



Integrating Microsoft® Deployment Toolkit 2012 (MDT 2012) in the Dell Factory

User Guide

July 2012



Introduction to MDT 2012 OSD in Dell Factories

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Microsoft® Deployment Toolkit 2012 (MDT) provides a common console with a comprehensive toolset for Operating System Deployments (OSD). MDT 2012 is a recommended process and toolset to create and modify images for client and server systems.

MDT OSD Dell Factory pre-load options include:

- **Initiate task sequence during Dell's Factory process** (before shipment). Reduces deployment time by pre-loading the OSD and by running most of the task sequence within the Dell factory. PC deployment network bandwidth usage is also greatly reduced. This document focuses on this option, how to integrate your task sequence with Dell's factory process (enabling the task sequence to run within Dell's factory process).
- **Initiate task sequence on first boot** (after receiving the system). Saves time and network bandwidth required to download the OSD to each system on-site. If you have a production MDT OSD this may be the fastest path to begin loading your OSD in the factory.

Important notice for customers initiating Task Sequence Execution on first boot:

This document does not apply if you plan to initiate your task sequence on first boot (after receiving the system). Please contact your Configuration Services Project Manager for instructions on sending your MDT OSD media to Dell to begin your project setup.

Dell Configuration Services simplifies IT for Administrators utilizing Microsoft Deployment Toolkit 2012 by enabling a single source provisioning solution for all deployment scenarios.

Administrators can also leverage MDT 2012 to reduce the number of OS images your company must create and manage. The flexibility of MDT enables Administrators to manage the OS, drivers, applications, and patches within a single distribution.



The intended users of this guide are Dell customers

- IT network administrators or managers using MDT 2012 to perform Operating System Deployments within an organization

Requirement

Administrators must have experience:

- Creating, deploying and validating images on Dell client systems
- Creating and validating stand-alone media builds from an MDT 2012 Task Sequence



Configuration Services MDT 2012 OSD Process Overview

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The following process outlines the basic steps required to integrate an MDT 2012 OSD Task Sequence with the Dell Factory.

Configuration Services Process Overview



Step 1:

Modify your current task sequence to include Configuration Services requirements detailed in this document



Step 2:

Create Standalone media of your task sequence and send it to the Dell Configuration Services team



Step 3:

Dell IMS engineers will work with you to validate your Task Sequence modifications



Step 4:

Dell Configuration Services team imports your stand-alone media for use in the factory on systems you order



Step 5:

Your build is placed on systems you have ordered and they are booted while in the factory to launch the build process



Step 6:

When the factory portion of the build is complete, the systems are shipped directly to your end users



Step 7:

The end user receives their system, connects it to your network and powers it on



Step 8:

The build process continues with any steps that require network connectivity (e.g., joining domain) before allowing the user to logon

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Configuration Requirements

MDT 2012 Task Sequences must support these requirements to initiate task sequence execution within the Dell Factory.

Selection Profiles

Selection Profiles are used to control what the content included in any media that is created. Create folders in the Deployment Workbench that contain one or more items for applications, operating systems, device drivers (Out-of-Box Drivers), OS Patches and Language Packs (Packages) as well as task sequences. A selection profile will be used as the basis for creating the MDT 2012 deployment media.

Prepare for a New Computer Deployment Scenario

Managed device driver deployments ensure that appropriate device drivers are deployed to the target computer.

- Create a folder structure in the Out-of-Box Drivers node of the Deployment Workbench to organize the device drivers as described in the MDT Documentation Library help file (Managing Device Drivers section).
- Create Folders to Organize Device Drivers for LTI Deployments
- Create selection profiles used to select the device drivers for deployment, based on the folder structure you created in the previous step (as described in the MDT Documentation Library help file).
- Create selection profiles to select the Device Drivers for LTI Deployments.
- Configure task sequences to deploy the device drivers in the selection profiles (as described in the MDT Documentation Library help file).
- Configure Task Sequences to deploy device drivers in selection profiles for LTI deployments.

Apply the Stand-Alone Media Build to an offline PC and validate the build process

- Validate your task sequence before adding the steps for Dell Configuration Services.
- After successfully completing the stand-alone media build, validate that the steps you modified are working properly (e.g.: Device driver injection and CS Steps.)

Important

Be sure to spell / type variables and group names correctly.

Be sure to add the spaces and dashes as indicated in the given examples.

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Configuring a Standalone Media Build

