VMware Dynamic Environment Manager SyncTool Administration Guide

VMware Dynamic Environment Manager 9.9

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VMware Dynamic Environment Manager SyncTool Administration Guide

The *VMware Dynamic Environment Manager SyncTool Administration* guide provides information about installing and using the SyncTool.

Intended Audience

This information is intended for VMware Dynamic Environment Manager administrators who want to provide synchronization capabilities for VMware Dynamic Environment Manager configuration files and profile archives by using VMware Dynamic Environment Manager SyncTool. These capabilities are useful to end users with laptops or users who are connected to a network with limited bandwidth.

Introduction to VMware Dynamic Environment Manager SyncTool

The VMware Dynamic Environment Manager SyncTool is an optional component of VMware Dynamic Environment Manager that does not require additional licensing. It provides capabilities for synchronizing configuration files and profile archives from VMware Dynamic Environment Manager for users with laptops or limited network bandwidth.

SyncTool synchronizes the VMware Dynamic Environment Manager profile archives and configuration files. SyncTool makes users independent of offline files for all files related to VMware Dynamic Environment Manager.

Note SyncTool synchronizes only VMware Dynamic Environment Manager files. If you need to make other data available offline, use the Windows offline files feature or another offline files product.

When using Windows Offline Files to make the home share available offline for users, use a separate location for storing the VMware Dynamic Environment Manager profile archives, one for which Windows Offline Files support is not configured.

Working Offline Scenario

Laptop users who are not always connected to the corporate network need access to their VMware Dynamic Environment Manager files while offline. SyncTool makes all VMware Dynamic Environment Manager files available locally and synchronizes the changes when the users connect to the corporate network.

Slow WAN or Limited Bandwidth Scenario

Users connected to the central and profile archives shares over a slow WAN connection can experience slow performance, and continuously roaming personal settings can consume too much network resources. To optimize the user experience and to limit the network traffic, all the VMware Dynamic Environment Manager files can be used locally and only be synchronized based on configurable network thresholds.

VMware Dynamic Environment Manager Architecture with SyncTool

SyncTool is an additional client component, which works together with the VMware Dynamic Environment Manager client component, FlexEngine. It synchronizes the configuration files and profile archives on client devices with the VMware Dynamic Environment Manager shares.

Installing SyncTool on a device provides synchronization capabilities only for that device. You must install SyncTool on each client device for which you want to provide the synchronization capabilities.

SyncTool is supported only on client operating systems on which VMware Dynamic Environment Manager is installed and configured. You do not need to change the existing VMware Dynamic Environment Manager configuration, unless you are currently using Windows Offline Files to synchronize VMware Dynamic Environment Manager files.

Note You must verify that VMware Dynamic Environment Manager is correctly configured and running on your infrastructure before implementing SyncTool.

SyncTool synchronizes all VMware Dynamic Environment Manager files, personal settings and configuration, to a configurable local location on the client computer and keeps the central and local locations synchronized. The configurable local location is called Local Sync Path.

The synchronization occurs at login before FlexEngine performs a path-based import, at logout after FlexEngine performs a path-based export, and, optionally, during the session to synchronize changes to the settings of applications for which DirectFlex support is configured. For information about configuring the synchronization with SyncTool at logout, see Run SyncTool at Logoff.

To synchronize VMware Dynamic Environment Manager files during the user session, run SyncTool in resident mode. For more information, see Starting SyncTool in Resident Mode. Synchronizing during the session is optional and is not required for SyncTool to function properly. However, to limit the number of files that need synchronizing at login and logout, you should also synchronize changes during the session.

Overview of the VMware Dynamic Environment Manager Infrastructure with SyncTool

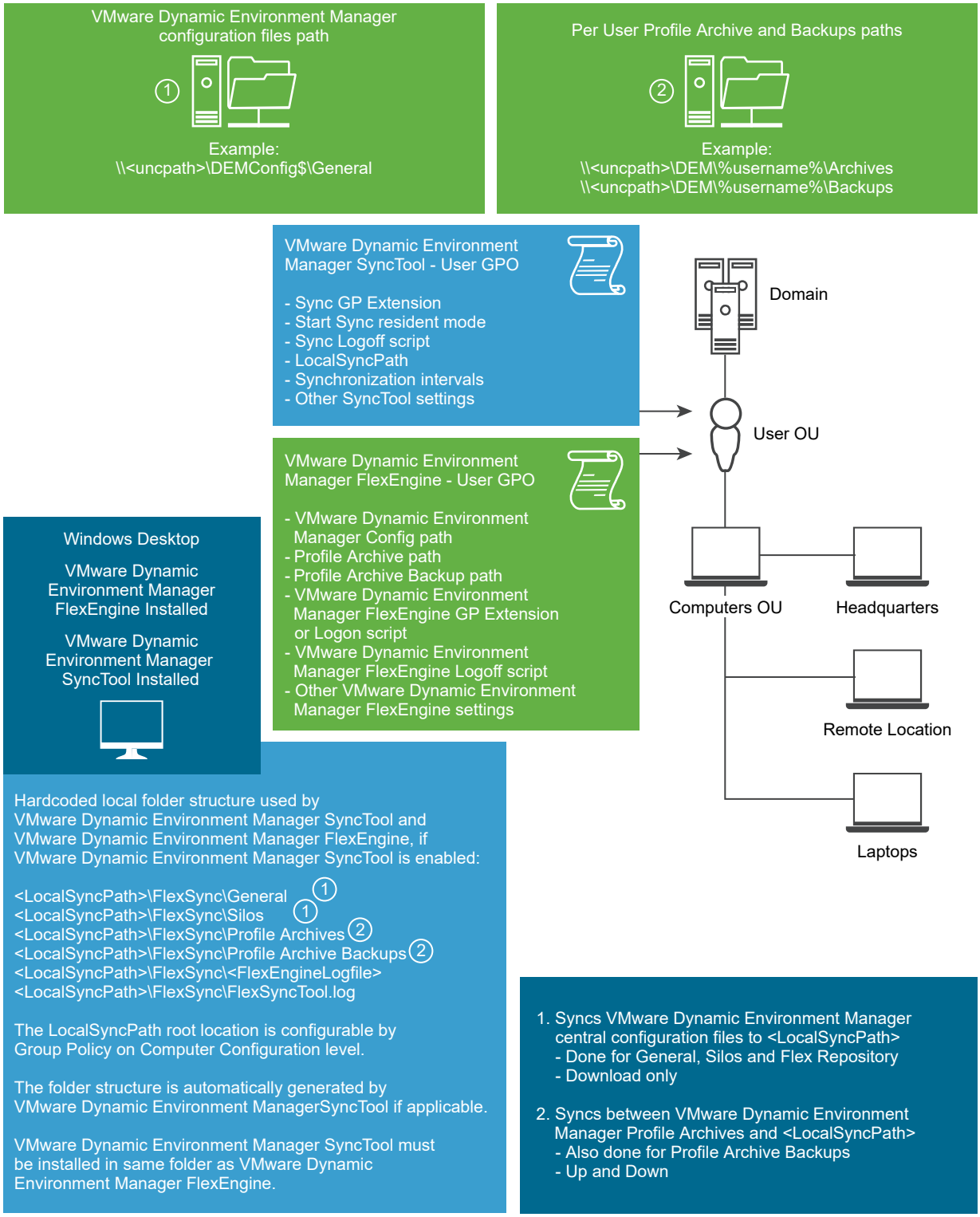
The infrastructure of the VMware Dynamic Environment Manager with SyncTool consists of all required VMware Dynamic Environment Manager components and additional components of SyncTool.

