

BRIFORUM BOSTON 2014

# Hands off my gold image!

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@stealthpuppy

# ABOUT ME



Melbourne,  
Australia



Atlantis  
Computing



Snow lover



MVP



CTP



ACA

# AGENDA

## Why

Why automation is important

## How

Automating gold images

Creating a Deployment Share

Task Sequences

Applications

Reference Images

CustomSettings.ini

Monitoring

## Wrap Up

Integration with XenDesktop

Key take-aways

Q&A

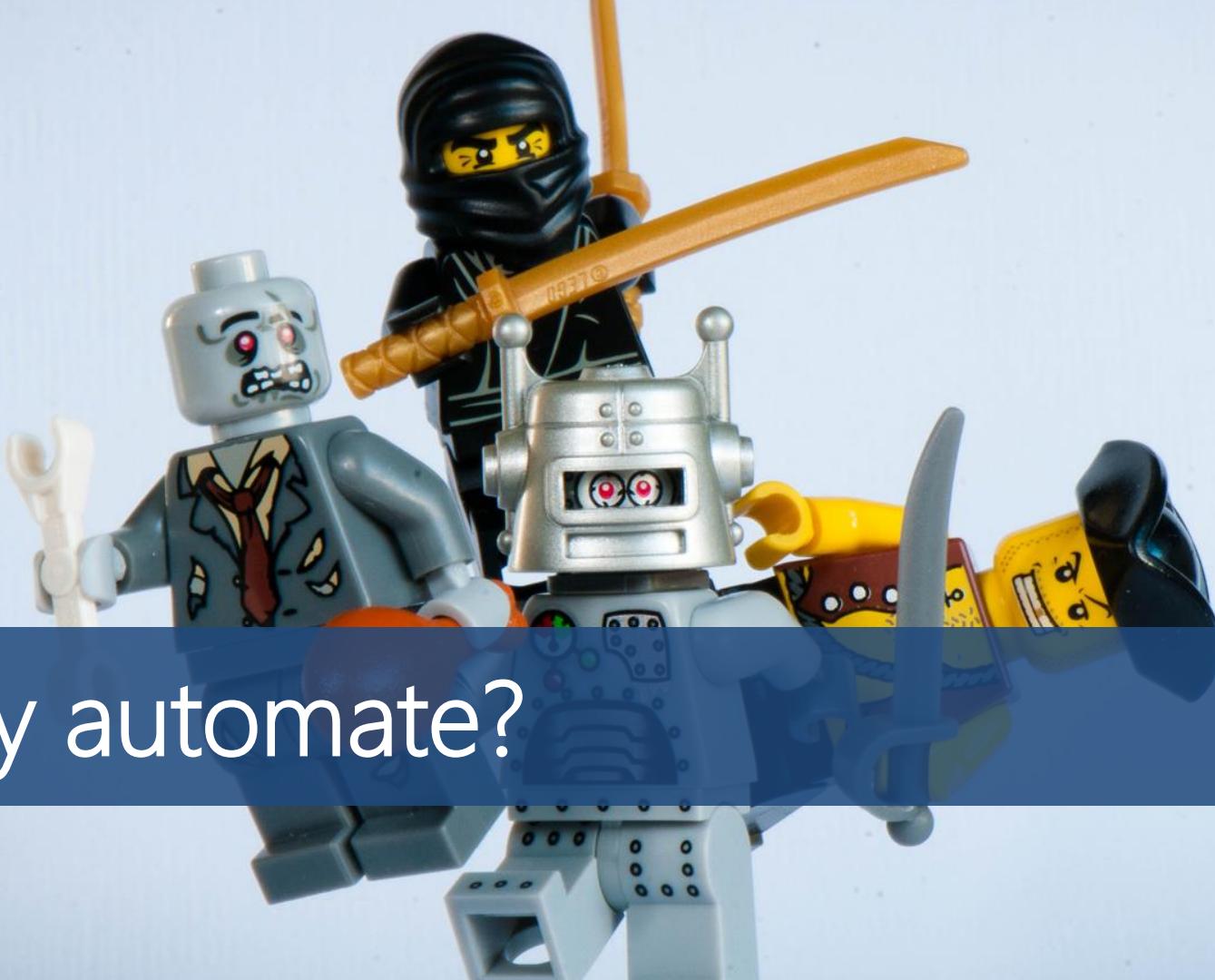
**"BUT VDI SOLVES MY DEPLOYMENT ISSUES,  
RIGHT?"**



**"NO!"**

VDI  
≠  
IMAGE  
MANAGEMENT

# Why automate?



CONSISTENCY  
AND

REPEATABILITY

# LEVERAGE SCALE

24 Lbs 0 Oz.

JIM FEE BY  
HANS C. BROD  
OR C. H. CO.

PATENTED



**IMPROVE COST OF OWNERSHIP**

# Start

Aaron Parker  ⌂ 🔎

Desktop



Metro



Info



Store



BETTER  
USER  
EXPERIENCE

# OVER ENGINEERING



Alan Burchill

@alanburchill



Following

Fun Fact: There are currently 2222  
#InternetExplorer Group Policy settings and  
239 settings for #chrome

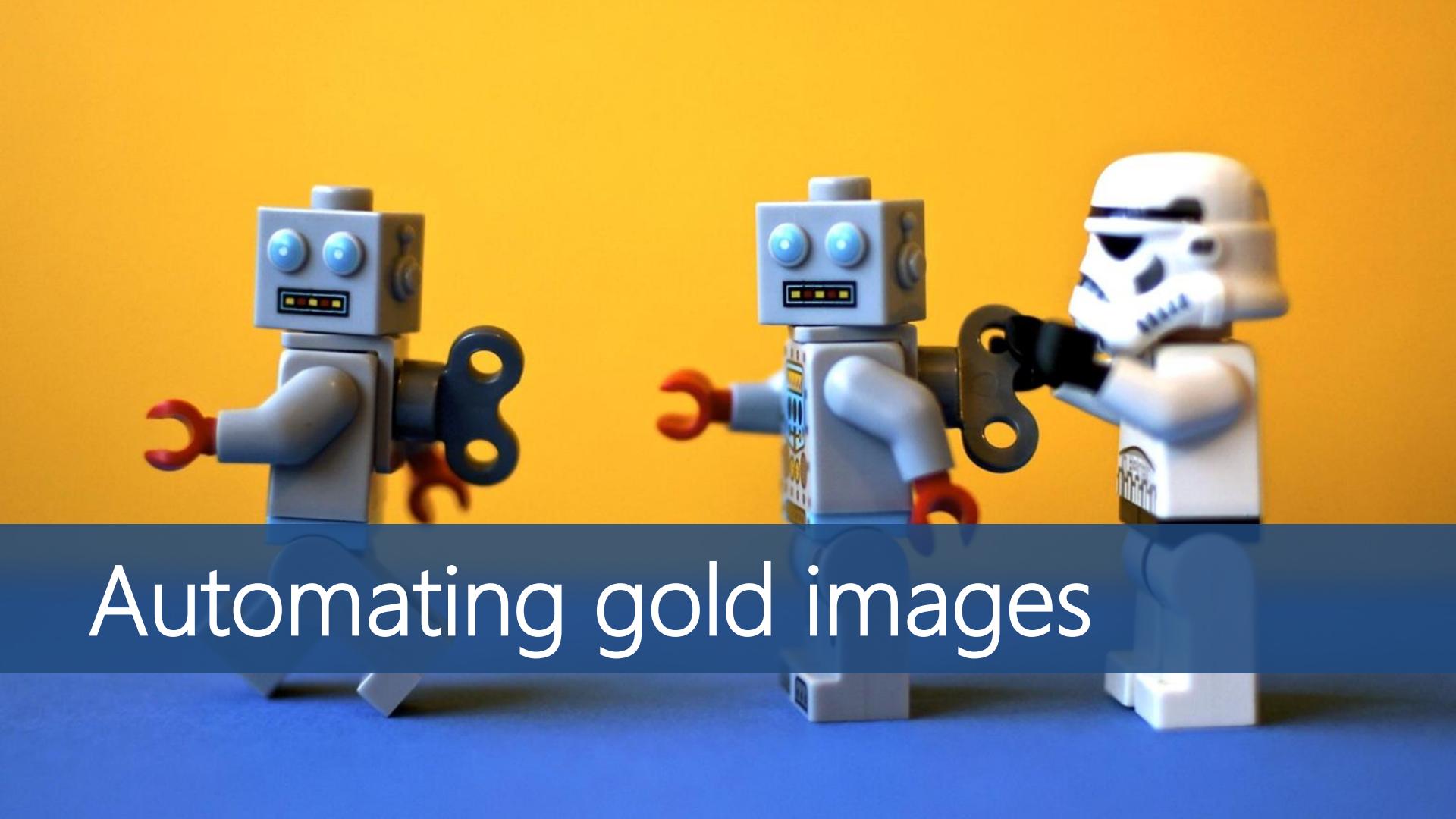
[Reply](#) [Retweet](#) [Favorite](#) [More](#)

12:49 AM - 19 Mar 2014 [from location](#)



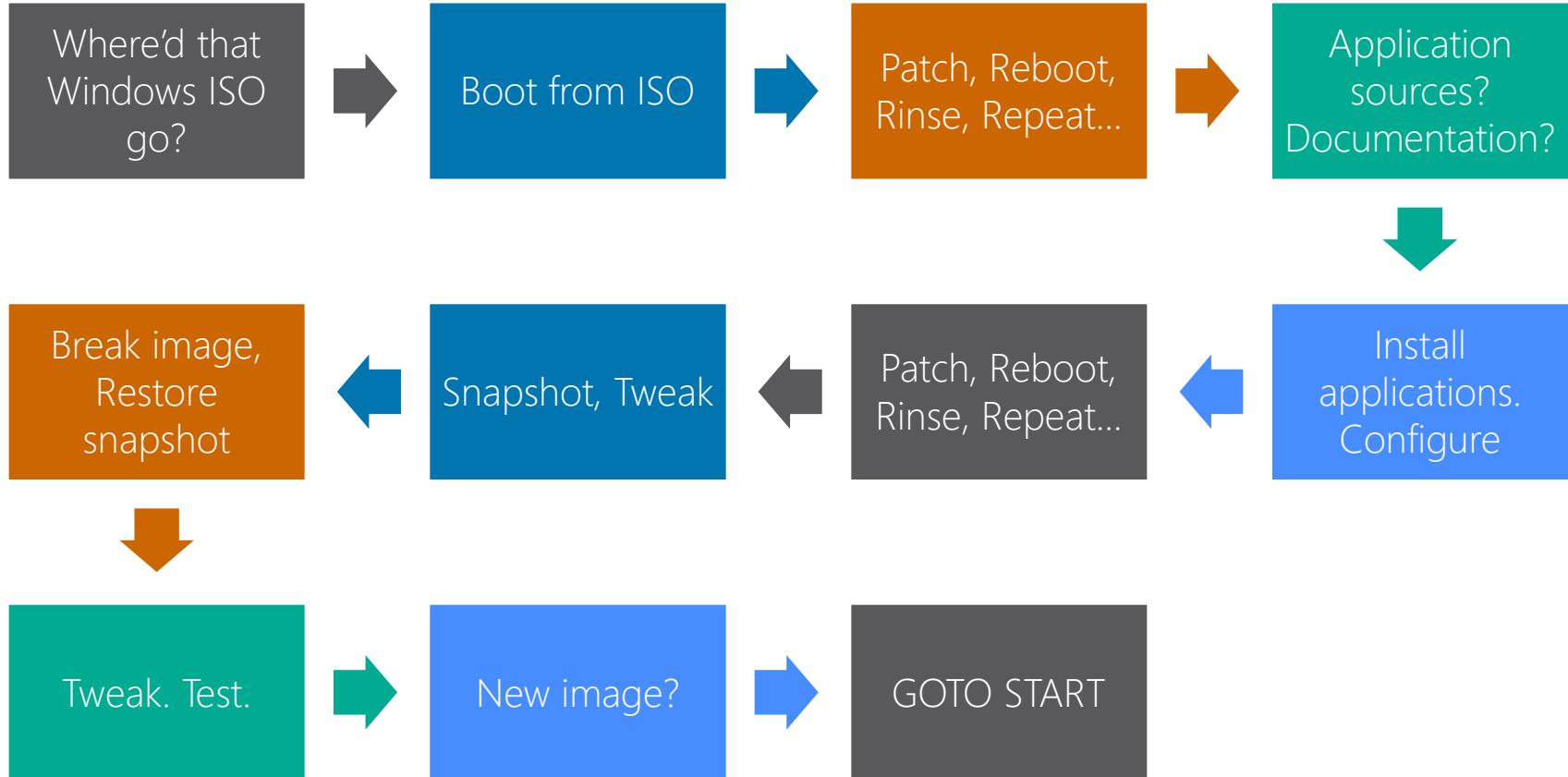
Enable all the GPOs!

A cartoon illustration of a character with a wide-open mouth, looking shocked or excited. The character has large, bulging eyes and is wearing a pink shirt. They are surrounded by several bright yellow, sunburst-like rays emanating from behind their head, creating a dramatic effect.



# Automating gold images

# WITHOUT AUTOMATION



# MICROSOFT DEPLOYMENT TOOLKIT

Free.

Simple.

PowerShell.

Community.

The screenshot shows a web browser window with a green header bar. The address bar contains the URL <http://technet.microsoft.com/en-US/windows/dn475741.aspx>. The title bar says "TN Microsoft Deployment Tool...". The top navigation bar includes links for TechNet, Products, IT Resources, Downloads, Training, and Support. On the right side of the header, there are links for "United States (English)" and "Sign out" followed by the user name "Aaron.Parker". Below the header, there's a large Windows logo and a search bar with the placeholder "Search Windows with Bing". A magnifying glass icon is part of the search bar. The main content area has a grey header "Windows" and a navigation menu with links for Home, Windows 8.1, Windows 7, Previous Versions, Windows Phone, MDOP, Library, and Forums. Below this, a breadcrumb trail shows "Windows Client > Home > Microsoft Deployment Toolkit". The main title "Microsoft Deployment Toolkit" is displayed in a large, light-grey font. A descriptive paragraph explains that MDT provides tools for automating desktop and server deployments. A section titled "Download the Toolkit" leads to "Microsoft Deployment Toolkit 2013". A list of features for the toolkit is provided, including support for the Windows Assessment and Deployment Kit (ADK) for Windows 8.1, and compatibility with Windows 8.1, Windows Server 2012 R2, Windows 7, and Windows 8. The page also includes a "Related Resources" sidebar with a link to "Windows 8.1 Downloads" and a "News and Highlights" sidebar with several news items.

Windows

TN http://technet.microsoft.com/en-US/windows/dn475741.aspx

TN Microsoft Deployment Tool...

TechNet Products IT Resources Downloads Training Support

United States (English) Sign out Aaron.Parker

Search Windows with Bing

Windows

Home Windows 8.1 Windows 7 Previous Versions Windows Phone MDOP Library Forums

Windows Client > Home > Microsoft Deployment Toolkit

## Microsoft Deployment Toolkit

The Microsoft Deployment Toolkit (MDT) provides a unified collection of tools, processes, and guidance for automating desktop and server deployments. In addition to reducing deployment time and standardizing desktop and server images, MDT offers improved security and ongoing configuration management.