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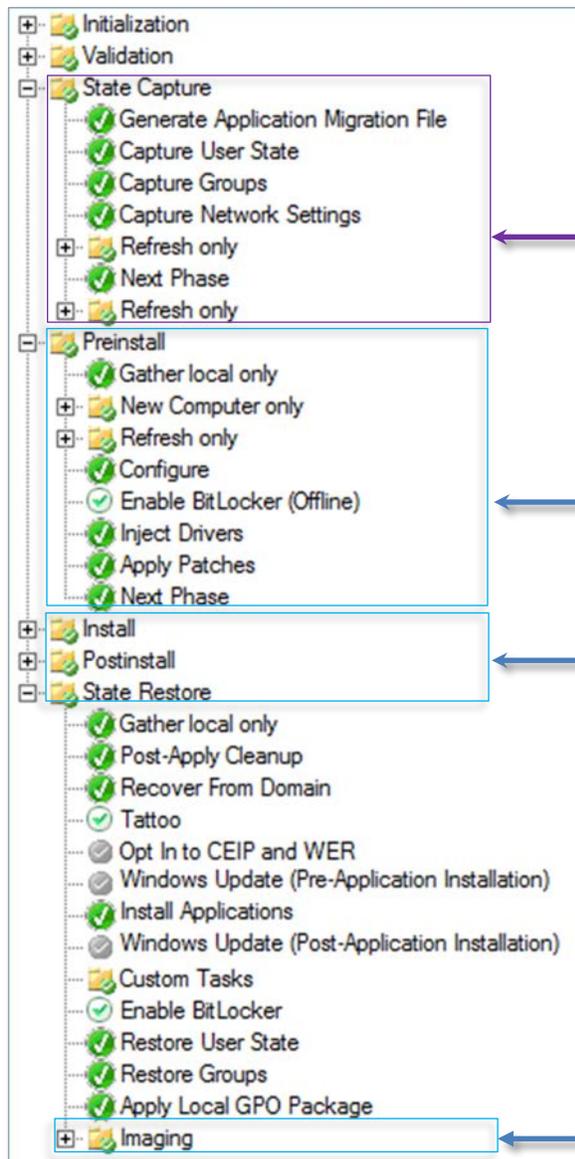
Validate Media

For successful factory integration, you need to modify a standard task sequence so that it performs properly in the Dell factories. This section walks you through the basic process of making the necessary modifications to the Task Sequence.

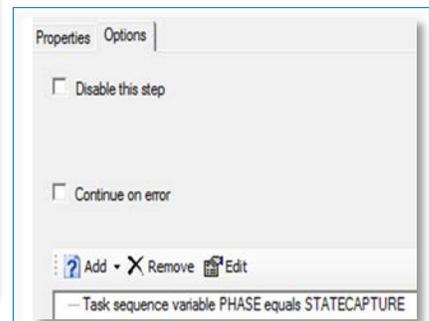
Standard Task Sequence

A Standard Task Sequence is created when you select the Standard Client Task Sequence Template to modify your existing task sequence.

Restriction: Using multiple task sequences to deploy the same OS should be avoided because it increases the deployment solution complexity.