The standard VMware Dynamic Environment Manager components are marked in green. Standard components include a configuration files share, a file share with user-specific profile archive folders, FlexEngine, and a VMware Dynamic Environment Manager Group Policy Object (GPO), which configures FlexEngine.

The light blue objects are the additional SyncTool components. They consist of the SyncTool client component and the SyncTool GPO, which enables and configures SyncTool.

For detailed installation and configuration steps, see Configuring SyncTool.

Figure 1-1. VMware Dynamic Environment Manager Infrastructure with SyncTool



Before You Deploy SyncTool

Your system must meet certain infrastructure and software requirements before you deploy SyncTool. You should become familiar with the SyncTool deployment process.

Overview of the SyncTool Deployment

Before you deploy SyncTool, VMware Dynamic Environment Manager must be installed and running on the designated client machines.

Note When using SyncTool, the configuration for VMware Dynamic Environment Manager must not be modified. VMware Dynamic Environment Manager configuration settings for configuration files, profile archives, profile archive backups, and the FlexEngine log file must still use network paths.

1. Install SyncTool on designated client machines, in the same installation directory as VMware Dynamic Environment Manager. See Installing SyncTool.
2. Create SyncTool Group Policy configuration by using the provided Administrative Template. See Create the SyncTool Group Policy Object and SyncTool Group Policy Reference. You can create a Group Policy Object (GPO) for the SyncTool settings, or add them to your existing VMware Dynamic Environment Manager GPO.
3. Add SyncTool logoff command as described in Run SyncTool at Logoff.
4. Configure a logon script, which starts FlexEngine with the `–OfflineImport` argument. For details, see *Installing and Configuring VMware Dynamic Environment Manager*.
5. (Optional) Configure SyncTool to run in resident mode during sessions as described in Starting SyncTool in Resident Mode.

To run SyncTool, the minimal required configuration is as follows:

- Configure Local Sync Path Group Policy setting.
- Enable Run VMware DEM SyncTool during logon Group Policy setting.
- Add SyncTool logoff command.
- Configure logon script to perform offline import.
- Apply SyncTool GPO to users.

Note Applying the SyncTool Group Policy settings to users who work on computers that do not have SyncTool installed does not affect the work of these machines. The SyncTool Group Policy settings do not affect the behavior of VMware Dynamic Environment Manager on computers where SyncTool is not installed.

Infrastructure Requirements

Your environment must meet certain infrastructure requirements to run SyncTool.

- Correctly configured and running VMware Dynamic Environment Manager.

- Group Policy configuration for SyncTool.
- A local folder that is unique per user on each client device that uses SyncTool. This folder must be configured as Local Sync Path in the SyncTool Group Policy configuration.

Software Requirements

Your environment must meet certain software requirements to run SyncTool.

Supported operations systems:

- Windows 7 Professional, Enterprise, and Ultimate x86 and x64 SP1
- Windows 8.1 Professional and Enterprise x86 and x64 with Update
- Windows 10 Version 1903 (May 2019 Update) Professional and Enterprise x86 and x64

The installation of SyncTool requires VMware Dynamic Environment Manager 9.9 to be installed.

Note Configure the Local Sync Path to a location inside the user profile. For example, `%LOCALAPPDATA%\VMware DEM` creates a unique location per user even when sharing a device among users.

Note Use a local user profile because it is most suitable for offline use.

Installing SyncTool

You can install SyncTool manually, or you can perform an unattended installation.

Note The SyncTool MSI file has a digital signature, which the Windows Installer infrastructure validates when the installation starts. The installation process includes a certificate revocation check for which the system requires Internet access. If the Internet connectivity is not sufficient, the installation continues, but only after several timeouts. During the process, the installer seems to hang without providing any feedback.

Install SyncTool Manually

You install SyncTool by launching a setup wizard that guides you through the installation.

Prerequisites

- Verify that you have administrative privileges on the account where you will run the MSI file.
- Download and extract the MSI file package for your operating system.
- Install VMware Dynamic Environment Manager on the machine where you will install SyncTool.