### Download the Toolkit

#### Microsoft Deployment Toolkit 2013

Microsoft Deployment Toolkit 2013 is the newest version of the Microsoft Deployment Toolkit and offers:

- Support for the Windows Assessment and Deployment Kit (ADK) for Windows 8.1

Related Resources

- Windows 8.1 Downloads

News and Highlights

- Understanding the Windows ADK for Windows 8.1 Update and MDT 2013 **Yvette OMeally**
- Microsoft Deployment Toolkit 2013 Now Available **Yvette OMeally**
- Microsoft Deployment Toolkit 2013 Preview Now Available

# BUILD A FOUNDATION

XenDesktop

XenApp

View

Physical

Virtual

Physical

MCS / PVS

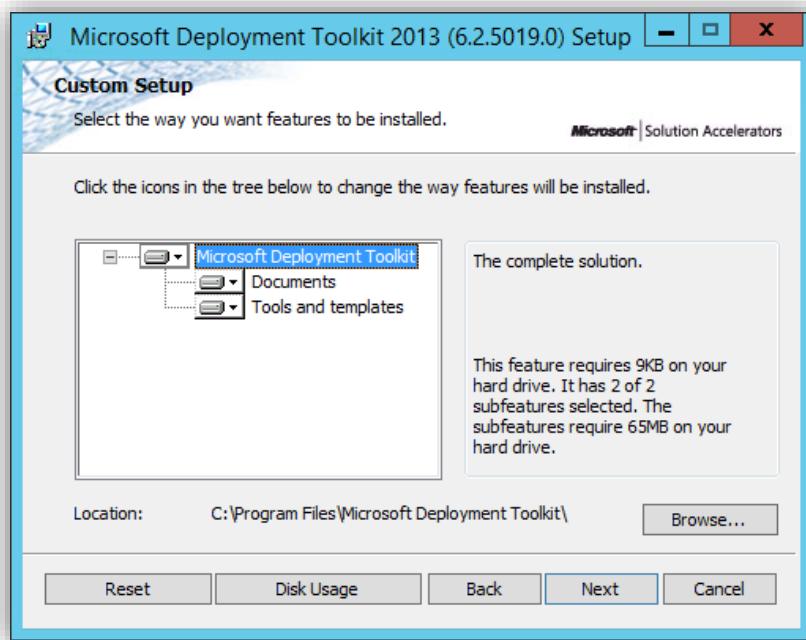
Linked  
Clones

ConfigMgr

ESD

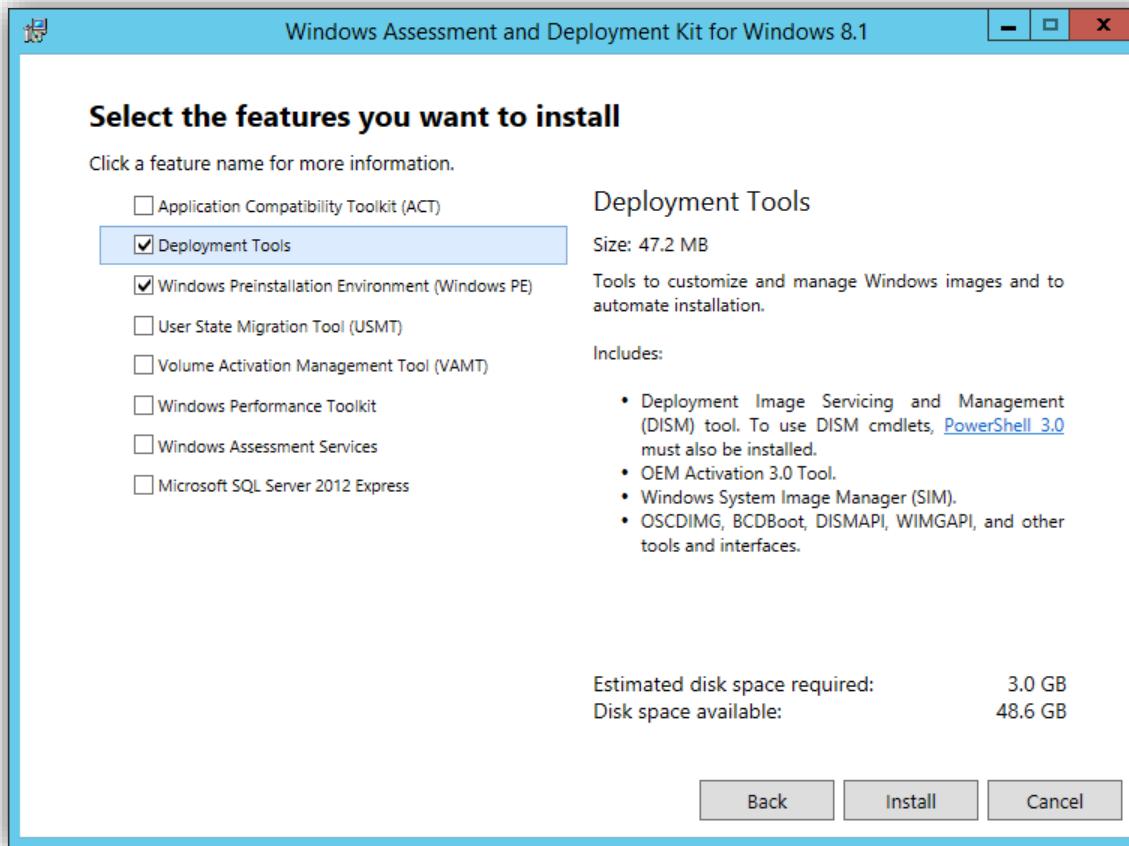
Microsoft Deployment Toolkit

# MDT REQUIREMENTS



1. Network file share
2. MDT Deployment Workbench
3. Windows Deployment and Assessment Kit (ADK)

# WINDOWS DEPLOYMENT AND ASSESSMENT KIT



# OPTIONAL COMPONENTS



Windows Server

DHCP / PXE / WDS

Windows Server Update  
Services

Windows Deployment  
Services

SQL Server

# DEPLOYMENT SHARE

Automata

File Home Share View

Network > mcfly > Deployment > Automata

Favourites SkyDrive Homegroup This PC Network

Name	Date modified	Type	Size
SOEMS	11/11/2013 12:32 AM	File folder	
Applications	24/03/2014 12:47 PM	File folder	
Backup	01/03/2014 12:59 PM	File folder	
Boot	07/03/2014 4:32 PM	File folder	
Captures	11/11/2013 3:57 AM	File folder	
Control	28/03/2014 5:37 PM	File folder	
Events	01/03/2014 1:00 PM	File folder	
Logs	01/03/2014 1:00 PM	File folder	
Operating Systems	25/03/2014 10:50 PM	File folder	
Out-of-Box Drivers	01/03/2014 1:23 PM	File folder	
Packages	01/03/2014 1:23 PM	File folder	
Scripts	01/03/2014 1:23 PM	File folder	
Servicing	01/03/2014 1:23 PM	File folder	
Templates	01/03/2014 1:23 PM	File folder	
Tools	01/03/2014 1:23 PM	File folder	
WinPEExtras	01/03/2014 1:24 PM	File folder	
Audit.log	28/03/2014 5:37 PM	Text Document	1,995 KB

17 items | State: Online

# MDT DEPLOYMENT WORKBENCH

DeploymentWorkbench - [Deployment Workbench\Deployment Shares\Project Automata (C:\Automata)\Operating Systems\Volume License\Windows Server 2...]

File Action View Favourites Window Help

Deployment Shares

- Project Automata (C:\Automata)
  - Applications
    - Core App Bundles
    - Microsoft Apps
    - Other Apps
    - Citrix
    - VMware
    - Microsoft Other
    - Scripts
    - AppSense
  - Operating Systems
    - Volume License
      - Windows Server 2008 R2 SP1
      - Windows Thin PC
      - Windows Server 2012
      - Windows 7 SP1
      - Windows Server 2012 R2
      - Windows 8.1
      - Retail-Other
      - Reference Images
    - Out-of-Box Drivers
    - Packages
  - Task Sequences
    - Desktop
    - Infrastructure
    - Post Deployment
    - Advanced Configuration
    - Monitoring

Name	Platform	Build	Flags	Description
Windows Server 2008 R2 SERVERDATACENTER in Windows Server 2008 R2 x64 VL install.wim	x64	6.1.7601.17514	ServerDataCenter	Windows Se
Windows Server 2008 R2 SERVERDATACENTERCORE in Windows Server 2008 R2 x64 VL install.wim	x64	6.1.7601.17514	ServerDataCenterCore	Windows Se
Windows Server 2008 R2 SERVERENTERPRISE in Windows Server 2008 R2 x64 VL install.wim	x64	6.1.7601.17514	ServerEnterprise	Windows Se
Windows Server 2008 R2 SERVERENTERPRISECORE in Windows Server 2008 R2 x64 VL install.wim	x64	6.1.7601.17514	ServerEnterpriseCore	Windows Se
Windows Server 2008 R2 SERVERSTANDARD in Windows Server 2008 R2 x64 VL install.wim	x64	6.1.7601.17514	ServerStandard	Windows Se
Windows Server 2008 R2 SERVERSTANDARDCORE in Windows Server 2008 R2 x64 VL install.wim	x64	6.1.7601.17514	ServerStandardCore	Windows Se
Windows Server 2008 R2 SERVERWEB in Windows Server 2008 R2 x64 VL install.wim	x64	6.1.7601.17514	ServerWeb	Windows Se
Windows Server 2008 R2 SERVERWEBCORE in Windows Server 2008 R2 x64 VL install.wim	x64	6.1.7601.17514	ServerWebCore	Windows Se

# Creating a Deployment Share



# New Deployment Share Wizard

## New Deployment Share Wizard



### Path

Path

Share

Descriptive Name

Options

Summary

Progress

Confirmation

Specify the location of the network share for this deployment type.

Deployment share path:

C:\DeploymentShare

Browse...

# New Deployment Share Wizard

New Deployment Share Wizard

 Share

Path  
**Share**  
Descriptive Name  
Options  
Summary  
Progress  
Confirmation

Specify the share name to be used with the specified local path. If the share already exists on this computer, it must point to the path specified for this deployment share.

Share name:

Full path UNC path: \\AIRWIN81\DeploymentShare\$

# New Deployment Share Wizard



## New Deployment Share Wizard

X

### Descriptive Name

Path

Share

Descriptive Name

Options

Summary

Progress

Confirmation

Specify a descriptive name for the deployment share.

Deployment share description:

MDT Deployment Share

# New Deployment Share Wizard



## Options

Path  
Share  
Descriptive Name  
**Options**  
Summary  
Progress  
Confirmation

When performing deployments, the behavior of the Deployment Wizard can be customized by turning various wizard panes on or off. For those that are not desired, modify the defaults below as appropriate.

- Ask if a computer backup should be performed.
- Ask for a product key.
- Ask to set the local Administrator password.
- Ask if an image should be captured.
- Ask if BitLocker should be enabled.

These settings can be changed later by modifying the rules defined for the deployment share.

# New Deployment Share Wizard

X



## Summary

Path  
Share  
Descriptive Name  
Options  
**Summary**  
Progress  
Confirmation

All of the necessary details have been specified. Please review the values below.

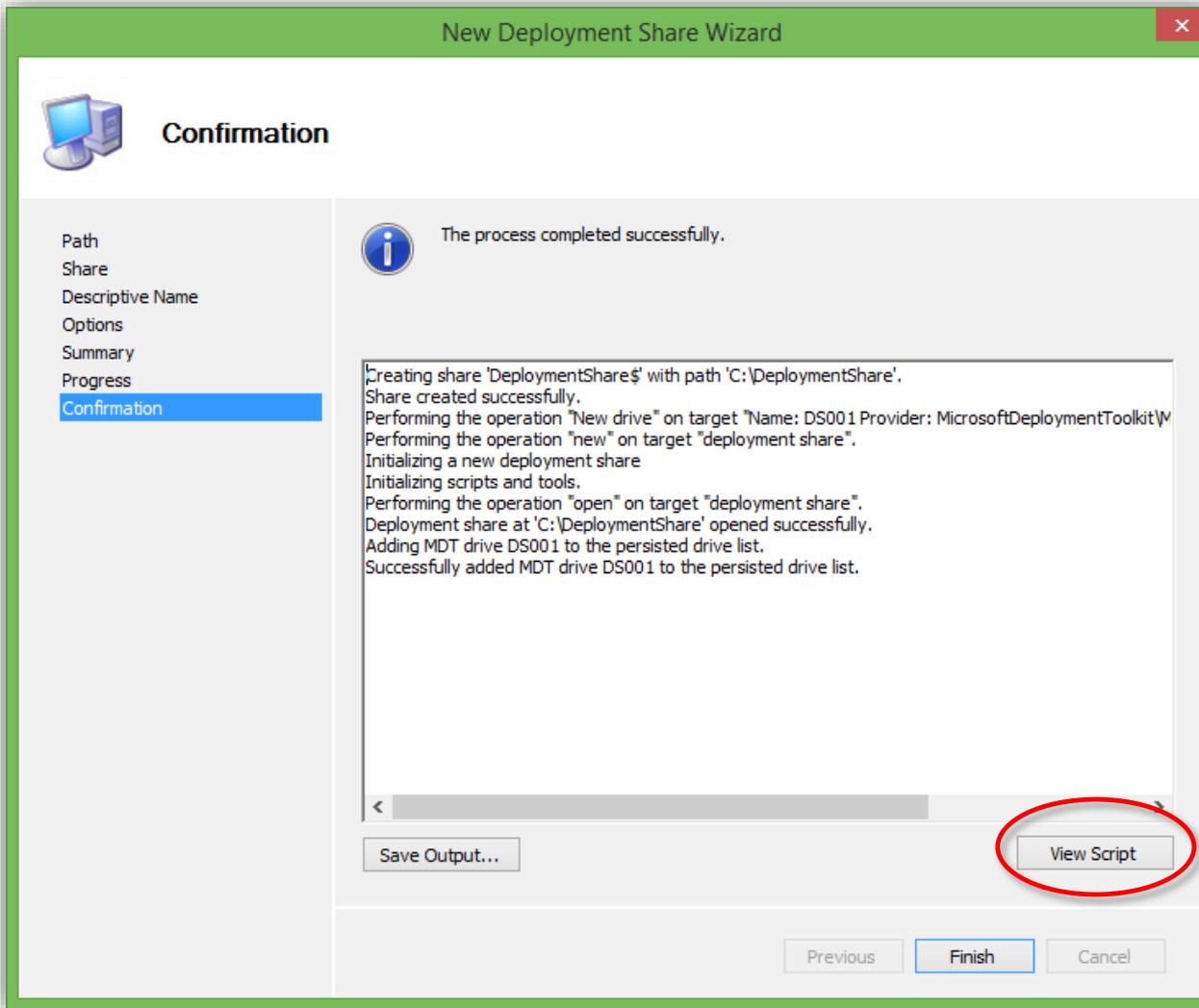
### Details:

Path:	C:\Deployment Share
Upgrade:	False
ShareName:	DeploymentShare\$
Description:	MDT Deployment Share
Ask about Backup:	True
Ask for Product Key:	False
Ask for Admin Password:	*****
Ask about Image Capture:	True
Ask about BitLocker:	True

