

IBM Algo Financial Modeler
Version 2.4.0

Enterprise Installation Guide



Note

Before using this information and the product it supports, read the information in “Notices” on page 17.

Product information

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Chapter 1. Overview

IBM® Algo Financial Modeler® Enterprise has a multi-tier architecture portrayed in the diagram below:

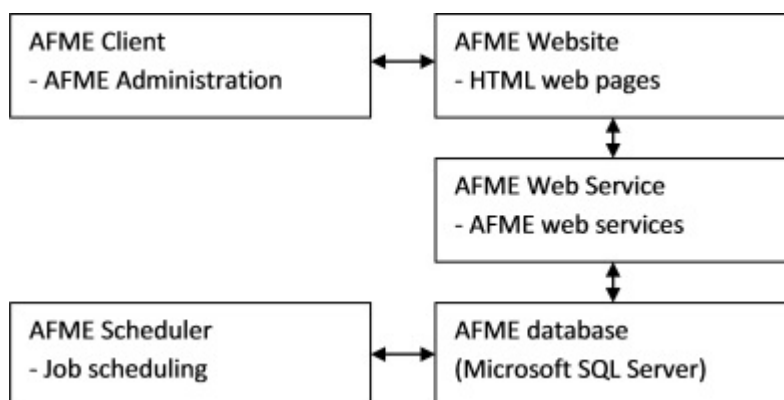


Figure 1. AFME multi-tier architecture

There is no specific IBM Algo Financial Modeler Enterprise installation required on the clients so long as they have the specified Prerequisites.

All components (represented in the diagram below) can be installed on the same machine, separate machines or any combination in-between. The database tables can be created/modified from any machine so long as the user credentials specified have the required access to the SQL Server. The application can, therefore, fit into the required security architecture by restricting the permissions for each component to what they need rather than setting generic permissions for the whole application. The required permissions for each component are set out in the Prerequisites section.

