

How to Integrate SmartDeploy with Windows Deployment Services

SmartDeploy
Revised: March 2017

Integrating custom Windows® Imaging Format (WIM) images into Windows® Deployment Services (WDS) lets you take advantage of the time and cost saving benefits of SmartDeploy® Enterprise while extending the functionality of WDS beyond its native capabilities. This step-by-step guide takes you through the process.

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Introducing SmartDeploy Enterprise

Deploying an operating system can frequently become a time-consuming and frustrating task, leading many companies to look for ways to streamline and simplify their operating system deployment strategies.

Operating system deployment usually involves a disk imaging technology that lets you make a copy of a master hard disk drive and transfer this copy to your computers. This works well as long as the target hardware is the same as the master computer. However, in reality, a company's computers are often a mix of different makes and models. This means that the IT staff must create a separate master image for each hardware platform on the network, a time-consuming and labor-intensive endeavor.

SmartDeploy® Enterprise provides a real-world solution for this challenge by eliminating the need to create multiple master images for different computers. SmartDeploy helps make deployment of almost all versions of the Windows® operating system—including Windows 10—faster and easier.

How Does SmartDeploy Work?

SmartDeploy uses virtual machines (VMs) to create and maintain the operating system and applications that you want to deploy. The process of creating the master image for the hardware platform is similar to that used with other disk imaging software; however with SmartDeploy, you need to create only one master image no matter how many different computer brands or models you have on your network. A separate file called the Platform Pack contains the device drivers and other hardware-specific files, customizing the standard master image for each computer's unique properties. Platform Packs are available for many of the top computer manufacturers and models. You can also create custom Platform Packs with the Platform Manager. SmartDeploy merges these Platform Packs to the master image when deploying the operating system image.

SmartDeploy provides advantages over traditional disk imaging methods. Separating hardware and device drivers from the operating system and software means you have fewer images to maintain. Updates to any of the environments within the master image are transmitted as a small delta (or differencing) image file, which makes it possible for you to release updates frequently and easily at a low cost. You do not need a dedicated computer or dedicated infrastructure to run image management tasks. Additionally, SmartDeploy does not require a network to manage or deploy images; you can update remote users or offices without a network connection.

SmartDeploy and WDS: Simple Integration

Windows Deployment Services (WDS), the Microsoft technology for network-based installation of Windows operating systems, can be used to reimage computers that are connected to the Local Area Network (LAN). WDS lets you inject drivers from a repository at image deployment time so you can keep one master image and still deploy to a variety of hardware; however, the driver injecting feature cannot be used for standalone (offline) DVD-based imaging.

SmartDeploy fits seamlessly into WDS environments. It lets you use customized Windows Imaging Format (WIM) images with WDS, extending the capabilities of your WDS implementation beyond basic installation images to help streamline, simplify, and accelerate Windows deployment. With SmartDeploy, you consolidate all client and server images onto a single DVD or USB, so you can deploy to any platform, even without a LAN.

How to Integrate SmartDeploy with WDS

The following sections step you through the process of integrating SmartDeploy with WDS. You are first guided through the process of creating a custom SmartDeploy Preinstallation Environment (SmartPE) ISO image, which can be used as a WDS boot image. The SmartDeploy Deploy Wizard supports the deployment of WDS install images. You can boot your target computer via Preboot Execution Environment (PXE) to the SmartPE environment, and then start the Deploy Wizard and map a drive to `\\[wdsserver]\RemInst`.

Before You Begin

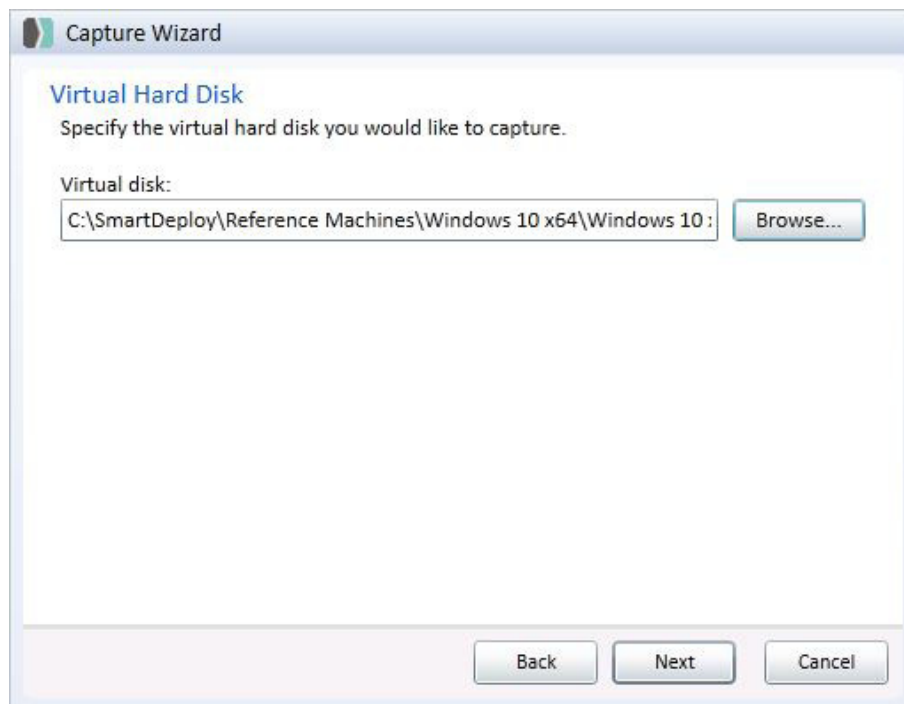
To integrate SmartDeploy with WDS, you must have SmartDeploy installed on your computer. Reference the SmartDeploy Enterprise User's Guide to confirm that your environment meets the hardware requirements and that you have a supported host operating system, supported guest operating systems, and supported virtual environment. You can download SmartDeploy from the SmartDeploy website. If you are evaluating SmartDeploy, your free 15-day trial will begin when you install the software. For customers, you can license your software using the License Wizard; see Licensing and Activation in the [SmartDeploy Enterprise User's Guide](#) for more information.

Capture Master Image

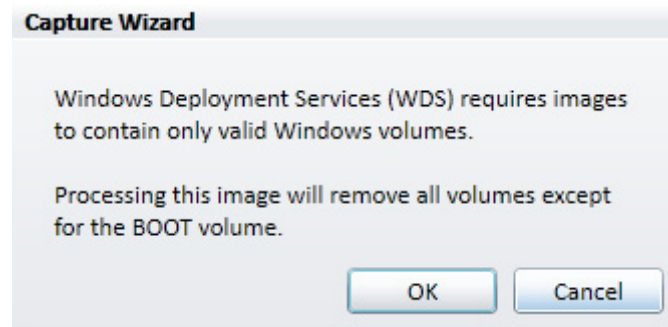
You must also capture the master image with the Capture Wizard. Detailed instructions can be found in the [SmartDeploy Enterprise User's Guide](#).

Note: If your image has multiple volumes, you must first enable your image for WDS. Also note that WDS requires that multicast images contain only valid Windows volumes.

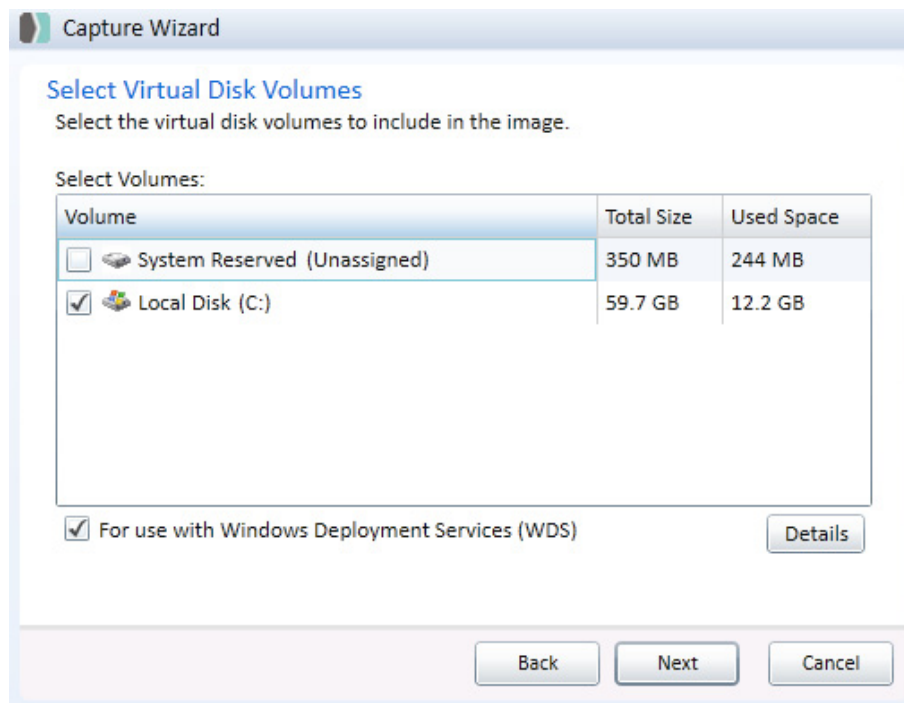
1. Start the Capture Wizard by selecting **2. Capture** from the **Activities** tab in the SmartDeploy Console.
2. On the **Welcome to the Capture Wizard** page, click **Next**.
3. On the **Virtual Hard Disk** page, click **Browse**, and navigate to the folder containing the virtual hard disk you want to capture.
4. Select the virtual hard disk, click **Open**, and then click **Next**.



5. On the **Select Disks** page, select For use with Windows Deployment Services (WDS) multicast. This removes all volumes except for the BOOT volume and enables the image for WDS.
6. At the warning message, click **OK**.



7. Observe that only valid boot volumes are now selected. Click **Next**.

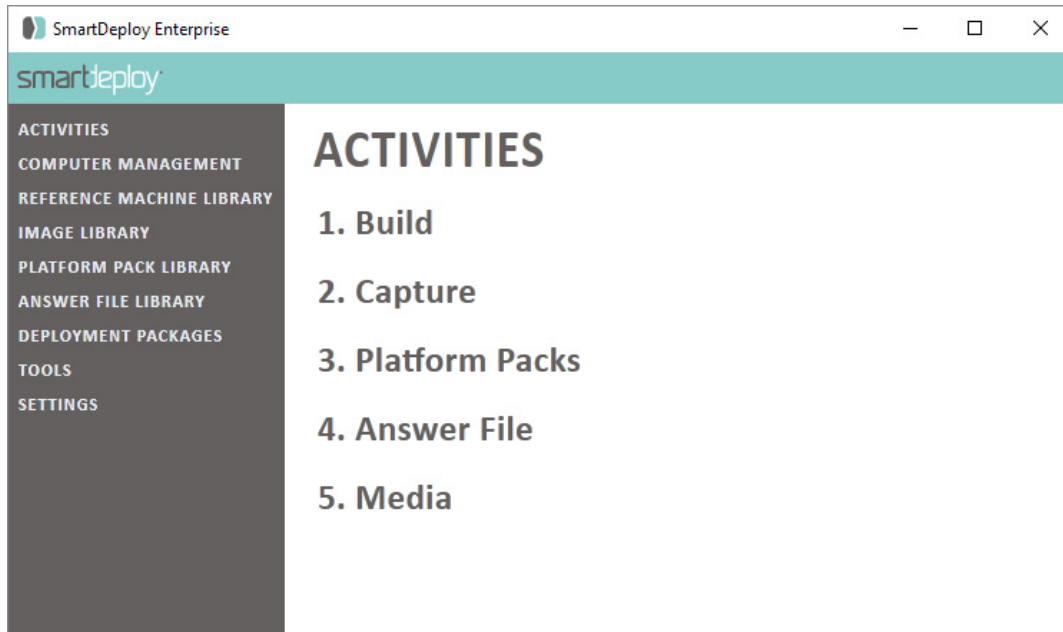


8. You can now use the **Capture Wizard** to capture the master image as described in the [SmartDeploy Enterprise User's Guide](#). For this example, the master image is Windows 10.wim.

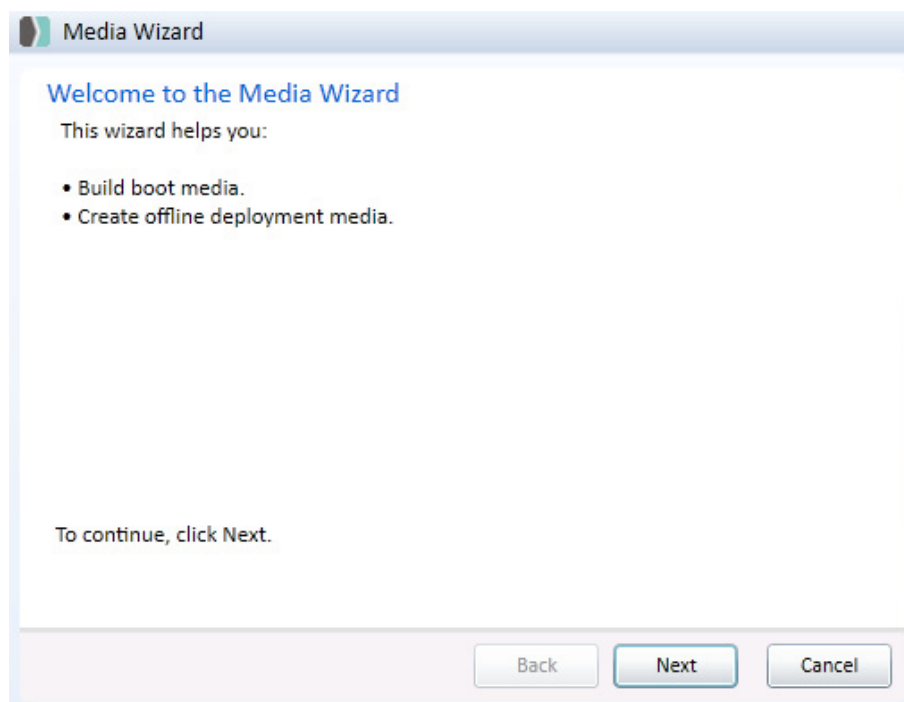
Create a Custom SmartPE WIM

To integrate SmartDeploy with WDS, begin by using the Media Wizard to create a SmartPE WIM, a customized environment that captures or deploys images to target computers.