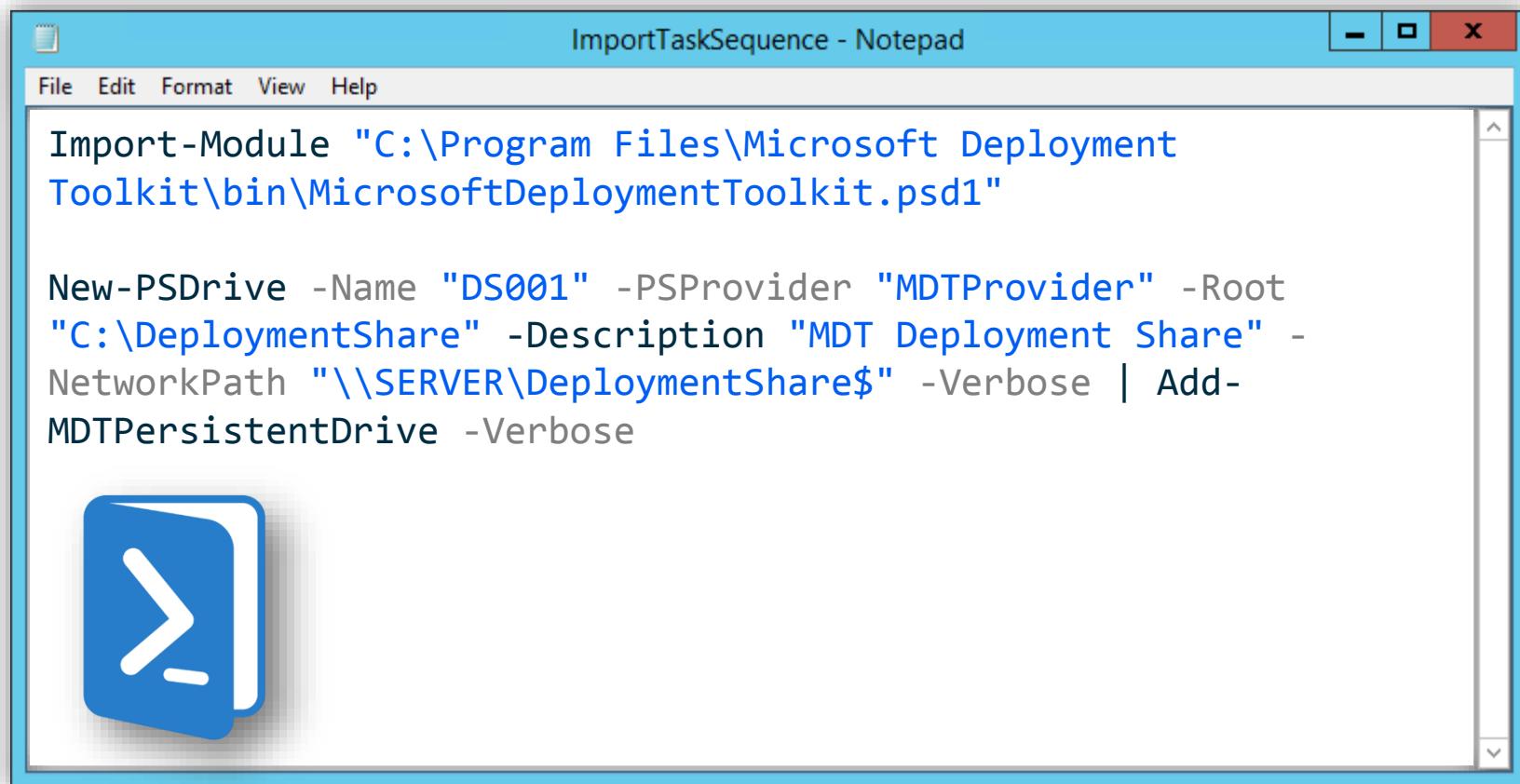
Click next to execute the requested action.

New Deployment Share Wizard

# New Deployment Share Wizard



# POWERSHELL IN MDT



ImportTaskSequence - Notepad

File Edit Format View Help

```
Import-Module "C:\Program Files\Microsoft Deployment Toolkit\bin\MicrosoftDeploymentToolkit.psd1"

New-PSDrive -Name "DS001" -PSProvider "MDTPersistentDrive" -Root "C:\DeploymentShare" -Description "MDT Deployment Share" -NetworkPath "\\SERVER\DeploymentShare$" -Verbose | Add-MDTPersistentDrive -Verbose
```





# Automation in 7 Steps

1.

## New Task Sequence Wizard



## General Settings

## General Settings

Select Template

Select OS

Specify Product Key

OS Settings

Admin Password

Summary

Progress

Confirmation

Specify general information about this task sequence. The task sequence ID is used internally as part of the deployment process. The task sequence name and comments are displayed by the deployment wizard.

Task sequence ID:

W2K8R2-STD-001

Task sequence name:

Windows Server 2008 R2 Standard from Reference Image|

Task sequence comments:

Previous

Next

Cancel

2.

## New Task Sequence Wizard



## Select Template

General Settings

Select Template

Select OS

Specify Product Key

OS Settings

Admin Password

Summary

Progress

Confirmation

The following task sequence templates are available. Select the one you would like to use as a starting point.

Standard Client Task Sequence

Sysprep and Capture

Standard Client Task Sequence

Standard Client Replace Task Sequence

Custom Task Sequence

Litetouch OEM Task Sequence

Standard Server Task Sequence

Post OS Installation Task Sequence

Deploy to VHD Client Task Sequence

Deploy to VHD Server Task Sequence

Previous

Next

Cancel

3.

## New Task Sequence Wizard



## Select OS

General Settings

Select Template

Select OS

Specify Product Key

OS Settings

Admin Password

Summary

Progress

Confirmation

The following operating system images are available to be deployed with this task sequence. Select the one to use.

- Operating Systems
  - Volume License
  - Retail-Other
  - Reference Images
    - W2K12R2-STD-001CDrive in WindowsServer2012R2-ReferenceImage WindowsServer2012R2-ReferenceImage.wim
    - W2K8R2S-SVRCDrive in WindowsServer2008R2-Reference WindowsServer2008R2-Reference.wim**
    - W7ENT-X64-002CDrive in Windows7-x64-Reference Windows7-x64-Reference1.wim
    - W7ENT-X86-002CDrive in Windows7-x86-Reference Windows7-x86-Reference1.wim
    - W81ENT-X86-001CDrive in Windows8-x64-Reference Windows8.1-x64-ReferenceImage.wim
    - W81ENT-X86-001CDrive in Windows8-x86-Reference Windows8.1-x86-ReferenceImage.wim



Previous

Next

Cancel



## Specify Product Key

General Settings

Select Template

Select OS

Specify Product Key

OS Settings

Admin Password

Summary

Progress

Confirmation

- 
- Do not specify a product key at this time.

A product key is not required when deploying Windows 7, Windows Server 2008 R2, or later OS versions, or if the product key will be specified at deploy time using the wizard or a rule.

- 
- Specify a multiple activation key (MAK key) for activating this operating system.

In order to activate, each computer deployed using this MAK key will need to contact the Microsoft activation service on the internet. This is only supported for Windows 7 and later operating systems when using volume license media.

MAK Product Key:

- 
- Specify the product key for this operating system.

Specify a retail product key. (Note that retail keys can only be used to activate a single machine.)

Product Key:

Previous

Next

Cancel

4.

5.

New Task Sequence Wizard

## OS Settings

Specify settings about this task sequence. These settings will be used for all deployments of this task sequence, unless overridden during the deployment process using the wizard or a rule.

General Settings  
Select Template  
Select OS  
Specify Product Key  
**OS Settings**  
Admin Password  
Summary  
Progress  
Confirmation

Full Name:

Organization:

Internet Explorer Home Page:

Previous  Cancel

6.

## New Task Sequence Wizard



## Admin Password

General Settings

Select Template

Select OS

Specify Product Key

OS Settings

Admin Password

Summary

Progress

Confirmation

Specify the local Administrator password for this task sequence.

 Use the specified local Administrator password.

Administrator Password:

Please confirm Administrator Password:

 Do not specify an Administrator password at this time.

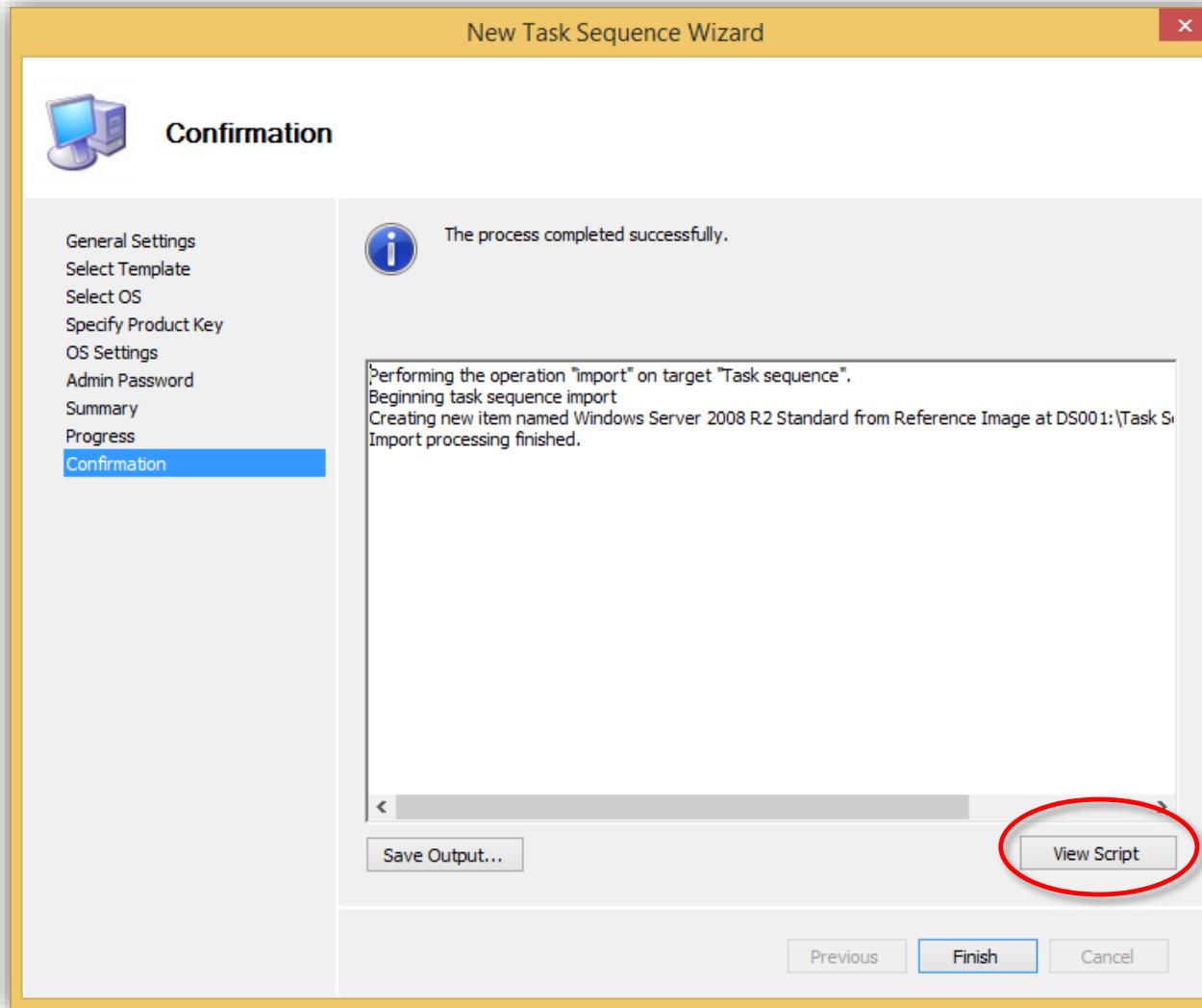
The local Administrator password will be provided during the deployment of this task sequence, so it is not needed as part of the task sequence definition.

Previous

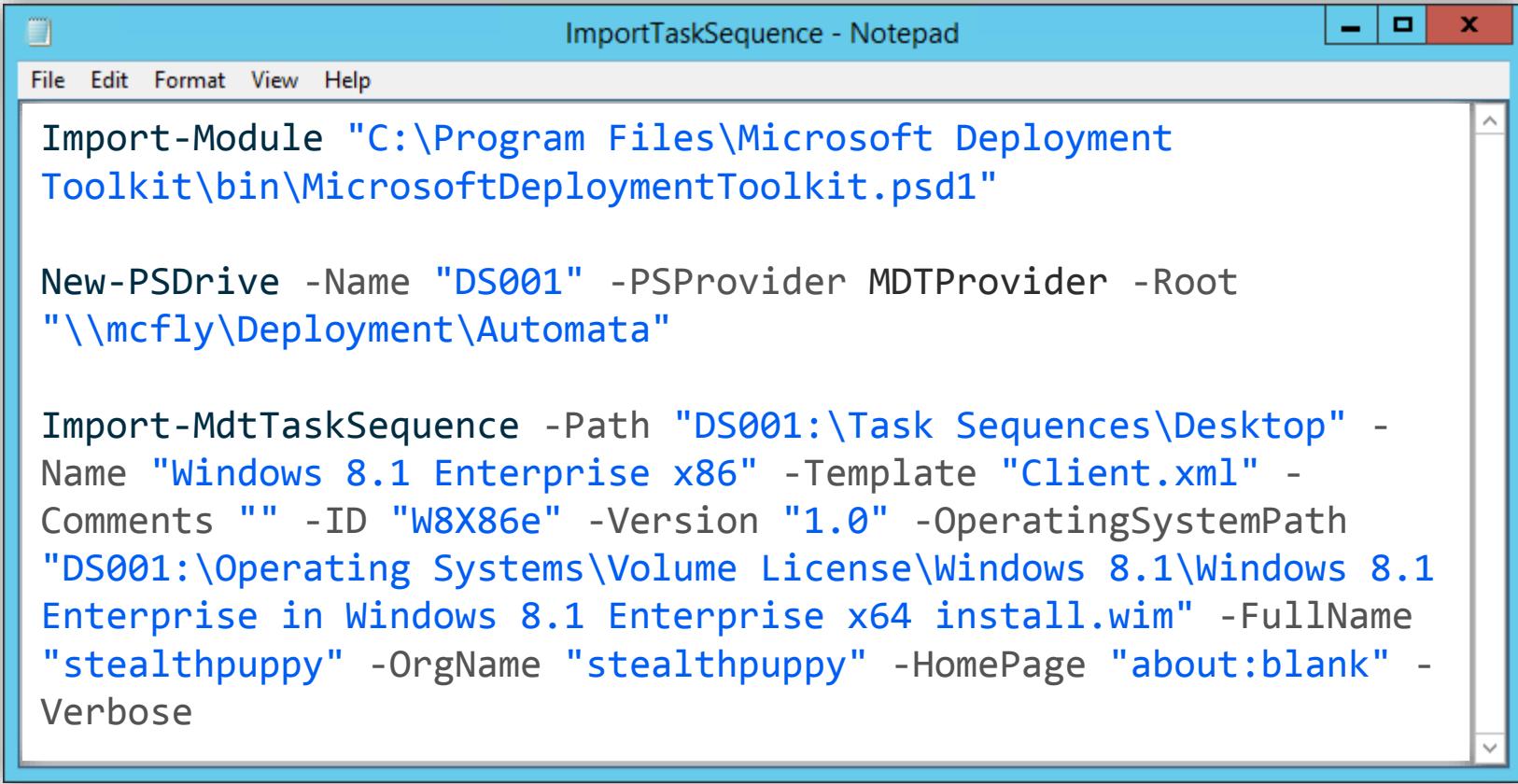
Next

Cancel

7.



# POWERSHELL IN MDT



The screenshot shows a Windows Notepad window with the title bar "ImportTaskSequence - Notepad". The menu bar includes "File", "Edit", "Format", "View", and "Help". The main content area contains the following PowerShell script:

```
Import-Module "C:\Program Files\Microsoft Deployment Toolkit\bin\MicrosoftDeploymentToolkit.psd1"

New-PSDrive -Name "DS001" -PSProvider MDTProvider -Root
"\\"mcfly\Deployment\Automata"

Import-MdtTaskSequence -Path "DS001:\Task Sequences\Desktop" -
Name "Windows 8.1 Enterprise x86" -Template "Client.xml" -
Comments "" -ID "W8X86e" -Version "1.0" -OperatingSystemPath
"DS001:\Operating Systems\Volume License\Windows 8.1\Windows 8.1
Enterprise in Windows 8.1 Enterprise x64 install.wim" -FullName
"stealthpuppy" -OrgName "stealthpuppy" -HomePage "about:blank" -
Verbose
```

# Windows 8.1 x86 Properties

General Task Sequence OS Info

Add ▾ Remove Up Down

- + Initialization
- + Validation
- + State Capture
- + Preinstall
- Install
  - ✓ Install Operating System
  - ✓ Next Phase
- + Postinstall
- State Restore
  - ✓ Gather local only
  - ✓ Post-Apply Cleanup
  - ✓ Recover From Domain
  - ✓ Tattoo
  - Opt In to CEIP and WER
  - Windows Update (Pre-Application Installation)
  - ✓ Install Applications
  - Windows Update (Post-Application Installation)
  - + Custom Tasks
    - ✓ Enable BitLocker
    - ✓ Restore User State
    - ✓ Restore Groups
    - ✓ Apply Local GPO Package
  - + Imaging

Properties Options

Type: Install Operating System

Name: Install Operating System

Description:

Operating system to install:

Windows 8.1 Enterprise in Windows 8.1 Enterprise x64 install.wim

Browse...

