ALE Learnset Manager

Installation and Upgrade Guide

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About ALE Learnset Manager

The ALE Learnset Manager or ALM is a web-based administration client that enables you to create, modify, and delete projects and classes which will be used by the Automated Learning Engine (ALE) to learn how to classify or extract data from documents. You can also edit classes by adding and removing training documents to improve the performance of each learnset.

Prerequisites

Before you start installing ALM, you need to ensure that the following applications are installed:

- Java Runtime Environment 8 or 7, or OpenJDK. Please make sure to use a version that is appropriate for your operating system (64 bit)
- Apache Tomcat 7, 8, or 9
- Microsoft SQL Server (versions 2012, 2014, 2016, or 2017) Or Oracle (versions 12c, 12c R2 or 11g)
- Word position files

  Note: All training and test documents must be uploaded with word position files. For more information, refer to the ALE Learnset Manager Admin Guide.
- ImageMagick 6, or 7.0.9

  Note: ImageMagick is recommended for best performance in image conversion. If ImageMagick is not installed, an internal converter is used.
- Microsoft Visual C++ 2015 Redistributables (x64)

You can install ALE Learnset Manager on the following operating systems:

Note: Only 64 bit operating systems are supported

- Windows 10
- Windows 7
- Windows Server 2019
- Windows Server 2016
- Windows Server 2012
- Windows Server 2008

When working with Microsoft SQL Server, verify the following settings are in place.

- Go to **SQL Server Configuration Manager > SQL Server Network Configuration** and enable TCP/IP connections.
- Go to **TCP/IP > Properties > IPAll** and enter the desired port for your SQL server instance. The value is usually 1433.
- Activate SQL Server authentication.
- Prepare a database account that ALM can use.

Installation Process

This section describes the installation and configuration procedure for ALE Learnset Manager.

ALM is installed with the ALMSetup.exe installer.

- For a Windows installation without an active user account control, double-click **ALMSetup.exe**.
- For a Windows installation with an active user account control, right-click **ALMSetup.exe** and click **Run as administrator**.

A sequence of panels are displayed. You need to enter the configuration details on each panel and click > to proceed to the next panel. In case of an error, you need to review the log messages that are displayed simultaneously during the installation process, and fix the issue before you proceed. The following high level steps need to be performed.

- Configure Target Directories
- Configure Database
- Configure User Authentication

Configure Target Directories

The REST services and the web client are deployed as a web application to an Apache Tomcat installation. Some native libraries are installed to a directory outside of Tomcat's directory structure. That directory is also used as the data directory for local files.

To configure the target directories, complete the following steps.

1. In the **Installation Directories** dialog box, enter the details, as required. For more information on specific fields, refer to the table below.

Field	Description
Directory	Enter the name of the directory for native libraries and local data.
Tomcat Directory	Enter the name of the directory where Tomcat is installed. **Note**: Setup will try to resolve this directory automatically and set the correct value as the default value.
Name of Web Application	Enter the name of the web application, under which the application will be deployed. This name becomes part of the URL.
Tomcat URL	Enter the base URL of your Tomcat installation. **Note**: The full URL of the web application will be the Tomcat base URL and the name of the web application (for example: `http://servername:8080/ALM`). This URL is case-sensitive.

2. Click **>** to proceed.
3. If there is an existing installation, you will be prompted if the existing files should be overwritten. You can do any of the following:

- Click **Yes** to replace the files with the latest version

  Or,

- Click **No** to update the configuration.

The necessary files are copied to the target locations, and the system's PATH environment variable is updated. If updating the PATH fails for some reason you will see an error message displayed in the log

window. In that case, you need to edit the PATH manually and add the values that are displayed in the error message.

Configure Database

ALE Learnset Manager stores its configuration and the training sets in a database.

To configure access to the prepared database, complete the following steps.

1. In the **Database** dialog box, enter the details, as required. For more information on specific fields, refer to the table below.

Field	Description
Database Type	Select the type of the database – either Microsoft SQL Server or Oracle.
Host	Enter the name or IP address of the host on which SQL Server or Oracle are running.
Port	Enter the port for TCP/IP connections - this is usually 1433 for SQL Server and 1521 for Oracle.
Oracle SID	When connecting to an Oracle database, enter the SID.
Username	Enter the user name that is used to connect to the database.
Password	Enter the password that is used to connect to the database.

2. Click **>** to proceed.

The installer connects to the database and prepares the configuration repository. If there is a problem, the log message displays an error message.