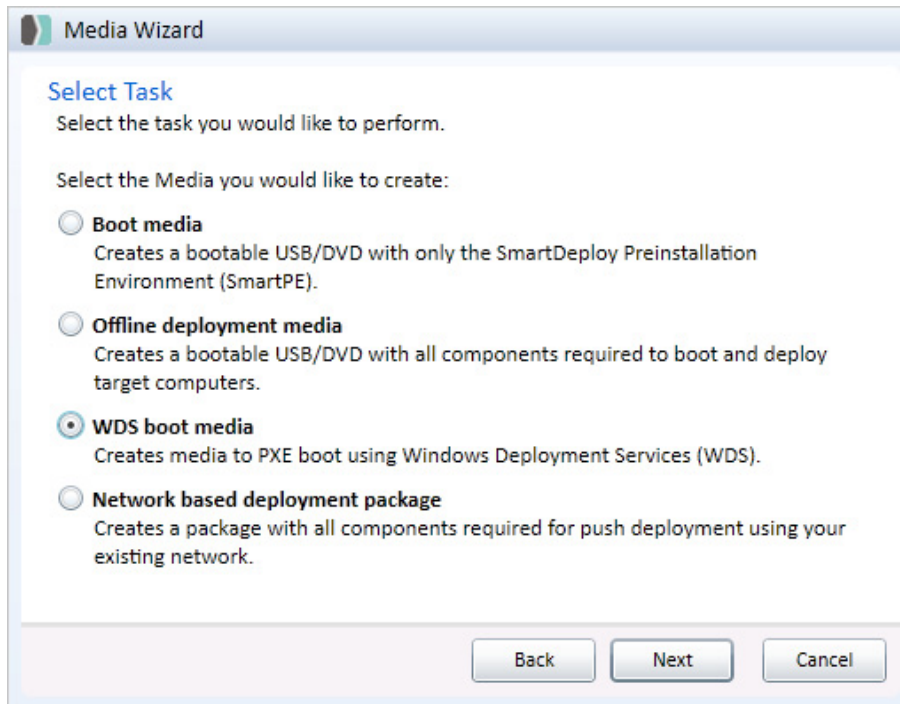
1. Launch the Media Wizard by selecting **5. Media** from the **Activities** tab in the SmartDeploy console.



2. On the **Welcome to the Media Wizard** page, click **Next**.



3. On the **Select Task** page, select **WDS boot media**, and then click **Next**.



The screenshot shows the 'Media Wizard' window with the 'Select Task' tab selected. The instruction 'Select the task you would like to perform.' is at the top. Below it, 'Select the Media you would like to create:' is followed by four radio button options. The 'WDS boot media' option is selected. At the bottom are 'Back', 'Next', and 'Cancel' buttons.

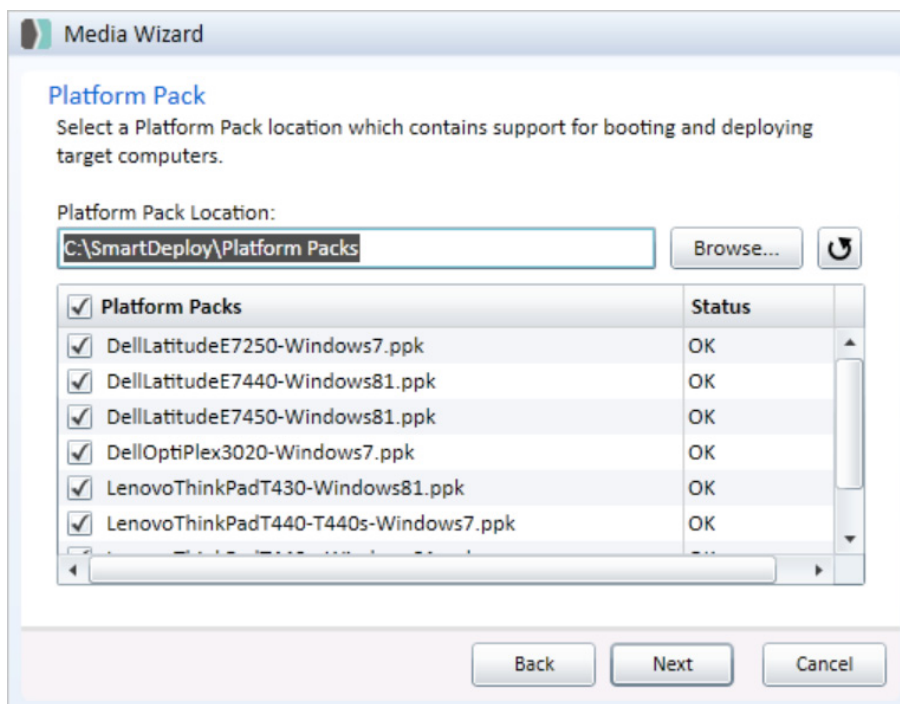
Select Task
Select the task you would like to perform.

Select the Media you would like to create:

- ☐ **Boot media**
Creates a bootable USB/DVD with only the SmartDeploy Preinstallation Environment (SmartPE).
- ☐ **Offline deployment media**
Creates a bootable USB/DVD with all components required to boot and deploy target computers.
- ☒ **WDS boot media**
Creates media to PXE boot using Windows Deployment Services (WDS).
- ☐ **Network based deployment package**
Creates a package with all components required for push deployment using your existing network.

Back Next Cancel

4. On the **Platform Pack** page, click **Browse**. Select the folder that contains Platform Packs for the target computers. Select the Platform Pack file(s) that contains the drivers for the target computers by checking the box. Click **Next**.



The screenshot shows the 'Media Wizard' window with the 'Platform Pack' tab selected. The instruction 'Select a Platform Pack location which contains support for booting and deploying target computers.' is at the top. Below it, 'Platform Pack Location:' is followed by a text box containing 'C:\SmartDeploy\Platform Packs', a 'Browse...' button, and a refresh icon. A table lists several Platform Packs with checkboxes and status columns. At the bottom are 'Back', 'Next', and 'Cancel' buttons.

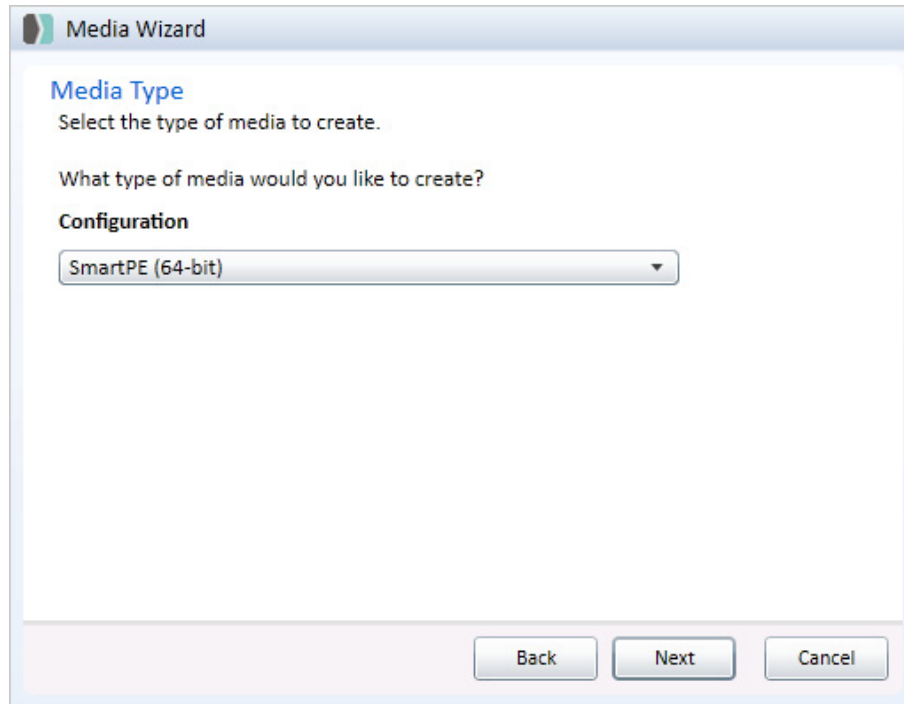
Platform Pack
Select a Platform Pack location which contains support for booting and deploying target computers.

Platform Pack Location:
C:\SmartDeploy\Platform Packs Browse... Refresh

<input checked="" type="checkbox"/> Platform Packs	Status
<input checked="" type="checkbox"/> DellLatitudeE7250-Windows7.ppk	OK
<input checked="" type="checkbox"/> DellLatitudeE7440-Windows81.ppk	OK
<input checked="" type="checkbox"/> DellLatitudeE7450-Windows81.ppk	OK
<input checked="" type="checkbox"/> DellOptiPlex3020-Windows7.ppk	OK
<input checked="" type="checkbox"/> LenovoThinkPadT430-Windows81.ppk	OK
<input checked="" type="checkbox"/> LenovoThinkPadT440-T440s-Windows7.ppk	OK

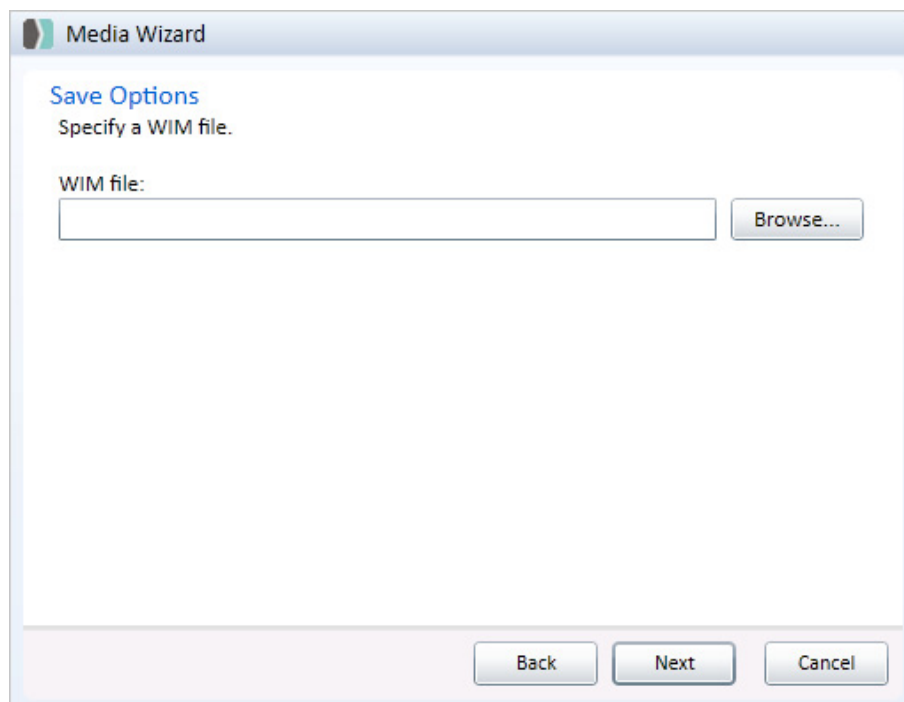
Back Next Cancel

5. On the **Optional Components** page, you can select the additional components you would like to include. You can create or designate a custom answer file here. Click **Next**.
6. On the **Media Type** page, select the SmartPE configuration you would like to use, and then click **Next**.



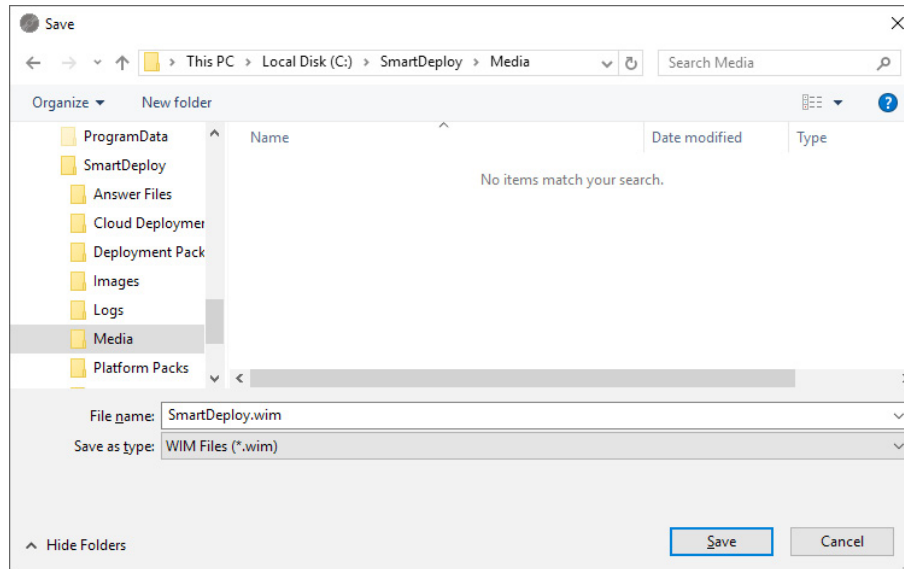
The screenshot shows the 'Media Wizard' window at the 'Media Type' step. The title bar says 'Media Wizard'. Below the title bar, the text 'Media Type' is displayed in blue. Underneath, it says 'Select the type of media to create.' and 'What type of media would you like to create?'. A 'Configuration' section contains a dropdown menu with 'SmartPE (64-bit)' selected. At the bottom, there are three buttons: 'Back', 'Next', and 'Cancel'.

