions from the groups and roles that the user is a member of.

2.1. SECURITY MANAGEMENT PROVIDERS

In the context of security management, a realm restricts access to different application resources. Realms contain information about users, groups, roles, and permissions. A concrete user and group management service implementation for a specific realm is called a security management provider.

If the built-in security management providers do not meet the requirements of your application security realm, then you can build and register your own security management provider.

NOTE

If the security management provider is not installed, the user interface for managing the security realm is not available. After you install and configure a security management provider, the user and group management features are automatically enabled in the security management user interface.

Business Central includes the Red Hat JBoss EAP security management provider which supports realm types based on the contents of the **application-users.properties** or **application-roles.properties** property file.

2.1.1. Configuring the Red Hat JBoss EAP security management provider based on property files

You can build and register your own Red Hat JBoss EAP security management provider. To use the Red Hat JBoss EAP security management provider based on property files, complete the steps in this procedure.

Prerequisites

- Red Hat JBoss EAP is installed.

Procedure

1. To use an existing users or roles property file from the Red Hat JBoss EAP instance, include the following system properties in the **EAP_HOME/standalone/configuration/application-users.properties** and **EAP_HOME/standalone/configuration/application-roles.properties** files, as shown in the following example:

```
<property name="org.uberfire.ext.security.management.wildfly.properties.realm"
value="ApplicationRealm"/>
<property name="org.uberfire.ext.security.management.wildfly.properties.users-file-path"
```

```
value="/standalone/configuration/application-users.properties"/>
<property name="org.uberfire.ext.security.management.wildfly.properties.groups-file-path"
value="/standalone/configuration/application-roles.properties"/>
```

The following table provides a description and default value for these properties:

Table 2.1. Red Hat JBoss EAP security management provider based on property files

Property	Description	Default value
org.uberfire.ext.security.management.wildfly.properties.realm	The name of the realm. This property is not mandatory.	**ApplicationRealm**
org.uberfire.ext.security.management.wildfly.properties.users-file-path	The absolute file path for the users property file. This property is mandatory.	**./standalone/configuration/application-users.properties**
org.uberfire.ext.security.management.wildfly.properties.groups-file-path	The absolute file path for the groups property file. This property is mandatory.	**./standalone/configuration/application-roles.properties**

2. Create the **security-management.properties** file in the root directory of your application. For example, create the following file:

```
src/main/resources/security-management.properties
```

3. Enter the following system property and security provider name as a value in the **security-management.properties** file:

```
<property name="org.uberfire.ext.security.management.api.userManagementServices"
value="WildflyUserManagementService"/>
```

2.1.2. Configuring the Red Hat JBoss EAP security management provider based on property files and CLI mode

To use the Red Hat JBoss EAP security management provider based on property files and CLI mode, complete the steps in this procedure.

Prerequisites

- Red Hat JBoss EAP is installed.

Procedure

1. To use an existing users or roles property file from the Red Hat JBoss EAP instance, include the following system properties in the **EAP_HOME/standalone/configuration/application-users.properties** and **EAP_HOME/standalone/configuration/application-roles.properties** files, as shown in the following example:

```
<property name="org.uberfire.ext.security.management.wildfly.cli.host" value="localhost"/>
<property name="org.uberfire.ext.security.management.wildfly.cli.port" value="9990"/>
```

```
<property name="org.uberfire.ext.security.management.wildfly.cli.user" value="
<USERNAME>"/>
<property name="org.uberfire.ext.security.management.wildfly.cli.password" value="
<USER_PWD>"/>
<property name="org.uberfire.ext.security.management.wildfly.cli.realm"
value="ApplicationRealm"/>
```

The following table provides a description and default value for these properties:

Table 2.2. Red Hat JBoss EAP security management provider based on property files and CLI mode

Property	Description	Default value
org.uberfire.ext.security.management.wildfly.cli.host	The native administration interface host.	**localhost**
org.uberfire.ext.security.management.wildfly.cli.port	The native administration interface port.	**9990**
org.uberfire.ext.security.management.wildfly.cli.user	The native administration interface username.	NA
org.uberfire.ext.security.management.wildfly.cli.password	The native administration interface user's password.	NA
org.uberfire.ext.security.management.wildfly.cli.realm	The realm used by the application's security context.	**ApplicationRealm**

2. Create the **security-management.properties** file in the root directory of your application. For example, create the following file:

```
src/main/resources/security-management.properties
```

3. Enter the following system property and security provider name as a value in the **security-management.properties** file:

```
<property name="org.uberfire.ext.security.management.api.userManagementServices"
value="WildflyCLIUserManagementService"/>
```

2.2. PERMISSIONS AND SETTINGS

A permission is an authorization granted to a user to perform actions related to a specific resource within the application. For example, a user can have following permissions:

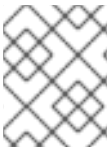
- View a page.
- Save the project.
- View a repository.

- Delete a dashboard.

You can grant or deny a permission and a permission can be global or resource specific. You can use permissions to protect access to resources and customize features within the application.

2.2.1. Changing permissions for groups and roles in Business Central

In Business Central, you cannot change permissions for an individual user. However, you can change permissions for groups and roles. The changed permissions apply to users with the role or that belong to a group that you changed.



NOTE

Any changes that you make to roles or groups affect all of the users associated with that role or group.

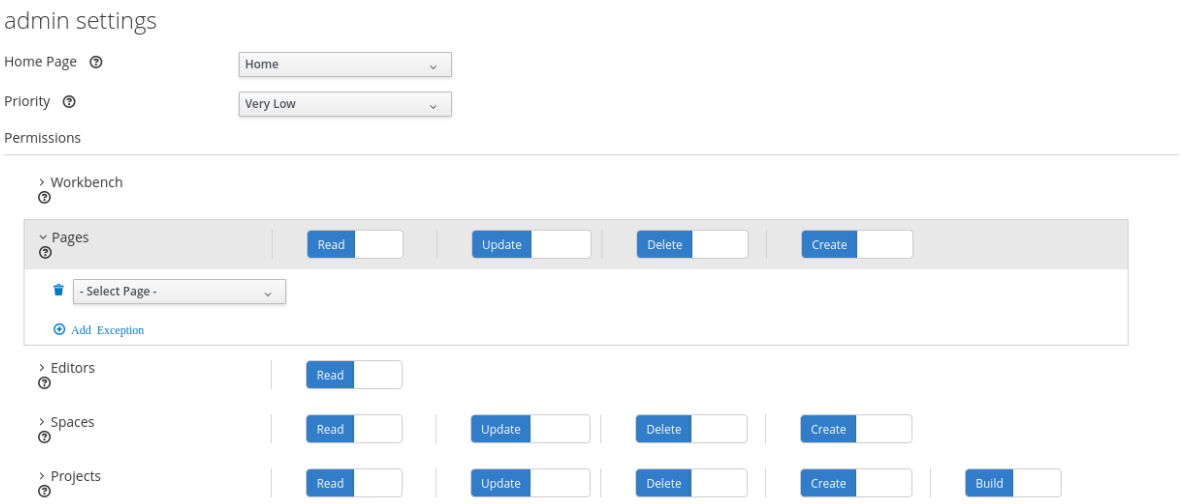
Prerequisites

- You are logged in to Business Central with the **admin** user role.

Procedure

1. To access the **Security management** page in Business Central, select the **Admin** icon in the top-right corner of the screen.
2. Click **Roles**, **Groups**, or **Users** on the Business Central **Settings** page.
   The **Security management** page opens on the tab for the icon that you clicked.
3. From the list, click the role or group you want to edit. All details are displayed in the right panel.
4. Set the **Home Page** or **Priority** under the **Settings** section.
5. Set the Business Central, page, editor, space, and project permissions under the **Permissions** section.

   Figure 2.1. Setting the permissions



6. Click the arrow next to a resource type to expand the resource type whose permissions you want to change.

7. Optional: To add an exception for a resource type, click **Add Exception** and then set the permissions as required.

NOTE

You cannot add an exception to the Business Central resource type.

8. Click **Save**.

2.2.2. Changing the Business Central home page

The home page is the page that appears after you log in to Business Central. By default, the home page is set to **Home**. You can specify a different home page for each role and group.

Procedure

1. In Business Central, select the **Admin** icon in the top-right corner of the screen and select **Roles** or **Groups**.
2. Select a role or group.
3. Select a page from the **Home Page** list.
4. Click **Save**.

NOTE

The role or group must have read access to a page before you can make it the home page.

2.2.3. Setting priorities

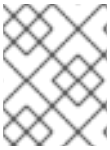
A user can have multiple roles and belong to multiple groups. The Priority setting determines the order of precedence of a role or group.

Prerequisites

- You are logged in to Business Central with the **admin** user role.

Procedure

1. In Business Central, select the **Admin** icon in the top-right corner of the screen and select **Roles** or **Groups**.
2. Select a role or group.
3. Select a priority from the Priority menu, and then click **Save**.



NOTE

If a user has a role or belongs to a group that has conflicting settings, the settings of the role or group with the highest priority applies.

CHAPTER 3. ARTIFACT MANAGEMENT

You can manage artifacts from the **Artifacts** page in Business Central. The artifact repository is a local Maven repository and there is only one Maven repository for each installation. Business Central recommends using Maven repository solutions like *Sonatype Nexus™*, *Apache Archiva™*, or *JFrog Artifactory™*.

The **Artifacts** page lists all the artifacts in the Maven repository. You can upload artifacts to the Maven repository.

NOTE

You can only upload JAR, KJAR, and **pom.xml** files to the **Artifacts** repository.

3.1. VIEWING AN ARTIFACT

You can view all the content of the local maven repository from the **Artifacts** page.

Procedure

1. In Business Central, select the **Admin** icon in the top-right corner of the screen and select **Artifacts**.
2. Click **Open** to view the artifact details.
3. Click **Ok** to go back to the **Artifacts** page.

3.2. DOWNLOADING AN ARTIFACT

You can download and save an artifact from Business Central repository to the local storage of a project.

Procedure

1. In Business Central, select the **Admin** icon in the top-right corner of the screen and select **Artifacts**.
2. Click **Download**.
3. Browse to the directory where you want to save the artifact.
4. Click **Save**.

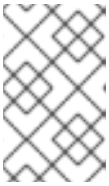
3.3. UPLOADING AN ARTIFACT

You can upload an artifact from the local storage to a project in Business Central.

Procedure

1. In Business Central, select the **Admin** icon in the top-right corner of the screen and select **Artifacts**.
2. Click **Upload**.

3. Click **Choose File** and browse to the directory from where you want to upload the artifact.
4. Click **Upload**.



NOTE

If you are using a non-Maven artifact, first deploy the artifact to the Maven repository using the **mvn deploy** command and then refresh the artifact list in Business Central.