Select the location where you want to apply this operating system.

Logical drive letter stored in a variable

Variable: OSDisk

## Unattend.xml\* - Windows System Image Manager



File Edit Insert Tools Help



## Distribution Share

W\hv1\Automata

## Windows Image

W2K12R2-STD-001CDrive(Catalog)
Components
amd64_Microsoft-Windows-Audio-AudioCore_6.3.9600.16469_neutral
amd64_Microsoft-Windows-Audio-VolumeControl_6.3.9600.16384_neutral
amd64_Microsoft-Windows-BLB-WSB-Online-Main_6.3.9600.16384_neutral
amd64_Microsoft-Windows-BrowserService_6.3.9600.16384_neutral
amd64_Microsoft-Windows-CoreMmRes_6.3.9600.16384_neutral
amd64_Microsoft-Windows-Deployment_6.3.9600.16384_neutral
amd64_Microsoft-Windows-DiagCpl_6.3.9600.16384_neutral
amd64_Microsoft-Windows-Disk-Failure-Diagnostic-Module_6.3.9600
amd64_Microsoft-Windows-DNS-Client_6.3.9600.16384_neutral
amd64_Microsoft-Windows-EnhancedStorage-Adm_6.3.9600.16384_neutral
amd64_Microsoft-Windows-ErrorReportingCore_6.3.9600.16408_neutral
amd64_Microsoft-Windows-Fax-Service_6.3.9600.16384_neutral
amd64_Microsoft-Windows-HelpAndSupport_6.3.9600.16384_neutral
amd64_Microsoft-Windows-IE-ClientNetworkProtocolImplementation
amd64_Microsoft-Windows-IE-ESC_11.0.9600.16384_neutral
amd64_Microsoft-Windows-IE-InternetExplorer_11.0.9600.16521_neutral
amd64_Microsoft-Windows-International-Core_6.3.9600.16384_neutral
amd64_Microsoft-Windows-International-Core-WinPE_6.3.9600.16384_neutral
amd64_Microsoft-Windows-LUA-Settings_6.3.9600.16384_neutral
amd64_Microsoft-Windows-MediaPlayer-Core_6.3.9600.16384_neutral
amd64_Microsoft-Windows-NetBT_6.3.9600.16384_neutral
amd64_Microsoft-Windows-NetworkBridge_6.3.9600.16384_neutral
amd64_Microsoft-Windows-NetworkLoadBalancing-Core_6.3.9600.16384_neutral
amd64_Microsoft-Windows-OutOfBoxExperience_6.3.9600.16384_neutral
amd64_Microsoft-Windows-PartitionManager_6.3.9600.16384_neutral
amd64_Microsoft-Windows-PnpCustomizationsNonWinPE_6.3.9600.16384_neutral
amd64_Microsoft-Windows-PnpCustomizationsWinPE_6.3.9600.16384_neutral
amd64_Microsoft-Windows-PnpSysprep_6.3.9600.16384_neutral
amd64_Microsoft-Windows-powercpl_6.3.9600.16384_neutral
amd64_Microsoft-Windows-Printing-Spooler-Core_6.3.9600.16384_neutral
amd64_Microsoft-Windows-ResServer_6.3.9600.16384_neutral

## Answer File

Unattend
Components
1 windowsPE
2 offlineServicing
3 generalize
4 specialize
amd64_Microsoft-Windows-Deployment_neutral
amd64_Microsoft-Windows-IE-ESC_neutral
amd64_Microsoft-Windows-IE-InternetExplorer_neutral
amd64_Microsoft-Windows-International-Core_neutral
amd64_Microsoft-Windows-ServerManager-SvrMgrNC_neutral
amd64_Microsoft-Windows-Shell-Setup_neutral
amd64_Microsoft-Windows-TapiSetup_neutral
amd64_Microsoft-Windows-TerminalServices-LocalSessionManager_neutral
amd64_Microsoft-Windows-UnattendedJoin_neutral
5 auditSystem
6 auditUser
7 oobeSystem
amd64_Microsoft-Windows-International-Core_neutral
amd64_Microsoft-Windows-Shell-Setup_neutral
Packages

## Microsoft-Windows-IE-InternetExplorer Properties

CommandLabelDisplay	0
CompanyName	
CompatibilityViewDomains	
DisableAccelerators	false
DisableDataExecutionPrevention	
DisableDevTools	
DisableFirstRunWizard	true
DisableOOBAccelerators	true
DisableWelcomePage	true
FavoritesDelete	false
FavoritesOnTop	false
FilterLevel	Medium
FindProvidersURL	
GroupTabs	true
Help_Page	
Home_Page	about:blank
IntranetCompatibilityMode	true
LocalIntranetSites	
LockToolbars	true
MSCompatibilityMode	false

## AppliedConfigurationPass

## Messages

XML (0) Validation (0) Configuration Set (0)

Description Location

Windows Deployment Wizard

## Task Sequence

Task Sequence  
Computer Details  
Locale and Time  
Ready

Select a task sequence to execute on this computer.

- Desktop
  - Windows 7 Enterprise x64  
Standard template for physical and virtual desktops
  - Windows 7 Enterprise x86  
Standard template for physical and virtual desktops
  - Windows 7 x86 Sequencer  
Application virtualisation sequencing platform
  - Windows 8.1 Enterprise x64  
Standard template for physical and virtual desktops
  - Windows 8.1 Enterprise x86  
Standard template for physical and virtual desktops
  - Windows Server 2008 R2 Standard RDS  
For use with native RDS, XenDesktop 7 or XenApp 6.5
  - Windows Server 2012 R2 Standard RDS  
For use with native RDS or XenDesktop 7
  - Windows Thin PC  
Thin-client deployment with Citrix and VMware client support
- Infrastructure

Back

Next

Cancel

## Windows Deployment Wizard

### Task Sequence

Task Sequence  
Computer Details

Select a task sequence to execute on this computer.

- Windows 2012 R2 x64 - ShareFile StorageZone
- Windows 2012 R2 x64 – Standard
- Windows 2012 R2 x64 - Standard with PVS 7.1
- Windows 2012 R2 x64 – Standard with RDS
- Windows 2012 R2 x64 - Standard with SQL Express 2012
- Windows 2012 R2 x64 - Standard with SQL Server 2012 SP1
- Windows 2012 R2 x64 - XD7.1 All Roles
- Windows 2012 R2 x64 - XD7.1 Controller
- Windows 2012 R2 x64 - XD7.1 Controller & StoreFront
- Windows 2012 R2 x64 - XD7.1 StoreFront
- Windows 2012 R2 x64 - XD7.1 VDA & MCS
- Windows 2012 R2 x64 - XD7.5 All Roles
- Windows 2012 R2 x64 - XD7.5 Controller
- Windows 2012 R2 x64 - XD7.5 Controller & StoreFront
- Windows 2012 R2 x64 - XD7.5 StoreFront
- Windows 2012 R2 x64 - XD7.5 VDA & MCS
- Windows 2012 R2 x64 - XenMobile Device Manager

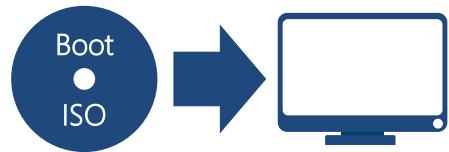
Back

Next

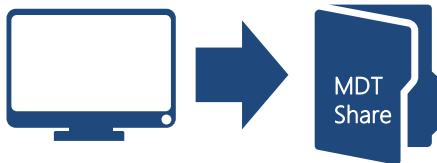
Cancel

# DEPLOYMENT WORKFLOW

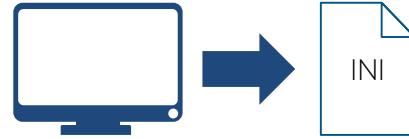
1. Boot to WinPE



2. Connect to MDT share



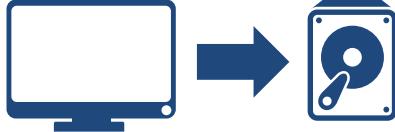
3. Read CustomSettings.ini



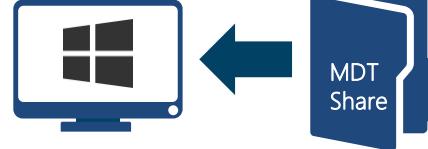
4. Deployment Wizard



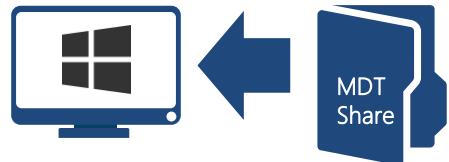
5. Format disk



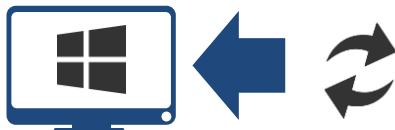
6. Install Windows



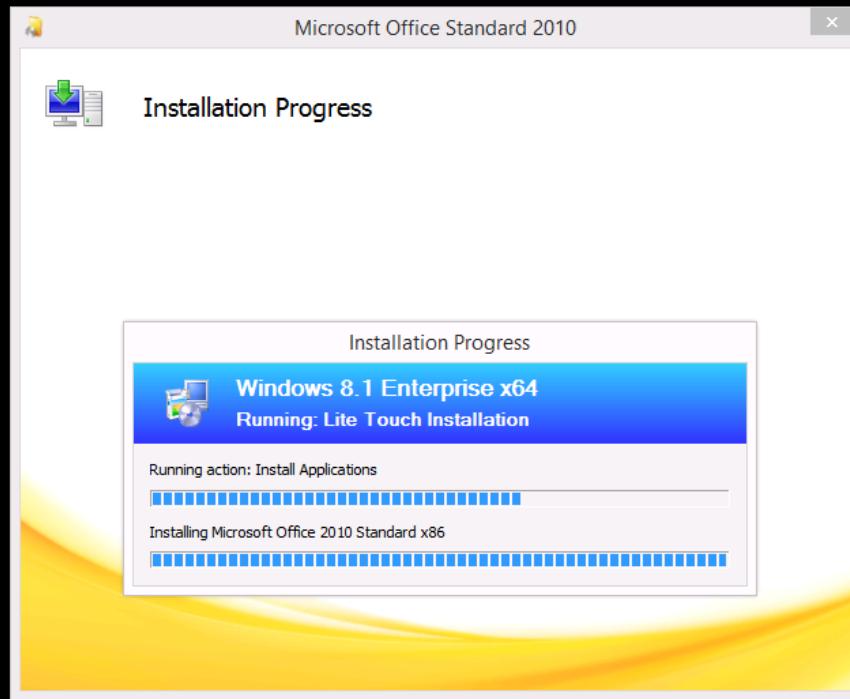
7. Install Applications



8. Install Updates



Fin.



Windows 8.1 Enterprise  
Build 9600



9:56 PM  
21/04/2014

# Adding Applications

```
    }  
    return 0;  
}
```

```
#ifdef VERBOSE_RBT_VERIFY  
if (left)
```

```
    printf("("
```

```
"ld%c%c)"
```

```
    if (right)
```

```
    printf("("
```

```
"ld%c%c)"
```

```
#endif
```

```
height_l
```

```
= rbt_verify_n(left, compare);
```

```
height_r
```

```
= rbt_verify_n(right, compare);
```

```
if (verify BST property.
```

```
((left != NULL) && (
```

```
((right != NULL) &&
```

```
((height_l - height_r) >= 2))
```

```
return 1;
```

```
#endif
```



## Application Type

### Application Type

Details  
Source  
Destination  
Command Details  
Summary  
Progress  
Confirmation

Specify the type of application to add.

Application with source files

Copy the source files for this application to the deployment share, which will be used for installing the application.

Application without source files or elsewhere on the network.

Either no source files are required for this application, or the application exists at a separate UNC path (e.g. a DFS share).

Application bundle.

Create a new application bundle. There is no installation command associated with this application. Instead, only the dependencies of this application will be installed. These dependencies can be configured after the item has been added.

Previous

Next

Cancel



## Details

Application Type

**Details**

Source

Destination

Command Details

Summary

Progress

Confirmation

Specify the details for this application.

Publisher: (Optional)

Adobe

Application Name:

Reader

Version: (Optional)

XI

Language: (Optional)

en-US|

Previous

Next

Cancel



## Source

Application Type

Details

**Source**

Destination

Command Details

Summary

Progress

Confirmation

In order to add this application, all the files need to be copied to the deployment share. Specify the location of these files.

Source directory:

C:\AdobeReader\

**Browse...** Move the files to the deployment share instead of copying them.**Previous****Next****Cancel**



## Destination

Application Type

Details

Source

Destination

Command Details

Summary

Progress

Confirmation

Specify the name of the directory that should be created.

[Previous](#)[Next](#)[Cancel](#)



## Command Details

[Application Type](#)[Details](#)[Source](#)[Destination](#)[Command Details](#)[Summary](#)[Progress](#)[Confirmation](#)

Specify the quiet install command line and working directory needed to install this application.

Command line:

Working directory:

[Previous](#)[Next](#)[Cancel](#)



## Confirmation

Application Type

Details

Source

Destination

Command Details

Summary

Progress

Confirmation



The process completed successfully.

```
Performing the operation "import" on target "Application".
Beginning application import
Copying application source files from C:\AdobeReader to C:\Deployment\Automata\Applications\Adobe
Creating new item named Adobe Reader XI at DS001:\Applications.
Import processing finished.
```



Save Output...

View Script

Previous

Finish

Cancel

## Microsoft Visual C++ 2008 Redistributable x64 Properties



General Details Dependencies

Name: Microsoft Visual C++ 2008 Redistributable x64

Comments:

Display name:

Short name: Visual C++ 2008 Redistributable

Version: x64

Publisher: Microsoft

Language:

Source directory: .\Applications\Microsoft Visual C++ 2008 Redistributable x64

Application GUID: {4db40754-b9e1-4fb2-aa85-e195c651f14c}

Hide this application in the Deployment Wizard

Enable this application

OK

Cancel

Apply

Help

# Microsoft Visual C++ 2008 Redistributable x64 Properties



General Details Dependencies

Application bundle

There is no installation command associated with this application. Instead, only the dependencies of this application will be installed.

Standard application

Quiet install command:

Working directory:

Uninstall registry key name:

Reboot the computer after installing this application

This can run on any platform.