7. On the **Save Options** page, click Browse and save to the default folder, **C:\SmartDeploy\Media**.

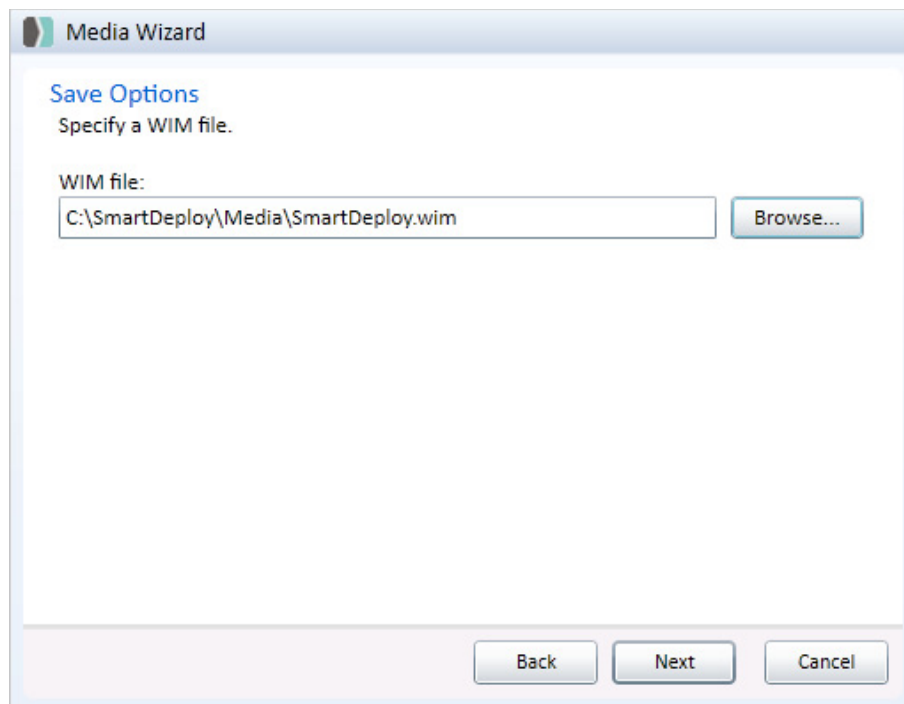


The screenshot shows the 'Media Wizard' window at the 'Save Options' step. The title bar says 'Media Wizard'. Below the title bar, the text 'Save Options' is displayed in blue. Underneath, it says 'Specify a WIM file.' and 'WIM file:'. There is a text input field for the WIM file name and a 'Browse...' button to the right. At the bottom, there are three buttons: 'Back', 'Next', and 'Cancel'.

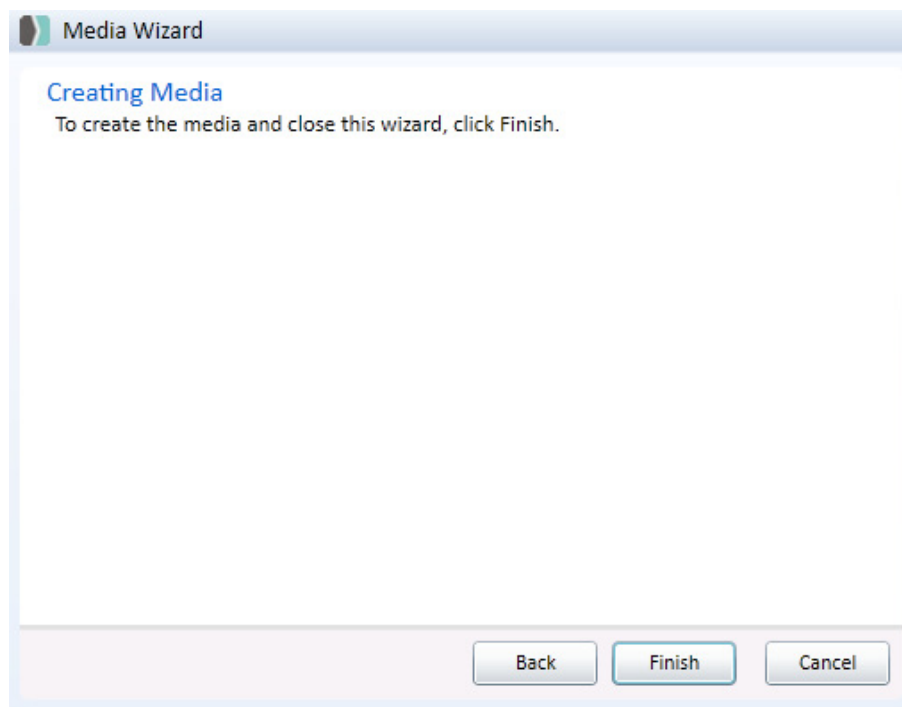
8. Click **Save**.



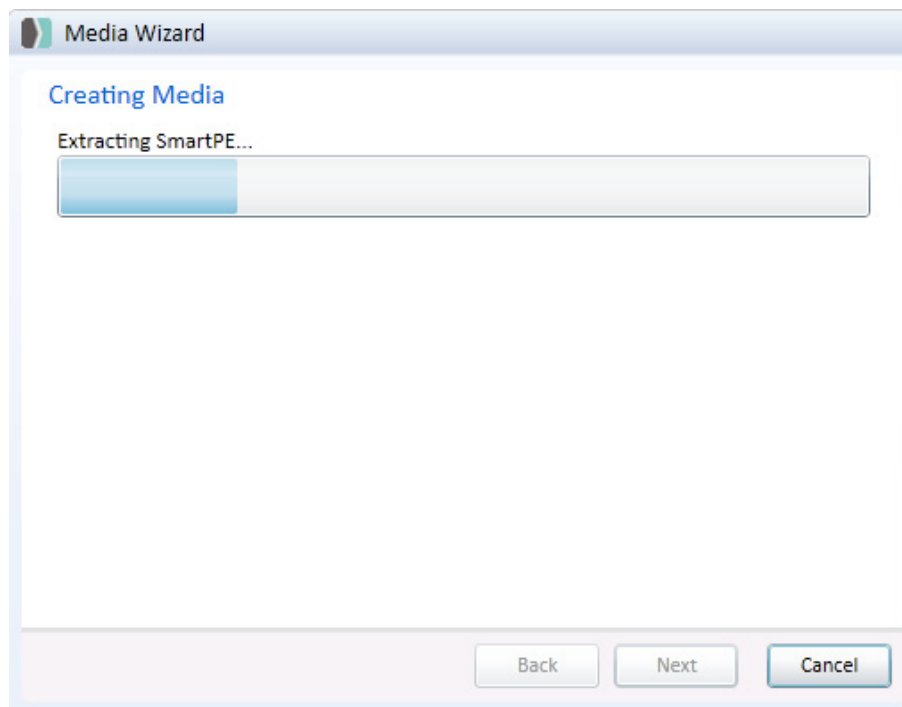
9. On the **Save Options** page, click **Next**.



10. To create the media and close the wizard, click **Finish**.



11. Wait while the custom SmartPE WIM file is created.

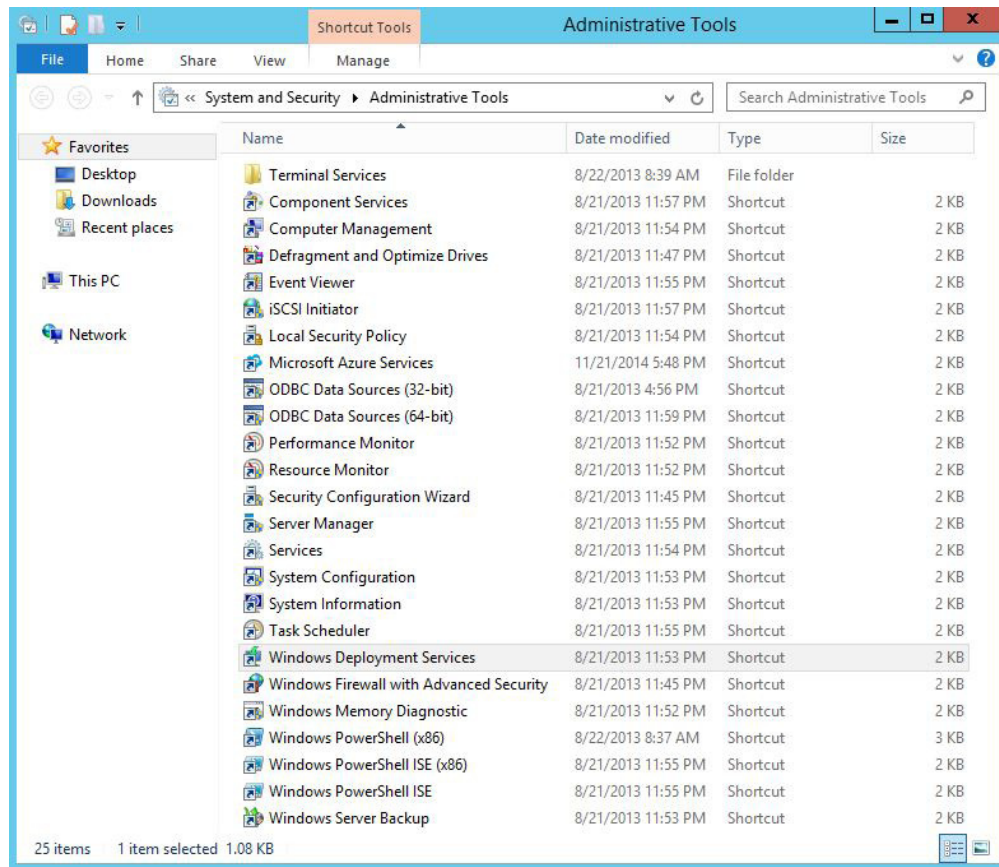


12. When finished, click **OK**.

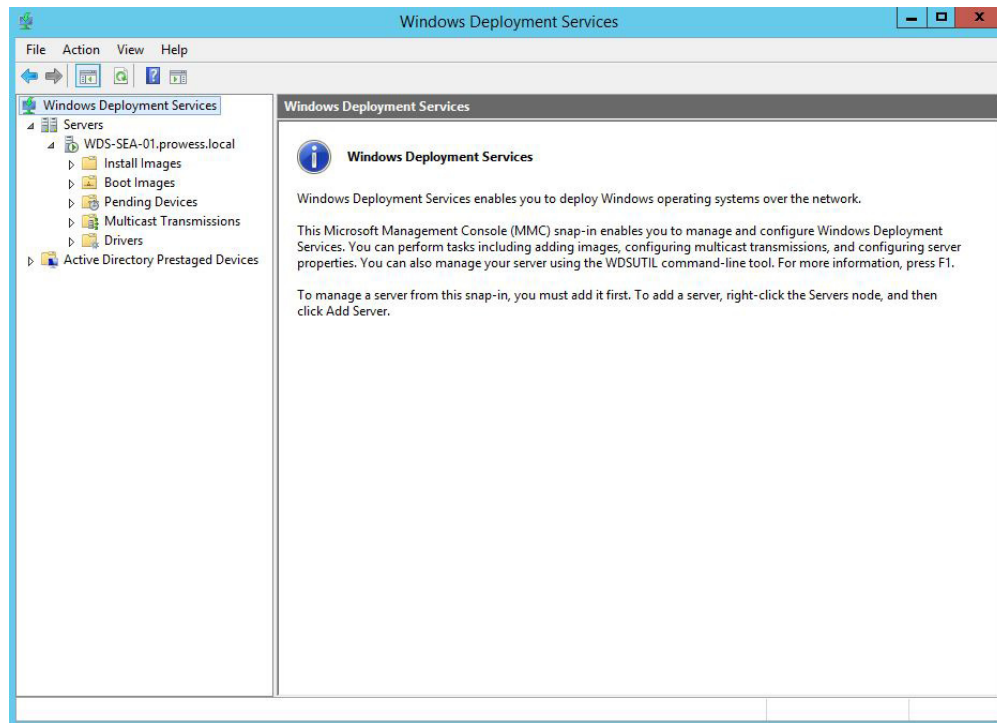
Import the Boot Image to WDS Server

Copy the SmartDeploy.wim file located in **C:\SmartDeploy\Media**, and import it to the WDS console so that SmartPE can be used as the WDS boot image.

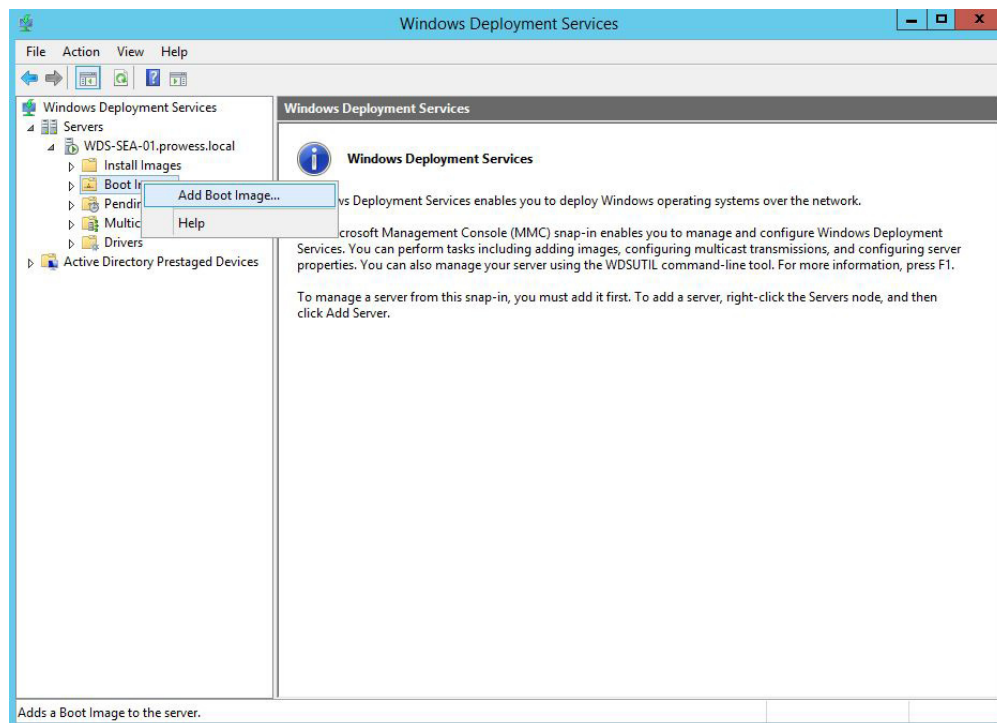
1. Start the WDS Management Console by clicking **Start > All Programs > Administrative Tools > Windows Deployment Services**.



