



# ALM Octane

Software Version: 12.60.4

## Installation Guide for Windows

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

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## 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>.

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## Architecture

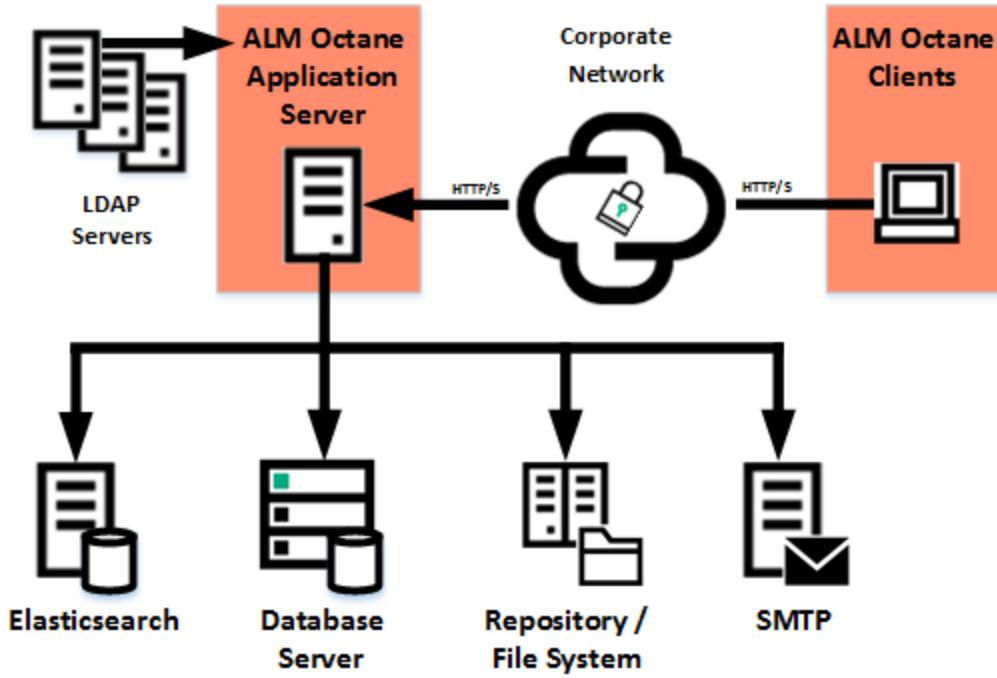
You can set up ALM Octane as a single node, or in a cluster configuration. The following diagrams illustrate the system architecture for both options. These are followed by descriptions of each of the components.

- ["Basic configuration" below](#)
- ["Enterprise configuration" on page 6](#)
- ["Components" on page 7](#)

