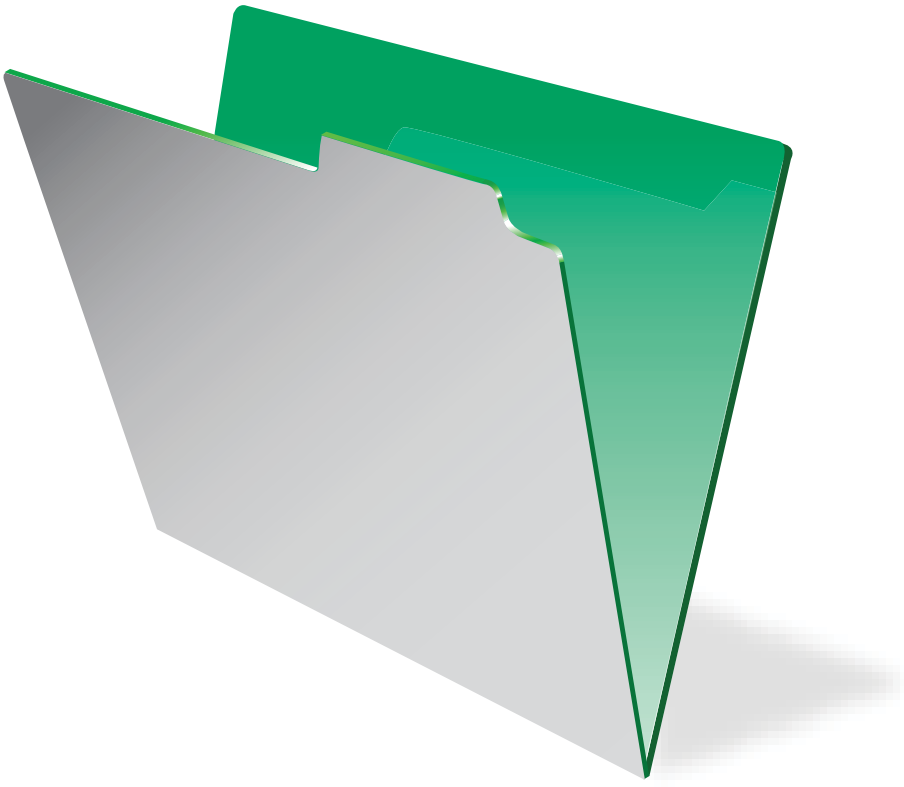
# FileMaker® Server 10

## Guide to Updating Plug-ins



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# Chapter 1
# *Updating plug-ins*

