



# ALM Octane

Software Version: 12.60.10

## Installation Guide for Linux

Go to **HELP CENTER ONLINE**  
<http://admhelp.microfocus.com/octane/>

## Legal Notices

### Disclaimer

Certain versions of software and/or documents (“Material”) accessible here may contain branding from Hewlett-Packard Company (now HP Inc.) and Hewlett Packard Enterprise Company. As of September 1, 2017, the Material is now offered by Micro Focus, a separately owned and operated company. Any reference to the HP and Hewlett Packard Enterprise/HPE marks is historical in nature, and the HP and Hewlett Packard Enterprise/HPE marks are the property of their respective owners.

### Warranty

The only warranties for products and services of Micro Focus and its affiliates and licensors (“Micro Focus”) are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. Micro Focus shall not be liable for technical or editorial errors or omissions contained herein. The information contained herein is subject to change without notice.

### Restricted Rights Legend

Contains Confidential Information. Except as specifically indicated otherwise, a valid license is required for possession, use or copying. Consistent with FAR 12.211 and 12.212, Commercial Computer Software, Computer Software Documentation, and Technical Data for Commercial Items are licensed to the U.S. Government under vendor's standard commercial license.

### Copyright Notice

© Copyright 2016-2018 Micro Focus or one of its affiliates

### Trademark Notices

Adobe™ is a trademark of Adobe Systems Incorporated.

Microsoft® and Windows® are U.S. registered trademarks of Microsoft Corporation.

UNIX® is a registered trademark of The Open Group.

This product includes an interface of the 'zlib' general purpose compression library, which is Copyright © 1995-2002 Jean-loup Gailly and Mark Adler.

## Comodo Code Signing Certificate

The code signing certificate for ALM Octane was changed from Verisign to Comodo starting on January 1, 2017.

If you are installing this product on a computer with an older version of Windows, or on a computer without automatic Windows updates, the Comodo root certificate may not automatically be included as a trusted root certificate.

In such cases, we recommend manually configuring Comodo as a trusted root certificate.

For more details, see: <https://technet.microsoft.com/en-gb/library/dn265983.aspx>.

# Contents

ALM Octane .....	1
Architecture .....	6
Basic configuration .....	6
Enterprise configuration .....	6
Components .....	7
Installation types .....	11
Licensing flow .....	12
Overview .....	12
Request a trial .....	12
Choose the edition for your trial .....	12
Using Pro Edition .....	13
Installing a license .....	13
Installation flow .....	14
Prerequisites .....	14
Deploy .....	14
Configure .....	15
Start the server .....	15
Log in .....	15
Cluster configuration (optional) .....	15
Prerequisites .....	16
Checklist .....	16
Permissions .....	20
Installation .....	22
Deploy ALM Octane .....	23
Overview .....	23
Prerequisites .....	23
Deploy .....	23
Deploy in cluster environment .....	24
Configure initial site settings .....	25
Overview .....	25
Database server settings .....	25
Oracle server settings .....	28
SQL server settings .....	28

Site actions .....	28
Space settings .....	29
Elasticsearch settings .....	30
Site admin credential settings .....	30
Repository settings .....	30
Additional settings .....	31
Configure other settings .....	31
Overview .....	31
Rules for editing the octane.yml file .....	32
General server settings .....	32
LDAP settings .....	34
License settings .....	38
Oracle settings .....	39
Start the ALM Octane server .....	39
Log in to ALM Octane .....	41
Cluster installation (optional) .....	42
Overview .....	42
Install ALM Octane in a cluster configuration .....	43
Upgrade .....	45
Before you upgrade .....	45
Deploy .....	47
Configure initial settings .....	47
Configure other settings .....	48
Upgrade .....	56
Upgrade cluster nodes .....	56
Upgrade spaces in ALM Octane .....	56
Restart all Jetty servers .....	57
After the upgrade .....	57
Rollback .....	58
After the upgrade's setup validation phase .....	58
After a site schema has been upgraded .....	58
After space schema has been upgraded .....	59
After upgrade completed .....	59
After upgrading cluster nodes .....	60
Management .....	61
Start the ALM Octane server manually .....	62
Handle database-related issues .....	62
Change site schema settings and reinitialize .....	62

Configure trust on the ALM Octane server .....	63
Configure trust .....	63
Configure a secure connection to the ALM Octane server (Jetty) .....	64
Configure the connection .....	64
Limitations .....	64
Advanced ALM Octane server configuration .....	65
Redirect http to https .....	65
Configure number of allowed open files (Linux) .....	65
Configure secure database access .....	67
Using exception files for manual database changes .....	69
Overview .....	70
Define exception files .....	70
Set up use of the exception file .....	71
Troubleshooting .....	74
Checking logs .....	78
Log files .....	78
Monitor the deployment procedure .....	78
Uninstall .....	79
Send Us Feedback .....	81

# Architecture

You can set up ALM Octane as a single node, or in a cluster configuration. The following diagrams illustrate the system architecture for both options.

These are followed by descriptions of each of the components.

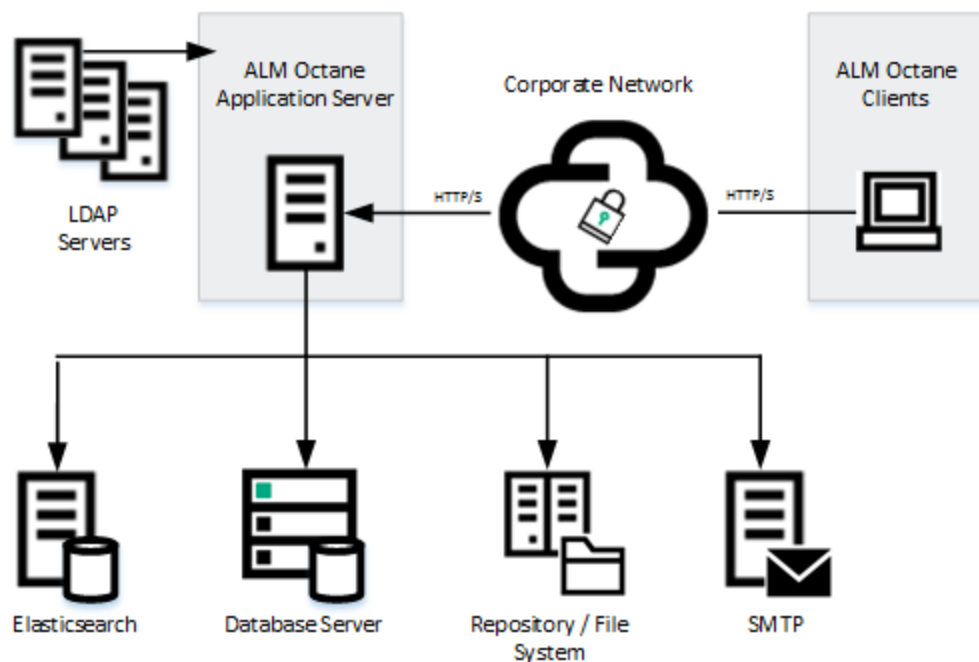
- ["Basic configuration" below](#)
- ["Enterprise configuration" below](#)
- ["Components" on the next page](#)

## Basic configuration

The following diagram illustrates the system architecture of a single-node configuration.

Components in grey are Micro Focus products.

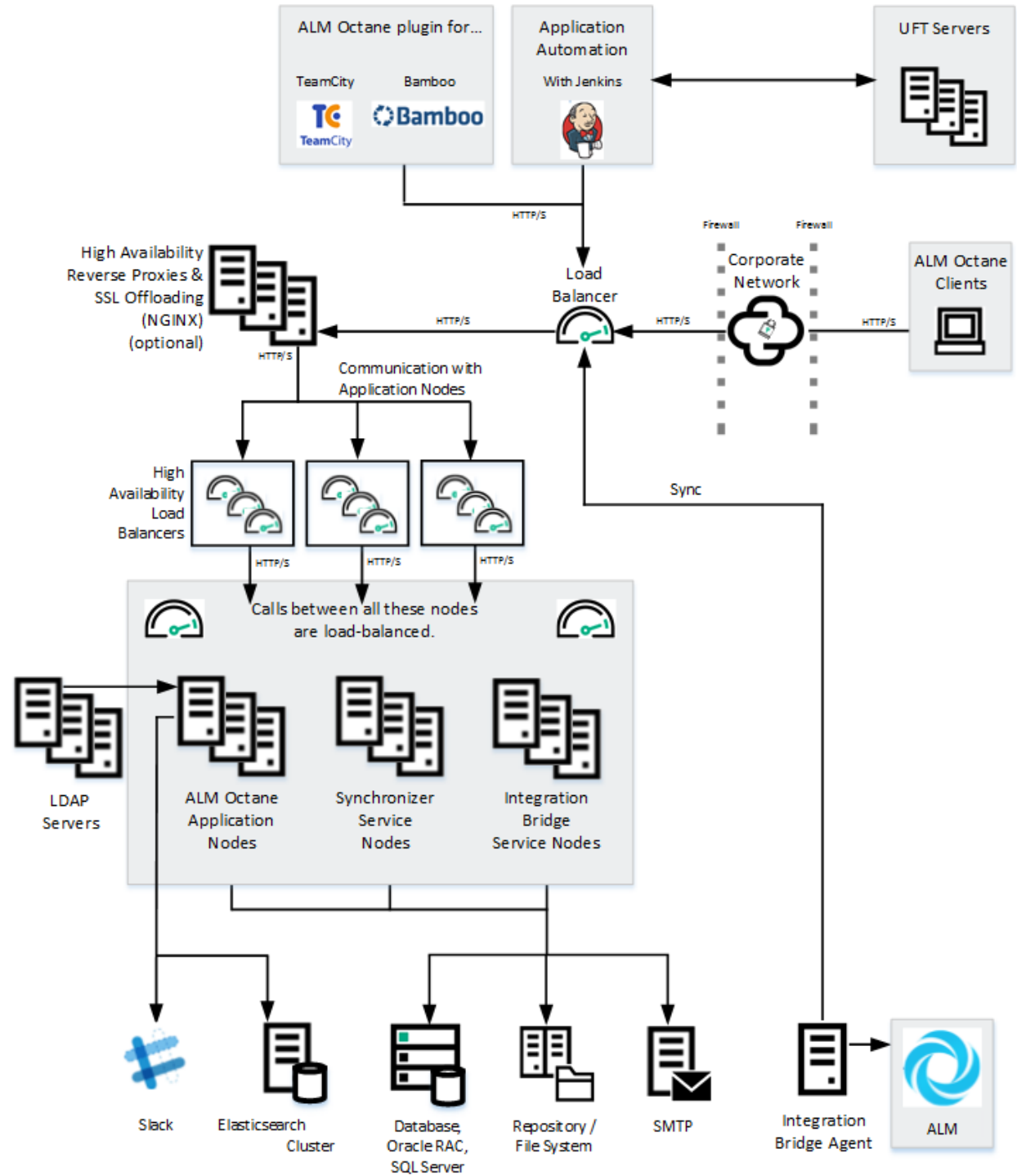
**Note:** The ALM Octane, database, and Elasticsearch servers should each reside on separate machines.



## Enterprise configuration

The following diagram illustrates the system architecture of an enterprise, cluster configuration:

Components in grey are Micro Focus products.



## Components

Components	Description
ALM Octane clients	The clients communicate with the ALM Octane server over HTTP/S.

Components	Description
Integration bridge and external sources	<p><b>Enterprise configuration:</b> The integration bridge enables ALM Octane to integrate with external applications ("off-organization" communication).</p> <p>This is generally optional, but required for synchronization. Also used for Trigger Webhook rules to an endpoint URL, SaaS deployments, and for communication between Micro Focus SaaS and an on-premises deployment.</p>
ALM Octane Server application nodes	<p>Client requests from ALM Octane are dispatched to the deployed application.</p> <div style="background-color: #e6f2e6; padding: 10px; border: 1px solid #ccc;"> <p><b>Note:</b> The ALM Octane, database, and Elasticsearch servers should each reside on separate machines.</p> </div>
ALM Octane application additional cluster (sync) nodes	<p><b>Cluster configuration:</b> A cluster is a group of application servers that run as a single system. Each application server in a cluster is referred to as a "node."</p> <ul style="list-style-type: none"> <li>• All nodes must have access to the database server on which the site database schema resides.</li> <li>• All nodes must have access to the repository.</li> </ul> <p>Generally, the repository will be located on an NFS or SAN server.</p> <p>If the repository is not located on a remote, dedicated machine, the repository location cannot be <b>/opt/octane</b>.</p> <ul style="list-style-type: none"> <li>• All nodes must have access to each other.</li> </ul>
Integration bridge service nodes	<p>The service handles communication between the Integration Bridge and Synchronizer.</p>
Synchronizer service nodes	<p>The service nodes handle synchronization between ALM Octane and ALM or JIRA.</p>
Repository / File system	<p>Stores all files to be used by all the projects in the system, such as templates and attachments.</p> <p><b>Cluster configuration:</b> When working in a clustered configuration, the repository must be accessible by all nodes. Also, the repository must be configured to use the same mount point (path) on all nodes.</p>



Components	Description
Database server	<p>A relational database management system, either Oracle RAC or Microsoft SQL Server.</p> <p>The database server stores the following schemas:</p> <ul style="list-style-type: none"> <li>• <b>Space schema.</b> All space information, such as workspaces, users, and roles..</li> <li>• <b>Site schema.</b> Stores all site-related information, such as database servers, cluster nodes, the SMTP servers, and configuration.</li> </ul> <p>This server can be shared with other applications with the following constraints:</p> <ul style="list-style-type: none"> <li>• The database must be able to sustain the load of all the applications.</li> <li>• Future versions of ALM Octane might require a database upgrade. This may necessitate migration of data if other applications sharing the same database will not support the database version that ALM Octane requires.</li> </ul> <div style="background-color: #e6f2e6; padding: 5px; border: 1px solid #ccc;"> <p><b>Note:</b> The ALM Octane, database, and Elasticsearch servers should each reside on separate machines.</p> </div>
Elasticsearch server (or cluster)	<p>A Java-based, open-source search engine. This component is used for various aspects of the application, such as global search and trends.</p> <p>This server can be shared with other applications with the following constraints:</p> <ul style="list-style-type: none"> <li>• The database must be able to sustain the load of all the applications.</li> <li>• Future versions of ALM Octane might require a database upgrade. This may necessitate migration of data if other applications sharing the same database will not support the database version that ALM Octane requires.</li> </ul> <div style="background-color: #e6f2e6; padding: 5px; border: 1px solid #ccc;"> <p><b>Note:</b> The ALM Octane, database, and Elasticsearch servers should each reside on separate machines.</p> </div> <p>A working Elasticsearch server is a requirement for working with ALM Octane. For details, see the knowledge base article <a href="#">KM02494295</a>.</p>
Load balancer	<p><b>Cluster configuration:</b> When working with a load balancer, client requests are transmitted to the load balancer and distributed according to server availability within the cluster.</p> <p>If you are using a load balancer, we recommend you utilize SSL offloading.</p>
High availability load balancers	<p><b>Cluster configuration:</b> These can be "VIPs" (virtual IP addresses) of one physical load balancer.</p>
DMZ	<p>An optional, demilitarized zone.</p>

Components	Description
High availability reverse proxies and SSL offloading	<b>Cluster configuration:</b> Optional configuration for load balancing using a software solution (for example, NGINX).
SMTP	A mail server.
Jenkins (with ALM Octane plugin)	<b>Enterprise configuration:</b> You can integrate ALM Octane with a Jenkins CI server using the Application Automation Tools Plugin on your CI server.
TeamCity, Bamboo, or TFS server (with ALM Octane plugin)	<b>Enterprise configuration:</b> You can integrate ALM Octane with a TeamCity, Bamboo, or TFS CI server using the ALM Octane CI Plugin on your CI server.
Slack	Integration with Slack, which enables all stakeholders of a backlog item to collaborate and communicate. You can integrate with Slack by adding it as a collaboration tool associating it with a workspace.
Micro Focus testing tools: LeanFT, UFT, LoadRunner, StormRunner Functional, StormRunner Load, Performance Center	You can integrate ALM Octane with Micro Focus testing tools. For details, see <a href="#">ALM Octane DevOps integrations</a> the topic on ALM Octane DevOps integrations in the <i>ALM Octane Help Center</i> .

