

# Administrator's Guide for Managing Dell Wyse Thin Clients Running WES7 (32-bit and 64-bit) with Microsoft System Center 2012 R2 Configuration Manager



# Notes, cautions, and warnings

-  **NOTE:** A NOTE indicates important information that helps you make better use of your product.
-  **CAUTION:** A CAUTION indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.
-  **WARNING:** A WARNING indicates a potential for property damage, personal injury, or death.

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2016 - 08

Rev. A00

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# Introduction

Dell Wyse provides support for using Microsoft System Center 2012 Configuration Manager R2 to manage Dell Wyse thin clients running Dell Wyse Enhanced Windows Embedded Standard 7 (32-bit and 64-bit) operating systems.

 **NOTE: Configuration Manager 2012 R2 extends the capabilities to enable the management of specialized devices such as thin clients.**

Configuration Manager is a system's management software product by Microsoft for managing large groups of Windows-based computer systems.

## About this guide

This guide is intended for administrators of Dell Wyse thin clients running WES7 (32-bit and 64-bit) OS. Administrators must have expertise in System Center Configuration Manager before using this guide.

This guide provides the necessary information for using the Dell Wyse solution to support the Configuration Manager capabilities to manage Dell Wyse thin clients that run on Dell Wyse Enhanced WES7 (32-bit and 64-bit) OS.

This guide contains information on:

- Feature supported on Dell Wyse Enhanced WES7 (32-bit and 64-bit) builds by Configuration Manager 2012 R2.
- Software distribution on Dell Wyse Enhanced WES7 (32-bit and 64-bit) builds using Configuration Manager 2012 R2.
- OS Capture and deployment of the Dell Wyse Enhanced WES7 (32-bit and 64-bit) builds using Configuration Manager 2012 R2.

Configuration Manager and Windows Embedded Standard 7 help can be accessed from the Microsoft Help and Support website at: [Support.microsoft.com/default.aspx](http://Support.microsoft.com/default.aspx).

# Getting started: Pre-requisites and supported management features

Before using Configuration Manager, be sure to meet all pre-requisites and understand the supported management features for Dell Wyse thin clients contained in the following sections:

- [General Pre-requisites for Configuration Manager and Device Manager Support](#)
- [Management Features Supported](#)

## General pre-requisites for Configuration Manager and Device Manager support

1. Configuration Manager 2012 R2 Client must be installed on the client device.
2. Configuration Manager 2012 R2 supported Dell Wyse scripts for preparing the image for capture, and deployment must be available on the client device.
3. Additional storage space on client may be required to cache software updates.
4. Configuration Manager 2012 R2 infrastructure supporting Operating Systems Deployment (OSD).
5. Client device must be joined to a domain.
6. Client device must be discovered and available in the Configuration Manager server console.

## Management features supported

Management features supported by Configuration Manager 2012 R2 on Dell Wyse thin clients with the WES7 builds are:

Configuration manager 2012 R2 supports:

- Asset Discovery
- Asset Inventory
- Image Pull
- Image Push
- Software package advertisement with Write-Filter Management
- Task Sequence advertisement

Some of the Configuration Manager features are:

- Deploying software applications
- Deploying software updates
- Deploying images
- Collecting hardware and software inventory
- Metering software usage
- Reporting



# How to distribute software applications

This section explains how third party software applications can be distributed to Dell Wyse thin clients running Dell Wyse Enhanced WES7 (32-bit and 64-bit).

Pre-requisites:

1. Device should be domain joined and discovered in the Configuration Manager server, prior to software deployment. (Disable the FBWF and join the client to domain and discover in the Configuration Manager server console)
2. Obtain latest Application executable (Example: **Firefox.exe** so on) and copy it to local drive on the ConfigMgr site server's shared location **C:\ConfigMgr\_packages\apps\**.

The following types of software distributions can be performed, such as:

- **Legacy method**—For information about packages and programs that were used in Configuration Manager 2007, go to [www.technet.microsoft.com/en-us/library/gg699369.aspx](http://www.technet.microsoft.com/en-us/library/gg699369.aspx).
- **New Method**—For information about applications deployment with Microsoft System Center 2012 Configuration Manager, go to [www.technet.microsoft.com/en-us/library/gg682125.aspx](http://www.technet.microsoft.com/en-us/library/gg682125.aspx).