This can run only on the specified client platforms:

- All x64 Windows Server 2012 R2
- All x64 Windows Server 2012 R2 - Full OS (Non-Core)
- All x64 Windows Server 2012 R2 - Core OS
- All x86 Windows 7 and Newer
- All x64 Windows 7 and Newer



OK

Cancel

Apply

Help

## Applications

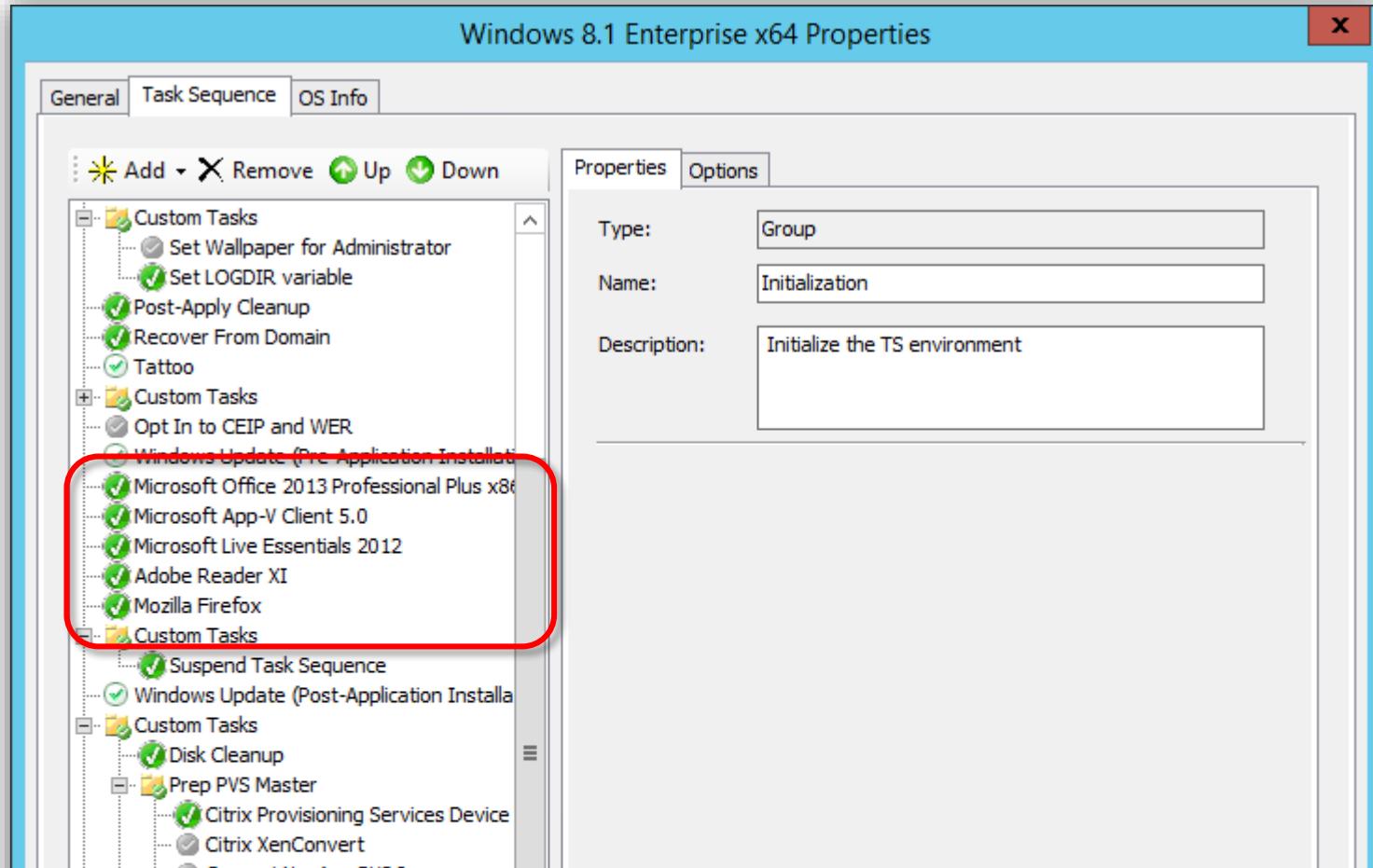
File Home Share View

Network &gt; mcfly &gt; Deployment &gt; Automata &gt; Applications

Search Applications

- Adobe Flash Player 11
- Adobe Reader XI
- AppSense DesktopNow 8.x
- Citrix Desktop Director 2.1
- Citrix EdgeSight for XenApp 6 Agent x64 5.x
- Citrix EdgeSight for XenApp 6 Agent x86 5.x
- Citrix HDX Monitor 3.0
- Citrix Licensing Server 11.x
- Citrix Offline Plugin 6.x
- Citrix Profile Management 5.x
- Citrix Provisioning Services 7.x
- Citrix Receiver 4.0
- Citrix Single Sign-on Plug-in x64 5.x
- Citrix Single Sign-on Plug-in x86 5.x
- Citrix StoreFront 1.x
- Citrix Tools for Virtual Machines 6.x
- Citrix VDI-in-a-Box for Hyper-V 5.3
- Citrix Web Interface 5.4
- Citrix XenApp 6.5
- Citrix XenApp 6.5 Hotfixes
- Citrix XenApp OpenGL GPU Sharing Feature Add-on 6.5
- Citrix XenConvert x64 2.x
- Citrix XenConvert x86 2.x
- Citrix XenDesktop 5.6
- Citrix XenDesktop 5.6 Hotfixes
- Citrix XenDesktop 7
- Google Chrome Enterprise
- LibreOffice 4.x
- Microsoft .NET Framework 4.0
- Microsoft .NET Framework 4.5
- Microsoft .NET Framework 4.5.1
- Microsoft App-V Client 5.0
- Microsoft App-V Client RDS 4.6
- Microsoft App-V Client x64 4.6
- Microsoft App-V Client x86 4.6
- Microsoft App-V Management Server 4.x
- Microsoft App-V Sequencer 5.0
- Microsoft Camera Codec Pack x64
- Microsoft Camera Codec Pack x86
- Microsoft Important Hotfixes
- Microsoft Internet Explorer 10 x64
- Microsoft Internet Explorer 10 x86
- Microsoft J# Redistributable Package SE 2.0
- Microsoft Live Essentials 2012
- Microsoft MBAM Agent x64 2.x
- Microsoft MBAM Agent x86 2.x
- Microsoft Office 2010 Deployment Kit for App-V x64
- Microsoft Office 2010 Deployment Kit for App-V x86
- Microsoft Office 2010 Professional Plus x86
- Microsoft Office 2010 Standard x86
- Microsoft Office 2013 Professional Plus x86
- Microsoft Office Configuration Analyzer Tool 1.0
- Microsoft Silverlight 5
- Microsoft SQL Server 2008 R2 Native Client x64
- Microsoft SQL Server 2008 R2 Native Client x86
- Microsoft SQL Server 2012 Native Client x64
- Microsoft SQL Server 2012 Native Client x86
- Microsoft Sysinternals Suite
- Microsoft UE-V x64 1.x
- Microsoft UE-V x86 1.x
- Microsoft Visual C++ 2005 Redistributable x64
- Microsoft Visual C++ 2005 Redistributable x86
- Microsoft Visual C++ 2008 Redistributable x64
- Microsoft Visual C++ 2008 Redistributable x86
- Microsoft Visual C++ 2010 Redistributable x64
- Microsoft Visual C++ 2010 Redistributable x86
- Microsoft Visual C++ 2012 Redistributable x64
- Microsoft Visual C++ 2012 Redistributable x86
- Microsoft Visual C++ 2013 Redistributable x64
- Microsoft Visual C++ 2013 Redistributable x86
- Mozilla Firefox
- Oracle JRE 7 x86
- PowerShell Management Library for Hyper-V
- Script Convert Windows 7 PVS Image
- Script Convert XenApp PVS Image
- Script Disable Browser Choice update
- Script Disk Cleanup
- Script Enable .NET Framework
- Script Enable Basic IIS
- Script Hyper-V Configuration
- Script Hyper-V Configuration 2012
- Script Optimise Virtual Machine
- Script Set LOGDIR
- Script Set Wallpaper
- Script Set Win7 Customisations
- Script Set Win7 Default Profile
- Script Set Win8 Customisations
- Script Set Win8 Default Profile
- Script Set Win2008R2 Customisations
- Script Set Win2008R2 Default Profile
- Script Set Win2008R2 RDS Customisations
- Script Set Win2008R2 RDS Default Profile
- Script Set Win2012 R2 RDS Customisations
- Script Set Win2012 R2 RDS Default Profile
- Script Win7 VM Customisations
- ThinScale ThinKiosk 4.x
- VMware Tools 8.x
- VMware Tools 9.x
- VMware View Agent x64 5.x
- VMware View Agent x86 5.x
- VMware View Client x64 5.x
- VMware View Client x86 5.x
- VMware View HTML Access Agent 5.x
- VMware View Remote Experience Agent x64 5.x
- VMware View Remote Experience Agent x86 5.x
- VMware View Server 5.x

# APPLICATIONS



# APPLICATION BUNDLES

Dependencies & Runtimes Properties X

General Details Dependencies

The applications listed below should be installed in the order specified before installing this application.

Add Remove Up Down

- Microsoft Visual C++ 2005 Redistributable x64
- Microsoft Visual C++ 2005 Redistributable x86
- Microsoft Visual C++ 2008 Redistributable x64
- Microsoft Visual C++ 2008 Redistributable x86
- Microsoft Visual C++ 2010 Redistributable x64
- Microsoft Visual C++ 2010 Redistributable x86
- Microsoft Visual C++ 2012 Redistributable x64
- Microsoft Visual C++ 2012 Redistributable x86
- Microsoft Visual C++ 2013 Redistributable x64
- Microsoft Visual C++ 2013 Redistributable x86
- Script Reboot3
- Microsoft .NET Framework 4.5.1
- Script Reboot4
- Microsoft SQL Server 2008 R2 Native Client x64
- Microsoft SQL Server 2008 R2 Native Client x86
- Microsoft SQL Server 2012 Native Client x64
- Microsoft SQL Server 2012 Native Client x86
- Microsoft Camera Codec Pack x64
- Microsoft Camera Codec Pack x86
- Script Reboot5
- Script Set Win2008R2 Customisations
- Script Set Win2008R2 Default Profile
- Script Set Win7 Customisations



# Reference images





# REFERENCE IMAGES



Reduces deployment time

Are independent of final deployment solution

Use a hypervisor. No tools!

Lowest common denominator

Maintain 2 shares –  
Reference & Deployment

## Windows Deployment Wizard

### Computer Details

#### Task Sequence

- Computer Details
- Move Data and Settings
- User Data (Restore)
- Locale and Time
- Roles and Features
- Applications
- Capture Image
- Ready



Computer name:

Join a domain.



Domain to join:

Organizational Unit:

User Name:

Password:

Domain:

Join a workgroup.

Workgroup:

Back

Next

Cancel

Windows Deployment Wizard

## Roles and Features

[Task Sequence](#)  
[Computer Details](#)  
[Move Data and Settings](#)  
[User Data \(Restore\)](#)  
[Locale and Time](#)

**Roles and Features**  
Applications  
Capture Image  
Ready

Select the operating system roles to install on this computer.

The following roles and role services are available.

[Select All](#) [Select None](#)

- .NET Framework 3.5 (includes .NET 2.0 and 3.0)
  - Windows Communication Foundation HTTP Activation
  - Windows Communication Foundation Non-HTTP Activation
- .NET Framework 4.5 Advanced Features
  - ASP.NET 4.5
  - WCF Services
    - HTTP Activation
    - Message Queuing (MSMQ) Activation
    - Named Pipe Activation
    - TCP Activation
    - TCP Port Sharing
- Active Directory Lightweight Directory Services
- Legacy Components
  - DirectPlay
- Windows Management Tools

[Back](#)

[Next](#)

[Cancel](#)

Windows Deployment Wizard

 Applications

Task Sequence  
Computer Details  
Move Data and Settings  
User Data (Restore)  
Locale and Time  
**Applications**  
Ready

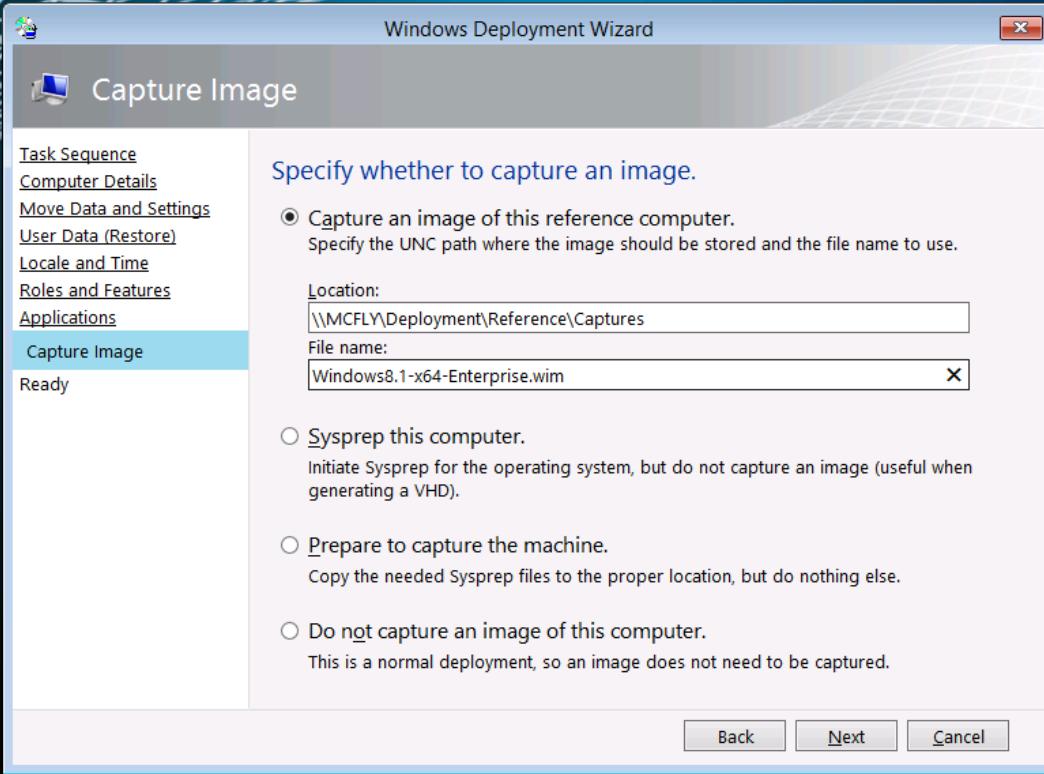
Select one or more applications to install.