 See also:

- ["Prerequisites" on page 16](#)
- ["Installation types" on the next page](#)
- ["Installation flow" on page 14](#)
- ["Installation" on page 22](#)
- ["Deploy ALM Octane" on page 23](#)

# Installation types

This topic describes the necessary requirements and procedures for the installation of ALM Octane server, and initial setup steps.

Type	Description
Installation	Instructions for installing on: <ul style="list-style-type: none"><li>• A single node. For details, see <a href="#">"Installation" on page 22</a>.</li><li>• A cluster configuration. For details, see <a href="#">"Cluster installation (optional)" on page 42</a>.</li></ul>
Upgrade	For details, see <a href="#">"Upgrade" on page 45</a> .

## See also:

- ["Prerequisites" on page 16](#)
- ["Deploy ALM Octane" on page 23](#)
- ["Configure initial site settings " on page 25](#)
- ["Configure other settings" on page 31](#)

# Licensing flow

This topic provides a high-level flow for setting up your trial license.

In this topic:

- ["Overview" below](#)
- ["Request a trial " below](#)
- ["Choose the edition for your trial" below](#)
- ["Using Pro Edition " on the next page](#)
- ["Installing a license" on the next page](#)

## Overview

To get started with ALM Octane, you begin with a 90-day on-premises free trial for 100 users. You can then install an ALM Octane license file, or allocate licenses from ALM or Quality Center.

Before you begin a trial, you should be familiar with the different editions of ALM Octane. ALM Octane is available in Enterprise, Pro, and Team Editions. For details, see the topic about ALM Octane editions in the *ALM Octane Help Center*.

## Request a trial

If you are a new user, submit a request for a free trial here: <https://software.microfocus.com/en-us/products/application-lifecycle-management/download>.

If you are an existing user, perform the following:

1. Open the [Software Licenses and Downloads Portal](#).
2. Select your account, and access **Entitlements > Download Software**.
3. Search for **Application Lifecycle Management**. Locate ALM - Quality Center version 12.55 or above, and click **Select**.
4. Search for **ALM Octane**, and click **Download**.

## Choose the edition for your trial

When you install ALM Octane, you can choose only between an Enterprise Edition or Team Edition trial. For details on selecting your trial, see the topic on license settings and trials in the *ALM Octane Help Center*.



**Caution:** If you want to use the Pro Edition, choose the Enterprise Edition for your trial. Make sure to follow the instructions under ["Using Pro Edition " on the next page](#).

You cannot switch between editions once configuration is done, so choose your trial and editions carefully. If you chose the wrong edition, re-install ALM Octane.

## Using Pro Edition

There is no Pro Edition trial. To work with Pro Edition:

1. Install ALM Octane and select Enterprise Edition as your trial type, but do not create shared spaces. If you create a shared space during an Enterprise Edition trial and then install a Pro Edition license, the shared space is deactivated.
2. Get an evaluation Pro Edition license from your Sales account manager, or create a support ticket for a one-time evaluation license.
3. In the ALM Octane Settings area, apply your Pro Edition license. For details about applying licenses, see ["Installing a license" below](#).

## Installing a license

After you install and configure your trial instance of ALM Octane, you can purchase licenses for Enterprise, Pro, or Team Edition. You then install your license key (.dat file) in ALM Octane.

Alternatively, you can allocate your current licenses from ALM or Quality Center and share them with ALM Octane. Licenses can be allocated from ALM (ALM.Net) Edition to ALM Octane Enterprise Edition, or from Quality Center (QC) Enterprise Edition to ALM Octane Pro Edition.

To learn more, see the topic about managing licenses in the *ALM Octane Help Center*.

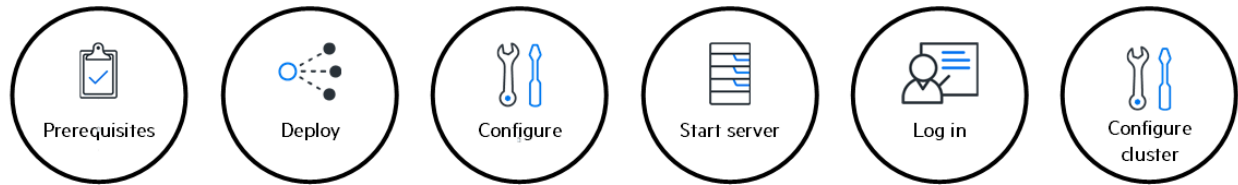


### Next steps:

- ["Installation flow" on the next page](#)

# Installation flow

This document describes the overall flow for installing the ALM Octane server on Linux.



In this topic:

- ["Prerequisites " below](#)
- ["Deploy " below](#)
- ["Configure " on the next page](#)
- ["Start the server" on the next page](#)
- ["Log in " on the next page](#)
- ["Cluster configuration \(optional\) " on the next page](#)

## Prerequisites

Verify your system meets hardware and software requirements.

This includes setting up permissions, opening ports, database configuration, and more.

You need three separate server machines.

- ALM Octane server
- Database server
- Elasticsearch server

For details, see ["Prerequisites" on page 16](#).

**Note:** We recommend you review security considerations in the knowledge base article [KM02707977](#). This article contains Instructions on how to set up a secure configuration for ALM Octane.

## Deploy

Deploy ALM Octane on a machine dedicated for the ALM Octane server on Linux.

ALM Octane is deployed using the RPM Package Manager (as an .rpm file).

The deployment path is **/opt/octane**.

The command to deploy is: `rpm -Uvh <name of the RPM file>`

For details, see ["Deploy ALM Octane" on page 23](#).

## Configure

Configure ALM Octane by editing these files with your site's settings:

- **setup.xml** for initial configuration
- **octane.yml** for ongoing configuration

The path to these files is **/opt/octane/conf**.

For details, see ["Configure initial site settings" on page 25](#) and ["Configure other settings" on page 31](#).

## Start the server

Start the ALM Octane server:

```
service octane start
```

For details, see ["Start the ALM Octane server" on page 39](#).

## Log in

Verify that ALM Octane was properly installed. For details, see ["Checking logs" on page 78](#).

Log into ALM Octane. For details, see ["Log in to ALM Octane" on page 41](#).

## Cluster configuration (optional)

After starting the server on the first machine, configure and initialize each additional cluster node. For details, see ["Cluster installation \(optional\)" on page 42](#).

### See also:

- ["Prerequisites" on the next page](#)
- ["Deploy ALM Octane" on page 23](#)
- ["Configure initial site settings" on page 25](#)
- ["Configure other settings" on page 31](#)
- ["Cluster installation \(optional\)" on page 42](#)

# Prerequisites

Verify that your system meets the requirements in [System requirements](#).


For security requirements, see [Software Self-solve knowledge base article KM02707977](#).

In this topic:


- ["Checklist" below](#)
- ["Permissions" on page 20](#)


## Checklist




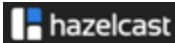
Use the following questions to make sure you are ready to install.

Category	Tell us...	Your answer...
	On which machine will you be installing ALM Octane?	
	Does the machine have a Quad Core AMD64 processor or equivalent x86-compatible processor?	
	How much memory does the machine have? You need a minimum of 8 GB.	
	What Linux operating system is on the machine?	
	What is the user name and password you will use for the installation user?	
	Does the installation user have <b>sudo</b> permissions? See <a href="#">"Permissions" on page 20</a> .	
	Are your browsers and screen resolutions compatible with ALM Octane?	
	On-premises installation of ALM Octane supports only English characters for the names of schemas, operating systems, users, and so on. Did you check?	



Category	Tell us...	Your answer...
 <p>Elasticsearch enables trend reporting and search functionality in ALM Octane.</p>	<p>What is the Elasticsearch version that matches ALM Octane requirements?</p>	
	<p>Do you need to download Elasticsearch?</p> <p>You can download Elasticsearch from <a href="https://www.elastic.co/downloads/past-releases/elasticsearch-5-6-5">https://www.elastic.co/downloads/past-releases/elasticsearch-5-6-5</a>.</p>	
	<p>Did you check knowledge base article <a href="#">KMO2494295</a>?</p>	
	<p>On which machine is Elasticsearch installed?</p>	
	<p>What is the Elasticsearch port? Default: 9300</p> <p>You can modify the port in <b>setup.xml</b>.</p>	
	<p>Did you make sure that the port for outbound communication to Elasticsearch is open?</p> <p>By default, outbound ports are open.</p>	
	<p>Did you make sure that the Elasticsearch ports (such as 9300 and 9200) are accessible directly from the ALM Octane server, not just by checking the HTTP connection?</p>	
	<p>What is the name of the Elasticsearch cluster you have configured?</p>	
	<p>Was Elasticsearch configured according to ALM Octane requirements? For details, see <a href="#">Database and Elasticsearch</a>.</p>	
	<p>Is the Elasticsearch accessible from the ALM Octane server?</p>	

Category	Tell us...	Your answer...
	<p>Does your Oracle version match ALM Octane requirements? For details, see <a href="#">Database and Elasticsearch</a>.</p>	
	<p>On which machine is the database installed?</p>	
	<p>What is the Oracle database port? Default: 1521 You can modify the port in the <b>ConnectionString</b> field in <b>setup.xml</b>.</p>	
	<p>Did you make sure that the port for outbound communication to Oracle is open? By default, outbound ports are open.</p>	
	<p>What is the URL for Java Database Connectivity (JDBC) for your database?</p>	
	<p>What is the database admin's user name and password?</p>	
	<p>Does the database admin power user have the necessary permissions? See "<a href="#">Permissions</a>" on page 20.</p>	
	<p>What table space and temporary table space can be used?</p>	
	<p>Did the DBA add any objects to the schemas? If so, create an exception file before installing. For details, see "<a href="#">Using exception files for manual database changes</a>" on page 69.</p>	

Category	Tell us...	Your answer...
	Does your SQL Server version match ALM Octane requirements? For details, see <a href="#">Database and Elasticsearch</a> .	
	On which machine is the database installed?	
	Will you be using the SQL Server database port or instance name to connect to the database? <ul style="list-style-type: none"> <li>• What is the SQL Server database port? Default: 1433</li> <li>• What is the SQL Server instance name?</li> </ul>	
	What is the database admin's user name and password?	
	Does the database administrator (power user) have the necessary permissions? See <a href="#">"Permissions" on the next page</a> .	
	What MSSQL database login user, and password, can be used for ALM Octane?	
	Did the DBA add any objects to the databases/schemas? If so, create an exception file before installing. For details, see <a href="#">"Using exception files for manual database changes" on page 69</a> .	
	Do you need to install the JDK on the ALM Octane server and other servers, such as the ElasticSearch server?	
	Does your Java version match ALM Octane requirements? For details, see <a href="#">JDK</a> .	
	Did you make sure that the port for inbound communication with Jetty is open?  By default, the port is 8080. For SSL, 8443.  You can define the port during initial installation, in <b>octane.yml</b> .	
	Did you make sure that ALM Octane can communicate between the nodes in the cluster, using inbound and outbound communication for clusters?  By default, the port is 5701.  You can define the port during initial installation, in <b>hazelcast.xml</b> .	

# Permissions

ALM Octane requires the following permissions for the file system and for the database.

## File system

Root or sudo user.

During deployment, ALM Octane creates a user and group named **octane** for running the **octane** service that starts the ALM Octane server. However, if your organization prefers to manage users in a centralized way, without enabling ad hoc creation of local users, create a user and group for this purpose, and define the following environment variables: **OCTANE\_USER** and **OCTANE\_GROUP**.

Make sure the user has write permissions to the **/opt/octane/log** directory.

## Oracle database

These are the permissions user you will define for the user you will specify in the **DBAdminUser** setting in the **setup.xml** file. For details, see ["DBAdminUser" on page 26](#).

Permissions vary depending how you work with ALM Octane and how you want to install.

Do you want ALM Octane to create schemas, objects, and tables during the installation?

<b>Yes</b>	<p>Provide ALM Octane with an Oracle power user with the following admin privileges, so that ALM Octane can create schemas and objects automatically during the installation.</p> <ul style="list-style-type: none"><li>• CREATE USER</li><li>• CREATE SESSION WITH ADMIN OPTION</li><li>• CREATE TABLE WITH ADMIN OPTION</li><li>• CREATE SEQUENCE WITH ADMIN OPTION</li><li>• DROP USER (optional). If not provided, the DBA must take responsibility for cleaning up unnecessary schemas.</li></ul> <p>If the database at your site is managed by database administrators, and ALM Octane is not authorized to create its own schemas, this power user can be created temporarily, for installation purposes only. You can remove this user if:</p> <ul style="list-style-type: none"><li>• The installation is complete, and login to ALM Octane is successful.</li><li>• The ALM Octane site admin intends to create spaces using an existing schema, which can be selected when creating a space in the ALM Octane Settings area for the site. For details, see the topic about creating spaces for a site n the <i>ALM Octane Help Center</i>.</li></ul>
------------	---

<b>No</b>	<p>Provide ALM Octane with a regular Oracle user with the following permissions. Create the schemas before installation.</p> <ul style="list-style-type: none"><li>• CREATE TABLE</li><li>• CREATE SESSION</li><li>• CREATE SEQUENCE</li><li>• The QUOTA clause on the user's default tablespace should be unlimited.</li></ul>
-----------	---

## SQL Server Database

These are the permissions user you will define for the user you will specify in the **DBAdminUser** setting in the **setup.xml** file. For details, see ["DBAdminUser" on page 26](#).