## Basic configuration

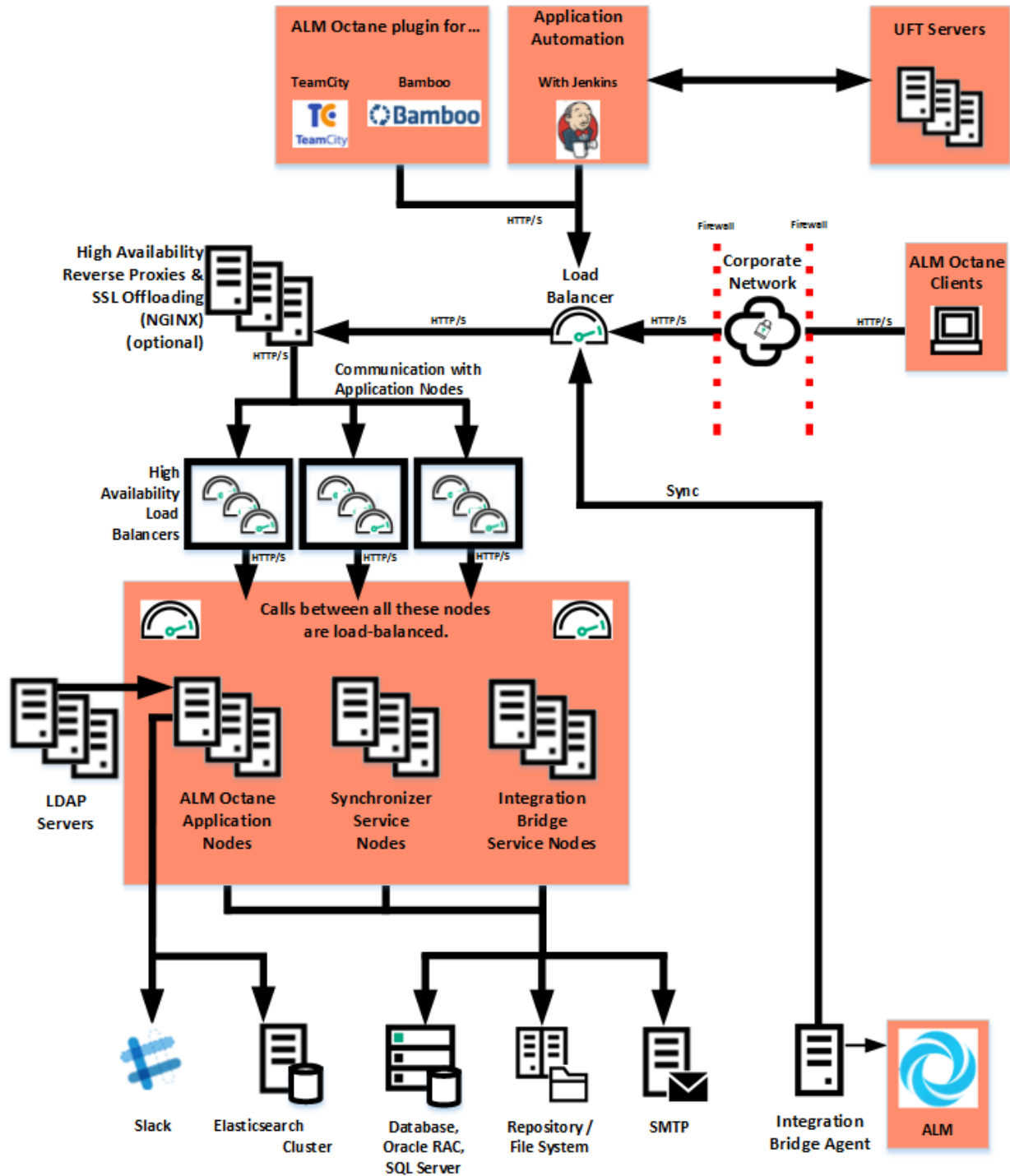
The following diagram illustrates the system architecture of a single-node configuration.

**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

Components	Description
ALM Octane clients	The clients communicate with the ALM Octane server over HTTP/S.
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="border: 1px solid green; background-color: #e6f2e6; padding: 5px; margin-top: 10px;"> <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. Generally, the repository will be located on an NFS or SAN server.</li> <li>• All nodes must have access to each other.</li> </ul>
Integration bridge service nodes	The service handles communication between the Integration Bridge and Synchronizer.
Synchronizer service nodes	The service nodes handle synchronization between ALM Octane and ALM or JIRA.
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 path on all nodes.</p>

Components	Description
<p>Database server</p>	<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 data-bbox="662 892 1414 1014" style="background-color: #e6f2e6; padding: 5px;"> <p><b>Note:</b> The ALM Octane, database, and Elasticsearch servers should each reside on separate machines.</p> </div>
<p>Elasticsearch server (or cluster)</p>	<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 data-bbox="662 1451 1414 1572" style="background-color: #e6f2e6; padding: 5px;"> <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>
<p>Load balancer</p>	<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>



Components	Description
High availability load balancers	<b>Cluster configuration:</b> These can be "VIPs" (virtual IP addresses) of one physical load balancer.
DMZ	An optional, demilitarized zone.
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 or pipeline run failure 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 the topic on ALM Octane DevOps integrations in the <i>ALM Octane Help Center</i> .

## Installation types

This document describes the necessary requirements and procedures for the installation of ALM Octane server on Microsoft Windows, and initial setup steps.

Type	Description
This Windows Installation	<p>Instructions for installing on:</p> <ul style="list-style-type: none"> <li>• A single node.</li> <li>• A cluster configuration.</li> </ul> <p>For details, see <a href="#">"Installation" on page 18</a>.</p>

### See also:

- ["Prerequisites" on page 12](#)
- ["Deploy ALM Octane" on page 20](#)
- ["Configure initial site settings " on page 21](#)
- ["Configure other settings" on page 28](#)

## Licensing flow

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 [ALM Octane editions](#) in the ALM Octane Help Center.

