



# ALM Octane

Software Version: 16.0.100-16.0.400

## Synchronizer Installation Guide

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# Prerequisites

The following section lists the Synchronizer prerequisites.

## Hardware requirements

For each node (server/VM) where the Synchronizer will be running, the following are hardware requirements:

|                  |   |
|------------------|---|
| CPU              | Quad Core AMD64 processor or equivalent x86-compatible processor      |
| Memory (RAM)     | 16 GB minimum   |
| Free Disk Space  | 80 GB minimum   |
| Operating System | Red Hat Enterprise Linux (RHEL) 6.5 or higher<br>CentOS 6.5 or higher |

## Database requirements

The following are the Synchronizer database requirements:

- Oracle 19c, 12c - Standard or Enterprise edition, character set AL32UTF8
- MS SQL Server 2019, 2017, 2016

## Software requirements

The following are the Synchronizer software requirements:

- OpenJDK 1.8 update 65 or higher, or compliant with this version of OpenJDK.

To install Java, use OpenJDK by running:

```
yum install -y java-1.8.0-openjdk-devel
```

If you can only use OpenJRE, see ["Running the Synchronizer service on OpenJRE" on page 24](#).

- In ALM Octane on Windows environments you need to install the **cURL** utility on your Windows machine, placing **curl.exe** in the **octane\install** folder.

This enables you to run the **generateadminapikey.bat** command which generates an API client ID and secret to communicate with ALM Octane.

## Permissions

The following are the Synchronizer permission requirements:

### File system

- Regular user for installation process, or root
- Root for installing OS service
- Write permissions to the log folder specified in the property **general/logFolder**, in the **.yml** configuration file described in ["Install the Synchronizer" on page 8](#)
- Write permissions to the repository folder specified in the property **repository/rootFolder**, in the **.yml** configuration file described in ["Install the Synchronizer" on page 8](#)

### Oracle

- CREATE USER
- CREATE SESSION WITH ADMIN OPTION
- CREATE TABLE WITH ADMIN OPTION
- DROP USER
- CREATE SEQUENCE WITH ADMIN OPTION
- SELECT on SYS.DBA\_USERS

### MSSQL

- dbcreator
- securityadmin

## Firewall requirements

On the Synchronizer server, you must have an open inbound port. By default, the Synchronizer uses port 8080 for HTTP or port 8443 for HTTPS (SSL).

The service uses the following:

| <b>Purpose</b>                            | <b>Port (default)</b>                 | <b>Config property name in sync.yml</b> |
|---|---------------------------------------|---|
| Inbound communication to the Synchronizer | 8080<br>SSL: 8443                     | sync/general/port                       |
| Outbound communication to the database    | Oracle:<br>1521<br><br>MSSQL:<br>1433 | sync/database/connectionString          |
| Outbound communication to ALM Octane      | 8080                                  | serviceLocations/octane                 |

|  |      |                            |
|--|------|----------------------------|
| Communication between nodes in cluster configuration | 5701 | sync/distributedCache/port |
| Outbound communication to Synchronizer               | 8080 | sync/general/port          |

# Install the Synchronizer

The following section describes how to install and configure the Synchronizer for initial use.

1. ["Download Synchronizer and prepare ALM Octane" on the next page.](#)

First you download the Synchronizer package. You then need to prepare ALM Octane to enable the integration with Synchronizer.

2. Next, you install and configure Synchronizer. There are three ways to initially configure Synchronizer, depending on your environment:

- a. In a simple environment such as for testing purposes, you can run a script which automatically populates default Synchronizer parameters in the **/opt/sync/conf/sync.yml** file. You can then edit the file manually to match your environment.
- b. In a complex production environment with clusters, you must manually define the Synchronizer parameters in the **/opt/sync/conf/sync.yml** file.

The above two scenarios are described in ["Install Synchronizer using the sync.yml file" on page 13.](#)

- c. In a basic production environment (without clusters), you can use the Configurator interface to enter your parameters easily. See ["Install Synchronizer using the Configurator interface" on page 11.](#)
3. ["Define additional properties and enable the Synchronizer service" on page 16.](#)



## Download Synchronizer and prepare ALM Octane

To begin, you download the Synchronizer package. You then need to prepare ALM Octane to enable communication between ALM Octane and the Synchronizer.

### Download the Synchronizer

1. Download the Synchronizer installation package from Micro Focus download sites:

<https://www.microfocus.com/en-us/products/application-lifecycle-management-octane-on-prem/download>

2. Under **/opt/** extract the **tar** file:

```
tar -xzvf <installation file name>
```

The file structure should now be `/opt/sync/`.