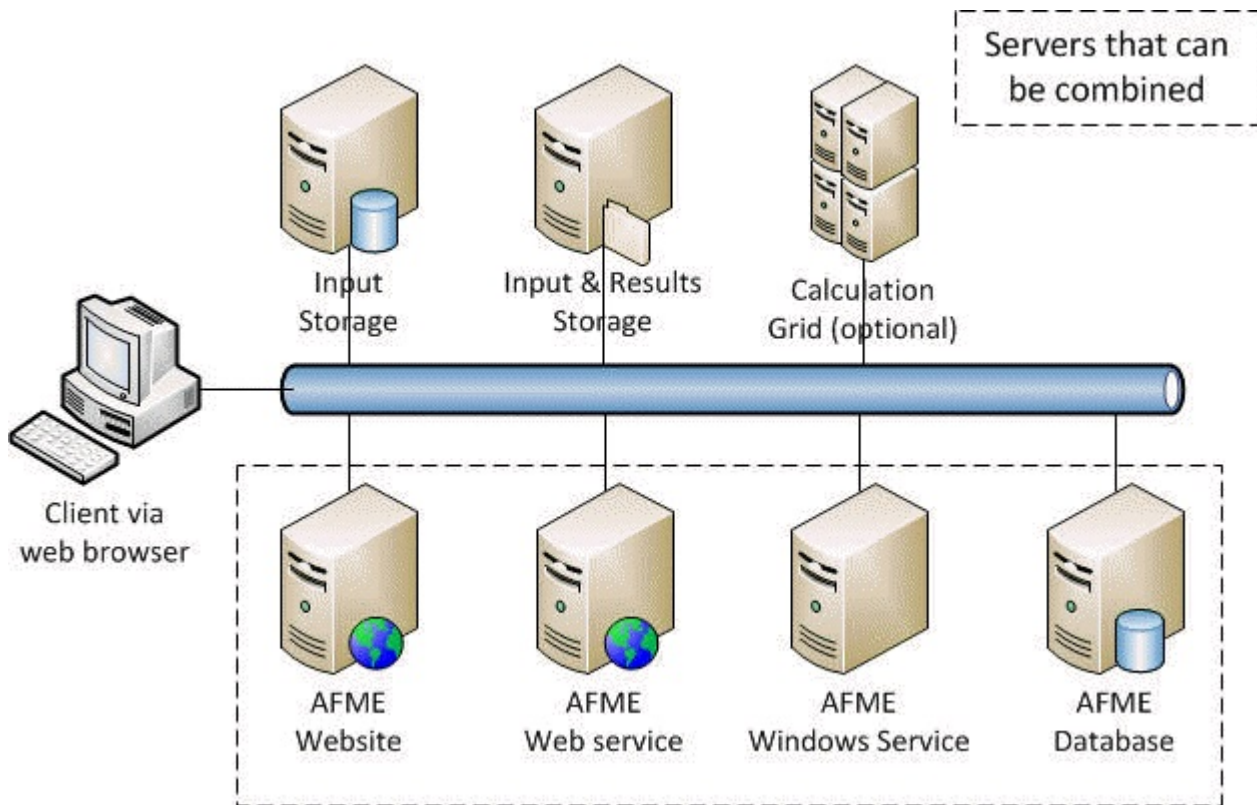


Figure 2. AFME all components

Chapter 2. Prerequisites

If you are an existing user, please ensure you read the Release Notes before installation. This contains information about changes made in this release of IBM Algo Financial Modeler Enterprise of which you should be aware prior to performing the update.

Before installing IBM Algo Financial Modeler Enterprise, you need to make sure that the pre-installation configuration has been completed as these accounts are required during installation. The accounts are used to create the tables in the SQL database and to configure the application components to be able to communicate with each other and with external resources.

As well as the pre-installation configuration, you need to make sure that the third party prerequisites required by the components that will be installed on the server(s) are available.

Pre-installation configuration

IBM Algo Financial Modeler Enterprise Database

Unless upgrading an existing database, a new SQL Server database needs to be created to store the data for IBM Algo Financial Modeler Enterprise. It is recommended that the Recovery Model is set to Simple rather than Full for the database given the size and fluidity of the IBM Algo Financial Modeler Enterprise data.

On this database, the following users (and permissions) need to be created and given access:

- Installation user (db_owner) - used to create the required table structure and populate the default data
- IBM Algo Financial Modeler Enterprise Web Service user (db_datareader & db_datawriter) - used by the IBM Algo Financial Modeler Enterprise Web Service to access the database
- IBM Algo Financial Modeler Enterprise Scheduler user (db_datareader & db_datawriter) - used by the IBM Algo Financial Modeler Enterprise Scheduler to access the database

There are no restrictions on what users these are (e.g. Network or SQL authentication) and the IBM Algo Financial Modeler Enterprise Web Service and IBM Algo Financial Modeler Enterprise Scheduler users can be the same user if required.

IBM Algo Financial Modeler Enterprise Scheduler

The IBM Algo Financial Modeler Enterprise Scheduler requires a domain account with 'Log on as a service' permissions on the server on which it will be installed.

The domain account will also need Read/Write permissions on any network locations where IBM Algo Financial Modeler results workspaces will be stored by IBM Algo Financial Modeler Enterprise, as well as any inputs required by the IBM Algo Financial Modeler Models.

The domain account will also need the following additional rights if using:

- IBM Algo Financial Modeler Worker - Read permissions on any network locations used for Distribution Control Areas
- Microsoft HPC Server - User rights to be able to connect to the cluster.

IBM Algo Financial Modeler Web Service

The IBM Algo Financial Modeler Web Service requires a domain account which is a member of the IS_IUSRS or IIS_WPG group on the server to which it will be installed.

The domain account will also need the following additional rights if using:

- IBM Algo Financial Modeler Worker - Read permissions on any network locations used for Distribution Control Areas
- Microsoft HPC Server - User rights to be able to connect to the cluster
- Active Directory Integration - Access to the Active Directory Domain

Third party software prerequisites

IBM Algo Financial Modeler Enterprise Client

- Web browser supporting JavaScript

IBM Algo Financial Modeler Enterprise Database

- Microsoft SQL Server 2008, 2008 R2, 2012 or 2014

IBM Algo Financial Modeler Enterprise Web Service

- Windows Server OS, 2008 or later
- IIS 7.0 or later with ASP.Net support and WCF Activation (Web server and Application server roles)
- Microsoft .Net framework 4.0 (can be installed by the installer if the server has web access)

IBM Algo Financial Modeler Enterprise Website

- Windows Server OS, 2008 or later
- IIS 7.0 or later with ASP.Net support (Web server role)
- Microsoft .Net framework 4.0 (can be installed by the installer if the server has web access)