### Requesting 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**.

### Enterprise or Team Edition trial

When you install ALM Octane, you can choose between an Enterprise or Team trial. For details on selecting your trial, see [License settings](#).

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

### Using Pro Edition

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

1. Install ALM Octane and select Enterprise as your trial type, but do not create shared spaces. If you create a shared space during an Enterprise 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 to provide you with a one-time evaluation license.
3. Within ALM Octane settings, apply your Pro Edition license.

### Installing a license

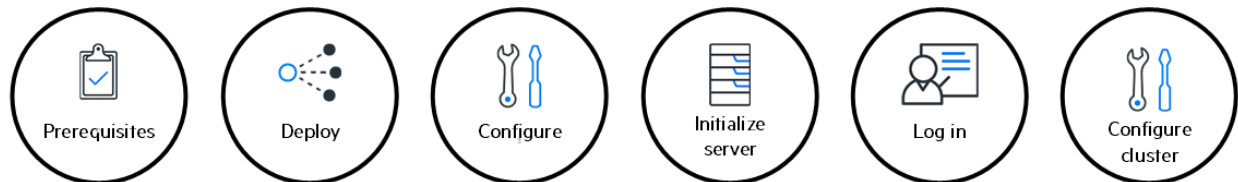
After you install and configure your trial instance of ALM Octane, you can purchase licenses for Enterprise, Pro, or Team Edition. You then install your license key (.dat file) in ALM Octane.

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 [Manage licenses](#) in the ALM Octane Help Center.

## Installation flow

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



The installation process comprises the following high-level steps:

### 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 the next page](#).

**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.

### Deployment

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

ALM Octane is deployed using an installation program.

The default deployment path is **C:\octane**.

The command to deploy is: `octane-onprem-<version>.exe`

For details, see ["Deploy ALM Octane" on page 20](#).

## Configuration

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 **C:\octane\conf**.

For details, see ["Configure initial site settings" on page 21](#) and ["Configure other settings" on page 28](#).

If you have previously installed ALM Octane on this machine, select **Start > ALM Octane > Update ALM Octane Settings**. For details, see ["Update settings" on page 36](#).

## Initialization

Select **Start > ALM Octane > Initialize ALM Octane Server**.

This also starts the server.

For details, see ["Initialize the ALM Octane server" on page 36](#).

## Verify and log in

Verify that ALM Octane was properly installed.

Log into ALM Octane. For details, see ["Log in to ALM Octane" on page 37](#).

## 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 38](#).

## 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" on the next page](#)
- ["Permissions" on page 17](#)




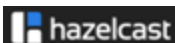
## Checklist

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. Contact customer support for site-specific recommendations.	
	Does the machine have a minimum of 8 GB free disk space? Contact customer support for site-specific recommendations.	
	What Microsoft Windows operating system is on the machine?	
	What is the user name and password you will use for the installation user?	
	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 Elasticsearch version 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: 1521</p> <p>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 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...
	Does your Oracle version match ALM Octane requirements?	
	On which machine is the database installed?	
	What is the Oracle database port? Default: 9300 You can modify the port in <b>setup.xml</b> .	
	Did you make sure that the port for outbound communication to Oracle is open?  By default, outbound ports are open.	
	What is the URL for Java Database Connectivity (JDBC) for your database?	
	What is the database admin's user name and password?	
	Does the database admin have the necessary permissions? See <a href="#">"Permissions" on page 17</a> .	
	What table space and temporary table space can be used?	
	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" on page 58</a> .	

Category	Tell us...	Your answer...
	Does your SQL Server version match ALM Octane requirements?	
	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 admin power user have the necessary permissions? See " <a href="#">Permissions</a> " on the next page.	
	What MSSQL database login user, and password, can be used for ALM Octane?	
	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 58.	
	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

### File system

The user installing ALM Octane should be an administrator on the machine, and should be able to create services.

### Oracle database

These are the permissions you will define for the user you will specify in the **DBAdminUser** setting in the **setup.xml** file. For details, see ["DBAdminUser" on page 22](#).