### Prepare ALM Octane to enable the integration

To enable communication between ALM Octane and the Synchronizer, perform the following steps within your ALM Octane environment. (In a cluster configuration, this must be done separately for each ALM Octane node.)



**Note:**

- If you upgrade ALM Octane the following configuration changes are overwritten. Back up the files described below before upgrading, and restore them after upgrading.
- This document provides paths for ALM Octane on Linux. If you are using ALM Octane on Windows, the paths are similar but use Windows format.

1. Within **/opt/octane/webapps**, copy the **service.locator.properties.example** file to **service.locator.properties**:

```
cp service.locator.properties.example service.locator.properties
```

2. Within the **service.locator.properties** file, enter the correct internal URL of the Synchronizer. Note that the URLs cannot start or end with spaces.
3. Open the **/opt/octane/wrapper/wrapper.conf** file. In the section headed `#on-prem configuration`, uncomment the following lines (remove the `#` character from the beginning of each line):

```
wrapper.java.additional.38=-  
Dservice.locator.properties.location=%DEPLOY_BASE_  
DIR%/webapps/service.locator.properties
```

```
wrapper.java.additional.39=-Denable_services_integration=true
```

This enables ALM Octane to communicate with the Synchronizer.

4. If ALM Octane is configured behind a proxy, the Synchronizer must be identified as a non-proxy host. To do this, add the following line at the end of the **wrapper.conf** file:

```
wrapper.java.additional.<next line number>=-  
Dhttp.nonProxyHosts=<Synchronizer host>
```

For example, if the last line in the **wrapper.conf** file begins with `wrapper.java.additional.62`, add the following line:



```
Example: wrapper.java.additional.63=-  
Dhttp.nonProxyHosts=sync.service.company.com
```

5. Restart the ALM Octane server. In a command line, enter:

```
service octane restart
```

6. The Synchronizer needs to use an API client ID and secret to communicate with ALM Octane. To generate these, go to **/opt/octane/install** and run the following:

```
./generateadminapikey.sh <octane-server-url> <site-admin-name> <site-  
admin-password>
```

In an ALM Octane on Windows installation, go to **C:\Program Files\octane\install**, and use **generateadminapikey.bat**.

Example of output:



```
Example: "client_id":"micro-services-key_  
12qw97wx4wp8phrr4wwqzkore"  
  
"client_secret":"$00~7_djkrV~?vGF@ExMsFPn"
```

7. Save the client ID and secret. When you configure the Synchronizer, you will enter the client ID in the **serviceApiKey** property, and the secret in the **serviceApiSecret** property.

## Next steps:

- ["Install Synchronizer using the Configurator interface" on the next page](#)
- ["Install Synchronizer using the sync.yml file" on page 13](#)

## Install Synchronizer using the Configurator interface

In a basic production environment (without clusters), you can use the Synchronizer's Configurator interface to enter your Synchronizer settings.

### Install and start the Synchronizer

First you install the Synchronizer and start the Synchronizer service.

1. Within `/opt/sync/install`, execute the `install.sh` script under a desired user. (You may need to set `install.sh` as executable.)

**Note:** Make sure that ALM Octane is running before you execute the `install.sh` script.

If the `sudo` command is used to run the script as root, make sure the root user has the necessary environment variables set (mainly `JAVA_HOME`), or use the `-E` option in the `sudo` command:

```
sudo -E ./install.sh.
```

This runs the setup tool which configures the database, and populates configuration files inside the distribution. It also registers the service as an OS service if executed under root.

2. Start the Synchronizer service:

```
<install_dir>/wrapper/octane-sync start
```

Alternatively, run the following:

```
service octane-sync start
```

### Configure Synchronizer parameters in the Configurator interface

1. Open the Configurator interface:  
`http://<Synchronizer host>:<Synchronizer port>/sync/ui/configurator`
2. Fill in the fields on each of the tabs: Service Location, General, Database, Cache, Octane Integration, Security. Follow the instructions for each field.  
You can also find details on each field in ["Synchronizer parameter reference" on page 18](#).
3. Click **Run validation**.  
If any errors are returned, fix the relevant field.
4. Click **Save Changes** to save your parameter values to the `sync.yml` file.  
We recommend you also export the configuration for backup.

5. Click **Restart Server**, or run the following command from the command line:  
`service octane-sync restart.`

**Tip:** After the Synchronizer is restarted and you enable the service in ALM Octane, you can access the Configurator from inside the Synchronizer at any time, using the Settings icon in the upper right corner.