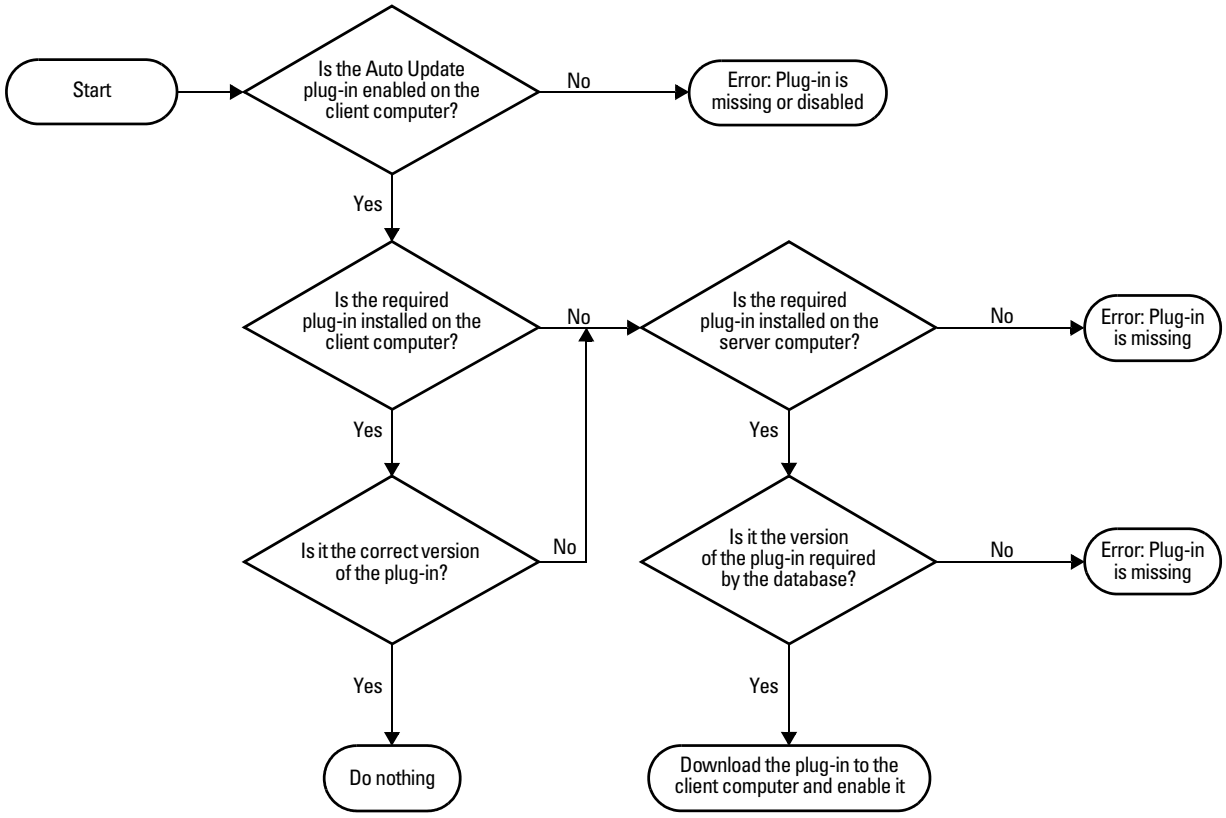
This guide describes how to use the Auto Update feature in FileMaker® Server. Auto Update ensures that FileMaker Pro database clients have the most current plug-in software installed on their computers. You can download plug-ins from FileMaker Server by including Auto Update functions in user defined scripts saved with FileMaker Pro database files. The following describes the Auto Update feature, an example script, and the Auto Update functions.

This guide assumes that you know how to define fields and scripts and use plug-ins in FileMaker Pro database files.

For information about creating plug-ins, see “Developing third-party FileMaker plug-ins” in the *FileMaker Pro Advanced Development Guide*. The FileMaker Pro Advanced CD or electronic download includes an example plug-in project that you can modify to include your own external functions.

When you distribute FileMaker Pro databases in a server and client environment, any plug-ins required by your database can be installed on each client computer that accesses the database. If you make a change to a plug-in, the updated plug-in should be distributed to all client computers that access the database. In a large organization, manually updating many client computers can be time consuming. You can use the Auto Update feature, available in FileMaker Server, to download updated files automatically.

The following illustration shows one way to use Auto Update to check both the client and server computers for the existence of a plug-in required by your database.




For automatic update to work properly, you must:

1. Make sure the Auto Update plug-in is installed and enabled on each FileMaker Pro client.
2. Set up your database to call the external functions provided by the Auto Update plug-in. These functions verify the existence and version of required plug-ins on both the client and server computers and download plug-ins, if needed.
3. Remind the server administrator to turn on Auto Update in FileMaker Server. This feature can be enabled in the FileMaker Server Admin Console by clicking the Database Server > FileMaker Pro Clients tab, and then selecting Allow FileMaker Pro clients to download updates automatically.
4. Give plug-ins to the FileMaker Server administrator, so they can be placed in the AutoUpdate folder on the server computer and downloaded as needed.

   **Note** Mac OS plug-ins must be converted to the .tar format **before** being placed on the FileMaker Server computer for Auto Update in the following cases:

   - the server computer is running Windows
   - the plug-in is in an older format that contains a resource fork (check with the plug-in vendor)

   If either of these cases applies to you, see the section “Preparing Mac OS plug-ins with resource forks for Auto Update” on page 9.

# How automatic downloading works

Auto Update ensures clients have current plug-ins by addressing two situations:

- The client is opening your database for the first time, and the plug-in that the database requires doesn't exist on the client computer.
- The client has opened your database previously, but has an outdated version of a required plug-in and needs an update.

The following sections describe the general sequence of events when a plug-in is missing from or out of date on the client computer.