CHAPTER 4. DATA SOURCE MANAGEMENT

Business Central provides data source management features that enable you to define data sources for accessing a database. These data sources are then used by other Business Central components such as the data sets. A database driver enables communication between a data source and the targeted database.

From the **Data Source Authoring** page you can add data sources and database drivers to Business Central.

NOTE

Business Central provides a default data source that can be used but cannot be edited or deleted.

4.1. ADDING A DATABASE DRIVER

You can add a new database driver to Business Central.

Procedure

1. In Business Central, select the **Admin** icon in the top-right corner of the screen and select **Data Sources**.
2. In the **DataSource Explorer** pane, click **Add Driver**. The **New driver** window opens.
3. In the **New driver** window, enter the **Name**, **Driver Class Name**, **Group Id**, **Artifact Id**, and **Version** of the database driver.
4. Click **Finish** to add the driver to Business Central.

4.2. EDITING A DATABASE DRIVER

You can update the properties of a database driver from the **Driver Definition** pane.

Procedure

1. In Business Central, select the **Admin** icon in the top-right corner of the screen and select **Data Sources**.
2. In the **DataSource Explorer** pane, select the driver you want to edit.
3. In the **Driver Definition** pane, make the necessary changes to the **Name**, **Driver Class Name**, **Group Id**, **Artifact Id**, and the **Version** fields.
4. Click **Update**.
5. Click **Yes** to save the changes to the driver.

4.3. DELETING A DATABASE DRIVER

You can remove database drivers from the **Data Source Definition** pane of Business Central.

Procedure

1. In Business Central, select the **Admin** icon in the top-right corner of the screen and select **Data Sources**.
2. In the **DataSource Explorer** pane, select the driver you want to delete.
3. Click **Remove**.
4. Click **Delete** to delete the driver.

4.4. ADDING A DATA SOURCE

You can add a new data source to Business Central from the **Data Sources Authoring** page.

Procedure

1. In Business Central, select the **Admin** icon in the top-right corner of the screen and select **Data Sources**.
2. In the **DataSource Explorer** pane, click **Add DataSource**. The **New data source** window opens.
3. In the **New data source** window, enter the data source **Name**, database **Connection URL**, **User** and **Password**, and **Driver**.
4. Click **Test Connection** to verify the connection to the database.
5. Click **Finish** to add the data source to Business Central.

4.5. EDITING A DATA SOURCE

You can edit the properties of a data source and also test its connection to the database in Business Central.

Procedure

1. In Business Central, select the **Admin** icon in the top-right corner of the screen and select **Data Sources**.
2. In the **DataSource Explorer** pane, click the data source you want to edit.
3. In the **Data Source Definition** pane, make the necessary changes to the **Name**, **Connection URL**, **User**, **Password**, and the **Driver** fields.
4. Click **Test Connection** to verify the connection to the database.
5. Click **Update**.
6. Click **Save** to confirm the changes to the data source.

4.6. DELETING A DATA SOURCE

You can delete an existing data source from the **DataSource Explorer** pane in Business Central.

Procedure

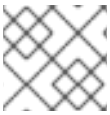
1. In Business Central, select the **Admin** icon in the top-right corner of the screen and select **Data Sources**.
2. In the **DataSource Explorer** pane, click the data source you want to delete.
3. Click **Remove**.
4. Click **Delete** to confirm the deletion of the data source.

CHAPTER 5. DATA SETS AUTHORING

A data set is a collection of related sets of information. It can be stored in many ways, such as in a database, in a Microsoft Excel file, or in memory. A data set definition instructs Business Central methods to access, read, and parse a data set. Business Central does not store data. It enables you to define access to a data set regardless of where the data is stored.

For example, if data is stored in a database, a valid data set could contain the entire database or a subset of the database as a result of an SQL query. In both cases, the data is used as input for the reporting components of Business Central which then displays the information.

To access a data set, you must create and register a data set definition. This data set definition specifies the location of the data set, the ways to access it, read it, and parse it, and the columns that it contains.



NOTE

The **Data Sets** page is visible only to users with the **admin** role.

5.1. ADDING DATA SETS

You can create a data set to fetch data from an external data source and use that data for the reporting components.

Procedure

1. In Business Central, go to **Admin → Data Sets**. The **Data Set Explorer** page opens.
2. Click **New Data Set** and select one of the following provider types:
   - **Bean:** Use to generate a data set from a Java class
   - **CSV:** Use to generate a data set from a remote or local CSV file
   - **SQL:** Use to generate a data set from an ANSI-SQL compliant database
   - **Elastic Search:** Use to generate a data set from Elastic Search nodes
   - **Execution Server:** Use to generate a data set using the custom query feature of an Execution Server

     NOTE

     KIE Server must be configured with this option.
3. Complete the **Data Set Creation Wizard** and click **Test**.

   NOTE

   The configuration steps differ based on the provider you chose.
4. Click **Save**.

5.2. EDITING DATA SETS

You can edit existing data sets to ensure that the data fetched to the reporting components is up-to-date.

Procedure

1. In Business Central, go to **Admin → Data Sets**. The **Data Set Explorer** page opens.
2. In the **Data Set Explorer** pane, search for the data set you want to edit and click **Edit**.
3. In the **Data Set Editor** pane, use the appropriate tab to edit the data as required. The tabs differ based on the data set provider type you chose.
   For example, the following changes are applicable for editing a **CSV** data provider:
   - **CSV Configuration:** Enables you to change the name of the data set definition, the source file, the separator, and other properties.
   - **Preview:** Enables you to preview the data. After you click **Test** in the **CSV Configuration** tab, the system executes the data set lookup call and if the data is available, a preview appears. Note that the **Preview** tab has two sub-tabs:
     - **Data columns:** Enables you to specify what columns are part of your data set definition.
     - **Filter:** Enables you to add a new filter.
   - **Advanced:** Enables you to manage the following configurations:
     - **Caching:** See Section 5.4, “Caching” for more information.
     - **Cache life-cycle** Enables you to specify an interval of time after which a data set (or data) is refreshed. The **Refresh on stale data** feature refreshes the cached data when the back-end data changes.
4. After making the required changes, click **Validate**.
5. Click **Save**.

5.3. DATA REFRESH

The data refresh feature enables you to specify an interval of time after which a data set (or data) is refreshed. The **Refresh on stale data** feature refreshes the cached data when the back-end data changes.

5.4. CACHING

Business Central provides caching mechanisms for storing data sets and performing data operations using in-memory data. Caching data reduces network traffic, remote system payload, and processing time. To avoid performance issues, configure the cache settings in Business Central.

For any data lookup call that results in a data set, the caching method determines where the data lookup call is executed and where the resulting data set is stored. An example of a data lookup call would be all the mortgage applications whose locale parameter is set as "Urban".

Business Central data set functionality provides two cache levels:

- Client level

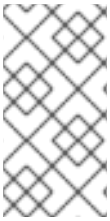
- Back-end level

Client cache

When the cache is turned on, the data set is cached in a web browser during the lookup operation and further lookup operations do not perform requests to the back-end. Data set operations like grouping, aggregations, filtering, and sorting are processed in the web browser. Enable client caching only if the data set size is small, for example, for data sets with less than 10 MB of data. For large data sets, browser issues such as slow performance or intermittent freezing can occur. Client caching reduces the number of back-end requests including requests to the storage system.

Back-end cache

When the cache is enabled, the decision engine caches the data set. This reduces the number of back-end requests to the remote storage system. All data set operations are performed in the decision engine using in-memory data. Enable back-end caching only if the data set size is not updated frequently and it can be stored and processed in memory. Using back-end caching is also useful in cases with low latency connectivity issues with the remote storage.



NOTE

Back-end cache settings are not always visible in the **Advanced** tab of the **Data Set Editor** because Java and CSV data providers rely on back-end caching (data set must be in the memory) in order to resolve any data lookup operation using the in-memory decision engine.

CHAPTER 6. CUSTOMIZING PROJECT PREFERENCES

A project stores assets and is part of a space. A space can hold multiple projects.

For example, an organization has many departments, such as HR, Payroll, Engineering, R&D, and so on. Each department maps to a space and every department can have its own projects.

You can create a new project from scratch or clone projects from an existing Git repository.

Procedure

1. In Business Central, select the **Admin** icon in the top-right corner of the screen and select **Projects**. The **Projects** page opens.
2. In the **Project Preferences** pane, click the preference you want to modify. The following preferences are available:
   - **File exporting**: This preference has the following properties:

     Table 6.1. File exporting properties

Field	Description
PDF orientation	Determines whether the PDF orientation is portrait or landscape.
PDF units	Determines whether the PDF unit is *PT*, *MM*, *CN* or *IN*.
PDF page format	Determines whether the PDF page format is *A[0-10]*, *B[0-10]*, or *C[0-10]*.

   - **Spaces**: This preference has the following properties:

     Table 6.2. Spaces properties

Field	Description
Name	The default name of the space that is created automatically if none exists.
Owner	The default owner of the space that is created automatically if none exists.
Group ID	The default group ID of the space that is created automatically if none exists.
Alias (in singular)	Determines the customized alias (singular) of the space.

Field	Description
Alias (in plural)	Determines the customized alias (plural) of the space.

- **Default values**: This preference has the following properties:

  Table 6.3. Default values properties

Field	Description
Version	The default version number of a project when creating projects using the Quick setup option.
Description	The default description of a project when creating projects using the Quick setup option.
Branch	The default branch to be used when using a Git repository.

- **Advanced GAV preferences**: This preference has the following properties:

  Table 6.4. Advanced GAV preference properties

Field	Description
Disable GAV conflict check?	Determines whether to enable or disable the GAV conflict check. Disabling this feature allows projects to have the same GAV (Group ID, Artifact, Version).
Allow child GAV edition?	Determines whether to allow child/sub-projects to have GAV edition.

NOTE

Duplicate GAV detection is disabled for projects in **Development Mode**. To enable duplicate GAV detection for a project in Business Central, go to project **Settings → General Settings → Version** and toggle the **Development Mode** option to **OFF** (if applicable).

3. Click **Save**.

CHAPTER 7. CUSTOMIZING ARTIFACT REPOSITORY PROPERTIES

In some cases, projects need to resolve external dependencies to build domain model JAR files. A repository contains the needed artifacts and has the following features:

- The repository is a Maven repository.
- All snapshots are time stamped.
- Assets are stored mostly in the local hard drive.

By default, the artifact repository is in **$WORKING_DIRECTORY/repositories/kie**.