The Configurator can then be used to update configurations if you are logged into the configured ALM Octane server. The Configurator can be accessed by an ALM Octane user who has the **Maintenance protocol** and **Micro Service Site Admin** roles assigned.

#### **Next steps:**

- ["Define additional properties and enable the Synchronizer service" on page 16](#)
- ["Synchronizer parameter reference" on page 18](#)

## Install Synchronizer using the sync.yml file

The following section describes how to define values for the Synchronizer parameters using the **/opt/sync/conf/sync.yml** file. This can be done automatically (in simple environments), or manually (in complex environments).

When you are done, run the installation script.

### Automatically populate values in simple environments

In simple environments (for example to test the Synchronizer), you can run a script on your ALM Octane server to automatically populate parameters in the **/opt/sync/conf/sync.yml** file, using default ALM Octane configuration values. The script takes values from the ALM Octane installation files and uses them to populate the Synchronizer parameters with default values.

1. Run the following command on your ALM Octane server:

```
/opt/octane/install/enablesync.sh http://<Synchronizer  
host>:<Synchronizer port>/
```

2. The script generates a sync.yml file. Copy this file to **/opt/sync/conf/**, replacing the existing sync.yml.
3. If necessary, edit the values in sync.yml to match your environment, as described in ["Synchronizer parameter reference" on page 18](#).

For example, the script assumes that Synchronizer is installed in **/opt/sync/**, and uses port 8080. If you use a different port, edit the corresponding value in sync.yml.

### Manually define values in complex production environments

If you are working in a complex production environment including cluster nodes, you must define the **/opt/sync/conf/sync.yml** parameter values manually.

Fill in the parameters as described in ["Synchronizer parameter reference" on page 18](#).

**Note:** If you are working in SSO mode, see also ["Using Synchronizer with SSO" on the next page](#).

## Install and start the Synchronizer

You can now install the Synchronizer and start the Synchronizer service.

1. Save a backup copy of the **sync.yml** file. When you run **install.sh** in the next step, sensitive data such as passwords are replaced by encrypted values, and the encryption seed is removed from the **sync.yml** file. If the installation fails, you can restore the backup file and troubleshoot any issues.

2. Within **/opt/sync/install**, execute the **install.sh** script under a desired user. (You may need to set **install.sh** as executable.)

**Note:**

- Make sure that ALM Octane is running before you execute the **install.sh** script.
- If you need to connect to servers over a secure channel, configure trust before executing the **install.sh** script. For details, see ["Configure trust" on page 23](#).

If the sudo command is used to run the script as root, make sure the root user has the necessary environment variables set (mainly **JAVA\_HOME**), or use the **-E** option in the sudo command:

```
sudo -E ./install.sh.
```

This runs the setup tool which configures the database, and populates configuration files inside the distribution. It also registers the service as an OS service if executed under root.

3. Start the Synchronizer service:

```
<install_dir>/wrapper/octane-sync start
```

Alternatively, run the following:

```
service octane-sync start
```

To verify success, look at the Synchronizer service logs: **/opt/sync/logs/wrapper.log**.

You can also run the following command: `tail -f /opt/sync/logs/wrapper.log` and wait until you see the message **server is ready**.

## Using Synchronizer with SSO

The following procedure enables you to use Synchronizer with SSO. This requires an API key and secret with Site Admin roles.

If you upgrade from an earlier version of ALM Octane, and you previously generated a priory API key and secret, you do not to perform any action.

### To use Synchronizer with SSO:

1. Log in to ALM Octane as a site admin with SSO, and generate an API Access key:
  - a. In the Admin Settings section, select a space.
  - b. In the Site area, open the **API Access** tab.
  - c. Click **+ API access**.
  - d. In the Add API access dialog box, enter a name and description.
  - e. Click **Add**. A popup window indicates that the access was registered. Copy the client ID and secret to the clipboard.

2. In your **sync.yml** file, add a new section after the distributed cache section, with a blank line before and after this new section. Copy the following text and enter the corresponding values:

```
sp:  
  authenticationType: sso  
  ssoSpBaseUrl: <AUTHENTICATION_SERVICE_URL>  
  ssoOauthClientId: <THE_CLIENT_ID>  
  ssoOauthClientSecret: <THE_CLIENT_SECRET>
```

Note that the values for **ssoSpBaseUrl**, **ssoOauthClientId**, and **ssoOauthClientSecret** must match those in the **sso.conf** file.