Configure User Authentication

ALE Learnset Manager supports two kinds of authentication:

- An LDAP server can be used to authenticate users
- An internal user account can be used

Note: Password complexity is not enforced with internal users.

Both approaches can be combined with support for Single Sign-On (SSO). When configuring SSO, it is expected that the SSO provider protects the access to the web application and puts the name of the authenticated user into an **HTTP header** field.

To support user authentication via an SSO provider, complete these steps:

1. In the **SSO Header** field, enter the name of the HTTP header field that the SSO provider uses to submit the name of the authenticated user.
2. Configure your SSO provider so that the following paths within the web application are protected:

   /packages/framework-core/sso

   /service/session/
3. Click **>** to proceed, setting up details for the selected authentication type.

LDAP Authentication

There are two options for configuring LDAP authentication:

- All users are stored within a single node of the directory. In this case, only the server URL and a pattern is required that defines how the distinguished name (DN) of a user is constructed.
- The users are stored in a tree structure. In this case, additional information is required including a user account that can log into the LDAP server and perform a search operation for a given user name.

To configure LDAP authentication with all users in a single node, complete the following steps.

1. In the **LDAP Authentication** dialog box, enter the details, as required. For more information on specific fields, refer to the table below.

Field	Description
Users are	In the **Users are** list, click **In a single node**.
Server URL	Enter the LDAP URL of the server. **Note**: URLs should start with ldap or ldaps and contain the name or IP address of the server and the port. Optionally, the URL can also include a root path within the directory. Example: ldap://ad.mycompany.com:389/DC=ad,DC= DC=mycompany,DC=com
User DN Template	Enter a template for distinguished names for user. Use `{user}` as a placeholder for the user name. Example: uid={user},ou=employee,o=mycompany
User	Enter a user account that will be used to test the configuration. **Note**: This is an optional step.
Password	Enter the password for the user account that will be used to test the configuration. **Note**: This is an optional step.

2. Click **>** to proceed.

To configure LDAP authentication with users in a directory structure, complete the following steps.

1. In the **LDAP Authentication** dialog box, enter the details, as required. For more information on specific fields, refer to the table below.

Field	Description
Users are	In the **Users are** list, click **In a tree structure**.
Server URL	Enter the LDAP URL of the server. **Note**: URLs should start with ldap or ldaps and contain the name or IP address of the server and the port. Optionally, the URL can also include a root path within the directory. Example: ldap://ad.mycompany.com:389/DC=ad,DC= DC=mycompany,DC=com
User DN	Enter the distinguished name of a user account. This account will be used to connect to the LDAP server and perform search operations.
Password	Enter the password associated with the DN user account.
Search Filter	Enter a pattern for the filter that is used for searching the user whose authentication is to be checked. Use `{user}` as a placeholder for the user name. When connecting to Active Directory, use the following pattern: `sAMAccountName={user}`.
Search Paths	Enter one or more paths that contain the users. **Note**: This is an optional step. Only valid LDAP paths are accepted (for example: ou=users). Multiple paths can be separated by semicolons. If no path is provided at all, the entire directory is searched.
User	Enter a user account that will be used to test the configuration. **Note**: This is an optional step.
Password	Enter the password for the user account that will be used to test the configuration. **Note**: This is an optional step.

2. Click **>** to proceed. The installer connects to the LDAP server to verify the configuration and performs an authentication with the test account, if applicable.

Internal Authentication

Internal authentication is designed to be used for very simple use cases that do not require any real user management at all, or as a fallback authentication type in combination with SSO.

To use internal authentication, in the **User** and **Password** fields, enter an appropriate user name and the password associated with the user name, respectively.

Authorized Users

When working with LDAP authentication or internal authentication with SSO, you can configure a list of users to use the application. Other users can log in, but will not be able to access any functionality.

To set up a list of authenticated users, enter one user name per line.

Apache Tomcat Troubleshooting

Tomcat URL Character Restrictions

In the more recent versions of Apache Tomcat, such as 9.0.8, 8.5.31, 8.0.52, 7.0.87, and above, the characters that can be present in a URL has been restricted. For ALM to work correctly, this restriction must be relaxed. To configure your Apache installation, complete the following steps.