## When the required plug-in is missing from the client computer

The client starts FileMaker Pro and attempts to open your database hosted by FileMaker Server. Scripts, which you have defined in your database, run the external functions for Auto Update in the following order:

1. The external function FMSAUC_Version runs, returning the name and version of the Auto Update plug-in available on the FileMaker Pro client computer. If plug-in information isn't returned, it is assumed that the plug-in is missing from or disabled on the client computer.
2. The external function *YourPlugIn_Version* runs, returning the name and version of the client computer plug-in that will be used in the database. If plug-in version information is not returned, it is assumed that the plug-in is missing or disabled on the client computer.
3. The external function FMSAUC_FindPlugIn runs, searching the server AutoUpdate folder and the server default database folder for the plug-in versions. The function returns a string, delimited by spaces, that lists all available plug-in versions.
4. The string is searched for the version returned by the *YourPlugIn_Version* function. If no version information is returned by *YourPlugIn_Version*, it is probably because the version on the server is greater than the version of the plug-in on the client computer.
5. If the option to return the latest plug-in version is enabled, the external function FMSAUC_UpdatePlugIn places the required plug-in into the current user's FileMaker Extensions folder as follows:

| On this operating system: | The plug-in is stored in this folder: |
|---|---|
| Windows XP | C:\Documents and Settings*user_name*\Local Settings\Application Data\FileMaker\Extensions\ |
| Windows Vista | C:\users*user_name*\AppData\Local\FileMaker\Extensions\ |
| Mac OS X | Macintosh HD/Users/*user_name*/Library/Application Support/FileMaker/Extensions/ |

When starting, FileMaker Pro first loads the plug-ins stored in the current user's FileMaker Extensions folder. If a particular plug-in is not found in that folder, FileMaker Pro searches for that plug-in in the Extensions folder for the FileMaker Pro application.

### Notes

- Ask for plug-in by name and version number, separated by a space. Because spaces are used as function delimiters, plug-in names and versions cannot contain any embedded spaces.
- Do not attempt to use the Auto Update function to update itself, or the environment may become unstable and crash.

## When the required plug-in is out of date on the client computer

The client starts FileMaker Pro and attempts to open your database hosted by FileMaker Server. Scripts, which you have defined in your database, run the external functions for Auto Update in the following order:

1. The external function FMSAUC_Version runs, returning the name and version of the Auto Update plug-in available on the FileMaker Pro client computer. If plug-in information isn't returned, it is assumed that the plug-in is missing from or disabled on the client computer.
2. The external function *YourPlugIn_Version* runs, returning the name and version of the client computer plug-in that will be used in the database. If plug-in version information is not returned, it is assumed that the plug-in is missing or disabled on the client computer.
3. The external function FMSAUC_FindPlugIn runs, searching the server AutoUpdate folder and the server default database folder for the plug-in versions, and returning a string that lists all available plug-in versions.
4. The string is searched for the version returned by the *YourPlugIn_Version* function. In this case, the server plug-in version is newer than the client version, so the version on the server is greater than the version of the plug-in on the client computer.
5. The external function FMSAUC_UpdatePlugIn places the required plug-in into the current user's FileMaker Extensions folder as follows:

| On this operating system: | The plug-in is stored in this folder: |
|---|---|
| Windows XP | C:\Documents and Settings*user_name*\Local Settings\Application Data\FileMaker\Extensions\ |
| Windows Vista | C:\users*user_name*\AppData\Local\FileMaker\Extensions\ |
| Mac OS X | Macintosh HD/Users/*user_name*/Library/Application Support/FileMaker/Extensions/ |

The out-of-date plug-in is moved to the Extensions\Saved folder.

When starting, FileMaker Pro first loads the plug-ins stored in the current user's FileMaker Extensions folder. If a particular plug-in is not found in that folder, FileMaker Pro searches for that plug-in in the Extensions folder for the FileMaker Pro application.

# Preparing Mac OS plug-ins with resource forks for Auto Update

FileMaker Server on Mac OS temporarily converts an uncompressed Mac OS plug-in to the .tar format for downloading to clients. However, this automatic conversion deletes any resource forks, which may make a plug-in that contained a resource fork unusable by the client.

Mac OS plug-in files that contain a resource fork require special actions to work properly with Auto Update:

- The plug-in must be manually compressed before being placed on FileMaker Server.
- Any Mac OS FileMaker Pro client using Auto Update with this plug-in must have StuffIt Expander installed to automatically decompress the plug-in.

