

# Windows 10 Upgrade-Broad Deployment

*Prepared by*

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## Guide Description

*The purpose of this guide is to lay out the steps for deployment the OS upgrade from the M365 skus across your network. This guide is assuming you have the **M365 Business, M365 E3, or M365 E5** License. After the you complete this guide you will have:*

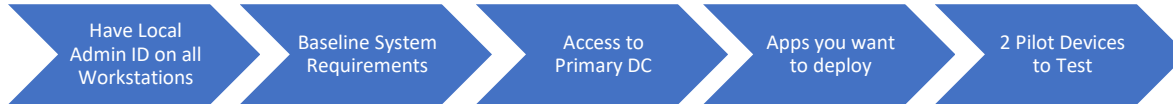
- *Run an assessment for Windows 10 Upgrade Readiness for all the devices on your network*
- *Created Windows 10 Installation Media*
- *Downloaded and Configured MDT and WDS to deploy the Windows 10 Upgrade*
- *Tested the upgrade on 2 pilot devices*
- *Configured WDS and MDT for Light Touch Installation (LTI) to all users on your network*

### **\*\*Disclaimer\*\***

This guide is meant to provide best practices for Windows 10 Upgrade readiness and broad deployment across your network. It is meant to be used as a template, but the settings configured will not be the same in all use cases. You must access all the devices in your network to decide how many different versions of the WIM file you need to create to match the compatibility of the workstation. Pax8 is not liable for any configuration you create that do not meet the customers standards. As a best practice, test all configurations with a pilot group before moving to broad deployment across an entire organization



## Pre-Flight Checklist



- a. Have Local Admin ID on all Workstations
  - i. We need this when running the Microsoft Assessment and Planning toolkit
  - ii. Workstations must be turned on for this tool to run an assessment on that device
- b. Baseline System Requirements on Sever:
  - i. Microsoft Deployment Toolkit:
    - 1. Supported Operating System
      - a. Windows 10 , Windows 7, Windows 8, Windows 8.1, Windows Server 2008 R2, Windows Server 2012, Windows Server 2012 R2, Windows Server 2016, Windows Server 2019
    - 2. Other Requirements
      - a. The Windows ADK for Windows 10, version 1809 or later, is required for all deployment scenarios.
      - b. Configuration Manager, version 1810 or later, is required for zero-touch installation (ZTI) and user-driven installation (UDI) scenarios.
- c. Access to Primary DC
  - i. This is where we will be spending most of our time during setup
  - ii. This is where we will run and install the following
    - 1. Microsoft Assessment and planning toolkit
    - 2. MDT
    - 3. WDS
- d. Apps you want to Deploy
  - i. Part of the configuration for MDT allows us to add applications to our deployment. I do not cover that in this guide but can be helpful if you want to push out any on-premise applications. I recommend using Intune for this feature.
- e. Choose 2 pilot devices you want to enroll into Intune
  - i. These devices we will be using to test our deployment share and configure our bootstrap.ini file so the broad audience has a LTI (Lite touch installation) experience



## Phases:



Phase 1: Microsoft Assessment and Planning Toolkit



Phase 2: Install the Windows 10 Installation Media



Phase 3: Install WDS and MDT



Phase 4: Import Your OS



Phase 5: Create a New Task Sequence



Phase 6: Create MDT Deployable Image



Phase 7: Add the Boot Images to WDS



Phase 8: Deploy the Windows 10 Image



Phase 9: Navigate the End-User Experience



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[Phase 4: Import Your OS](#)

[Phase 5: Create a New Task Sequence](#)

[Phase 6: Create MDT Deployable Image](#)

[Phase 7: Add the Boot Images to WDS](#)

[Phase 8: Deploy the Windows 10 Image](#)

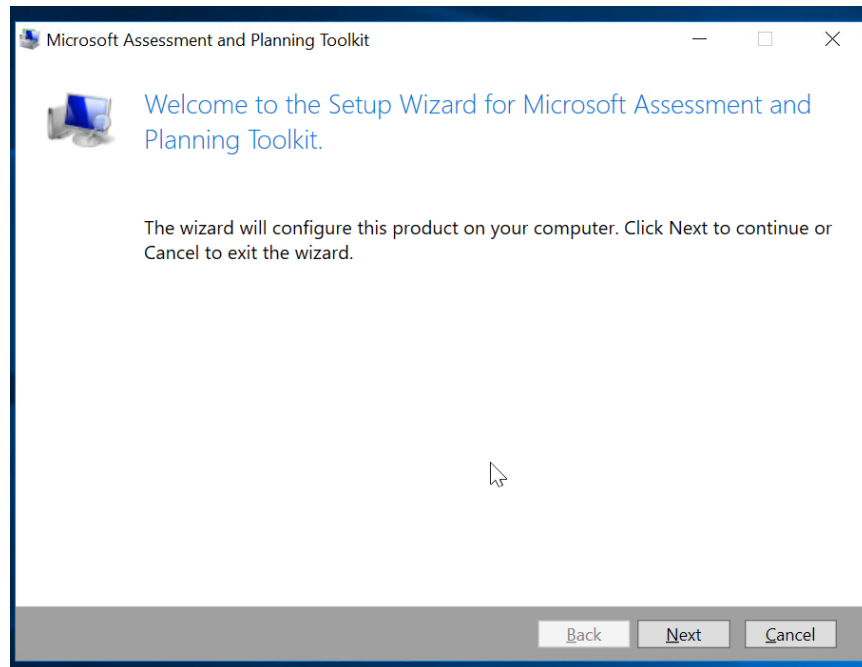
[Phase 9: Navigate the End-User Experience](#)



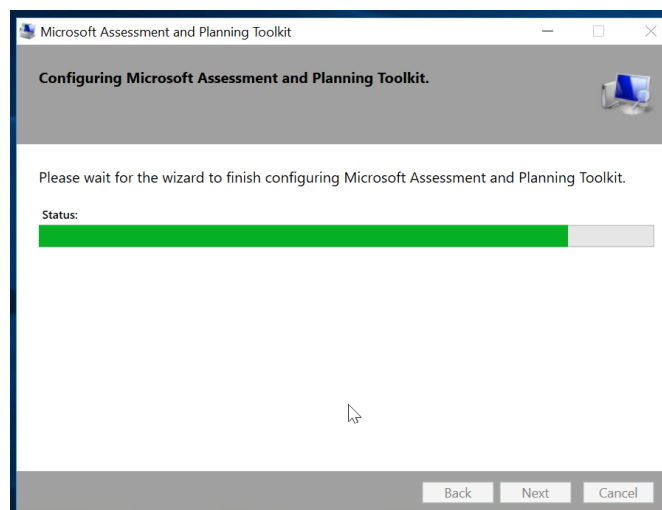
## Install the Microsoft Assessment and Planning Toolkit

We want to perform an assessment on the computers in our network to make sure they are compatible for the Windows Upgrade. The Microsoft assessment and planning toolkit allows us to scan all the computers in our Active Directory or by scanning a certain IP range and tells us which devices are ready for the upgrade.

1. Go to the following link on your AD server and download the Microsoft Assessment and Planning Toolkit: <https://www.microsoft.com/en-us/download/details.aspx?id=7826>

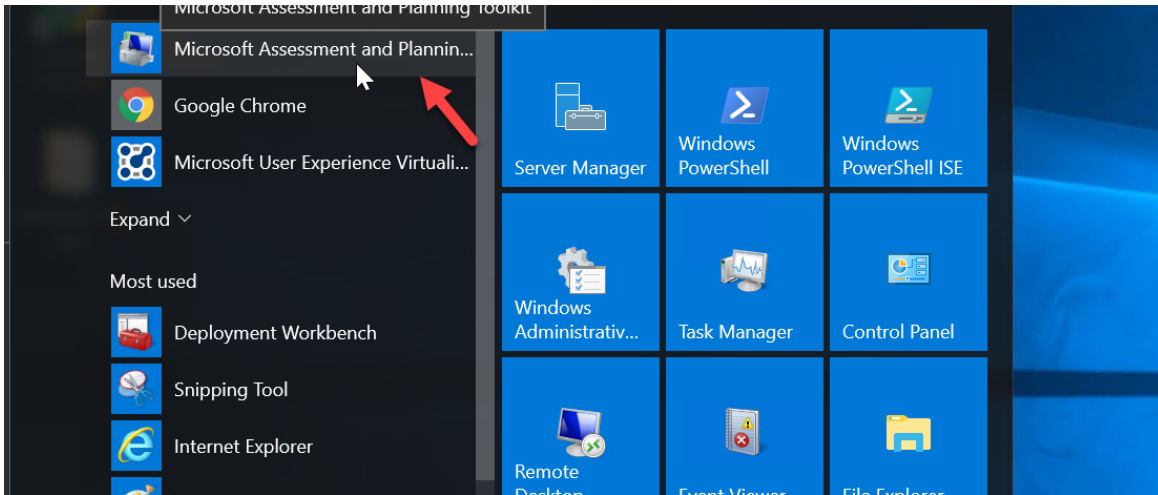


2. Run through the wizard to install:

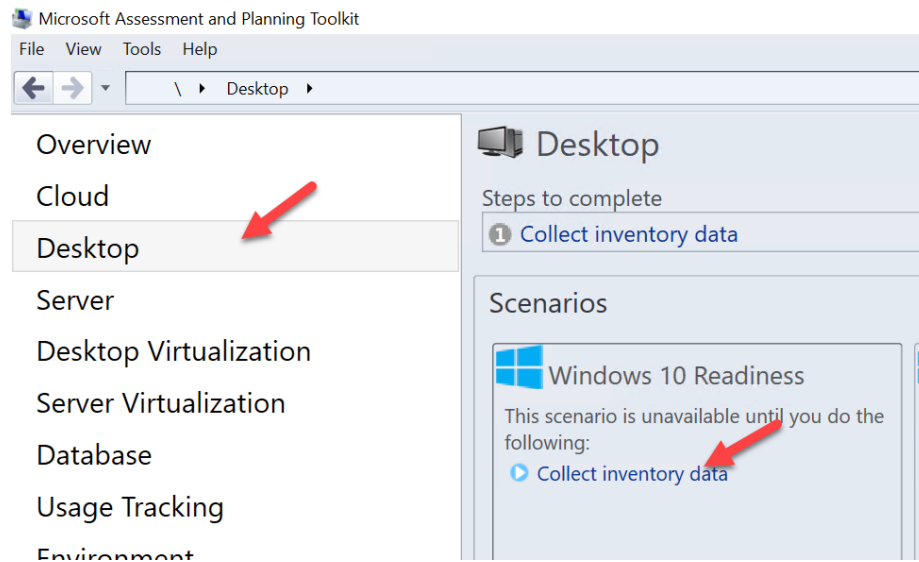




3. Go to start and open the program:

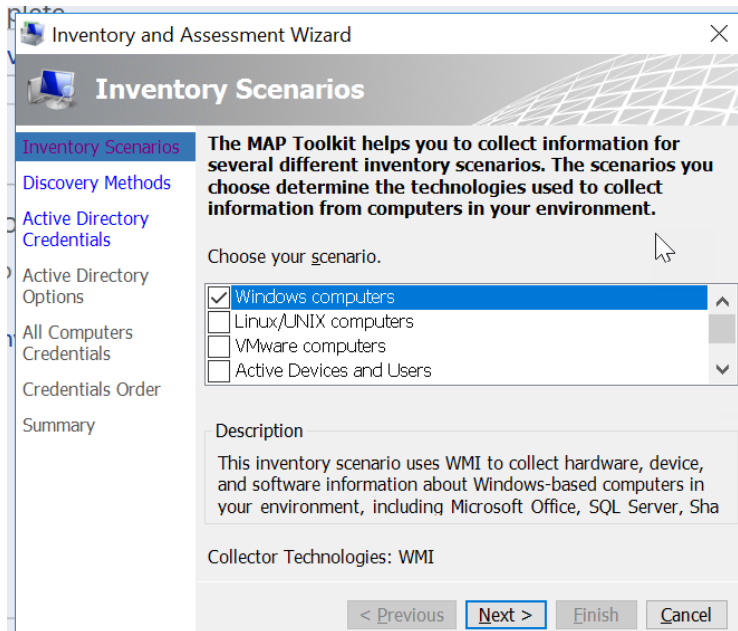


4. Click Desktop, then collect inventory data under Windows 10 Readiness

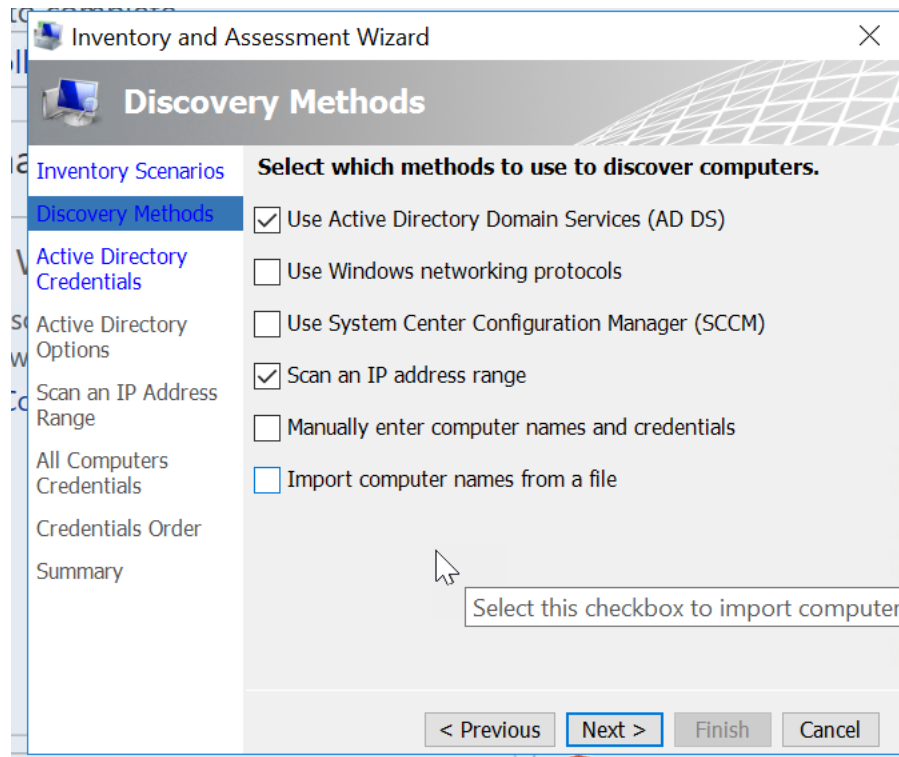




5. Choose Windows Computers and click next:



6. Choose you methods:







7. If using AD DS, enter necessary info:

The screenshot shows the 'Active Directory Credentials' step of the 'Inventory and Assessment Wizard'. The left sidebar lists 'Inventory Scenarios', 'Discovery Methods', 'Active Directory Credentials' (selected), 'Active Directory Options', 'Scan an IP Address Range', 'All Computers Credentials', 'Credentials Order', and 'Summary'. The main area is titled 'Specify the logon information used to connect to the Active Directory forest and discover domain-joined computers'. Below this, there are three input fields: 'Domain\*' with the value 'wrajrecords.com', 'Domain account\*' with the value 'wrajrecords\nross', and 'Password\*'. At the bottom, there are buttons for '< Previous', 'Next >', 'Finish', and 'Cancel'.

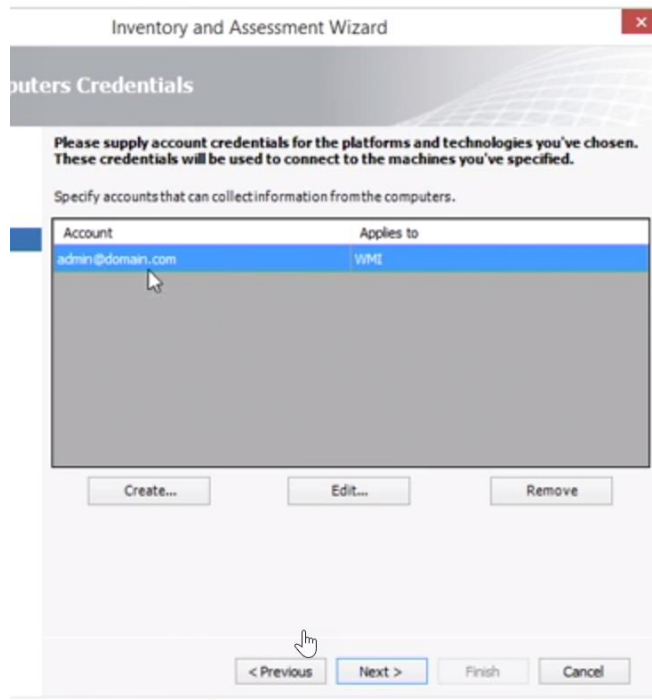
8. If using IPs, enter range:

The screenshot shows the 'Scan an IP Address Range' step of the 'Inventory and Assessment Wizard'. The left sidebar lists 'Inventory Scenarios', 'Discovery Methods', 'Scan an IP Address Range' (selected), 'All Computers Credentials', 'Credentials Order', and 'Summary'. The main area is titled 'Specify the IP address ranges to scan for computers and devices'. Below this, there is a text box for entering IP address ranges. At the bottom, there are buttons for '< Previous', 'Next >', 'Finish', and 'Cancel'.