Procedure

1 Run the MSI file that corresponds to your OS architecture and click **Next**.

Option	Description
x86	`VMware DEM SyncTool 9.9 x86.msi`
x64	`VMware DEM SyncTool 9.9 x64.msi`

2 Read and accept the **End User License Agreement** and click **Next**.

3 Select the destination folder where you want to install the application and click **Next.**

Note You must install SyncTool in the same folder as FlexEngine.

4 Click **Install**, and after the installation is complete, click **Finish**.

Unattended Installation of SyncTool

The SyncTool MSI supports unattended installations by using MSI properties to specify installation parameters. To perform an unattended installation, run the `misiexec` utility from the command line with the following property.

Property	Description
`INSTALLDIR`	The absolute path to the installation directory. The default value is `%ProgramFiles%\Immidio\Flex Profiles`.

The following is an example of a custom unattended installation command using the `INSTALLDIR` property to specify the path to the installation directory. It is split across multiple lines for readability only.

```
msiexec.exe /i "VMware DEM SyncTool 9.9 x86.msi" /qn
INSTALLDIR="D:\Apps\VMware DEM" /l* InstallSyncTool.log
```

The following command is an example of a typical unattended installation that installs SyncTool in the default installation directory.

```
msiexec.exe /i "VMware DEM SyncTool 9.9 x86.msi" /qn
```

Configuring SyncTool

SyncTool requires different configuration depending on whether you want to run it in an offline scenario or in a slow WAN or limited bandwidth scenario.

Working Offline Scenario

Laptop users that are not always connected to the corporate network need access to their VMware Dynamic Environment Manager files while offline. SyncTool transparently makes all VMware Dynamic Environment Manager files available locally and synchronizes the changes when the user is online and SyncTool runs.

In this scenario, SyncTool is deployed to provide access to work at home, or other locations for users when they are not connected to the corporate network.

To support this scenario, perform the following steps:

1 Install SyncTool on each client that needs to work offline. See Installing SyncTool.

2 Configure a GPO and link it to the users who need to work offline. The specific policy settings are described in SyncTool Group Policy Reference.

3 Configure a logon script, which starts FlexEngine with the `–OfflineImport` argument. For details, see *Installing and Configuring VMware Dynamic Environment Manager*.

Slow WAN or Limited Bandwidth Scenario

Users who are connected to the central VMware Dynamic Environment Manager configuration and profile shares over a slow WAN connection can experience slow performance and continuously roaming personal settings can consume too much network resources. To optimize the user experience and to limit network traffic, all the VMware Dynamic Environment Manager files can be used locally and only be synchronized based on the configurable network thresholds.

To support this scenario, perform the following steps:

1 Install SyncTool on each client that needs to work offline. See Installing SyncTool.

2 Configure a GPO and link it to the users who need to work offline. The specific policy settings are described in SyncTool Group Policy Reference.

3 Depending on your requirements, configure one or both network thresholds as described in Network Detection Settings.

4 Configure a logon script, which starts FlexEngine with the `–OfflineImport` argument. For details, see *Installing and Configuring VMware Dynamic Environment Manager*.

Create the SyncTool Group Policy Object

The `VMware DEM SyncTool.admx` administrative template supports user and computer configuration. FlexEngine ignores the SyncTool Group Policy settings if SyncTool is not installed. This way, you can apply the settings to every user without affecting the users who do not have SyncTool installed.

Advanced scenarios where you can configure the SyncTool Group Policy settings on the computer level, such as configuring different network threshold settings for different computers, are also supported.

Procedure

1. Copy the `VMware DEM.admx` and `VMware DEM SyncTool.admx` ADMX templates and their corresponding ADML files from the download package to the correct `PolicyDefinitions` folder on your Windows Domain Controller.

   The SyncTool ADMX files are located in the `Administrative Templates (ADMX)` folder in the download package, and their corresponding ADML files are located in the `Administrative Templates (ADMX)\en-US` folder.

2. Open the Group Policy Management Console.
3. Create a GPO or select an existing GPO that is applied to the users for which you want to configure SyncTool.
4. Right-click the GPO and click **Edit**.

   The Group Policy Management Editor opens.

What to do next

Configure the SyncTool Group Policy settings. See SyncTool Group Policy Reference.

To run SyncTool, the minimal required configuration is as follows:

- Configure Local Sync Path Group Policy setting.
- Enable Run VMware DEM SyncTool during the logon Group Policy setting.
- Add SyncTool logoff command.
- Apply SyncTool Group Policy Object to users.
- Configure logon script to perform offline import.

SyncTool Group Policy Reference

After you create the SyncTool Group Policy, you can configure the GPO settings by using the Group Policy Management Editor.