Permissions vary depending how you work with ALM Octane and how you want to install.

Do you want ALM Octane to create databases and the login user during the installation?

<b>Yes</b>	<p>Use the <b>sa</b> user, or an ALM Octane database admin power user.</p> <p>Install ALM Octane with a database admin power user if you cannot use the SQL <b>sa</b> user for security reasons. This user can be a temporary user, for installation purposes only.</p> <p>Request that the SQL Server database admin create a temporary power user with the following privileges (roles), which are required to install ALM Octane:</p> <ul style="list-style-type: none"><li>• Database Creators <b>dbcreator</b> role</li><li>• Security Administrator <b>securityadmin</b> role</li></ul> <p><b>Note:</b> It is important that the ALM Octane database administrative user is not the same as the ALM Octane admin user.</p> <p>The SQL Server database admin could name this power user <b>octane_install_power_user</b>, for example.</p>
<b>No</b>	<p>Create an ALM Octane database admin power user for installation purposes.</p> <ol style="list-style-type: none"><li>1. Open the <b>SQL Server Management Studio</b>.</li><li>2. In the <b>Object Explorer</b> pane, under the ALM Octane database server, expand the <b>Security</b> directory.</li><li>3. Right-click the <b>Logins</b> directory, and select <b>New Login</b>.</li><li>4. Type, for example, <b>octane_install_power_user</b> as the user name, and select the authentication type (enter the password if necessary).</li><li>5. Click the <b>Server Roles</b> tab, and select the <b>dbcreator</b> and <b>securityadmin</b> options. Click <b>OK</b>.</li></ol>

### Next steps:

- ["Deploy ALM Octane" on page 23](#)

# Installation

This section describes how to install an on-premises ALM Octane server using Linux.

Before installing:

- Verify that your server fulfills all prerequisites. For details, see ["Prerequisites" on page 16](#).
- Review security considerations in the knowledge base article [KM02707977](#).

**Cluster configuration:** If you intend to install ALM Octane in a cluster configuration, review the end-to-end process under ["Cluster installation \(optional\)" on page 42](#) before starting.

**Language support:** On-premises installation of ALM Octane supports only English. This means only English characters can be specified for the names of schemas, operating systems, users, and so on.

This section includes:

- [Deploy ALM Octane](#) ..... 23
  - [Overview](#) ..... 23
  - [Prerequisites](#) ..... 23
  - [Deploy](#) ..... 23
  - [Deploy in cluster environment](#) ..... 24
- [Configure initial site settings](#) ..... 25
  - [Overview](#) ..... 25
  - [Database server settings](#) ..... 25
  - [Oracle server settings](#) ..... 28
  - [SQL server settings](#) ..... 28
  - [Site actions](#) ..... 28
  - [Space settings](#) ..... 29
  - [Elasticsearch settings](#) ..... 30
  - [Site admin credential settings](#) ..... 30
  - [Repository settings](#) ..... 30
  - [Additional settings](#) ..... 31
- [Configure other settings](#) ..... 31
  - [Overview](#) ..... 31
  - [Rules for editing the octane.yml file](#) ..... 32
  - [General server settings](#) ..... 32
  - [LDAP settings](#) ..... 34
  - [License settings](#) ..... 38
  - [Oracle settings](#) ..... 39
- [Start the ALM Octane server](#) ..... 39

# Deploy ALM Octane

This section describes how to deploy an RPM file for installing an ALM Octane server.

In this topic:

- ["Overview" below](#)
- ["Prerequisites" below](#)
- ["Deploy ALM Octane" above](#)
- ["Deploy in cluster environment" on the next page](#)

## Overview

Installing the ALM Octane RPM package does the following:

- Creates the correct directory structure.
- Copies all the files to the right locations.
- Creates a user and group for running the ALM Octane service that starts the ALM Octane server.  
By default, both the user and group are named **octane**. However, you can use a pre-defined user instead by defining the following environment variables: **OCTANE\_USER** and **OCTANE\_GROUP**.
- Installs the **octane** service so that the operating system recognizes it.

## Prerequisites

Before installing:

- Verify that your server fulfills all prerequisites. For details, see ["Prerequisites" on page 16](#).
- Review security considerations in the knowledge base article [KM02707977](#).

## Deploy

1. Download the ALM Octane RPM package.  
<https://software.microfocus.com/en-us/products/application-lifecycle-management/download>
2. Install the ALM Octane RPM package.
  - To install the ALM Octane RPM package in the default installation directory **/opt/octane**, run:  

```
rpm -Uvh <name of the RPM file>
```
  - Alternatively, install the ALM Octane RPM package to a different directory:  

```
rpm -Uvh --prefix <base path> <name of the RPM file>
```

**Note:** If you install RPM to a different directory, make sure to replace **/opt/octane** with the relevant path when following these instructions.

3. Set up repository access.
  - If the repository is located on a remote, dedicated machine, the ALM Octane server user account must have network access to the remote repository.
  - The repository directory has to be shared so that user performing the installation (generally, the **octane** user) can write to the repository.
  - **Single-node configuration:**

On the ALM Octane server, create a mount directory that points to the file repository directory.
  - **Cluster configuration:**
    - The repository directory has to be a shared directory visible to all cluster nodes.
    - On each cluster node, create a mount directory that points to the repository directory.
    - It is important that you enter the repository path using the same path name on all nodes. For example, you cannot have the path on the first server node defined as **/opt/octane/repo** and on additional nodes defined as **/server1/opt/octane/repo**.
    - If the repository is not located on a remote, dedicated machine, the repository location cannot be **/opt/octane**.
4. Verify the required file permissions.

Default directory	Description	Permissions
<b>/opt/octane</b>	ALM Octane installation directory and all its sub-directories and files. These files are used for configuring the server.	Full read, write, and execute
<b>/opt/octane/log</b>	Log file directory.	Full read, write, and execute

5. If planning to install ALM Octane on additional cluster nodes, perform the steps described under ["Deploy in cluster environment"](#) below.

## Deploy in cluster environment

1. **Configure the IP addresses (or fully qualified domain names) of the cluster nodes.** Configure the node IP addresses or fully qualified domain names in the **octane.yml** file. For details, see ["Configure other settings"](#) on page 31.
2. **Verify ports are open in your firewall.** When deploying ALM Octane over a cluster, ALM Octane needs to communicate between the nodes in the cluster located on port 5701. Therefore, make sure that your firewall enables communication between the nodes of the cluster on the specified port.

### Next steps:

- ["Configure initial site settings"](#) on the next page



# Configure initial site settings

You can configure initial site settings using the **setup.xml** file. You must configure the settings in the **setup.xml** file during the ALM Octane installation. These settings cannot be changed later.

In this topic:

- ["Overview" below](#)
- ["Database server settings" below](#)
- ["Oracle server settings" on page 28](#)
- ["SQL server settings" on page 28](#)
- ["Site actions " on page 28](#)
- ["Space settings" on page 29](#)
- ["Elasticsearch settings" on page 30](#)
- ["Site admin credential settings" on page 30](#)
- ["Repository settings" on page 30](#)
- ["Configure initial site settings " above](#)
- ["Additional settings" on page 31](#)

## Overview

Configure these settings by editing the **setup.xml** file, for example, with an editor such as nano: `nano /opt/octane/conf/setup.xml`

Configuration files must be readable and editable by the user installing ALM Octane, which is generally the **octane** user. If you copy or edit a configuration file as the **root** or **sudoer** user that does not have the necessary installation permissions, the install fails.



**Tip:** To change the owner: `chown <owner>:<group> <file>`

**Example:** `chown octane:octane setup.xml`

It is recommended that you save a local copy of the **setup.xml** file before making changes to it.

Also, for security purposes, **setup.xml** should be stored in a secure, off-site location.

## Database server settings

<b>DBType</b>	The supported database types are: <ul style="list-style-type: none"><li>• ORACLE</li><li>• MSSQL</li></ul>
---------------	--

<b>SchemaName</b>	<p>The name of the site schema that is created by the <b>DBAdminUser</b> during the installation, or supplied by the organization's DBA. Enter the supplied name.</p>
<b>SchemaPassword</b>	<p><b>For Oracle:</b></p> <ul style="list-style-type: none"> <li>The password of the site schema. Enter the supplied password.</li> <li>When using Oracle, and installing using existing site schemas (with the <b>FILL_EXISTING</b> site action), make sure that the passwords that the DBA defines for the site schema and the space schema both match this <b>SchemaPassword</b>.</li> </ul> <p><b>For SQL Server:</b></p> <p>The password the <b>DbLoginUser</b>. For details, see "<a href="#">DbLoginUser</a>" on page 28.</p>
<b>DBAdminUser</b>	<p>ALM Octane uses the <b>DBAdminUser</b> both to create objects during installation and also to check that the database server is accessible.</p> <p><b>For Oracle:</b></p> <ul style="list-style-type: none"> <li>The name of the database admin user (<b>DBAdminUser</b>).</li> <li>When using Oracle, and installing using existing site schemas (with the <b>FILL_EXISTING</b> site action), enter the <b>SchemaName</b>.</li> </ul> <p><b>For SQL Server:</b></p> <ul style="list-style-type: none"> <li>This is either the <b>sa</b> user or an SQL Server power user with the correct permissions.</li> <li>When using SQL Server, and installing using the <b>FILL_EXISTING</b> site action, enter the <b>DBLoginUser</b> value.</li> </ul> <p>For details about <b>DBAdminUser</b> permissions, see "<a href="#">Permissions</a>" on page 20.</p> <p>For the <b>FILL_EXISTING</b> site action, make sure to also specify <b>SharedSpaceSchemaName</b>.</p>
<b>DBAdminPassword</b>	<p><b>For Oracle:</b> The password of the database admin user (<b>DBAdminUser</b>).</p> <ul style="list-style-type: none"> <li>Do not include a pound sign (<b>#</b>) or accented characters (such as, <b>ä, ç, ñ</b>).</li> <li>When installing using existing site schemas (with the <b>FILL_EXISTING</b> site action), enter the <b>SchemaPassword</b>.</li> </ul> <p><b>For SQL Server:</b> Password for <b>the</b> sa user or the SQL Server power user defined with the <b>DBAdminUser</b> setting.</p> <ul style="list-style-type: none"> <li>When installing using existing site schemas (with the <b>FILL_EXISTING</b> site action), enter the <b>SchemaPassword</b>.</li> </ul>

**ConnectionString**

The Java Database Connectivity (JDBC) database connection string. It includes the following details: database type, database server name, database server port number, service name.

The instructions below demonstrate how to set up the string with non-secured database access. However, you can use this connection string to configure secure access to the database. For details, see ["Configure secure database access" on page 67](#).

## Oracle

- **Syntax using TNS alias names:**

To use TNS alias names, make sure to provide a value for the **DBServerName** setting.

```
<entry  
key="ConnectionString">jdbc:mercury:oracle:TNSNamesFile=/  
path>/tnsnames.ora;TNSServerName=<server_name></entry>
```

**Example:**

```
jdbc:mercury:oracle:TNSNamesFile=/etc/tnsnames.ora;TNSServerName=ora12
```

- **Syntax using service names:**

```
<entry key="ConnectionString">jdbc:mercury:oracle://DB_SERVER_NAME:DB_  
SERVER_PORT;servicename=DB_SERVICE_NAME</entry>
```

**Example:**

```
jdbc:mercury:oracle://dbserver1.net:1521;servicename=orcl
```

To connect to Oracle RAC, use the Single Client Access Name (SCAN) instead of the database server name.

## SQL

- **Syntax using port:**

```
<entry key="ConnectionString">jdbc:mercury:sqlserver://DB_SERVER_NAME:DB_  
SERVER_PORT</entry>
```

**Example:**

```
jdbc:mercury:sqlserver://dbserver1:1433
```

- **Syntax using instance:**

```
<entry key="ConnectionString">jdbc:mercury:sqlserver://DB_SERVER_  
NAME/INSTANCE_NAME</entry>
```

**Example:**

```
jdbc:mercury:sqlserver://dbserver1:my_instance
```

## Oracle server settings

<b>TableSpace</b>	The tablespace in the Oracle database where the site schema segment will be created. Case-sensitive.
<b>TempTableSpace</b>	The temporary tablespace in the Oracle database. Case-sensitive.
<b>DBServerName</b>	The TNS alias name for connecting to the Oracle database. Optional. For use with <a href="#">"ConnectionString"</a> on the previous page. <b>Example: dbserver1.net</b>
<b>DBServerPort</b>	The port for connecting to the Oracle database.

## SQL server settings

<b>DbLoginUser</b>	<p>MSSQL database login authentication user for ALM Octane.</p> <p>This login is associated with the ALM Octane site and space databases. By default, this user is <b>octane</b>, but this can be overridden.</p> <p><b>Example: octane</b></p> <p>Specify the password for the <b>DbLoginUser</b> using the <b>SchemaPassword</b> setting. Do not include a pound sign (#) or accented characters (such as, ä, ç, ñ). For details, see <a href="#">"SchemaPassword"</a> on <a href="#">page 26</a>.</p> <p>If the DbLoginUser already exists, make sure to use the existing user's password.</p>
--------------------	---

## Site actions

The **SiteAction** setting determines how the installation should handle schemas. Possible values:

<b>CREATE_NEW</b>	<p>Use this site action for new installations.</p> <p>Creates a new site schema, creates a new space schema, and configures the current node.</p> <p>Only a <b>DBAdminUser</b> with <b>create schema</b> permissions can create a new schema.</p> <p>The <b>CREATE_NEW</b> site action fails when the schema already exists.</p>
-------------------	--

<b>FILL_EXISTING</b>	<p>Use this site action for new installations, in cases where the database admin user does not give permissions to create a schema. In this case, the organization's DBA creates a new site schema and a new space schema.</p> <p><b>For SQL Server:</b></p> <p>Two databases are created, one for the site schema and one for the space schema. Both are created by the DBA.</p> <ul style="list-style-type: none"> <li>• The default collation is <b>SQL_Latin1_General_CP1_CI_AS</b> (must be case-insensitive).</li> <li>• Make sure you specify these schemas/databases in the <b>SchemaName</b> and <b>SharedSpaceSchemaName</b> settings, because they are mandatory.</li> <li>• Make sure you define the "DbLoginUser" on the previous page.</li> </ul> <p><b>For Oracle:</b></p> <p>Two schemas are created, one for the site and one for the space. Both are created by the DBA.</p> <p><b>SharedSpaceSchemaName</b> should have the same password as <b>SchemaName</b>.</p> <p>Make sure that the passwords that the DBA defines for the site schema and the shared space schema both match the <b>SchemaPassword</b> setting.</p> <p><b>Handling schema exceptions</b></p> <p>If the organization's DBA made changes to schemas, such as the addition of tables or columns, you can define an exception file. The exception file instructs ALM Octane to ignore manual changes to the database user schema during installation and upgrade. For details, see "Using exception files for manual database changes" on page 69.</p>
----------------------	--

## Space settings

<b>SharedSpaceSchemaName</b>	<p>Relevant only for the <b>FILL_EXISTING</b> site action.</p> <p>To configure the space, add a <b>SharedSpaceSchemaName</b> parameter and set it to the name of the schema that is designated for the space.</p>
<b>DefaultSpaceMode</b>	<p>The mode in which the initial space will be created when the ALM Octane server starts. Valid values are:</p> <ul style="list-style-type: none"> <li>• <b>isolated</b>. Workspaces associated with the initial space will not share entities or customization settings.</li> <li>• <b>shared</b>. Workspaces associated with the initial space can share entities or customization settings.</li> </ul> <p><b>Examples:</b></p> <pre>&lt;entry key="DefaultSpaceMode"&gt;isolated&lt;/entry&gt; &lt;entry key="DefaultSpaceMode"&gt;shared&lt;/entry&gt;</pre>

## Elasticsearch settings

A working Elasticsearch server is a requirement for working with ALM Octane. For details, see the knowledge base article [KM02494295](#).