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 site and space 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 information about creating a space in the <i>ALM Octane User Guide</i>.</li></ul>
<b>No</b>	<p>Provide ALM Octane with a regular Oracle user with the following permissions for both site and space schemas. Both schemas must be created 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 you will define for the user you will specify in the **DBAdminUser** setting in the **setup.xml** file. For details, see ["DBAdminUser" on page 22](#).

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

Do you want ALM Octane to create databases and 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> <p>For details on removing this temporary power user, see <a href="#">"Handle database-related issues" on page 56</a>.</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> folder.</li><li>3. Right-click the <b>Logins</b> folder, 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 20](#)

## Installation

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

Before installing:

- Verify that your server fulfills all prerequisites. For details, see ["Prerequisites" on page 12](#).
- Review security considerations in the knowledge base article [KM02707977](#).

**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:

• <a href="#">Deploy ALM Octane</a> .....	20
• <a href="#">Configure initial site settings</a> .....	21
• <a href="#">Configure other settings</a> .....	28
• <a href="#">Update settings</a> .....	36
• <a href="#">Initialize the ALM Octane server</a> .....	36

## Deploy ALM Octane

This section describes how to deploy the files necessary for installing an ALM Octane server.

Before installing:

- Verify that your server fulfills all prerequisites. For details, see "[Prerequisites](#)" on page 12.
- Review security considerations in the knowledge base article [KM02707977](#).

### After installing:

Installing ALM Octane does the following:

- Creates the correct folder structure and copies all the files to the right locations.
- Installs the ALM Octane service so that the operating system recognizes it.

This section includes:

- "[Deploy ALM Octane](#)" above
- "[Cluster deployment](#)" on the next page

### To deploy ALM Octane:

1. Download the ALM Octane package.  
<https://software.microfocus.com/en-us/products/application-lifecycle-management/download>
2. Install the ALM Octane package, by running as an administrator:

`setup.exe`

Click **Next**.

3. In the setup dialog, set the following:

<b>Installation folder</b>	The folder in which to install ALM Octane. The default is <b>C:\octane</b> . Do not enter a name with spaces for the folder.
<b>Service user</b>	Whether the service should use the local system account or a specific user.
<b>Service user domain</b>	The domain of the user that will start the ALM Octane service. Available when the <b>Service user</b> is <b>Specific user</b> .
<b>Service user name</b>	The name of the user that will start the ALM Octane service. This user must have administrative permissions if using Microsoft SQL Server, and must be a local administrator. Available when the <b>Service user</b> is <b>Specific user</b> .
<b>Password</b>	Password for the user that will start the ALM Octane service. Available when the <b>Service user</b> is <b>Specific user</b> .

Click **Next**. The installation starts deploying files.

4. Click **Finish**.
5. Verify that you have full administrator permissions for the following:

Default folder	Description
<b>C:\octane</b>	ALM Octane installation folder and all its sub-directories and files. These files are used for configuring the server.
<b>C:\octane\repo</b>	The repository folder, and its site and spaces sub-directories.  2. <b>Cluster configuration:</b> <ul style="list-style-type: none"><li>• The repository folder has to be a shared folder visible to all cluster nodes.</li><li>• 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>C:\octane\repo</b> and on additional nodes defined as <b>C:\opt\octane\repo</b>.</li><li>• If the repository is not located on a remote, dedicated machine, the repository location cannot be <b>C:\octane</b>.</li></ul>
<b>C:\octane\log</b>	Log file folder.

6. If planning to install ALM Octane on additional cluster nodes, perform the steps described under "[Cluster deployment](#)" below.

## Cluster deployment

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 28.
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](#)" below

## Configure initial site settings

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

Configure these settings by editing the **setup.xml** file: `C:\octane\conf\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.

Enter values for the relevant settings:

- ["Database server settings" below](#)
- ["Oracle server settings" on page 25](#)
- ["SQL Server settings" on page 25](#)
- ["Site actions " on page 25](#)
- ["Space settings" on page 26](#)
- ["Elasticsearch settings" on page 26](#)
- ["Site admin credential settings" on page 27](#)
- ["Repository settings" on page 27](#)
- ["Configure initial site settings " on the previous page](#)
- ["Additional settings" on page 28](#)