3. Verify that the fields **serviceApiKey** and **serviceApiSecret** in the **Integration** section contain an API key and secret that have a Site Admin role.
4. The **sso** section properties: **redirectToAuthPageUrl**, **master**, **domain**, **loginUrl**, and **logoutUrl** can be removed. Do not remove **InitString**.

### Next steps:

- ["Define additional properties and enable the Synchronizer service" on the next page](#)
- ["Synchronizer parameter reference" on page 18](#)

## Define additional properties and enable the Synchronizer service

After configuring and installing Synchronizer, define additional properties as described in the following section. When you are done, enable the Synchronizer service in ALM Octane.

### Define additional properties

After you configure the `sync.yml` file, perform the following steps (depending on your environment).

1. Set the environment property **JAVA\_HOME** to where the Java JDK is installed, and not the JRE.
2. In a cluster deployment:  
Create a shared disk space which is accessible from all Synchronizer nodes. For all nodes configure the **sync/repository/rootFolder** property value in the **.yml** configuration file to point to this shared disk space.
3. If Synchronizer is on a different URL than ALM Octane:  
In the file `/opt/sync/conf/octane.site.params.properties`, uncomment the line for **SYNC\_BASE\_URL**. Set its value to the public base URL of the Synchronizer (for example: `http://sync-server.company.net:8080`).
4. If your ALM Octane environment does not have a load balancer:  
By default, ALM Octane generates authentication cookies per host (FQDN) and not per domain. If you do not have a load balancer, you must add a parameter to the ALM Octane `octane.conf` file, or you will not be able to access Synchronizer.
  - a. In the ALM Octane `octane.conf` file, add the parameter

```
hp-ssso {  
  
  creation-domain = "subdomain.domain.com"  
  
}
```

- b. Define its value to your subdomain and domain, but make sure the subdomain and domain are identical for both ALM Octane and Synchronizer. (In any case, enter the maximum URL section that is shared by both.)
- c. Restart ALM Octane.

**Note:** This will not work if you have previously modified the `HPSSO.xml` file. In this case, please contact Support.

### Enable the Synchronizer service in ALM Octane

Within ALM Octane, you will now enable the Synchronizer service in each relevant space.



1. Open ALM Octane as a site admin, and click the settings icon.
2. Select **Site > Spaces**.
3. Select the space for which you want to enable the Synchronizer service.
4. Click **Enable Synchronizer Service**. This will take several seconds to run.  
After successfully enabling the service you will see its version in the corresponding column.
5. Select **Users**, and assign a dedicated user the Synchronizer Admin role.
6. Log in as a Synchronizer Admin. Click Settings and then **Synchronizer** to access the Synchronizer UI.

You are now ready to perform synchronization.

## Synchronizer parameter reference

To enable synchronization, the following values must be defined for the Synchronizer parameters in the `/opt/sync/conf/sync.yml` file.

- If you ran the `enablesyncx.sh` command, default values are populated in these fields. You can then modify them as needed.
- In a complex environment, fill in the fields as described below.

**Note:** Sensitive data such as passwords or `initString` (excluding `encryptionSeed`) are written in plain text. When the installation script is executed ("service start"), the plain text values are replaced by encrypted values. The encryption seed (`sync/firstTimeInit/encryptionSeed`) is removed from the `.yml` file.

| <b>serviceLocations:</b> | <b>Section with URLs of services and ALM Octane</b>   |
|--------------------------|---|
| octane                   | Base URL of ALM Octane (or its load balancer for multi-node deployment)<br><br>Example: <code>http://octane.company.com:8080</code>   |
| opb                      | Deprecated  |
| sync                     | Base URL of Synchronizer (or its load balancer for multi-node deployment)<br><br>Example: <code>http://sync.company.com:8080/sync</code>  |
| <b>firstTimeInit</b>     | <b>Values from this section are deleted after the Synchronizer is run for the first time.</b>   |
| encryptionSeed           | Enter the contents of the <code>initstring</code> file on the ALM Octane machine installation:<br><br><code>&lt;octane-repository&gt;/storage/site/initstring.txt</code><br><br>Example: <code>more /opt/octane/repo/storage/site/initstring.txt</code> |
| <b>general</b>           | <b>Section of general properties</b>  |
| logFolder                | Folder where Synchronizer logs will be located.<br><br>Example: <code>/opt/sync/logs</code>   |
| port                     | HTTP port where the Synchronizer listens.<br><br>Example: <code>8080</code>   |