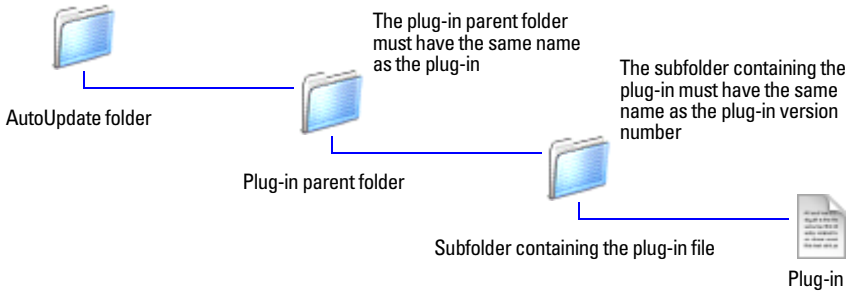
To manually compress a plug-in containing a resource fork:

1. Use a third-party utility like StuffIt Standard to manually compress the entire Mac OS plug-in into a single file such as a .sitx archive. You can use any utility that compresses files with resource forks, as long as the output file can be automatically decompressed by StuffIt Expander.
2. Rename the compressed file with the .sitx or other extension to end with .tar. For example, if the plug-in was named `test.fmplugin`, and the compressed file is named `test.fmplugin.sitx`, that compressed file must be renamed to `test.fmplugin.tar`.
3. Place the compressed plug-in on the server computer in the appropriate folder. See "Where to store plug-ins on FileMaker Server" on page 9.

**Important** StuffIt Expander must be installed on the Mac OS client computer to expand the specially compressed plug-in. Auto Update automatically calls StuffIt Expander after downloading the plug-in.

# Where to store plug-ins on FileMaker Server

You must store plug-ins in the following folders on a server:




**Overview of the plug-in folder structure**

## Windows

To store plug-in files on a Windows server, create a folder in the AutoUpdate folder named after the plug-in, and a subfolder for each version of the plug-in. Store the plug-in file in the version subfolder.

Examples:

```
C:\Program Files\FileMaker\FileMaker Server\Data\Databases\AutoUpdate
\FMS_Sample_PlugIn\1.0\
C:\Program Files\FileMaker\FileMaker Server\Data\Databases\AutoUpdate
\FMS_Sample_PlugIn\1.0\FMS_Sample_PlugIn.fmx
C:\Program Files\FileMaker\FileMaker Server\Data\Databases\AutoUpdate
\FMS_Sample_PlugIn\1.0\FMS_Sample_PlugIn.fmplugin.tar

C:\Program Files\FileMaker\FileMaker Server\Data\Databases\AutoUpdate
\FMS_Sample_PlugIn\2.0\FMS_Sample_PlugIn.fmx
C:\Program Files\FileMaker\FileMaker Server\Data\Databases\AutoUpdate
\FMS_Sample_PlugIn\2.0\FMS_Sample_PlugIn.fmplugin.tar
```

**Note** When Mac OS plug-ins are stored on a Windows server for use with Mac OS clients, they must be stored in the .tar archive format. For more information about archiving files using this format, launch the Mac OS Terminal application, type `man tar` at the prompt, and see "Preparing Mac OS plug-ins with resource forks for Auto Update" on page 9.

## Mac OS

To store plug-in files on a Mac OS server, create a folder in the AutoUpdate folder named after the plug-in, and a subfolder for each version of the plug-in. Store the plug-in file in the version subfolder.

Examples:

```
/Library/FileMaker Server/Data/Databases/AutoUpdate/FMS_Sample_PlugIn
/1.0/
/Library/FileMaker Server/Data/Databases/AutoUpdate/FMS_Sample_PlugIn
/1.0/FMS_Sample_PlugIn.fmx
/Library/FileMaker Server/Data/Databases/AutoUpdate/FMS_Sample_PlugIn
/1.0/FMS_Sample_PlugIn.fmplugin.tar

/Library/FileMaker Server/Data/Databases/AutoUpdate/FMS_Sample_PlugIn
/2.0/FMS_Sample_PlugIn.fmx
/Library/FileMaker Server/Data/Databases/AutoUpdate/FMS_Sample_PlugIn
/2.0/FMS_Sample_PlugIn.fmplugin.tar
```

**Important** To function properly on Mac OS, plug-ins and the folders in which they are stored must have the following file permissions:

| File or folder | Group | Permissions |
|---|---|---|
| Plug-in parent folder | fmsadmin | Read and execute by group |
| Subfolder containing plug-in | fmsadmin | Read and execute by group |
| Plug-in file | fmsadmin | Read and execute by group |

To change the permissions for plug-in files on a Mac OS server:

1. Launch the Terminal application ([hard disk]/Applications/Utilities/Terminal).
2. Navigate to the parent folder of the file or folder whose permissions you intend to change and enter the following at the command line:

   ```
   chmod g+rx <filename or folder>
   ```

   or

   ```
   chmod g+wrx <filename or folder>
   ```

   The `g+rx` is necessary because scripts and plug-ins must have the group read and executable bits enabled. Use the `g+wrx` form to permit write permission as well. Some plug-ins or scripts that use preferences or folders of additional files may require write permission to those files or folders.