IBM Algo Financial Modeler Enterprise Scheduler

- Windows Server OS, 2008 or later
- Microsoft .Net framework 4.0 (can be installed by the installer if the server has web access)
- Microsoft Core XML Services (MSXML) 6.0
- OLE-DB/ODBC drivers required by the models developed
- Microsoft Excel if using Result type Structures/Templates/Instances

IBM Algo Financial Modeler Enterprise Workers

- Microsoft Core XML Services (MSXML) 6.0
- OLE DB/ODBC drivers required by the models developed

Microsoft Core XML Services (MSXML) 6.0

IBM Algo Financial Modeler requires MSXML 6.0 to be installed in order to run any models/batches. This should already be installed on any version of Windows that has the latest service pack. To check if this is installed, look for the file msxml6.dll in the windows system folders (32-bit and/or 64-bit depending on the components installed). If this file is not present then it can be downloaded from <http://www.microsoft.com/en-us/download/details.aspx?displaylang=en&id=9774>. If you run this download and get either of the following errors:

- Installation of MSXML 6 Service Pack 2 (KB954459) failed because a higher version already exists on the machine
- MSXML 6 Service Pack (KB954459) Setup Interrupted

then this should mean that you have the required file already installed on the machine.

Grid connectors

As well as licensing IBM Algo Financial Modeler Enterprise or IBM Algo Financial Modeler Grid Connector (and installing the license alongside the Development Software), you will also need to install additional third party components to be able to distribute to third party grids.

Microsoft Windows HPC Server

To enable the Microsoft Windows HPC Server connector, you must also install/update the Microsoft Windows HPC Pack client utilities on each machine where the Development Software or IBM Algo Financial Modeler Enterprise Scheduler/Web Services are installed. As well as installing the client utilities, you must also create job template(s) for IBM Algo Financial Modeler on the Microsoft Windows HPC Server head node.

You must log on to an account that is a member of the "Administrator" group so that you have sufficient rights to install the client utilities.

HPC Pack client utilities

The HPC Pack client utilities are installed or updated as follows:

1. Browse to the network location \\ <head node name>\REMINST. When installing the head node for the cluster, this share is set up automatically to contain the HPC Pack installer.
2. Double-click on the file **setup.exe** to begin the installation.
3. Follow the instructions in the installer making sure that when on the **Select Installation Type** page, the option for **Install only the client utilities** is selected.

Note: The HPC Pack client utilities need to be updated each time your Microsoft HPC Server is updated.

Job template

You need to be an administrator on the HPC cluster to create a job template.

A job template for IBM Algo Financial Modeler is created as follows:

1. Open the **HPC Cluster Manager**.
2. In the **Navigation Pane** select **Configuration** and then **Job Templates**.
3. Click **New...** in the actions list.
4. Enter a name beginning with "AFM", and a description if required. Click [**Next >**].
5. Click [**Next >**] through the rest of the dialogs using the settings you require except for **Maximum priority** which should be set to "Highest".
6. Click [**Finish**].

Chapter 3. Installation

You must log on to an account that is a member of the “Administrator” group so that you have sufficient rights to install/update or uninstall the software.

Note:

- UAC may cause the installer to error even when the account is a member of the 'Administrator' group. In this case, UAC will need to be disabled or the installer started using the 'Run as administrator' option on the right click menu.
- If upgrading from a version prior to 2.0 then this installer can only upgrade the database, so you should manually stop the IIS web sites and backup the database before upgrading. Once you are happy with the new installation, the old installation should be removed (including deleting the old IIS web sites).
- If upgrading from a version of 2.0 then you should manually stop the IIS web sites and backup the database before upgrading. Once you are happy with the new installation, the old IIS web sites should be removed.

IBM Algo Financial Modeler Enterprise is provided as multiple installers, two Base installers that install the software on 32-bit and 64-bit operating systems respectively and License installers that enable the chargeable components that have been purchased. You should obtain the appropriate License installers before installing as these are required to be able to use IBM Algo Financial Modeler Enterprise. Depending on the planned architecture, the installer should be run on each machine and the required components selected for installation.