-  Microsoft Apps
  - Microsoft App-V Desktop Client 5.0
  - Microsoft App-V Desktop Client x64 4.6
    - Install script will require customisation
  - Microsoft App-V Desktop Client x86 4.6
    - Install script will require customisation
  - Microsoft App-V RDS Client 5.0
  - Microsoft App-V RDS Client x64 4.6
  - Microsoft App-V Sequencer 5.0
  - Microsoft Live Essentials 2012
  - Microsoft Office 2010 Professional Plus x86
  - Microsoft Office 2010 Standard x86
  - Microsoft Office 2013 Professional Plus x86
  - Microsoft Office Configuration Analyzer Tool 1.0
-  Other Apps
  - Google Chrome Enterprise
  - LibreOffice 4.x

Back

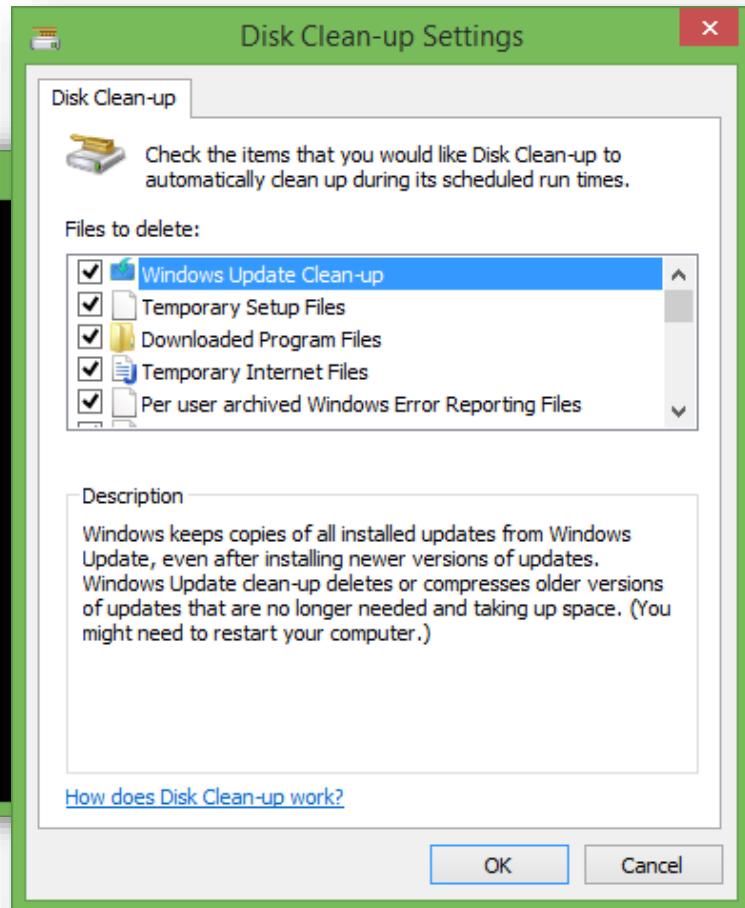
Next

Cancel



# REDUCE IMAGE SIZE

```
Administrator: Command Prompt  
Microsoft Windows [Version 6.3.9600]  
(c) 2013 Microsoft Corporation. All rights reserved.  
  
C:\Windows\system32>cleanmgr /sageset:100  
  
C:\Windows\system32>cleanmgr /sagerun:100
```





# Magic with CustomSettings.ini

Control

File Home Share View

Network > mcfly > Deployment > Reference > Control

Search Control

Deployment

- Automata
- Backup
- Reference
- SOEMS
- Applications
- Backup
- Boot
- Captures
- Control
- Operating Systems
- Out-of-Box Drivers
- Packages
- Scripts
- Servicing
- Templates
- Tools
- Windows Kits

home

Name	Date modified	Type	Size
W2K8R2S-SVR	25/03/2014 7:48 PM	File folder	
W2K12R2-STD-001	24/03/2014 8:24 PM	File folder	
W7ENT-X64-002	24/03/2014 8:23 PM	File folder	
W7ENT-X86-002	24/03/2014 8:23 PM	File folder	
W81ENT-X64-001	24/03/2014 8:23 PM	File folder	
W81ENT-X86-001	24/03/2014 8:23 PM	File folder	
ApplicationGroups.xml	25/03/2014 9:20 PM	XML File	4 KB
Applications.xml	25/03/2014 9:20 PM	XML File	36 KB
Bootstrap.ini	24/03/2014 8:23 PM	Configuration settings	1 KB
<input checked="" type="checkbox"/> CustomSettings.ini	24/03/2014 10:14 PM	Configuration settings	5 KB
CustomSettings-Original.ini	23/03/2014 12:18 AM	Configuration settings	1 KB
CustomSettings-TaskSequences.ini	24/03/2014 7:47 PM	Configuration settings	4 KB
DriverGroups.xml	23/03/2014 12:20 AM	XML File	1 KB
Drivers.xml	23/03/2014 12:20 AM	XML File	1 KB
LinkedDeploymentShareGroups.xml	23/03/2014 12:20 AM	XML File	1 KB
LinkedDeploymentShares.xml	23/03/2014 12:20 AM	XML File	1 KB
MediaGroups.xml	23/03/2014 12:20 AM	XML File	1 KB
Medias.xml	23/03/2014 12:20 AM	XML File	1 KB

28 items | 1 item selected 4.57 KB | State:  Online

# CUSTOMSETTINGS.INI

## [Settings]

Priority=Default

Properties=MyCustomProperty

## [Default]

OSInstall=Y

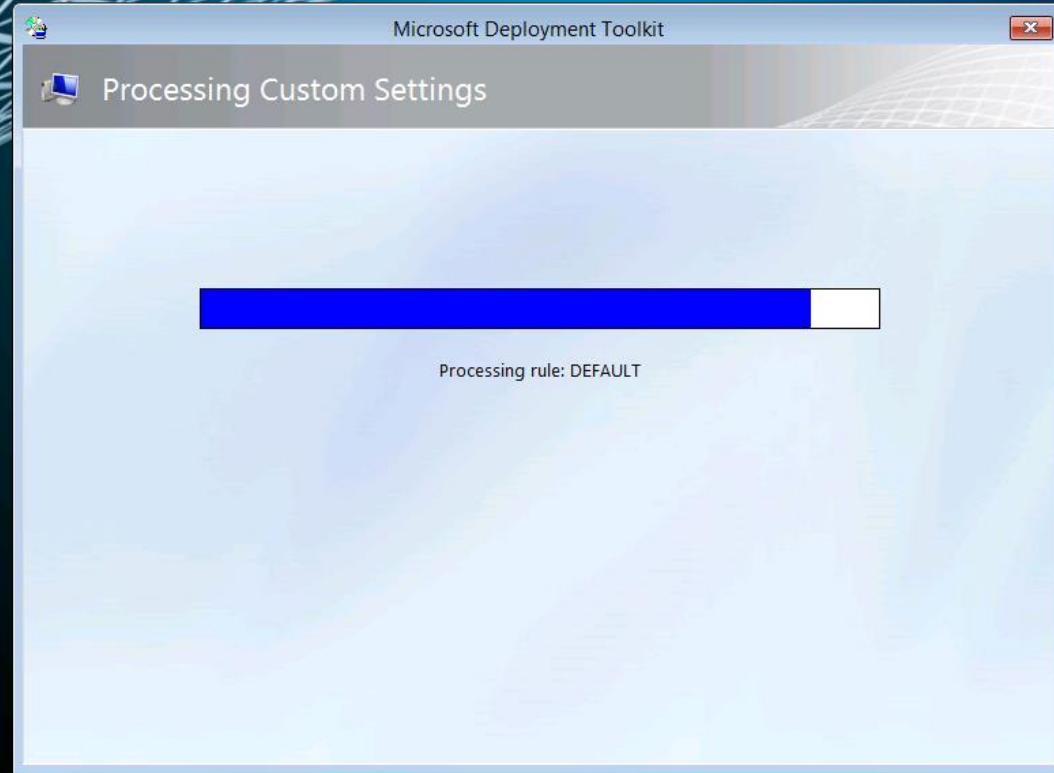
SkipCapture=NO

SkipAdminPassword=YES

SkipProductKey=YES

SkipComputerBackup=YES

SkipBitLocker=YES





## OS Settings

[General Settings](#)[Select Template](#)[Select OS](#)[Specify Product Key](#)[OS Settings](#)[Admin Password](#)[Summary](#)[Progress](#)[Confirmation](#)

Specify settings about this task sequence. These settings will be used for all deployments of this task sequence, unless overridden during the deployment process using the wizard or a rule.

**Full Name:****Organization:****Internet Explorer Home Page:**

# CUSTOMSETTINGS.INI

[Settings]

Priority=Default

Properties=MyCustomProperty

[Default]

FullName=stealthpuppy

OrgName=stealthpuppy

Home\_Page=<http://stealthpuppy.com>



## Specify Product Key

[General Settings](#)[Select Template](#)[Select OS](#)[Specify Product Key](#)[OS Settings](#)[Admin Password](#)[Summary](#)[Progress](#)[Confirmation](#)

- Do not specify a product key at this time.

A product key is not required when deploying Windows 7, Windows Server 2008 R2, or later OS versions, or if the product key will be specified at deploy time using the wizard or a rule.

- Specify a multiple activation key (MAK key) for activating this operating system.

In order to activate, each computer deployed using this MAK key will need to contact the Microsoft activation service on the internet. This is only supported for Windows 7 and later operating systems when using volume license media.

MAK Product Key:

- Specify the product key for this operating system.

Specify a retail product key. (Note that retail keys can only be used to activate a single machine.)

Product Key:

## Windows Deployment Wizard

### Product Key

- [Task Sequence](#)
- [Computer Details](#)
- [Move Data and Settings](#)
- [User Data \(Restore\)](#)
- [Product Key](#)
- [Locale and Time](#)
- [Roles and Features](#)
- [Applications](#)
- [Administrator Password](#)
- [Ready](#)

Specify the product key needed to install this operating system.

No product key is required.

The operating system being deployed does not require a product key because it will be activated using the Key Management Service.

Activate the machine with a multiple activation key (MAK).

The operating system being deployed will not be able to activate via the Key Management Service, so a multiple activation key will activate the computer over the internet.

Multiple activation key:

Use a specific product key.

This computer requires a specific license key for installation or retail activation.

Product key:

[Back](#)

[Next](#)

[Cancel](#)

# CUSTOMSETTINGS.INI

[Settings]

Priority=Default

Properties=MyCustomProperty

[Default]

FullName=stealthpuppy

OrgName=stealthpuppy

Home\_Page=<http://stealthpuppy.com>

**ProductKey=MHF9N-XY6XB-WVXMC-BTDCT-MKKG7**



## Admin Password

[General Settings](#)[Select Template](#)[Select OS](#)[Specify Product Key](#)[OS Settings](#)[Admin Password](#)[Summary](#)[Progress](#)[Confirmation](#)

Specify the local Administrator password for this task sequence.

- Use the specified local Administrator password.

Administrator Password:

Please confirm Administrator Password:

- Do not specify an Administrator password at this time.

The local Administrator password will be provided during the deployment of this task sequence, so it is not needed as part of the task sequence definition.

## Windows Deployment Wizard

### Administrator Password

[Task Sequence](#)  
[Computer Details](#)  
[Move Data and Settings](#)  
[User Data \(Restore\)](#)  
[Product Key](#)  
[Locale and Time](#)  
[Roles and Features](#)  
[Applications](#)  
[Administrator Password](#)  
Ready

#### Specify the Administrator account password.

This password will be used for logging onto the computer after a restart.



Administrator Password:

A password input field containing six blue dots, representing the entered administrator password.

Confirm Administrator Password:

A password input field containing seven black dots, representing the confirmed administrator password.

Back

Next

Cancel

# CUSTOMSETTINGS.INI

## [Settings]

Priority=Default

Properties=MyCustomProperty

## [Default]

FullName=stealthpuppy

OrgName=stealthpuppy

Home\_Page=http://stealthpuppy.com

ProductKey=MHF9N-XY6XB-WVXMC-BTDCT-MKKG7

**AdminPassword=Passw0rd**

**SkipAdminPassword=YES**

# CUSTOMSETTINGS.INI

## [Settings]

Priority=VMPlatform, Default

Properties=MyCustomProperty

## [Default]

## [Hyper-V]

## [VMware]

Applications001={d29e236a-6135-43bd-9c55-351f577e0448}

# CUSTOMSETTINGS.INI

[Settings]

Priority=UUID, VMPlatform, Default

Properties=MyCustomProperty

[Default]

[Hyper-V]

[VMware]

**[0EB70742-13D8-1EE3-3D56-8C1C88AA252C]**

# CUSTOMSETTINGS.INI

## [Settings]

Priority=ByVM, UUID, VMPlatform, Default

Properties=MyCustomProperty

## [Default]

## [ByVM]

Subsection=VM-%IsVM%

## [VM-True]

Applications001={74380fdd-0948-4159-b0f5-e27321487504}

Windows 8.1 Enterprise x64 Properties

General Task Sequence OS Info

Add Remove Up Down

Properties Options

Disable this step  
Success codes: 0 3010

Continue on error

Add Remove Edit

If all conditions are true  
Task sequence variable IsVM equals TRUE

The screenshot shows the Windows 8.1 Enterprise x64 Properties dialog box with the Task Sequence tab selected. On the left, a tree view of tasks is displayed, including State Capture, Preinstall, Install, Postinstall, State Restore, Custom Tasks, Post-Apply Cleanup, Recover From Domain, Tattoo, Install Applications, Suspend Task Sequence, Windows Update (Post-Application), Disk Cleanup, Prep PVS Master, Virtual Machines (with a sub-item 'Virtual Machine optimisations'), Enable BitLocker, Restore User State, Restore Groups, Apply Local GPO Package, and Imaging. A red oval highlights the 'Virtual Machines' task under the 'Custom Tasks' section. On the right, the Properties tab is active, showing options for disabling the step, setting success codes (0 3010), and continuing on error. Below these are buttons for adding, removing, and editing conditions, with one condition defined: 'If all conditions are true' (Task sequence variable IsVM equals TRUE).

OK Cancel Apply Help

# CUSTOMSETTINGS.INI

[Settings]

Priority=ByVM, UUID, VMPlatform, Default

Properties=WindowsUpdate

[Default]

**WindowsUpdate=TRUE**

Windows 8.1 Enterprise x64 Properties

General Task Sequence OS Info

Add Remove Up Down

Initialization  
Validation  
State Capture  
Preinstall  
Install  
Postinstall  
State Restore  
Gather local only  
Custom Tasks  
Set Wallpaper for Administrator  
Set LOGDIR variable  
Post-Apply Cleanup  
Recover From Domain  
Tattoo  
Custom Tasks  
Install Roles and Features  
Opt In to CEIP and WER  
**Windows Update (Pre-Application Install)**   (Selected)  
Install Applications  
Custom Tasks  
Suspend Task Sequence  
Windows Update (Post-Application Install)  
Custom Tasks  
Disk Cleanup  
Prep PVS Master  
Citrix Provisioning Services Deployment  
Citrix XenConvert  
Convert XenApp PVS Image  
Virtual Machines

Properties Options

Disable this step

Success codes: 0 3010

Continue on error

Add Remove Edit

If all conditions are true  
Task sequence variable WindowsUpdate equals TRUE

OK Cancel Apply Help

# CUSTOMSETTINGS.INI

## [Settings]

Priority=ByVM, UUID, VMPlatform, Default

Properties=WindowsUpdate, SuspendTS

## [Default]

WindowsUpdate=TRUE

**SuspendTS=TRUE**

Windows 8.1 Enterprise x64 Properties

General Task Sequence OS Info

Add Remove Up Down

Initialization  
Validation  
State Capture  
Preinstall  
Install  
Postinstall  
State Restore  
Gather local only  
Custom Tasks  
Set Wallpaper for Administrator  
Set LOGDIR variable  
Post-Apply Cleanup  
Recover From Domain  
Tattoo  
Custom Tasks  
Install Roles and Features  
Opt In to CEIP and WER  
Windows Update (Pre-Application Install)  
Install Applications  
Custom Tasks  
Suspend Task Sequence  
Windows Update (Post-Application Install)  
Custom Tasks  
Disk Cleanup  
Prep PVS Master  
Citrix Provisioning Services Deployment  
Citrix XenConvert  
Convert XenApp PVS Image  
Virtual Machines