Table 1-1. SyncTool Group Policy Settings

Setting	Description
Run VMware DEM SyncTool during logon	Starts SyncTool during the login process before FlexEngine performs its path-based import. This way, the latest changes are always synchronized before FlexEngine processes them at logon. **Important** To synchronize changes at logoff, make sure that the SyncTool logoff command is configured by using the Group Policy logoff script mechanism as described in Run SyncTool at Logoff. If FlexEngine is configured to run as a Group Policy extension and you want to run FlexEngine at logon when working offline, configure a logon script, which starts FlexEngine with the `–OfflineImport` argument as described in *Installing and Configuring VMware Dynamic Environment Manager*.
Local Sync Path	The location where SyncTool stores all the VMware Dynamic Environment Manager files. Configure to a local path, unique per user. Use `%LOCALAPPDATA%\VMware DEM`.
Watch local profile archive changes	Automatically triggers a synchronization in resident mode when a local modification to a profile archive is detected. For example, when closing an application for which DirectFlex is configured.
Synchronization Intervals	During resident mode, synchronization occurs periodically. Configure this setting to specify how frequently the synchronization occurs. If you do not configure this setting, synchronization takes place every 3600 seconds (every hour). ■ **FlexConfig**. Controls the synchronization interval of the VMware Dynamic Environment Manager configuration files path, which contains all Flex config (`.ini`) files. Specify this value in seconds. ■ **FlexRepository**. Controls the synchronization interval of the Flex Repository folder, which contains all the User Environment, Condition Set, and Application Migration (.XML) files. Specify this value in seconds. ■ **Profile Archives**. Controls the synchronization interval of the VMware Dynamic Environment Manager profile archives, which contain personal settings. Specify this value in seconds.
Synchronization Retry Intervals	In resident mode, if a synchronization fails or is not allowed due to network thresholds, a retry is performed periodically. Configure this setting to specify how frequently the retry happens. If you do not configure this setting, retry takes place every 300 seconds (every 5 minutes). ■ **FlexConfig**. Controls the retry interval when the synchronization of the VMware Dynamic Environment Manager configuration files path has failed. Specify this value in seconds. ■ **FlexRepository**. Controls the retry interval when the synchronization of the Flex Repository folder has failed. Specify this value in seconds. ■ **Profile Archives**. Controls the retry interval when the synchronization of the VMware Dynamic Environment Manager profile archives has failed. Specify this value in seconds.

Table 1-1. SyncTool Group Policy Settings (continued)

Setting	Description
VMware DEM SyncTool logging	If Create VMware DEM SyncTool log file is enabled, a `FlexSync.log` file is created in the configured Local Sync Path. ■ **Log level**. Controls the level of detail that is logged. Avoid using **`Debug`** or **`Info`** in production, because the amount of logging information can impact the performance. ■ **Maximum log file size**. When specified, the log file is recreated after that size is reached. If the maximum size is set to 0, the file expands indefinitely. Specify this value in kilobytes (kB). ■ **Create central sync status log file**. Logs the most important synchronization status to a central log file. A file named `FlexSyncStatus-%COMPUTERNAME%.log` is created during logoff, in the same folder as the log file of FlexEngine. ■ **Maximum sync status log file size**. When specified, the sync status log file is truncated if the maximum threshold size is reached. It is truncated to the size specified in the `Truncate sync status log file to this size` setting. If the maximum size is set to 0, the file expands indefinitely. Specify this value in kilobytes (kB). ■ **Truncate sync status log file to this size**. When configured, this setting specifies the size of the sync status log file to maintain after the maximum sync status log file size threshold is reached and the log file is truncated. Specify this value in kilobytes (kB). ■ **Maximum number of log lines in resident mode UI**. Limits the number of log lines in the UI. This means that after this number, the old lines are removed when new lines are added.
Synchronize profile archive backups	Use this setting to configure when profile archive backups are synchronized. If you configure backups to be synchronized during a session, you can choose to do this once per session. **Note** Backups are never synchronized at login. **Note** If you do not configure this setting, profile archive backups are never synchronized.
Sync local FlexEngine log file to network at logoff	When enabled, the local FlexEngine log file is uploaded to the central location. The name of the log file is modified to include the computer name.
Do not use laptop conflict resolution	Controls the behavior when a conflict is detected between a local and a central profile archive. A conflict occurs when both the local and central profile archives have changed since the last synchronization. In the default behavior, known as laptop conflict resolution, the local profile archive is selected. If this setting is enabled, conflict resolution for laptops is not applied and the profile archive with the most recent changes is selected.
Hide 'Sync' button in resident mode UI	When enabled, the **Sync** button is hidden in the resident mode UI.
Do not synchronize icons	When enabled, the `.ICO` files are not synchronized. This can improve performance on slow networks.
Trigger FlexEngine refresh	When enabled, SyncTool triggers a FlexEngine refresh if the synchronization results in updates for one or more of the selected item types: DirectFlex configuration, ADMX-based settings, application blocking, drive mappings, environment variables, file type associations, Horizon Smart Policies, printer mappings, privilege elevation, shortcuts, and triggered task settings.
Files to synchronize	Use this setting to only synchronize the configuration files or the user-specific files. By default, SyncTool synchronizes both Flex configuration files and the user-specific profile archives, profile archive backups, and log files.

Network Detection Settings

Users who are connected to the central VMware Dynamic Environment Manager configuration and profile archives shares over a slow WAN connection might experience slow performance and continuously roaming personal settings can consume too much network resources. To optimize the user experience and limit network traffic, all VMware Dynamic Environment Manager files can be used locally and be synchronized only based on configurable network thresholds.

These network thresholds are configured through settings in the Network Detection category. You can define a threshold based on network bandwidth, or based on network latency. It is also possible to combine the two. Synchronization occurs only when the defined thresholds are met.

Table 1-2. Network Detection Settings

Setting	Description
Prefer IPv6 when resolving host names	Controls the behavior when a host name resolves to both IPv4 and IPv6. If you have not configured network thresholds, you do not need to configure this setting.
DFS namespace support	Enable this setting to perform the network measurements correctly when using DFS namespaces to store VMware Dynamic Environment Manager files. If you have not configured network thresholds, you do not need to configure this setting.
Network measurement settings	Control how network measurements are performed when network thresholds are configured. The ping cache setting controls how long network measurement results are retained, to prevent performing multiple measurements for VMware Dynamic Environment Manager network paths that are hosted on the same server. If these settings are not configured, 3 pings are done of 2048 bytes with a timeout of 5 seconds. The default ping cache is 60 seconds. If you have not configured network thresholds, you do not need to configure this setting.
Network threshold: Bandwidth	The administrator specifies the minimum bandwidth that must be available for synchronization to occur. You can combine this setting with the latency threshold.
Network threshold: Latency	The administrator specifies the maximum latency acceptable for synchronization to occur. You can combine this setting with the bandwidth threshold.
Force synchronization at logon	Overrides the behavior where synchronization does not occur when network thresholds do not meet the configured requirements during login. Enable Force sync at logon to always synchronize all VMware Dynamic Environment Manager files at login. If you want to synchronize only certain file types, also select one or more of the other options. If you have not configured network thresholds, you do not need to configure these settings.
Force synchronization at logoff	Overrides the behavior where synchronization does not occur when network thresholds do not meet the configured requirements during logoff. Enable Force sync at logoff to always synchronize all VMware Dynamic Environment Manager files at logoff. If you want to synchronize only certain file types, also select one or more of the other options. If you have not configured network thresholds, you do not need to configure these settings.
Force synchronization in resident mode	Overrides the behavior where synchronization does not occur when the network thresholds do not meet the configured requirements in resident mode. Enable Force sync in resident mode to always synchronize all VMware Dynamic Environment Manager files during a session. If you want to synchronize only certain file types, also select one or more of the other options. If you have not configured network thresholds, you do not need to configure these settings.