Note: As well as being installed on the IBM Algo Financial Modeler servers, the Production and/or Non-Production license will also need to be installed on all machines to which runs are distributed. Note also that it is likely that both the 32-bit and 64-bit licenses will need to be installed since the license used depends on how the models are being compiled.

As well as installing IBM Algo Financial Modeler Enterprise, you need to make sure that all the OLE-DB/ODBC drivers required by your IBM Algo Financial Modeler models are installed on the servers that run the IBM Algo Financial Modeler Enterprise Scheduler and any servers that are distributed to for calculations. For example:

- If external assumptions are in a Microsoft Excel spreadsheet, then the Microsoft Office OLE-DB/ODBC/Jet drivers need to be installed and any custom DSNs need to be set up on the IBM Algo Financial Modeler Enterprise Scheduler.
- If data is in a Microsoft Access database, then the Microsoft Office OLE-DB/ODBC/Jet drivers need to be installed and any custom DSNs need to be set up, on the IBM Algo Financial Modeler Enterprise Scheduler (if run locally) and distributed calculation servers (if distributed).

Similarly, other OLE-DB/ODBC drivers need to be installed for any other databases used for external assumptions, data or scenarios. Specifically, if anything is read from IBM Algo Financial Modeler results workspaces then the IBM Algo Financial Modeler ODBC Driver will also need to be installed from the IBM Algo Financial Modeler installer.

Install or update

To install IBM Algo Financial Modeler Enterprise you need to install the appropriate base installer and license installer for the purchased chargeable components.

Base Installer

Follow the procedure below in order to install or update IBM Algo Financial Modeler Enterprise:

Procedure

1. Stop all other running programs.
2. Run the installer provided.
3. The **Welcome** screen is displayed. Click [**Next >**] after reading the installation text.
4. The **License Agreement** screen is displayed. If you accept the terms of the License Agreement or are licensed under a different license then click **I accept the terms in the license agreement**. Click [**Next >**].
5. The **Customer Information** screen is displayed. Enter your name and your company name, in the appropriate boxes. Click [**Next >**].
6. The **Destination Folder** screen is displayed. If you need to change the default folder click [**Change...**] and select/enter the required folder, then click [**OK**]. Click [**Next >**].
7. The **Custom Setup** screen is displayed. Select the components of IBM Algo Financial Modeler Enterprise that you wish to install on the current server.
8. Click [**Next >**]. Depending on the components selected you will see some of the following screens.
9. **IBM Algo Financial Modeler Enterprise Database - SQL Server details**
 - a. Specify the details of the **SQL Server database** that will be used to store the IBM Algo Financial Modeler Enterprise data
 - b. If the user running the installer has DB owner permissions on the database then select **Windows authentication**. Otherwise select **Server authentication** and specify the login details
 - c. Click [**Next >**] - the SQL Server details will be authenticated and any problems need to be resolved before moving on to the next screen
10. **IBM Algo Financial Modeler Enterprise Database - Configuration details**
 - a. Specify the **IBM Algo Financial Modeler Enterprise Scheduler username**. This is required to allow the IBM Algo Financial Modeler Enterprise Scheduler to use the IBM Algo Financial Modeler Enterprise Database
 - b. Click [**Next >**]
11. **IBM Algo Financial Modeler Enterprise Web Service - SQL Server details**
 - a. Specify the details of the **SQL Server database** that is used to store the IBM Algo Financial Modeler Enterprise data
 - b. If the account used for the IBM Algo Financial Modeler Enterprise Web Service application pool has read/write access to the database then select **Windows authentication**. Otherwise select **Server authentication** and specify the login details
 - c. Click [**Next >**] - if using Server authentication, the SQL Server details will be authenticated and any problems need to be resolved before moving on to the next screen