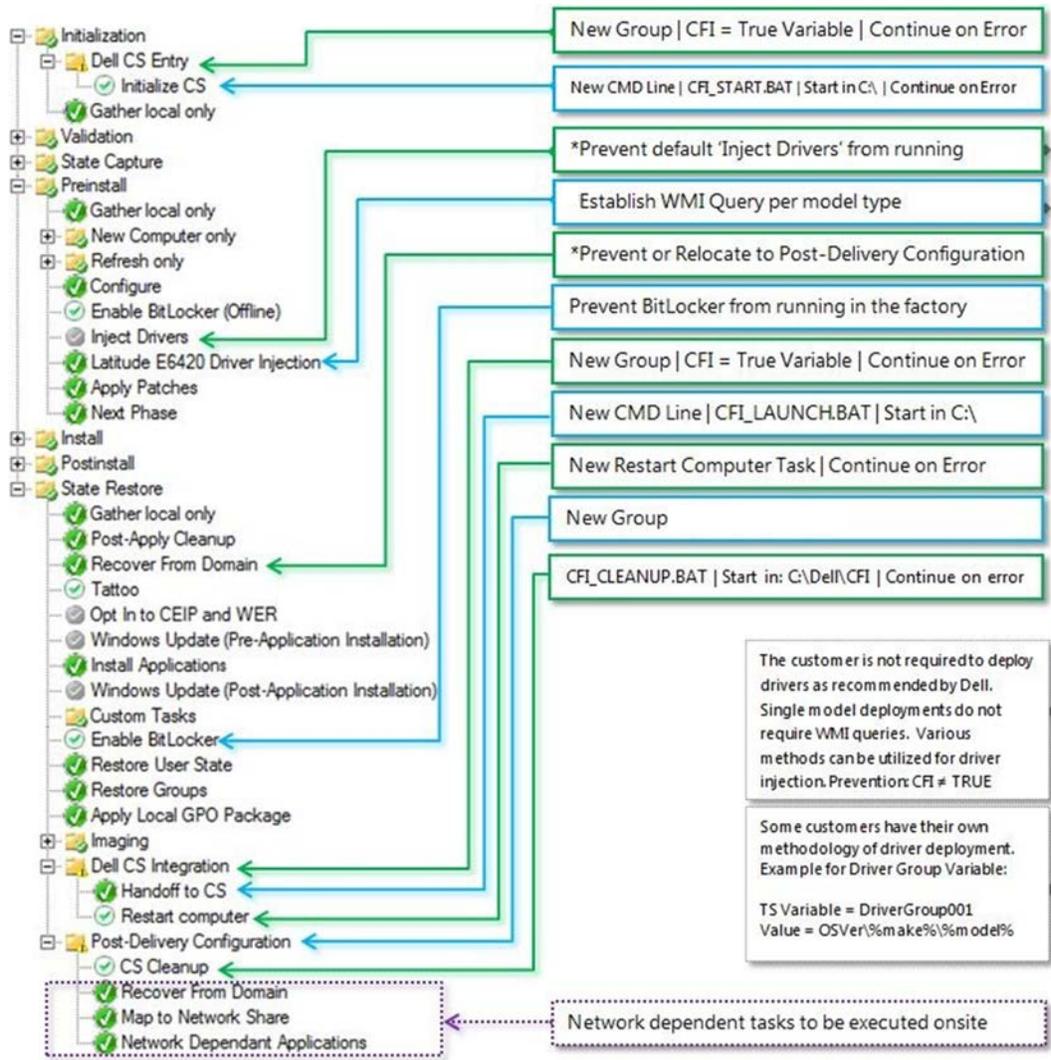


The highlighted sections run based on task sequence conditions. For example, if you select the task sequence group **State Capture** and click the Options tab, that step will run only if the task sequence variable PHASE equals STATECAPTURE. This variable is configured automatically at the start of the task sequence. Typically, new computer deployment scenarios skip this step. Take a few minutes to review the other conditional statements and become familiar with the flexibility of the task sequencer



CS Enabled MDT 2012 OS Deployment Map

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The customer is not required to deploy drivers as recommended by Dell. Single model deployments do not require WMI queries. Various methods can be utilized for driver injection. Prevention: CFI ≠ TRUE

Some customers have their own methodology of driver deployment. Example for Driver Group Variable:
 TS Variable = DriverGroup001
 Value = OSVer;%make%\%model%

CS Enabled MDT OSD Map

This map illustrates what actions are required in order to enable a current OSD task sequence for Dell factory integration. The map should be used as a quick reference when configuring a task sequence with the Dell factory process.

*Admins are not required to disable these steps as they may require the execution of these tasks in a production environment. Dell recommends that the Admin establishes a task sequence variable "CFI" to control when tasks will be run, and when tasks will be skipped (e.g., skip these tasks when CFI ≠ TRUE).

All software packages must be enabled for offline deployment during the factory process. The system will be running the Task Sequence in the factory without network connectivity. If you have a package that requires connectivity to your network infrastructure then simply move the task to the "Post-Delivery Configuration" group. This task group will execute when the system is turned on and boots to the operating system for the first time after delivery.



Adding drivers to Support Models ordered from the Dell Factory

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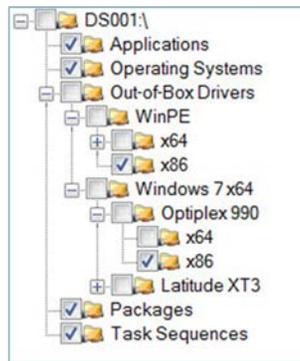
Validate Media

Add required drivers

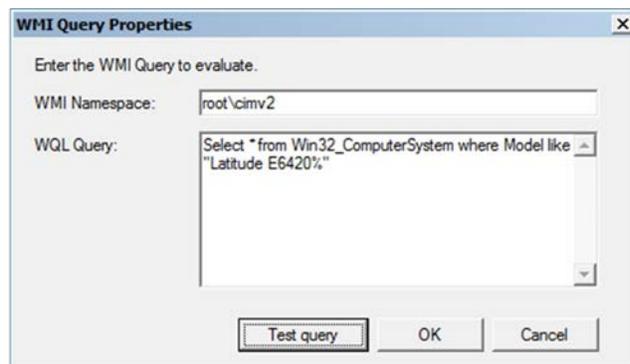
Drivers will be in either the form of a package that contains .INF files or as an application that you must install. Model specific driver packages and combo cabs can be obtained from Dell TechCenter.

Note: To ensure proper support for 512e Advanced Format drives see www.dell.com/512e-drives

- 1) Import driver .INF files into the Out-Of-Box Drivers node in the Deployment Workbench
- 2) Use the MDT 2012 install application process for driver MSI or setup.exe files as you would any other application
- 3) Create selection profiles to select device drivers during deployments
 - » If a higher folder structure is selected then more device drivers are included but an Admin will have less granular control over device drivers deployed
 - » If a lower folder structure is selected then fewer device drivers are included, giving the Admin more granular control over the device drivers deployed.
- 4) Use selection profile names that allow you to easily identify the device drivers included in them, such as Dell Latitude E3 Series x64 Family Drivers, Dell Latitude E6410 x64 Drivers, WinPE x64 Drivers, WinPE x86 Drivers.