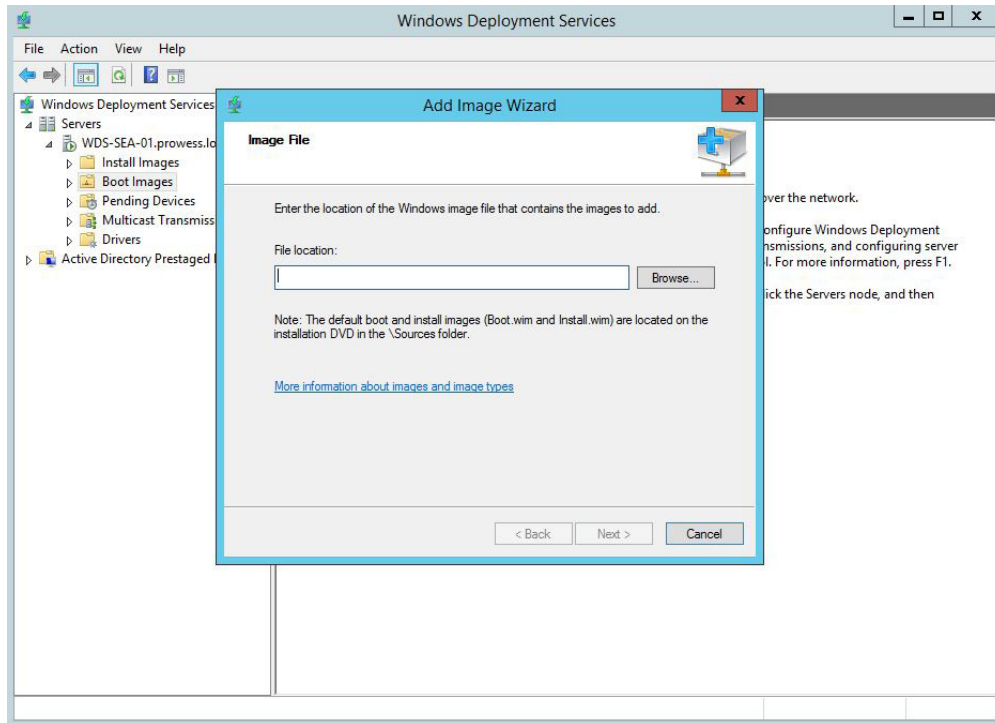
2. Expand the nodes in the tree view to locate the boot images.



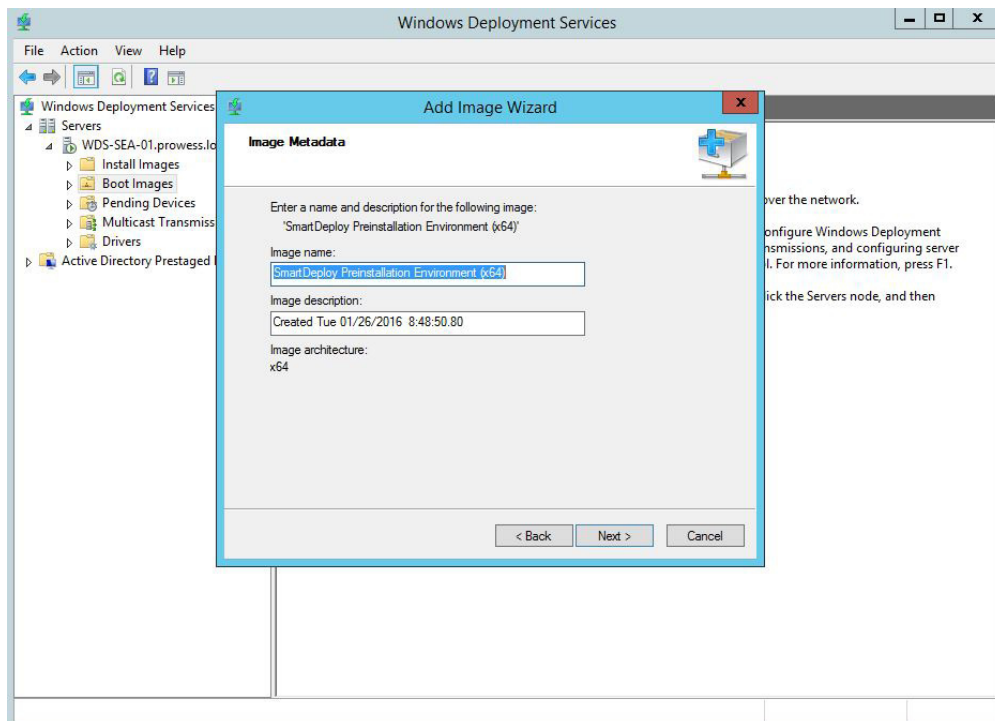
3. Click **Boot Images**, and then click **Add Boot Image**.



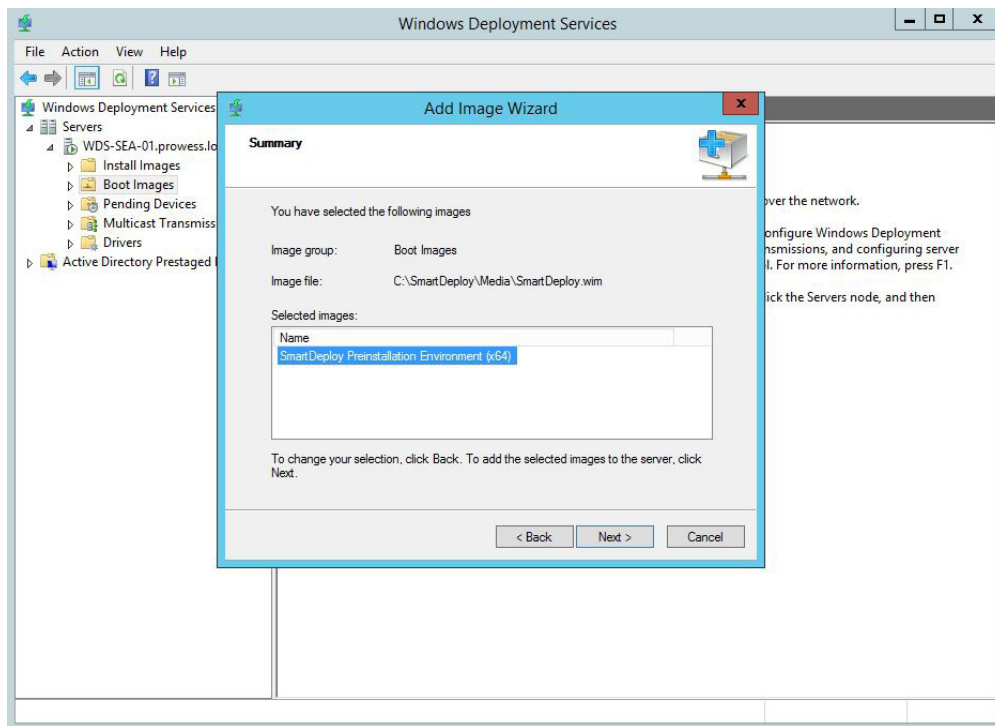
- Click **Browse** and browse to the location where you saved your boot WIM file you generated with the Media Wizard. Select that .WIM file and hit **Next**.
Note: The default directory location of the boot WIM is C:\SmartDeploy\Media.



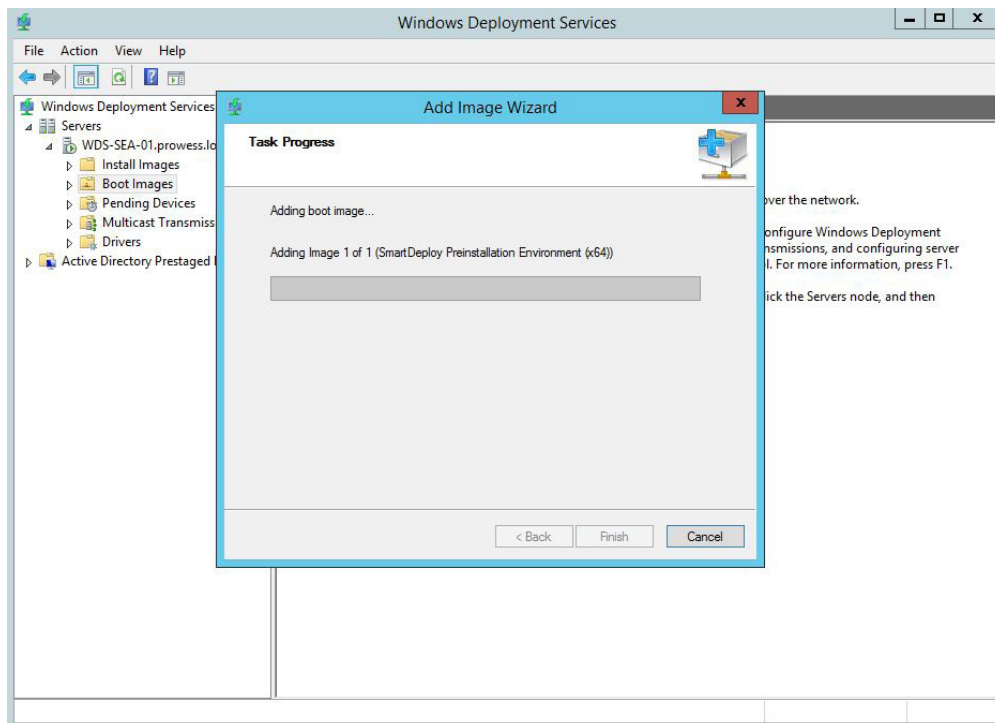
- On the **Image Metadata** page, click **Next**.



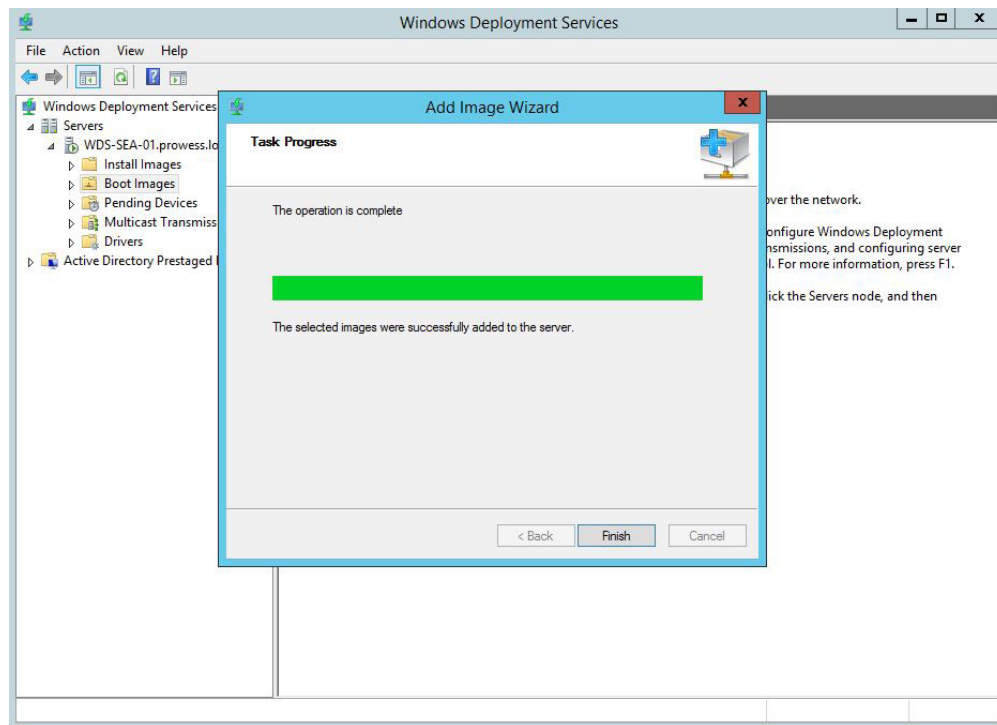
6. On the **Summary** page, review the settings, and then click **Next**.



7. Wait while the image is added.



- When the tasks are complete, click **Finish**.

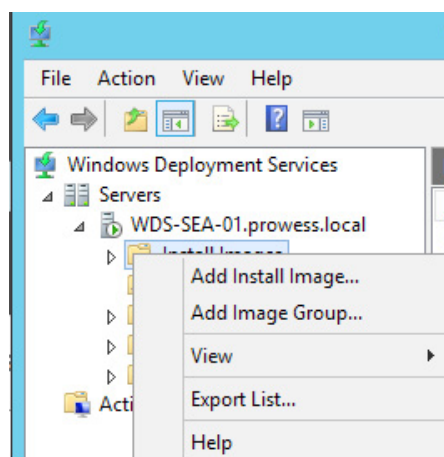


Install the Image

Now it is time to import the customized Windows 10 install image; this is the image you captured with the Capture Wizard. You can use existing WDS image groups to categorize SmartDeploy images. Note that if you have just installed WDS and have not yet created image groups, no groups are displayed.