12. **IBM Algo Financial Modeler Enterprise Web Service** - Application Pool Identity details
 - a. Specify the **Domain**, **Username** and **Password** that will be used for the Application Pool Identity
13. **IBM Algo Financial Modeler Enterprise Web Service** - IIS Server details
 - a. Specify whether or not **SSL encryption** should be used for the web services.
 - b. Specify the **port number** to use for the Web Service. This can be left blank to use port 80
 - c. Specify the **site ID** to use for the Web Service. Leave this blank to create a website using the next available site ID
 - d. Specify the **Web Server host header** (e.g. afmesvc.mydomain.com) that will be used to address this website. Leaving this blank will use the local hostname
 - e. Click [**Next >**]
14. **IBM Algo Financial Modeler Enterprise Website** - IIS Server details
 - a. Specify the **port number** to use for the Website. This can be left blank to use port 80
 - b. Specify the **site ID** to use for the Website. Leave this blank to create a website using the next available site ID
 - c. Specify the **Website host header** (e.g. afme.mydomain.com) that will be used to address this website. Leaving blank will use the local hostname
 - d. Specify the **IBM Algo Financial Modeler Enterprise Web Service URL** (e.g. http://afmesvc.mydomain.com:81) that will be used to connect to the IBM Algo Financial Modeler Enterprise Web Service. If the Web Service is also being installed at this time, this field will have already been set and is not editable on this screen.
 - e. Specify whether or not **SSL encryption** should be used for the web services. If the Web Service is also being installed at this time, this field will have already been set and is not editable on this screen.
 - f. Click [**Next >**]
15. **IBM Algo Financial Modeler Enterprise Scheduler** - SQL Server details
 - a. Specify the details of the **SQL Server database** that is used to store the IBM Algo Financial Modeler Enterprise data
 - b. If the account that the IBM Algo Financial Modeler Enterprise Scheduler will run under has read/write access to the database then select **Windows authentication**. Otherwise select **Server authentication** and specify the login details
 - c. Click [**Next >**], the SQL Server details will be authenticated, if using Server authentication, and any problems need to be resolved before moving on to the next screen
16. **IBM Algo Financial Modeler Enterprise Scheduler** - Account details
 - a. Specify the **Domain**, **Username** and **Password** that will be used to run the IBM Algo Financial Modeler Enterprise Scheduler service
 - b. This account needs to have read/write access to all network locations where the IBM Algo Financial Modeler results workspace created by IBM Algo Financial Modeler Enterprise will be stored
 - c. Click [**Next >**]
17. The **Ready to install the program** screen is displayed. Click [**Install**].
18. Click [**Finish**] when the installation has been performed.

19. If using SSL for the first time, the web site bindings and SSL certificates need to be set up in IIS manually.
20. Now install the appropriate License Installer(s).

License installers

To install or update an IBM Algo Financial Modeler License installer, follow the procedure below:

Procedure

1. Stop all other running programs.
2. Run the installer provided.
3. The **Welcome** screen is displayed. Click [**Next >**] after reading the installation text.
4. The **License Agreement** screen is displayed. If you accept the terms of the License Agreement or are licensed under a different license then click **I accept the terms in the license agreement**. Click [**Next >**].
5. The **Customer Information** screen is displayed. Enter your name and your company name, in the appropriate boxes. Click [**Next >**].
6. The **Destination Folder** screen is displayed. If you need to change the default folder click [**Change...**] and select/enter the required folder, then click [**OK**]. Click [**Next >**].
7. The **Ready to Install the Program** screen is displayed. Click [**Install**].
8. Click [**Finish**] when the installation has been completed.
9. Now start the **IBM Algo Financial Modeler Enterprise Scheduler** service from the **Services** management console.

Uninstall

To remove any component of IBM Algo Financial Modeler Enterprise, follow the procedure below:

Procedure

1. Select **Control Panel** from the Start menu (this may be under **Settings**).
2. Double-click **Add/Remove Programs, Programs and Features** or **Uninstall a program**.
3. In the displayed list, select the appropriate application beginning with "IBM Algo Financial Modeler Enterprise" and then click [**Remove**] or [**Uninstall**].
4. Click [**Yes**] on the **Add or Remove** dialog.
5. The installer does not remove the IIS website(s) and application pool(s). If you are permanently removing the application then these need to be manually deleted, otherwise they can be left to be reused if installing the application again.

Change features

To change the features that are installed for IBM Algo Financial Modeler Enterprise, follow the procedure below:

Procedure

1. Stop all other running programs.
2. Select **Control Panel** from the Start menu (this may be under **Settings**).
3. Double-click **Add/Remove Programs, Programs and Features** or **Uninstall a program**.
4. In the displayed list, select the appropriate entry beginning with "IBM Algo Financial Modeler Enterprise" and then click [**Change**].
5. The **Welcome** screen is displayed.
6. Click [**Next >**] after reading the installation text.
7. The **Program Maintenance** screen is displayed. Select **Change** and click [**Next >**].
8. The **Custom Setup** screen is displayed. From here follow the Base installer instructions from step 7.