When you deploy applications to the Windows Embedded devices that are write filter-enabled, you can specify whether to disable the write filter on the device during the deployment and then restart the device after the deployment. If the write filter is not disabled, the software is deployed to a temporary overlay and the software will no longer be installed when the device restarts unless another deployment forces changes to be persisted.

When you deploy an application to a WES7, make sure that the device is a member of a collection that has a configured maintenance window. This lets you manage when the write filter is disabled and enabled, and when the device restarts.

In the Deploy Software Wizard, the user experience setting that controls the write filter behavior is a check box named **Commit changes at deadline or during a maintenance window (requires restarts)**.

For more information on managing Windows Embedded devices that are write filter-enabled, see [www.blogs.technet.com/b/configmgrteam/archive/2012/11/26/managing-embedded-devices-with-write-filters-in-configuration-manager-service-pack-1.aspx](http://www.blogs.technet.com/b/configmgrteam/archive/2012/11/26/managing-embedded-devices-with-write-filters-in-configuration-manager-service-pack-1.aspx)

## NOTE:

Time for the Advertisement to appear at the client side depends on the machine and user policy refresh interval time, and server and network parameters such as server capacity to handle the clients and network traffic.

If you do not receive an Advertisement, then you must initiate on the thin client:

1. Go to **Control Panel** → **Configuration Manager** → **Actions tab**, select **Machine Policy Retrieval & Evaluation Cycle**, and then click **Initiate Action**.
2. Go to **Control Panel** → **Configuration Manager** → **Actions tab**, select **User Policy Retrieval & Evaluation Cycle**, and then click **Initiate Action**.

## Additional references

- Planning for Application Management in Configuration Manager, see [www.technet.microsoft.com/en-us/library/gg699370.aspx](http://www.technet.microsoft.com/en-us/library/gg699370.aspx).

- Creating Applications in Configuration Manager, see [www.technet.microsoft.com/en-us/library/gg682159.aspx](http://www.technet.microsoft.com/en-us/library/gg682159.aspx).
- Creating Deployment Types in Configuration Manager, see [www.technet.microsoft.com/en-us/library/gg682174.aspx](http://www.technet.microsoft.com/en-us/library/gg682174.aspx).
- Configuring the Application Catalog and Software Center in Configuration Manager, see [www.technet.microsoft.com/en-us/library/hh489603.aspx](http://www.technet.microsoft.com/en-us/library/hh489603.aspx).
- Deploying the Configuration Manager Client to Windows Embedded Devices, see [www.technet.microsoft.com/en-us/library/gg682132.aspx#BKMK\\_DeployClientEmbedded](http://www.technet.microsoft.com/en-us/library/gg682132.aspx#BKMK_DeployClientEmbedded).
- Managing embedded devices with System Center, see [www.blogs.msdn.com/b/windows-embedded/archive/2013/09/17/managing-embedded-devices-with-system-center.aspx](http://www.blogs.msdn.com/b/windows-embedded/archive/2013/09/17/managing-embedded-devices-with-system-center.aspx).
- Example Scenario for Deploying and Managing Configuration Manager Clients on Windows Embedded Devices, see [www.technet.microsoft.com/en-us/library/jj721567.aspx](http://www.technet.microsoft.com/en-us/library/jj721567.aspx).



# Imaging Wyse thin clients with Configuration Manager

This section explains how to capture, import, and deploy an OS image to supported Wyse thin clients running Dell Wyse Enhanced WES7 (32-bit and 64-bit) OS in a Configuration Manager environment.

Imaging includes the following phases (in order):

1. [Phase 1: Capturing an OS Image from a Reference thin client](#)
2. [Phase 2: Importing the Captured OS Image \(WIM File\) into the Configuration Manager Server](#)
3. [Phase 3: Deploying the OS Image to the Destination Client Using the Operating Systems Deployment \(OSD\) Task Sequence](#)

## NOTE:

1. The steps included in this section are for administrators who are familiar with OS imaging and the Configuration Manager usage.
2. **BEFORE YOU BEGIN:** If you are planning for Multilingual User Interface Deployments for WES7, see [Localization Requirements: Multilingual User Interface \(MUI\)](#) before you begin.