1. Modify the server.xml file in the Apache Tomcat Conf directory.
2. Find the Connector element that defines the port on which Tomcat receives requests. Typically, it is port 8080 but this could have been modified at your site.

```
<Connector port="8080" protocol="HTTP/1.1"
       xpoweredby="false" server="Web"
       connectionTimeout="20000"
       redirectPort="8443"
       />
```

3. Add the underlined lines and restart Tomcat.

```
<Connector port="8080"
       protocol="HTTP/1.1"
       xpoweredby="false" server="Web"
       connectionTimeout="20000"
       redirectPort="8443"
       relaxedPathChars='[]|'
       relaxedQueryChars='[]|{}^&#x5c;&#x60;&quot;&lt;&gt;'
       />
```

Note: You must apply this configuration to all Tomcat servers which have the ALE Learnset Manager web application installed.

Issue: Tomcat displays the message, “Application at context path/ALM could not be started” if you start and stop ALM with the Tomcat Web Application Manager. To prevent this issue from occurring you can either restart or update the Apache Tomcat configuration.

Restart Apache Tomcat

To restart Apache Tomcat via the services management console, complete the following steps:

1. Open the services management console.
2. Right click on the Apache Tomcat service and select **Restart**, or use the **Stop / Start** options as required.

   Note: The risk with this is that the Apache Tomcat Web Application Manager could still be used to stop and start ALM and result in failures using ALM.

3. Update the Apache Tomcat configuration so that it doesn't attempt to reload the Java Native Interface every time the web application is started.

   Note: You must perform the steps above to every Tomcat web server that is running ALE Learnset Manager.

Update the Apache Tomcat configuration

To update the Apache Tomcat configuration, complete the following steps.

Note: Before proceeding with the steps below, ensure that a backup is taken of the Tomcat installation area.

1. Ensure that all dependent systems are not being used. If required, stop the relevant services and/or websites.
2. Stop the Apache Tomcat service.
3. Create a new folder called shared under the **lib** folder within the Tomcat installation area.
4. Browse to the Apache Tomcat folder where ALE Learnset Manager is installed "...\WEB-INF\lib\".
5. Move the **columbusJNI.jar** file from the location in step 4 to the new folder created in step 3.
6. Browse to the conf folder within the Tomcat installation area and open the catalina.properties files in a text editor.
7. Search for the `shared.loader` entry and update this as follows:

```
shared.loader="${catalina.base}/lib/shared","${catalina.base}/lib/shared/*.jar","${
catalina.home}/lib/shared","${catalina.home}/lib/shared/*.jar"
```

8. Restart the Apache Tomcat service.
9. Restart any services or websites stopped in step 1.

Upgrade Procedure

This section provides high level information on how to upgrade from Columbus Learnset Manager to the latest version of ALE Learnset Manager.

Note: CLM/ALM 1.0 is not supported on Oracle platform. Hence upgrade steps for Oracle are not required.

To upgrade from CLM 1.0 to ALM 2.0, complete the following steps.

1. Ensure that all the existing Columbus servers are stopped. There can be multiple servers located on different machines.
2. Navigate to the install location of CLM on the server (ex …\ALM\WEB-INF\conf), open alm-config-db.xml and make a note of the user name. This will be required during the installation of ALM 2.0.
3. Add type (INT) column to CPTMS_ACCOUNT for SQL environment by running the following query:

```
ALTER TABLE [dbo].[CPTMS_ACCOUNT]
        ADD [type] int NULL
        CONSTRAINT D_CPTMS_ACCOUNT_type
        DEFAULT (0);
```

4. Change the column width by running the following query:

```
ALTER TABLE [dbo].[LEARNSET_PROJECT] MODIFY name VARCHAR (256);
ALTER TABLE [dbo].[LEARNSET_FIELDDECL] MODIFY name VARCHAR (256);
ALTER TABLE [dbo].[LEARNSET_DOCCLASS] MODIFY name VARCHAR (256);
ALTER TABLE [dbo].[LEARNSET_DOCCLASS_FIELDDECL] MODIFY name VARCHAR (256);
ALTER TABLE [dbo].[LEARNSET_DOC] MODIFY filename VARCHAR (256);
```

5. Uninstall Columbus Learnset Manager by deleting the folder **C:\ColumbusWS and C:\Program Files\Apache Software Foundation\Tomcat 9.0\webapps\columbus**.

   Note: Do not delete the database.

6. Install ALE Learnset Manager on the same machine using the same database user credential that was used with the original Columbus Learnset Manager installation.
7. Start the servers.
8. Log on to ALE Learnset Manager and verify if the projects created with the original Columbus Learnset Manager are available.
9. Open each class within a project and save the fields.
10. Re-learn the project.
11. Repeat step 8 through step 10 for each existing project.

Note: Oracle 12C is not supported in Columbus Learnset Manager, ALM supports Oracle and SQL only. There is no update for PostgreSQL in ALM.