Procedure

1. In Business Central, select the **Admin** icon in the top-right corner of the screen and select **Artifact Repository**. The **Artifact Repository** page opens.
2. Make selections and enter information in the **Properties** section.
3. Click **Save**.

CHAPTER 8. CUSTOMIZING LANGUAGE SETTINGS

You can change the language on the Business Central **Settings** page. Business Central supports the following languages:

- English
- German
- Spanish
- French
- Japanese
- Portuguese
- Chinese(Simplified)

The default language is English.

Procedure

1. In Business Central, select the **Admin** icon in the top-right corner of the screen and select **Languages**. The **Language Selector** window opens.
2. Select the desired language from the **Language** list.
3. Click **Ok**.

CHAPTER 9. CUSTOMIZING PROCESS ADMINISTRATION

You can customize the default pagination option in Business Central by editing the **Default items per page** property on the **Process Administration** page.

Procedure

1. In Business Central, select the **Admin** icon in the top-right corner of the screen and select **Process Administration**.
2. From the **Properties** section, update the **Default items per page** property and click **Save**.

NOTE

You can specify 10, 20, 50, or 100 items to display on each page.

CHAPTER 10. CUSTOMIZING THE PROCESS DESIGNER

You can customize the process designer in Business Central by editing the properties of the diagram editor on the Business Central **Settings** page.

Procedure

1. In Business Central, select the **Admin** icon in the top-right corner of the screen and select **Process Designer**.
2. In the **Properties** section, update any of the following properties:
   - Select the **Auto hide category panel** check box to automatically hide a category toolbar panel.
   - In the **Drawing area width** field, enter an integer value between 2800 and 5600 to set the width of the drawing area.
   - In the **Drawing area height** field, enter an integer value between 1400 and 2800 to set the height of the drawing area.
   - Select the **Enable HiDPI** check box if you are using a high resolution display and are seeing blurry text and objects. This option is disabled by default.
3. Click **Save**.

CHAPTER 11. SSH KEYS

Business Central provides an SSH keystore service to enable user SSH authentication. Business Central provides a configurable default SSH keystore, extensible APIs (for custom implementations), and support for multiple SSH public key formats.

You can access the **SSH Keys** option on the Business Central **Settings** page to register your SSH public keys.

11.1. DEFAULT SSH KEYSTORE

The default SSH keystore included with Business Central provides a file-based storage mechanism to store a user's public keys. By default, Business Central uses the ***.security** folder as the root directory. However, you can also use a custom storage path by setting the value of the **appformer.ssh.keys.storage.folder** system property to point to a different folder.

The SSH public keys are stored in the **{securityFolderPath}/pkeys/{userName}/** folder structure.

Each SSH public key consists of the following files, located in the storage folder:

- **{keyId}.pub**: This file contains the SSH public key content. As the file name determines the logic key ID on the system, ensure that the file name is not modified during run time.
  For example:

```
ssh-rsa
AAAAB3NzaC1yc2EAAAADAQABAAACAQDmak4Wu23RZ6XmN94bOsqecZxuTa4RRhhQm
HmTZjMB7HM57/90u/B/gB/GhsPEu1nAXL0npY56tT/MPQ8vRm2C2W9A7CzN5+z5yyL3W01Y
Zy3kzslk77CjULjfhrcfQSL3b2sPG5jv5E5/nyC/swSytucwT/PE7aXTS9H6cHIKUdYPzIt94SHoBx
WRIK7PJi9d+eLB+hmDzvbVa1ezu5a8yu2kcHi6NxxfI5iRj2rsceDTp0imC1jMoC6ZDfBvZSxL9FX
TMwFdNnmTlJveBtv9nAbnAvIWlilS0VOkdj1s3GxBxeZYAcKbcsK9sJzusptk5dxGsG2Z8vInaglN
6OaOQ7b7tcomzCYYwviGQ9gRX8sGsVrw39gsDIGYP2tA4bRr7ecHnlNg1b0HCchA5+QCDk
4Hbz1UrnHmPA2Lg9c3WGm2qedvQdVJXuS3mlwYOqL40aXPs6890PvFJUlpiVSznF50djPnws
MxJZEf1HdTXgZD1Bh54ogZf7czyUNfkNkE69yJDbTHjpQd0cKUQnu9tVxqmBzhX31yF4VcsMe
ADcf2Z8wlA3n4LZnC/GwonYlq5+G93zJpFOkPhme8c2XuPuCXF795lsxyJ8SB/AlwPJAhEtm0y
0s0l1l4eWqxsDxkBOgN+ivU0czrVMssHJEJb4o0FLf7iHhOW56/iMdD9w== userName
```

- **.{keyId}.pub.meta**: This file contains the key metadata in JSON format. A new metadata file is dynamically generated if a key has no metadata.
  For example:

```
{
  "name":"Key",
  "creationDate":"Oct 10, 2018 10:10:50 PM",
  "lastTimeUsed":"Oct 11, 2018 12:11:23 PM"
}
```

11.2. CUSTOM SSH KEYSTORE

You can extend and customize the default SSH keystore according to your requirements. Use the **appformer.ssh.keystore** system property to specify the Java class name of the SSH service to use. If this property is not defined or it contains an incorrect value, then the default SSH keystore is loaded.

NOTE

To create a custom implementation of the SSH keystore, your Java class must implement the **org.uberfire.ssh.service.backend.keystore.SSHKeyStore** class defined in the **uberfire-ssh-api** module.

11.3. CREATING AN SSH KEY

Before you can add or register SSH keys to Business Central, you must generate an SSH key on your system.

Procedure

1. Open a command terminal on your system.
2. Run the **ssh-keygen** command to create the SSH key as shown in the following example, where **<user_login>** is your user name:

```
ssh-keygen -t rsa -b 4096 -C "<user_login>"
```

NOTE

The SSH key formats supported by Business Central keystore are **ssh-rsa**, **ssh-dss**, **ecdsa-sha2-nistp256**, **ecdsa-sha2-nistp384**, and **ecdsa-sha2-nistp521**.

3. When prompted, press Enter and accept the default key file location as shown in the following example, where **<user_login>** is your user name:

```
Enter a file in which to save the key (/home/<user_login>/.ssh/id_rsa): [Press enter]
```

4. At the command prompt, enter and confirm the passphrase:

```
Enter passphrase (empty for no passphrase): [Type a passphrase]
Enter same passphrase again: [Type passphrase again]
```

5. Start the **ssh-agent**:

```
eval "$(ssh-agent -s)"
Agent pid <any-number-here>
```

6. Add the new SSH private key to the **ssh-agent**. If you have used a different key name, replace **id_rsa** in that code:

```
ssh-add ~/.ssh/id_rsa
```

11.4. REGISTERING YOUR SSH PUBLIC KEY WITH THE SSH KEYSTORE

You must register your newly created SSH public key with the Business Central keystore.

Procedure

1. Open a command terminal on your system.

2. Run the **cat** command as shown in the following example, where **id_rsa** is your key name:

```
cat ~/.ssh/id_rsa.pub
```

3. Copy the contents of your SSH public key.
4. In Business Central, select the **Admin** icon in the top-right corner of the screen and select **SSH Keys**.
5. On the **SSH Keys** page, click **Add SSH Key**.
6. In the **Add SSH Key** window, enter a name in the **Name** field and copy the contents of the SSH public key to the **Key** field.

NOTE

The **Name** and the **Key** fields are mandatory.

7. Click **Add SSH Key** to register the key.

11.5. DELETING AN SSH KEY

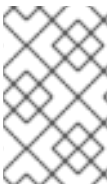
You can delete an SSH key from Business Central by from the **SSH Keys** page.

Procedure

1. In Business Central, select the **Admin** icon in the top-right corner of the screen and select **SSH Keys**.
2. On the **SSH Keys** page, click the delete icon of the SSH key you want to delete.
3. Click **Delete SSH Key** to confirm the deletion.

CHAPTER 12. MANAGING SERVICE TASKS IN BUSINESS CENTRAL

Service tasks (work items) are tasks that you can customize and reuse across multiple business processes or across all projects in Business Central. Red Hat Process Automation Manager provides a set of service tasks within the service task repository in Business Central. You can enable or disable the default service tasks and upload custom service tasks into Business Central to implement the tasks in the relevant processes.



NOTE

Red Hat Process Automation Manager includes a limited set of supported custom tasks. Custom tasks that are not included in Red Hat Process Automation Manager are not supported.

Procedure

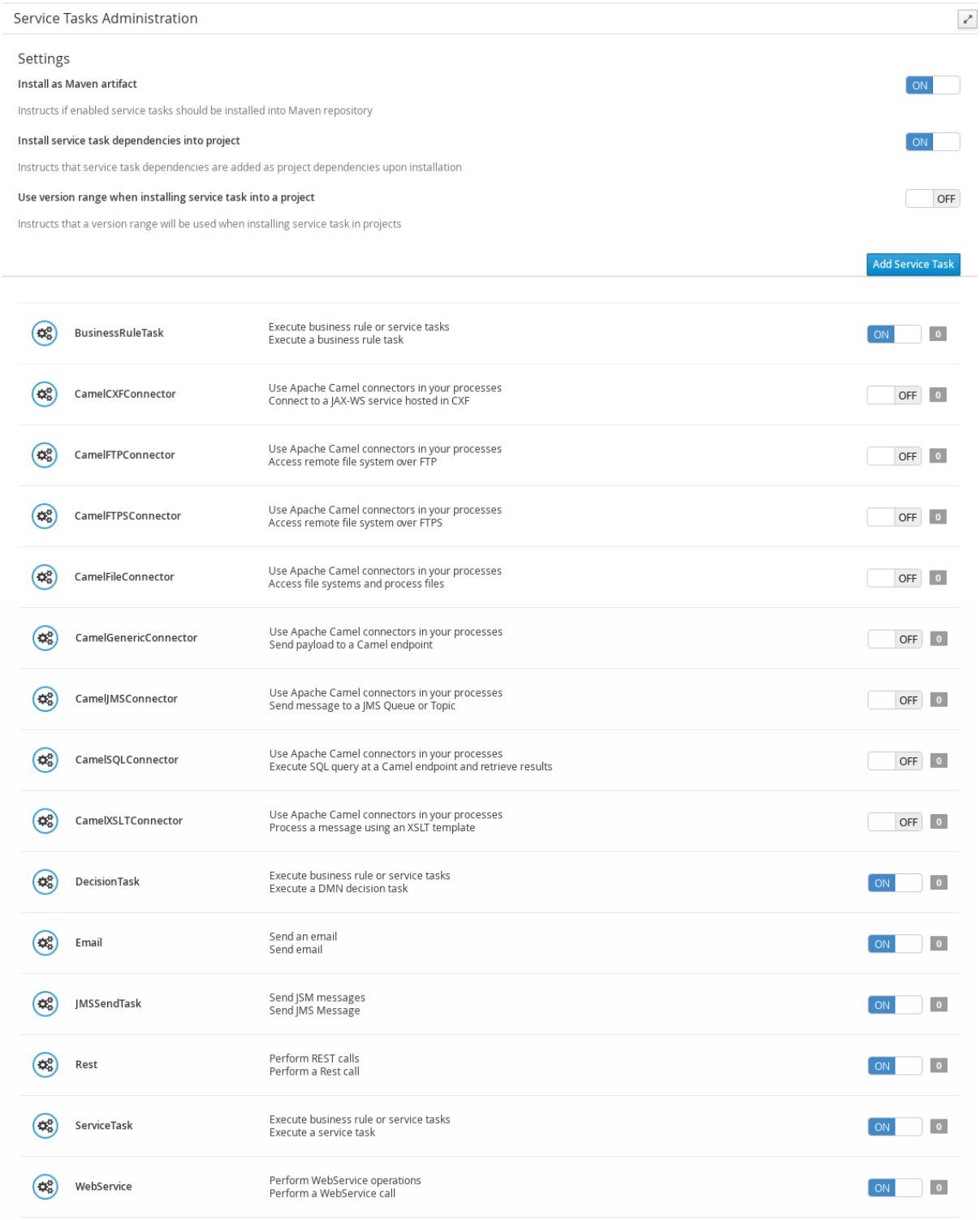
1. In Business Central, select the **Admin** icon in the top-right corner of the screen and select **Service Tasks Administration**.
   This page lists the service task installation settings and available service tasks for processes in projects throughout Business Central. The service tasks that you enable on this page become available in the project-level settings where you can then install each service task to be used in processes. The way in which the service tasks are installed in a project is determined by the global settings that you enable or disable under **Settings** on this **Service Tasks Administration** page.