## 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>	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.
<b>SchemaPassword</b>	<p><b>For Oracle:</b> The password of the site schema. Enter the supplied password.</p> <p>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>.</p> <p><b>For SQL Server:</b> The password for the <b>DbLoginUser</b>. For details, see <a href="#">"DbLoginUser" on page 25</a>.</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> instead.</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" on page 17</a>.</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 (#) or accented characters (such as, ä, ç, ñ).</li><li>• When installing using existing site schemas (with the <b>FILL_EXISTING</b> site action), enter the <b>SchemaPassword</b> instead.</li></ul> <p><b>For SQL Server:</b> The Password for the <b>sa</b> 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> instead.</li></ul>
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<b>ConnectionString</b>	<p>The Java Database Connectivity (JDBC) database connection string. It includes the following details: database type, database server name, database server port number, service name.</p> <p>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 <a href="#">Configure secure database access (such as with SSL)</a>.</p> <h2>Oracle</h2> <ul style="list-style-type: none"><li>• <b>Syntax using TNS alias names:</b><p>To use TNS alias names, make sure to provide a value for the <b>DBServerName</b> setting.</p><pre>&lt;entry key="ConnectionString"&gt;jdbc:mercury:oracle:TNSNamesFile=/ path&gt;/tnsnames.ora;TNSServerName=&lt;server_name&gt;&lt;/entry&gt;</pre><p><b>Example:</b></p><pre>jdbc:mercury:oracle:TNSNamesFile=/etc/tnsnames.ora;TNSServerName=ora12</pre></li><li>• <b>Syntax using service names:</b><pre>&lt;entry key="ConnectionString"&gt;jdbc:mercury:oracle://&lt;DB_SERVER_NAME&gt;:&lt;DB_&lt;br&gt;SERVER_PORT&gt;;servicename=&lt;DB_SERVICE_NAME&gt;&lt;/entry&gt;</pre><p><b>Example:</b></p><pre>jdbc:mercury:oracle://dbserver1.net:1521;servicename=orcl</pre><p>To connect to Oracle RAC, use the Single Client Access Name (SCAN) instead of the database server name.</p></li></ul> <h2>SQL</h2> <ul style="list-style-type: none"><li>• <b>Syntax using port:</b><pre>&lt;entry key="ConnectionString"&gt;jdbc:mercury:sqlserver://DB_SERVER_NAME:DB_&lt;br&gt;SERVER_PORT&lt;/entry&gt;</pre><p><b>Example:</b></p><pre>jdbc:mercury:sqlserver://dbserver1:1433</pre></li><li>• <b>Syntax using instance:</b><pre>&lt;entry key="ConnectionString"&gt;jdbc:mercury:sqlserver://DB_SERVER_&lt;br&gt;NAME/INSTANCE_NAME&lt;/entry&gt;</pre><p><b>Example:</b></p><pre>jdbc:mercury:sqlserver://dbserver1:my_instance</pre></li></ul>
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## 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" on the previous page</a> .  <b>Example: dbserver1.net</b>
<b>DBServerPort</b>	The port for connecting to the Oracle database.

## SQL Server settings

<b>DbLoginUser</b>	MSSQL database login authentication user for ALM Octane.  This login is associated with the ALM Octane site and space databases.  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" on page 22</a> .  If the DbLoginUser already exists, make sure to use the existing user's password.
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## Site actions

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

<b>CREATE_NEW</b>	Use this site action for new installations.  Creates a new site schema, creates a new space schema, and configures the current node.  Only a <b>DBAdminUser</b> with <b>create schema</b> permissions can create a new schema.  The <b>CREATE_NEW</b> site action fails when the schema already exists.
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<b>FILL_EXISTING</b>	<p><b>For Oracle:</b> 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> 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: 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 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 <a href="#">"Using exception files for manual database changes" on page 58</a>.</p>
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## 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>	The name of the host running Elasticsearch.  If running an Elasticsearch cluster, all node host names should be separated by semi-colons (;).  <b>Example: host1;host2;host3</b>
<b>ElasticPort</b>	The number of the port running the Elasticsearch binary service.  This port must be accessible from the ALM Octane server, not just by checking the HTTP connection.  <b>Example: 9300</b>
<b>ElasticClusterName</b>	The name of the Elasticsearch cluster.

## Site admin credential settings

<b>SiteAdministratorUser</b>	The name of the site admin user that the installation will create.  The user name should be an email address. The email address can be specified now and created later.  This is the only user available after installation. Other users can be added later.
<b>SiteAdministratorPassword</b>	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.  Do not include a pound sign (#) or accented characters (such as, ä, ç, ñ).