- 5) Integrate conditions to apply drivers with the use of WMI Queries as shown below:
 - » If any conditions are true:
 - » select * from **Win32_ComputerSystem** where Model like "Latitude E6420%"



Applying drivers to Support Models ordered from the Dell Factory

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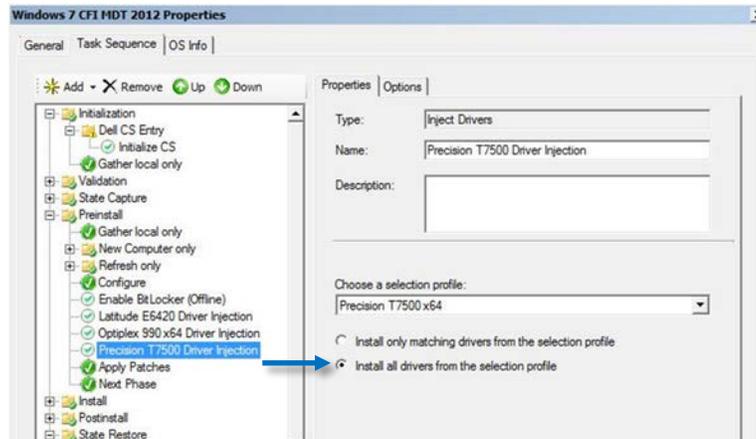
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Apply Driver Package

- 1) Open the **MDT Deployment Workbench**
- 2) Expand **Deployment Shares** folder structure
- 3) Expand the **Deployment Share intended for use** in the Dell Factory
- 4) Expand the **Task Sequences** folder structure
- 5) In the main pane, **Right Click** the **Task Sequence intended for use** in the Dell Factory > **Properties** > **Task Sequence** tab
- 6) Expand the **Pre-Install Group Task** > Select **Configure**
- 7) Click **Add** > **General** > **Inject Drivers**
- 8) Click the **Properties** tab, enter the following:
 - » At **Name**, type a description of the model's **Driver Package**
 - o Example: **Precision T7500 x64 Driver Injection**
 - » At **Description**, type the **driver model**
 - » At **Choose a Selection Profile**, Select the **model driver profile** from the **drop-down list created in previous steps**
- 9) Select "**Install all drivers from the selection profile**"



Apply Conditional Statement

- 1) Click the **Options Tab**
- 2) Click **Add** > **Query WMI**
- 3) At **WQL Input**, type a conditional statement correlating to the model type:
 - » **Select * from Win32_ComputerSystem where Model like "Precision T7500%"**
- 4) Click the "**Continue on error**" box
- 5) Click **OK** > **Apply**



Repeat these steps for each model type to be imaged in the Dell Factory



Configure Dell CS Initialization

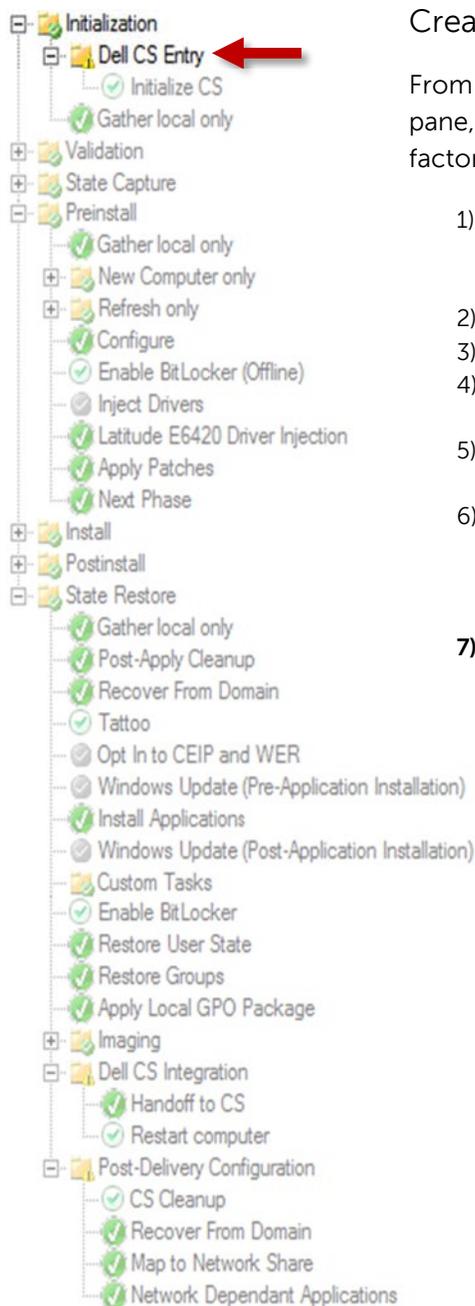
The Dell CS Entry group is placed at the beginning of your existing task sequence within the Initialization Group and consists of one primary section.

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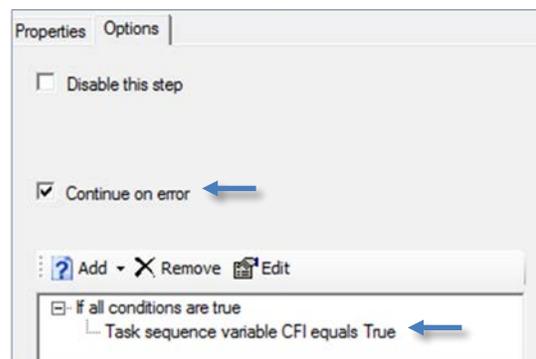
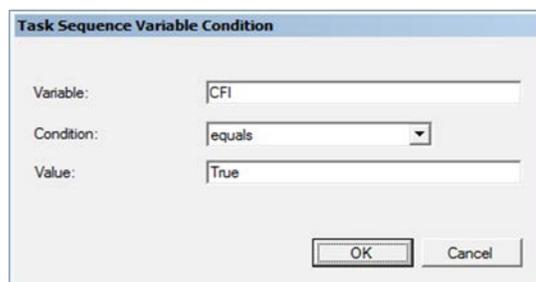
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Create Group – Dell CS Entry

From the Microsoft Deployment Toolkit navigational pane, locate the task sequence to integrate with Dell's factory process.