|                        |   |
|------------------------|---|
| httpsPort              | <p>HTTPS port where the Synchronizer listens.</p> <p>If commented out, HTTPS is not configured.</p>   |
| keystorePath           | <p>Path to the java keystore.</p> <p>You can copy the keystore from the ALM Octane server HTTPS configuration to here.</p> <p>If commented out, &lt;installation directory&gt;/server/conf/keystore is used with the password <b>storepwd</b>.</p>  |
| keystorePassword       | <p>Password for the java keystore.</p> <p>If commented out, &lt;installation directory&gt;/server/conf/keystore is used with the password <b>storepwd</b>.</p>  |
| <b>synchronization</b> | <b>Section related to synchronization of entities</b>   |
| publicOctaneUrl        | <p>Public (base) URL of ALM Octane.</p> <p>Example: http://octane.company.com:8080</p>  |
| <b>database</b>        | <b>Section of database-related properties</b>   |
| action                 | <p>Enter one of the following:</p> <ul style="list-style-type: none"> <li>• <b>CREATE_NEW</b> for a new installation (first execution of installation script). This creates the site admin schema.</li> <li>• <b>FILL_EXISTING</b> for a new installation, where the site admin schema is supplied by the organization's DBA. This populates the empty schema. Note that for MSSQL, a login named <b>hpu</b> must exist and have access to the supplied schemata.</li> <li>• <b>AUTO</b> for detecting and performing the needed action automatically.</li> <li>• <b>UPGRADE</b> for an existing deployment. This updates the existing schema if needed.</li> <li>• <b>CONNECT_TO_EXISTING</b> for an existing deployment. This connects to the existing schema without upgrade.</li> </ul> |
| type                   | <p>The supported database types are:</p> <ul style="list-style-type: none"> <li>• ORACLE</li> <li>• MSSQL</li> </ul>  |

|                  |   |
|------------------|---|
| connectionString | <p>The Java Database Connectivity (JDBC) database connection string required to connect to the database. It includes the following details: database type, database server name, and database server port number.</p> <p>Examples:</p> <pre>jdbc:sqlserver://localhost:1433 jdbc:oracle:thin:@//localhost:1521:xe jdbc:oracle:thin:@//localhost:1521/test</pre> <p>Note that Oracle multi-tenant database is not supported.</p> |
| adminUser        | <p>The name of the database admin user.</p> <p>Note: In case of <b>FILL_EXISTING</b> action, enter the <b>saSchemaUser</b> for Oracle, or <b>hpu</b> for MSSQL.</p>   |
| adminPassword    | <p>The password of the database admin user (<b>DBAdminUser</b> for Oracle, or <b>MssqlLoginNameForSetup</b> for MSSQL).</p> <p>Note: In case of <b>FILL_EXISTING</b> action, enter the <b>saSchemaPassword</b> for Oracle, or password of the <b>hpu</b> login for MSSQL.</p>   |
| saSchemaUser     | <p>The name of the site schema that is created by the <b>DBAdminUser</b> for Oracle, or <b>MssqlLoginNameForSetup</b> for MSSQL, during the installation, or supplied by the organization's DBA.</p> <p>Example: sync_sa</p>  |
| saSchemaPassword | <p>The plain-text password of the site schema.</p>  |
| schemaUser       | <p>Used with <b>FILL_EXISTING</b> action. The name of the space schema that should be populated, supplied by the organization's DBA.</p>  |
| schemaPassword   | <p>Password of a user created by the Synchronizer for each attached space.</p> <p>Note that for MSSQL, <b>schemaPassword</b> must be the same as <b>saSchemaPassword</b>.</p>   |
| <b>oracle:</b>   | <b>Section for Oracle DB only</b>   |
| tableSpace       | <p>The tablespace in the Oracle database where the site schema segment will be created. Case-sensitive.</p> <p>Example: USERS</p>   |