## Repository settings

<b>RepositoryFolder</b>	The full path of the repository folder.  <b>Example: C:\octane\repo</b>  <b>Cluster configuration:</b> <ul style="list-style-type: none"><li>• The folder 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>C:\octane</b>.</li></ul>
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## 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>
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### 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" below](#)
- ["General server settings" on the next page](#)
- ["LDAP settings" on page 30](#)
- ["License settings" on page 35](#)
- ["Oracle settings" on page 36](#)

### Overview

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** using any editor: `C:\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> <div data-bbox="451 974 1412 1058"> <b>Example: 10.0.0.24,10.0.0.99,10.0.0.23</b></div> <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 is set to **ldap**, and define the following settings.

**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.

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

## General LDAP settings

<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.

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

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>	LDAP server connection port. Mandatory.

<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 server</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> <p>baseDirectories:</p> <ul style="list-style-type: none"> <li>- ou=Groups,o=organization.com</li> <li>- dc=maxcrc,dc=com</li> </ul>
<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> <p>baseFilters:</p> <ul style="list-style-type: none"> <li>- (objectClass=*)</li> <li>- (&amp;(objectClass=user)(objectCategory=person))</li> </ul>
<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

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>	<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>  <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>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:

- ["Update settings" below](#)

## Update settings

If you have previously installed ALM Octane before, update the configuration settings.

If you have never installed ALM Octane on this machine, skip to ["Initialize the ALM Octane server" below](#).

### To update settings:

1. Select **Start > ALM Octane > Update ALM Octane Settings**.

Alternatively, open a command prompt and run:

```
C:\octane\install\updatesettings.bat
```

### Next steps:

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

## Initialize the ALM Octane server

You are now ready to initialize the ALM Octane server by starting the ALM Octane service.

## To initialize:

1. Select **Start > ALM Octane > Initialize ALM Octane Server**.

Alternatively, run **initserver.bat**:

```
C:\octane\install\initserver.bat
```

The initialization keeps track of the last successful step that it performed; If for some reason you have to rerun **initserver.bat**, it only starts at the relevant point.

The ALM Octane service is now running. You can check Microsoft Windows **Services** to verify.

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

You are now ready to:

- **Single-node configuration:** Log in and create additional users. For details, see "[Log in to ALM Octane](#)" below.

Check connectivity by logging in, after initializing the first node and before installing the remaining cluster nodes.

- **Cluster configuration:** Optional.

For details on installing on a cluster, see "[Cluster installation \(optional\)](#)" on the next page.

## Next steps:

- "[Log in to ALM Octane](#)" below

# 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 information about Trial licenses in the *ALM Octane User Guide*.

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.

### 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 \(optional\)](#)  
Windows: "[Cluster installation \(optional\)](#)" below
- Set configuration parameters, such as FORGET\_USER\_ON\_DELETE and SMTP\_NOTIFICATION\_SENDER\_EMAIL. See the *ALM Octane User Guide*.
- Create spaces. See the *ALM Octane User Guide*.
- Once you have logged on as the space admin, you can create other users and workspaces. See the *ALM Octane User Guide*.

## Cluster installation (optional)

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

### 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 11](#).

## How to 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 12</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	<p>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.</p> <p>Generally, the repository is 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>C:\opt\octane</b>.</p> <p>The repository must be configured to use the same mount point (path) on all nodes.</p> <p>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>C:\octane\repo</b> and on additional nodes defined as <b>C:\server1\octane\repo</b>.</p>
Check access between nodes	<p>All nodes must have access to each other. Verify ports are open in your firewall.</p> <p>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..</p> <p>By default, outbound ports are open. Check inbound ports. For details, see <a href="#">Inbound and outbound communication for clusters</a>.</p>

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

Install ALM Octane on the first cluster node, as described under "[Installation](#)" on [page 18](#).

#### a. "[Deploy ALM Octane](#)" on [page 20](#)

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

#### b. "[Configure initial site settings](#)" on [page 21](#)

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 28](#)

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. ["Initialize the ALM Octane server" on page 36](#)

On the first node only, we initialize by running **initserver.bat**.



**Caution:** Never run **initserver.bat** on any other cluster nodes.

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 37](#).