Run SyncTool at Logoff

To synchronize the latest changes to the network at logoff, SyncTool must run at logoff. To set SyncTool to run at logoff, run the logoff script Group Policy setting and configure the script in the same GPO that contains the SyncTool Group Policy settings.

Alternatively, you can add the SyncTool logoff command to an existing logoff script. Use `User Configuration\Windows Settings\Scripts` for this purpose.

- **Important** Make sure that SyncTool is run after the FlexEngine export. If both the FlexEngine and the SyncTool GPOs are applied at the same OU, ensure that the SyncTool GPO has a lower Link Order number, so that the SyncTool logoff task takes place after the FlexEngine export.

- **Tip** The example path to `FlexSyncTool.exe` is based on the default installation directory. The default directory does not apply in the following cases.
  - You selected a different directory when you installed VMware Dynamic Environment Manager.
  - VMware Dynamic Environment Manager was installed as part of another installation.

  If VMware Dynamic Environment Manager is installed in a non-default directory, adjust the path accordingly.

Procedure

1 To run SyncTool at logoff, include the `–Logoff` argument:

```
"C:\Program Files\Immidio\Flex Profiles\FlexSyncTool.exe" –Logoff
```

2 (Optional) To display a splash screen with progress information, include the `–ShowDialog` argument.

3 To run SyncTool as a logoff script from a GPO, use the following settings.

Option	Value
Script Name	`C:\Program Files\Immidio\Flex Profiles\FlexSyncTool.exe`
Script Parameters	`–logoff –showdialog`

Starting SyncTool in Resident Mode

To limit the amount of files that require synchronizing at logon and logoff, synchronize changes during the session. To do this, configure SyncTool to run in resident mode.

To start SyncTool in resident mode, it must be started with the `–Resident` argument after a user logs on:

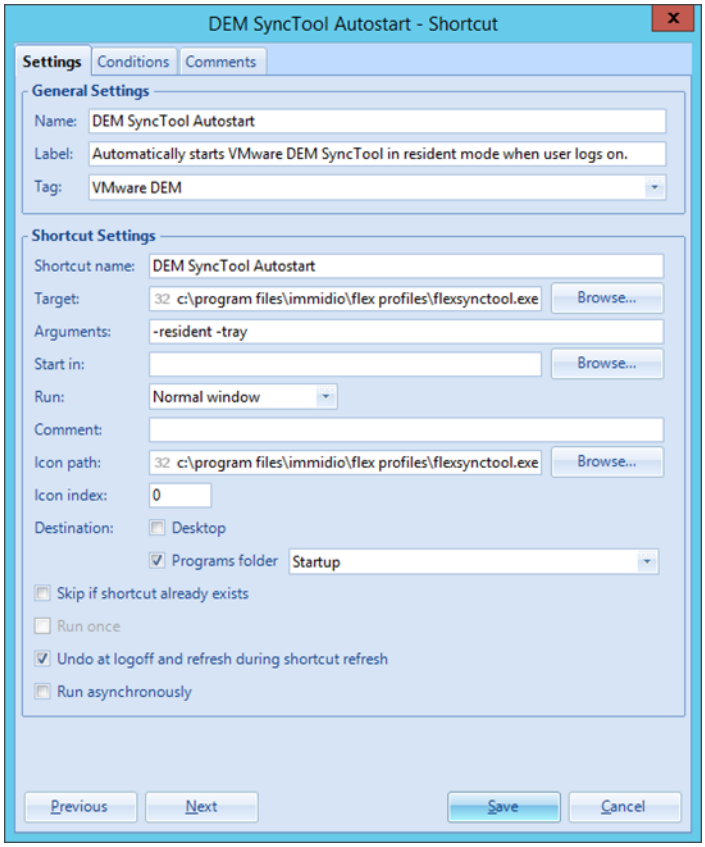
```
FlexSyncTool.exe –Resident
```

By default, in resident mode SyncTool runs in the background, with no user interface. To display the user interface, provide the optional `–Tray` argument.

The recommended way of starting SyncTool in resident mode is by creating a shortcut in the `Startup` folder of the Windows Start Menu. Shortcuts in this folder are automatically launched when Windows Explorer starts.

Note Do not enable the 'Run asynchronously' option, because this might cause the shortcut to be created after Windows Explorer has already started.

Note If users also log on to computers managed by VMware Dynamic Environment Manager where SyncTool is not installed, configure a condition on this shortcut, which checks whether the SyncTool is installed.



Configuring SyncTool in NoAD Mode

The NoAD mode is an alternative to configuring the SyncTool with Active Directory Group Policy.