# Setting up Auto Update in your database

There are several ways to set up Auto Update in your database. This guide describes one way, which uses simple script steps and global fields, and is based on the sample file named AutoUpdatePlugin.fp7 installed with FileMaker Server.

## Overview

To set up plug-in version checking in your database, you need to write a few simple script steps that run when a client opens your database. The first directs FileMaker Pro to a start-up layout, which contains global fields that store version information about your database's plug-in requirements. This script calls a script named Run Plug-in Scripts, which calls sub-scripts that check for the required plug-in on both the client and server computers, collects version numbers of plug-ins that exist in these locations, compares them, and downloads an updated plug-in from the server, if needed.

## To set up plug-in version checking in your database

1. Open your database using FileMaker Pro and enable the Auto Update plug-in in the Preferences dialog box.

   **Note** Remind the server administrator to turn on Auto Update in the FileMaker Server Admin Console, Database Server > FileMaker Pro Clients tab, to allow FileMaker Pro clients to download updates automatically.

2. Create a layout to contain:
   - fields defined with the global storage option to collect plug-in version information or result codes
   - a button to manually run the script that creates a plug-in version information file for storage on the server

   For an example layout that contains all the fields and the button you need, see the STARTUP layout in the AutoUpdatePlugin.fp7 sample file.

3. Write a script that uses the FMSAUC_Version function, which returns the name and version of the Auto Update plug-in available in FileMaker Pro. If the name and version string is not returned, FileMaker Pro assumes the Auto Update plug-in is missing or isn't enabled on the client computer.

4. Write a script that uses the *YourPlugIn_Version* function to check the version of the plug-in on the client computer and place version information in the global field named Local_Version in your Auto Update layout.

   For script syntax, see the Local Plug-in Check script in the AutoUpdatePlugin.fp7 sample file. Information about the *YourPlugIn_Version* function should be included in the third-party plug-in documentation.

5. Write a script that uses the FMSAUC_FindPlugIn function to check the version of the plug-in on the server computer and place version information in the global field named Remote_Version in your Auto Update layout.

   For script syntax, see the Remote Plug-in Check script in the AutoUpdatePlugin.fp7 sample file. For information about the FMSAUC_FindPlugIn function, see "FMSAUC_ FindPlugIn" on page 13.

6. Write a script that converts version information to number format and places the result in additional global fields in your Auto Update layout.

   This conversion to number format is required for a comparison of the plug-in version information collected from the client and server computers.

   For script syntax, see the Get Version Numbers script in the AutoUpdatePlugin.fp7 sample file. For information about the GetAsNumber function, see the FileMaker Pro Help.

7. Write a script to download the plug-in from the server computer, if the version on the client computer doesn't exist or is outdated.

   For script syntax, see the Download Plug-In script in the AutoUpdatePlugin.fp7 sample file. For information about the FMSAUC_UpdatePlugIn function, see "FMSAUC_UpdatePlugIn" on page 13.

8. Write a "parent" script to:
   - make sure the Auto Update plug-in exists and is enabled on the client computer
   - run the individual version checking and downloading scripts you wrote earlier

   For script syntax, see the Run Plug-in Scripts script in the AutoUpdatePlugin.fp7 sample file. For information about the FMSAUC_Version function, see "FMSAUC_Version" on this page.

# External functions

Auto Update consists of the following external functions.