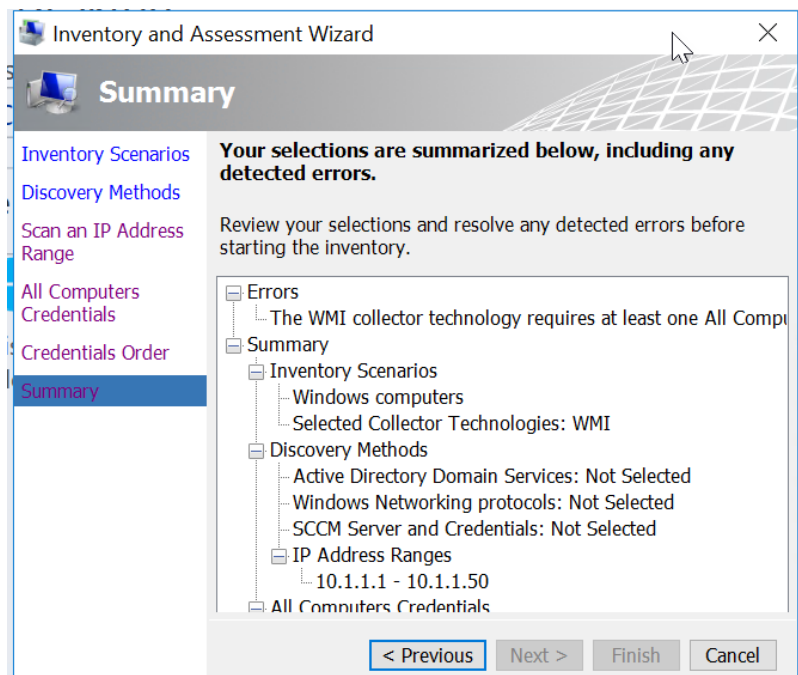
Starting Address	Ending Address



9. Ensure you add an administrator account with local admin access to all computers



10. Finish the wizard till completion





11. After the assessment runs, you will get an excel sheet with a summary:

The screenshot shows an Excel spreadsheet with the following data table:

Windows 10 Readiness	Before Hardware Upgrades	After Hardware Upgrades
Meets Minimum System Requirements	70	232
Not Ready for Windows 10	162	0
Insufficient Data (Not Inventoried)	31	31

a. **Insufficient data** typically means that the computer was turned off or that there were not sufficient permissions on that device with the credentials provided

b. Client Assessment tab shows a list of the devices in a more detailed view:

The screenshot shows the same Excel spreadsheet as above, but with the 'ClientAssessment' tab selected at the bottom. A red arrow points to the 'ClientAssessment' tab. The data table from the previous screenshot is visible in the background.



c. AfterUpgrades shows what you need to do to upgrade:

**Windows 10 Minimum Ready Computers After Hardware Upgrades**

This worksheet describes computers that are not currently able to run Windows 10 and the hardware upgrades required to meet the minimum system requirements for Windows 10.

Computer Name	IP Address	CPU	Memory	Upgrade to
Map-7-x64.map.test.CONTOSO.COM	10.217.74.28;fe80::4836:516c:1d5c:36a5;2001:4898:e0:323d:4836:516c:1d5c:36a5	Intel(R) Xeon(R) CPU @ 2.13GHz, 64 bit	L5630	Upgrade to Windows 10
Map-81-multi.map.test.CONTOSO.COM	172.16.0.218;fe80::3435:8373:4caa:c948	Intel(R) Xeon(R) CPU @ 2.13GHz, 64 bit	L5630	Upgrade to Windows 10
MAP-81-x64.map.test.CONTOSO.COM	10.217.72.227;fe80::3409:ae00:9be:19bc;2001:4898:e0:323d:d85d:5f67:1593:a55b;2001:4898:e0:323d:79c4:3acf:7e0d:3d22;2001:4898:e0:323d:f1a9:1d7c:d1fd:ccd7;2001:4898:e0:323d:9058:13cf:eb19:9821;2001:4898:e0:323d:d0bd:8d0:ffa0:5cfa;2001:4898:e0:323d:4a42:0:0:0:0	Intel(R) Xeon(R) CPU @ 2.13GHz, 64 bit	L5630	Upgrade to Windows 10
Map-81-x64-cn.map.test.CONTOSO.COM	10.217.74.29;fe80::7012:ae67:b913:4393;2001:4898:e0:323d:d0bd:8d0:ffa0:5cfa;2001:4898:e0:323d:4a42:0:0:0:0	Intel(R) Xeon(R) CPU @ 2.13GHz, 64 bit	L5630	Upgrade to Windows 10

Summary | AssessmentValues | ClientAssessment | **AfterUpgrades** | DeviceSummary | Device

## Install the Windows 10 Installation Media

1. Login to your admin center and scroll down to the Windows 10 Card on your Dashboard. Here you can click on a link to download the installation media. **\*\*NOTE\*\* you will want to install this on your AD server:**

Microsoft 365 admin center

Device Management | Azure Active Directory | Support

Get started | Customize sign in | New service request

Set up device enrollment | Enable password reset | View service requests

Configure device profiles | Add an application

Create app policies

Device policies > | Device actions > | **Windows 10 Upgrade**

Add policy | Deploy Windows with AutoPilot | Install upgrade

Edit policy | Remove company data | Share the download link

Delete policy | Factory reset | **Create installation media**

Manage Office deployment | Troubleshoot installation

Train yourself | Message center >

Need help? | Feedback



<https://www.microsoft.com/en-us/software-download/windows10>

## Download Windows 10

Windows 10 October 2018 Update now available

The Update Assistant can help you update to the latest version of Windows 10. To get started, click **Update now**.

**Update now**

[Privacy](#)


### Create Windows 10 installation media

To get started, you will first need to have a license to install Windows 10. You can then download and run the media creation tool. For more information on how to use the tool, see the instructions below.

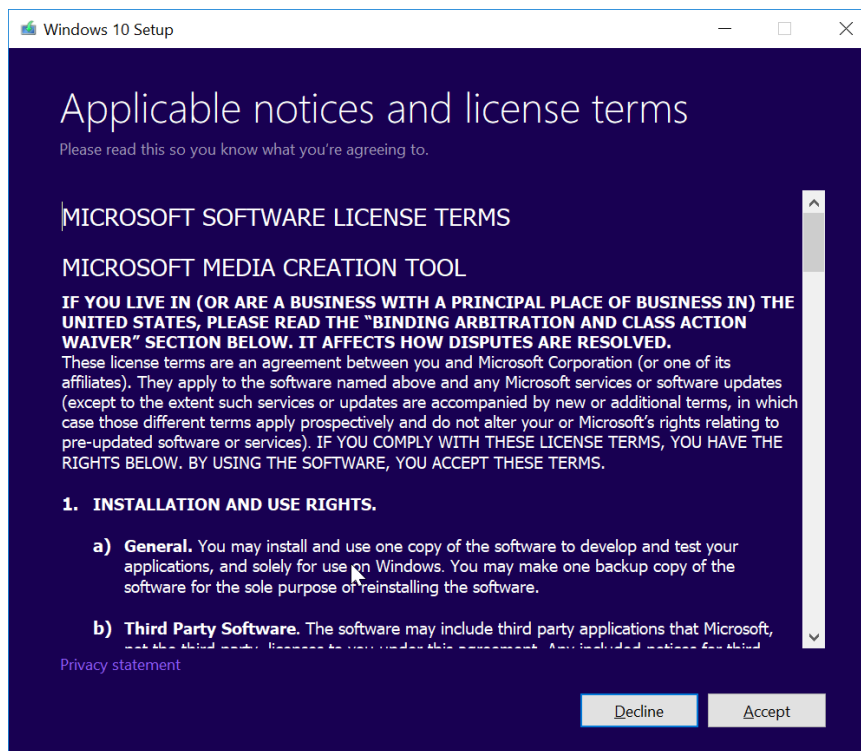
**Download tool now**

<https://go.microsoft.com/fwlink/?linkid=891209>

[Privacy](#)

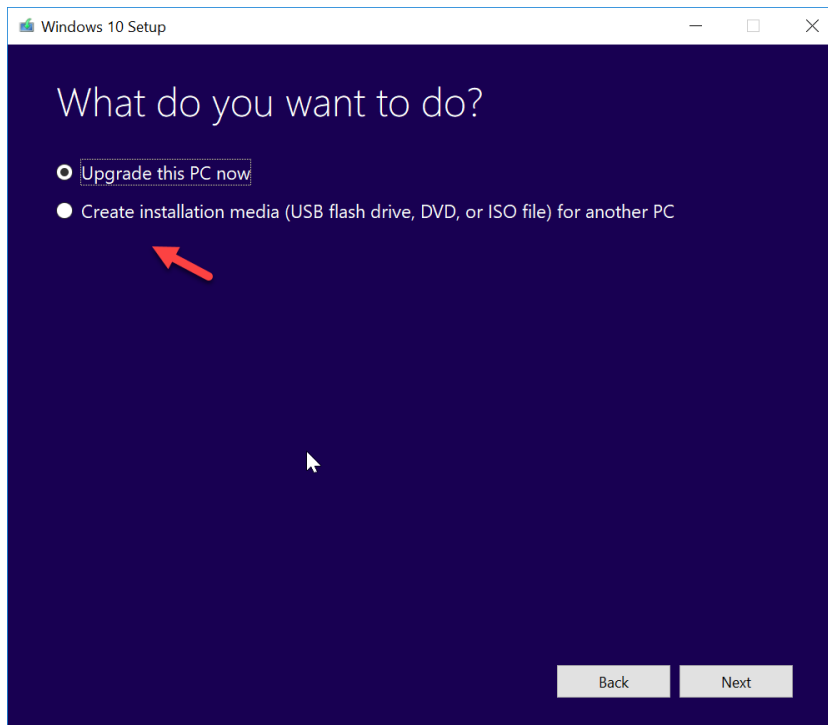
A photograph of a laptop displaying the Windows 10 desktop environment. The screen shows the Start menu with various application icons, the taskbar, and the Windows logo wallpaper.

2. Click on Download tool now to launch the Wizard. You will want to run this wizard for upgrades either on the existing computer or to create the ISO file to upgrade other computers. First Agree to the terms and conditions:

A screenshot of the Windows 10 Setup wizard. The window title is "Windows 10 Setup". The main heading is "Applicable notices and license terms". Below this, it says "Please read this so you know what you're agreeing to." The text "MICROSOFT SOFTWARE LICENSE TERMS" and "MICROSOFT MEDIA CREATION TOOL" is visible. A large block of text follows, starting with "IF YOU LIVE IN (OR ARE A BUSINESS WITH A PRINCIPAL PLACE OF BUSINESS IN) THE UNITED STATES, PLEASE READ THE 'BINDING ARBITRATION AND CLASS ACTION WAIVER' SECTION BELOW. IT AFFECTS HOW DISPUTES ARE RESOLVED." The text continues with "These license terms are an agreement between you and Microsoft Corporation (or one of its affiliates). They apply to the software named above and any Microsoft services or software updates (except to the extent such services or updates are accompanied by new or additional terms, in which case those different terms apply prospectively and do not alter your or Microsoft's rights relating to pre-updated software or services). IF YOU COMPLY WITH THESE LICENSE TERMS, YOU HAVE THE RIGHTS BELOW. BY USING THE SOFTWARE, YOU ACCEPT THESE TERMS." Below this, there is a section titled "1. INSTALLATION AND USE RIGHTS." with two sub-points: "a) General. You may install and use one copy of the software to develop and test your applications, and solely for use on Windows. You may make one backup copy of the software for the sole purpose of reinstalling the software." and "b) Third Party Software. The software may include third party applications that Microsoft, not the third party, licenses to you under this agreement. Any included notices for third party software apply to you." At the bottom, there are two buttons: "Decline" and "Accept". A "Privacy statement" link is also visible at the bottom left.

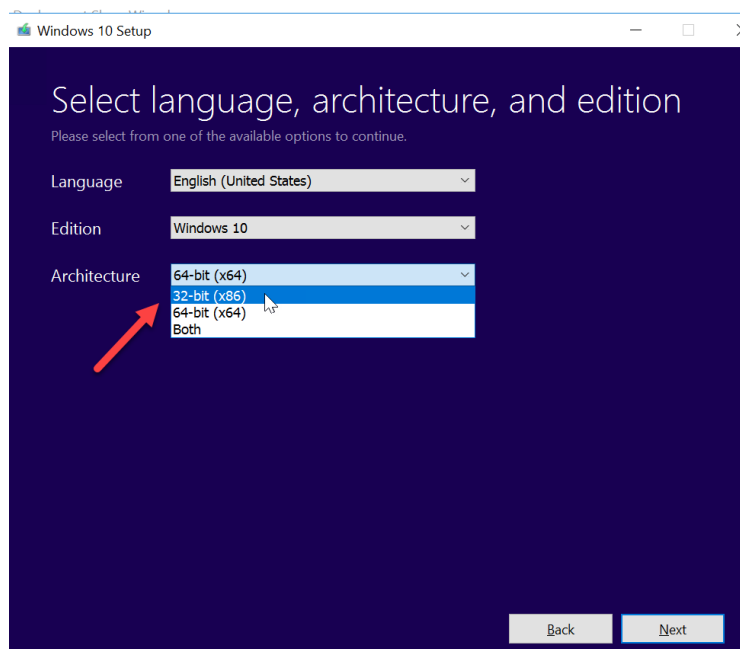


3. In this guide, we are going to create the installation media:



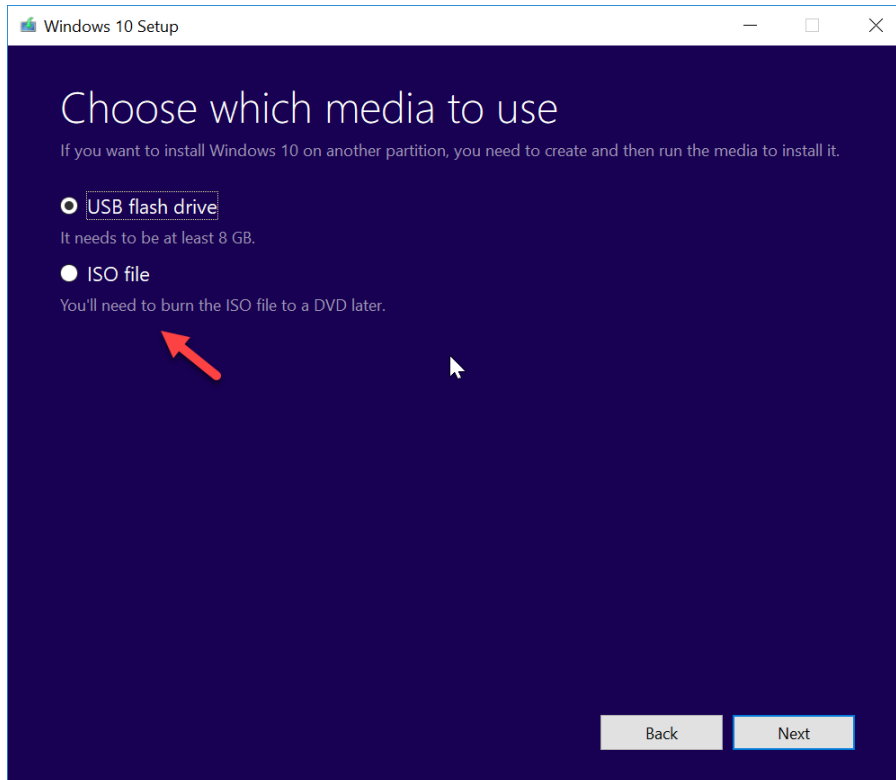
4. For the “Upgrade this PC Now” option, please watch this short video:  
<https://www.microsoft.com/en-us/videooplayer/embed/RE201WL>