To use SyncTool in NoAD mode, you must have installed and configured VMware Dynamic Environment Manager in NoAD mode. SyncTool inherits the NoAD installation settings from VMware Dynamic Environment Manager. You then need to configure general SyncTool settings and network detection settings in the `NoAD.xml` file that you created while configuring VMware Dynamic Environment Manager. For details about installing and configuring VMware Dynamic Environment Manager in NoAD mode, see *Installing and Configuring VMware Dynamic Environment Manager*.

Configuring General Settings in NoAD Mode

You can configure general settings for the SyncTool without using Active Directory.

Add and edit the general settings in the `NoAD.xml` file.

Table 1-3. General Settings in NoAD Mode

Setting	XML attribute	Description
Enable SyncTool	`Synctool`	To enable this setting, set the value to `1`. If enabled, SyncTool starts during the login process before FlexEngine performs its path-based import. This way, the latest changes are always synchronized before FlexEngine processes them at login. At logout, SyncTool runs after FlexEngine, synchronizing the latest changes.
Local sync path	`LocalSyncPath`	The location where SyncTool stores all the VMware Dynamic Environment Manager files. Configure to a local path, unique per user. Use `%LOCALAPPDATA%\VMware DEM`.
Watch local profile archive changes	`WatchLocalProfileArchiveChanges`	To enable this setting, set the value to `1`. If enabled, a synchronization is automatically triggered in resident mode when a local modification to a profile archive is detected. For example, when closing an application for which DirectFlex is configured.

Table 1-3. General Settings in NoAD Mode (continued)

Setting	XML attribute	Description

Synchronization Intervals	`ConfigSyncInterval`
	`RepositorySyncInterval`
	`ProfileArchiveSyncInterval`
		During resident mode, synchronization occurs periodically. Configure this setting to specify how frequently the synchronization occurs. If you do not configure this setting, synchronization takes place every 3600 seconds (every hour).
		■ `ConfigSyncInterval`. Controls the synchronization interval of the VMware Dynamic Environment Manager configuration files path, which contains all Flex config (`.ini`) files. Specify this value in seconds.
		■ `RepositorySyncInterval`. Controls the synchronization interval of the Flex Repository folder, which contains all the User Environment, Condition Set, and Application Migration (XML) files. Specify this value in seconds.
		■ `ProfileArchiveSyncInterval`. Controls the synchronization interval of the VMware Dynamic Environment Manager profile archives, which contain personal settings. Specify this value in seconds.

Synchronization retry intervals	`ConfigRetryInterval`
	`RepositoryRetryInterval`
	`ProfileArchiveRetryInterval`
		In resident mode, if a synchronization fails or is not allowed due to network thresholds, a retry is performed periodically. Configure this setting to specify how frequently the retry happens. If you do not configure this setting, retry takes place every 300 seconds (every 5 minutes).
		■ `ConfigRetryInterval`. Controls the retry interval when the synchronization of the VMware Dynamic Environment Manager configuration files path has failed. Specify this value in seconds.
		■ `RepositoryRetryInterval`. Controls the retry interval when the synchronization of the Flex Repository folder has failed. Specify this value in seconds.
		■ `ProfileArchiveRetryInterval`. Controls the retry interval when the synchronization of the VMware Dynamic Environment Manager profile archives has failed. Specify this value in seconds.

Table 1-3. General Settings in NoAD Mode (continued)

Setting	XML attribute	Description

VMware DEM SyncTool logging	`SyncToolLog`
	`SyncToolLogLevel`
	`SyncToolLogMaxSize`
	`SyncToolStatusLog`
	`SyncToolStatusLogMaxSize`
	`SyncToolStatusLogLeaveSize`
	`SyncToolResidentMaxLogLines`
		Set SyncToolLog to `1` to create a `FlexSync.log` file in the configured Local Sync Path.
		Once you enable the SyncTool log, configure the following settings.
		`SyncToolLogLevel`. Controls the level of detail that is logged. Use one of the following values:
		■ `0`(DEBUG)
		■ `1` (INFO)
		■ `2` (WARN)
		■ `3` (ERROR)
		Note Do not use `0` (DEBUG) or `1` (INFO) in production environments, because the amount of logging information might slow down the login and logout process.
		`SyncToolLogLevel`. Controls the level of detail that is logged. Use one of the following values:
		■ `SyncToolLogMaxSize`. When specified, the log file is recreated after that size is reached. If the maximum size is set to `0`, the file expands indefinitely. Specify this value in kilobytes (kB).
		■ `SyncToolStatusLog`. To create the central status log, set the value to `1`. Logs the most important synchronization status to a central log file. A file named `FlexSyncStatus–%COMPUTERNAME%.log` is created during logout, in the same folder as the log file of FlexEngine.
		■ `SyncToolStatusLogMaxSize`. When specified, the sync status log file is truncated if the maximum threshold size is reached. It is truncated to the size specified in the SyncToolStatusLogLeaveSize setting. If the maximum size is set to `0`, the file expands indefinitely. Specify this value in kilobytes (kB).
		■ `SyncToolStatusLogLeaveSize`. When configured, this setting specifies the size of the sync status log file to maintain after the SyncToolStatusLogMaxSize threshold is reached and the log file is truncated. Specify this value in kilobytes (kB).