|                          |  |
|--------------------------|--|
| tempTableSpace           | The temporary tablespace in the Oracle database. Case-sensitive.<br><br>Example: TEMP  |
| <b>repository:</b>       | <b>Section of file repository related properties</b>   |
| rootFolder               | Root folder for file repository. This folder must be located on disk space which is shared among all Synchronizer nodes.<br><br>Example: /opt/sync/repo  |
| <b>integration:</b>      | <b>Section of integration specific properties</b>  |
| serviceApiKey            | API client ID  |
| serviceApiSecret         | API client secret  |
| <b>distributedCache:</b> | <b>Optional: Cluster configuration section</b>   |
| password                 | Password of the cache. Must be the same on all of the Synchronizer's distributed cache nodes.  |
| clusterNodes             | <ul style="list-style-type: none"> <li>This is not needed in single-node deployment. By default, the cluster is not configured, and the default value is: <ul style="list-style-type: none"> <li>- <b>localhost</b></li> </ul> </li> <li>In multi-node deployment, enter the list of nodes where the Synchronizer's distributed cache is running. For example: <ul style="list-style-type: none"> <li>- "node1"</li> <li>- "node2"</li> <li>- "10.0.0.23"</li> </ul> <p>Alternative notations could be in a single line:</p> <p>Nodes: ["node1", "node2", "10.0.0.23"]</p> </li> </ul> |
| port                     | Default cache port<br><br>Example: 5788<br><br>Note that if this is not a valid integer, the validation fails.   |
| <b>sso:</b>              | <b>Section of SSO-related properties</b>   |
| initString               | Enter the contents of the <b>authenticationKey</b> file on the machine installation:<br><br><b>/opt/octane/repo/storage/site/authenticationKey.txt</b>   |

|                       |  |
|-----------------------|--|
| redirectToAuthPageUrl | Authentication provider sign-in page<br>In most cases, this is the ALM Octane login URL.   |
| <b>master:</b>        | <b>SSO provider properties</b>   |
| domain                | The user-facing domain name. This must be identical for the Synchronizer and ALM Octane.<br>Example: If the user-facing address is almoctane.mydomain.com, the domain should be written as mydomain.com. |
| loginUrl              | Authentication provider sign-in URL<br>Example:<br><code>http://octane.company.com:8080/authentication-point/web-ui-login.jsp</code>   |
| logoutUrl             | Authentication provider sign-out URL<br>Example:<br><code>http://octane.company.com:8080/authentication/sign_out</code>  |

# Synchronizer management

## Configure trust with a secure database

If your environment includes a secure connection to your ALM Octane Synchronizer database, you need to establish trust.

1. Import the certificates from the database to the JAVA\_HOME cacerts, as described in the section ["Configure trust" below](#).
2. In the Synchronizer configuration file, edit the **connectionString** property as follows.

### For Oracle:

Define the **connectionString** parameter similar to the following:

```
jdbc:oracle:thin:@(DESCRIPTION=(ADDRESS=(PROTOCOL=tcps)  
(HOST=oracle.dbserver.com)(PORT=ssl_port))(CONNECT_DATA=(SERVICE_  
NAME=your_service_name)))
```

### For MSSQL:

| SQL Server Scenario                | Instructions  |
|------------------------------------|---|
| SSL/TLS is required                | Add the encryption method to the end of the <b>connectionString</b> value.<br><br>jdbc:sqlserver://<server>:<port>;encrypt=true;trustServerCertificate=true   |
| SSL without certificate validation | When using SSL, disable validation of the certificate sent by the database server. Add the encryption method to the end of the <b>connectionString</b> value, and apply the certificate into the java certs file located under <b>&lt;JAVA_HOME&gt;\jre\lib\security\certs</b> .<br><br>jdbc:sqlserver://<server>:<port>;encrypt=true;trustServerCertificate=false;trustStore=<Java Certs file>;trustStorePassword=<JKS password> |

## Configure trust

Configure trust on the Synchronizer Service server when you need to connect to any other server over a secure channel.

1. Obtain the certificate of the root and any intermediate Certificate Authority that issued the remote server certificate.
2. Import each certificate into the java truststore using a keytool command. For example:

```
cd $JAVA_HOME/bin  
  
./keytool -import -trustcacerts -alias <CA> -keystore  
../jre/lib/security/cacerts -file <path to the CA certificate  
file>
```

## Configure a secure connection to the Synchronizer service

1. Prepare a java keystore file with your server certificate, and copy it to the Synchronizer server. Make sure the user configured to run the Synchronizer service has access rights to this file.
2. In the sync.yml configuration file fill in the properties **httpsPort**, **keystorePath**, and **keystorePassword**, as described in ["Synchronizer parameter reference" on page 18](#).
3. Restart the Synchronizer service for the changes to take effect.  
If the service does not start, check the wrapper.log file for errors.

To disable https, comment out the **httpsPort** property in the sync.yml file. and restart the service.

## Running the Synchronizer service on OpenJRE

If running OpenJDK is not possible in your environment, you need to reconfigure the Synchronizer service.