<b>ElasticHost</b>	<p>The name of the host running Elasticsearch.</p> <p>If running an Elasticsearch cluster, all node host names should be separated by semi-colons (;).</p> <p><b>Example: host1;host2;host3</b></p>
<b>ElasticPort</b>	<p>The number of the port running the Elasticsearch binary service.</p> <p>This port must be accessible from the ALM Octane server, not just by checking the HTTP connection.</p> <p><b>Example: 9300</b></p>
<b>ElasticClusterName</b>	<p>The name of the Elasticsearch cluster.</p>

## Site admin credential settings

<b>SiteAdministratorUser</b>	<p>The name of the site admin user that the installation will create.</p> <p>The user name should be an email address. The email address can be specified now and created later.</p> <p>This is the only user available after installation. Other users can be added later.</p>
<b>SiteAdministratorPassword</b>	<p>The site admin's password. The password must be at least 8 characters long, and contain at least one uppercase letter, one lowercase letter, and one number or symbol.</p> <p>Do not include a pound sign (#) or accented characters (such as, ä, ç, ñ).</p>

## Repository settings

<b>RepositoryFolder</b>	<p>The full path of the repository directory.</p> <p><b>Example: /opt/octane/repo</b></p> <p><b>Cluster configuration:</b></p> <ul style="list-style-type: none"><li>• The directory specified here must be accessible to all cluster nodes.</li><li>• If the repository is not located on a remote, dedicated machine, the repository location cannot be <b>/opt/octane</b>.</li></ul>
-------------------------	---

## Additional settings

<b>AppURL</b>	<p>The fully-qualified domain name and port for the ALM Octane server. This URL is inserted as a link in emails that ALM Octane sends. Email recipients can click the link to access the relevant entity directly in ALM Octane.</p> <p>Use this pattern: <code>http://&lt;Server URL&gt;:[Port]</code></p> <p><b>Basic configuration:</b> Usually the URL of the server on which you installed the ALM Octaneserver.</p> <p><b>Cluster configuration:</b> The Virtual IP URL.</p>
---------------	--

### Next steps:

- ["Configure other settings" below](#)

## Configure other settings

You can configure additional site settings using the **octane.yml** file. These settings are configured during installation, and can also be changed any time, whenever necessary.

In this topic:

- ["Overview" below](#)
- ["Rules for editing the octane.yml file" on the next page](#)
- ["General server settings" on the next page](#)
- ["LDAP settings" on page 34](#)
- ["License settings" on page 38](#)
- ["Oracle settings" on page 39](#)

## Overview

Configuration files must be readable and editable by the user installing ALM Octane, which is generally the **octane** user. If you copy or edit a configuration file as the **root** or **sudoer** user that does not have the necessary installation permissions, the install fails.



**Tip:** To change the owner: `chown <owner>:<group> <file>`

**Example:** `chown octane:octane setup.xml`

If you update any of these settings at a later time, make sure you restart the ALM Octane server. For example, you might initially install ALM Octane to use native user management, and at a later time, decide to implement LDAP authentication for user management instead.

Configure these settings by editing the **octane.yml**, for example, with an editor such as nano:

```
nano /opt/octane/conf/octane.yml.
```

## Rules for editing the octane.yml file



**Caution:** Correct indentation and formatting is essential when editing **yml** files to avoid unpredictable results during installation.

There are resources available online that describe the exact rules and conventions for formatting **yml** files. We strongly recommend that you familiarize yourself with these rules before editing **octane.yml**.

Here are some important rules when editing settings in **octane.yml**:


- Put a single space after the colon between the parameter name and the value.
- Do not add bullets or any other extra formatting.
- Do not add extra spaces.
- Use double quotes to enclose any values that include special characters, especially the **#**.

A **#** that is not enclosed in quotes marks the beginning of a comment. Any text after it, until the end of the line, is ignored. The **octane.yml** file is then interpreted incorrectly during installation and causes errors.

If these conventions are not followed, ALM Octane initialization or upgrade can fail.

For an example, see the sample **octaneExample.yml** file.

## General server settings

<b>cluster</b>	<p><b>Cluster configuration:</b> Enter a comma-separated list of node host names or IPs in the cluster.</p> <p> <b>Example: 10.0.0.24,10.0.0.99,10.0.0.23</b></p> <p>This is a mandatory setting.</p> <p>By default, the cluster is not configured, and the default value is blank. This indicates a standalone ALM Octane server.</p>
----------------	---



<b>heapSize</b>	<p>Before starting the ALM Octane server the first time, change the heap memory values on all active cluster nodes.</p> <p>For example, you may need to increase the heap size if there is an increase in the number of active workspaces in ALM Octane, or an increase in the number of concurrent user sessions.</p> <p><b>heapSize</b> should be set to half of available server memory on a dedicated server, regardless of load.</p> <p>Heap size should not exceed 31 GB.</p> <p>Values should be specified in MB (for example, 4096 for 4 GB).</p> <p>Default: <b>4096</b></p>
<b>server</b>	<p>The value of a Jetty port for HTTP, or a Jetty secure port for HTTPS.</p> <p>After you install ALM Octane, you may need to change the ALM Octane server port number.</p> <p>Because the installation uses a non-root user, common ports (below 1024) cannot be used with ALM Octane.</p> <p>By default, the installation uses port 8080 for HTTP or port 8443 for HTTPS (SSL).</p> <p>httpPort: 8080</p> <p>httpsPort: 8443</p> <p>Leaving any of these ports empty disables the access using the specified http schema server.</p> <p>It is possible that the default application server port is used by another application that is running on the same machine. In this case, you can either locate the application that is using the port and stop it, or you can change the ALM Octane server port.</p>
<b>proxy</b>	<p>If ALM Octane is behind a firewall, and needs to access an outside server, you may need to configure ALM Octane to use a proxy server.</p> <p>An example of accessing an external server is when using a Trigger webhook rule.</p> <p>host: &lt;proxy_host&gt;</p> <p>port: &lt;proxy_port&gt;</p> <p>user: &lt;user&gt;</p> <p>password: &lt;password&gt;</p>
<b>authenticationType</b>	<p>Whether the ALM Octane installation should use native user management or LDAP authentication for user management.</p> <p>Values are:</p> <p><b>ldap</b>. Use LDAP authentication.</p> <p><b>internal</b>, or any value other than <b>ldap</b>. Use internal, native ALM Octane user management.</p>

## LDAP settings

If you are planning on authenticating users using LDAP, set the **authenticationType** setting to **ldap**, and define the following settings.

Later, after ALM Octane installation, import users from LDAP into ALM Octane. See the information about setting up LDAP user authentication in the *ALM Octane Help Center*.

**Note:** After updating the **octane.yml** file, if there are errors in your LDAP configuration (which prevent the ALM Octane server from starting), have a site admin check the wrapper, site, and app logs.

### General LDAP settings

<b>connectionTimeout</b>	Connection timeout in seconds. Optional.  Default: 30 seconds
<b>adminDn</b>	<p>The user that will log on to ALM Octane after <b>initially</b> setting up LDAP authentication. Its purpose is to make sure that one workable user exists to start configuring LDAP user authentication.</p> <p>When the ALM Octane server starts, it checks <b>octane.yml</b>, verifies that this user exists, and validates this user against the LDAP data. If this attribute is not defined correctly, the server will not start. Correct the user details and restart the server.</p> <p>This user can be same user as the user entered in the <b>setup.xml</b> file, or a different user. After entering the value for this user, and then restarting the ALM Octane server, the admin user entered in the <b>setup.xml</b> file is overwritten.</p> <p><b>Note:</b> If the <b>adminDn</b> is changed and the server is restarted, both the original <b>adminDn</b> and the new <b>adminDn</b> exist as site admins. Modifying the <b>adminDn</b> does not remove the original one.</p>

### LDAP server settings

Enter the following settings for each LDAP server separately.

Each LDAP server is defined by a group of settings. The settings for each LDAP server start with a hyphen (-) followed by the **host** setting.

**Caution:** Back up all passwords set below because they are encrypted after the ALM Octane server is initialized.

<b>servers</b>	Header row to delineate that the information below is for each LDAP server. Do not enter a value.
----------------	---

<b>host</b>	<p>The LDAP server host name or IP address. Mandatory.</p> <p>Prefix each host item with a - sign: - <b>host</b>. This instructs ALM Octane where each host begins, especially if there are multiple LDAP servers.</p>
<b>port</b>	<p>LDAP server connection port. Mandatory.</p>
<b>isSsl</b>	<p>Whether the LDAP server uses SSL. Mandatory.</p> <p>Enter <b>Y</b> or <b>N</b>.</p> <p>If <b>Y</b>, establish trust to the certificate authority that issued the LDAP server certificate. For details, see <a href="#">"Configure trust on the ALM Octane server" on page 63</a>.</p>
<b>description</b>	<p>Description of the LDAP server. Optional.</p>
<b>baseDirectories</b>	<p>Root of the LDAP path to use to search for users when including new LDAP users in ALM Octane spaces. This can be a list of common names and domain components (cns and dns), a list of organizational units (ou), and so on.</p> <p>Optional. Default: Blank.</p> <p>If specified,</p> <p>Make sure to put a space after hyphen ( - ) before specifying the filter.</p> <p><b>Example:</b></p> <pre>baseDirectories:   - ou=Groups,o=organization.com   - dc=maxcnc,dc=com</pre>
<b>baseFilters</b>	<p>Filters to use to refine the search for users when including new LDAP users in ALM Octane spaces. This is generally a list of LDAP <b>objectClasses</b>.</p> <p>Optional. Default: (objectClass=*)</p> <p>Make sure to put a space after hyphen ( - ) before specifying the filter.</p> <p><b>Example:</b></p> <pre>baseFilters:   - (objectClass=*)   - (&amp;(objectClass=user)(objectCategory=person))</pre>
<b>authentication:</b>	<p>Header row to delineate that the information below is for authentication. Do not enter a value.</p>
<b>method</b>	<p>The LDAP authentication method supported by the LDAP server. Authentication method used by the LDAP server. The following methods are supported:</p> <ul style="list-style-type: none"> <li>• <b>anonymous</b>. In this case, skip the next two parameters, <b>user</b> and <b>password</b>.</li> <li>• <b>simple, user</b>, and <b>password</b> are mandatory.</li> </ul>

<b>user</b>	<p>Only required if you set the <b>authentication</b> parameter to <b>simple</b>.</p> <p>User name for accessing the LDAP server. This user must have at least read permissions for the LDAP server.</p>
<b>password</b>	<p>Only required if you set the <b>authentication</b> parameter to <b>simple</b>.</p> <p>Password for accessing the LDAP server.</p> <p>This password will be encrypted.</p>

## LDAP server mapping settings

Enter the following mapping settings for each LDAP server separately.

Values used in the mapping section are case-sensitive.

<b>ALM Octane attribute in octane.yml</b>	<b>Sample LDAP attribute that can be used</b>	<b>Values and descriptions</b>
<b>mapping</b>		Header row to delineate that the information below is for mapping of LDAP attributes. Do not enter a value.
<b>dn</b>	<b>distinguishedName</b>  <b>(for Active Directory)</b>	<p>The LDAP distinguished name attribute. Unique. Mandatory.</p> <p>This attribute is typically in a format that contains the common name and organization details, such as:</p> <p><b>cn=&lt;common_name&gt;,ou=&lt;organizational_unit&gt;,dc=&lt;part_of_domain&gt;</b></p> <p>The <b>dn</b> is a unique string that typically contains other LDAP attributes, such as <b>cn</b>, <b>ou</b>, and <b>dc</b>.</p>
	<b>entryDN</b>  <b>(for other LDAP systems)</b>	<p><b>Example</b></p> <ol style="list-style-type: none"> <li>1. If in LDAP, the <b>entryDN</b> attribute value is: <b>cn=&lt;common_name&gt;,ou=&lt;organizational_unit&gt;,dc=&lt;part_of_domain&gt;</b></li> <li>2. In the <b>octane.yml</b>, the dn value would be mapped to: <b>entryDN</b></li> <li>3. When exporting users from LDAP, the <b>dn</b> string representation of each LDAP user would be the common name, followed by the organizational unit, followed by a part of the domain, such as: <b>cn=Joe_Smith@nga,ou=my_org,dc=com</b></li> </ol>

ALM Octane attribute in octane.yml	Sample LDAP attribute that can be used	Values and descriptions
<b>uid</b>	<b>objectGUID</b>  (for Active Directory)	<p>The LDAP attribute that should be used as the immutable, globally-unique identifier. Mandatory.</p> <p>In this documentation, we also refer to this as the UUID (universally unique ID).</p> <p>To work with ALM Octane with Active Directory, we use <b>objectGUID</b>.</p> <p>This is an attribute by which ALM Octane identifies each user internally for synchronization between ALM Octane and LDAP, including when importing users into ALM Octane.</p>
	<b>entryUUID</b>  (for other LDAP systems)	<p>The LDAP attribute that should be used as the immutable, globally-unique identifier. Mandatory.</p> <p>In this documentation, we also refer to this as the UUID (universally unique ID).</p> <p>To work with ALM Octane, we generally use <b>entryUUID</b> for OpenLDAP. However, depending on your LDAP, this attribute might be different, such as <b>GUID</b> or <b>orclguid</b>.</p> <p>This is an attribute by which ALM Octane identifies each user internally for synchronization between ALM Octane and LDAP, including when importing users into ALM Octane.</p>
	You can configure other values, such as GUID or orclguid, or any other unique value.	
<b>firstName</b>	<b>givenName</b>	LDAP attribute for first name, such as <b>givenName</b> . Mandatory.
<b>lastName</b>	<b>sn</b>	LDAP attribute for last name, such as <b>sn</b> . Mandatory.
<b>fullName</b>	<b>cn</b>	LDAP attribute for full name, such as <b>cn</b> . Optional.
<b>logonName</b>	<b>mail</b>	<p>This is the unique identifier between all ALM Octane users, and this attribute is used to log onto ALM Octane.</p> <p>In some cases, ALM Octane may use this attribute to identify each user internally for synchronization between ALM Octane and LDAP, including when importing users into ALM Octane.</p> <p><b>mail</b> is usually unique for each user, so <b>mail</b> is an appropriate LDAP attribute to use to map to <b>logonName</b>. Mandatory.</p> <p>You can change the <b>logonName</b> attribute mapping at any time, but make sure the <b>logonName</b> is unique across all ALM Octane users.</p>
<b>email</b>	<b>mail</b>	The LDAP attribute for email address, such as <b>mail</b> . Mandatory.
<b>phone1</b>	<b>telephoneNumber</b>	The LDAP attribute for the primary phone number, such as <b>telephoneNumber</b> . Optional.