Properties Options

Disable this step  
Success codes: 0 3010

Continue on error

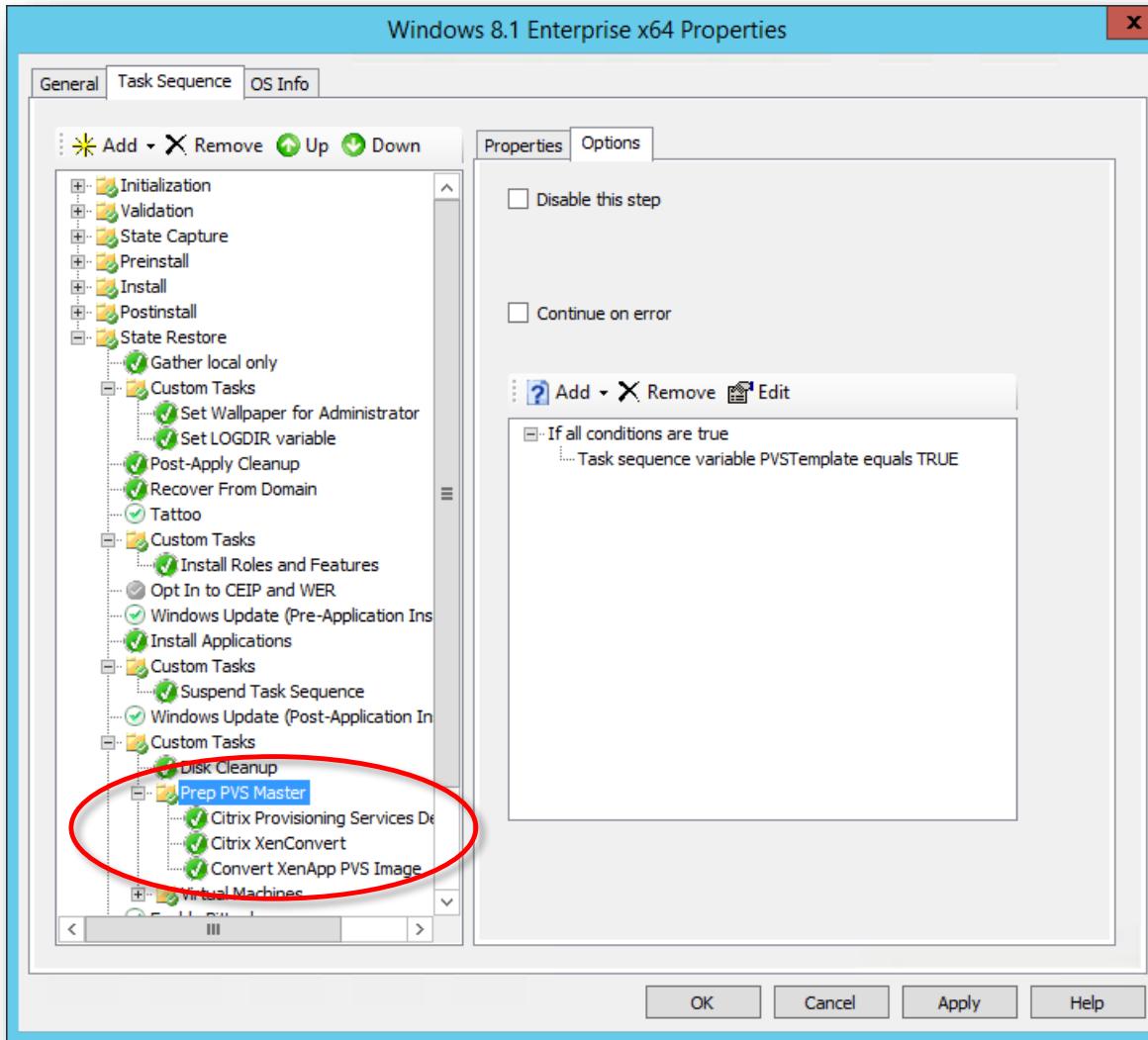
Add Remove Edit

If all conditions are true  
Task sequence variable SuspendTS equals TRUE

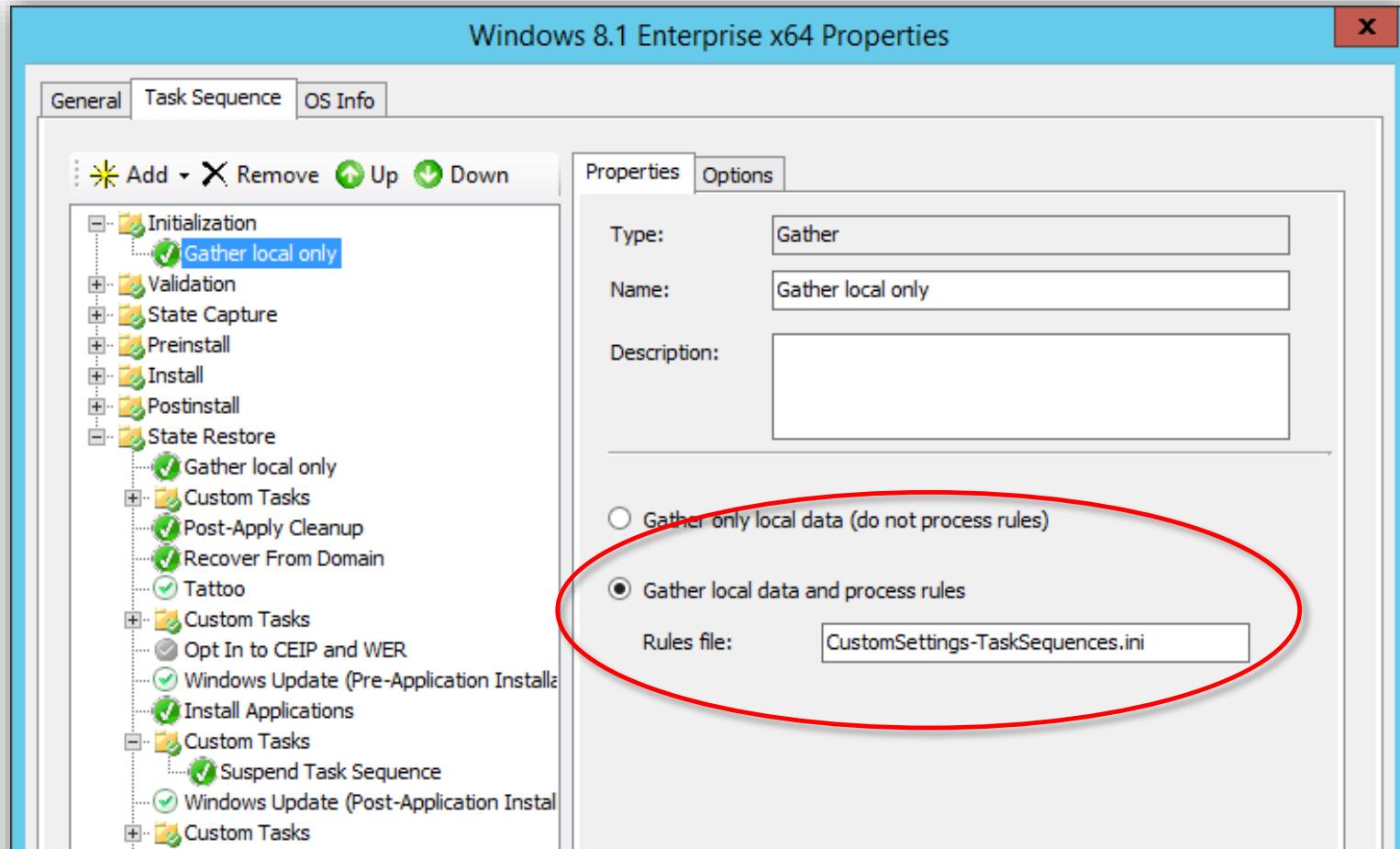
OK Cancel Apply Help

The screenshot shows the Windows 8.1 Enterprise x64 Properties dialog box with the 'Task Sequence' tab selected. On the left, a tree view of tasks is displayed, with the 'Suspend Task Sequence' task highlighted by a red circle. The right pane contains the 'Properties' tab settings, including checkboxes for 'Disable this step' and 'Continue on error', and a condition section with a single condition: 'If all conditions are true' followed by 'Task sequence variable SuspendTS equals TRUE'. At the bottom, standard dialog box buttons for OK, Cancel, Apply, and Help are present.

Windows 8.1 Enterprise x64 Properties



# OS SPECIFIC PROPERTIES – TASK SEQUENCE



# OS SPECIFIC PROPERTIES – CUSTOMSETTINGS.INI

[Settings]

Priority=Default

Properties=MyCustomProperty

[W81ENT-X64-001]

ProductKey=MHF9N-XY6XB-WVXMC-BTDCT-MKKG7

WindowsSource=%DeployRoot%\Operating Systems\Windows 8.1 Ent x64\Sources\sxs

Applications001={a8531ee7-c27f-44fd-80d3-669958e4917f}

Applications002={c56d6ded-46f5-4f02-8ffe-cdf4288a8ec1}

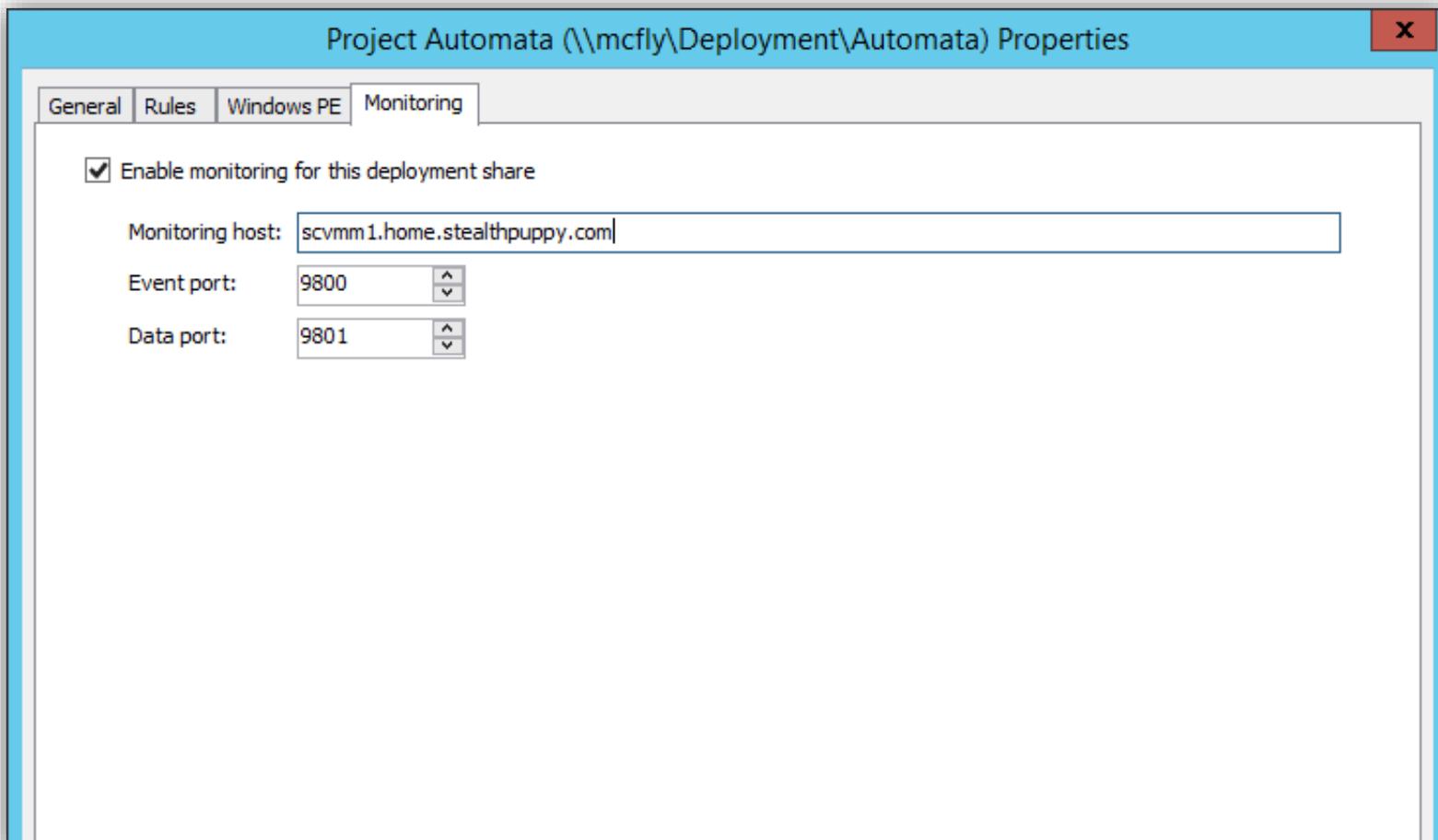
MandatoryApplications001={4e764993-a29b-499c-a347-b80d86af3325}

PackageGroup001=Win8-2012R2 Recommended Hotfixes\x64

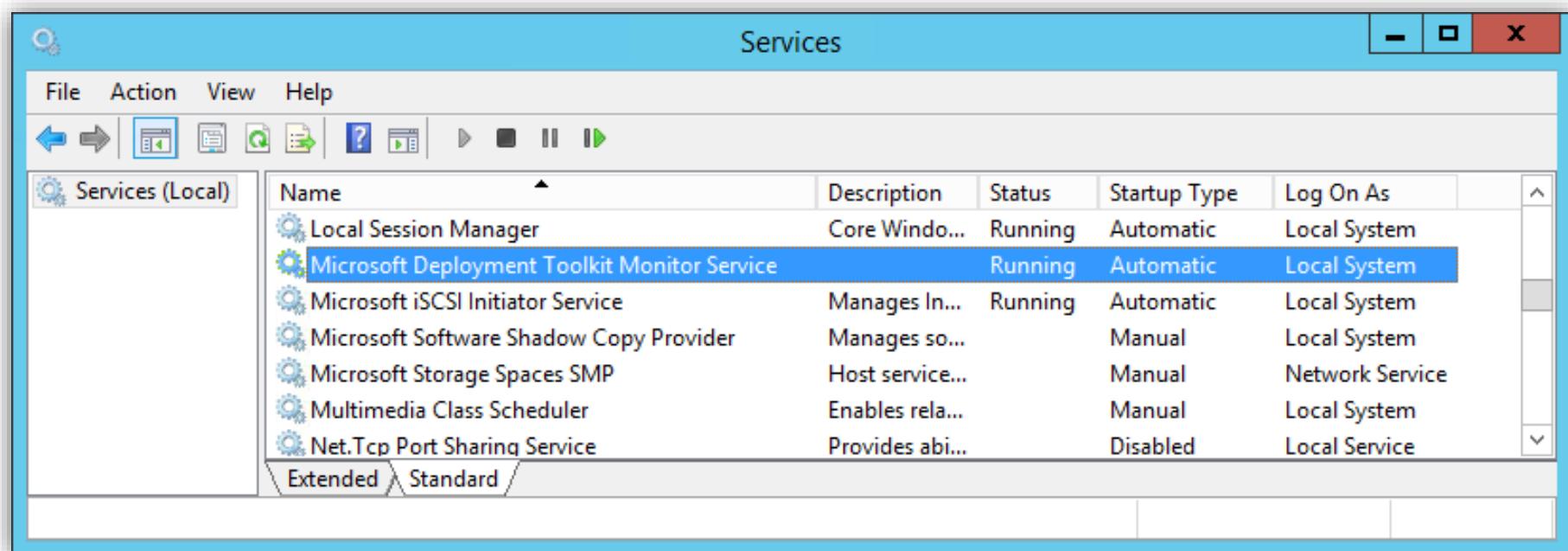


# Monitoring Deployments

# ENABLING MONITORING



# MONITORING – SERVICE



# MONITORING – CUSTOMSETTINGS.INI

[Settings]

Priority=ByVM, VMPlatform, Default

Properties=WindowsUpdate, SuspendTS, PVSTemplate

[Default]

**EventService=http://scvmm1.home.stealthpuppy.com:9800**

WindowsUpdate=TRUE

SuspendTS=TRUE

# MONITORING – UI

DeploymentWorkbench - [Deployment Workbench\Deployment Shares\Project Automata (\\\mcfly\Deployment\Automata)\...]