2. Under **Settings**, enable or disable each setting to determine how the available service tasks will be implemented when a user installs them at the project level.
   The following service task settings are available:

   - **Install as Maven artifact** Uploads the service task JAR file to the Maven repository that is configured with Business Central, if the file is not already present.
   - **Install service task dependencies into project** Adds any service task dependencies to the **pom.xml** file of the project where the task is installed.
   - **Use version range when installing service task into project** Uses a version range instead of a fixed version of a service task that is added as a project dependency. Example: **[7.16,)** instead of **7.16.0.Final**

3. Enable or disable (set to **ON** or **OFF**) any available service tasks as needed. Service tasks that you enable will be displayed in project-level settings for all projects in Business Central.

Figure 12.1. Enable service tasks and service task settings



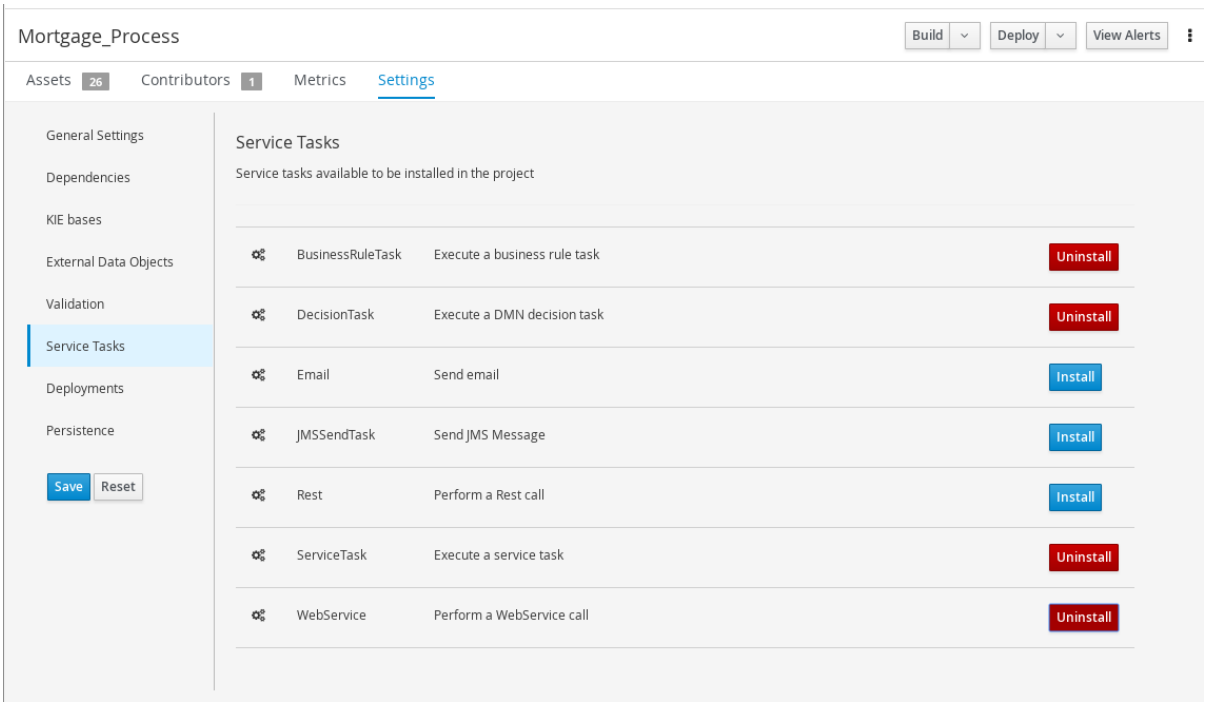
4. To add a custom service task, click **Add Service Task**, browse to the relevant JAR file, and click the **Upload** icon. The JAR file must contain work item handler implementations annotated with **@Wid**.

5. After you configure all required service tasks, navigate to a project in Business Central and go to the project **Settings** → **Service Tasks** page to view the available service tasks that you enabled.

6. For each service task, click **Install** to make the task available to the processes in that project or click **Uninstall** to exclude the task from the processes in the project.

7. If you are prompted for additional information when you install a service task, enter the required information and click **Install** again.
   The required parameters for the service task depend on the type of task. For example, rule and decision tasks require artifact GAV information (Group ID, Artifact ID, Version), email tasks require host and port access information, and REST tasks require API credentials. Other service tasks might not require any additional parameters.

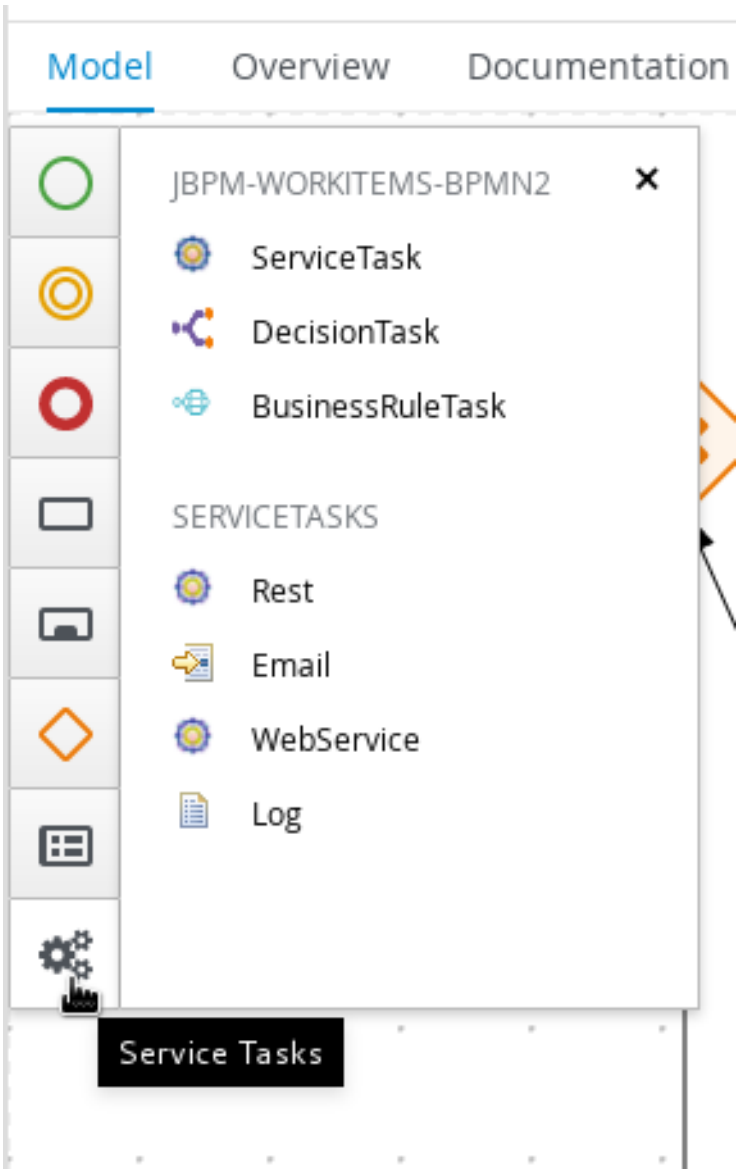
Figure 12.2. Install service tasks for use in processes



8. Click **Save**.

9. Return to the project page, select or add a business process in the project, and in the process designer palette, select the **Service Tasks** option to view the available service tasks that you enabled and installed:

Figure 12.3. Access installed service tasks in process designer



CHAPTER 13. EXPORTING AND IMPORTING DASHBUILDER DATA

Dashbuilder is a dashboard and reporting tool integrated in Business Central and is used by the Datasets editor and Content Manager page. There are three data types:

- Datasets
- Perspectives
- Navigation

You can import and export Dashbuilder data as ZIP files in Business Central.

IMPORTANT

This feature is only accessible by administrator users.

13.1. EXPORTING DASHBUILDER DATA

You can export all Dashbuilder data from Business Central as a ZIP file.