## License settings

Locate the section called **license**, and enter values for the following settings.

**Caution:** If you plan to install a license for Team Edition at a later stage, you must enter **team** in the **trialEdition** field now.

Installing a license for Team Edition after an Enterprise Edition trial is not supported.

<b>trialEdition</b>	Enter <b>team</b> or <b>enterprise</b> , depending on your trial edition. For details, see the information about ALM Octane editions in the <i>ALM Octane User Guide</i> .  <b>Note:</b> This setting is used the first time the ALM Octane server starts, and cannot be changed retroactively.
<b>mode</b>	<ul style="list-style-type: none"><li>• If you are using a standalone ALM Octane license, enter <b>standalone</b>. You can then skip the remaining fields in the <b>License</b> section. Default.</li><li>• If you are allocating licenses from ALM to ALM Octane, enter <b>almSharing</b>. You then need to fill in the following fields as described below.</li></ul>
<b>The following fields are mandatory for almSharing mode:</b>	
<b>url</b>	Enter the full path that you use to access ALM. Typically, this includes the suffix <b>qcbn</b> .
<b>almIntegrationUser</b>	Enter the user name for accessing ALM. This user was defined in ALM for integration purposes.
<b>almIntegrationPassword</b>	Enter the password for the <b>almIntegrationUser</b> .  This password is automatically encrypted after you restart the ALM Octane server.

## Oracle settings

The following Oracle section and its settings are also available.

Section	Setting	Description and usage
<b>oracle_database:</b>	<b>useDefaultSort</b>	<b>For Oracle databases:</b> Defines whether the standard Oracle binary sort ( <b>NLS_SORT="BINARY_CI"</b> ) should be overridden for non-Latin language support.  Valid values: <b>yes</b> , <b>no</b> , or blank  <b>Default:</b> blank (yes)  <b>Usage:</b>  oracle_database: useDefaultSort: no

### Next steps:

- ["Start the ALM Octane server" below](#)

## Start the ALM Octane server

Now that the initial setup is complete, you can run the ALM Octane server.

1. Log in as either the root or sudo user.
2. Run the **octane** service to start the ALM Octane server. Run:

```
service octane start
```

The installation is complete only when the "Server is ready!" message is shown in the **/opt/octane/log/wrapper.log** file. If you do not see the "Server is ready!" message, correct the errors shown in the log.



**Tip:** When you first start using ALM Octane, you automatically receive a Trial license which gives you a 90-day trial for 100 users. For details, see the topic about trial licenses in the *ALM Octane Help Center*.

### Next steps:

- ["Log in to ALM Octane" on page 41](#)
- **Cluster configuration:** If you successfully installed and logged into ALM Octane on the first cluster node, continue installing on additional cluster nodes. See:  
Linux: ["Cluster installation \(optional\)" on page 42](#)  
Windows: [Cluster installation \(optional\)](#)

- If connecting to a database server or an LDAP server over a secure channel (SSL/TLS), or for license sharing with ALM, configure trust. For details, see "[Configure trust on the ALM Octane server](#)" on [page 63](#).



# Log in to ALM Octane

This section describes how to log into ALM Octane.



**Tip:** When you first start using ALM Octane, you automatically receive a Trial license which gives you a 90-day trial for 100 users. For details, see the topic about trial licenses in the *ALM Octane Help Center*.

1. In a browser, navigate to **<serverURL>:<serverport>/ui**.  
Make sure to specify a fully-qualified domain name for the server. The name must include at least one period. Do not specify an IP address.  
**Cluster configuration:** Use the load balancer URL.
2. Log in with the site admin user name and password you provided in the **setup.xml** file using settings **SiteAdministratorUser** and **SiteAdministratorPassword**.



**Note:** Errors might be listed even if the ALM Octane server initializes and starts. If you encounter problems initializing ALM Octane, check for errors in the log files. For details, see ["Troubleshooting" on page 74](#).



## Next steps:

- **Cluster configuration:** If you successfully installed and logged into ALM Octane on the first cluster node, continue installing on additional cluster nodes. See:  
Linux: ["Cluster installation \(optional\)" on the next page](#)  
Windows: [Cluster installation \(optional\)](#)
- Set configuration parameters, such as FORGET\_USER\_ON\_DELETE and SMTP\_NOTIFICATION\_SENDER\_EMAIL. See the topic about configuration parameters in the *ALM Octane Help Center*.
- Create spaces. See the topic about creating spaces in the *ALM Octane Help Center*.
- Once you have logged on as the space admin, you can create other users and workspaces. See the topics on ways to add users and how to create workspaces in the *ALM Octane Help Center*.

# Cluster installation (optional)

This section end-to-end instructions for installing an on-premises ALM Octane server in a cluster configuration on Linux.

In this topic:

- ["Overview" below](#)
- ["Install ALM Octane in a cluster configuration" on the next page](#)

## Overview

A cluster is a group of application servers that run as a single system. Each application server in a cluster is referred to as a "node."

We install ALM Octane in a cluster configuration by:

1. Verifying all requirements and prerequisites for every node in the configuration.
2. After you configured the **setup.xml** and **octane.yml** configuration files in the first node, copy these file to all other cluster nodes.
3. Start ALM Octane on all servers.

See also ["Installation flow" on page 14](#).

# Install ALM Octane in a cluster configuration

## 1. For each node in the cluster, check requirements and access

Check requirements	Verify that the all cluster nodes, including the first, meet all requirements and prerequisites. For details, see <a href="#">System requirements</a> and " <a href="#">Prerequisites</a> " on <a href="#">page 16</a> .
Check database server access	All cluster nodes, including the first, must have access to the database server on which the site database schema resides.
Check repository access	The repository directory has to be a shared directory visible to all cluster nodes. All nodes must have read and write access to the repository. Generally, the repository is located on an NFS or SAN server. If the repository is not located on a remote, dedicated machine, the repository location cannot be <b>/opt/octane</b> . The repository must be configured to use the same mount point (path) on all nodes. It is important that you enter the repository path using the same path name on all nodes. For example, you cannot have the path on the first server node defined as <b>/opt/octane/repo</b> and on additional nodes defined as <b>/server1/opt/octane/repo</b> .
Check access between nodes	All nodes must have access to each other. Verify ports are open in your firewall. ALM Octane needs to communicate between the nodes in the cluster on port 5701. Therefore, make sure that your firewall enables communication between the nodes of the cluster on the specified port.. By default, outbound ports are open. Check inbound ports. For details, see " <a href="#">Prerequisites</a> " on <a href="#">page 16</a> .

## 2. Install ALM Octane on the first cluster node

Install ALM Octane on the first cluster node, as described under "[Installation](#)" on [page 22](#).

### a. "[Deploy ALM Octane](#)" on [page 23](#)

Here we deploy the ALM Octane installation files onto the first node.

### b. "[Configure initial site settings](#)" on [page 25](#)

We configure ALM Octane by modifying the **setup.xml** configuration file.

Make sure to set the following settings to values that all cluster nodes can access.

<b>DBServerName</b>	The database server on which the site database schema resides.
<b>RepositoryFolder</b>	The shared repository that all cluster nodes can access (read and write).

c. ["Configure other settings" on page 31](#)

We configure other ALM Octane settings by modifying the **octane.yml** configuration file.

<b>cluster</b>	Enter a comma-separated list of node host names or IPs in the cluster. Make sure to configure the IP addresses or fully qualified domain names for each cluster node.
----------------	--

d. ["Start the ALM Octane server" on page 39](#)

On the first node only, start the ALM Octane server by running **service octane start**.

3. **Set up a secure configuration on the first cluster node**

If you want to set up a secure configuration for ALM Octane, follow these instructions: [Software Self-solve knowledge base article KM02707977](#).

4. **Make sure ALM Octane is running on the first node in the cluster**

Before installing on remaining cluster nodes, log in to ALM Octane.

For details, see ["Log in to ALM Octane" on page 41](#).

5. **Only after you successfully log in, deploy ALM Octane installation files on each additional cluster node**

Download and deploy the ALM Octane package on each cluster node. For details, see ["Deploy ALM Octane" on page 23](#) and ["Deploy in cluster environment" on page 24](#).



**Caution:** Do not do the following:

- Do not configure the **setup.xml** and **octane.yml** files. You will be copying these files from the first node in the cluster during the next step.
- Do not run **initserver.sh** or **connectnode.sh** scripts.

6. **Configure each additional cluster node**

Copy the **/opt/octane/conf/setup.xml** and **/opt/octane/conf/octane.yml** files from the first cluster node to the **/opt/octane/conf** folder on the cluster node.

7. **Start ALM Octane on each additional cluster node**

Run **service octane start** on each additional node.

8. **Set up a secure configuration on each additional cluster node**

If you want to set up a secure configuration for ALM Octane in a cluster configuration, follow these instructions on each additional cluster node: [Software Self-solve knowledge base article KM02707977](#).

9. **Log in to make sure ALM Octane is running on each additional node in the cluster**

For details, see ["Log in to ALM Octane" on page 41](#). Use the load balancer URL when you log in.

# Upgrade

This section describes how to upgrade an existing installation of an on-premises ALM Octane server on Linux.

In this topic:

- ["Before you upgrade " below](#)
- ["Deploy" on page 47](#)
- ["Configure initial settings" on page 47](#)
- ["Configure other settings" on page 48](#)
- ["Upgrade" on page 56](#)
- ["Upgrade cluster nodes" on page 56](#)
- ["Upgrade spaces in ALM Octane" on page 56](#)
- ["Restart all Jetty servers" on page 57](#)
- ["After the upgrade" on page 57](#)

## Before you upgrade

1. Verify that your server machine, and if relevant, all cluster nodes, meet all prerequisites.

For details, see ["Prerequisites" on page 16](#).

**Note:** If the following are both true, add the CREATE SEQUENCE privilege to the site and shared space schemas:

- You are upgrading from an ALM Octane version earlier than 12.55.3.
- You are upgrading an installation without a DB admin, for example, your original ALM Octane was installed using the FILL\_EXISTING site action.

2. Create backups of:
  - Existing ALM Octane repository files, including **setup.xml** and **octane.yml**
  - Your database
  - Elasticsearch
  - If you are using ALM Octane Synchronizer, back up :
    - **/opt/octane/wrapper.conf**
    - **Service.locator.properties (/opt/octane/webapps)**

3. Take note of any special aspects of your configuration, such as:

Special configuration	Recommendation
Did you use a different user, other than the <b>octane</b> user, to install?	If you did, the user is set in the <b>OCTANE_USER</b> environment variable. Use this user to upgrade.
Did you install ALM Octane to a location other than <b>/opt/octane</b> ?	Refer to the location you used while upgrading.
What sudoer user did you use to install?	Use the same sudoer user that was used for installation to upgrade.
Did you modify the <b>/opt/octane/webapps/root/WEB-INF/classes/hpssoconfig.xml</b> file to control session timeouts?	If you modified the <b>/opt/octane/webapps/root/WEB-INF/classes/hpssoconfig.xml</b> file to control session timeouts, your updates will be overwritten by the upgrade. After upgrading, control session timeouts by setting the <b>MINUTES_UNTIL_GLOBAL_SESSION_TIMEOUT</b> and <b>MINUTES_UNTIL_IDLE_SESSION_TIMEOUT</b> configuration parameters instead. For details, see the topic about configuration parameters in the <i>ALM Octane Help Center</i> .
Do you want to switch from native user management to LDAP user management with this upgrade?	If you are upgrading from an ALM Octane version using native user management, and want to start using LDAP user management with this new ALM Octane version: <ol style="list-style-type: none"> <li>Realize that once you configure for LDAP user management, you cannot return back to native, internal user management.</li> <li>When configuring initial settings in the <b>setup.xml</b> file, set the <b>DefaultSpaceMode</b> to <b>isolated</b>. For details, see <a href="#">"DefaultSpaceMode" on page 29</a>.</li> <li>Upgrade ALM Octane without configuring for LDAP. This means, when modifying the <b>octane.yml</b> file, do not enter any values in the LDAP Settings section.</li> <li>After the upgrade is complete, configure for LDAP.</li> <li>Deactivate any native, internal users after LDAP configuration. These users can no longer log into ALM Octane (except for the <b>adminDN</b> user).</li> </ol>
Did your organization's DBA made changes to database schemas, such as the addition of tables or columns?	Define an exception file. The exception file instructs ALM Octane to ignore manual changes to the database schemas during installation. For details, see <a href="#">"Using exception files for manual database changes" on page 69</a> .

4. Stop the **octane** service on the server, and if relevant, all cluster nodes.

# Deploy

Download and deploy the rpm package for the new version of ALM Octane using:

```
rpm -U <name of the RPM file>
```

For details, see ["Deploy ALM Octane" on page 23](#).

## Configure initial settings

Here we describe how to modify settings in the **setup.xml** file.

1. Manually add newly-introduced settings to **setup.xml**

With each version of ALM Octane, settings are added to support new features. To upgrade to the new version, add the newly-introduced settings as listed in the table below to the **setup.xml** file.

Give these new settings values.

Here is a list of introduced settings for **setup.xml**, by version:

Version	New Setting	Example
12.53.20	<b>AppURL</b>	<code>&lt;entry key="AppURL"&gt;http://my_octane_server.my_domain.net:8080/&lt;/entry&gt;</code>
Introduced in 12.55.4, but mandatory as of 12.55.17	<b>DefaultSpaceMode</b>	<code>&lt;entry key="DefaultSpaceMode"&gt;shared&lt;/entry&gt;</code>
12.60.4	A new section, <b>oracle_database</b> , was added. It contains the new <b>useDefaultSort</b> setting.	See <a href="#">Oracle settings</a> below.