- 1) Task Sequence Editor, Select Initialization:
 - » Click **Add > New Group**
 - » At Name type, **Dell CS Entry**
- 2) Click **Options** tab
- 3) Check the **"Continue on error box"**
- 4) Click **Options** tab > **Add Conditions > If Statement > All Conditions**
- 5) Click OK, and then select the created **If Statement** for proper nesting
- 6) Click **Add Conditions**
 - » Variable = **CFI**
 - » Condition = **Equals**
 - » Value = **True**
- 7) Click **OK > Apply**



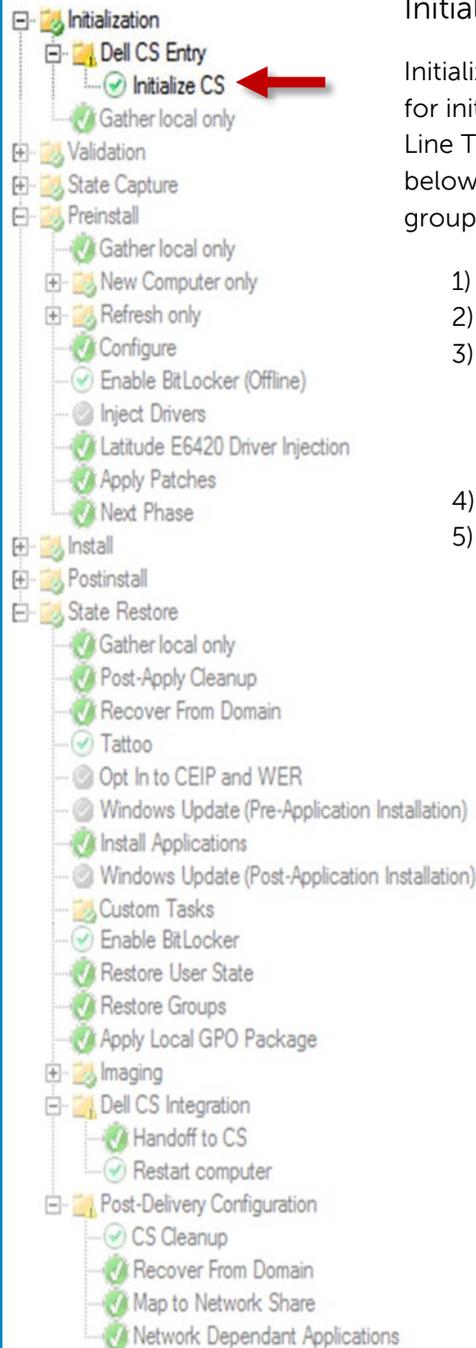
Configure Dell CS Initialization

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Initialize Configuration Services

Initialize CS copies factory integration files to the system for initial build dependencies. Create a Run Command Line Task Sequence Step called Initialize CS, as shown below. Initialize CS should be nested in the Dell CS Entry group.

- 1) Task Sequence Editor, Select Dell CS Entry
- 2) Click **Add > General > Run Command Line**
- 3) At **Properties** tab, enter the following:
 - » At **Name**, type **Initialize CS**
 - » At **Command Line**, type **CFI_START.BAT**
 - » At **Start in**, type **C:**
- 4) Click the **Options** tab
- 5) **Check** the "Continue on error" box

The screenshot shows the 'Properties' tab of the 'Initialize CS' task. The fields are filled as follows:

- Type: Run Command Line
- Name: Initialize CS
- Description: (empty)
- Command line: CFI_START.bat
- Start in: C:\

The screenshot shows the 'Options' tab of the 'Initialize CS' task. The options are:

- Disable this step
- Success codes: 0 3010
- Continue on error



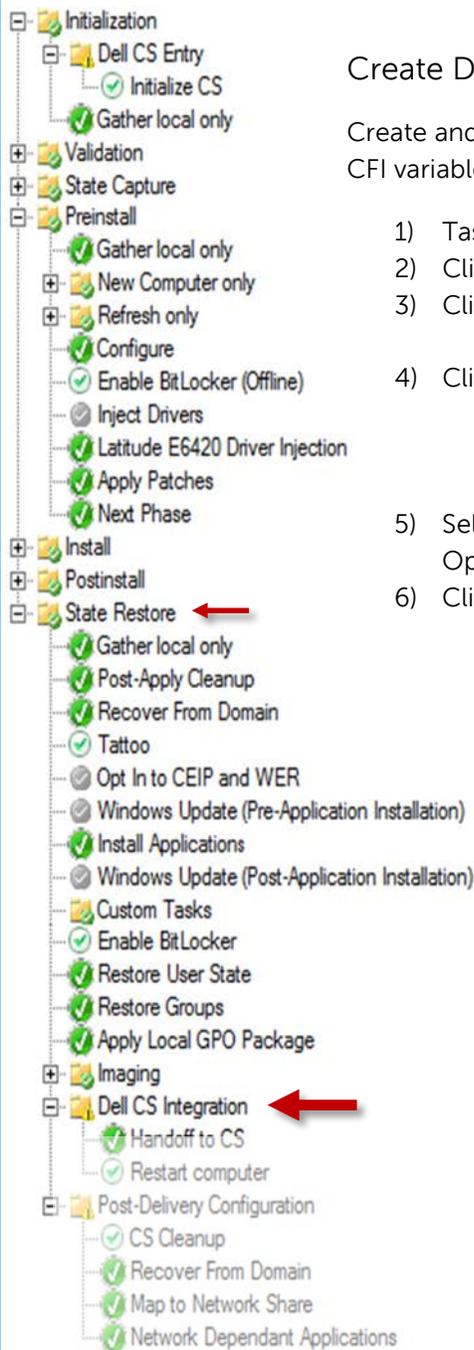
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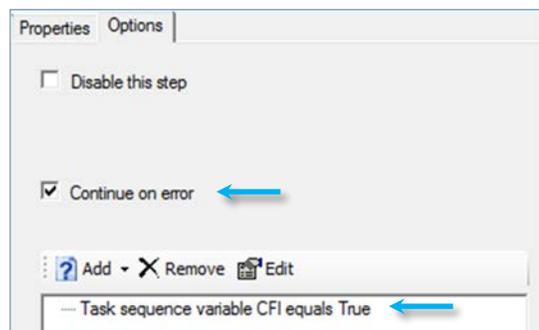
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Create Dell CS Integration Group

Create and configure the Dell CS Integration group with the CFI variable

- 1) Task Sequence Editor, Select **State Restore** Group
- 2) Click **Add > New Group**
- 3) Click the **Properties** tab, enter the following
 - » At **Name**, type **Dell CS Integration**
- 4) Click **Options Tab > Add > Task Sequence Variable**
 - » At **Name**, type **CFI**
 - » At **Condition**, Select **Equals**
 - » At **Value**, type **True**
- 5) Select the "**Continue on Error**" box from the Options tab
- 6) Click **Apply**



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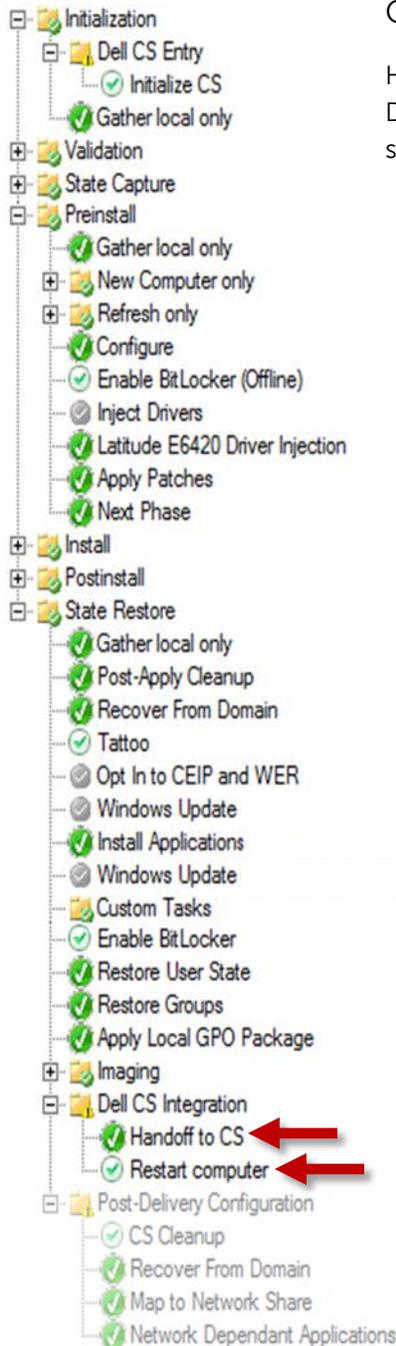
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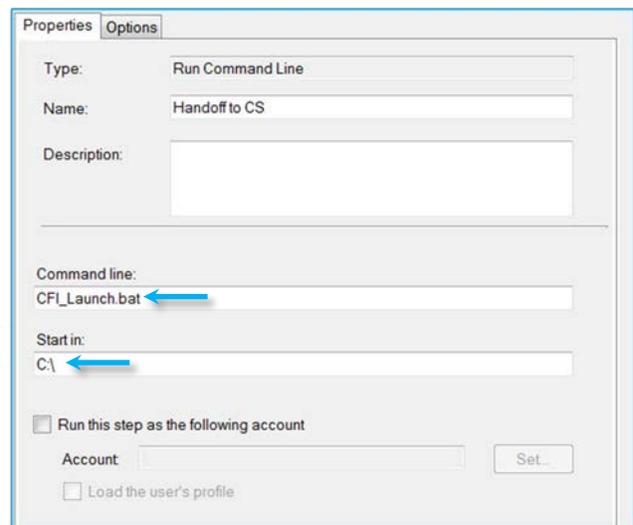
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Create the "Handoff to CS" Task