## Phase 1: Capturing OS image from reference thin client

The reference image must be captured as a Microsoft Windows Imaging (WIM) format file, so that it can be deployed with Configuration Manager 2012 R2 Server. To capture an image in WIM format follow the steps given below.

**Step 1:** Prepare the Reference Thin Client for image capture

## NOTE:

To prepare a reference Dell Wyse Enhanced WES7 image, it is recommended to start with a newly imaged thin client, make any customizations to the build you want, and then make the build ready for the Configuration Manager Image capture.

1. Be sure the thin client that you want to use as a reference thin client, is running the image you want.
2. Boot the thin client. For security, the thin client will automatically log on using the User account.
3. Log off, and log on as an “Administrator” user. Use the Logoff button (**Start** → **Log off**) to log off the current desktop while holding down the SHIFT key until the **Log On** window displays. Log on as an Administrator (Default Username is **Administrator** and default case-sensitive Password is **DelICCCvdi**).
4. Disable the File-Based Write Filter by double-clicking the **FBWF Disable** (red) icon on the desktop (this disables the File-Based Write Filter and reboot the system).
5. If automatic logon to a user desktop is enabled, you must log off the user desktop and log on as an Administrator (as you did in point 3 of step 1).

## NOTE:

Be sure that the boot order in the BIOS is HDD followed by PXE LAN.

6. Unjoin the client from domain and reboot the client. Log on as a local Administrator.
7. Make any customizations you want (drivers, and so on).

- Download the **CCMdelCert.exe** tool, and copy it to the reference thin client **C:\windows\setup**. This file is used to remove the Configuration Manager client certificate if they are present from the Configuration Manager reference build.

 **NOTE:**

- The **Ccmdelcert.exe** tool is part of the SMS 2003 Toolkit 2. Download SMS 2003 Toolkit 2 from the Microsoft web site at [www.microsoft.com/download/en/details.aspx?id=18153](http://www.microsoft.com/download/en/details.aspx?id=18153)
- For 64-bit GPT based images, follow the path **C:\windows\setup\Tools**.

- Run **C:\windows\setup\WES7\_ConfigMgr\_Capture.bat**.

 **NOTE: For 64-bit GPT based images, follow the path and run C:\windows\setup\Build\_Master.cmd.**

- Open the **services.msc** and ensure that SMS Agent Host service is started. If it is not started, start the service.
- Go to the **C:\windows\setup** folder and ensure that **CCMdelcert.exe** is deleted. If not, delete it manually as it must not be used as part of Dell Wyse builds due to redistribution license restrictions.

 **NOTE:**

For 64-bit GPT based images, follow the path **C:\windows\setup\Tools**.

- Now the image is Configuration Manager clone ready.


 **NOTE: Do not restart the thin client now. Otherwise, all Configuration Manager related Customizations are reverted.**

Step 2: Prepare Image Capture Media (USB flash Drive).

To create Capture Media (USB flash drive), see [technet.microsoft.com/en-us/library/hh397285.aspx#BKMK\\_CreateCaptureMedia](http://technet.microsoft.com/en-us/library/hh397285.aspx#BKMK_CreateCaptureMedia).

Step 3: Use Capture Media to capture the image from the Reference thin client.

- Attach the prepared USB flash drive or CD/DVD (with the captured media that you prepared in Step 2: Prepare Image Capture Media (USB flash Drive)) to the reference thin client.
- Go to the USB pen drive or CD/DVD drive, for example drive D, and launch the **TSMBAutoRun.exe** file (for example, **D:\SMS\Bin\i386\TSMBAutoRun.exe**).
- On the **Welcome to the Image Capture Wizard** page, click **Next**.
- On the **Image Destination** page, enter either the remote network shared location (recommended) or the local USB drive path along with the **.wim** file name extension, and then click **Next**.
- On the **Image Information** page, click **Next**.
- On the **Summary** page, click **Finish**. It will take five to 10 minutes for the image capture wizard to start the capture process. During the capture process, the machine is syspreped and in WINPE. In the WINPE session, the image will be captured, and after successful capture, the **.wim** file is generated and stored.