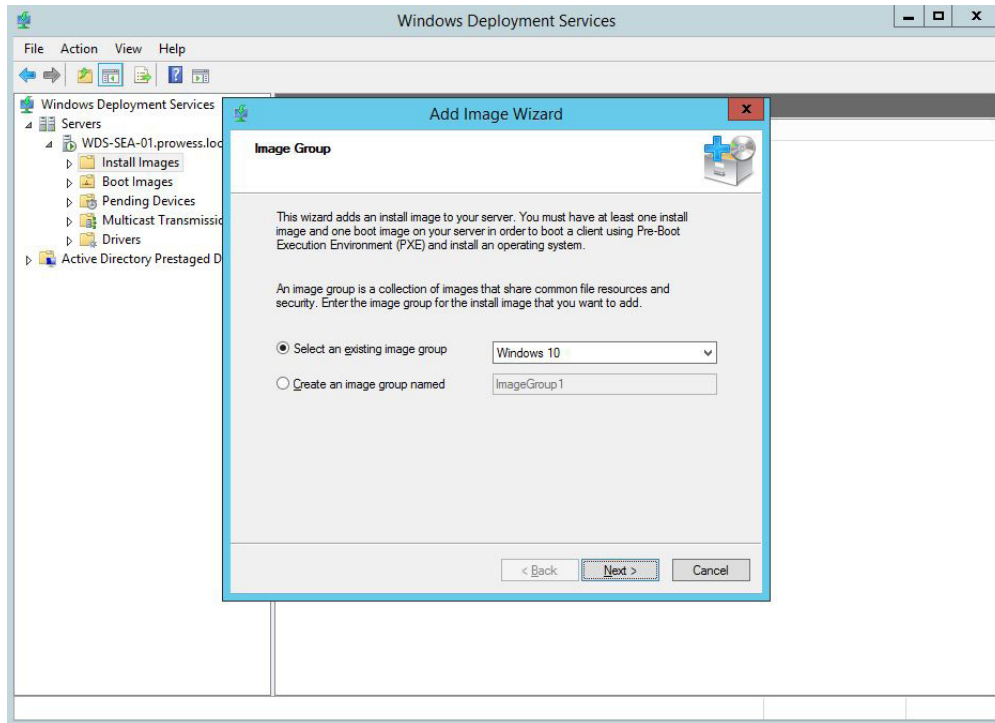
In this example, you add the image to the Windows 10 group and then locate and select the custom WIM volume image to deploy. The WIM volume image contains all the information needed for WDS to complete the import.

- From the **WDS Management Console**, right click **Install Images**, select **Add Install Image**.



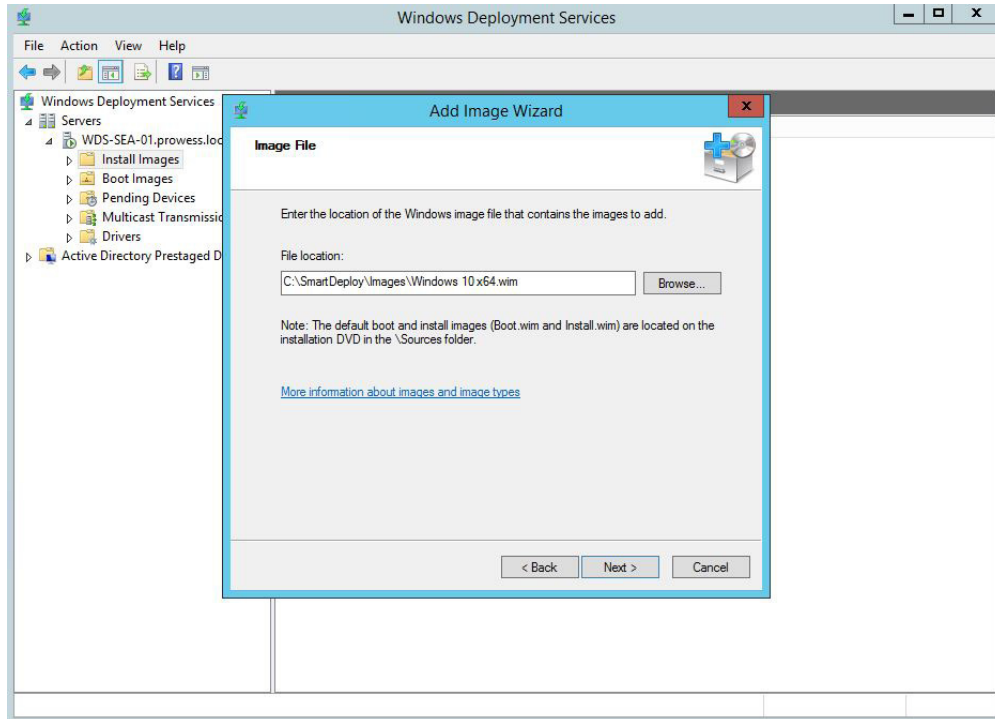
2. Use existing WDS image groups to categorize the SmartDeploy image. Select the **Select from existing image groups** button, make sure **Windows 10** is listed in the drop-down menu, and then click **Next**.

If there are no existing groups, you can select **Create a new image group** and type the name of the new group.

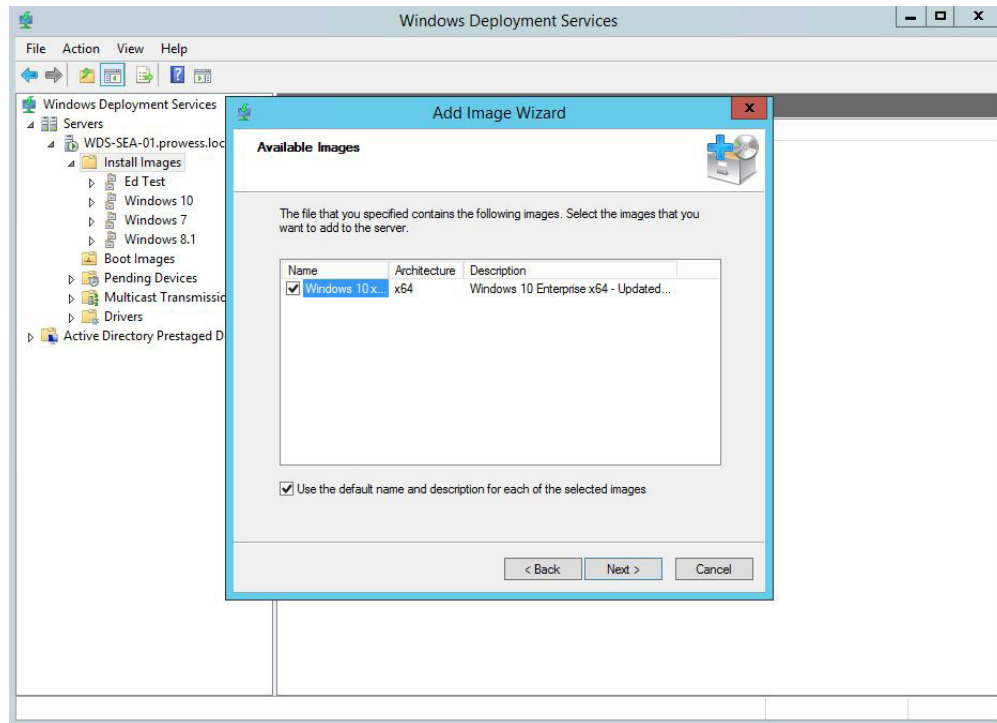


3. Add the SmartDeploy images to the Windows 10 image group. Browse to your WIM location, **C:\SmartDeploy\Images\Windows 10 x64.wim** (the custom WIM volume image to deploy). Click **Next**.

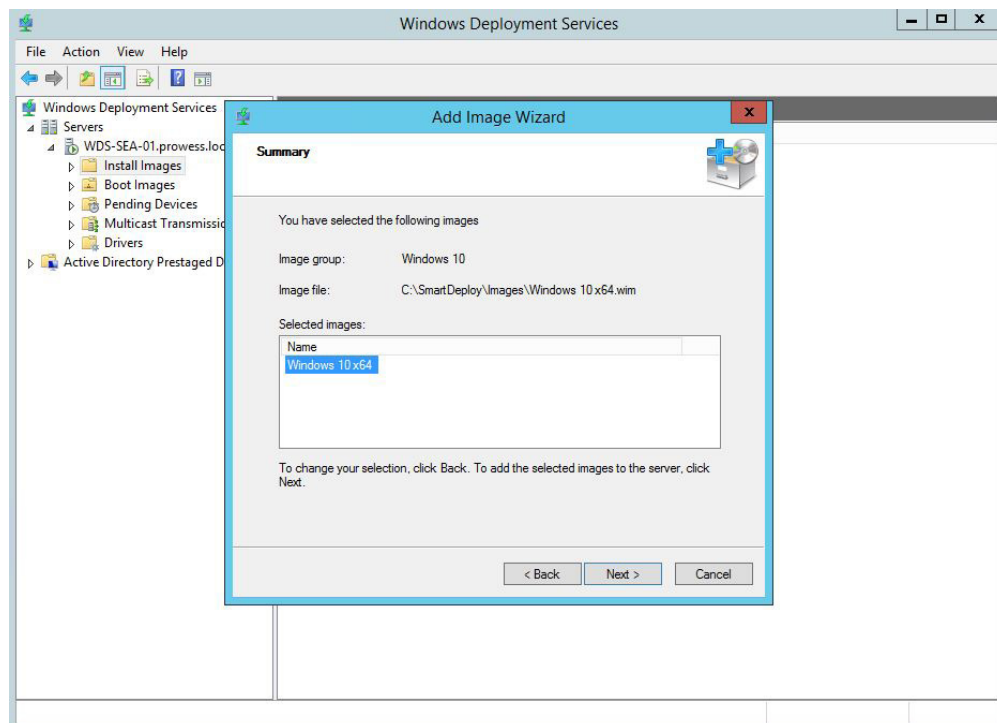
Note: Once you browse to your WIM and successfully import it into your WDS server, the WIM will be located in **\\wds-server\reminst\Images\groupname**.



4. The **Available Images** page shows the images that are available in the file. Make sure that **Windows10.wim** is selected, and then click **Next**.



5. On the **Summary** page, review the settings, and then click **Next**. The selected image, Windows 10, is added to the server.

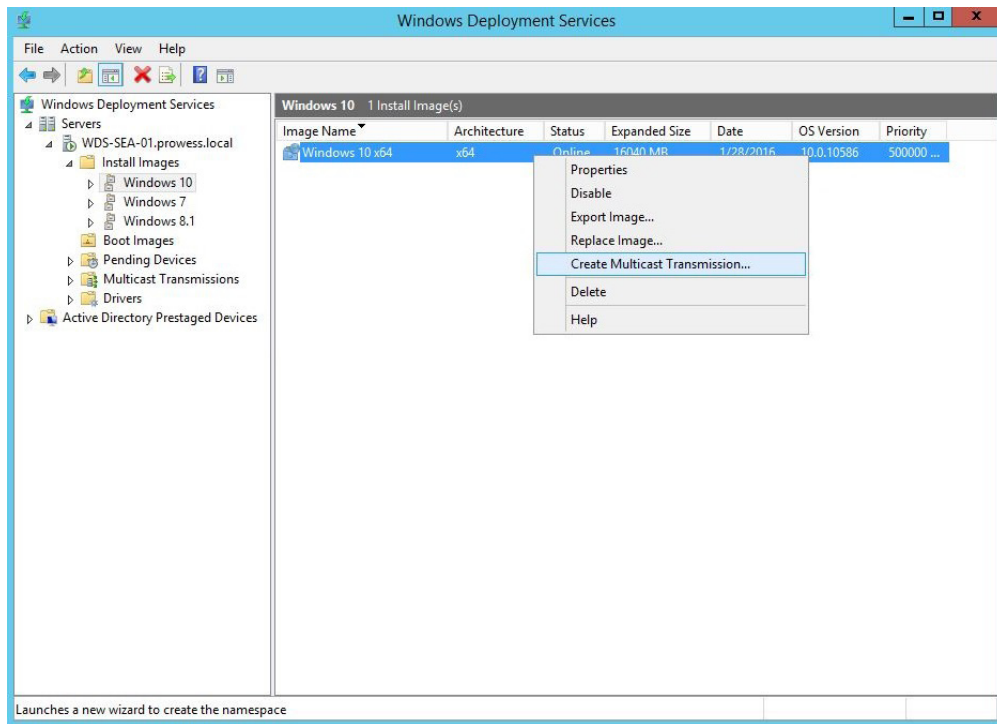


6. When the task is complete, click **Finish**.

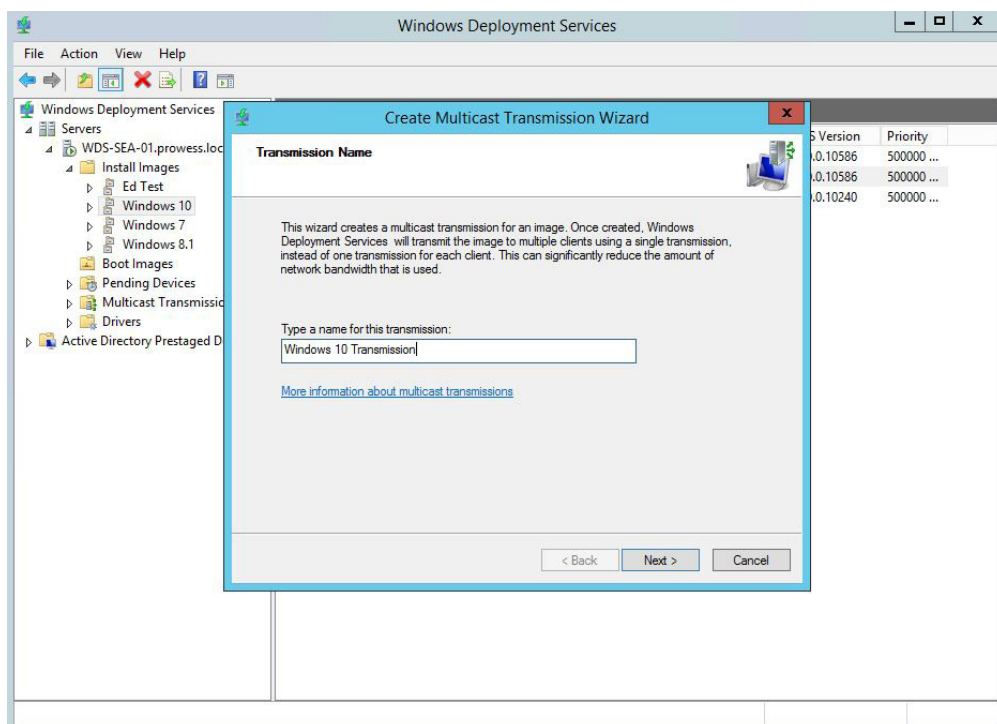
Use Multicast Transmission

As part of integration into WDS, you can choose to create a multicast transmission.