Handoff to CS transfers the MDT process over to the Dell Factory for build dependencies and system shipment

- 1) Task Sequence Editor, Select **Dell CS Integration Group**
- 2) Click **Add > General > Run Command Line**
- 3) Click the **Properties** tab, enter the following
 - » At **Name**, type **Handoff to CS**
 - » At **Command Line**, type **CFI_LAUNCH.BAT**
 - » At **Start in**, type **C:**
- 4) Select the **"Continue on Error"** box from the Options tab
- 5) Click **Apply**



Create the "Restart Computer" Task

- 1) Task Sequence Editor, Select **Dell CS Integration Group**
- 2) Click **Add > General > Restart Computer**
- 3) Select the **"Continue on Error"** box from the Options tab
- 4) Click **Apply**



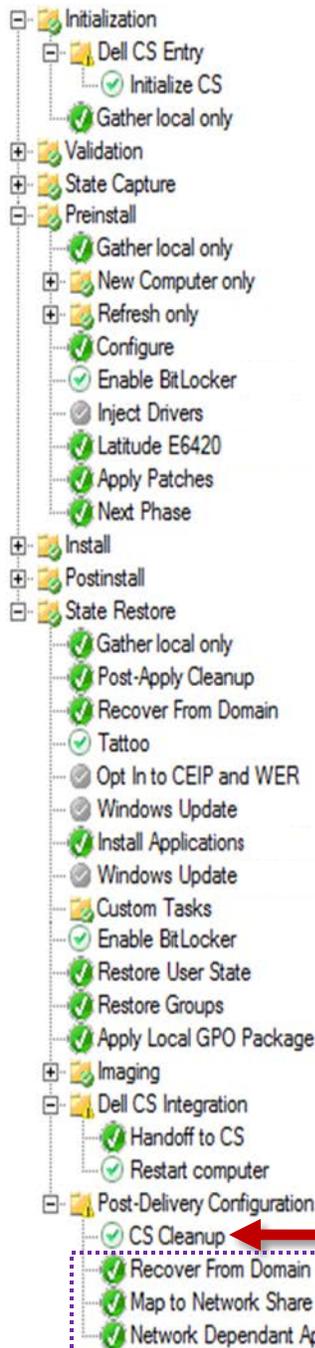
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Example Only:

Add any network infrastructure dependent tasks you require here

Post-Delivery Configuration Group

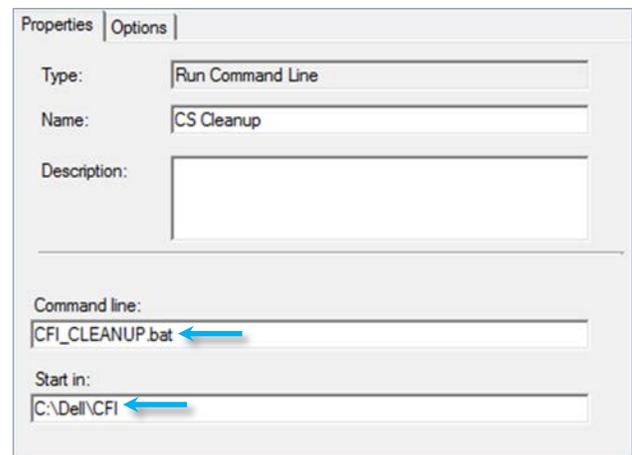
The Post Delivery Configuration group will run when the system has shipped and is booted to the Operating System for the **first time**. Include in this group any steps needed to complete your build process. Include a “**continue on error**” for **ALL individual tasks** to be run in this group. Below is a list of items typically placed in this group.

- CS Cleanup is required to remove Dell Factory files from the hard drive
- Recover From Domain
- Mapping of network shares
- Application installations that require network connectivity
- Windows Activation

- 1) Task Sequence Editor, Select **State Restore** Group
- 2) Click **Add > New Group**
- 3) At **Name** type, **Post-Delivery Configuration**

CS Cleanup

- 1) Task Sequence Editor, Select **Post-Delivery Configuration** Group
- 2) Click **Add > General > Run Command Line**
 - » At **Name**, **CS Cleanup**
 - » At **Command Line** field, enter **CFI_CLEANUP.BAT**
 - » At **Start in** field, enter **C:\DELL\CFI**
- 3) Click **Apply > OK**
- 4) Proceed to add any **network** dependent tasks **after** the “**CS Cleanup**” task has run



Create the Deployment Media

Deployment Media created from the MDT Workbench will be in the form of an ISO file. The ISO contains the deployment share's content folder which will be used for deployment in the Dell Factory.

Important

The items compiled in the Media are determined by the selection profile assigned to the Media.