 **NOTE: Once the image is captured, the reference thin client will not be in the same state as it was before the capture because of sysprep. To bring the reference thin client back to its original state, join the reference thin client to the domain and deploy the OS as mentioned in [Phase 3: Deploying the OS Image to the Destination Client Using the Operating Systems Deployment \(OSD\) Task Sequence](#).**

## Phase 2: Importing captured OS image (WIM file) into Configuration Manager server

- Import the captured OS image. (See [www.technet.microsoft.com/en-us/library/hh397283.aspx](http://www.technet.microsoft.com/en-us/library/hh397283.aspx)).
- Distribute the content to the Distribution point. (See [www.technet.microsoft.com/en-us/library/gg712694.aspx](http://www.technet.microsoft.com/en-us/library/gg712694.aspx)).



# Phase 3: Deploying OS image to destination client using Operating Systems Deployment (OSD) task sequence

## NOTE:

1. This section assumes that the destination thin client is already associated with (discovered by) the Configuration Manager Server.
2. Be sure that the boot order in the BIOS is HDD followed by PXE LAN.

### 1. Create a Configuration Manager Client Agent Software Package from Definition

- a. Create Configuration Manager Client Package from Definition, see [www.technet.microsoft.com/en-in/library/gg682112.aspx](http://www.technet.microsoft.com/en-in/library/gg682112.aspx).
- b. Distribute the content to the Distribution point, see [www.technet.microsoft.com/en-us/library/gg712694.aspx](http://www.technet.microsoft.com/en-us/library/gg712694.aspx).

### 2. Create a Software Package for Unattended installation

This package creation is required to bypass the product key, other windows installation screens from asking user inputs and automatically logon as a local user called Admin after image deployment and to proceed with further Dell Wyse scripts to run and make the thin client ready for use.

- a. Copy C:\windows\setup\sysprep.xml (For 32-bit Only), C:\windows\setup\sysprep\_64.xml (For 64-bit Only), and C:\windows\setup\tools\sysprep\_64.xml (for 64-bit GPT only) file (which is present on the Dell Wyse thin client) to \\SCCM-server\share-folder (which is on the Configuration Manager server). This xml file must be accessible by the Configuration Manager server and all WES7 (32-bit and 64-bit) systems.
- b. Create Package for sysprep.xml / sysprep\_64.xml file, see [www.technet.microsoft.com/en-us/library/gg682112.aspx](http://www.technet.microsoft.com/en-us/library/gg682112.aspx) for creating package.
- c. Distribute the content to the Distribution point, see [www.technet.microsoft.com/en-us/library/gg712694.aspx](http://www.technet.microsoft.com/en-us/library/gg712694.aspx).

### 3. Create a Software Package and Program that Disable the write Filter

- a. Copy C:\windows\setup\Disable-FBWF.vbs file (which is present on the Dell Wyse thin client) to \\SCCM-server\share-folder (which is on the Configuration Manager server). This file must be accessible by the Configuration Manager server and all WES7 (32-bit and 64-bit) systems.

## NOTE:

- This script should be able to run at the client side without any prompt. The Disable-FBWF.vbs script should restart the client within 45 seconds. After client restart, the write-filter will be disabled.
- If Disable-FBWF.vbs file is not available, then create the file using Notepad with the following contents:

```
' This script is to disable the File based Write Filter
' Create Shell objects
dim filesys, path
Set filesys = CreateObject("Scripting.FileSystemObject")
Set WshShell = WScript.CreateObject("WScript.Shell")
path = filesys.GetAbsolutePathName("C:\WINDOWS\System32\fbwfmgr.exe")
' Disable FBWF
WshShell.Run "C:\WINDOWS\system32\fbwfmgr.exe /disable"
' Restart client in 45 seconds
WshShell.Run "C:\WINDOWS\system32\shutdown -r -t 45"
```

- Save the file as Disable-FBWF.vbs.