- a. If not already open, open **/opt/octane/conf/setup.xml** using an editor.

- b. Add any missing settings using this format:

```
<entry key="<setting>"><setting value></entry>
```

Do not modify any text in the `<entry>` and `</entry>` tags themselves. Only modify text between these tags.

- c. Save the file.

For a full list of settings for the current ALM Octane installation and their syntax, see ["Configure initial site settings" on page 25](#).

# Configure other settings

Here we describe how to modify settings in the **octane.yml** file.

1. Learn the format for **yml** files

`<setting> : <setting value>`



**Caution:** Correct indentation and formatting is essential when editing **yml** files to avoid unpredictable results during installation.

There are resources available online that describe the exact rules and conventions for formatting **yml** files. We strongly recommend that you familiarize yourself with these rules before editing **octane.yml**.

Here are some important rules when editing settings in **octane.yml**:

- Put a single space after the colon between the parameter name and the value.
- Do not add bullets or any other extra formatting.
- Do not add extra spaces.
- Use double quotes to enclose any values that include special characters, especially the **#**.

A **#** that is not enclosed in quotes marks the beginning of a comment. Any text after it, until the end of the line, is ignored. The **octane.yml** file is then interpreted incorrectly during installation and causes errors.

If these conventions are not followed, ALM Octane initialization or upgrade can fail.

For an example, see the sample **octaneExample.yml** file.

2. Determine settings to add to, and remove from, **octane.yml**

With each version of ALM Octane, settings are added to support new features. To upgrade to the new version, add the newly-introduced settings as listed in the table below to the **octane.yml** file.

Here is a list of introduced settings, by version:

Version	Added / Removed	Example
12.53.22	In the LDAP settings section, added all <a href="#">LDAP</a> settings.	See <a href="#">LDAP</a> below.



Version	Added / Removed	Example
12.55.4	In the LDAP settings section, added the following <a href="#">LDAP</a> settings: <b>dn</b> <b>uid</b> <b>baseDirectories</b> <b>baseFilters</b>	<p><b>dn and uid example:</b></p> <pre>mapping:   dn: entryDN   uid: entryUUID</pre> <p><b>method example:</b></p> <pre>authentication:   method: anonymous</pre> <p><b>baseDirectories example:</b></p> <pre>baseDirectories:   - ou=Groups,o=organization.com   - dc=maxcrc,dc=com</pre> <p><b>baseFilters example</b></p> <pre>baseFilters:   - (objectClass=*)   - (&amp;(objectClass=user)(objectCategory=person))</pre>
	In the License settings section, added all <a href="#">licenses</a> settings.	See <a href="#">licenses</a> below.
	In the General server settings section removed the <b>serverDomain</b> setting.	
12.55.17	In the License settings section, added the <b>trialEdition</b> setting.	See <a href="#">licenses</a> below.


### 3. Modify settings

- a. Edit the `/opt/octane/conf/octane.yml` file using an editor.
- b. Remove the line with the **serverDomain** setting.
- c. Locate the right section for each setting you need to add.

- d. Add any missing settings as listed above using this format:

`<setting> : <setting value>`

### General server settings

<b>cluster</b>	<p><b>Cluster configuration:</b> Enter a comma-separated list of node host names or IPs in the cluster.</p> <p> <b>Example: 10.0.0.24,10.0.0.99,10.0.0.23</b></p> <p>This is a mandatory setting.</p> <p>By default, the cluster is not configured, and the default value is blank. This indicates a standalone ALM Octane server.</p>
<b>heapSize</b>	<p>Before starting the ALM Octane server the first time, change the heap memory values on all active cluster nodes.</p> <p>For example, you may need to increase the heap size if there is an increase in the number of active workspaces in ALM Octane, or an increase in the number of concurrent user sessions.</p> <p><b>heapSize</b> should be set to half of available server memory on a dedicated server, regardless of load.</p> <p>Heap size should not exceed 31 GB.</p> <p>Values should be specified in MB (for example, 4096 for 4 GB).</p> <p>Default: <b>4096</b></p>
<b>server</b>	<p>The value of a Jetty port for HTTP, or a Jetty secure port for HTTPS.</p> <p>After you install ALM Octane, you may need to change the ALM Octane server port number.</p> <p>Because the installation uses a non-root user, common ports (below 1024) cannot be used with ALM Octane.</p> <p>By default, the installation uses port 8080 for HTTP or port 8443 for HTTPS (SSL).</p> <p>httpPort: 8080</p> <p>httpsPort: 8443</p> <p>Leaving any of these ports empty disables the access using the specified http schema server.</p> <p>It is possible that the default application server port is used by another application that is running on the same machine. In this case, you can either locate the application that is using the port and stop it, or you can change the ALM Octane server port.</p>

<b>proxy</b>	<p>If ALM Octane is behind a firewall, and needs to access an outside server, you may need to configure ALM Octane to use a proxy server.</p> <p>An example of accessing an external server is when using a Trigger webhook rule.</p> <p>host: <i>&lt;proxy_host&gt;</i></p> <p>port: <i>&lt;proxy_port&gt;</i></p> <p>user: <i>&lt;user&gt;</i></p> <p>password: <i>&lt;password&gt;</i></p>
<b>authenticationType</b>	<p>Whether the ALM Octane installation should use native user management or LDAP authentication for user management.</p> <p>Values are:</p> <p><b>ldap</b>. Use LDAP authentication.</p> <p><b>internal</b>, or any value other than <b>ldap</b>. Use internal, native ALM Octane user management.</p>

### LDAP settings

Make sure your LDAP system has the corresponding attributes for each mandatory LDAP setting.

<b>connectionTimeout</b>	<p>Connection timeout in seconds. Optional.</p> <p>Default: 30 seconds</p>
<b>adminDn</b>	<p>The user that will log on to ALM Octane after <b>initially</b> setting up LDAP authentication. Its purpose is to make sure that one workable user exists to start configuring LDAP user authentication.</p> <p>When the ALM Octane server starts, it checks <b>octane.yml</b>, verifies that this user exists, and validates this user against the LDAP data. If this attribute is not defined correctly, the server will not start. Correct the user details and restart the server.</p> <p>This user can be same user as the user entered in the <b>setup.xml</b> file, or a different user. After entering the value for this user, and then restarting the ALM Octane server, the admin user entered in the <b>setup.xml</b> file is overwritten.</p> <p><b>Note:</b> If the <b>adminDn</b> is changed and the server is restarted, both the original <b>adminDn</b> and the new <b>adminDn</b> exist as site admins. Modifying the <b>adminDn</b> does not remove the original one.</p>

### LDAP server settings

Make sure your LDAP system has the corresponding attributes for each mandatory LDAP setting.

Enter the following settings for each LDAP server separately.

Each LDAP server is defined by a group of settings. The settings for each LDAP server start with a hyphen (-) followed by the **host** setting.

**Caution:** Back up all passwords set below because they are encrypted after the ALM Octane server is initialized.

<b>servers</b>	Header row to delineate that the information below is for each LDAP server. Do not enter a value.
<b>host</b>	The LDAP server host name or IP address. Mandatory.  Prefix each host item with a - sign: - <b>host</b> . This instructs ALM Octane where each host begins, especially if there are multiple LDAP servers.
<b>port</b>	LDAP server connection port. Mandatory.
<b>isSsl</b>	Whether the LDAP server uses SSL. Mandatory.  Enter <b>Y</b> or <b>N</b> .  If <b>Y</b> , establish trust to the certificate authority that issued the LDAP server certificate. For details, see " <a href="#">Configure trust on the ALM Octane server</a> " on page 63.
<b>description</b>	Description of the LDAP server. Optional.
<b>baseDirectories</b>	Root of the LDAP path to use to search for users when including new LDAP users in ALM Octane spaces. This can be a list of common names and domain components (cns and dns), a list of organizational units (ou), and so on.  Optional. Default: Blank.  If specified,  Make sure to put a space after hyphen ( - ) before specifying the filter.  <b>Example:</b>  baseDirectories:  <ul style="list-style-type: none"> <li>- ou=Groups,o=organization.com</li> <li>- dc=maxcrc,dc=com</li> </ul>
<b>baseFilters</b>	Filters to use to refine the search for users when including new LDAP users in ALM Octane spaces. This is generally a list of LDAP <b>objectClasses</b> .  Optional. Default: (objectClass=*)  Make sure to put a space after hyphen ( - ) before specifying the filter.  <b>Example:</b>  baseFilters:  <ul style="list-style-type: none"> <li>- (objectClass=*)</li> <li>- (&amp;(objectClass=user)(objectCategory=person))</li> </ul>
<b>authentication:</b>	Header row to delineate that the information below is for authentication. Do not enter a value.

<b>method</b>	The LDAP authentication method supported by the LDAP server. Authentication method used by the LDAP server. The following methods are supported: <ul style="list-style-type: none"> <li>o <b>anonymous</b>. In this case, skip the next two parameters, <b>user</b> and <b>password</b>.</li> <li>o <b>simple, user</b>, and <b>password</b> are mandatory.</li> </ul>
<b>user</b>	Only required if you set the <b>authentication</b> parameter to <b>simple</b> . User name for accessing the LDAP server. This user must have at least read permissions for the LDAP server.
<b>password</b>	Only required if you set the <b>authentication</b> parameter to <b>simple</b> . Password for accessing the LDAP server. This password will be encrypted.

### LDAP server mapping settings

Make sure your LDAP system has the corresponding attributes for each mandatory LDAP setting.

Enter the following mapping settings for each LDAP server separately.

Values used in the mapping section are case-sensitive.

ALM Octane attribute in octane.yml	Sample LDAP attribute that can be used	Values and descriptions
<b>mapping</b>		Header row to delineate that the information below is for mapping of LDAP attributes. Do not enter a value.
<b>dn</b>	<b>distinguishedName</b> <b>(for Active Directory)</b>	The LDAP distinguished name attribute. Unique. Mandatory. This attribute is typically in a format that contains the common name and organization details, such as: <b>cn=&lt;common_name&gt;,ou=&lt;organizational_unit&gt;,dc=&lt;part_of_domain&gt;</b> The <b>dn</b> is a unique string that typically contains other LDAP attributes, such as <b>cn</b> , <b>ou</b> , and <b>dc</b> .
	<b>entryDN</b> <b>(for other LDAP systems)</b>	<b>Example</b> <ol style="list-style-type: none"> <li>If in LDAP, the <b>entryDN</b> attribute value is: <b>cn=&lt;common_name&gt;,ou=&lt;organizational_unit&gt;,dc=&lt;part_of_domain&gt;</b></li> <li>In the <b>octane.yml</b>, the dn value would be mapped to: <b>entryDN</b></li> <li>When exporting users from LDAP, the <b>dn</b> string representation of each LDAP user would be the common name, followed by the organizational unit, followed by a part of the domain, such as: <b>cn=Joe_Smith@nga,ou=my_org,dc=com</b></li> </ol>

ALM Octane attribute in octane.yml	Sample LDAP attribute that can be used	Values and descriptions
<b>uid</b>	<b>objectGUID</b> <b>(for Active Directory)</b>	<p>The LDAP attribute that should be used as the immutable, globally-unique identifier. Mandatory.</p> <p>In this documentation, we also refer to this as the UUID (universally unique ID).</p> <p>To work with ALM Octane with Active Directory, we use <b>objectGUID</b>.</p> <p>This is an attribute by which ALM Octane identifies each user internally for synchronization between ALM Octane and LDAP, including when importing users into ALM Octane.</p>
	<b>entryUUID</b> <b>(for other LDAP systems)</b>	<p>The LDAP attribute that should be used as the immutable, globally-unique identifier. Mandatory.</p> <p>In this documentation, we also refer to this as the UUID (universally unique ID).</p> <p>To work with ALM Octane, we generally use <b>entryUUID</b> for OpenLDAP. However, depending on your LDAP, this attribute might be different, such as <b>GUID</b> or <b>orclguid</b>.</p> <p>This is an attribute by which ALM Octane identifies each user internally for synchronization between ALM Octane and LDAP, including when importing users into ALM Octane.</p>
	You can configure other values, such as GUID or orclguid, or any other unique value.	
<b>firstName</b>	<b>givenName</b>	LDAP attribute for first name, such as <b>givenName</b> . Mandatory.
<b>lastName</b>	<b>sn</b>	LDAP attribute for last name, such as <b>sn</b> . Mandatory.
<b>fullName</b>	<b>cn</b>	LDAP attribute for full name, such as <b>cn</b> . Optional.
<b>logonName</b>	<b>mail</b>	<p>This is the unique identifier between all ALM Octane users, and this attribute is used to log onto ALM Octane.</p> <p>In some cases, ALM Octane may use this attribute to identify each user internally for synchronization between ALM Octane and LDAP, including when importing users into ALM Octane.</p> <p><b>mail</b> is usually unique for each user, so <b>mail</b> is an appropriate LDAP attribute to use to map to <b>logonName</b>. Mandatory.</p> <p>d. You can change the <b>logonName</b> attribute mapping at any time, but make sure the <b>logonName</b> is unique across all ALM Octane users.</p>
<b>email</b>	<b>mail</b>	The LDAP attribute for email address, such as <b>mail</b> . Mandatory.

ALM Octane attribute in octane.yml	Sample LDAP attribute that can be used	Values and descriptions
<b>phone1</b>	<b>telephoneNumber</b>	The LDAP attribute for the primary phone number, such as <b>telephoneNumber</b> . Optional.

### License settings

<b>trialEdition</b>	<p>Enter <b>team</b> or <b>enterprise</b>, depending on your trial edition. For details, see the information about ALM Octane editions in the <i>ALM Octane User Guide</i>.</p> <div style="border-left: 2px solid green; padding-left: 10px; margin-top: 10px;"> <p><b>Note:</b> This setting is used the first time the ALM Octane server starts, and cannot be changed retroactively.</p> </div>
<b>mode</b>	<ul style="list-style-type: none"> <li>○ If you are using a standalone ALM Octane license, enter <b>standalone</b>. You can then skip the remaining fields in the <b>License</b> section. Default.</li> <li>○ If you are allocating licenses from ALM to ALM Octane, enter <b>almSharing</b>. You then need to fill in the following fields as described below.</li> </ul>
<b>The following fields are mandatory for almSharing mode:</b>	
<b>url</b>	Enter the full path that you use to access ALM. Typically, this includes the suffix <b>qcbn</b> .
<b>almIntegrationUser</b>	Enter the user name for accessing ALM. This user was defined in ALM for integration purposes.
<b>almIntegrationPassword</b>	<p>Enter the password for the <b>almIntegrationUser</b>.</p> <p>This password is automatically encrypted after you restart the ALM Octane server.</p>

### Oracle settings

Section	Setting	Description and usage
<b>oracle_database:</b>	<b>useDefaultSort</b>	<p><b>For Oracle databases:</b> Defines whether the standard Oracle binary sort (<b>NLS_SORT="BINARY_CI"</b>) should be overridden for non-Latin language support.</p> <p>Valid values: <b>yes</b>, <b>no</b>, or blank</p> <p><b>Default:</b> blank (yes)</p> <p><b>Usage:</b></p> <pre>oracle_database:   useDefaultSort: no</pre>

- e. Save the file.