5. Chose 32-bit or both:

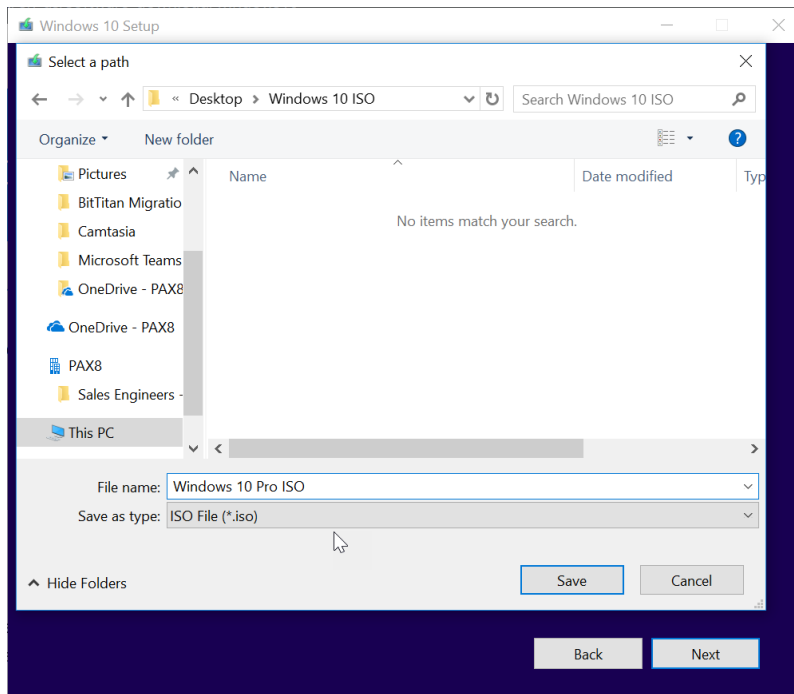




6. Choose which media to use, we will be downloading the ISO file:

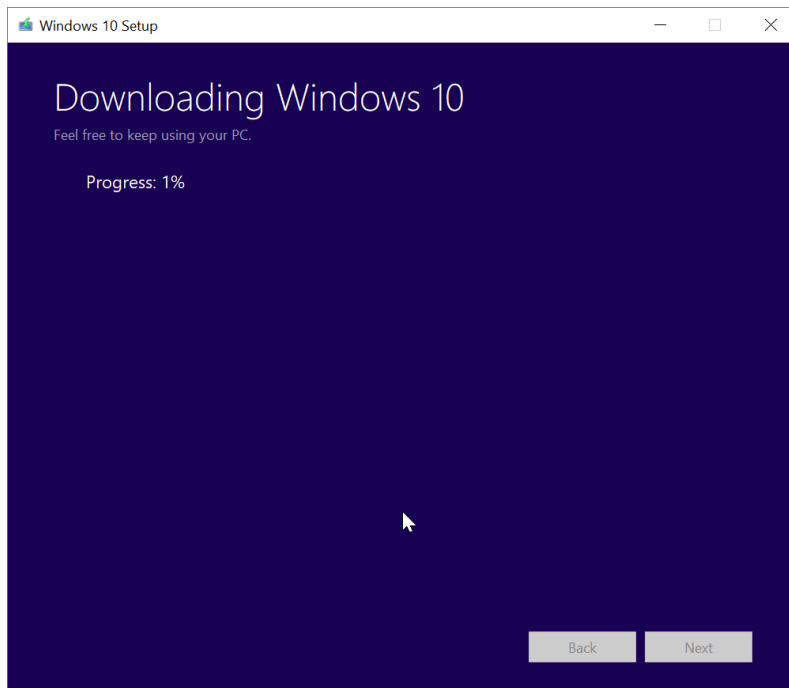


7. Select your destination to save the ISO:

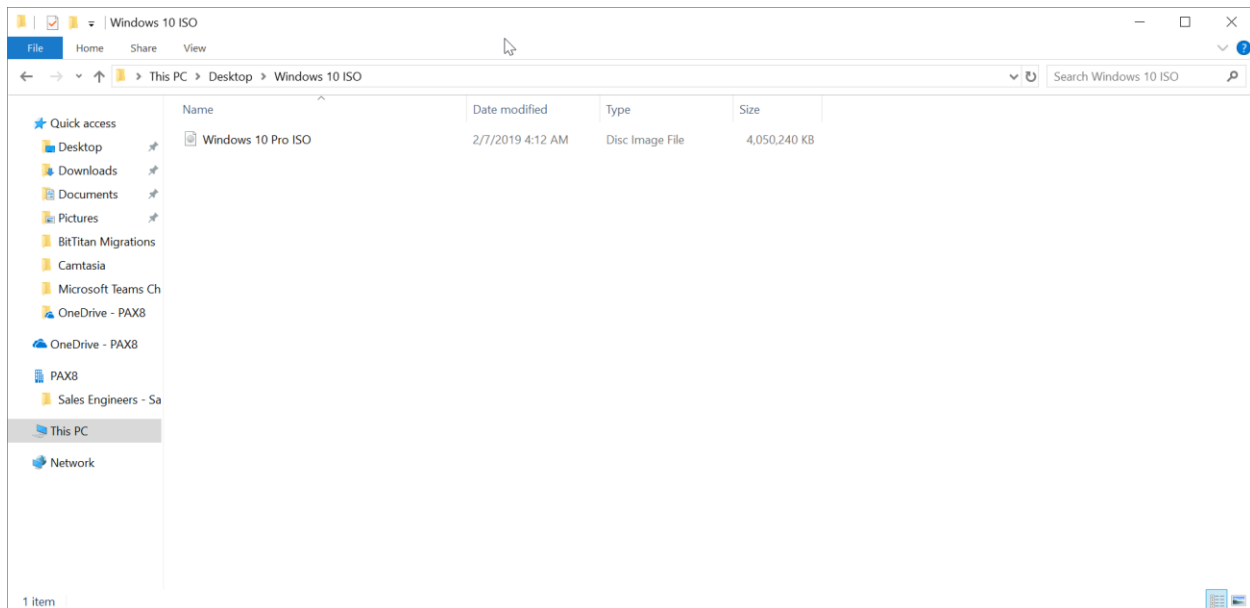




8. Allow the download to complete, click Finish when done:



9. You will now have the ISO download to burn to a DVD:





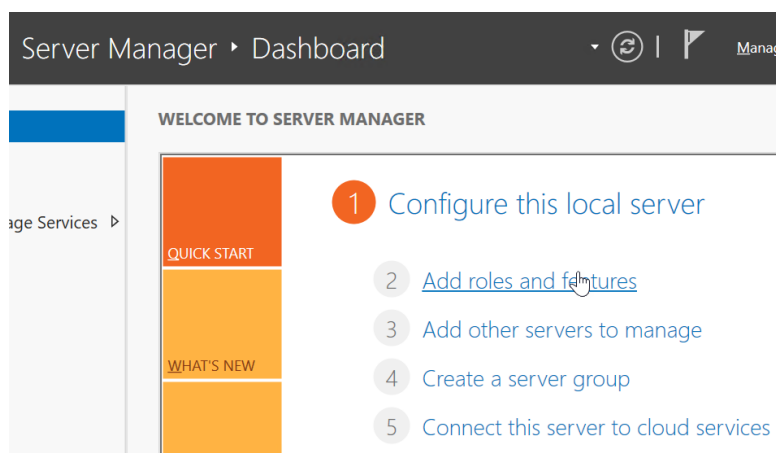


## Install WDS and MDT

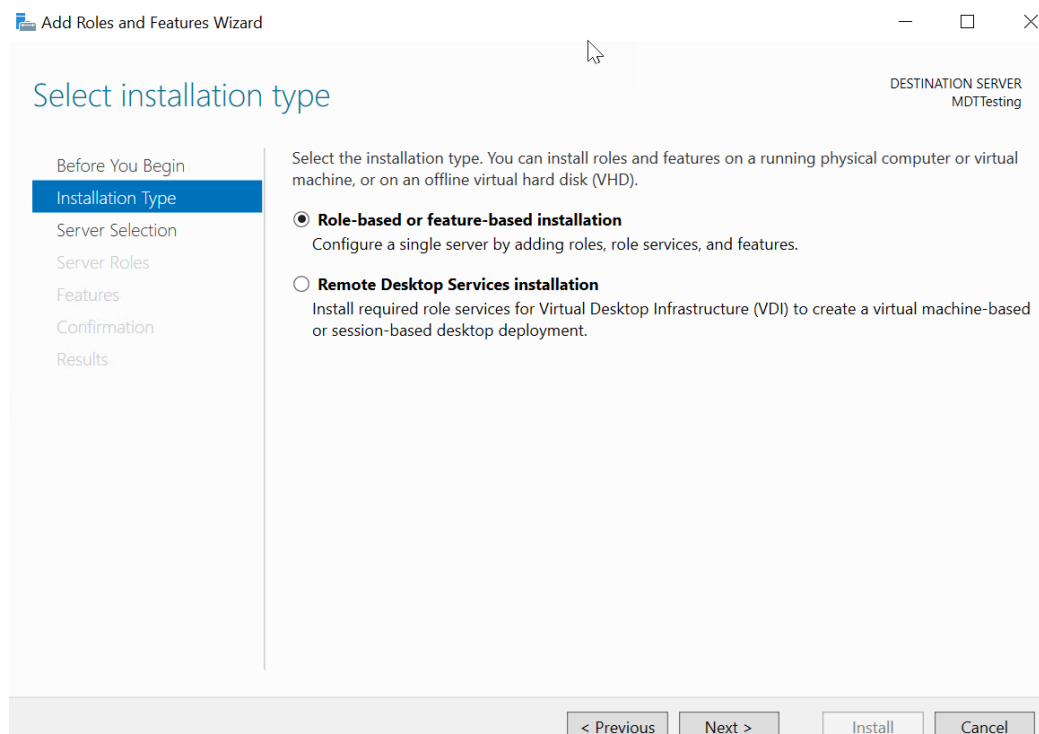
Windows Deployment Services enables you to deploy the Windows Operating system over your network. It can also listen for PXE boot request. The Microsoft Deployment toolkit (MDT) allows us to create custom WIM files in a deployment share. We will be putting WIM files that we create with MDT into the boot images section of WDS so that computers are immediately prompted to upgrade when the boot their device.

### 1. Install WDS

#### a. Add roles and features

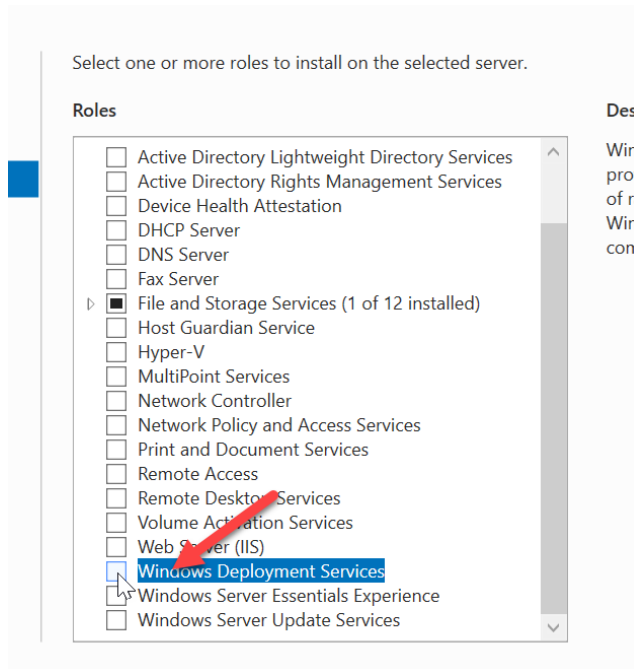


#### b. Role Based Assignment

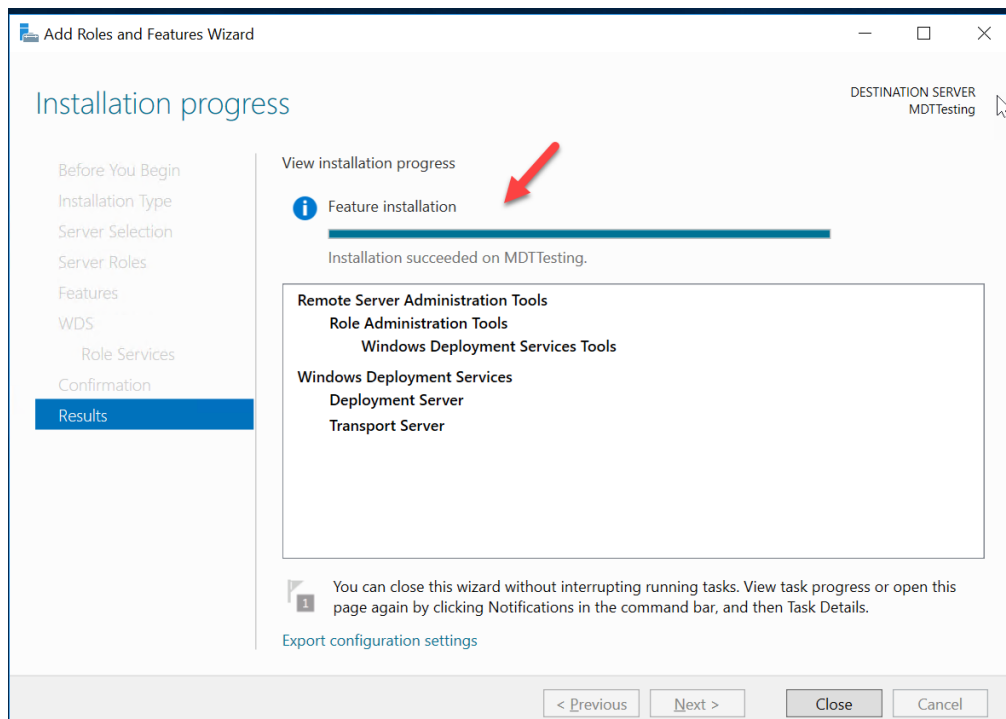




- c. Choose what server I want to install on
- d. Choose Windows Deployment Services

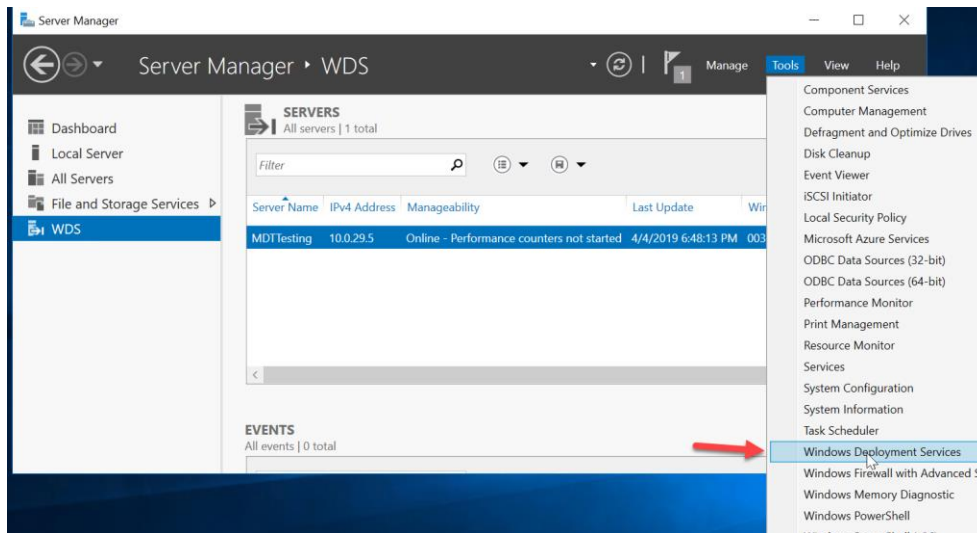


- e. Click Add Features>Next>Next>Next>Next>Install
- f. Wait for installation to complete:

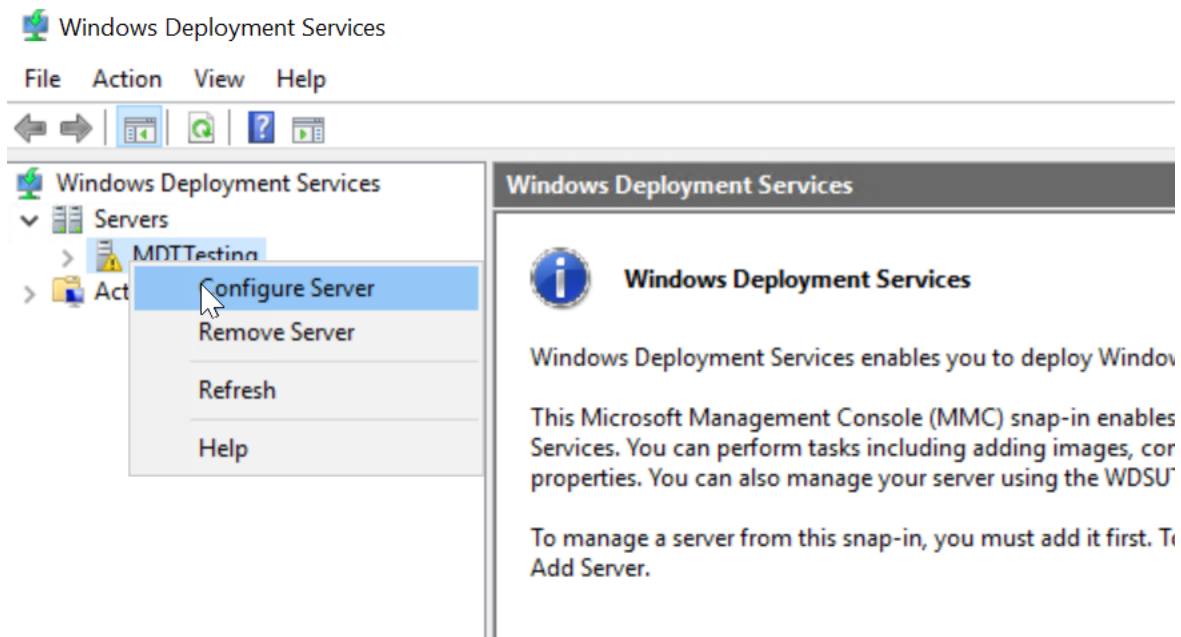




## 2. Go to Tools>Windows Deployment Services

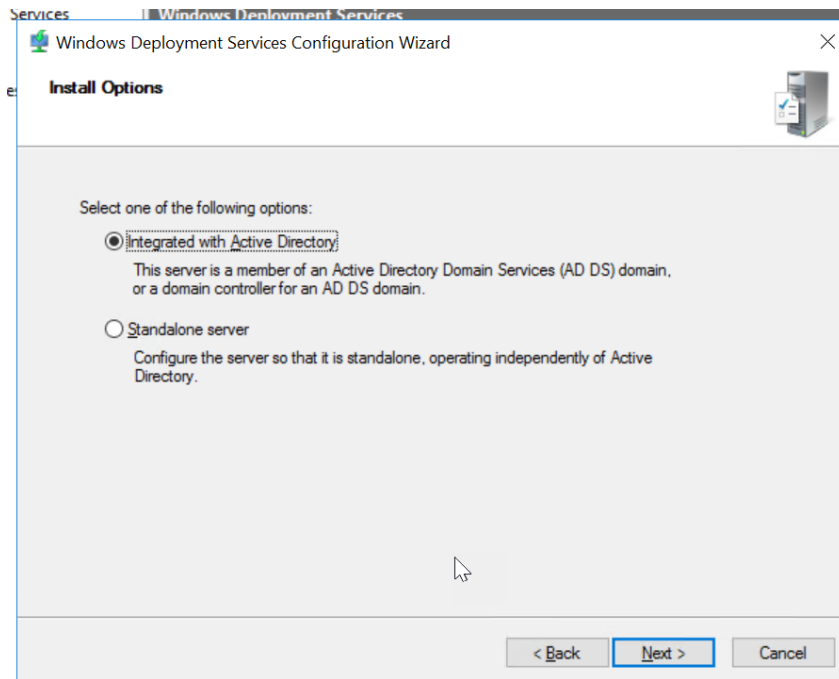


## 3. Right click on Server>Configure Server

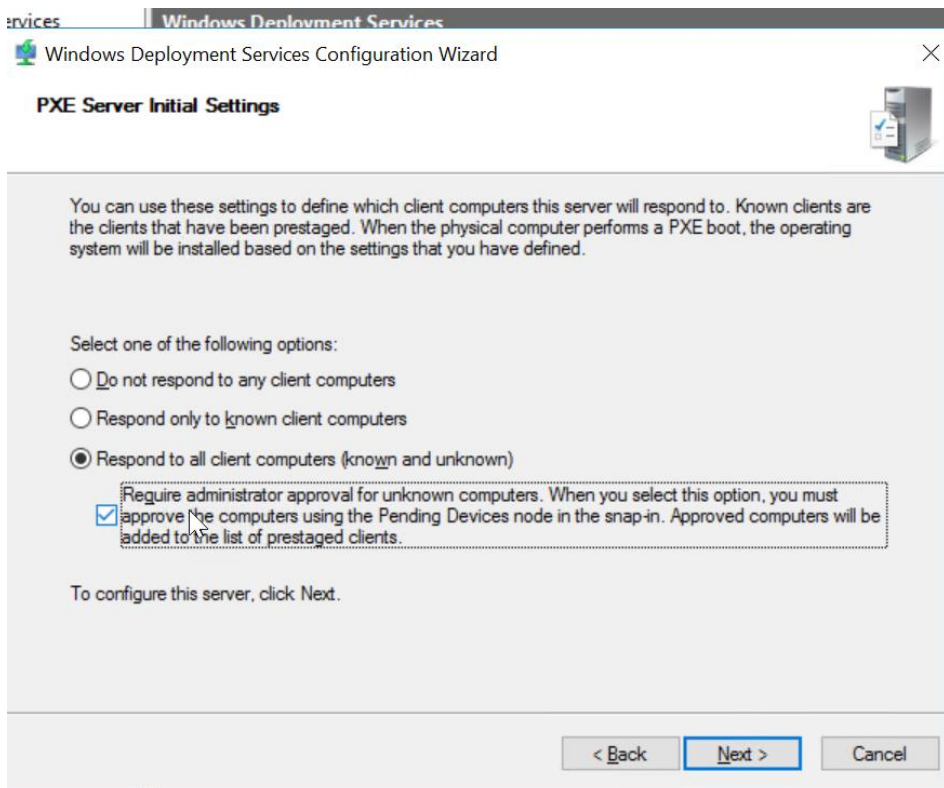




#### 4. Integrate with AD

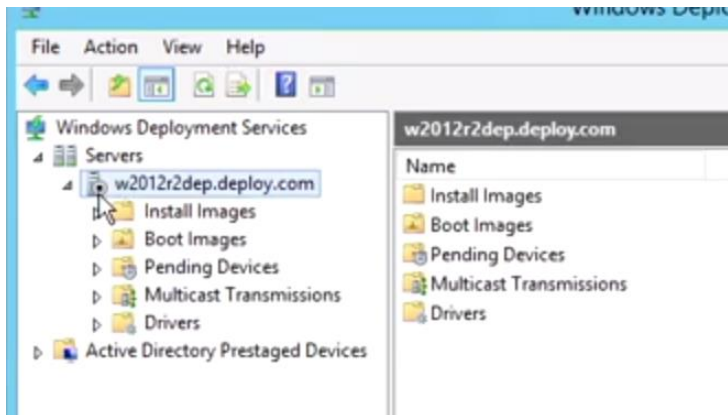


#### 5. Configure the following:

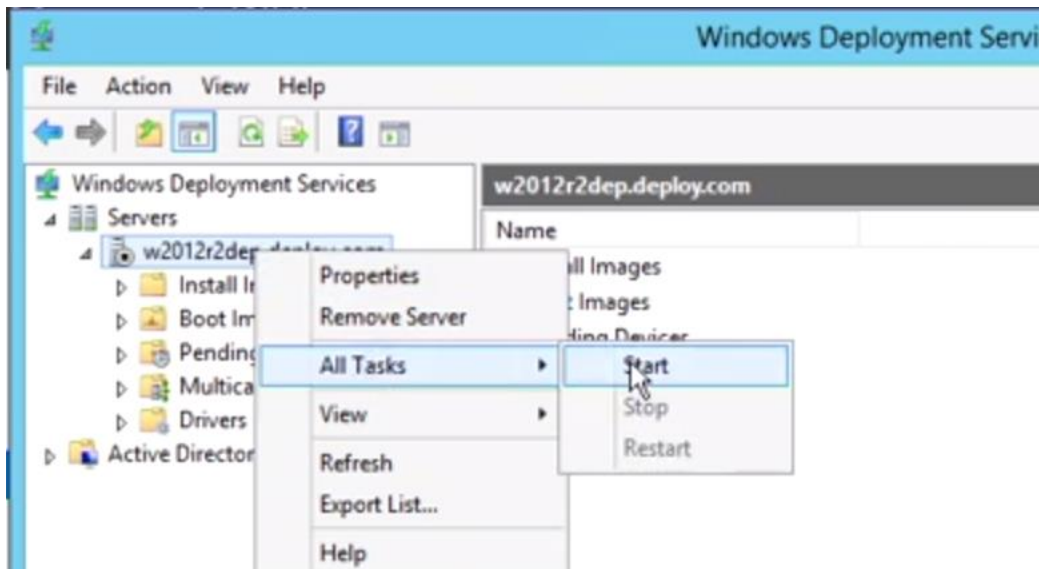




6. You should see the following:

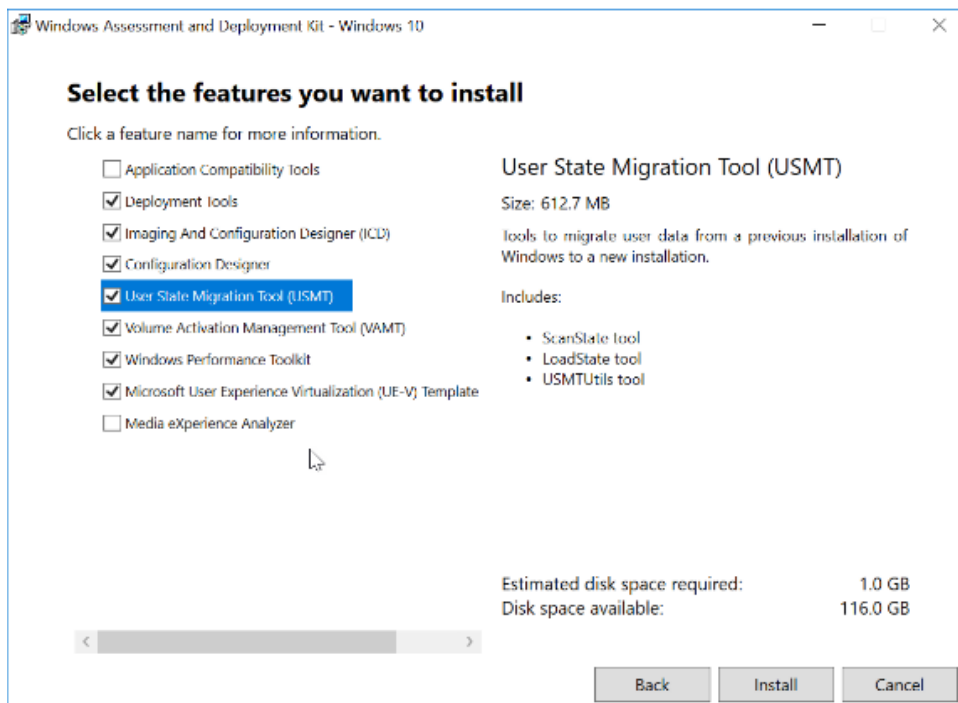


7. Make sure the service starts correctly:

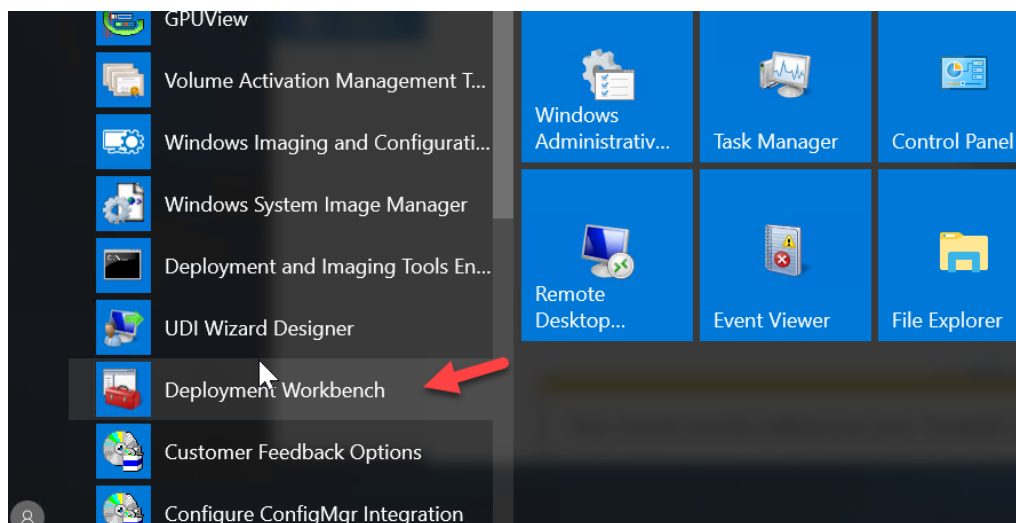




8. Install MDT: <https://www.microsoft.com/en-us/download/confirmation.aspx?id=54259> and WADK: <https://docs.microsoft.com/en-us/windows-hardware/get-started/adk-install>
  - a. [Download the Windows ADK for Windows 10, version 1809](#)
  - b. [Download the Windows PE add-on for the ADK](#)
9. Run through Wizard
  - a. Configure the following for WADK:

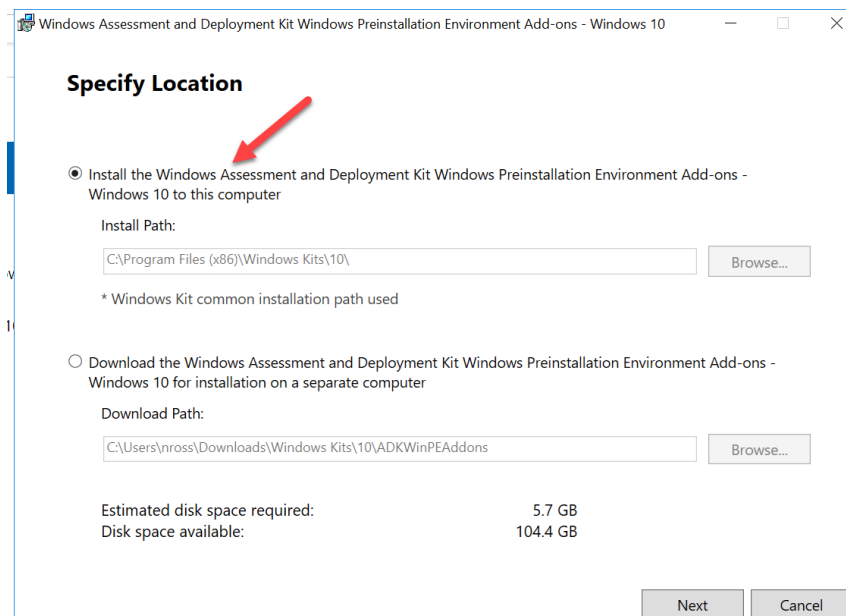


- b. Search for Deployment Workbench under the start menu to make sure everything installed correctly:



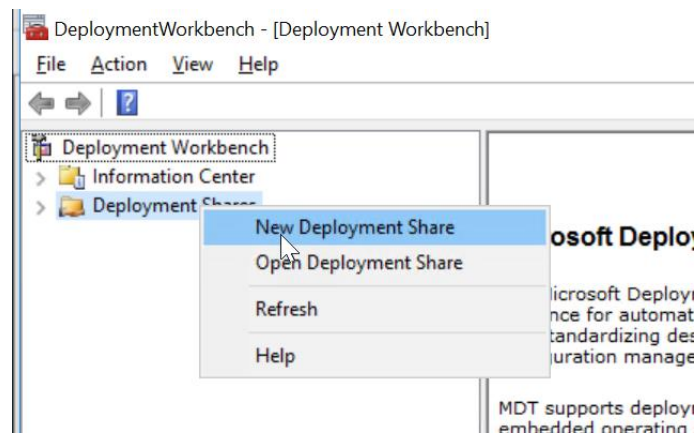


10. For the Windows PE installation wizard, specify Installation on this computer:



11. Create new Deployment Share

a. In Deployment workbench>New Deployment share





b. Customize the following settings to your environment:

The image shows two screenshots from the "New Deployment Share Wizard" in Windows. The left screenshot is the "Path" step, and the right screenshot is the "Share" step.

**Path Step:** The window title is "New Deployment Share Wizard". The "Path" step is selected in the left-hand navigation pane. The main area contains the text "Specify the location of the network share for this deployment type." Below this is a text box labeled "Deployment share path:" containing the text "D:\DeploymentShare". To the right of the text box is a "Browse..." button. At the bottom of the window are "Previous", "Next", and "Cancel" buttons.

**Share Step:** The window title is "Share". The "Share" step is selected in the left-hand navigation pane. The main area contains the text "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." Below this is a text box labeled "Share name:" containing the text "DeploymentShare\$". Below the text box is the text "Full path UNC path: \\MDTTesting\DeploymentShare\$". At the bottom of the window are "Previous", "Next", and "Cancel" buttons.





New Deployment Share Wizard



## Descriptive Name

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

Specify a descriptive name for the deployment share.

Deployment share description:

MDT Deployment Share

Previous

Next

Cancel



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



## Summary

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

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

Details:

Path:	D:\DeploymentShare
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.