- b. Create a package and program for Disable-FBWF.vbs, see [www.technet.microsoft.com/en-us/library/gg682112.aspx](http://www.technet.microsoft.com/en-us/library/gg682112.aspx).  
**(64-bit system only):** In the command line of the program, type %windir%\Sysnative\cscript.exe Disable-FBWF.vbs.
- c. Distribute the content to the Distribution point, see [www.technet.microsoft.com/en-us/library/gg712694.aspx](http://www.technet.microsoft.com/en-us/library/gg712694.aspx).

### 4. Create a Push WES7 Image Task Sequence for Image Push

- a. Create task sequence that installs existing OS image package, see [www.technet.microsoft.com/en-us/library/hh273490.aspx](http://www.technet.microsoft.com/en-us/library/hh273490.aspx).  
**(64-bit system only):** In the install windows Operating system page, be sure to select the image index (1-1) that contains the Operating System, otherwise you will not be given any UEFI options in the task sequence.
- b. Right-click the new task sequence (in our example case: Push WES7 Image) and select **Edit** to open the **Task Sequence Editor** window for Push WES7 Image.


- c. Click **Add** → **New Group**. A New Group task is added. Move the New Group task to be the first in the list of tasks. Rename the New Group to **Configure Client**.
- d. Select the Configure Client group and add a Run Command Line task by clicking **Add** → **General** → **Run Command Line**. The Run Command Line task is added to the Configure Client group in the task editor  
In the command line, type `cmd.exe /c "c:\windows\setup\ Configure_Client.bat"`.

For 64-bit System only—Select the **Disable 64-bit file system redirection** check box.

In start in, type `C:\windows\system32` and click **Apply**.

 **NOTE: For GPT-based images, this step is not required.**

- e. Select the Capture Files and Settings group. In the Options tab, select **Disable this Step** and then click **Apply**.
- f. Copy the `PrepareOSPartition.wss` file that is available in the `C:\windows\setup` folder of the thin client to the Config Manager server's shared folder. For example, Files.

 **NOTE: For 64-bit GPT based, the path is C:\windows\setup\tools**

- g. **(32-bit and 64-bit MBR based)**: Select **Install Operating System - Partition Disk 0**. In the **Options** tab, select **Disable this Step**, and then click **Apply**.
- h. **(64-bit GPT Only)**: Select **Install Operating System - Partition Disk 0 - BIOS**. In the **Options** tab, select **Disable this Step**, and then click **Apply**.
- i. **(64-bit GPT Only)**: Select **Install Operating System - Partition Disk 0 - UEFI**. In the **Options** tab, select **Disable this Step**, and then click **Apply**.
- j. Select **Install Operating System - Preprovision Bitlocker**. In the **Options** tab select **Disable this Step**, and then click **Apply**.
- k. Select **Install Operating System - Apply Operating System**. In the **Properties** tab, do the following:
  - **(32-bit Only)**: For the **Apply operating system from a captured image** option, ensure the value for the image selected is **2-2**.
  - **(64-bit Only)**: For the GPT-based **Apply operating system from a captured image** option, ensure the value for the image selected is **1-1**.
  - **(64-bit Only)**: For the MBR-based **Apply operating system from a captured image** option, ensure the value for the image selected is **3-3**.
  - Select the **Use unattended or sysprep answer file for a custom installation** option, click **Browse** and select the Unattended Installation software package you created in Step 2: Create a Software Package for Unattended Installation.
  - Enter `sysprep.xml` for the Filename.

 **NOTE:**  
For 64-bit, filename is `sysprep_64.xml`.

- **(32-bit Only)**: In the Select the location where you want to apply this operating system section, select **Specific disk and partition** for Destination. Enter **0** for Disk and **2** for Partition.
  - **(64-bit Only)**: For GPT-based disk Select the location where you want to apply this operating system section, select **Specific disk and partition** for Destination. Enter **0** for Disk and **5** for Partition.
  - **(64-bit Only)**: For MBR-based disk Select the location where you want to apply this operating system section, select **Specific disk and partition** for Destination. Enter **0** for Disk and **3** for Partition.
  - Click **Apply**.
- l. Select **Install Operating System - Apply Data Image 1**. In the **Options** tab select **Disable this Step**, and then click **Apply**.