Procedure

1. In Business Central, select the **Admin** icon in the top-right corner of the screen and select **Dashbuilder Data Transfer**.
2. On the **Dashbuilder Data Transfer** page, click **Export**.
   An **export.zip** file containing all Dashbuilder data is downloaded. The **export.zip** file structure is separated by data type. For example:

```
dashbuilder/datasets/definitions/dataset-example1.csv
dashbuilder/datasets/definitions/dataset-example1.dset
dashbuilder/datasets/definitions/dataset-example2.csv
dashbuilder/datasets/definitions/dataset-example2.dset
dashbuilder/datasets/readme.md
dashbuilder/perspectives/page1/perspective_layout
dashbuilder/perspectives/page1/perspective_layout.plugin
dashbuilder/perspectives/page2/perspective_layout
dashbuilder/perspectives/page2/perspective_layout.plugin
dashbuilder/perspectives/readme.md
dashbuilder/navigation/navigation/navtree.json
dashbuilder/navigation/readme.md
VERSION
```

13.2. IMPORTING DASHBUILDER DATA

You can import Dashbuilder data to Business Central from a ZIP file if the archive is structured in the same way as the following example:

```
dashbuilder/datasets/definitions/dataset-example1.csv
dashbuilder/datasets/definitions/dataset-example1.dset
dashbuilder/datasets/definitions/dataset-example2.csv
```

```
dashbuilder/datasets/definitions/dataset-example2.dset
dashbuilder/datasets/readme.md
dashbuilder/perspectives/page1/perspective_layout
dashbuilder/perspectives/page1/perspective_layout.plugin
dashbuilder/perspectives/page2/perspective_layout
dashbuilder/perspectives/page2/perspective_layout.plugin
dashbuilder/perspectives/readme.md
dashbuilder/navigation/navigation/navtree.json
dashbuilder/navigation/readme.md
VERSION
```

Procedure

1. In Business Central, select the **Admin** icon in the top-right corner of the screen and select **Dashbuilder Data Transfer**.

WARNING

You should only import Dashbuilder data to a clean installation of Red Hat Process Automation Manager in order to avoid overwriting data on an existing system.

2. On the **Dashbuilder Data Transfer** page, click the **Choose File** icon.
3. Navigate to the ZIP file you want to import and select the file.
4. Click the **Upload** icon.
5. Click **Import**.

CHAPTER 14. LDAP CONNECTION

Business Central provides a dedicated **UserGroupCallback** implementation for LDAP servers with Red Hat Process Automation Manager to enable the user task service to retrieve information on users, groups, and roles directly from an LDAP service.

You can configure the following LDAP **UserGroupCallback** implementation properties:

Table 14.1. LDAP UserGroupCallback properties

Property	Description
ldap.bind.user	User name for connecting to the LDAP server. This property is optional if it is not specified and the LDAP server accepts anonymous access.
ldap.bind.pwd	Password for connecting to the LDAP server. This property is optional if it is not specified and the LDAP server accepts anonymous access.
ldap.user.ctx	Context in LDAP with user information.
ldap.role.ctx	Context in LDAP with group and role.
ldap.user.roles.ctx	Context in LDAP with user group and role membership information. This property is optional if it is not specified and the **ldap.role.ctx** property is used instead.
ldap.user.filter	Filter for searching user information. This property usually contains substitution keys {0} that are replaced with parameters.
ldap.role.filter	Filter for searching group and role information. This property usually contains substitution keys {0} that are replaced with parameters.
ldap.user.roles.filter	Filter for searching user group and role membership information. This property usually contains substitution keys {0} that are replaced with parameters.
ldap.user.attr.id	Attribute name of the user ID in LDAP. This property is optional if it is not specified and the **uid** property is used instead.

Property	Description
ldap.roles.attr.id	Attribute name of the group and role ID in LDAP. This property is optional if it is not specified and the **cn** property is used instead.
ldap.user.id.dn	User ID in a DN, instructs the callback to query for user DN before searching for roles. This is optional and is **false** by default.
java.naming.factory.initial	Initial context factory class name; is **com.sun.jndi.ldap.LdapCtxFactory** by default.
java.naming.security.authentication	Authentication type where the possible values are **none**, **simple**, and **strong**. This is **simple** by default.
java.naming.security.protocol	Security protocol to be used, for example, **ssl**.
java.naming.provider.url	LDAP url (by default **ldap://localhost:389**; if the protocol is set to *ssl* then **ldap://localhost:636**)

14.1. LDAP USERGROUPCALLBACK IMPLEMENTATION

You can use the LDAP **UserGroupCallback** implementation by configuring the respective LDAP properties in one of the following ways:

- Programatically: Build a properties object with the respective **LDAPUserGroupCallbackImpl** properties and create **LDAPUserGroupCallbackImpl** with the properties object as its parameter.
  For example:

```
import org.kie.api.PropertiesConfiguration;
import org.kie.api.task.UserGroupCallback;
...
Properties properties = new Properties();
properties.setProperty(LDAPUserGroupCallbackImpl.USER_CTX, "ou=People,dc=my-domain,dc=com");
properties.setProperty(LDAPUserGroupCallbackImpl.ROLE_CTX, "ou=Roles,dc=my-domain,dc=com");
properties.setProperty(LDAPUserGroupCallbackImpl.USER_ROLES_CTX, "ou=Roles,dc=my-domain,dc=com");
properties.setProperty(LDAPUserGroupCallbackImpl.USER_FILTER, "(uid={0})");
properties.setProperty(LDAPUserGroupCallbackImpl.ROLE_FILTER, "(cn={0})");
properties.setProperty(LDAPUserGroupCallbackImpl.USER_ROLES_FILTER, "(member={0})");

UserGroupCallback ldapUserGroupCallback = new
```

```
LDAPUserGroupCallbackImpl(properties);

UserGroupCallbackManager.getInstance().setCallback(ldapUserGroupCallback);
```

- Declaratively: Create the **jbpm.usergroup.callback.properties** file in the root of your application or specify the file location as a system property.
  For example:

  -Djbpm.usergroup.callback.properties=FILE_LOCATION_ON_CLASSPATH

  Ensure that you register the LDAP callback when starting the user task server.

  For example:

```
#ldap.bind.user=
#ldap.bind.pwd=
ldap.user.ctx=ou\=People,dc\=my-domain,dc\=com
ldap.role.ctx=ou\=Roles,dc\=my-domain,dc\=com
ldap.user.roles.ctx=ou\=Roles,dc\=my-domain,dc\=com
ldap.user.filter=(uid\={0})
ldap.role.filter=(cn\={0})
ldap.user.roles.filter=(member\={0})
#ldap.user.attr.id=
#ldap.roles.attr.id=
```

Additional resources

- *Roles and users*
- *Red Hat Single Sign-On Server Administration Guide*
- *Defining LDAP login domain*
- *LDAP login module*
- *LDAPExtended login module*
- *AdvancedLDAP login module*
- *AdvancedAdLDAP login module*
- *LDAP connectivity options*
- *LDAPUsers login module*

CHAPTER 15. DATABASE CONNECTION

Business Central provides a dedicated **UserGroupCallback** implementation for database server with Red Hat Process Automation Manager to enable the user task service. The user task service helps in retrieving information on users and groups (roles) directly from databases.

You can configure the following database **UserGroupCallback** implementation properties:

Table 15.1. Database UserGroupCallback properties

Property	Description
db.ds.jndi.name	JNDI name of the data source used for connections
db.user.query	Verifies the user existence
db.user.roles.query	Collects the groups for a given user
db.roles.query	Verifies the group existence

15.1. DATABASE USERGROUPCALLBACK IMPLEMENTATION

In database **UserGroupCallback** implementation, you must create the required database. You can use this implementation by configuring the respective database properties in one of the following ways:

- Programmatically: Build a properties object with the respective **DBUserGroupCallbackImpl** properties and create **DBUserGroupCallbackImpl** using the same properties object as its parameter.
  For example:

```
import static org.jbpm.services.task.identity.DBUserGroupCallbackImpl.DS_JNDI_NAME;
import static
org.jbpm.services.task.identity.DBUserGroupCallbackImpl.PRINCIPAL_QUERY;
import static org.jbpm.services.task.identity.DBUserGroupCallbackImpl.ROLES_QUERY;
import static
org.jbpm.services.task.identity.DBUserGroupCallbackImpl.USER_ROLES_QUERY;
...
props = new Properties();
props.setProperty(DS_JNDI_NAME, "jdbc/jbpm-ds");
props.setProperty(PRINCIPAL_QUERY, "select userId from Users where userId = ?");
props.setProperty(ROLES_QUERY, "select groupId from UserGroups where groupId = ?");
props.setProperty(USER_ROLES_QUERY, "select groupId from UserGroups where userId =
?");

callback = new DBUserGroupCallbackImpl(props);
```

- Declaratively: Create the **jbpm.usergroup.callback.properties** file in the root of your application or specify the file location as a system property.
  For example:

  -Djbpm.usergroup.callback.properties=FILE_LOCATION_ON_CLASSPATH

Ensure that you register the database callback when starting the user task server.

For example:

```
System.setProperty("jbpm.usergroup.callback.properties",
"/jbpm.usergroup.callback.db.properties");
callback = new DBUserGroupCallbackImpl(true);
...
db.ds.jndi.name = jdbc/jbpm-ds
db.user.query = select userId from Users where userId = ?
db.roles.query = select groupId from UserGroups where groupId = ?
db.user.roles.query = select groupId from UserGroups where userId = ?
```

Additional resources

- *Roles and users*

CHAPTER 16. CONFIGURING MAVEN USING SETTINGS.XML FILE

Java application development uses the Apache Maven build automation tool to build and manage software projects. Maven uses Project Object Model (POM) configuration XML files to define both, the project properties and the build process.

Maven uses repositories to store Java libraries, plug-ins, and other build artifacts. Repositories can be either local or remote. A local repository is a download of artifacts from a remote repository cached on a local machine. A remote repository is any other repository accessed using common protocols, such as **http://** when located on an HTTP server, or **file://** when located on a file server. The default repository is the public remote Maven 2 Central Repository. Configuration of Maven is performed by modifying the settings.xml file. You can either configure global Maven settings in the **M2_HOME/conf/settings.xml** file, or user-level settings in the **USER_HOME/.m2/settings.xml** file.

Additional resources

- *Configuring an external Maven repository for Business Central and Process Server*
- *Packaging and deploying a Red Hat Process Automation Manager project in Maven*
- *Maven settings and repositories for Red Hat Process Automation Manager*
- *System integration with Maven*
- *Welcome to Apache Maven*
- *Apache Maven Project - Introduction to Repositories*
- *Apache Maven Parent POMs Reference* .

CHAPTER 17. GAV CHECK MANAGEMENT

In Business Central, projects are identified by the **Group ID**, **Artifact ID**, and **Version** (GAV) Maven naming convention. GAV values differentiate projects and project versions as well as identify dependencies with particular projects.

By default, Business Central detects duplicate GAVs. This feature can be disabled by users with the *admin* role.

17.1. CONFIGURING GAV CHECKS AND CHILD GAV EDITION

This procedure describes how to configure GAV checks in Business Central.

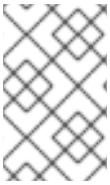
Procedure

1. In Business Central, go to **Menu → Design → Projects** and click the project name.
2. In the project window, click the **Settings** tab.
3. In the **General Settings** tab, perform any of the following tasks:
   - To enable other projects to have the same GAV, select the **Disable GAV conflict check** check box.
   - To enable child projects to have GAV edition, select the **Allow child GAV edition** check box.
4. Click **Save**.