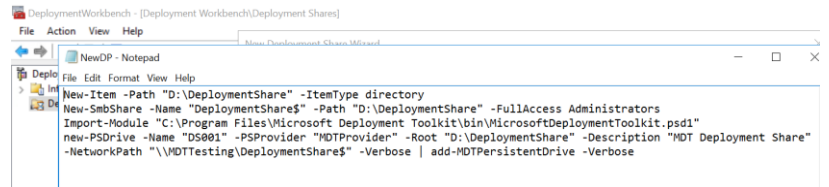
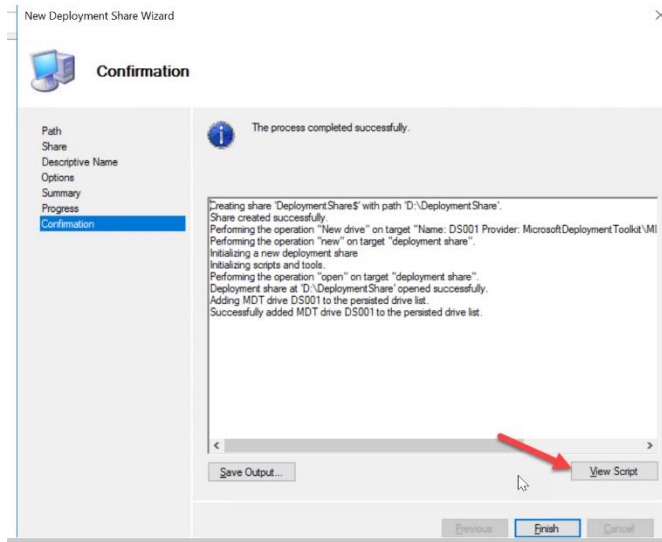
Previous

Next

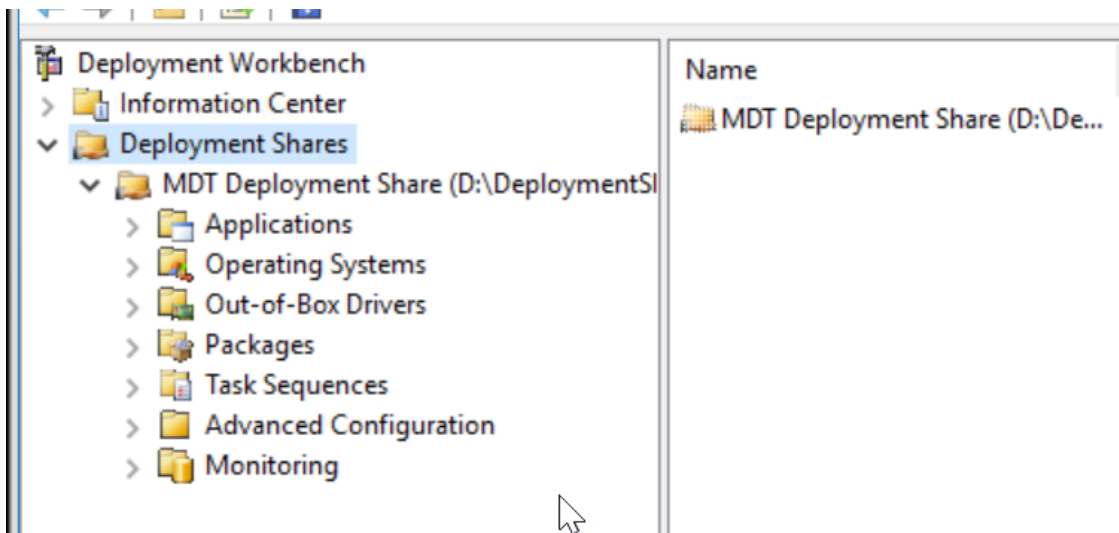
Cancel



- c. Click View Script to get a custom powershell script you can use to implement the same settings to other customers:



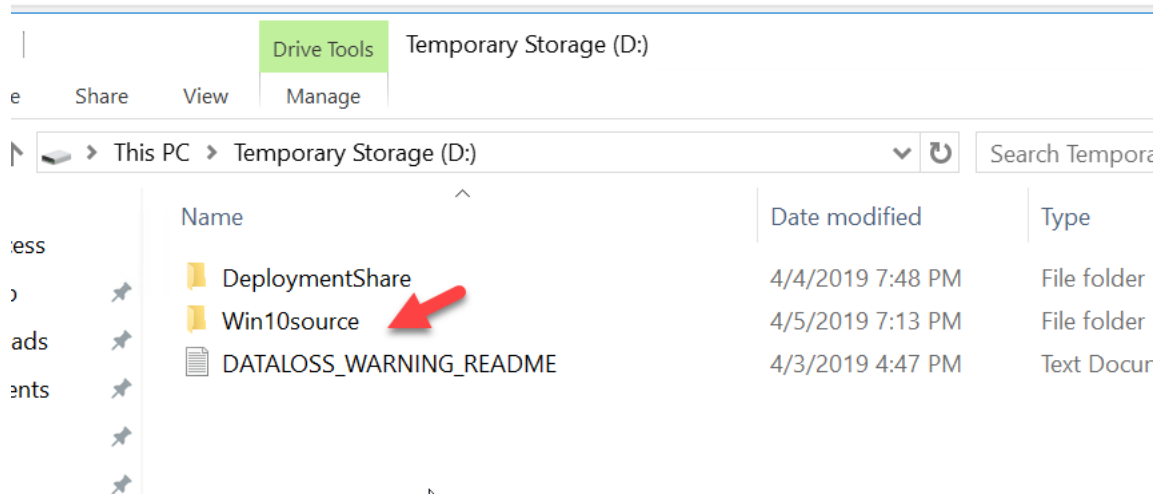
- d. You will now see the following:



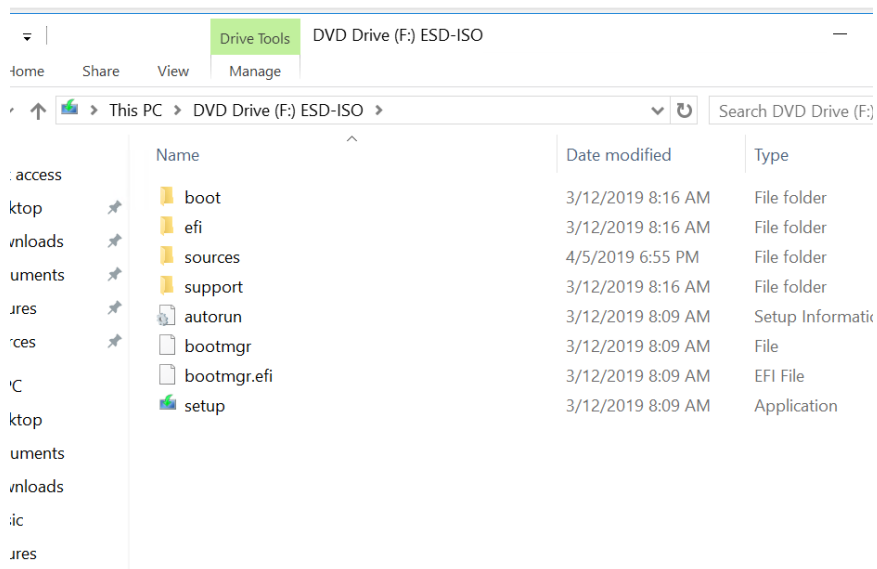


## Import Your OS

1. Add your OS to the Deployment Workbench
  - a. Go to File Explorer and create a new Folder in your D: drive called Win10Source

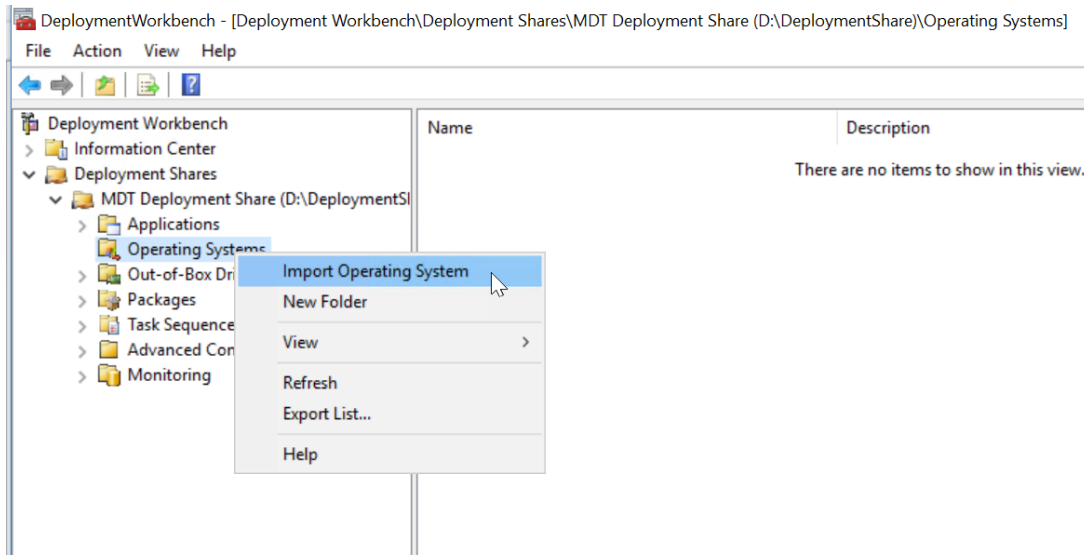


- b. Copy the files from the DVD drive from part one of this document and paste them into this folder:

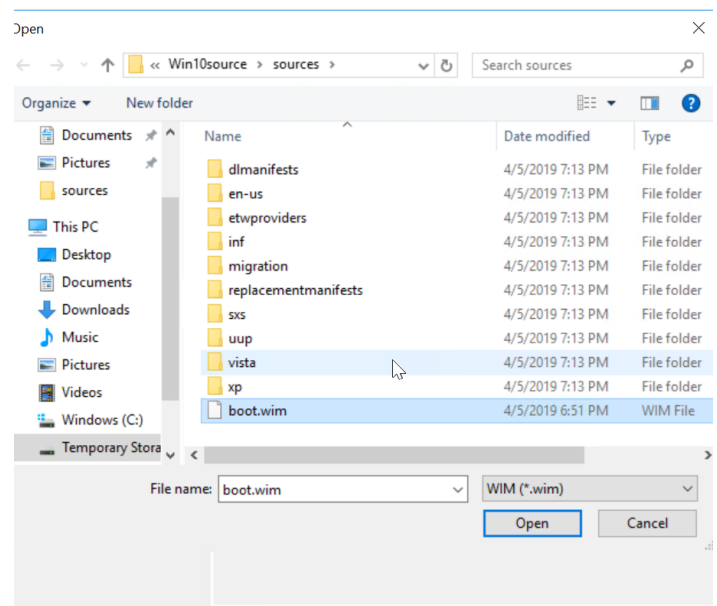
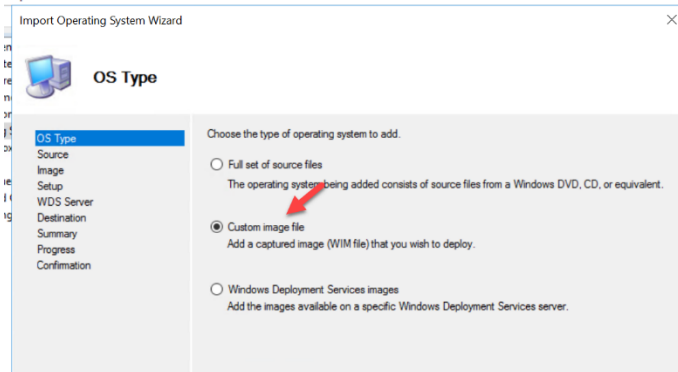




c. Right click on Operating Systems>Click Import Operating System

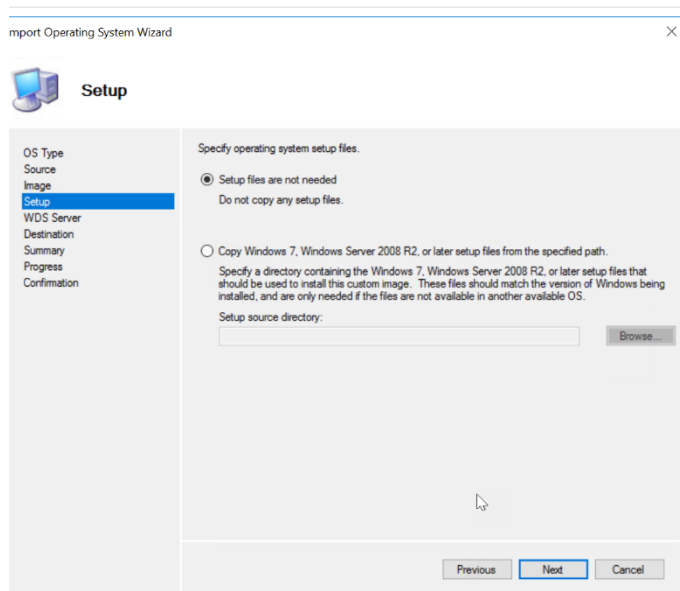


d. Choose Custom Image file and choose the boot.wim file we moved into the D: Drive:

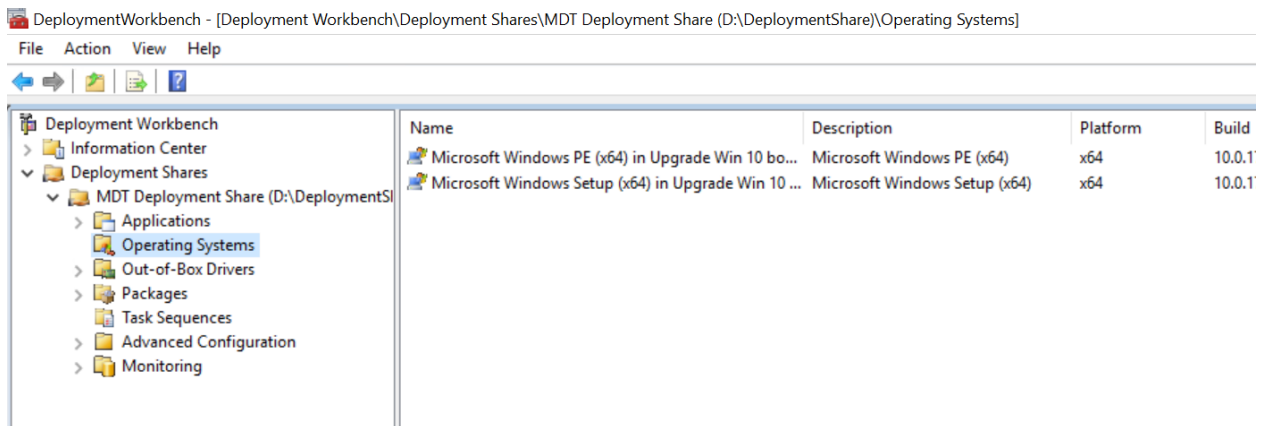




e. Set up files are not needed:



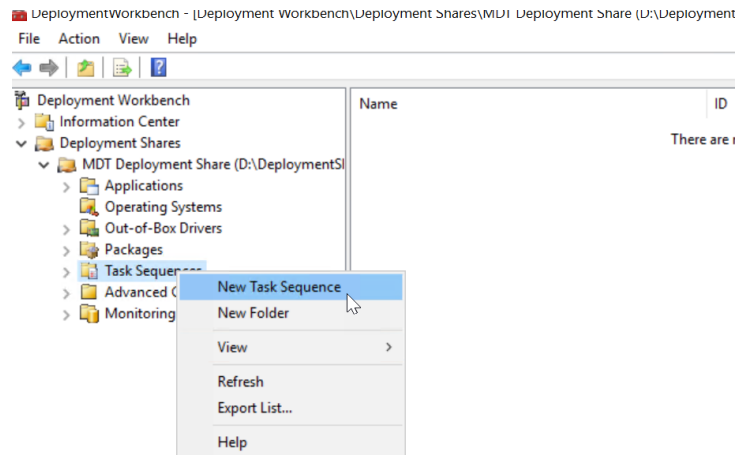
f. Continue till completion:





## Create a New Task Sequence

1. Create a new task Sequence
  - a. Go to Task Sequence>New Task Sequence



- b. Define the ID and Name:

New Task Sequence Wizard

**General Settings**

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:

Task sequence name:

Task sequence comments:



c. Leave the following:

New Task Sequence Wizard

### General Settings

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:

Task sequence name:

Task sequence comments:

Previous Next Cancel

d. Choose the OS you added in the previous section:

### Select OS

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

Operating Systems

- Microsoft Windows PE (x64) in Upgrade Win 10 boot.wim
- Microsoft Windows Setup (x64) in Upgrade Win 10 boot.wim





e. Do not specify a product key:

The screenshot shows the "Specify Product Key" step of the "New Task Sequence Wizard". The left sidebar contains a list of steps: General Settings, Select Template, Select OS, Specify Product Key (highlighted), OS Settings, Admin Password, Summary, Progress, and Confirmation. The main area has three radio button options:

- 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: [text box]
- 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: [text box]

At the bottom right, there are "Previous", "Next", and "Cancel" buttons. A red arrow points to the first radio button, and a mouse cursor is near the "Product Key" text box.

f. Enter your custom settings:

The screenshot shows the "OS Settings" step of the "New Task Sequence Wizard". The left sidebar contains a list of steps: General Settings, Select Template, Select OS, Specify Product Key, OS Settings (highlighted), Admin Password, Summary, Progress, and Confirmation. The main area contains the following 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.