## Upgrade

1. Start the ALM Octane server.

```
service octane start
```

2. Check the **/opt/octane/log/wrapper.log** file. If you do not see the "Server is ready!" message, correct the errors shown in the log.

Instructions for troubleshooting upgrade errors and warnings:

- ["The wrapper.log has Java-related warnings \(Linux\)" on page 76](#)



**Caution:** Do not use ALM Octane until you have completed ["Upgrade spaces in ALM Octane" below](#).

## Upgrade cluster nodes



**Caution:** Do not use ALM Octane until you have completed ["Upgrade spaces in ALM Octane" below](#).

After the upgrade on the first node has completed successfully, you can then upgrade the remaining nodes in a cluster.

1. Copy **setup.xml** and **octane.yml** files to each node.
2. Start the ALM Octane server on each node.

```
service octane start
```

For details, see ["Cluster installation \(optional\)" on page 42](#).

## Upgrade spaces in ALM Octane

After upgrading, log into ALM Octane as the site admin to upgrade each space.

1. In a browser, navigate to **<ServerURL>:<port>/ui?site**.
2. Log in as the space admin, with the user name and password you provided in the **setup.xml** file.
3. Click **Site** and then click the **Spaces** tab.



4. Select the space and click **Upgrade**.

**Upgrade** is available only if the space needs to be upgraded.

Click **Refresh** to see the updated status for the space.

**Note:** Upgraded spaces are, by default, isolated. To work with shared spaces, create new spaces.

5. Individual workspaces are upgraded in the background. In **Settings > Spaces**, click **Background Jobs** to track the progress of the workspace upgrades.

**Note:** Until all of the background jobs have completed, some data may be unavailable in trend graphs.

For details on upgrading the space, see the topic about upgrading spaces in the *ALM Octane Help Center*.

## Restart all Jetty servers

After upgrading the spaces in Settings, clear caches:

1. Stop all Jetty servers.
2. Restart each Jetty server.

**Note:** Make sure all Jetty servers are stopped at the same time before restarting even one of them.

## After the upgrade

After the upgrade has completed successfully:

- The space status becomes **Active**.
- The space version is updated to the current version.

### Next steps:

- Update mandatory configuration parameters, such as SMTP\_NOTIFICATION\_SENDER\_EMAIL. See The topic about configuration parameters in the *ALM Octane Help Center*.
- Download the newest IDE plugins for this ALM Octane version. See the topic about IDE integrations in the *ALM Octane Help Center*.
- If you work with the REST API, you might want to check if any API resources have been deprecated. While the deprecated resources are supported for a while, we recommend that you start updating your code so that you use the resource aliases instead. To see deprecated resources for a particular version, see the corresponding REST API example and how to use the interactive API client in the

*ALM Octane Developer Help*

- ["Rollback" below](#)

## Rollback

This section describes how to roll back after upgrading an on-premises ALM Octane server. This may be necessary if for some reason the upgrade fails or performance is slow.

Depending on when you want to roll back, there are different steps to perform.

In this topic:

- ["After the upgrade's setup validation phase" below](#)
- ["After a site schema has been upgraded" below](#)
- ["After space schema has been upgraded" on the next page](#)
- ["After upgrade completed" on the next page](#)
- ["After upgrading cluster nodes" on page 60](#)

### After the upgrade's setup validation phase

You can roll back after the upgrade's setup validation phase, whether it passed or failed.

If the upgrade reached setup validation, the following have been modified:

- Previously-deployed files
- **setup.xml** and **octane.yml** configuration files

#### To roll back the deployed files, including setup.xml, and octane.yml files

1. Revert to the previous rpm file: `rpm -Uvh --oldpackage <filename>`
2. Revert to the backups of the **setup.xml** and **octane.yml** configuration files.
3. Re-initialize the ALM Octane server (the octane service). For details, see ["Start the ALM Octane server manually" on page 62](#).

### After a site schema has been upgraded

You can roll back after the upgrade's site schema have been upgraded.

If the upgrade upgraded the site schema, the following has been modified:

- The RPM file
- **setup.xml** and **octane.yml** configuration files
- The site schema

## To roll back the site schema

1. Stop the ALM Octane server (the octane service).
2. Revert to a backup of the site schema.
3. Revert to the previous rpm file: `rpm -Uvh --oldpackage <filename>`
4. Revert to backups of **setup.xml** and **octane.yml** configuration files.
5. Re-initialize the ALM Octane server (the octane service). For details, see ["Start the ALM Octane server manually" on page 62](#).

## After space schema has been upgraded

If the upgrade upgraded the site schema, the following have been modified:

- The space schema
- Elasticsearch indexes
- ALM Octane repository files

Follow the steps for one of the following options.

Rollback option	Steps
To roll back changes to the space schema	<ol style="list-style-type: none"><li>1. Open the backup of the space schema.</li><li>2. Open the backup of Elasticsearch indexes.</li><li>3. Open the repository backup for this specific space.</li><li>4. Fix what caused the upgrade to fail.</li><li>5. Reset the following for the space within the site schema:<ol style="list-style-type: none"><li>a. Open the <b>SHARED_SPACE</b> table.</li><li>b. Find the record for the shared space. You can search for the <b>SP_NAME</b>.</li><li>c. Set the <b>SP_STATUS</b> to <b>ACTIVE</b>.</li><li>d. Set the <b>SP_VERSION</b> to the original version number before upgrading.</li></ol></li><li>6. Upgrade again.</li></ol>
To roll back the entire upgrade	Follow the steps for <a href="#">"To roll back the site schema" above</a> .

## After upgrade completed

If the upgrade completed successfully, the following have been modified:

- The RPM file
- **setup.xml** and **octane.yml** configuration files

- The site schema
- The space schema
- Elasticsearch indexes
- ALM Octane repository files

### To roll back the entire upgrade

1. Follow the steps for ["To roll back the site schema" on the previous page](#).
2. Follow the steps for ["To roll back changes to the space schema" on the previous page](#) for each space.

## After upgrading cluster nodes

If you upgraded additional cluster nodes, the following has been modified on the cluster nodes:

- Previously-deployed files
- **setup.xml** and **octane.yml** configuration files

### To roll back to the rpm package

1. Revert to the previous **rpm** file on each cluster node: `rpm -Uvh --oldpackage <filename>`
2. Re-initialize the ALM Octane server (the octane service) on each cluster node. For details, see ["Cluster installation \(optional\)" on page 42](#) and ["Start the ALM Octane server manually" on page 62](#).

#### See also:

- ["Management" on the next page](#)

# Management

Here are some management tasks you may have to perform during or after installation.

This section includes:

- [Start the ALM Octane server manually](#) ..... 62
- [Handle database-related issues](#) ..... 62
  - [Change site schema settings and reinitialize](#) ..... 62
- [Configure trust on the ALM Octane server](#) ..... 63
  - [Configure trust](#) ..... 63
- [Configure a secure connection to the ALM Octane server \(Jetty\)](#) ..... 64
  - [Configure the connection](#) ..... 64
  - [Limitations](#) ..... 64
- [Advanced ALM Octane server configuration](#) ..... 65
  - [Redirect http to https](#) ..... 65
  - [Configure number of allowed open files \(Linux\)](#) ..... 65
  - [Configure secure database access](#) ..... 67
- [Using exception files for manual database changes](#) ..... 69
  - [Overview](#) ..... 70
  - [Define exception files](#) ..... 70
  - [Set up use of the exception file](#) ..... 71

Including these management tasks, you can also set configuration parameters to define how your site operates. Configuration parameters for the site are set using Settings. For details, see the topic about configuration parameters in the *ALM Octane Help Center*.

 **See also:**

- Linux ["Prerequisites" on page 16](#) or Windows [Prerequisites](#)
- Linux ["Architecture" on page 6](#) or Windows [Architecture](#)
- Linux ["Installation flow" on page 14](#) or Windows [Installation flow](#)

## Start the ALM Octane server manually

If you need to start the ALM Octane server manually, perform the following.

### To start (or restart) the ALM Octane server:

- Log in as the root user and run the **octane** service:

```
service octane restart
```

The service runs in the background.

### To follow the server's boot process:

- Run:

```
tail -f /opt/octane/log/wrapper.log
```

### To start (or restart) ALM Octane in a cluster configuration:

All nodes must be restarted.

 **See also:**

- ["Management" on the previous page](#)

## Handle database-related issues

This topic provides instructions for handling database-related management tasks.

In this topic:

- ["Change site schema settings and reinitialize" below](#)

## Change site schema settings and reinitialize

If you need to make changes to the site schema settings, make the changes in the **setup.xml** file.

1. Obtain the names of the indexes related to your instance of ALM Octane in the **sharedspace\_**  
**logical\_name.txt** in the **/opt/octane/server/conf/** directory.
2. Delete the database site schema.
3. Delete the repository.
4. Delete the **mqm\_<sp\_logical\_name>** index from Elasticsearch. From the shell on the ALM Octane server, run:

```
curl -XDELETE 'http://<server address>:9200/mqm_<sp_logical_name>/'
```

5. Start the ALM Octane server.

```
services octane start
```

### See also:

- ["Management" on page 61](#)

## Configure trust on the ALM Octane server

Configure trust on the ALM Octane server when you connect to any remote server (such as a database server, an LDAP server, license sharing with ALM, and so on) over a secure channel.

**Note:** When connecting to a database server with SSL, or an LDAP server, over a secure channel, you must configure trust before starting the ALM Octane server by running **service octane start**.

In this topic:

- ["Configure trust" below](#)

## Configure trust

1. Obtain the certificate of the root and any intermediate Certificate Authority that issued the remote server certificate.
2. Import each certificate into the ALM Octane java truststore using a keytool command.
  - Locate your **<java\_home>** directory. It is usually under the **user/lib** directory but may be different for your environment. One way to check the location of the **<java\_home>** directory is to check the environment information settings in the **/octane/log/wrapper.log** file.  
**Example:** **/usr/lib/jvm/java-1.8.0-openjdk-1.8.0.131-11.b12.el7.x86\_64/jre**
  - Locate your keystore **cacerts** file, which is usually here: **<java\_home>/jre/lib/security/cacerts**
  - Import each certificate.

### Example:

```
cd <java_home>/bin

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

3. If the ALM Octane service (**octane**) is running, restart it.

### Next steps:

- ["Management" on page 61](#)

## Configure a secure connection to the ALM Octane server (Jetty)

This topic describes how to configure a secure connection to the ALM Octane server with Jetty.

**Note:** ALM Octane uses the TLSv1.2 secure protocol.

In this topic:

- ["Configure the connection" below](#)
- ["Limitations" below](#)

## Configure the connection

1. Obtain the server certificate issued to the name of this server in java keystore format (.jks) issued to the fully qualified domain name of ALM Octane server. It must contain a private key and the certificate authority that issued it. For details on creating certificates using the Certificate Authority, see [Software Self-solve knowledge base article KM02707977](#).
2. Copy your keystore file to the **/opt/octane/conf/** directory. Name the file **keystore.jks**.
3. Run `/opt/octane/install/enabless1.sh`, supplying the certificate password as a parameter to the script.


## Limitations

Note the following limitations:

- When you install a single node configuration for the Jetty server, you need to use the full address to access it. Meaning, if the Jetty server was installed on a machine named **myserver.mydomain.com**, then you access it via: **http[s]://myserver.mydomain.com:<port>** and not via **http [s]://myserver:<port>** if there are client-side DNS shortcuts installed.
- When you install a cluster Jetty server environment, the load balancer and all Jetty nodes should all



be accessible from one another. The same rules for accessing the server via the load balancer from the client side apply. Meaning, the full address of the load balancer should be used for access.

 **See also:**

- ["Management" on page 61](#)

## Advanced ALM Octane server configuration

This section describes advanced configuration tasks for the ALM Octane server.

This section includes:

- ["Redirect http to https" below](#)
- ["Configure number of allowed open files \(Linux\)" below](#)
- ["Configure secure database access" on page 67](#)

## Redirect http to https

This procedure describes how to redirect http to https. You need to redirect to https when accessing the ALM Octane server directly, and not through a front-end server.

### To redirect http to https:

1. Edit `/opt/octane/webapps/root/WEB-INF/web.xml`, and add the following at the end (before `</web-app>`):

```
<security-constraint>
  <web-resource-collection>
    <web-resource-name>Everything</web-resource-name>
    <url-pattern>/*</url-pattern>
  </web-resource-collection>
  <user-data-constraint>
    <transport-guarantee>CONFIDENTIAL</transport-guarantee>
  </user-data-constraint>
</security-constraint>
```

2. Restart .
3. Access ALM Octane via `http://<ALM Octane>:8080/ui`. Port **8080** is the default port. You should be redirected to `https://<ALM Octane>:8443/ui`. If not, ensure that **SecurePort** in `jetty.xml` matches your secure port.

## Configure number of allowed open files (Linux)

If ALM Octane is under a very heavy load, it might try to use too many Linux resources. In this case, Linux kills the server process. Do the following to increase the number of allowed open files to 65536:

1. Open the **/etc/security/limits.conf** file.
2. Add the following line:

```
octane hard nofile 65536
```

3. Restart the ALM Octane server.

For details, see <https://easyengine.io/tutorials/linux/increase-open-files-limit/>.

## Configure secure database access

This section describes how to configure a secure connection from the ALM Octane server to the database server. The secure connection is protected with SSL/TLS for encryption and authentication, or is protected only with Oracle Native Network encryption.

This section includes:

- ["Before securing database access..." below](#)
- ["To configure a secure database connection for a previously-unsecured database " on page 69](#)
- ["To configure a secure database connection for a new ALM Octane installation" on page 69](#)

### Before securing database access...

Before configuring secure database access, determine the following:

- For SQL Server databases, determine if TLS 1.2 is required.
- For Oracle databases, determine if the database requires SSL/TLS or only Native Oracle protection.

<b>Does the Oracle database require SSL/TLS?</b>	<b>Instructions</b>
<b>Yes</b>	<ul style="list-style-type: none"><li>• Place the Oracle client wallet file in a location on the ALM Octane server into a directory accessible to all, such as <b>/tmp/ewallet.p12</b>.</li><li>• Get the port number for secure access.</li></ul>
<b>No</b>	Get the following, for use later: <ul style="list-style-type: none"><li>• Determine if native Data Integrity is configured in <b>sqlnet.ora</b> on the Oracle server as <b>SQLNET.CRYPTO_CHECKSUM_SERVER</b>.</li><li>• Determine if native Network Encryption is configured on the Oracle server. If yes, get the algorithm as defined in <b>sqlnet.ora</b> on the Oracle server as <b>SQLNET.ENCRYPTION_TYPES_SERVER</b>, and see if the key is larger than 128 bits.</li></ul>

- Prepare the connection string for the database  
This connection string will be used later.

### SQL Server

SQL Server Scenario	ConnectionString
<b>SSL/TLS is required</b>	Add the encryption method to the end of the <b>ConnectionString</b> value. <b>jdbc:mercury:sqlserver://&lt;server&gt;:&lt;port&gt;;EncryptionMethod=SSL</b>
<b>TLSv1.2 is required</b>	Add the encryption method and the TLS version to the end of the <b>ConnectionString</b> value. <b>jdbc:mercury:sqlserver://&lt;server&gt;:&lt;port&gt;;EncryptionMethod=SSL;CryptoProtocolVersion=TLSv1.2</b>

### Oracle

Perform the following, based on your scenario.

Oracle scenarios	ConnectionString and other instructions
<b>SSL/TLS required</b>	Add the encryption method, the trust store, and the trust store password to the end of the <b>ConnectionString</b> value. <b>jdbc:mercury:oracle://&lt;server&gt;:&lt;port&gt;;servicename=&lt;serviceName&gt;;EncryptionMethod=SSL;TrustStore=&lt;path to client wallet file&gt; ;TrustStorePassword=&lt;wallet password&gt;</b>
<b>Oracle Native Data Integrity</b>	Add <b>;DataIntegrityLevel=accepted</b> or <b>;DataIntegrityLevel=required</b> to the end of the <b>ConnectionString</b> value.
<b>Oracle Native Encryption</b>	Add <b>;EncryptionLevel=accepted</b> or <b>;EncryptionLevel=required</b> to the end of the <b>ConnectionString</b> value. For encryption algorithms with keys longer than 128 bits, replace the Java security policy files in <b>\opt\octane\java\jre\lib\security\</b> . For details on Java security policy files, see <a href="http://www.oracle.com/technetwork/java/javase/downloads/jce8-download-2133166.html">http://www.oracle.com/technetwork/java/javase/downloads/jce8-download-2133166.html</a> .

## To configure a secure database connection for a previously-unsecured database

This step provides instructions for configuring the site schema connection.

Skip this section if you have a separate database server for your workspaces and you only want a secure connection to that database.

This section is relevant if the database server that was configured for a secure connection contains your site schema.

1. Edit the **setup.xml** file. The default location is **/opt/octane**):
  - a. Set the value of **SiteAction** to **CONNECT\_TO\_EXISTING**:

```
SiteAction=CONNECT_TO_EXISTING
```

- b. Edit the line with **ConnectionString**. For details, see ["Prepare the connection string for the database" on the previous page](#).
2. If SSL/TLS is required, make sure the trust on the ALM Octane server has been established. For details, see ["Configure trust on the ALM Octane server" on page 63](#).
  3. Run the service to start the ALM Octane server.

```
service octane start
```

## To configure a secure database connection for a new ALM Octane installation

1. After installing ALM Octane, start the server:

```
service octane start
```

2. In the Database Server step, select the **ConnectionString** option and set the values for your database. For details, see ["Prepare the connection string for the database" on the previous page](#).
3. Make sure the trust on ALM Octane the ALM Octane server has been established. For details, see ["Configure trust on the ALM Octane server" on page 63](#).

### See also:

- ["Management" on page 61](#)

## Using exception files for manual database changes

This topic provides instructions for defining exception files. Use exception files if the organization's DBA added objects to database schemas, such as tables, indexes, stored procedures, columns, or other objects.

In this topic:

- ["Overview" on the next page](#)
- ["Define exception files" on the next page](#)

- ["Set up use of the exception file" on the next page](#)

## Overview

Exception files instruct ALM Octane to ignore any warnings issued because of manual additions to the database schema.

You can use exception files to ignore warnings for extra tables, views, columns, and sequences. For any other problem, consult with your database administrator.



**Caution:** Using the exception file to ignore warnings for objects that are added manually to the schema may compromise stability and the validity of the database user schema.

You can use the exception files during a new ALM Octane installation, when upgrading, and when creating a space.

## Define exception files

Define exception files before installation, before upgrading, or before you create the new spaces.

1. Copy both of the **mqm\_exception.xml** files from the ALM Octane installation directories. You can rename them.
2. Locate the MQM\_EXCEPTIONS part of the file.

```
<MQM_EXCEPTIONS>
  <exceptions>
    <declaration>
      <!--object pattern="TABLE_1_EXAMPLE" type="missing" />-->
      <!--object pattern=" TABLE_1_EXAMPLE" type="extra" />-->
    </declaration>
  </exceptions>
</MQM_EXCEPTIONS>
```

3. Change the <declaration> to one of the following. Add as many declarations as you need.
  - TableMissing
  - ViewMissing
  - ColumnMissing
  - ConstraintMissing
  - IndexMissing
  - PartitionFunctionMissing
  - PartitionSchemeMissing
  - ProcedureMissing

- SequenceMissing
  - TriggerMissing
4. For each object pattern, you can specify one of the following types:

missing	The object is needed but is missing.
extra	The object is extra because it was created after ALM Octane installation or before upgrading.

### Examples

- For an extra table:

```
<TableMissing>  
    <object pattern="MY_Table" type="extra"/>  
</TableMissing>
```

- For an extra view:

```
<ViewMissing>  
    <object pattern="MY_VIEW" type="extra"/>  
</ViewMissing>
```

- For an extra column:

```
<ColumnMissing>  
    <object pattern="MY_COLUMN" type="extra"/>  
</ColumnMissing>
```

- For an extra sequence:

```
<SequenceMissing>  
    <object pattern="MY_SEQUENCE" type="extra"/>  
</SequenceMissing>
```

## Set up use of the exception file

This topic explains how to use the exception file when installing ALM Octane or when creating a new space.

### Use of the exception files during first-time installation

You can use exception files when installing ALM Octane using existing schemas/databases instead of having ALM Octane create new schemas for you. This is the **FILL\_EXISTING** installation option and it is set in the **setup.xml** file.

1. During installation, when configuring the **/opt/conf/setup.xml** file in the configuration folder, add these two settings using an editor:

<b>MqmExceptionsSiteAdminPath</b>	The exception file for the site. <b>/opt/tmp/site/mqm_exceptions.xml.</b>
<b>MqmExceptionsSharedSpacePath</b>	The exception file for the default space. <b>/opt/tmp/shared_space/mqm_exceptions.xml</b>

2. Continue installing.
3. After the installation, check that the ALM Octane Server is up and that you have proper access to the site and the default space.

## Use of the exception files when upgrading

You can use exception files when upgrading ALM Octane.

After installation, the exception files are copied to the repository folder. So when upgrading, modify the copies of the exception files in the repository folder instead of the files in the configuration folder.

1. During the upgrade, when configuring the **C:\octane\conf\setup.xml** file in the repository folder, add or modify these two settings using an editor:

The exception file for the site	<b>/opt/octane/repo/storage/schema/maintenance/exceptions/site_admin/mqm_exception.xml</b>
The exception file for the new space	<b>/opt/octane/repo/storage/schema/maintenance/exceptions/shared_space/mqm_exception.xml</b>

2. Continue upgrading.
3. After the upgrade, check that the ALM Octane Server is up and that you have proper access to the site and the default space.

## Use of the exception files when creating a space

ALM Octane processes the exception files also when adding new spaces.

After installation, the exception files are copied to the repository folder.

Before adding a new space, modify the copies of the exception files in the repository folder instead of the files in the configuration folder.



1. Add exceptions as necessary to the exception files using an editor:

The exception file for the site	<b><code>/opt/octane/repo/storage/schema/maintenance/exceptions/site_admin/mqm_exception.xml</code></b>
The exception file for the new space	<b><code>/opt/octane/repo/storage/schema/maintenance/exceptions/shared_space/mqm_exception.xml</code></b>

2. In ALM Octane Settings area, add the space using an existing schema. For details, see the topic about creating spaces for a site in the *ALM Octane Help Center*.
3. Check that you have proper access to the space.

 **See also:**

- ["Configure initial site settings " on page 25](#)
- [Troubleshooting: "My FILL\\_EXISTING installation failed, indicating that I have extra tables, view, indexes, and so on." on page 77](#)

# Troubleshooting

This section contains troubleshooting suggestions for issues relating to the ALM Octane installation.

You can also check the log here: **`/opt/octane/log`**

For an up-to-date list of installation troubleshooters, see [Micro Focus Software Self-solve knowledge base article KM02703217](#).

## **"ALM Octane displays an error indicating that the ALM Octane server is not responding. I cannot work in ALM Octane."**

If ALM Octane is under a very heavy load, it might try to use too many Linux resources. In this case, Linux kills the server process. Do the following to increase the number of allowed open files to 65536:

1. Open the **`/etc/security/limits.conf`** file.
2. Add the following line:

```
octane hard nofile 65536
```

3. Restart the ALM Octane server.

For details, see <https://easyengine.io/tutorials/linux/increase-open-files-limit/>.

## **"I rebooted the ALM Octane server machine. The octane service did not start up automatically."**

When you reboot the machine, you need to manually restart the ALM Octane server:

```
service octane restart
```

The service runs in the background.

## **"ALM Octane does not open in Internet Explorer."**

If you encounter problems opening ALM Octane in Internet Explorer, check that the domain is configured correctly:

1. Edit the **`octane.yml`** and provide the correct the domain.
2. Restart the ALM Octane server.

## **"I cannot log into ALM Octane because ports are closed."**

By default, the ALM Octane server uses port 8080 or port 8443 (secure). The port must be opened in the firewall for incoming traffic.

## **"I am unexpectedly logged out."**

Typically, a user is logged out of ALM Octane only after session timeout. If, however, you are unexpectedly logged out while actively working in ALM Octane, you may need to clear cookies before you can log in again.

To prevent an unexpected logout:

- When working with a local DNS, make sure that you access ALM Octane only with a fully-qualified machine name, together with the machine's domain.



**Example:** `http://myserver-123545.domain.com:8080/`

### "JVM does not load."

If JVM fails to load after the **octane** service is started, check that Java is properly installed and that `JAVA_HOME` is configured correctly.

The `/opt/octane/log/wrapper.log` file shows the following error message:

```
ERROR | wrapper | JVM exited while loading the application.
INFO  | jvm 1    | Unrecognized VM option 'UseCompressedClassPointers'
INFO  | jvm 1    | Error: Could not create the Java Virtual Machine.
INFO  | jvm 1    | Error: A fatal exception has occurred. Program will exit.
```

To identify the important parameters of the system that may affect the installation, run the following commands:

To get...	Command
Java information	<code>java -XshowSettings:properties -version</code>
All installed Java applications	<code>find / -name java</code>
All installed Java versions	<code>find / -name java -exec {} a \;</code>
The <b>JAVA_HOME</b> property	<code>echo \$JAVA_HOME</code>
The <b>PATH</b> property	<code>echo \$PATH</code>

### "Application server address shows port 8080 even when changed."

By default, the installation uses port 8080 for HTTP or port 8443 for HTTPS (SSL). If you change the port to a non-default value after the initial installation phase, the site Servers tab shows:

- The original application server address still displays as port 8080.
- The server state is inaccessible even though the server is accessible.

### "Failure to create SA schema due to nonexistent TableSpace or TempTableSpace."

If errors occur during site schema creation, and the **site.log** file contains a message indicating that a certain tablespace or a temporary tablespace does not exist, check that the specified TableSpace or TempTableSpace is correct.

### "Session timeout a few minutes after login."

If session timeout occurs within a few minutes after login, check that the required domains are configured in the list of authorized domains in the **hpssoconfig.xml** file. For details, see [Configure access to from multiple domains](#).

### "When initializing, the ALM Octane installation failed with a site schema problem."

If you receive a site schema error, such as "Cannot upgrade SA. SA schema version must be lower than the current server version," do the following:

1. Open a backup copy of the site schema.
2. Fix the problem.
3. Restart the server (meaning, run **services octane start** again).

### "The wrapper.log has Java-related warnings (Linux)"

After installing or upgrading, the following warning appears in the **/opt/octane/log/wrapper.log** file.

```
INFO | jvm 1 | 2017/06/27 17:20:56.318 | Caused by:  
java.net.UnknownHostException: <...some host name...> unknown error
```

To eliminate this warning:

1. Add the ALM Octane server to the **/etc/hosts** file.



**Example:** For non-dynamic IPs, you can add the server in this format:

```
<ip_of_machine> <name_of_machine> localhost
```

Such as: **192.168.0.185 machine-72 localhost**

2. Restart the ALM Octane Server. For details, see ["Start the ALM Octane server manually" on page 62](#).

### **"My FILL\_EXISTING installation failed, indicating that I have extra tables, view, indexes, and so on."**

Check if your DBA made manual additions to the database schema, such as adding tables, indexes, and so on. If the installation encounters objects that it does not expect in the database schema, the installation can fail.

To avoid this, create exception files. For details, see ["Using exception files for manual database changes" on page 69](#).

If you still have problems:

- Check that the parameters in the **setup.xml** file and the exception files have been entered correctly.
- Check the **/opt/octane/log/wrapper.log** for errors.



#### **See also:**

- ["Management" on page 61](#)

## Checking logs

ALM Octane's log files are stored in the **/opt/octane/log** directory, or the directory that you specified when you deployed.

In this topic:

- ["Log files" below](#)
- ["Checking logs" above](#)

## Log files

Log	Path
Application logs	<b>/opt/octane/log/nga/app/app.log</b>
Site logs	<b>/opt/octane/log/nga/site/site.log</b>
<b>octane</b> service (server) logs	<b>/opt/octane/log/nga/wrapper.log</b>
Overall <b>octane</b> log, which summarizes the contents of day-to-day log files in one file.	<b>/opt/octane/log/nga/octane.log</b>

## Monitor the deployment procedure

Run the following command and wait until you see a **server boot complete** message:

```
tail -f /opt/octane/log/wrapper.log
```

 **See also:**

- ["Management" on page 61](#)

# Uninstall

## To uninstall the ALM Octane server:

1. Query the package name. Run:

```
rpm -q octane
```

2. Uninstall ALM Octane. Run:

```
rpm -e <package name>
```

3. The uninstall process does not delete the repository, log, and configuration directories, in case you want to reinstall. Delete them if necessary:

```
rm -rf /opt/octane
```

### See also:

- ["Installation" on page 22](#)





# Send Us Feedback



Let us know how we can improve your experience with the Installation Guide for Linux.  
Send your email to: [docteam@microfocus.com](mailto:docteam@microfocus.com)