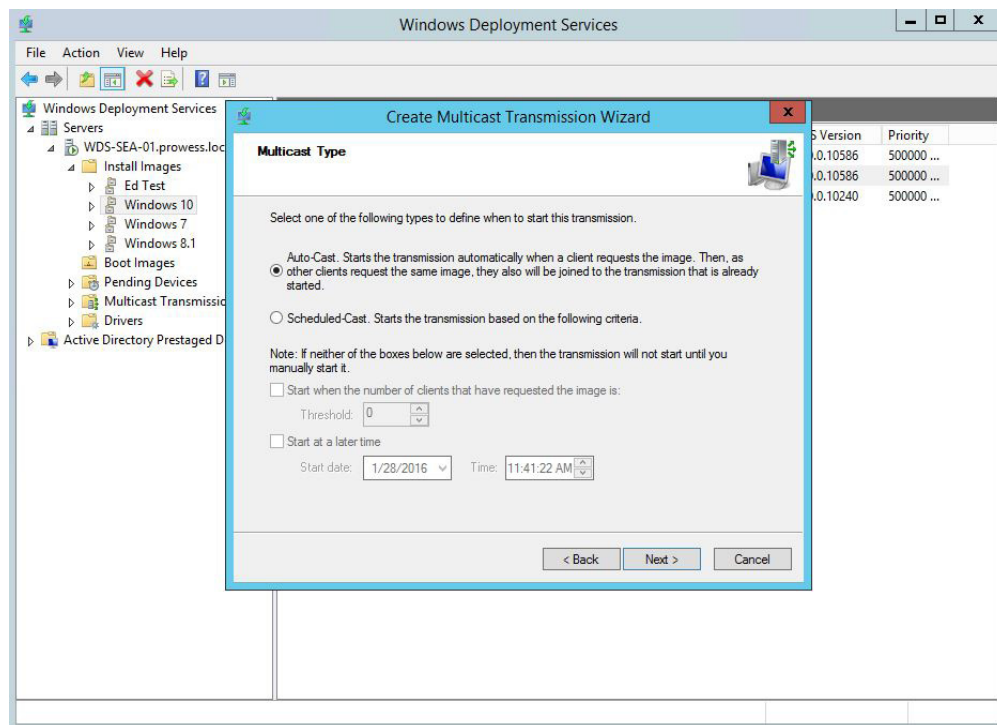
1. In the **Windows Deployment Services Management Console**, click on **Windows 10**, and then click on **Create Multicast Transmission**.



2. On the **Transmission Name** page, type the name of the transmission, and then click **Next**. In this example, type: **Windows 10 Transmission**



- On the **Multicast Type** page, leave the **Auto-Cast** option selected, and then click **Next**.



- When the task is complete, click **Finish**.

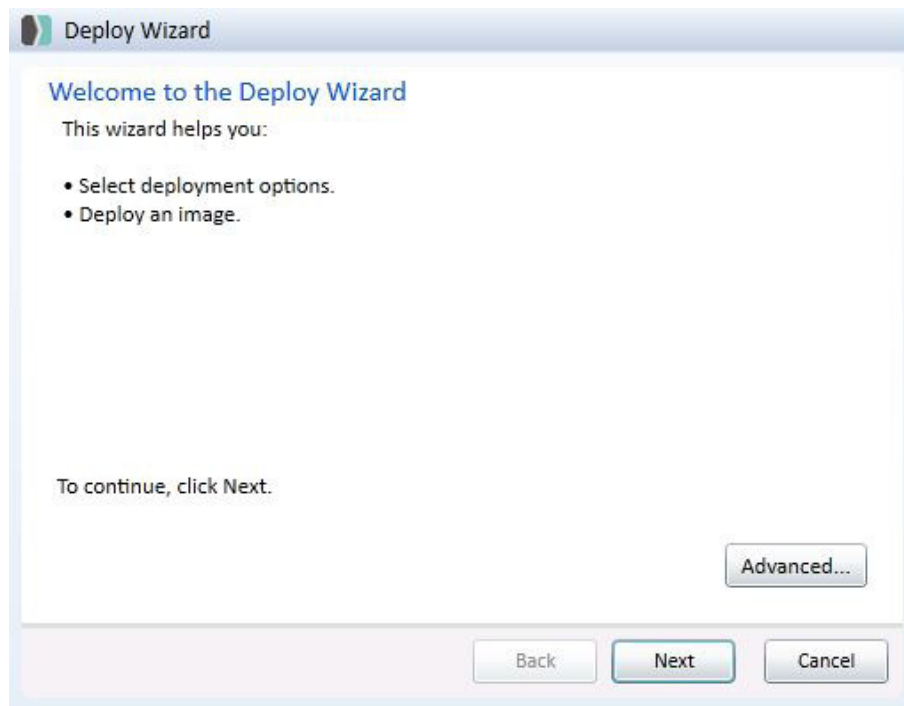
Boot to SmartPE and Deploy the Image

You are now ready to boot your target computer to SmartPE. The target computer uses the boot WIM file to PXE boot.

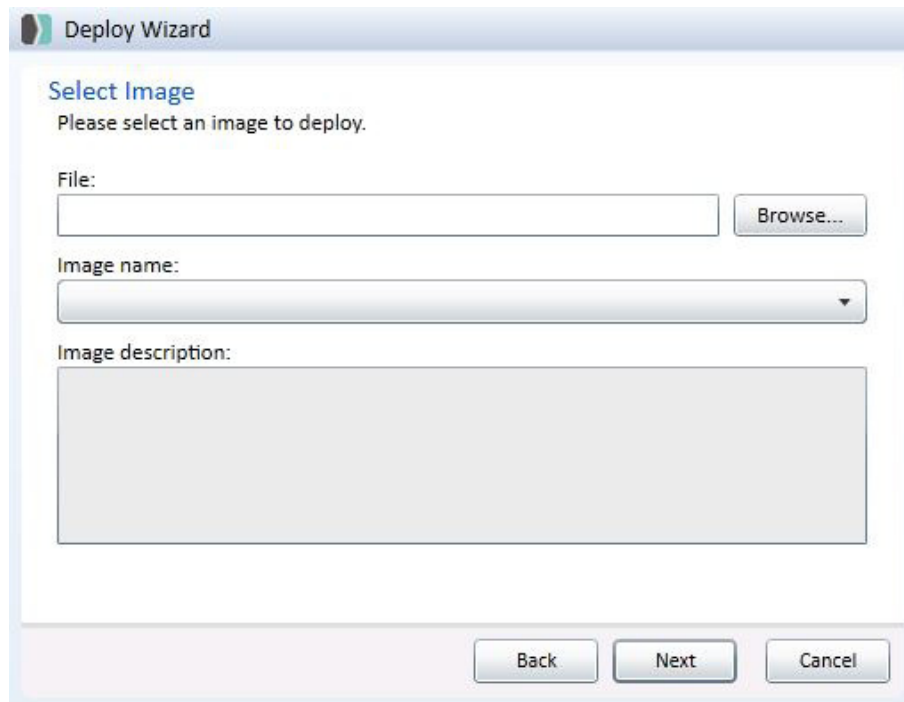
- Using the existing PXE environment, the target computer picks up the boot WIM file imported earlier and boots to SmartDeploy. Click on **Deploy an image** to start the Deploy Wizard.
Note: you can also automate the deployment process using answer files.



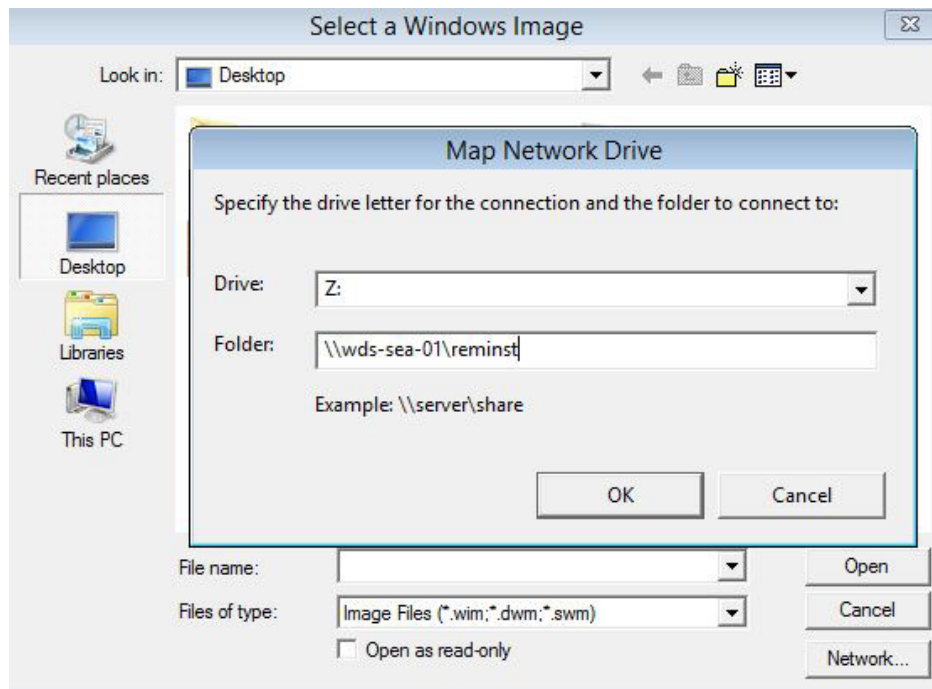
2. On the **Welcome to the Deploy Wizard** page, click **Next**.



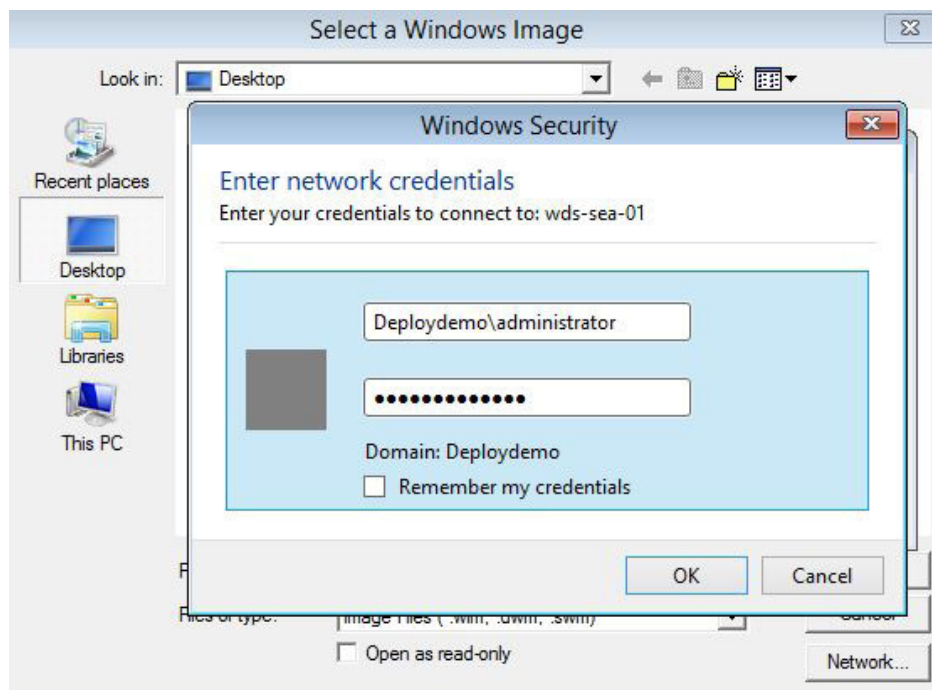
3. Locate the Windows 10 WIM. On the **Select Image** page, click **Browse**, and then click **Network** to browse to the network share where the image is located.