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 20](#) and ["Cluster deployment" on page 21](#).



**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.

6. **Configure each additional cluster node**

Copy the **C:\octane\conf\setup.xml** and **C:\octane\conf\octane.yml** files from the first cluster node to the **C:\octane\conf** folder on the cluster node.

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

Select **Start > ALM Octane > Initialize ALM Octane Server** on each cluster 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. **Make sure** ALM Octane **is running on each additional node in the cluster**

For details, see ["Log in to ALM Octane" on page 37](#). 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 Windows.

In this topic:

- ["Before you upgrade " below](#)
- ["Deploy" on page 43](#)
- ["Configure initial settings" on page 43](#)
- ["Configure other settings" on page 44](#)
- ["Upgrade" on page 51](#)
- ["Configure and upgrade cluster nodes" on page 51](#)
- ["Upgrade spaces in ALM Octane" on page 51](#)
- ["Restart all Jetty servers" on page 52](#)
- ["After the upgrade" on page 52](#)

## Before you upgrade

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

For details, see ["Prerequisites" on page 12](#).

**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 :
    - **C:\octane\wrapper\wrapper.conf**
    - **Service.locator.properties.example (C:\octane\webapps)**

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

Special configuration	Recommendation
Did you install ALM Octane to a location other than <b>C:\octane</b> ?	Refer to the location you used while upgrading.
Did you modify the <b>C:\opt\octane\webapps\root\WEB-INF\classes\hpssoconfig.xml</b> file to control session timeouts?	If you modified the this 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 on setting configuration parameters, see <i>ALM Octane User Help</i> or the <i>ALM Octane Developer Help</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 26</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 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 user schema during installation. For details, see <a href="#">"Using exception files for manual database changes" on page 58</a> .

4. Stop the ALM Octane service on the server, and if relevant, all cluster nodes.

## Deploy

Download and deploy the new version of ALM Octane using:

```
setup.exe
```

For details, see ["Deploy ALM Octane" on page 20](#).

## 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
Introduced in 12.55.4, but mandatory as of 12.55.17	<b>DefaultSpaceMode</b>	<pre>&lt;entry key="DefaultSpaceMode"&gt;shared&lt;/entry&gt;</pre>
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 **C:\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 21](#).

## 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.

Version	Added / Removed	Example
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 **C:\octane\conf\octane.yml** file using an editor.
- b. Locate the right section for each setting you need to add.

- c. 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> <div data-bbox="560 485 1414 569"> <b>Example: 10.0.0.24,10.0.0.99,10.0.0.23</b></div> <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 server</a> .
<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>



<b>ALM Octane attribute in octane.yml</b>	<b>Sample LDAP attribute that can be used</b>	<b>Values and descriptions</b>
<b>uid</b>	<b>objectGUID (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 (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>

- d. Save the file.

## Upgrade

1. On the server machine, select **Start > ALM Octane > Initialize ALM Octane Server**.

Alternatively, run **initserver.bat**:

```
C:\octane\install\initserver.bat
```

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



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

## Configure and 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** to each node.
2. Run **initserver.bat** on each additional node to install and initialize ALM Octane:

```
C:\octane\install\initserver.bat
```

For details, see ["Cluster installation \(optional\)" on page 38](#).

## 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 information about managing sites in the *ALM Octane User Guide*.

## 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 information about setting configuration parameters in the *ALM Octane Developer Help* or the *ALM Octane User Guide*.
- Download the newest IDE plugins for this ALM Octane version. See the information about integrations in the *ALM Octane User Guide*.
- 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" on the next page](#)

## 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.

- ["After the upgrade's setup validation phase" below](#)
- ["After site schema has been upgraded" below](#)
- ["After space schema has been upgraded" on the next page](#)
- ["After upgrade completed" on page 55](#)
- ["After upgrading cluster nodes" on page 55](#)

### 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 the setup.xml, and octane.yml files

1. Back up the **setup.xml** file, the **octane.yml file**, and the folder in which you stored the repository, such as **C:\octane\repo\**, if it is located inside the installation folder.
2. Uninstall the new ALM Octane version using Windows **Add/Remove Programs**. For details, see ["Uninstall" on page 62](#).
3. Install the previous ALM Octane version. For details, see ["Installation" on page 18](#).
4. Copy back the **setup.xml**, and **octane.yml** files.
5. If necessary, copy back the folder in which you stored the repository, such as **C:\octane\repo\**.
6. Re-initialize the ALM Octane service. For details, see ["Start the ALM Octane server manually" on page 56](#).