NOTE

You can click **Reset** to undo all changes.

5. Click **Save** to confirm the changes.



NOTE

Duplicate GAV detection is disabled for projects in **Development Mode**. To enable duplicate GAV detection in Business Central, go to project **Settings → General Settings → Version** and toggle the **Development Mode** option to **OFF** (if applicable).

17.2. CONFIGURING GAV CHECKS FOR ALL PROJECTS

This procedure describes how to configure GAV checks for all projects in Business Central. You can also disable GAV checks at system startup.

Procedures

1. In Business Central, select the **Admin** icon in the top-right corner of the screen and select **Projects**. The **Projects** window opens.
2. In the **Advanced GAV preferences** tab, perform any of the following tasks:
   - To enable other projects to have the same GAV, select the **Disable GAV conflict check**

check box.

- To enable child projects to have GAV edition, select the **Allow child GAV edition** check box.

3. Click **Save**.

NOTE

You can also disable the duplicate GAV detection feature by setting the **org.guvnor.project.gav.check.disabled** system property to *true* for Business Central at system startup:

```
$ ~/EAP_HOME/bin/standalone.sh -c standalone-full.xml
-Dorg.guvnor.project.gav.check.disabled=true
```

CHAPTER 18. CONFIGURING THE ENVIRONMENT MODE IN PROCESS SERVER AND BUSINESS CENTRAL

You can set Process Server to run in **production** mode or in **development** mode. Development mode provides a flexible deployment policy that enables you to update existing deployment units (KIE containers) while maintaining active process instances for small changes. It also enables you to reset the deployment unit state before updating active process instances for larger changes. Production mode is optimal for production environments, where each deployment creates a new deployment unit.

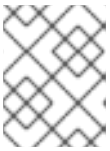
In a development environment, you can click **Deploy** in Business Central to deploy the built KJAR file to a Process Server without stopping any running instances (if applicable), or click **Redeploy** to deploy the built KJAR file and replace all instances. The next time you deploy or redeploy the built KJAR, the previous deployment unit (KIE container) is automatically updated in the same target Process Server.

In a production environment, the **Redeploy** option in Business Central is disabled and you can click only **Deploy** to deploy the built KJAR file to a new deployment unit (KIE container) on a Process Server.

Procedure

1. To configure the Process Server environment mode, set the **org.kie.server.mode** system property to **org.kie.server.mode=development** or **org.kie.server.mode=production**.

2. To configure the deployment behavior for a project in Business Central, go to project **Settings → General Settings → Version** and toggle the **Development Mode** option.



NOTE

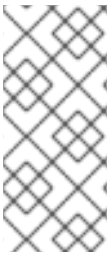
By default, Process Server and all new projects in Business Central are in development mode.

You cannot deploy a project with **Development Mode** turned on or with a manually added **SNAPSHOT** version suffix to a Process Server that is in production mode.

CHAPTER 19. GIT HOOKS AND REMOTE GIT REPOSITORY INTEGRATION

Git hooks are bash scripts that execute before or after Git events such as **git commit** or **git push**. In Business Central, you can use Git hooks to configure repositories to trigger specified actions every time events happen. For more information about Git hooks, see *Customizing Git Hooks*.

You can integrate remote Git repositories with Business Central by using post-commit Git hooks. This enables you to automate content replication between Business Central and remote repositories. For example, you can implement a real-time backup strategy where changes you make to your Business Central projects are replicated to your remote Git repositories.



NOTE

Business Central only supports post-commit Git hooks.

A post-commit Git hook executes after every commit as a sync operation. Business Central waits for the post-commit bash to complete and no other write operation occurs in the repository.

19.1. CREATING POST-COMMIT GIT HOOKS

You can create a post-commit Git hook bash script file that executes code contained in that file or execute code from a different file such as a Java program.

Procedure

1. Create a **post-commit** Git hook file:

```
$ touch post-commit
```

2. Set the permissions of the **post-commit** file to **755**:

```
$ chmod 755 post-commit
```

3. Add **#!/bin/bash** and any required code to the **post-commit** file, for example:
   - To push all changes to a remote repository:

```
#!/bin/bash
git push origin +master
```

   - To log a message:

```
#!/bin/bash
echo 'Hello World'
```

   - To execute code of another file:

```
#!/bin/bash
java -jar _EAP_HOME_/bin/.niogit/<SPACE>/<PROJECT_NAME>.git/hooks/git-push.jar
```

NOTE

To use post-commit Git hooks that execute Java code, you must use the following Java libraries:

- JGit: Used to interact with internal Business Central Git repositories.
- GitHub API for Java: Used to communicate with GitHub.

For more information about post-commit Git hook and Java code examples, see *Business Central post-commit Git Hooks Integration*.

19.2. IMPORTING REMOTE GIT REPOSITORIES

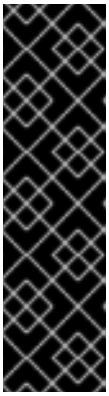
You can import a remote Git repository in to Business Central and configure a post-commit Git hook to automatically push changes to that remote repository.

Prerequisites

- Red Hat Process Automation Manager is installed in a Red Hat JBoss EAP 7.2 server instance.
- Red Hat Process Automation Manager projects exist in an external Git repository.
- Read access credentials for the external Git repository.
- (For Windows) Cygwin is installed with the Git package added during installation and the path to the Cygwin **/bin** folder is added to your environment **PATH** variable. For example, **C:\cygwin64\bin**. For more information about Cygwin installation, see Installing and Updating Cygwin Packages.

Procedure

1. In Business Central, go to **Menu → Projects**.
2. Select or create the space that you want to import the Git projects into.
3. Click  on the right side of the screen and select **Import Project**.
4. In the **Import Project** window, enter the URL of your Git repository, for example, **https://github.com/USERNAME/REPOSITORY_NAME.git**, and the credentials for the Git repository.
5. Click **Import**.
   The project is added to the Business Central Git repository and is then available in the space.



IMPORTANT

Use the HTTPS or Git protocol instead of a SCP-style SSH URL. Business Central does not support the basic SSH URL and an error appears if you use this URL.

You must have your public ssh key configured in your Git provider.

The Git repository must be a KJAR project, containing only a single KJAR that is compatible with the Red Hat Process Automation Manager version. The KJAR content must be in the root of the repository.

6. In a command terminal, navigate to the **hooks** folder located in the repository Git folder of the project. For example:

```
$ cd _EAP_HOME_/bin/.niogit/<SPACE>/<PROJECT_NAME>.git/hooks
```

7. Create a **post-commit** file that pushes changes to the remote Git repository. For example:

```
#!/bin/sh
git push origin +master
```

For more information about creating post-commit Git hooks, see Section 19.1, “Creating post-commit Git hooks”.

8. Optional: To check that the configuration was successful, create a guided rule in Business Central:
   a. In Business Central go to **Menu → Projects → Add Asset → Guided Rule**.
   b. On the **Create new Guided Rule** page, enter the required information.
   c. Click **Ok**.
   Business Central automatically pushes all changes to the remote repository.

Additional resources

- *Customizing Git - Git Hooks*

19.3. CONFIGURING GIT HOOKS FOR EXISTING REMOTE GIT PROJECT REPOSITORIES

If you have an existing remote Git repository project you can create a post-commit Git hook in a remote Git repository of that existing project and integrate the remote Git repository with Business Central.

Prerequisites

- Red Hat Process Automation Manager is installed in a Red Hat JBoss EAP 7.2 server instance.
- Red Hat Process Automation Manager projects exist in an external Git repository.
- Read access credentials for the external Git repository.
- (For Windows operating system) Cygwin is installed with the Git package added during

installation and the path to the Cygwin /**bin** folder is added to your environment **PATH** variable. For example, **C:\cygwin64\bin**. For more information about Cygwin installation, see Installing and Updating Cygwin Packages.

Procedure

1. In a command terminal, navigate to the **hooks** folder located in the repository Git folder of the project. For example:

```
$ cd _EAP_HOME_/bin/.niogit/<SPACE>/<PROJECT_NAME>.git/hooks
```

2. Create a **post-commit** file that pushes changes to the remote Git repository. For example:

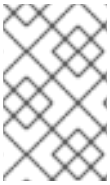
```
#!/bin/sh
git push origin +master
```

For more information about creating post-commit Git hooks, see Section 19.1, "Creating post-commit Git hooks".

3. Optional: To check that the configuration was successful, create a guided rule in Business Central:
   a. In Business Central go to **Menu → Projects → Add Asset → Guided Rule**.
   b. On the **Create new Guided Rule** page, enter the required information.
   c. Click **Ok**.
   Business Central automatically pushes all changes to the remote repository.

19.4. CONFIGURING GIT HOOKS AS A SYSTEM PROPERTY FOR BUSINESS CENTRAL

If you do not have an existing Git repository project or if you want to apply post-commit Git hooks to a large number of project repositories you can specify a directory containing a hook file for the value of the **org.uberfire.nio.git.hooks** system property. This directory is copied to the Git repositories.



NOTE

If you specify the **org.uberfire.nio.git.hooks** system property, all Business Central internal repositories and project repositories use the post-commit Git hook. You should only use fully qualified paths in your script.

Prerequisites

- Red Hat Process Automation Manager is installed in a Red Hat JBoss EAP 7.2 server instance.
- (For Windows operating system) Cygwin is installed with the Git package added during installation and the path to the Cygwin /**bin** folder is added to your environment **PATH** variable. For example, **C:\cygwin64\bin**. For more information about Cygwin installation, see Installing and Updating Cygwin Packages.

Procedure

1. Create a post-commit Git hook in a directory on your local system.

For more information about creating post-commit Git hooks, see Section 19.1, "Creating post-commit Git hooks".

2. To specify the directory with the hook file for the value of the **org.uberfire.nio.git.hooks** system property, do one of the following tasks:

   - Add the **org.uberfire.nio.git.hooks** system property to the **standalone.xml** file. For example:

     ```
     <system-properties>
       <property name="org.uberfire.nio.git.hooks" value="_EAP_HOME_/hooks">
       </property>
       ...
     </system-properties>
     ```

   - Use the **-Dorg.uberfire.nio.git.hooks** environment variable when executing Business Central. For example:

     ```
     $ ./standalone.sh -c standalone-full.xml -
     Dorg.uberfire.nio.git.hooks=_EAP_HOME_/hooks
     ```

3. Start Business Central.
   The post-commit Git hook is copied to all Business Central internal repositories and project repositories.