Chapter 4. Configuration

After installing IBM Algo Financial Modeler Enterprise, there is further configuration that can be performed to customize the application to your needs. This section also details any configuration changes required to allow for changes to the setup.

The various configuration changes are split below between those that are required, recommended or optional following installation and those that result from setup changes to the infrastructure.

Required

All folder properties

The top level folder (**All**), will have a default physical location of \\server\share which will need changing. To do this:

- Logon as **admin**, the default password is **welcome**
- Select **Folders** from the tabbed **Administration** menu
- The **All** folder will be already selected so click the **[Edit]** button
- Change the **Physical location** field to a valid location on your network where any jobs performed in the **All** folder will be stored
- Set **Distributions** by choosing from the multi-select list
- Pick a **Default distribution** from the drop down list
- Click **[Save]**

Recommended

Administrator password

The default administrator password should be changed to maintain security. To do this:

- Logon as **admin**, the default password is **welcome**
- Click **Admin** (next to **Welcome**) link in the top right
- Click **[Edit]**
- Enter a value for **First Name** (e.g. "Default")
- Update **Email address** to a valid email address
- Enter the **Current Password**
- Enter a **New Password** and **Confirm Password**
- Click **[Save]**

Note: Due to the **Password Shortest Life** setting, it is not possible to change the password within 24 hours of installation. It is possible, however, to change this setting via **Settings** on the tabbed **Administration** menu and changing the value to 0 would allow you to change the password immediately.

Configuring IBM Algo Financial Modeler Enterprise

Log in as the system administrator and set up additional users, roles, groups, folders and distributions. Further details are available in the IBM Algo Financial Modeler Enterprise Help.

It is recommended that the structure used for folders is carefully considered before starting to create folders. The structure may need to involve a number of the following factors:

- Location (Region, Country, etc.)
- Calculation Methodology

Each of these and possibly other factors should be considered based on what restrictions users will need to the corresponding models and results. Reporting periods should not be included in the folder structure as separate functionality called Reporting Periods can allow for this.

Optional

Upload size limit (IIS7 only)

IIS7 by default limits the file upload size to 30,000,000 bytes, this will be an issue if you need to upload run archives larger than this. This limit can either be modified at the server level or at the application level. If modifying at the application level then you need to make sure that the section below is in the IIS server applicationHost.config file (usually in C:\Windows\System32\inetsrv\config):

```
<configuration>
  <configSections>
    <sectionGroup name="system.webServer">
      <sectionGroup name="security">
        <section name="requestFiltering" overrideModeDefault="Allow" />
      </sectionGroup>
    </sectionGroup>
  </configSections>
</configuration>
```

To modify the limit, you need to add/modify the section below to the web.config file in the installation directories for the Client and Server (application level) or the applicationHost.config (server level):

```
<system.webServer>
  <security>
    <requestFiltering>
      <requestLimits maxAllowedContentLength="1073741824"/>
    </requestFiltering>
  </security>
</system.webServer>
```

The first change is generally the installation default for IIS and the second change is made by the installer, so these only need to be modified if you cannot upload large files or need to upload files greater than 1GB.

Setup changes

It is generally not required to change these settings as they are set on installation. If the setup of the infrastructure is changed, however, then you may need to make some of the following changes.

IBM Algo Financial Modeler Enterprise Scheduler user

When: The account used for the IBM Algo Financial Modeler Enterprise Scheduler is changed

The account used to run the IBM Algo Financial Modeler Enterprise Scheduler service needs to be a user in the database, although the password does not need to be consistent. After installation the default account is a user with a first name of IBM Algo Financial Modeler Enterprise and a last name of Scheduler. The user name needs to be changed to the account logon id including domain e.g. domain\userid.

IBM Algo Financial Modeler Enterprise Website reference to IBM Algo Financial Modeler Enterprise Web Service

When: The URL used for the IBM Algo Financial Modeler Enterprise Web Service is changed

The IBM Algo Financial Modeler Enterprise Website has a reference to the IBM Algo Financial Modeler Enterprise Web Service URL, if this URL changes then the file <InstallDir>\Settings\AFMESettings.config needs to be modified. In the file, the serverAddress attribute needs changing to the new URL.

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