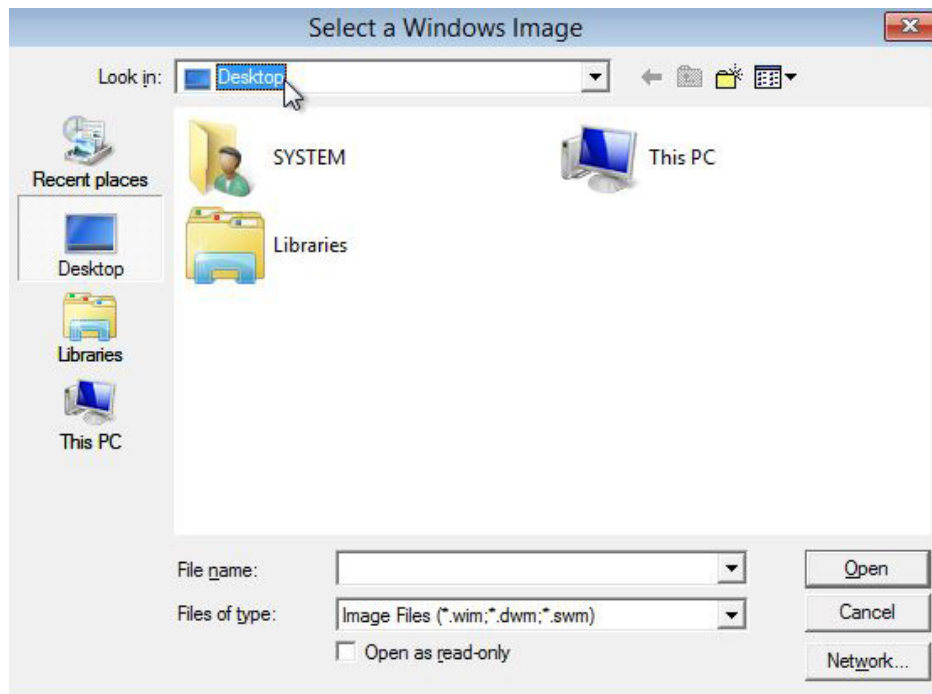
4. On the **Map Network Drive** page, provide the network location to the WDS remote install share (WDS repository `\\sde-host\reminst`), and then click **OK**.



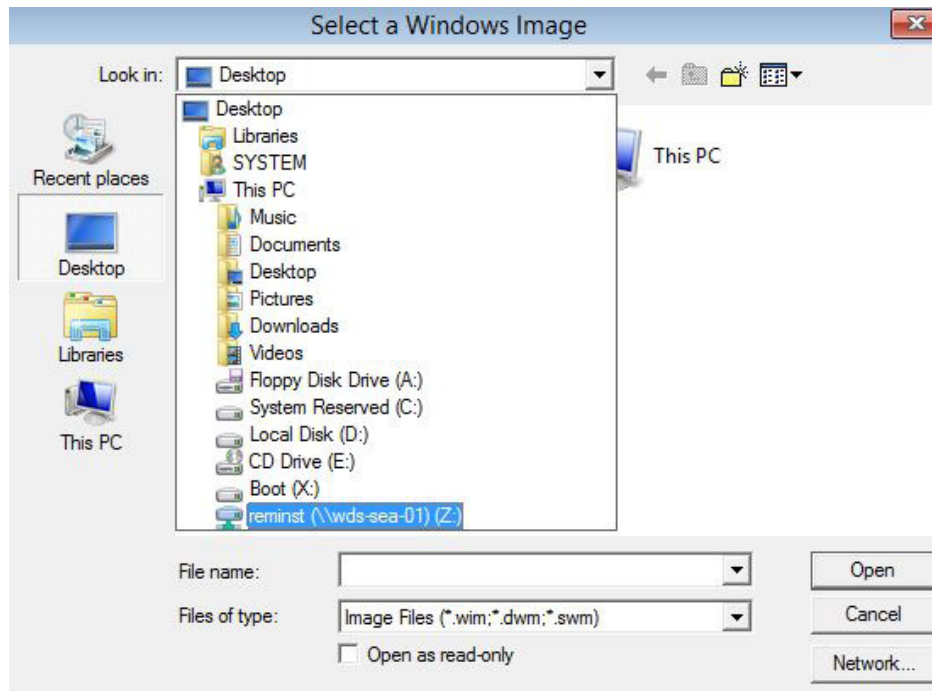
5. On the **Enter network credentials** screen, type your credentials, and then click **OK**.



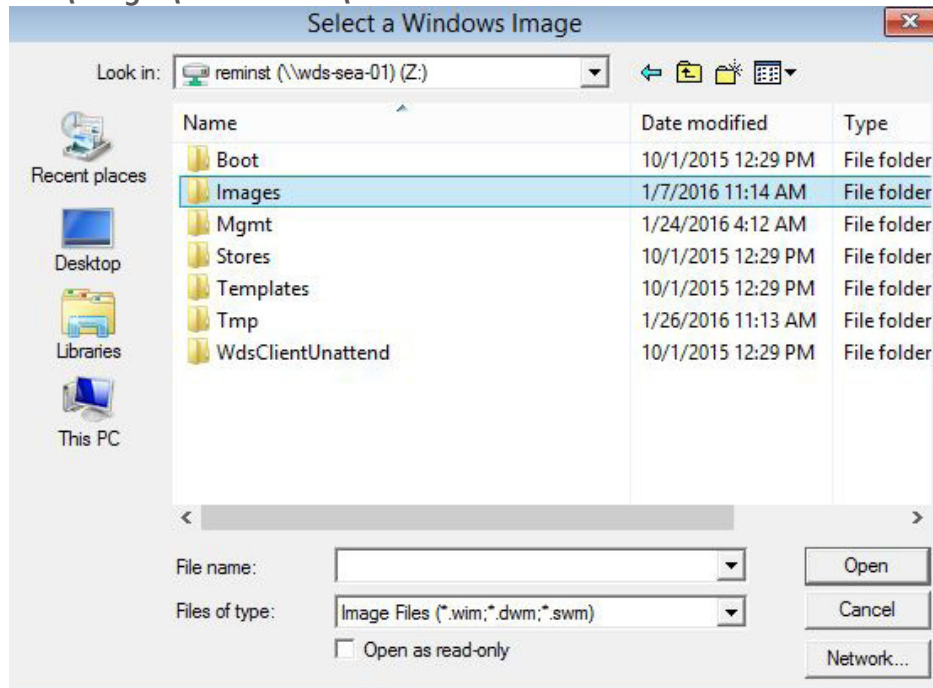
6. Locate and select the Windows 10 WIM on the mapped drive. Click **Computer**.



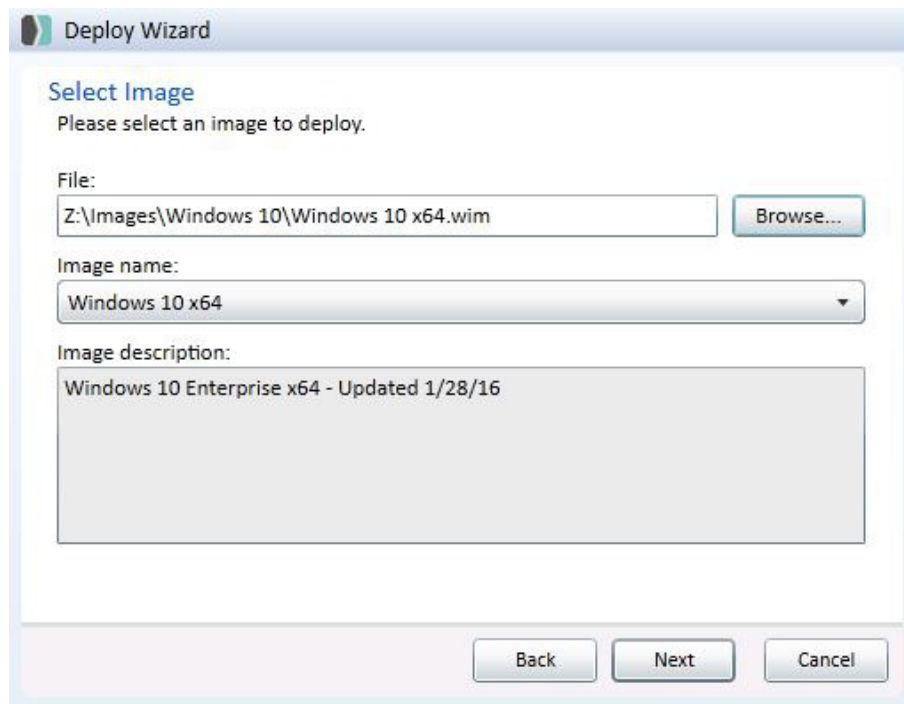
7. Scroll to the Network Location.



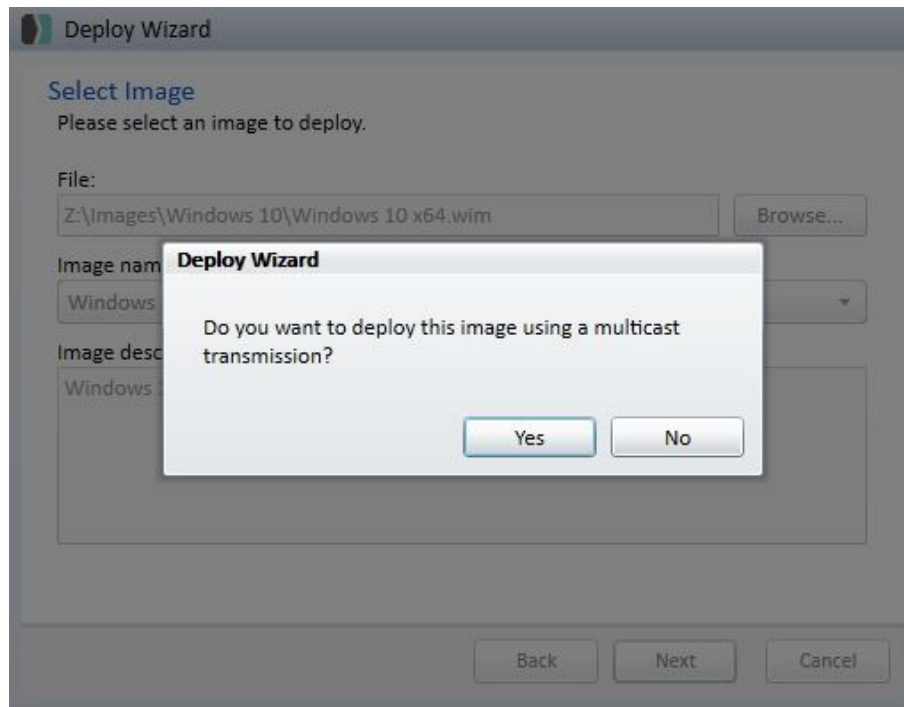
8. Browse to **Z:\images\windows 10\windows 10.wim**.



9. On the **Select Image** page, click **Next**.



10. In the **Deploy Wizard** dialog box, click **Yes** to indicate that the image is a WDS multicast-enabled image.

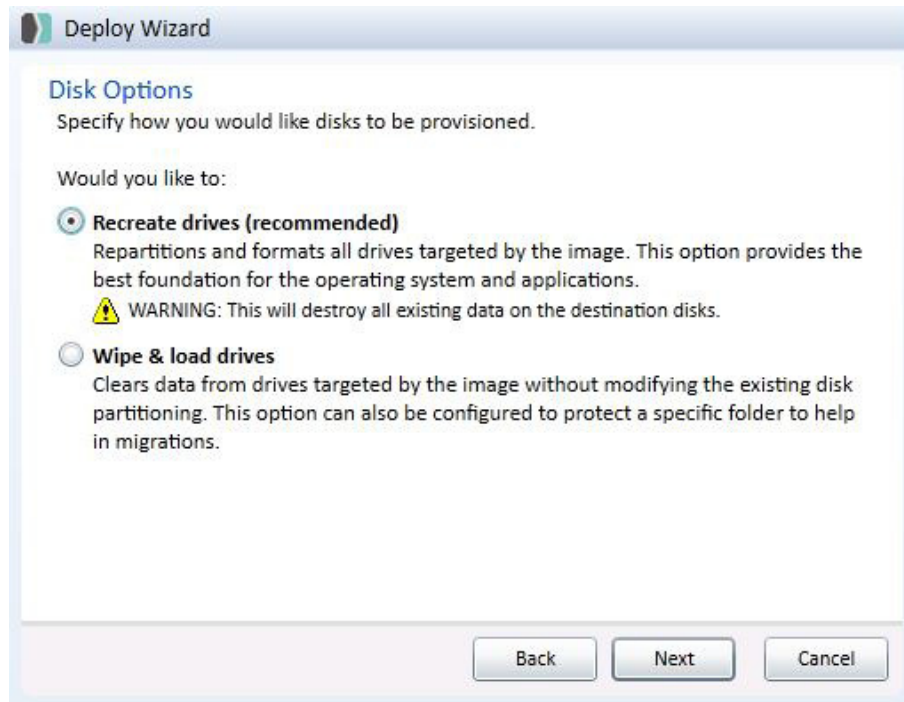


11. In the **WDS Credentials** dialog box, type the credentials for the WDS server, and then click **OK**.



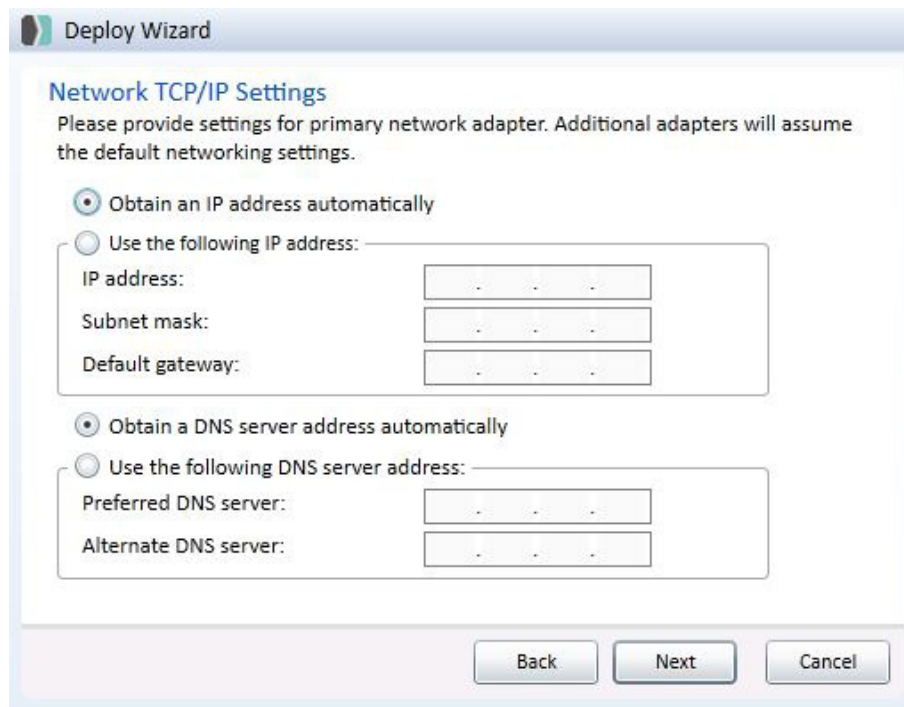
12. On the **Disk Options** page, note that SmartDeploy provides several disk options. Select **Recreate drives**, the recommended option. This option repartitions and formats all drives targeted by the image.