 **NOTE: This step is not applicable for GPT-based images.**

- m. Select **Install Operating System - Apply Windows Settings** and ensure that Product Key is blank, ensure that Enable the Account and specify the local administrator password is selected, and then provide the password as **DellCCCvdi**.
- n. Select **Install Operating System - Apply Device Drivers**. In the **Options** tab, select **Disable this step**, and then click **Apply**.
- o. Select **Setup Operating System - Enable Bitlocker**. In the **Options** tab, select **Disable this step**, and then click **Apply**.
- p. Select **OK** to close the **Task Sequence Editor** window for the task sequence.




## 5. Deploy Disable Write Filter program

- a. Deploy the Disable Write Filter program created in "Step 3: Create a Software Package and Program that Disables the Write Filter". In the User Experience settings of the Deploy Software Wizard, clear the box named Commit changes at deadline or during a maintenance window (requires restarts).

See [www.technet.microsoft.com/en-us/library/gg682178.aspx](http://www.technet.microsoft.com/en-us/library/gg682178.aspx)

- b. After the task sequence is complete, the thin client reboots and the write-filter is disabled.

 **NOTE: Time for the Advertisement to appear at the client side depends on the machine and user policy refresh interval time, and server and network parameters such as server capacity to handle the clients and network traffic.**

If you do not receive an Advertisement, then you must initiate on the thin client:

- a. Go to **Control Panel** → **Configuration Manager** → **Actions tab**, select **Machine Policy Retrieval & Evaluation Cycle**, and then click **Initiate Action**.
- b. Go to **Control Panel** → **Configuration Manager** → **Actions tab**, select **User Policy Retrieval & Evaluation Cycle**, and then click **Initiate Action**.
- c. After successful deployment of the Disable Write Filter program, proceed to the next step.

## 6. Deploy the Push WES7 Image Task Sequence for Image Push

- a. Deploy the Push WES7 Image Task sequence created in " Step 4: Create a Push WES7 Image Task Sequence for Image Push". In the User Experience settings of the deploy Software Wizard, clear / uncheck the box named Commit changes at deadline or during a maintenance window (requires restart). For more information, see [www.technet.microsoft.com/en-us/library/gg682178.aspx](http://www.technet.microsoft.com/en-us/library/gg682178.aspx).

- b. Once the Task Sequence runs/completes, the thin client restarts in WINPE and deploy the WES7 reference image.

 **NOTE: Ensure that the boot order in the BIOS is HDD followed by PXE LAN.**

- c. After successful deployment, the thin client will automatically log on using the local user account named Administrator and the Dell Wyse scripts will run on the destination thin client. Finally scripts enable the File-Based Write Filter and reboot the thin client. The destination client is now ready for use.

# Deployment of software updates—monthly security updates

Software updates in Microsoft System Center Configuration Manager 2012 R2 provide a set of tools and resources that can help you to manage, deploy, and monitor software updates in the enterprise.

 **NOTE: If you need more assistance beyond the scope of the information contained in this section, see your Configuration Manager installation and setup documentation.**

The following are the High-level steps required to update the WES7 thin client with monthly security updates:

1. Configure Microsoft Windows Server Update Services (WSUS) according to your needs. For more information, see [www.technet.microsoft.com/en-us/library/gg712312.aspx](http://www.technet.microsoft.com/en-us/library/gg712312.aspx).
2. Download the Monthly Security updates.
3. Create Software Package and Program for the Downloaded Security Updates. For more information, see [www.technet.microsoft.com/en-us/library/gg699369.aspx](http://www.technet.microsoft.com/en-us/library/gg699369.aspx) and [www.technet.microsoft.com/en-us/library/gg682125.aspx](http://www.technet.microsoft.com/en-us/library/gg682125.aspx).

Set the Silent installer option for the security updates. For example, follow the path `Dism.exe /online /add-package /packagepath:\\Servername\share\updates.cab /Quiet /NoRestart` for installing silently.