Additional resources

- *Customizing Git - Git Hooks*

19.5. INTEGRATING REMOTE GIT REPOSITORIES

In the following example, you use a post-commit Git hook and Java code to integrate Business Central with a remote Git repository. For the Java code example, see *Business Central post-commit Git Hooks Integration*. The example provides the following functionality:

- Automatic generation of the template **.gitremote** configuration file
- Validation of the **.gitremote** configuration file for required parameters
- Patterns defined in the ignore parameter of the **.gitremote** file are ignored by Git
- Message and notification output to users
- Support for GitLab and GitHub token authentication
- Support for GitLab group and subgroup project creation
- Support for GitHub organization repository creation

Prerequisites

- Red Hat Process Automation Manager is installed in a Red Hat JBoss EAP 7.2 server instance.
- Java Development Kit (JDK) 8 is installed.

- Maven is installed.

Procedure

1. In a terminal window, clone the GitHub repository to your system:

```
$ git clone https://github.com/kiegroup/bc-git-integration-push.git
```

2. Navigate to the cloned repository:

```
$ cd bc-git-integration-push
```

3. Execute a Maven clean install:

```
$ mvn clean install
```

4. Create a **/hooks** folder in your ***EAP_HOME*** directory:

```
$ mkdir -p _EAP_HOME_/hooks/
```

5. Copy the **git-push-2.1-SNAPSHOT.jar** to the ***EAP_HOME*/hooks/** folder:

```
$ cp bc-git-integration-push/target/git-push-2.1-SNAPSHOT.jar _EAP_HOME_/hooks/
```

6. Optional: To create a template **.gitremote** configuration file, run **git-push-2.1-SNAPSHOT.jar**:

```
$ java -jar git-push-2.1-SNAPSHOT.jar
```

Example template .gitremote configuration file

```
#This is an auto generated template empty property file
provider=GIT_HUB
login=
password=
token=
remoteGitUrl=https://api.github.com/
useSSH=false
ignore=.*demo.*, test.*
githubOrg=OrgName
gitlabGroup=Group/subgroup
```

7. Modify the **.gitremote** configuration file parameters.

Table 19.1. Example .gitremote parameters

Parameter	Description
provider	The Git provider. Only two values are accepted: GIT_HUB and GIT_LAB. Required
login	The username for the Git provider. Required

Parameter	Description
password	A plain text password. Not required if a **token** is provided.
token	A generated token to replace the **username** and **password** based unsecured connection. Note: If this is not set a warning is displayed that you are using an unsecured connection. Not required if a **password** is provided. Note: GitLab only supports token authentication.
remoteGitUrl	A public provider URL or a locally hosted enterprise for any provider. Required. Note: The public GitHub URL should be the API URL. For example, api.github.com.
useSSH	Boolean to allow the SSH protocol to push changes to the remote repository. Optional. Default = false. Note: This parameter uses the local **~/.ssh/** directory to obtain the SSH configuration.
ignore	A comma separated regular expressions to ignore project names that match any of these expressions. Optional.
githubOrg	Defines the repository organization if GitHub is used as the provider. Optional.
gitlabGroup	Defines the repository group and subgroup if GitLab is used as the provider Optional.

8. Create a **post-commit** Git hook file in ***EAP_HOME*/hooks**:

```
$ touch post-commit
```

9. Set the permissions of the **post-commit** file to **755**:

```
$ chmod 755 post-commit
```

10. Add **#!/bin/bash** and code to execute **git-push-2.1-SNAPSHOT.jar** to the **post-commit** file:

```
$ echo "#\!/bin/bash\njava -jar $APP_SERVER_HOME/hooks/git-push-2.1-SNAPSHOT.jar" >
hooks/post-commit
```

11. Start Business Central with the **-Dorg.uberfire.nio.git.hooks** environment variable set. For example:

```
$ ./standalone.sh -c standalone-full.xml -Dorg.uberfire.nio.git.hooks=_EAP_HOME_/hooks
```

NOTE

To use post-commit Git hooks that execute Java code, you must use the following Java libraries:

- JGit: Used to interact with internal Business Central Git repositories.
- GitHub API for Java: Used to communicate with GitHub.

For more information about post-commit Git hook and Java code examples, see *Business Central post-commit Git Hooks Integration*.

19.6. GIT HOOK EXIT CODES

When a Git hook exits an integer value is returned which determines the status of the Git hook execution. This integer value is known as a Git hook exit code. The execution status can be a success (1), warning (2 to 30) or error (31 to 255).

19.7. CUSTOMIZING GIT HOOK NOTIFICATIONS

Business Central provides a mechanism that enables users to receive customized Git hook notifications based on the hook exit codes.

To enable the notification mechanism you must create a ***.properties** file containing the custom messages and then specify the path to that file as the value of the **appformer.git.hooks.bundle** system property.

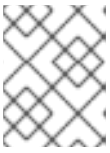
Procedure

1. Create the ***.properties** file and add a line for each exit code with a corresponding message in the following format:
<exit_code>=<display_message>

   The **<exit_code>** is the Git hook exit code and the **<display_message>** is the custom message that is displayed to a user.

   For example:

```
0=Success! All working as expected.
1=Warning! Please check the logs and advise your admin.
.
.
31=Error! Please advise your admin immediately.
```



NOTE

It is not necessary to define all the possible exit codes in the *.properties file. Notifications appear only for the exit codes defined in the *.properties file.

IMPORTANT

The notification service only supports the **ISO 8859-1** (**LATIN 1**) character set in the properties file. If you want to use extended characters, please use their escaped Unicode character code sequences.

2. To enable Git hook notifications, specify the path to the file as the value of the **appformer.git.hooks.bundle** system property.
See the following example of a **standalone.xml** file with the setting that points to a **Messages.properties** file:

```
<system-properties>
  <property name="appformer.git.hooks.bundle" value="/opt/jboss-as/git-hooks-
messages/Messages.properties">
  </property>
  ...
</system-properties>
```

19.7.1. Git hook notifications in Business Central

You can view Git hook notifications in Business Central. There are three Git hook exit code notification types.

Table 19.2. Git hook UI notification types

Exit code	Customized message	UI notification color
0	Success! All working as expected.	Green
1 to 30	Warning! Please check the logs and advise your admin.	Orange
31 to 255	Error! Please advise your admin immediately.	Red

IMPORTANT

UNIX machines only support error codes between 0 (success) to 255 (error), any exit code outside of this range will end up being converted into a different code which may cause showing a wrong notification message.

Windows machines don't have this limitation and support a wide range of exit codes.

19.7.2. Git hook notification internationalization support

You can internationalize notification messages by placing additional properties files in the same path as the original properties file specified as the **appformer.git.hooks.bundle** system property.

The name of the different localized files must be **<filename>_<lang>.properties**, where the **<filename>** is the same as the original. For example, where the system property points to **Messages.properties**, you can create **Messages_en.properties** for English, **Messages_fr.properties** for French, or **Messages_it.properties** for Italian.

The notification service will choose the properties file based on the user language, if there are no available translations for that language it will use the entries from the original **Messages.properties** file.

CHAPTER 20. ROLE-BASED ACCESS CONTROL FOR BRANCHES IN BUSINESS CENTRAL

Business Central provides the option for users to restrict the access for a target branch for a specific collaborator type. The security check uses both the **Security Management** screen and contributors sources to grant or deny permissions to spaces and projects. For example, if a user has the security permission to update a project and has write permission on that branch, based on the contributor type, then they are able to create new assets.

20.1. CUSTOMIZING ROLE-BASED BRANCH ACCESS

You can customize contributor role permissions for each branch of a project in Business Central. For example, you can set **Read**, **Write**, **Delete**, and **Deploy** access for each role assigned to a branch.

Procedure

1. In Business Central, go to **Menu → Design → Projects**.
2. If needed, add a new contributor:
   a. Click the project name and then click the **Contributors** tab.
   b. Click **Add Contributor**.
   c. Select the role name from the **admin** pull-down menu, for example, **analyst**.
   d. Select the **Contributor** role type from the **Owner** pull-down menu.
   e. Click **Ok**.
3. Customize role-based branch access for the relevant contributor:
   a. Click **Settings → Branch Management**.
   b. Select the branch name from the **Branch Management** pull-down menu.
   c. In the **Role Access** section, select or deselect the permissions check boxes to specify role-based branch access for each available role type.
   d. Click **Save** and click **Save** again to confirm your changes.

CHAPTER 21. VIEWING PROCESS INSTANCE LOGS

You can view all the process events of an instance from its **Logs** tab. The instance logs list all the current and previous process states. Business Central has two types of logs for process instances, **Business** and **Technical** logs.

Procedure

1. In Business Central, go to **Menu → Manage → Process Instances**.
2. On the **Manage Process Instances** page, click the process instance whose log you want to view.
3. Select the **Logs** tab:
   - Click **Business** to view the business events log.
   - Click **Technical** to view the technical events log.
   - Click **Asc** or **Desc** to change the order of the log files.

CHAPTER 22. BUSINESS CENTRAL SYSTEM PROPERTIES

The Business Central system properties listed in this section are passed to **standalone*.xml** files. To install standalone Business Central, you can use the listed properties in the following command:

```
java -jar rhpam-7.5.1-business-central-standalone.jar -s application-config.yaml -D<property>=
<value> -D<property>=<value>
```

In this command, **<property>** is a property from list and **<value>** is a value that you assign to that property.

Git directory

Use the following properties to set the location and name for the Business Central Git directory:

- **org.uberfire.nio.git.dir**: Location of the Business Central Git directory.
- **org.uberfire.nio.git.dirname**: Name of the Business Central Git directory. Default value: **.niogit**.
- **org.uberfire.nio.git.ketch**: Enables or disables Git ketch.
- **org.uberfire.nio.git.hooks**: Location of the Git hooks directory.

Git over HTTP

Use the following properties to configure access to the Git repository over HTTP:

- **org.uberfire.nio.git.proxy.ssh.over.http**: Specifies whether SSH should use an HTTP proxy. Default value: **false**.
- **http.proxyHost**: Defines the host name of the HTTP proxy. Default value: **null**.
- **http.proxyPort**: Defines the host port (integer value) of the HTTP proxy. Default value: **null**.
- **http.proxyUser**: Defines the user name of the HTTP proxy.
- **http.proxyPassword**: Defines the user password of the HTTP proxy.
- **org.uberfire.nio.git.http.enabled**: Enables or disables the HTTP daemon. Default value: **true**.
- **org.uberfire.nio.git.http.host**: If the HTTP daemon is enabled, it uses this property as the host identifier. This is an informative property that is used to display how to access the Git repository over HTTP. The HTTP still relies on the servlet container. Default value: **localhost**.
- **org.uberfire.nio.git.http.hostname**: If the HTTP daemon is enabled, it uses this property as the host name identifier. This is an informative property that is used to display how to access the Git repository over HTTP. The HTTP still relies on the servlet container. Default value: **localhost**.
- **org.uberfire.nio.git.http.port**: If the HTTP daemon is enabled, it uses this property as the port number. This is an informative property that is used to display how to access the Git repository over HTTP. The HTTP still relies on the servlet container. Default value: **8080**.