**Note** These functions are available in FileMaker Pro only if the Auto Update plug-in is installed on your computer and enabled in the Plug-ins tab of Preferences.

| This function | Does this |
|---|---|
| FMSAUC_Version | Returns the name and version of the Auto Update plug-in that exists in the current user's FileMaker Extensions folder on the client computer. If no version is returned, FileMaker Pro assumes that the plug-in is missing or isn't enabled on the client computer. |
| FMSAUC_FindPlugIn | Returns a string listing the plug-in versions located in the AutoUpdate folder or the default database folder on the server computer. If no string is returned, FileMaker Pro assumes that the plug-in doesn't exist on the server computer. |
| FMSAUC_UpdatePlugIn | Downloads a plug-in file from the AutoUpdate folder or the default database folder on the server computer or returns an error code if the file can't be downloaded. |

## FMSAUC_Version

**Format** `FMSAUC_Version()`

**Parameters** `Constant integer; 0`

**Data type returned** Text

**Description** This function returns the name and version string from the Auto Update plug-in located in the current user's FileMaker Extensions folder on the client computer. If no string is found, FileMaker Pro assumes the Auto Update plug-in is missing or isn't enabled on the client computer.

**Example** `FMSAUC_Version(0)`

## FMSAUC_ FindPlugIn

**Format** `FMSAUC_FindPlugIn("plug-in-name")`

**Parameters** `plug-in-name` – the name of the plug-in file. The parameter must be enclosed in quotes.

**Data type returned** Text

**Description** This function returns a string listing the plug-in versions located in the FileMaker Server AutoUpdate folder or the default database folder. If the plug-in can't be found, the function returns –1 (negative 1).

FileMaker Server looks for the plug-in in two places. First, it searches the AutoUpdate folder located in the same folder that contains the hosted database. If the file is not found there, it searches for an AutoUpdate folder located in the FileMaker Server default database folder.

**Example** The following example shows how to specify the external function FMSAUC_FindPlugIn within a Set Field script step. The Set Field script step allows you to return the result of a calculation in a single field. For more information about script steps and FileMaker Pro functions, see FileMaker Pro Help.

```
Set Field [dbname::Remote_Version;
FMSAUC_FindPlugIn("SamplePlugIn")]
```

This example returns versions in the following format:

1.0 1.2 1.5 2.0 3.3...

## FMSAUC_UpdatePlugIn

**Format** `FMSAUC_UpdatePlugIn("plug-in-name version")`

**Parameters** `plug-in-name version` – the name of the plug-in or support file that you want to download and the plug-in version number. The parameter must be enclosed in quotes.

**Note** There must be a space between the plug-in name and the version number.

**Data type returned** Text

**Description**

This function downloads the specified plug-in or support file from the server computer to the client computer. FileMaker Server looks for the plug-in in two places. First, it searches the AutoUpdate folder located in the same folder that contains the hosted database. If the file is not found there, it searches for an AutoUpdate folder located in the FileMaker Server default database folder.

**Example**

```
FMS_UpdatePlugIn("SamplePlugIn 1.5").
```

If there is a file with the same name in the current user's FileMaker Extensions folder, it is moved to the Extensions\Saved folder. If this file is a plug-in, it is disabled in FileMaker Pro before it is moved. The newly downloaded file is then copied to the current user's FileMaker Extensions folder and enabled, if the downloaded file is a plug-in.

If the file successfully downloads, the function returns 0 (zero). Otherwise, the function returns an error code listed in the following table.

| Error code | Description |
|---|---|
| –1 | The file to be downloaded is missing from the temporary folder |
| –2 | The Extensions\Saved folder to contain the backup of the outdated plug-in or support file couldn't be created on the client computer |
| –3 | The file to be replaced on the client computer couldn't be deleted from the current user's FileMaker Extensions folder |
| –4 | The file to be replaced couldn't be moved to the Extensions\Saved folder |
| –5 | The downloaded file can't be copied to the current user's FileMaker Extensions folder |
| –6 | The download file must be a plug-in file |
| 3 | The Auto Update plug-in is disabled in the FileMaker Server Admin Console. |
| 5 | The download file can't be found in the AutoUpdate folder on the FileMaker Server computer |
| 6 | An error occurred on the computer running FileMaker Server as the file was being downloaded |
| 100 | The external function definition for FMSAUC_UpdatePlugIn contains an invalid or empty parameter |
| 101 | The function call from the client computer to the computer running FileMaker Server failed. The server computer might be running a previous version of FileMaker Server. |

If an error occurs during the downloading process, the FMSAUC_UpdatePlugIn function attempts to restore all files to the state they were in when the function call executed. If an existing plug-in was disabled and moved to the Extensions\Saved folder, it is moved back to the current user's FileMaker Extensions folder and re-enabled in FileMaker Pro on the client computer.