1. Within <sync\_install\_dir>/wrapper, edit the **wrapper-common.conf** file.
2. Add a new line:

```
wrapper.java.additional.<number>=-  
Dorg.apache.jasper.compiler.disablejsr199=true  
where <number> is the next line number that is available in the file.  
Example:
```

```
wrapper.java.additional.43=-  
Dorg.apache.jasper.compiler.disablejsr199=true
```

3. Restart the Synchronizer service.

## Uninstall the Synchronizer

From /opt:

1. Run /opt/sync/install/uninstall.sh
2. Run `rm -rf /opt/sync`



# Upgrade the Synchronizer (on-premises)

If you are upgrading Synchronizer on-premises, perform the following steps. Note that the process is different, depending on your pre-upgrade Synchronizer version.

## Upgrade from CP 10 or later

### Back up and uninstall the old Synchronizer

1. Back up your old Synchronizer configuration folder: **/opt/sync/conf/**.
2. Uninstall the old Synchronizer service from /opt:
  - Run `/opt/sync/install/uninstall.sh`
  - Run `rm -rf /opt/sync`
3. Delete the old Synchronizer files in **/opt/sync/**.

### Configure and install the new Synchronizer

1. Download the new Synchronizer as described in ["Install the Synchronizer" on page 8](#).
2. Copy the contents of your old Synchronizer **conf** folder from its backup location to **/opt/sync/conf/**, overwriting the files located there.
3. In **sync.yml**, locate the **database > action** parameter. Change its value to UPGRADE.
4. Within **/opt/sync/install**, execute the **install.sh** script as described in ["Install the Synchronizer" on page 8](#).

## Upgrade from CP 9 or earlier

### Back up and uninstall the old Synchronizer

1. Back up your old Synchronizer configuration folder: **/opt/sync/conf/**.
2. Back up your old Integration Bridge configuration .yml file: **/opt/ibs/conf/ibs.yml**.
3. Uninstall the old Synchronizer service from /opt:
  - Run `/opt/sync/install/uninstall.sh`
  - Run `rm -rf /opt/sync`
4. Delete the old Synchronizer files in **/opt/sync/**.

### Configure and install the new Synchronizer

1. Download the new Synchronizer as described in ["Install the Synchronizer" on page 8](#).
2. In the new Synchronizer, the format of the **/opt/sync/conf/hazelcast.xml** file has changed.
  - If you did not customize the **hazelcast.xml** file in your old Synchronizer, open the backup you created of your old **conf** folder, and delete the **hazelcast.xml** file from the backup.

- If you customized the **hazelcast.xml** file in your old Synchronizer, contact Support before proceeding.
- 3. Copy the contents of your old Synchronizer **conf** folder from its backup location to **/opt/sync/conf/**, overwriting the files located there. (Do not overwrite the new **hazelcast.xml** file.)
- 4. Within the **sync.yml** file, add a section after the **database** section, headed **opbDatabase**.
- 5. Open your backed-up **ibs.yml** file, and copy the contents of the **database** section to the new **opbDatabase** section in **sync.yml**.
- 6. In **sync.yml**, locate the **database > action** parameter. Change its value to **UPGRADE**.
- 7. Within **/opt/sync/install**, execute the **install.sh** script as described in ["Install the Synchronizer" on page 8](#).
- 8. In ALM Octane Settings > Site Parameters, create a new parameter called **SYNCX\_BASE\_URL**. In the parameter value, enter the public base URL of the Synchronizer (for example: <http://sync-server.company.net:8080>).

After the above steps are complete, you need to upgrade your links and uninstall the old bridge. Proceed now to ["Upgrade Synchronizer links and uninstall the Integration Bridge" on the next page](#).

# Upgrade Synchronizer links and uninstall the Integration Bridge

If you are upgrading Synchronizer from CP 9 or earlier, perform the following steps.

**Note: On-premises:** Perform these steps after you finish "[Upgrade the Synchronizer \(On-premises\)](#)" on page 25.

## Upgrade Synchronizer links

1. In ALM Octane Settings, select **Synchronizer** to access the Synchronizer UI.  
Your pre-upgrade links appear in the Synchronizer.
2. For each of the spaces that you are upgrading, select **More Actions > Import/reimport bridge configurations**.
3. Enter your pre-upgrade Integration Bridge Agent configuration details as follows:

|                              |   |
|------------------------------|---|
| Select agent                 | Select the Integration Bridge Agent you want to upgrade.  |
| Credentials store file       | Enter the path of the <b>credentialsStore.xml</b> file located in <Bridge_installation_directory>/product/conf.           |
| Key file                     | Enter the path of the <b>key.bin</b> file located in <Bridge_installation_directory>/product/conf.                        |
| ALM proxy file               | Enter the path of the <b>proxy.properties</b> file located in <Bridge_installation_directory>/product/domain/ALM/conf.    |
| Jira proxy file              | Enter the path of the <b>proxy.properties</b> file located in <Bridge_installation_directory>/product/domain/Jira/conf.   |
| Jira adapter properties file | Enter the path of the <b>adapter.properties</b> file located in <Bridge_installation_directory>/product/domain/Jira/conf. |

4. Repeat the above **Import/reimport bridge configurations** step for each of the bridges that you want to upgrade in the space, and for each space you want to upgrade.