Git over HTTPS

Use the following properties to configure access to the Git repository over HTTPS:

- **org.uberfire.nio.git.proxy.ssh.over.https**: Specifies whether SSH uses an HTTPS proxy. Default value: **false**.
- **https.proxyHost**: Defines the host name of the HTTPS proxy. Default value: **null**.
- **https.proxyPort**: Defines the host port (integer value) of the HTTPS proxy. Default value: **null**.
- **https.proxyUser**: Defines the user name of the HTTPS proxy.
- **https.proxyPassword**: Defines the user password of the HTTPS proxy.
- **user.dir**: Location of the user directory.
- **org.uberfire.nio.git.https.enabled**: Enables or disables the HTTPS daemon. Default value: **false**
- **org.uberfire.nio.git.https.host**: If the HTTPS daemon is enabled, it uses this property as the host identifier. This is an informative property that is used to display how to access the Git repository over HTTPS. The HTTPS still relies on the servlet container. Default value: **localhost**.
- **org.uberfire.nio.git.https.hostname**: If the HTTPS daemon is enabled, it uses this property as the host name identifier. This is an informative property that is used to display how to access the Git repository over HTTPS. The HTTPS still relies on the servlet container. Default value: **localhost**.
- **org.uberfire.nio.git.https.port**: If the HTTPS daemon is enabled, it uses this property as the port number. This is an informative property that is used to display how to access the Git repository over HTTPS. The HTTPS still relies on the servlet container. Default value: **8080**.

JGit

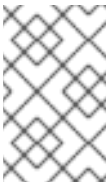
- **org.uberfire.nio.jgit.cache.instances**: Defines the JGit cache size.
- **org.uberfire.nio.jgit.cache.overflow.cleanup.size**: Defines the JGit cache overflow cleanup size.
- **org.uberfire.nio.jgit.remove.eldest.iterations**: Enables or disables whether to remove eldest JGit iterations.
- **org.uberfire.nio.jgit.cache.evict.threshold.duration**: Defines the JGit evict threshold duration.
- **org.uberfire.nio.jgit.cache.evict.threshold.time.unit**: Defines the JGit evict threshold time unit.

Git daemon

Use the following properties to enable and configure the Git daemon:

- **org.uberfire.nio.git.daemon.enabled**: Enables or disables the Git daemon. Default value: **true**.
- **org.uberfire.nio.git.daemon.host**: If the Git daemon is enabled, it uses this property as the local host identifier. Default value: **localhost**.

- **org.uberfire.nio.git.daemon.hostname**: If the Git daemon is enabled, it uses this property as the local host name identifier. Default value: **localhost**
- **org.uberfire.nio.git.daemon.port**: If the Git daemon is enabled, it uses this property as the port number. Default value: **9418**.
- **org.uberfire.nio.git.http.sslVerify**: Enables or disables SSL certificate checking for Git repositories. Default value: **true**.



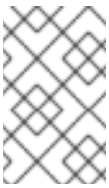
NOTE

If the default or assigned port is already in use, a new port is automatically selected. Ensure that the ports are available and check the log for more information.

Git SSH

Use the following properties to enable and configure the Git SSH daemon:

- **org.uberfire.nio.git.ssh.enabled**: Enables or disables the SSH daemon. Default value: **true**.
- **org.uberfire.nio.git.ssh.host**: If the SSH daemon enabled, it uses this property as the local host identifier. Default value: **localhost**.
- **org.uberfire.nio.git.ssh.hostname**: If the SSH daemon is enabled, it uses this property as local host name identifier. Default value: **localhost**.
- **org.uberfire.nio.git.ssh.port**: If the SSH daemon is enabled, it uses this property as the port number. Default value: **8001**.



NOTE

If the default or assigned port is already in use, a new port is automatically selected. Ensure that the ports are available and check the log for more information.

- **org.uberfire.nio.git.ssh.cert.dir**: Location of the **.security** directory where local certificates are stored. Default value: Working directory.
- **org.uberfire.nio.git.ssh.idle.timeout**: Sets the SSH idle timeout.
- **org.uberfire.nio.git.ssh.passphrase**: Pass phrase used to access the public key store of your operating system when cloning git repositories with SCP style URLs. Example: **git@github.com:user/repository.git**.
- **org.uberfire.nio.git.ssh.algorithm**: Algorithm used by SSH. Default value: **RSA**.
- **org.uberfire.nio.git.gc.limit**: Sets the GC limit.
- **org.uberfire.nio.git.ssh.ciphers**: A comma-separated string of ciphers. The available ciphers are **aes128-ctr**, **aes192-ctr**, **aes256-ctr**, **arcfour128**, **arcfour256**, **aes192-cbc**, **aes256-cbc**. If the property is not used, all available ciphers are loaded.
- **org.uberfire.nio.git.ssh.macs**: A comma-separated string of message authentication codes (MACs). The available MACs are **hmac-md5**, **hmac-md5-96**, **hmac-sha1**, **hmac-sha1-96**, **hmac-sha2-256**, **hmac-sha2-512**. If the property is not used, all available MACs are loaded.

NOTE

If you plan to use RSA or any algorithm other than DSA, make sure you set up your application server to use the Bouncy Castle JCE library.

Process Server nodes and Process Automation Manager controller

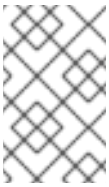
Use the following properties to configure the connections with the Process Server nodes from the Process Automation Manager controller:

- **org.kie.server.controller**: The URL is used to connect to the Process Automation Manager controller. For example, **ws://localhost:8080/business-central/websocket/controller**.
- **org.kie.server.user**: User name used to connect to the Process Server nodes from the Process Automation Manager controller. This property is only required when using this Business Central installation as a Process Automation Manager controller.
- **org.kie.server.pwd**: Password used to connect to the Process Server nodes from the Process Automation Manager controller. This property is only required when using this Business Central installation as a Process Automation Manager controller.

Maven and miscellaneous

Use the following properties to configure Maven and other miscellaneous functions:

- **kie.maven.offline.force**: Forces Maven to behave as if offline. If true, disables online dependency resolution. Default value: **false**.



NOTE

Use this property for Business Central only. If you share a runtime environment with any other component, isolate the configuration and apply it only to Business Central.

- **org.uberfire.gzip.enable**: Enables or disables Gzip compression on the **GzipFilter** compression filter. Default value: **true**.
- **org.kie.workbench.profile**: Selects the Business Central profile. Possible values are **FULL** or **PLANNER_AND_RULES**. A prefix **FULL_** sets the profile and hides the profile preferences from the administrator preferences. Default value: **FULL**
- **org.appformer.m2repo.url**: Business Central uses the default location of the Maven repository when looking for dependencies. It directs to the Maven repository inside Business Central, for example, **http://localhost:8080/business-central/maven2**. Set this property before starting Business Central. Default value: File path to the inner **m2** repository.
- **appformer.ssh.keystore**: Defines the custom SSH keystore to be used with Business Central by specifying a class name. If the property is not available, the default SSH keystore is used.
- **appformer.ssh.keys.storage.folder**: When using the default SSH keystore, this property defines the storage folder for the user's SSH public keys. If the property is not available, the keys are stored in the Business Central **.security** folder.
- **appformer.experimental.features**: Enables the experimental features framework. Default value: **false**.

- **org.kie.demo**: Enables an external clone of a demo application from GitHub.
- **org.uberfire.metadata.index.dir**: Place where the Lucene **.index** directory is stored. Default value: Working directory.
- **org.uberfire.ldap.regex.role_mapper**: Regex pattern used to map LDAP principal names to the application role name. Note that the variable role must be a part of the pattern as the application role name substitutes the variable role when matching a principle value and role name.
- **org.uberfire.sys.repo.monitor.disabled**: Disables the configuration monitor. Do not disable unless you are sure. Default value: **false**.
- **org.uberfire.secure.key**: Password used by password encryption. Default value: **org.uberfire.admin**.
- **org.uberfire.secure.alg**: Crypto algorithm used by password encryption. Default value: **PBEWithMD5AndDES**.
- **org.uberfire.domain**: Security-domain name used by uberfire. Default value: **ApplicationRealm**.
- **org.guvnor.m2repo.dir**: Place where the Maven repository folder is stored. Default value: **<working-directory>/repositories/kie**.
- **org.guvnor.project.gav.check.disabled**: Disables group ID, artifact ID, and version (GAV) checks. Default value: **false**.
- **org.kie.build.disable-project-explorer**: Disables automatic build of a selected project in Project Explorer. Default value: **false**.
- **org.kie.verification.disable-dtable-realtime-verification**: Disables the real-time validation and verification of decision tables. Default value: **false**.

Process Automation Manager controller

Use the following properties to configure how to connect to the Process Automation Manager controller:

- **org.kie.workbench.controller**: The URL used to connect to the Process Automation Manager controller, for example, **ws://localhost:8080/kie-server-controller/websocket/controller**.
- **org.kie.workbench.controller.user**: The Process Automation Manager controller user. Default value: **kieserver**.
- **org.kie.workbench.controller.pwd**: The Process Automation Manager controller password. Default value: **kieserver1!**.
- **org.kie.workbench.controller.token**: The token string used to connect to the Process Automation Manager controller.

Java Cryptography Extension KeyStore (JCEKS)

Use the following properties to configure JCEKS:

- **kie.keystore.keyStoreURL**: The URL used to load a Java Cryptography Extension KeyStore (JCEKS). For example, **file:///home/kie/keystores/keystore.jceks.**

- **kie.keystore.keyStorePwd**: The password used for the JCEKS.
- **kie.keystore.key.ctrl.alias**: The alias of the key for the default REST Process Automation Manager controller.
- **kie.keystore.key.ctrl.pwd**: The password of the alias for the default REST Process Automation Manager controller.

Rendering

Use the following properties to switch between Business Central and Process Server rendered forms:

- **org.jbpm.wb.forms.renderer.ext**: Switches the form rendering between Business Central and Process Server. By default, the form rendering is performed by Business Central. Default value: **false**.
- **org.jbpm.wb.forms.renderer.name**: Enables you to switch between Business Central and Process Server rendered forms. Default value: **workbench**.

APPENDIX A. VERSIONING INFORMATION

Documentation last updated on Tuesday, April 27, 2021.