### After 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:

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

## To roll back the site schema

1. Stop the ALM Octane service.
2. Back up the **setup.xml** file, the **octane.yml** file, and the **C:\octane\repo\** folder, if it is located inside the installation folder.
3. Revert to a backup of the site schema.
4. Uninstall the new ALM Octane version using Windows **Add/Remove Programs**. For details, see ["Uninstall" on page 62](#).
5. Install the previous ALM Octane version. For details, see ["Installation" on page 18](#).
6. If necessary, copy back the **C:\octane\repo\** folder.
7. Revert to backups of **setup.xml** and **octane.yml** configuration files.
8. Re-initialize the ALM Octane service. For details, see ["Start the ALM Octane server manually" on page 56](#).

## 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:

- Previously-deployed files
- **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 the previously-deployed files

1. Uninstall the current version. For details, see ["Uninstall" on page 62](#).
2. Install the previous version on a node.
3. Run **initserver.bat** on each additional cluster node. For details, see ["Cluster installation \(optional\)" on page 38](#).
4. Re-initialize the ALM Octane service on each cluster node. For details, see ["Start the ALM Octane server manually" 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](#) ..... 56
- [Handle database-related issues](#) ..... 56
- [Configure trust on the ALM Octane server](#) ..... 57
- [Configure a secure connection to the ALM Octane server \(Jetty\)](#) ..... 57
- [Using exception files for manual database changes](#) ..... 58

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 relevant section in the *ALM Octane User Help*.
- Configuration parameters for spaces are set using the REST API. For details, see the relevant section in the *ALM Octane Developer Help*.

## Start the ALM Octane server manually

When installing ALM Octane, the ALM Octane server is started as part of running **initserver.bat**.

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

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

Select **Start > ALM Octane > Start ALM Octane Server**

The service runs in the background.

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

All nodes must be restarted.

## Handle database-related issues

This topic provides details for 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 **C:\octane\server\conf\** folder.
2. Delete the database site schema.
3. Delete the repository.
4. Delete the **mqm\_<sp\_logical\_name>** index from Elasticsearch. From the command prompt on the ALM Octane server, run:

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

5. Run **initserver.bat** with the site action **CREATE\_NEW** in the **setup.xml** file to create a new site



schema.

```
C:\octane\install\initserver.bat
```

## 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 initializing the ALM Octane server by running **initserver.bat**.

### To configure trust on the ALM Octane server:

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>** folder. One way to check the location of the **<java\_home>** folder is to check the environment information settings in the **C:\octane\log\wrapper.log** file.

**Example:** **C:\Program Files\java\<jdkversion>\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 is running, restart it.

## 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.

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 C:\octane\conf folder. Name the file **keystore.jks**.
3. Run C:\octane\install\enabless1.bat, supplying the certificate password as a parameter to the script.

**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.

## 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" below](#)
- ["Define exception files" on the next page](#)
- ["Set up use of the exception file" on page 60](#)

### 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, when upgrading, 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 **C:\octane\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>C:\temp\site_admin\mqm_exception.xml</b>
<b>MqmExceptionsSharedSpacePath</b>	The exception file for the default space. <b>C:\temp\shared_space\mqm_exception.xml</b>

2. Continue installing.
3. 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>C:\octane\repo\storage\schema\maintenance\exceptions\site_admin\mqm_exception.xml</b>
The exception file for the new space	<b>C:\octane\repo\storage\schema\maintenance\exceptions\shared_space\mqm_exception.xml</b>

2. Continue upgrading.
3. 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>C:\octane\repo\storage\schema\maintenance\exceptions\site_admin\mqm_exception.xml</b>
The exception file for the new space	<b>C:\octane\repo\storage\schema\maintenance\exceptions\shared_space\mqm_exception.xml</b>

2. In ALM Octane Settings area, add the space using an existing schema.
3. Check that you have proper access to the space.

### See also:

- ["Configure initial site settings " on page 21](#)

## Uninstall

**To uninstall the ALM Octane server, use the uninstall feature from the Windows Control Panel.**

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

# Send Us Feedback



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

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