File Action View Favorites Window Help

Deployment Workbench

- Information Center
- Deployment Shares
  - Project Automata (\\\mcfly\Deployment\Automata)
    - Applications
    - Operating Systems
    - Out-of-Box Drivers
    - Packages
    - Task Sequences
    - Advanced Configuration
      - Monitoring
  - Reference Image Builder (\\\MCFLY\Deployment\Refer

Name	Status	Step Name	Percent Complete	Elapsed Time	Current Step	Total Steps
WIN81-X64	Running	Inject Drivers	36	00:00:56	39	107

# WIN81-X64 Properties

X

## Identity

ID:

1

Computer Name:

WIN81-X64

Deployment status:

Running

Step:

Install Roles and Features

Progress:



Step 65 of 107

Start:

24/04/2014 6:18:09 AM

End:

Elapsed:

00:26:45

Errors:

0

Warnings:

0

Remote Desktop

VM Connection

Automatically refresh this information every 10 seconds

Refresh Now

OK

Cancel

Apply

# GET-MDTMONITORDATA – IS THE DEPLOYMENT RUNNING?

```
Do {
    $InProgress = Get-MDTMonitorData -Path MDT: | Where-Object { $_.Name -eq $VM_OSName }
    If ($InProgress) {
        If ($InProgress.PercentComplete -eq 100) {
            $Seconds = 30
            $tsStarted = $False
        } Else {
            $Seconds = 0
            $tsStarted = $True
        }
    } Else {
        $Seconds = 30
        $tsStarted = $False
    }
    Start-Sleep -Seconds $Seconds
} Until ($tsStarted -eq $True)
```

# GET-MDTMONITORDATA – WATCH DEPLOYMENT PROGRESS

```
Do {  
    $InProgress = Get-MDTMonitorData -Path MDT: | Where-Object { $_.Name -eq $VM_OSName }  
    If ( $InProgress.PercentComplete -lt 100 ) {  
        Switch ($InProgress.PercentComplete) {  
            {$_. -lt 25}{$Seconds = 35; break}  
            {$_. -lt 50}{$Seconds = 30; break}  
            {$_. -lt 75}{$Seconds = 10; break}  
            {$_. -lt 100}{$Seconds = 5; break}  
        }  
        Start-Sleep -Seconds $Seconds  
    }  
} Until ($InProgress.CurrentStep -eq $InProgress.TotalSteps)
```



# Integrating with XenDesktop

# DEPLOYING XENDESKTOP COMPONENTS

The screenshot shows the 'Citrix XenDesktop 7' application tools interface. The window title is 'Citrix XenDesktop 7'. The menu bar includes 'File', 'Home', 'Share', 'View', and 'Manage'. The ribbon tab 'Application Tools' is selected. The main pane displays a file list under the path 'Deployment > Automata > Applications > Citrix XenDesktop 7'. The columns in the list are 'Name', 'Date modified', 'Type', and 'Size'. A search bar at the top right says 'Search Citrix XenDesktop 7'.

Name	Date modified	Type	Size
Citrix Receiver and Plug-ins	01/03/2014 12:43 PM	File folder	
Documentation	01/03/2014 12:43 PM	File folder	
Support	01/03/2014 12:45 PM	File folder	
x64	01/03/2014 12:46 PM	File folder	
x86	01/03/2014 12:47 PM	File folder	
AutoRun.inf	17/06/2013 9:21 PM	Setup Information	1 KB
AutoSelect.exe	02/10/2013 12:05 AM	Application	58 KB
Enable-StorefrontIS.ps1	30/01/2012 10:42 AM	Windows PowerShell Script	1 KB
Install-CitrixProfileManagement-x64.CMD	17/01/2013 4:40 AM	Windows Command Script	1 KB
Install-CitrixProfileManagement-x86.CMD	17/01/2013 4:40 AM	Windows Command Script	1 KB
<input checked="" type="checkbox"/> Install-CitrixStoreFront.cmd	25/10/2013 8:50 PM	Windows Command Script	1 KB
<input checked="" type="checkbox"/> Install-XenDesktop7Controller.cmd	31/10/2013 9:39 PM	Windows Command Script	1 KB
<input checked="" type="checkbox"/> Install-XenDesktop7VDA-DesktopMaster.cmd	07/03/2014 5:44 PM	Windows Command Script	2 KB
<input checked="" type="checkbox"/> Install-XenDesktop7VDA-DesktopPersistent.cmd	03/02/2014 9:34 PM	Windows Command Script	2 KB
<input checked="" type="checkbox"/> Install-XenDesktop7VDA-DesktopPersistentWith3D.cmd	17/03/2014 8:09 PM	Windows Command Script	2 KB
<input checked="" type="checkbox"/> Install-XenDesktop7VDA-DesktopRemotePC.cmd	03/02/2014 9:39 PM	Windows Command Script	2 KB
<input checked="" type="checkbox"/> Install-XenDesktop7VDA-ServerMaster.cmd	31/10/2013 9:22 PM	Windows Command Script	2 KB
<input checked="" type="checkbox"/> Install-XenDesktop7VDA-ServerPersistent.cmd	31/10/2013 9:22 PM	Windows Command Script	2 KB
ProductVersion.txt	26/10/2013 7:41 AM	Text Document	1 KB

19 items    8 items selected  8.61 KB    State: Online

# AUTOMATING THE VDA INSTALL

```
SET OPTIONS=/QUIET
SET OPTIONS=%OPTIONS% /NOREBOOT
SET OPTIONS=%OPTIONS% /LOGPATH %LOGDIR%
SET OPTIONS=%OPTIONS% /COMPONENTS VDA
SET OPTIONS=%OPTIONS% /CONTROLLERS "xd7dc.home.stealthpuppy.com"
SET OPTIONS=%OPTIONS% /ENABLE_HDX_PORTS
SET OPTIONS=%OPTIONS% /ENABLE_REMOTE_ASSISTANCE
SET OPTIONS=%OPTIONS% /ENABLE_REAL_TIME_TRANSPORT
SET OPTIONS=%OPTIONS% /OPTIMIZE
SET OPTIONS=%OPTIONS% /MASTERIMAGE

START /WAIT XenDesktopVDASetup.exe %OPTIONS%
```

# POWERSHELL IN XENDESKTOP STUDIO

The screenshot shows the Citrix Studio interface. On the left is a navigation pane with a tree view:

- Console Root
  - Citrix Studio (Home)
    - Search
    - Machine Catalogs
    - Delivery Groups
    - Policies
    - Logging
  - Configuration
    - Administrators
    - Controllers
    - Hosting
    - Licensing
    - StoreFront
    - App-V Publishing- Citrix StoreFront

A large PowerShell icon is displayed in the bottom-left corner of the pane.

The main area is titled "CITRIX" and contains tabs for "Common Tasks", "Actions", and "PowerShell". The "PowerShell" tab is selected, showing the following PowerShell script:

```
# Create Machine Catalog 'Windows 7'
#
# 6/05/2014 2:59 AM
#
Get-ConfigServiceStatus -AdminAddress 'xd71.home.stealthpuppy.com:80'

Get-LogSite -AdminAddress 'xd71.home.stealthpuppy.com:80'

Start-LogHighLevelOperation -AdminAddress 'xd71.home.stealthpuppy.com:80' -Source 'Studio' -StartTime 5/05/2014 4:57:57 PM -Text 'Create Machine Catalog `Windows 7`'

New-BrokerCatalog -AdminAddress 'xd71.home.stealthpuppy.com:80' -AllocationType 'Random' -Description 'Windows 7 x86' -IsRemotePC $False -LoggingId 8f7e2e72-07e1-4b86-9c15-7b531f459f6f -MachinesArePhysical $False -MinimumFunctionalLevel 'L7' -Name 'Windows 7' -PersistUserChanges 'OnLocal' -ProvisioningType 'Manual' -Scope @() -SessionSupport 'SingleSession'

Set-HypAdminConnection -AdminAddress 'xd71.home.stealthpuppy.com:80'

Get-ChildItem -LiteralPath @('XDhyp:\Connections')

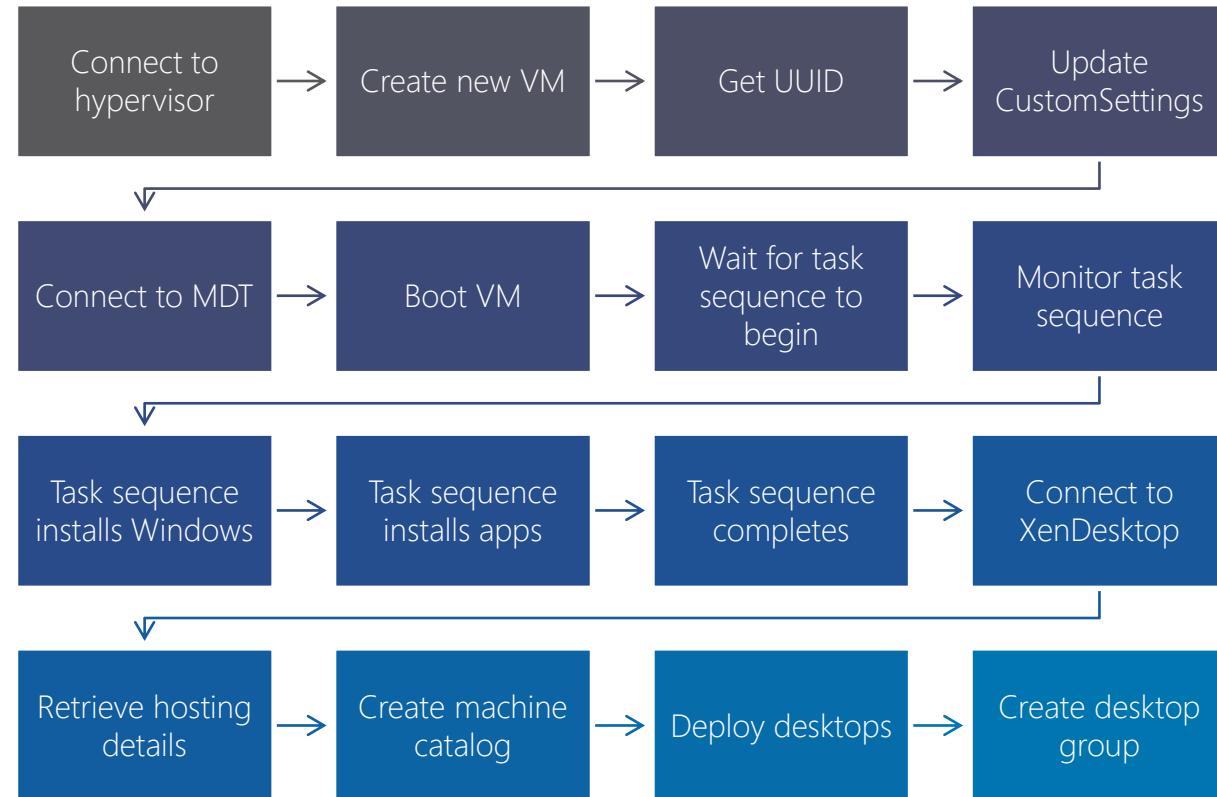
Get-BrokerHypervisorConnection -AdminAddress 'xd71.home.stealthpuppy.com:80' -MaxRecordCount 2147483647

New-BrokerMachine -AdminAddress 'xd71.home.stealthpuppy.com:80' -CatalogUid 14 -HostedMachineId 'f6c23543-8926-4b20-841a-d1f86ba65fa1' -HypervisorConnectionUid 5 -LoggingId 8f7e2e72-07e1-4b86-9c15-7b531f459f6f -MachineName 'S-1-5-21-733536048-60991148-2551668650-2702'

Get-BrokerCatalog -AdminAddress 'xd71.home.stealthpuppy.com:80' -Uid 14
```

At the bottom right of the PowerShell window is a "Launch PowerShell" button.

# MCS WORKFLOW – DEPLOY IMAGE



`Import-Module Hyper-V`

`New-VM`

`Set-VMCdDrive`

`Set-VM`

`Get-VMUUID`

`Out-INIFile`

`Add-PSSnapin`

`'Microsoft.BDD.PSSNAPIN'`

`Start-VM`

`Get-MDTMonitorData`

`Add-PSSnapin Citrix*`

`Get-`

`BrokerHypervisorConnection`

`New-BrokerCatalog`

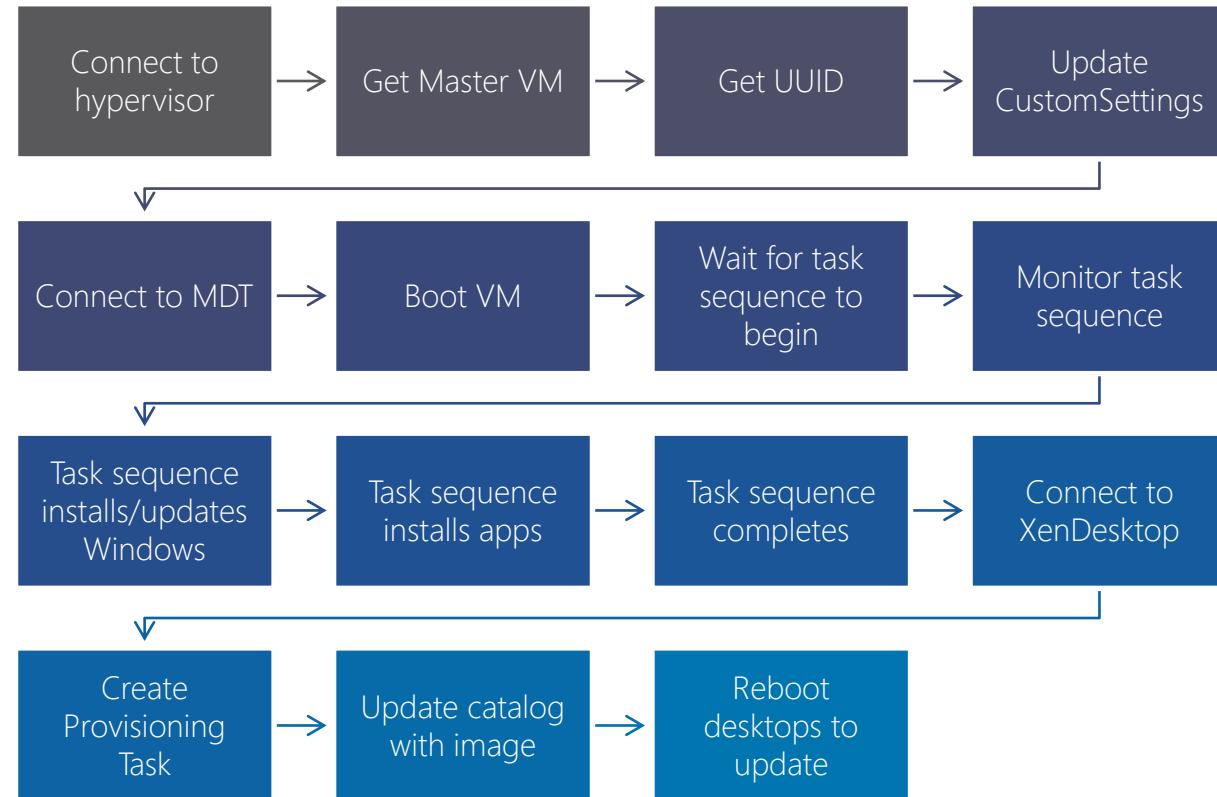
`New-BrokerDesktopGroup`

`Add-BrokerMachine`

`New-BrokerAccessPolicyRule`

`New-BrokerPowerTimeScheme`

# MCS WORKFLOW – UPDATE IMAGE



Import-Module Hyper-V

Get-VM

Set-VMdvdDrive

Set-VM

Get-VMUUID

Out-INIFile

Add-PSSnapin

'Microsoft.BDD.PSSNAPIN'

Start-VM

Get-MDTMonitorData

Add-PSSnapin Citrix\*

Set-ProvSchemeMetadata

Publish-ProvMasterVmImage

Start-BrokerRebootCycle

# KEY TAKE AWAYS



VDI +  
AUTOMATION  
=  
IMAGE  
MANAGEMENT

# KEY TAKE AWAYS

Image automation is easy, no licensing required

Make MDT the foundation for all Windows environments

Compliment image delivery with image automation

Orchestration FTW!