Full Name: [UpgradeWin10]

Organization: [Wrajrecords]

Internet Explorer Home Page: [www.google.com]

At the bottom right, there are "Previous", "Next", and "Cancel" buttons. A mouse cursor is visible in the main area.



g. Specify the admin password:

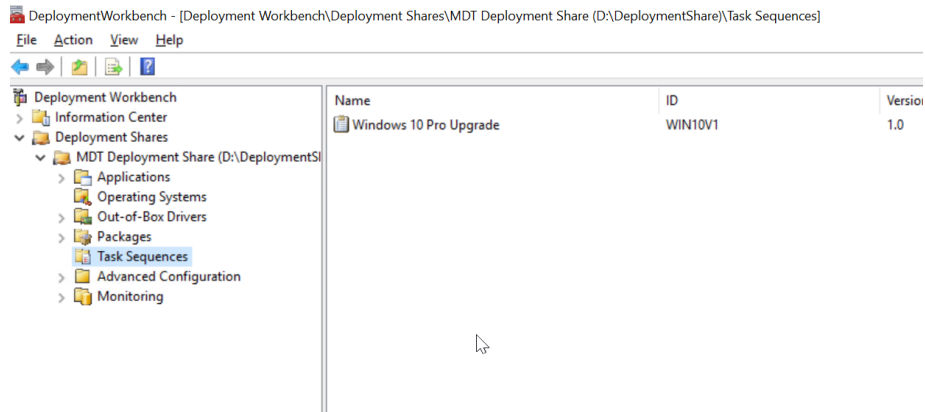
The screenshot shows the 'Admin Password' step of the 'New Task Sequence Wizard'. The left sidebar contains a list of steps: General Settings, Select Template, Select OS, Specify Product Key, OS Settings, Admin Password (highlighted), Summary, Progress, and Confirmation. The main area is titled 'Admin Password' and contains the following text: 'Specify the local Administrator password for this task sequence.' There are two radio button options. The first option, 'Use the specified local Administrator password.', is selected. Below it are two text input fields: 'Administrator Password:' (with masked characters '••••') and 'Please confirm Administrator Password:'. The second option, 'Do not specify an Administrator password at this time.', is unselected. Below it is a note: '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.' At the bottom right, there are three buttons: 'Previous', 'Next', and 'Cancel'.

h. You will see your summary page:

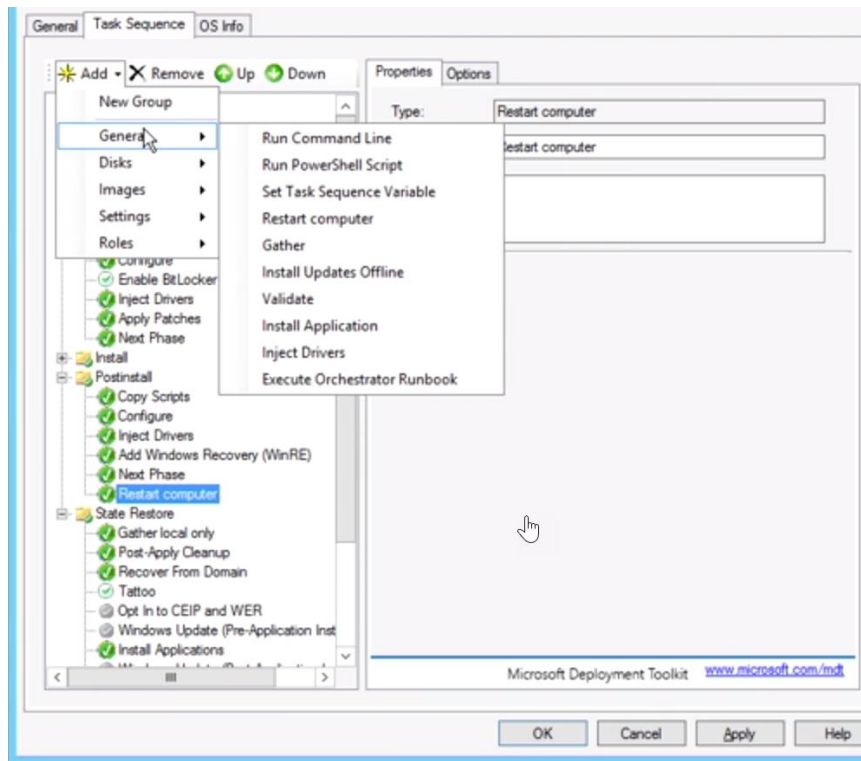
The screenshot shows the 'Summary' step of the 'New Task Sequence Wizard'. The left sidebar contains the same list of steps as in the previous screenshot, with 'Summary' highlighted. The main area is titled 'Summary' and contains the following text: 'All of the necessary details have been specified. Please review the values below.' Below this is a section labeled 'Details:' containing a text box with the following information: TaskSequenceID: Win10v1, TaskSequenceName: Windows 10 Pro Upgrade, IsUpgradeTS: False, and Template: Custom.xml. Below the text box is the instruction: 'Click next to execute the requested action.' At the bottom right, there are three buttons: 'Previous', 'Next', and 'Cancel'.



i. Click Finish to see the following:



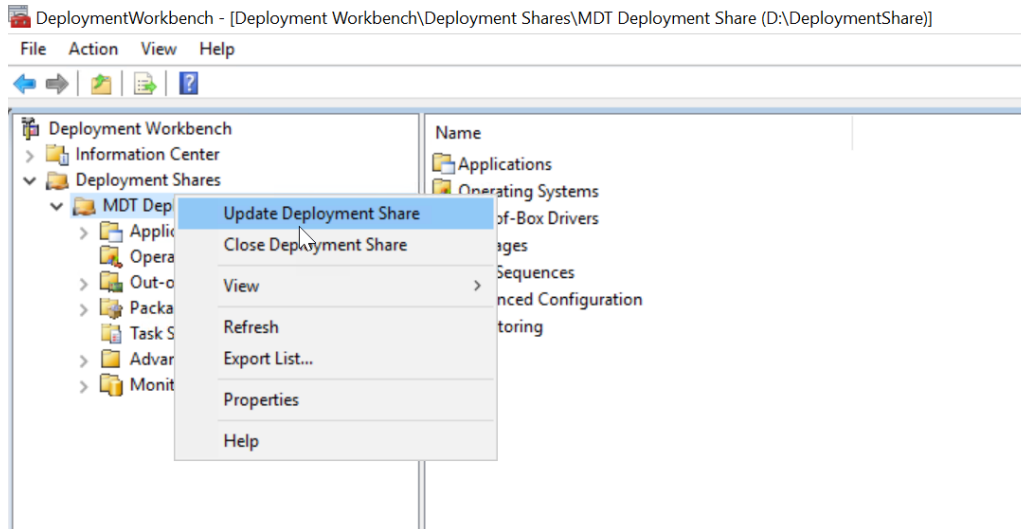
j. You can configure additional settings by right clicking on the task sequence and going to properties:



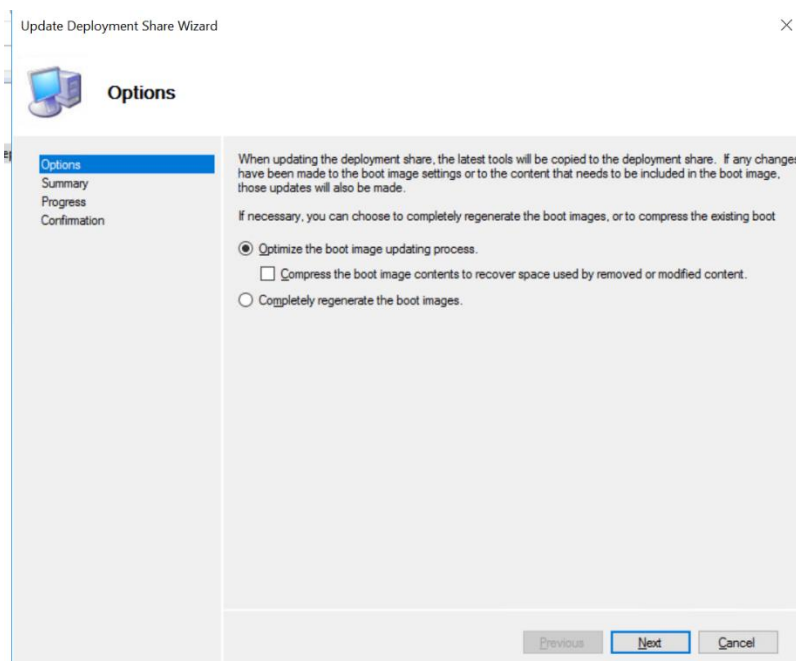


## Create MDT Deployable Image

1. Create a Deployable Image:
  - a. Right click on your deployment share and select Update Deployment Share

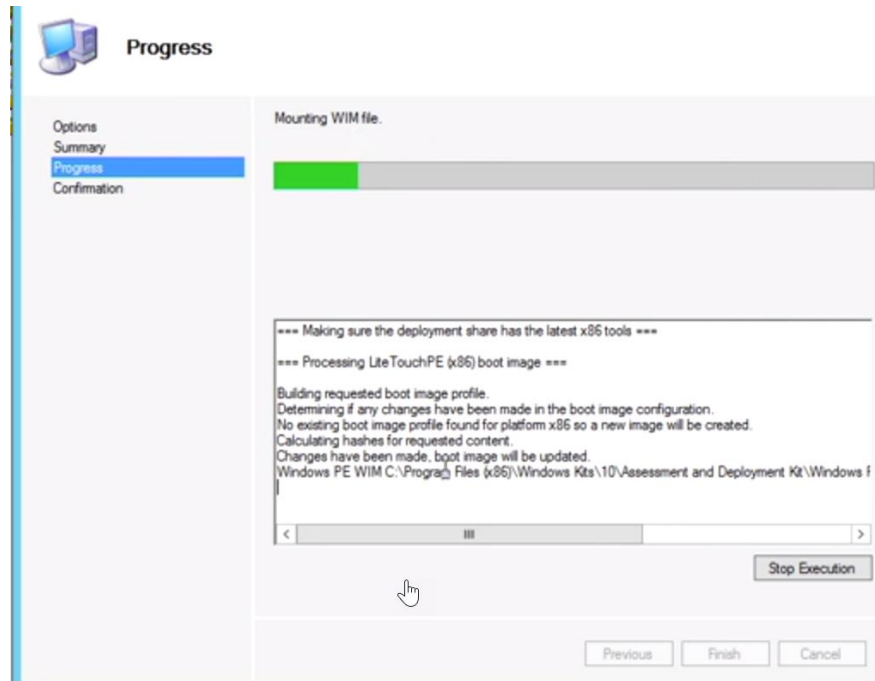


- b. Choose the following:

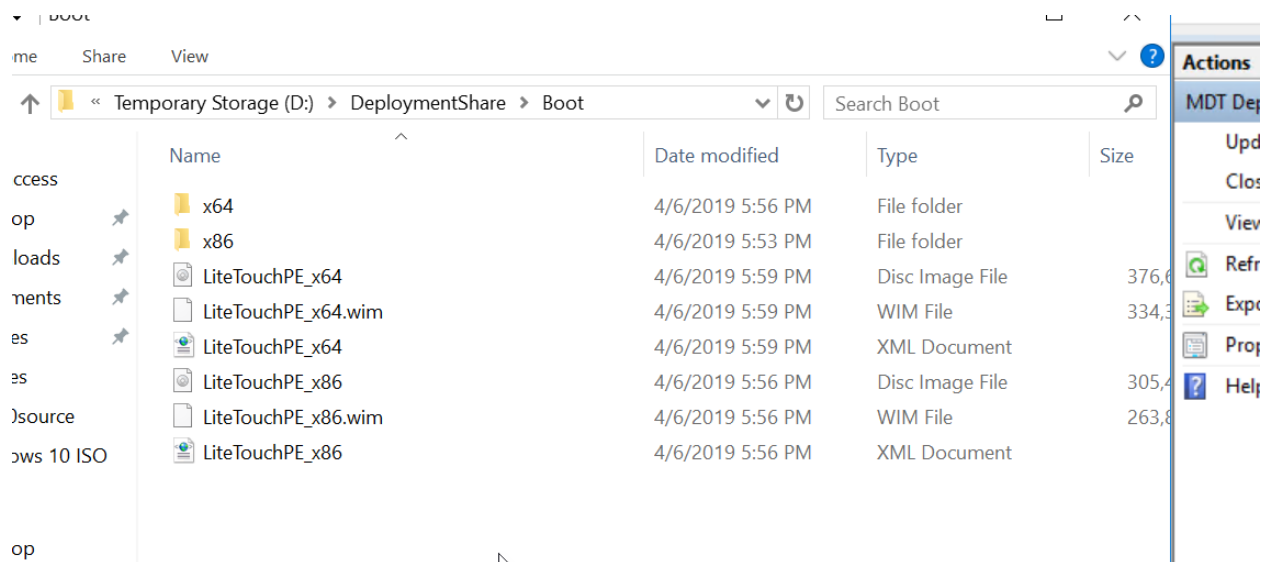




c. Complete till wizard completion:



d. If you got to your Deployment share in your D: Drive>Deployment Share>Boot>x86, you will see you .WIM file now