After upgrading, your pre-upgrade configurations are moved to the post-upgrade Synchronizer

server, and synchronization is once again active in the space you have upgraded.

The Synchronizer will no longer use the Integration Bridge Service or Agent.

## Uninstall the Integration Bridge components

**Note: SaaS:** Perform the following if you have an Integration Bridge installed in your environment.

**On-Premises:** This section is mandatory.

1. Remove the Integration Bridge Agent:
  - a. Navigate to the **<Integration Bridge Agent installation directory>/install** directory, and run **alm-octane-integration-bridge-uninstall.sh**.
  - b. Delete the Integration Bridge Agent installation directory.
2. Remove the Integration Bridge Service:
  - a. From **/opt**, run **/opt/ibs/install/uninstall.sh**.
  - b. Delete the **/opt/ibs** files.

# Troubleshoot Synchronizer installation

This section contains troubleshooting suggestions for issues relating to the Synchronizer installation process.

## Logs

Logs are located in the **logFolder** location specified in the ["Synchronizer parameter reference"](#) on [page 18](#).

- Synchronizer Application logs: **<logFolder>/sync/app/app.log**
- Audit logs: **<logFolder>/sync/Audit/Audit.log**
- SSO logs: **<logFolder>/sync/Hpsso/hpsso.log**
- REST interface logs: **<logFolder>/sync/rest/rest.log**
- Synchronizer service logs: **<logFolder>/sync/wrapper/wrapper.log**

## Error when enabling the Synchronizer service

### ALM Octane site log

Check the ALM Octane site log for an error. This is usually located in **/opt/octane/logs/nga/site/site.log**.

### Unexpected error

If you receive the message **Unexpected exception occurs, contact administrator for support**, while enabling the Synchronizer Service from the ALM Octane UI (displayed in the logs and UI), make sure the user running ALM Octane has read permissions to the **service.locator.properties** file which resides by default in **<octane\_install\_dir>/webapps/service.locator.properties**.

### HTTP status code 502

If you receive an error saying HTTP status code is 502, this means ALM Octane is configured to use a proxy and it cannot connect to the Synchronizer. Make sure the proxy can connect to the Synchronizer machine.

### Authentication 401 error

If the Synchronizer Service receives an authentication 401 error (displayed in the Synchronizer Service log), the service cannot authenticate to ALM Octane. Check that the **sso > initString** parameter value is identical in the configuration parameters of ALM Octane and the Synchronizer Service.

## PWC6345: There is an error in invoking javac. A full JDK (not just JRE) is required

If you receive the message “**org.apache.jasper.JasperException: PWC6345: There is an error in invoking javac. A full JDK (not just JRE) is required**” when using the ALM Octane Synchronizer UI, make sure the service is running on OpenJDK,

If this is not possible, see ["Running the Synchronizer service on OpenJRE" on page 24](#).

## Error 404 when opening the Synchronizer link from the ALM Octane UI

This can happen if the Synchronizer service is on a different URL than ALM Octane, and you did not define **SYNC\_BASE\_URL** in **/opt/sync/conf/octane.site.params.properties**, as described in ["Install the Synchronizer" on page 8](#).

You can fix this by adding the entries directly in the ALM Octane database and restarting ALM Octane. In the **PARAMS** table of the ALM Octane site admin database, add an entry for **SYNC\_BASE\_URL**. The **SYNC\_BASE\_URL** format is `http://sync-server.company.net:8080/` (without `/ui/sync`).

## User is repeatedly redirected to the ALM Octane login page

This usually happens because of cookie sharing problems, when ALM Octane and Synchronizer are on different domains.

To check cookies and make sure they are set correctly, you can use **Chrome Developer tools > Application > Cookies**.

# Send Us Feedback



Let us know how we can improve your experience with the Synchronizer Installation Guide.

Send your email to: [docteam@microfocus.com](mailto:docteam@microfocus.com)