Table 1-3. General Settings in NoAD Mode (continued)

Setting	XML attribute	Description
		■ `SyncToolResidentMaxLogLines`. Limits the number of log lines in the UI. This means that after the threshold is reached, the old lines are removed when new lines are added.
Synchronize profile archive backups	`SyncBackups`	Use this setting to configure when profile archive backups are synchronized. If you configure backups to be synchronized during a session, you can choose to do this once per session. Enter one of the following values: ■ `1` (Only during session) ■ `2`(Only once during session) ■ `3` (Only at logout) ■ `4`(During session and at logout) **Note** Backups are never synchronized at login. **Note** If you do not configure this setting, profile archive backups are never synchronized.
Sync the local FlexEngine log file to network at logout	`SyncFlexEngineLog`	To enable this setting, set the value to `1`. When enabled, the local FlexEngine log file is uploaded to the central location. The name of the log file is modified to include the computer name.
Do not use laptop conflict resolution	`DoNotUseLaptopConflictResolution`	To enable this setting, set the value to `1`. Enabling this setting means you will disable laptop conflict resolution. Controls the behavior when a conflict is detected between a local and a central profile archive. A conflict occurs when both the local and central profile archives have changed since the last synchronization. In the default behavior, known as laptop conflict resolution, the local profile archive is selected. If this setting is enabled, conflict resolution for laptops is not applied and the profile archive with the most recent changes is selected.
Hide the Sync button in resident mode UI	`HideSyncButton`	To enable this setting, set the value to `1`. When enabled, the **Sync** button is hidden in the resident mode UI.
Do not synchronize icons	`DoNotSynchronizeIcons`	To enable this setting, set the value to `1`. When enabled, the `ICO` files are not synchronized. This can improve performance on slow networks.

Table 1-3. General Settings in NoAD Mode (continued)

Setting	XML attribute	Description

Trigger FlexEngine refresh	`DirectFlexRefreshAfterSync`
	`UEMRefreshAdmXAfterSync`
	`UEMRefreshApplicationBlockingAfterSync`
	`UEMRefreshDriveMappingAfterSync`
	`UEMRefreshEnvVarAfterSync`
	`UEMRefreshFtaAfterSync`
	`UEMRefreshHorizonAfterSync`
	`UEMRefreshPrinterMappingAfterSync`
	`UEMRefreshPrivilegeElevationAfterSync`
	`UEMRefreshShortcutAfterSync`
	`UEMRefreshTriggeredTaskAfterSync`
		To enable this setting, set the value to `1` for each item type you want to trigger a refresh. When enabled, SyncTool triggers a FlexEngine refresh if the synchronization results in updates for one or more of the selected item types: DirectFlex configuration, ADMX-based settings, application blocking, drive mappings, environment variables, file type associations, Horizon Smart Policies, printer mappings, privilege elevation, shortcuts, and triggered task settings.

Files to synchronize	`FilesToSync`	Use this setting to only synchronize the configuration files or the user-specific files. By default, SyncTool synchronizes both Flex configuration files and the user-specific profile archives, profile archive backups, and log files. Enter one of the following values: ■ `1` (synchronize Flex configuration files) ■ `2` (synchronize profile archives, profile archives backups, and log files)

Configuring Network Detection Settings in NoAD Mode

You can configure network detection settings for the SyncTool without using Active Directory.

Network detection settings allow you to use VMware Dynamic Environment Manager files locally and synchronize only based on configurable network thresholds. You configure network detection settings in the `NoAD.xml` file.

Table 1-4. Network Detection Settings in NoAD Mode

Setting	XML Attribute	Description
Prefer IPv6 when resolving host names	`PreferIPv6`	To enable this setting, set the value to `1`. Controls the behavior when a host name resolves to both IPv4 and IPv6. If you have not configured network thresholds, you do not need to configure this setting.
DFS namespace support	`DFSNamespaceSupport`	To enable this setting, set the value to `1`. Enable this setting to perform the network measurements correctly when using DFS namespaces to store VMware Dynamic Environment Manager files. If you have not configured network thresholds, you do not need to configure this setting.

Table 1-4. Network Detection Settings in NoAD Mode (continued)

Setting	XML Attribute	Description

Network measurement settings	`PingSize`
	`PingCount`
	`PingTimeout`
	`PingCache`
		Control how network measurements are performed when network thresholds are configured. The ping cache setting controls how long network measurement results are retained, to prevent performing multiple measurements for VMware Dynamic Environment Manager network paths that are hosted on the same server. If these settings are not configured, 3 pings are done of 2048 bytes with a timeout of 5 seconds. The default ping cache is 60 seconds. Set the following values:
		■ `PingSize` (specify in bytes)
		■ `PingCount` (specify a numeric value)
		■ `PingTimeout` (specify in seconds)
		■ `PingCache` (specify in seconds)
		If you have not configured network thresholds, you do not need to configure this setting.

Network threshold: Bandwidth	`MinimumBandWidth`	The administrator specifies the minimum bandwidth that must be available for synchronization to occur. You can combine this setting with the latency threshold. Specify this value in kilobytes per second (kB/s).
Network threshold: Latency	`MaximumLatency`	The administrator specifies the maximum latency acceptable for synchronization to occur. You can combine this setting with the bandwidth threshold. Specify this value in milliseconds (ms).

Table 1-4. Network Detection Settings in NoAD Mode (continued)

Setting	XML Attribute	Description

Force synchronization at login	`ForceSyncAtLogOn`
	`ForceConfigSyncAtLogOn`
	`ForceRepositorySyncAtLogOn`
	`ForceProfileArchiveSyncAtLogOn`
		Overrides the behavior where synchronization does not occur when network thresholds do not meet the configured requirements during login.
		Use this setting to always synchronize all VMware Dynamic Environment Manager files at login. If you want to synchronize only certain file types, also select one or more of the other options.
		To enable this setting, set the `ForceSyncAtLogOn` value to `1`.
		For each type of synchronization, set the value to `1` to limit the items to synchronize:
		■ `ForceConfigSyncAtLogOn`
		■ `ForceRepositorySyncAtLogOn`
		■ `ForceProfileArchiveSyncAtLogOn`
		If you have not configured network thresholds, you do not need to configure these settings.