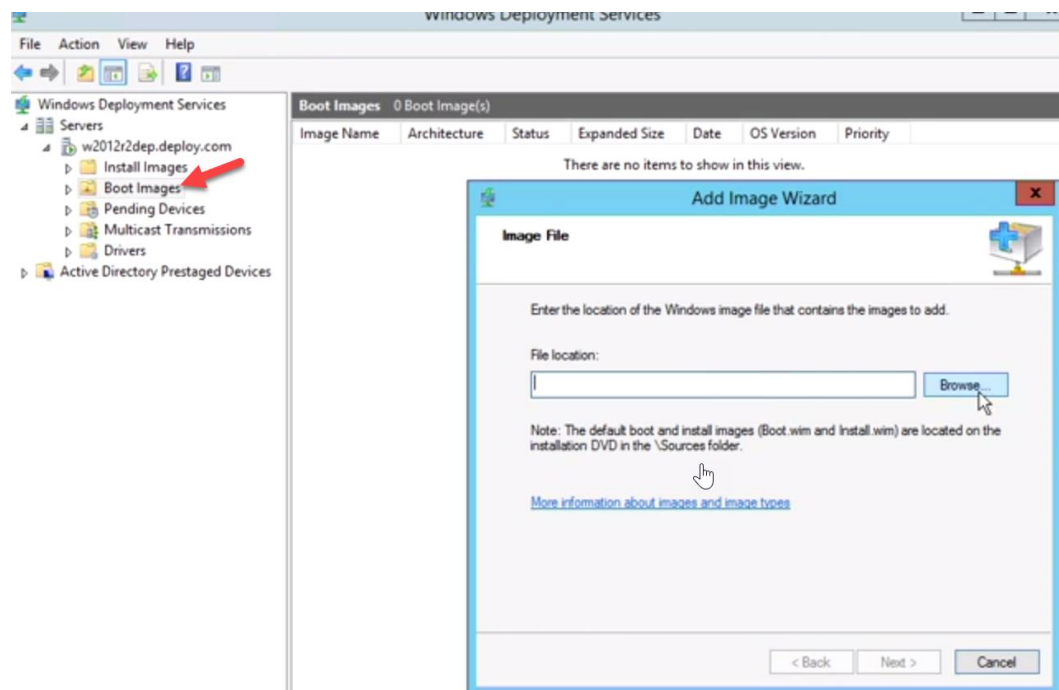


## Add Boot Images to WDS

1. Open WDS
  - a. Server manager>Tools>Windows Deployment Services

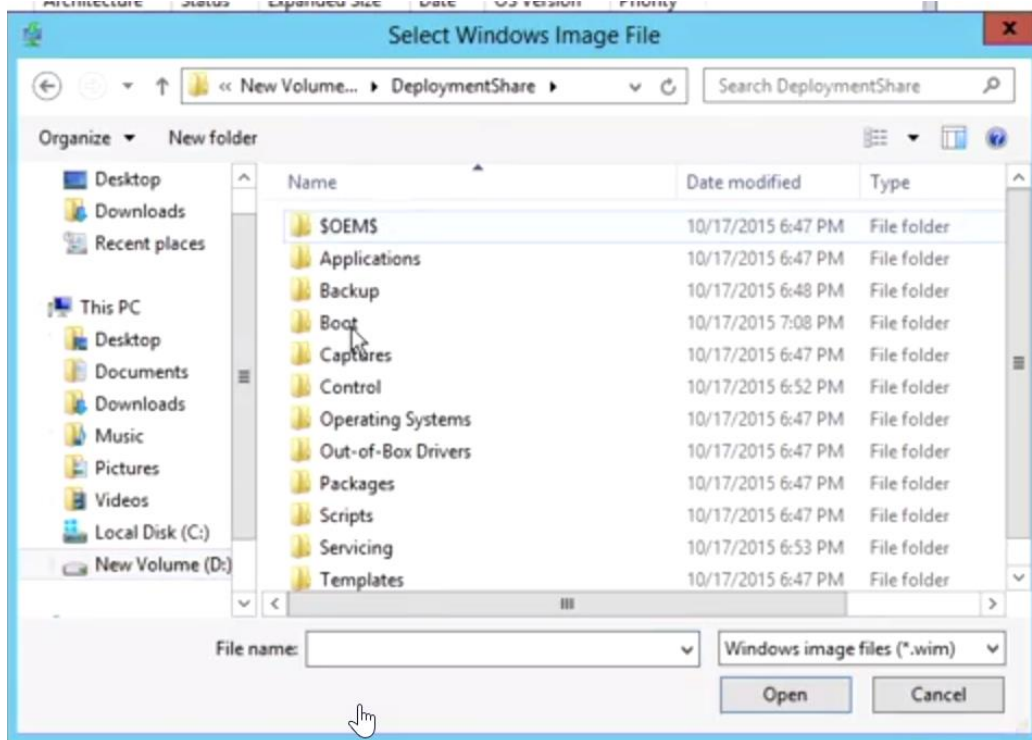


- b. Right Click Boot Images>Add Boot Image



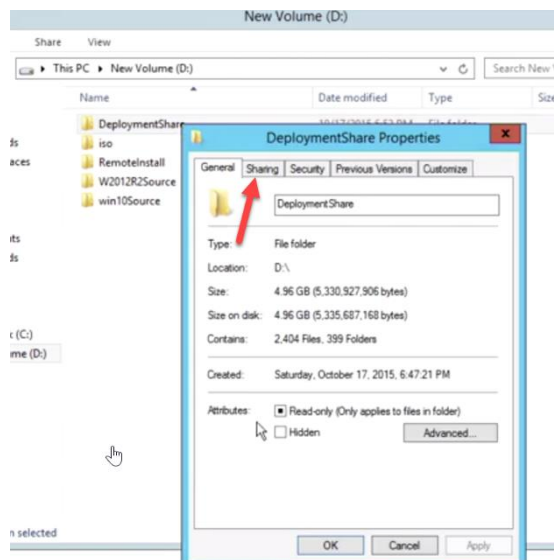


c. Find the WIM file under D: Drive>Deployment Share>Boot>x86



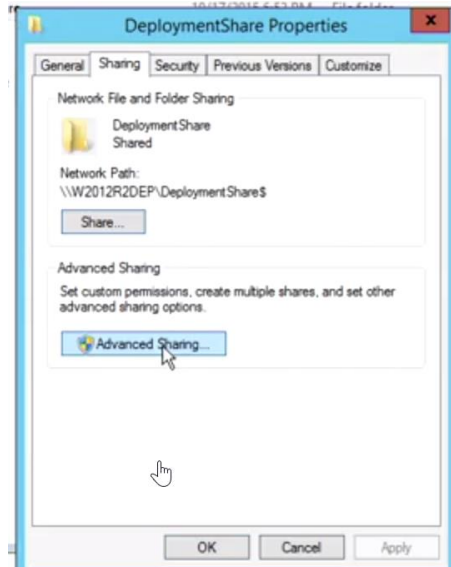
## Deploy the Windows 10 Image

1. Verify Configuration Settings in WDS
  - a. Right Click on your Deployment share, click Properties, then go to sharing

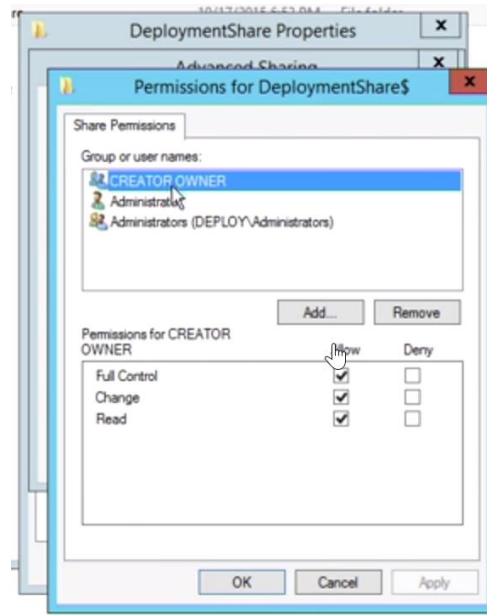




- b. Go to Advanced Sharing



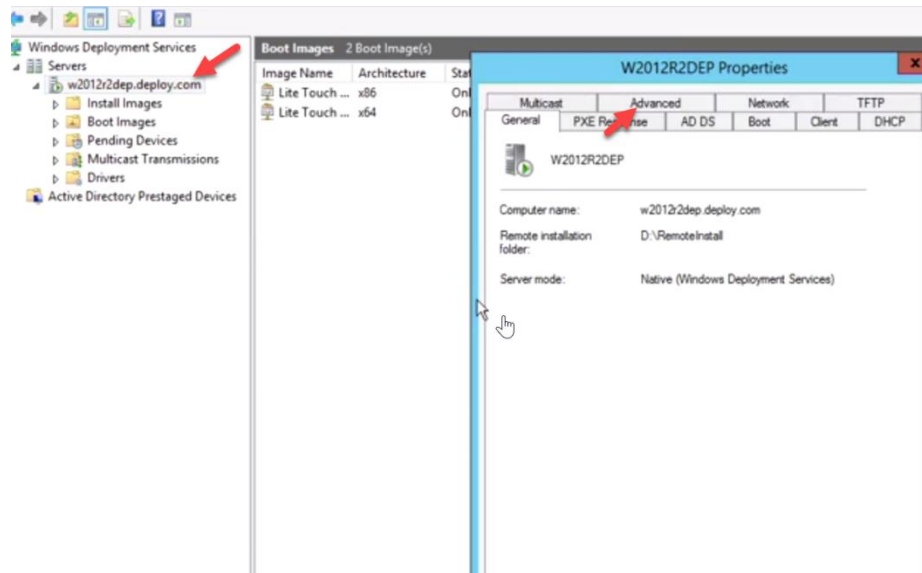
- c. Click on permissions and make sure you have the correct Administrators with full control:



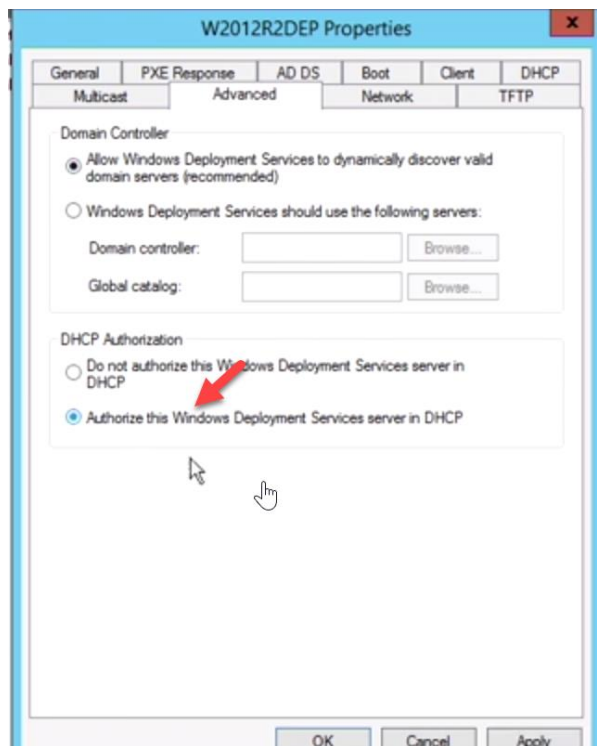




d. Right Click on the Server>Click Properties>Click Advanced:



e. Authorize the following:

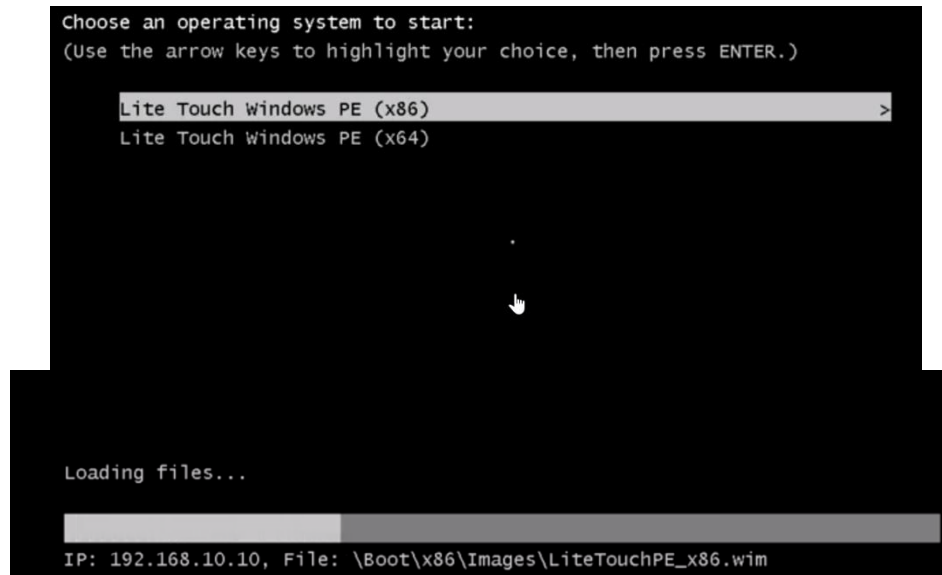




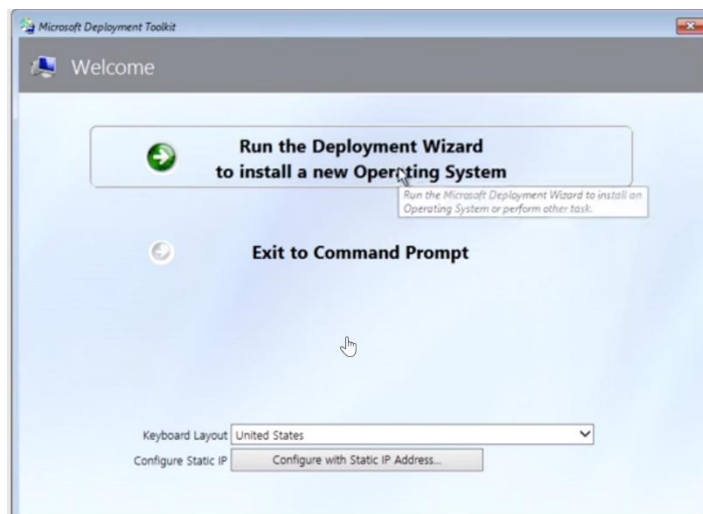
## End-User Experience

We first want to test out the deployment with our 2 pilot devices. When we boot them up, it will PXE boot onto the system, and the user will be prompted to press f12 for a network service boot.

- a. From there they will be asked to choose the boot image:

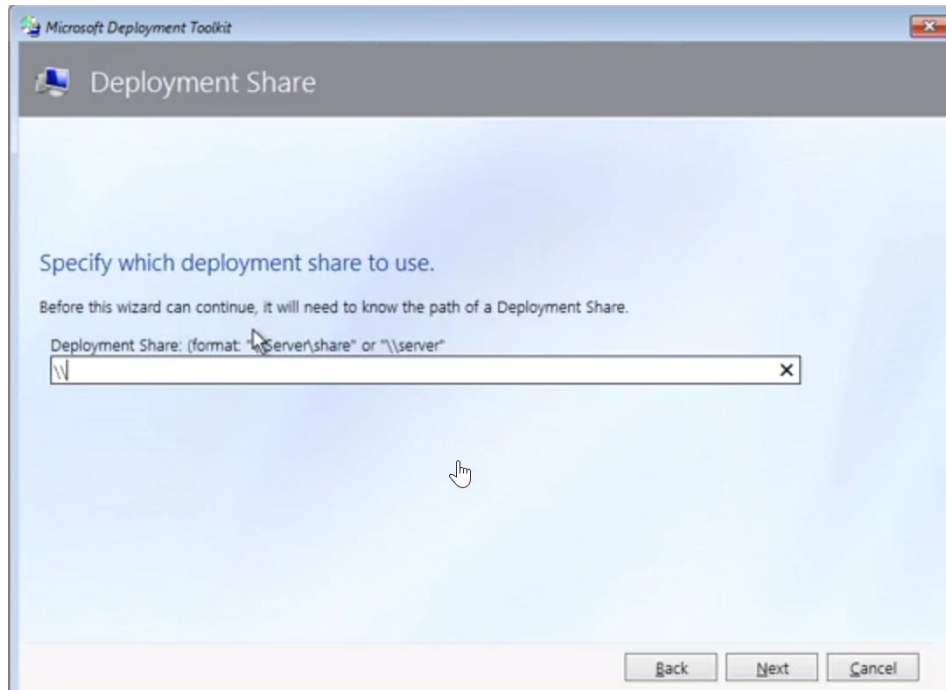


- b. Run the deployment wizard:

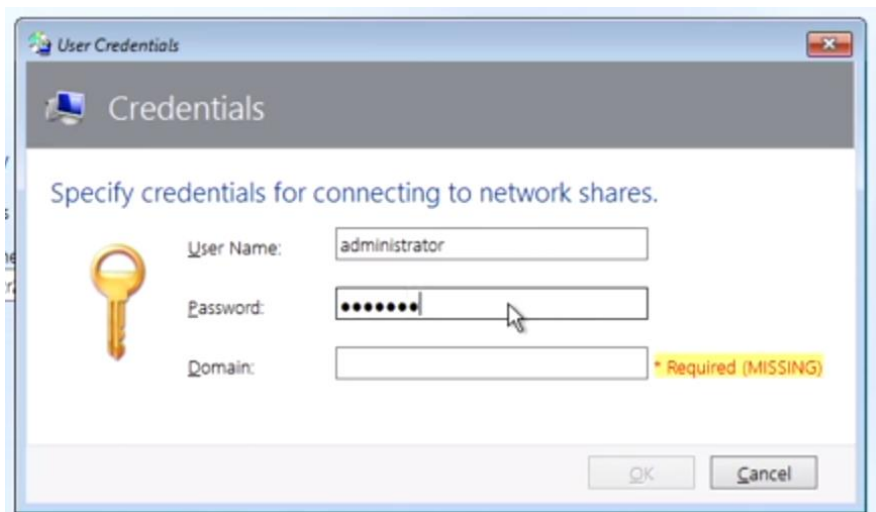




- c. Define the deployment share path that you copied when you first configured the deployment share in MDT

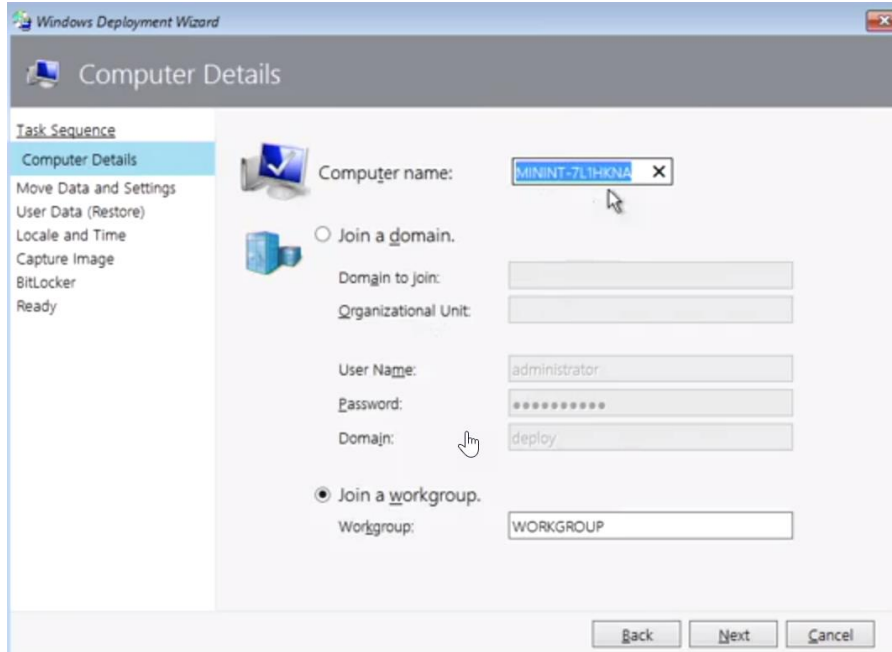


- d. Add your credentials:

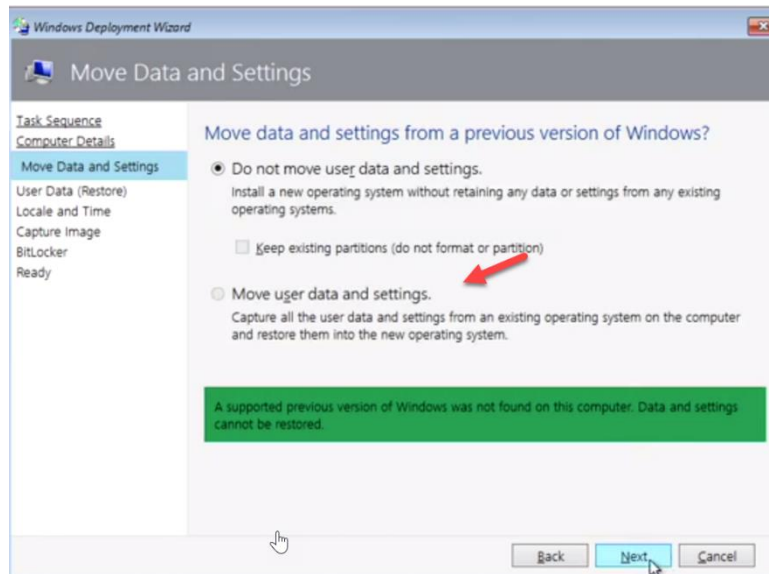




e. Choose the appropriate settings here based on your environment:

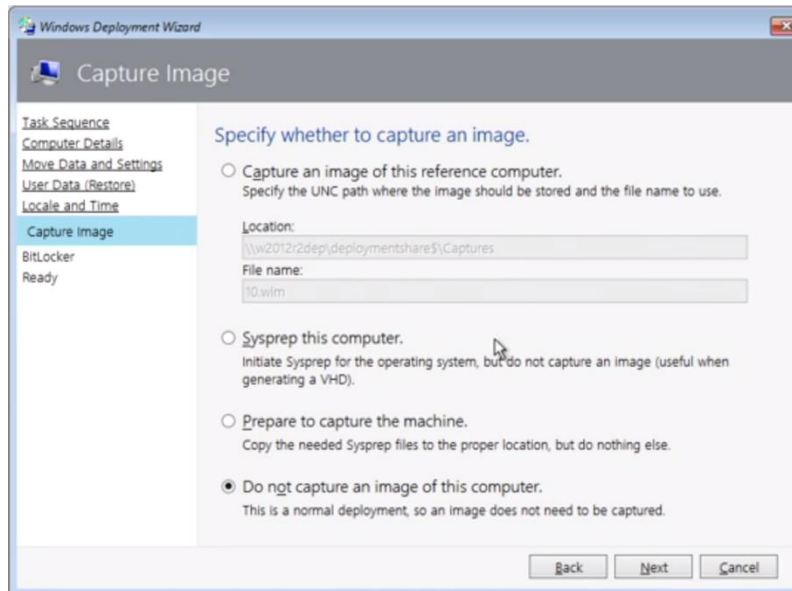


f. Move User data and settings:

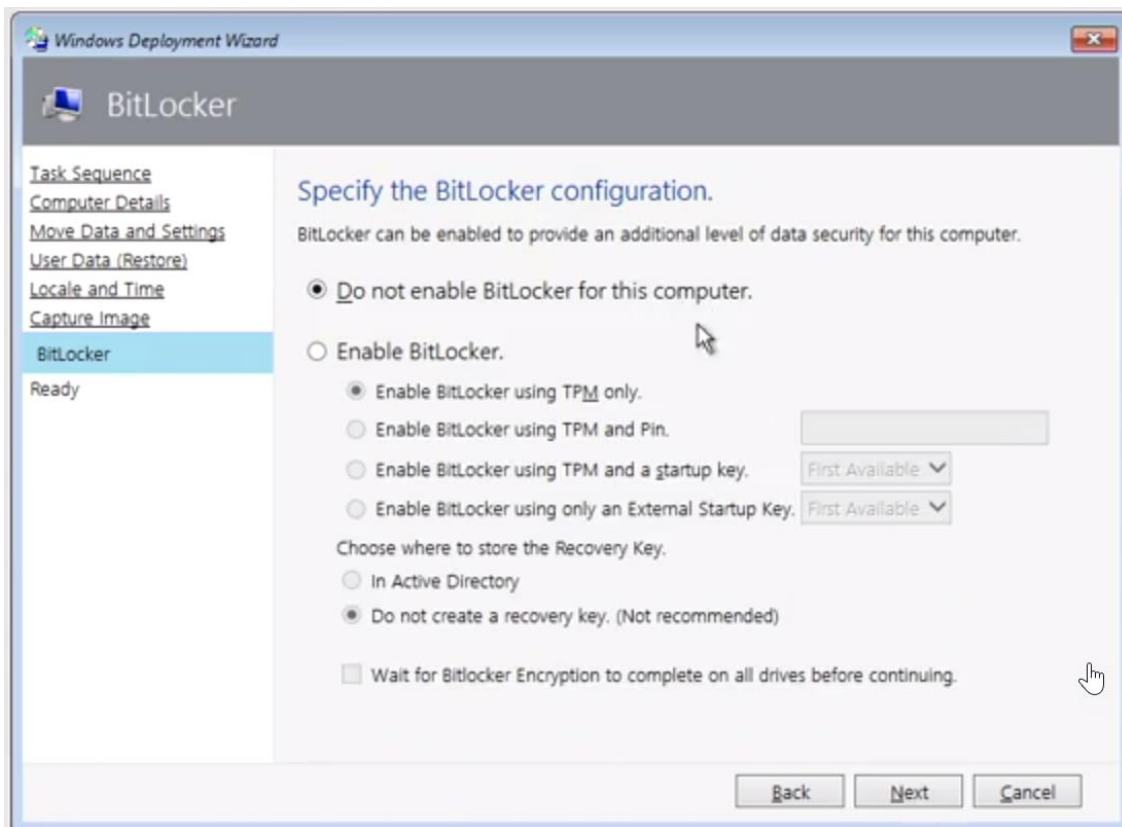




g. Do not capture the image:

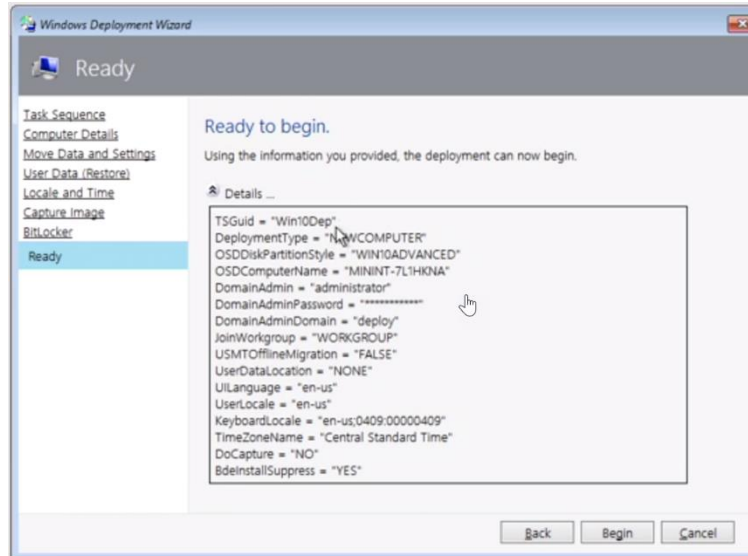


h. Choose whether or not to enable BitLocker



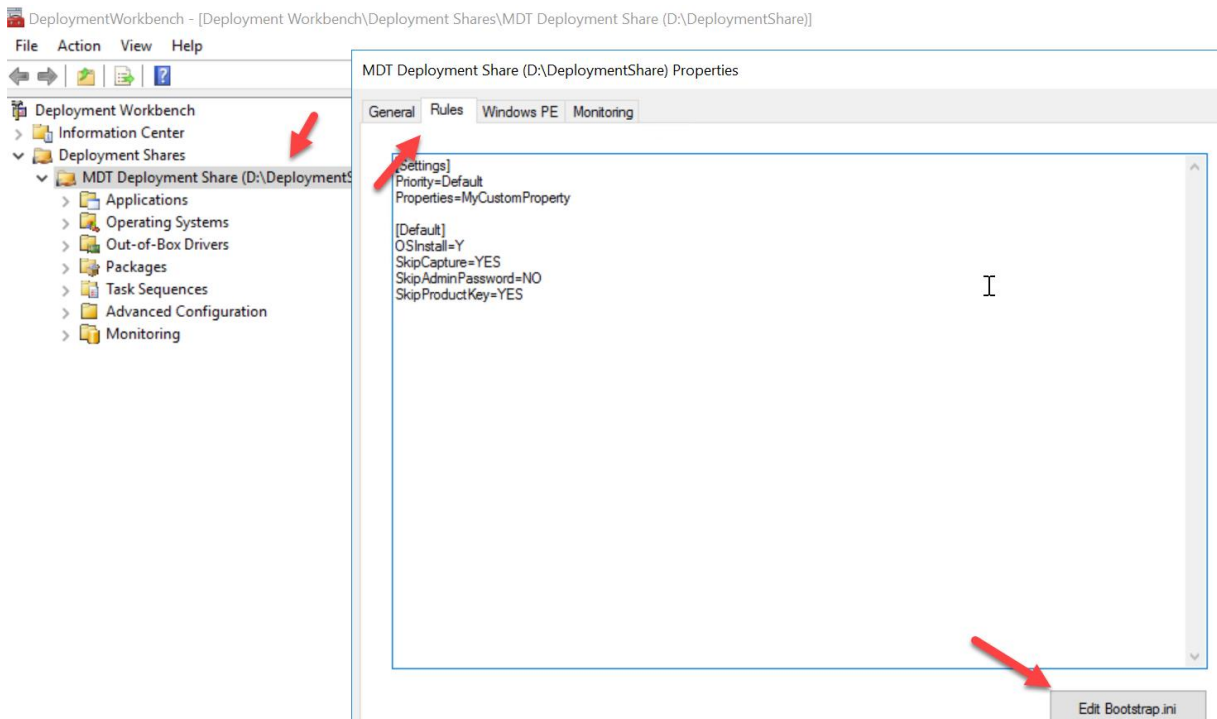


- i. Copy the details that you created. We will be using these for our broad deployment so end-users do not have to configure all of the info



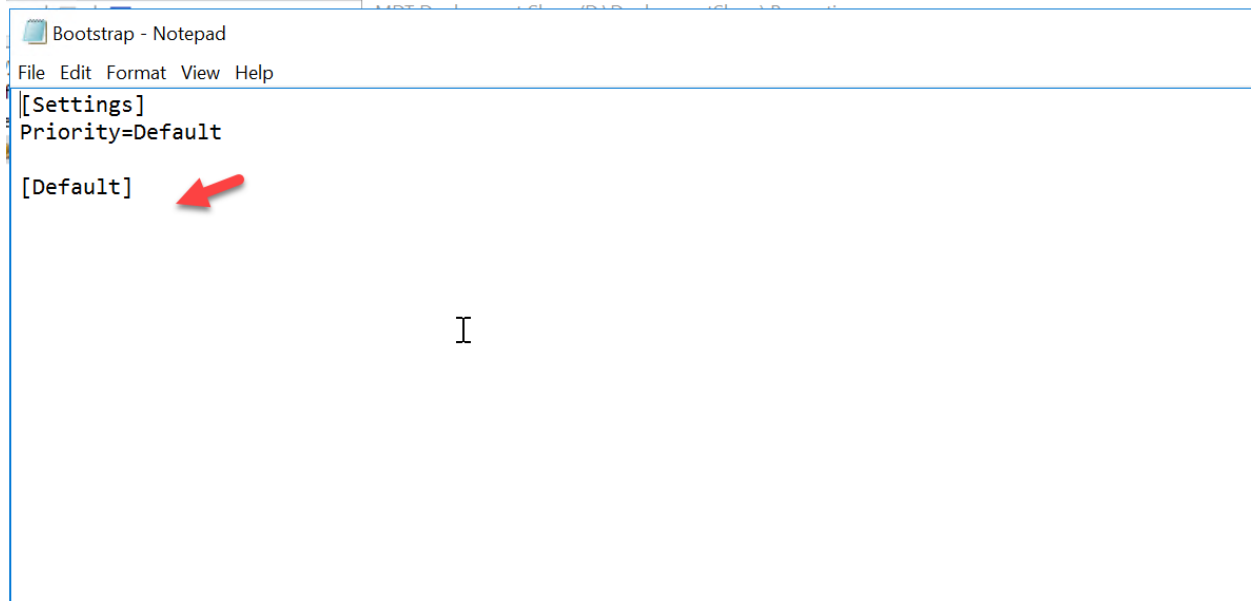
**BROAD DEPLOYMENT:**

- j. Back in the Deployment workbench, right-click on your deployment share>Properties>Rules>Edit Bootstrap.ini

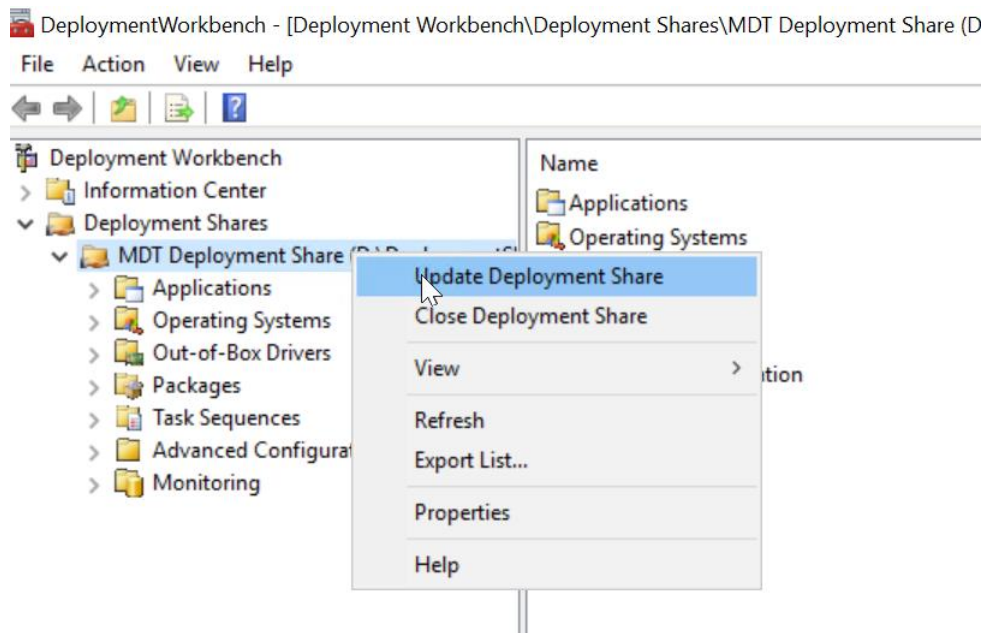




k. Paste in your configuration we copied in step "n" under {Default}

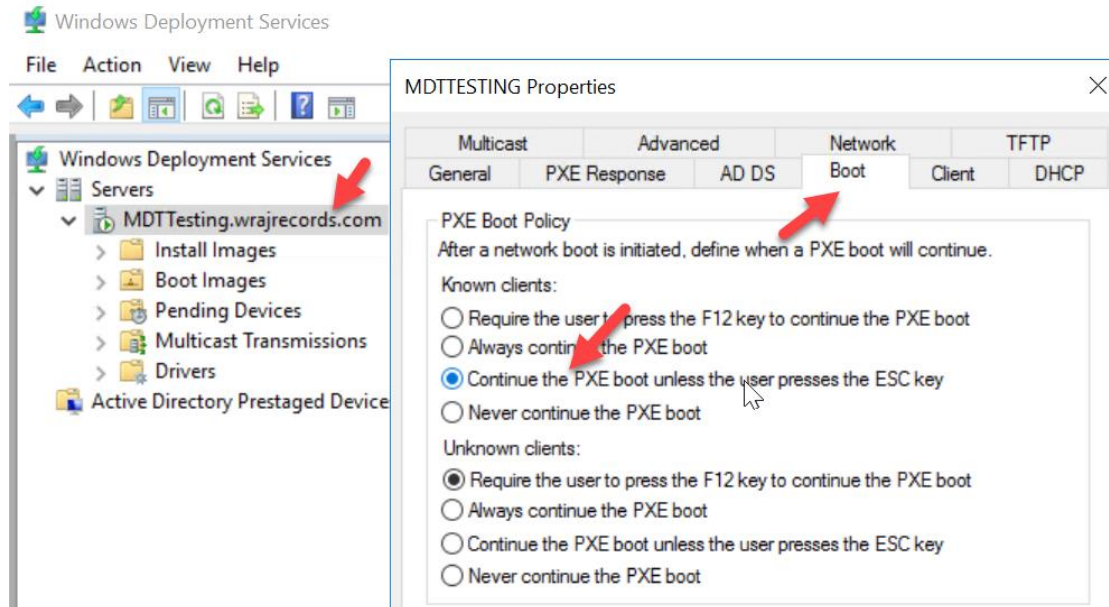


L. Update the deployment share to add this configuration





- m. When you are ready for broad deployment, go back to WDS>Right-click on your server>Properties>Boot>And click Continue the PXE Boot:



- n. With these settings configured, all of the users in your environment will get the image pushed to them without having to press f12 or run through the wizard of setting like we did for our pilot users





## Conclusion

I hope this article provided you some targeted guidance on deploying the Windows 10 upgrade across your network. Any feedback to improve your experience would be greatly appreciated. I would also like to hear if there is more content that you would like to see in this guide. Any feedback can be sent to my email below:

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