Rules established in the Deployment Share are not carried over to the Media. Admins will be required to input the Rules into the Media's CustomSettings.ini and Bootstrap.ini (instructions on the following page)

How to Create Deployment Media

- 1) Expand **Advance Configuration** from the Deployment Workbench
- 2) Expand the **Media folder**
- 3) Right click the **Media folder** > **New Media**
 - » At **Media path**, type a **folder path** and **name of ISO file** to be generated
 - » At **Selection Profile**, select the **desired profile intended for deployment** (instructions on page 5)
 - » Click **Next**
- 4) At **Summary**, click **Next**.

Specify general information about this media.

Media path:

Comments:

Selection profile:



The Media ISO and the Content folder will only be generated when the Media has been updated in the Deployment Workbench



Modify the Deployment Media to Automate the LTI deployment

Dell Configuration Services requires that the OSD is configured to have zero user interaction throughout the factory process. The following instruction set should be applied to the CustomSettings.ini and Bootstrap.ini files in the **Media Properties**. Use the following illustrations as a reference for customizing the Rules.

CustomSettings.ini

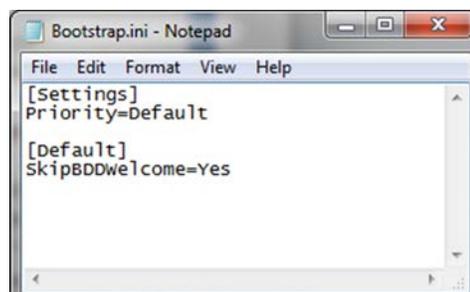
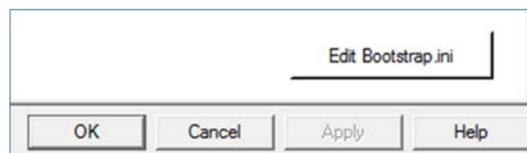
- 1) Navigate to the **Media folder** > Select the **created Media**
- 2) Right click the **created Media** > **Properties** > Click the **Rules** tab
- 3) At the end of the **Settings** section, **establish the CFI variable**
 - » Properties=MyCustomProperty, **CFI**
- 4) At the end of the **Default** section add the following lines
 - » **CFI=TRUE**
 - » **SkipBDDWelcome=YES**

```
[Settings]
Priority=Default
Properties=MyCustomProperty, CFI

[Default]
OSInstall=Y
SkipWizard=YES
SkipApplications=YES
SkipAppsOnUpgrade=YES
SkipDeploymentType=YES
DeploymentType=NEWCOMPUTER
SkipCapture=YES
SkipAdminPassword=YES
SkipProductKey=YES
SkipDeploymentType=YES
SkipDomainMembership=YES
JoinDomain=yourdomain.local
DomainAdmin=Deployment_Account
DomainAdminDomain=yourdomain
DomainAdminPassword=PASSWORD
SkipUserData=YES
UserDataLocation=NONE
SkipTaskSequence=YES
TaskSequenceID=Your_TS_Name
SkipComputerName=YES
OSDComputerName=Variable if used
SkipPackageDisplay=YES
SkipLocaleSelection=YES
SkipTimeZone=YES
SkipBitLocker=YES
SkipSummary=YES
CFI=TRUE
FinishAction=SHUTDOWN,REBOOT,LOGOFF
SkipSummary=YES
SkipFinalSummary=YES
SkipBDDWelcome=YES
```

Bootstrap.ini

- 5) Click on the **Edit Bootstrap.ini** button from within the Rules tab
- 6) Use the following line **"Skip BDDWelcome=Yes"** to bypass the MDT Welcome screen during the time of deployment.



The listed modifications to the Deployment Share's Rules will populate the empty variables required for the Task Sequence to be performed with zero user input. Modify the variable's values or add additional variables to further customize the client system's deployment (e.g.: TaskSequenceID, OSDComputerName). Consult the "Toolkit Reference" section of the MDT 2012 documentation for Property Definition guidance.

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Test Standalone Media

Although you cannot replicate the entire Dell Factory process, perform a simulation of the process to identify potential failures. If your process is similar to our example, with post-delivery configuration requiring network access (such as join domain), Dell recommends at least two test deployments are performed. One test with the system connected to your network. A second test with the system disconnected from your network.

Test the Stand-Alone Media Build to simulate factory deployment

These steps represent a brief test simulation walk-through

- 1) In the **Media folder**, **right click** the **Media > Update Media Content**
- 2) Locate and burn stand-alone media ISO to DVD or extract to bootable external storage
- 3) Disconnect the test system from the network
- 4) Boot a test system using the media DVD or bootable external storage
- 5) There should be **no** prompts to initiate the deployment
- 6) Allow the task sequence process to complete
- 7) Log in to the system and verify all configurations and application installation settings to confirm a successful deployment.
- 8) Rerun steps 1-7 with the test system connected to your infrastructure
- 9) Log in to the system and verify that all Post-Delivery Configurations have executed as expected
- 10) Take note of how the final configurations differ between the two tests.
- 11) Provide screenshots or relevant information regarding image deployment behavior when testing the deployment offline. This will aid the Dell IMS Engineers in their validation process.

For more information about solutions for your organization, contact your Dell account representative or visit Dell.com/services



Work with your IMS PM to submit your Configuration Manager OSD .ISO files.

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