Table 1-4. Network Detection Settings in NoAD Mode (continued)

Setting	XML Attribute	Description

Force synchronization at logout	`ForceSyncAtLogOff`
	`ForceConfigSyncAtLogOff`
	`ForceRepositorySyncAtLogoff`
	`ForceProfileArchiveSyncAtLogOff`
		Overrides the behavior where synchronization does not occur when network thresholds do not meet the configured requirements during logout.
		Enable Force sync at logout to always synchronize all VMware Dynamic Environment Manager files at logout. If you want to synchronize only certain file types, also select one or more of the other options.
		To enable this setting, set the `ForceSyncAtLogOff` value to `1`.
		For each type of synchronization, set the value to `1` to limit the items to synchronize:
		■ `ForceConfigSyncAtLogOff`
		■ `ForceRepositorySyncAtLogoff`
		■ `ForceProfileArchiveSyncAtLogOff`
		If you have not configured network thresholds, you do not need to configure these settings.

Force synchronization in resident mode	`ForceSyncDuringSession`
	`ForceConfigSyncDuringSession`
	`ForceRepositorySyncDuringSession`
	`ForceProfileArchiveSyncDuringSession`
		Overrides the behavior where synchronization does not occur when the network thresholds do not meet the configured requirements in resident mode.
		Enable Force sync in resident mode to always synchronize all VMware Dynamic Environment Manager files during a session. If you want to synchronize only certain file types, also select one or more of the other options.
		To enable this setting, set the `ForceSyncDuringSession` value to `1`.
		For each type of synchronization, set the value to `1` to limit the items to synchronize:
		■ `ForceConfigSyncDuringSession`
		■ `ForceRepositorySyncDuringSession`
		■ `ForceProfileArchiveSyncDuringSession`
		If you have not configured network thresholds, you do not need to configure these settings.

SyncTool Command-Line Arguments

SyncTool accepts command-line arguments to configure functions such as resident mode, one-time synchronization during a session, synchronization at logoff, and others.

- To start the SyncTool in the resident mode:

```
FlexSyncTool.exe –Resident [–Tray]
```

- To perform a one-time synchronization during a session:

```
FlexSyncTool.exe –SyncNow
                          [–SyncArchives] [–SyncFlexConfig] [–SyncFlexRepository]
                          [–ShowDialog]
```

- To synchronize at logoff: `FlexSyncTool.exe –Logoff [–ShowDialog]`
- Arguments:
  - `–Resident`. Starts SyncTool in resident mode.
  - `–Tray`. Shows tray icon, which provides access to the user interface.
  - `–Logoff`. Performs synchronization at logoff.
  - `–ShowDialog`. Shows the splash screen with progress information.
  - `–SyncNow`. Performs one-time synchronization.
- For `–SyncNow`, all three categories are synchronized by default. To be more specific, also specify one or more of the following optional arguments:
  - `–SyncArchives`
  - `–SyncFlexConfig`
  - `–SyncFlexRepository`

Running a One-Time Synchronization

To perform a one-time synchronization during a session, start the SyncTool executable at any time with the `–SyncNow` argument.

```
FlexSyncTool.exe –SyncNow [–SyncArchives] [–SyncFlexConfig] [–SyncFlexRepository] [–ShowDialog]
```

If SyncTool is running in resident mode when you launch `FlexSyncTool.exe` with the `–SyncNow` argument, the resident instance performs the actions as provided by the command-line arguments, and the `–ShowDialog` argument is ignored.

Group Policy Configuration on Computer OU

For advanced scenarios, you can configure the SyncTool Group Policy settings on the computer level by creating a GPO that can be linked to an OU that contains computers.

If you configure SyncTool Group Policy settings on the computer level, you can have multiple SyncTool configurations for different OUs in Active Directory. This approach is useful if you want to configure different network thresholds for computers or locations where different types of network connections are available.

Important SyncTool must always start in the user context.

Starting SyncTool in the user context means that even though you are able to configure most of the SyncTool Group Policy settings through Computer Configuration, the following settings must be applied using a GPO on the user level.

- Configure the Run VMware DEM SyncTool during logon group policy setting. See SyncTool Group Policy Reference for more information.
- Run SyncTool with the `–Logoff` argument using the Group Policy logoff script mechanism. See Run SyncTool at Logoff.
- Configure a logon script that starts FlexEngine with the `–OfflineImport` argument as described in *Installing and Configuring VMware Dynamic Environment Manager*.

Viewing SyncTool Logs

You can review the logs for SyncTool to troubleshoot SyncTool activities. This topic describes how to access SyncTool Logs.

When you use SyncTool, you can view the log files in the local cache folder on the end user's computer. The following path shows the default location of the log files: `%LocalAppData%\VMware DEM\FlexSync`.

The following log files are created within this folder:

- FlexEngine.log
- FlexEngine-async.log
- FlexSyncTool.log
- FlexSyncToolStatus-%computername%.log

The `FlexSyncTool.log` contains information on all SyncTool activities. This looks similar to the `FlexEngine.log` and also contains information on the configuration, and the time needed to complete synchronization.

When using SyncTool, FlexEngine always uses the local cache folder, and SyncTool keeps it synchronized with the network. You can see in the FlexEngine log when it runs in 'SyncTool' mode. This means that it will use local paths instead of shares. In the FlexEngine log, the following sync paths are used:

```
[DEBUG] Applied sync-related path changes
[DEBUG] Recursively processing config files from path 'C:\Users\flexsync1\AppData\Local\VMware DEM
\FlexSync\General'
[DEBUG] Using profile archive path 'C:\Users\flexsync1\AppData\Local\VMware DEM\FlexSync\Profile
Archives'
[DEBUG] Logging to file 'C:\Users\flexsync1\AppData\Local\VMware DEM\FlexSync\FlexEngine.log'
```

The logfile `FlexSyncToolStatus-%computername%.log` contains information on when SyncTool started and stopped:

```
[INFO ] LOGON mode started (Group Policy client-side extension)
[INFO ] LOGON mode ended (Group Policy client-side extension)
[INFO ] RESIDENT mode started
[INFO ] LOGOFF mode started
[INFO ] LOGOFF mode ended
```