 **NOTE: The silent installation option varies for different applications.**

4. Distribute the content to the Distribution point. For more information, see [www.technet.microsoft.com/en-us/library/gg712694.aspx](http://www.technet.microsoft.com/en-us/library/gg712694.aspx).
5. Deploy the Security Updates program or applications to the destination collection. For more information, see [www.technet.microsoft.com/en-us/library/gg682178.aspx](http://www.technet.microsoft.com/en-us/library/gg682178.aspx).

In the user experience setting of Deploy Software Wizard, select the **Commit changes at deadline or during a maintenance window (requires restarts)** check box.

 **NOTE: Time for the advertisement to appear at the client side depends on the machine and user policy refresh interval time, server, and network parameters such as server capacity to handle the clients and network traffic.**

If you do not receive an advertisement, then you must initiate on the thin client. Go to **Control Panel** → **Configuration Manager** → **Actions**, select **Machine Policy Retrieval & Evaluation Cycle**, and then click **Initiate Action**. Go to **Control Panel** → **Configuration Manager** → **Actions**, select **User Policy Retrieval & Evaluation Cycle**, and then click **Initiate Action**.

If you need more assistance beyond the scope of the information contained in this section, see your Configuration Manager installation and setup documentation.

## Localization requirements: Multilingual User Interface (MUI)

WES7 MUI builds (32-bit and 64-bit) which supports Config Manager 2012 R2 client are delivered as individual builds. Hence Dell Wyse scripts to handle different scripts are part of the builds. Follow the steps which are described previously.

# Troubleshooting tools

This appendix includes:

- Troubleshooting Tools

## Tools

**Systems Management Server 2003 Toolkit 2 (SMS 2003 Toolkit 2)** contains tools to help you deploy and troubleshoot.

Download SMS 2003 Toolkit 2 from Microsoft website at [www.microsoft.com/en-us/search/result.aspx?q=SMS+2003+Toolkit+2&form=dlc](http://www.microsoft.com/en-us/search/result.aspx?q=SMS+2003+Toolkit+2&form=dlc). CMTrace (Configuration Manager Trace) tool, is a part of Configuration Manager 2012 R2, helps to view log files and trace errors.



# Upgrading SCCM 2007 /ConfigMgr 2012 SP1 clients with ConfigMgr 2012 R2 clients on older Dell Wyse WES7 builds

If you are planning to upgrade the older Dell Wyse WES7 builds that has SCCM 2007/ ConfigMgr 2012 SP1 Clients with ConfigMgr 2012 R2 clients, do the following:

1. Log in as an Administrator and disable FBWF.
2. Uninstall the Windows Embedded Device Manager client from Programs and features.
3. Uninstall SCCM 2007/ConfigMgr 2012 SP1 client using CCM setup /uninstall command.
4. Install the ConfigMgr 2012 R2 client.
5. Add the following FBWF exclusion list either from the Wyse FBWF tray utility or `FBWFMgr.exe` command line:  
The following exclusions should be added in FBWF enabled state:
 

```

\Windows\SMSCFG.ini
\Windows\CCM\wedmtrace.log
\Windows\CCM\clientstate.dat
\Regfdata
\Windows\CCM\InventoryStore.sdf
\Windows\CCM\StateMessageStore.sdf
\Windows\CCM\CcmStore.sdf
\Windows\CCM\ServiceData
      
```
6. Reboot the device, and disable FBWF.
7. Merge the following registry:
 

```

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\services\RegFilter\Parameters\MonitoredKeys
\3] "ClassKey"="HKLM" "FileNameForSaving"="ConfigMgr.rgf" "RelativeKeyName"="SOFTWARE\
\Microsoft\CCM\StateSystem"
      
```
8. Get the latest ConfigMgr 2012 R2 supported scripts from Dell Wyse.
9. Copy the files present in Dell Wyse provided ConfigMgr 2012 R2 scripts to the following location on your thin client: **C:\windows\setup folder**. Overwrite the files when it is prompted.
10. Enable the file based write filter.
11. Follow this entire document.

For more information on client deployment through configuration Manager, refer to [technet.microsoft.com/en-us/library/gg682132.aspx](http://technet.microsoft.com/en-us/library/gg682132.aspx).