Note: selecting this option destroys all existing data on the destination disks.



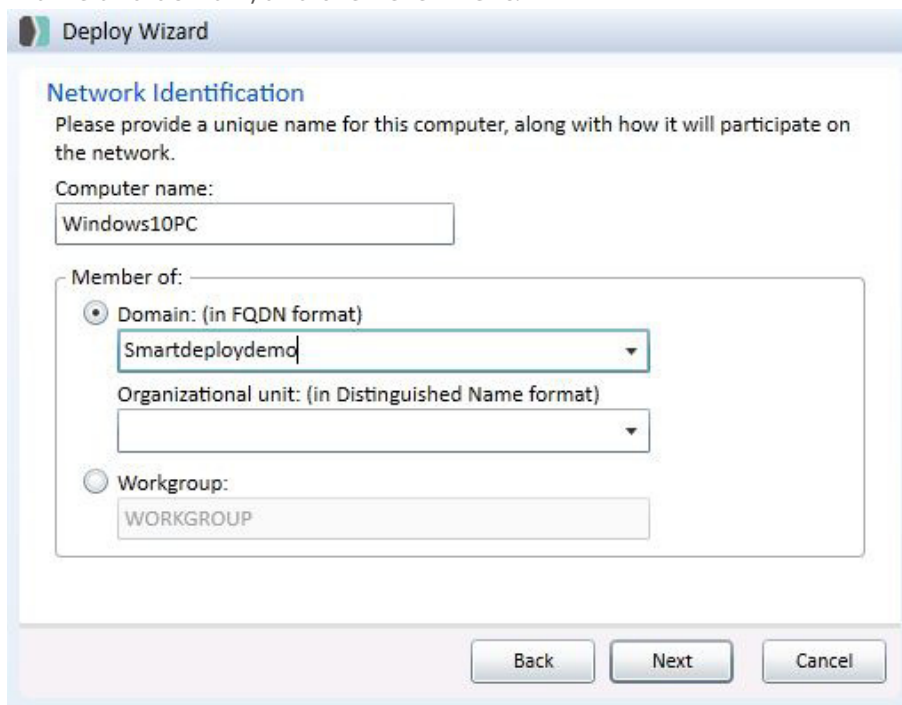
13. Next, you are prompted for standard Windows information.
- The Product Key page appears. If you did not specify a product key when you captured an image, you can enter the product key now. Click **Next**.
 - On the User Information page, enter the user name and organization. Click **Next**.
 - On the Regional Settings page, specify the time zone and language. Click **Next**.
 - On the Display Settings page, accept the default of Auto Detect. Click **Next**.

Note: if you are using an answer file, this can be automated.



The screenshot shows the 'Deploy Wizard' window with the 'Network TCP/IP Settings' tab selected. The title bar reads 'Deploy Wizard'. The main heading is 'Network TCP/IP Settings' in blue. Below it, a message states: 'Please provide settings for primary network adapter. Additional adapters will assume the default networking settings.' There are two radio button options: 'Obtain an IP address automatically' (which is selected) and 'Use the following IP address:'. The second option is grouped with three text boxes for 'IP address:', 'Subnet mask:', and 'Default gateway:'. Below these, there are two more radio button options: 'Obtain a DNS server address automatically' (selected) and 'Use the following DNS server address:'. The second option is grouped with two text boxes for 'Preferred DNS server:' and 'Alternate DNS server:'. At the bottom right, there are three buttons: 'Back', 'Next', and 'Cancel'.

14. In this example, the target computer is deployed to an existing domain. Enter the desired computer name and domain, and then click **Next**.



The screenshot shows the 'Deploy Wizard' window with the 'Network Identification' tab selected. The window title is 'Deploy Wizard'. The tab title is 'Network Identification'. The instructions say: 'Please provide a unique name for this computer, along with how it will participate on the network.' There are two main sections. The first section is 'Computer name:' with a text box containing 'Windows10PC'. The second section is 'Member of:' with two radio buttons. The first radio button is selected and labeled 'Domain: (in FQDN format)'. Below it is a dropdown menu showing 'Smartdeploydemo'. Below that is a text box for 'Organizational unit: (in Distinguished Name format)' which is empty. The second radio button is labeled 'Workgroup:' and has a text box containing 'WORKGROUP'. At the bottom are three buttons: 'Back', 'Next', and 'Cancel'.

Deploy Wizard

Network Identification

Please provide a unique name for this computer, along with how it will participate on the network.

Computer name:

Windows10PC

Member of:

☒ Domain: (in FQDN format)

Smartdeploydemo

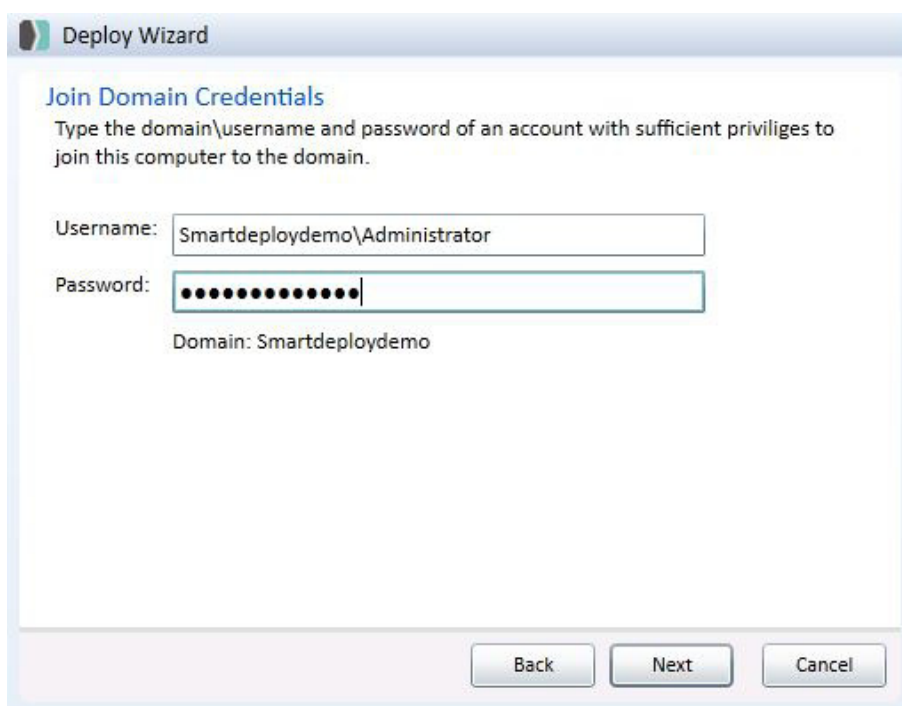
Organizational unit: (in Distinguished Name format)

☐ Workgroup:

WORKGROUP

Back Next Cancel

15. On the **Join Domain Credentials** page, type your user name, domain, and password, and confirm. Click **Next**.



The screenshot shows the 'Deploy Wizard' window with the 'Join Domain Credentials' tab selected. The window title is 'Deploy Wizard'. The tab title is 'Join Domain Credentials'. The instructions say: 'Type the domain\username and password of an account with sufficient privileges to join this computer to the domain.' There are two main sections. The first section is 'Username:' with a text box containing 'Smartdeploydemo\Administrator'. The second section is 'Password:' with a text box containing 12 dots. Below the password box is the text 'Domain: Smartdeploydemo'. At the bottom are three buttons: 'Back', 'Next', and 'Cancel'.

Deploy Wizard

Join Domain Credentials

Type the domain\username and password of an account with sufficient privileges to join this computer to the domain.

Username: Smartdeploydemo\Administrator

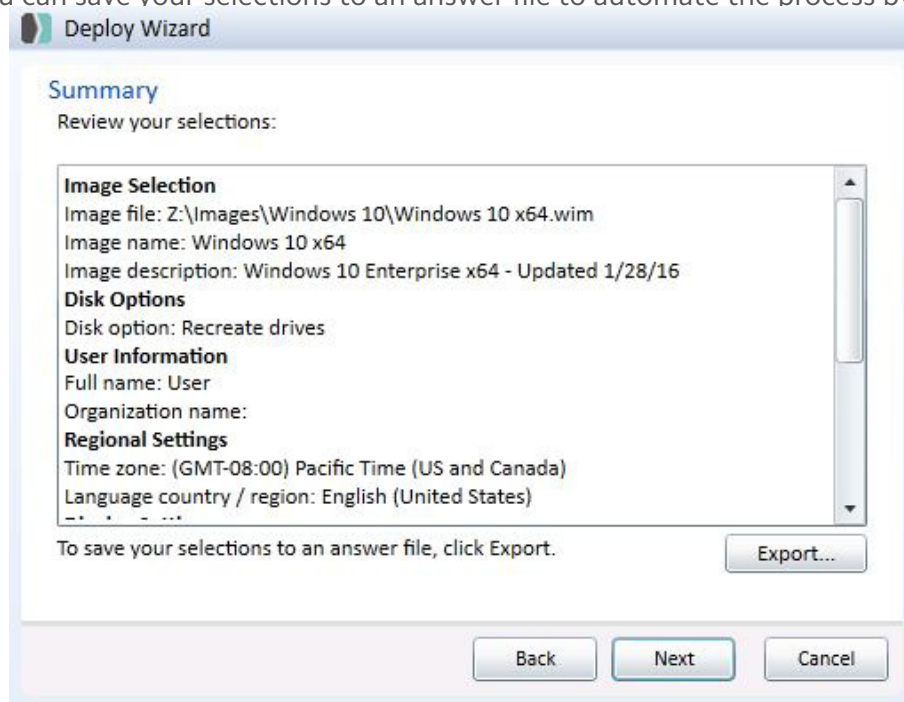
Password:

Domain: Smartdeploydemo

Back Next Cancel

16. Review your selections on the **Summary** page, and then click **Next**. The wizard is ready to provision the disks and apply the volume image.

Note: you can save your selections to an answer file to automate the process by clicking **Export**.



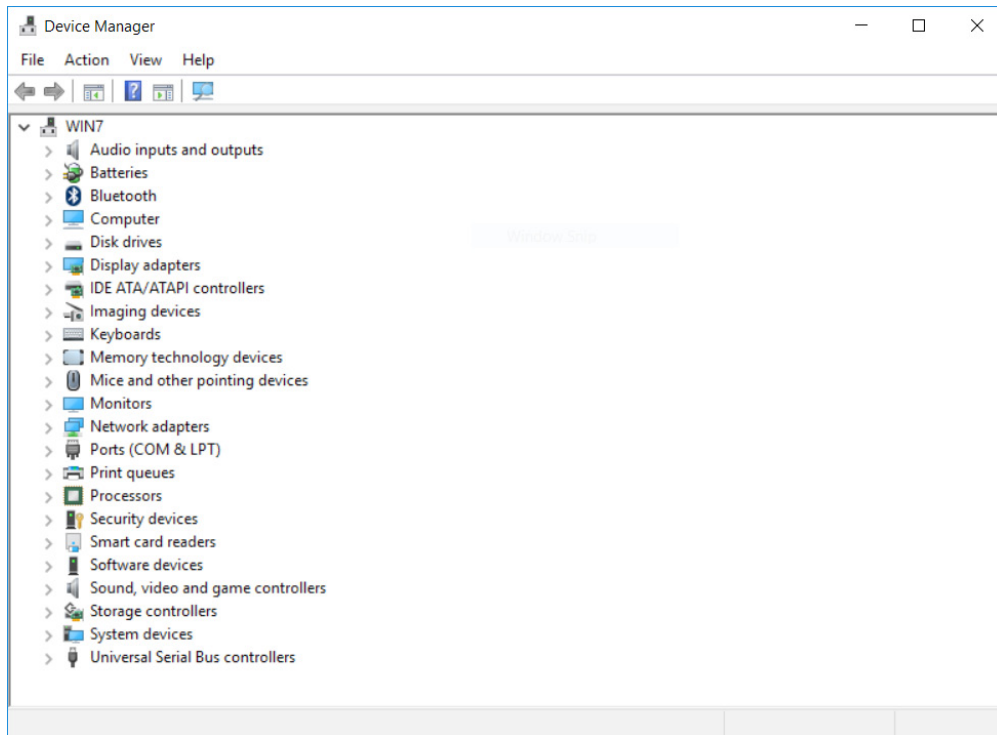
17. To deploy the image and close the wizard, click **Finish**. The image will now be deployed.



Verify with the Device Manager

Finally, verify that your hardware is recognized and that the target computer is ready. After the image is applied, Windows continues the setup procedures, including completing SYSPREP tasks, updating registry settings, installing devices, and joining the domain.

1. When setup is complete, log on as an administrator.
2. You can open device manager and see the results of the Platform Pack technology.
Click on **Start > All Programs > Computer > Manage**.
3. You can see that all hardware is recognized and the target computer is ready to go.



Summary

It is easy to integrate custom WIM images created with SmartDeploy into Windows Deployment Services. Not only does this let you to take advantage of the time and cost saving benefits of SmartDeploy within WDS, but it also lets you extend the functionality of WDS beyond its native capabilities. Using SmartDeploy you only need to create and use a single image regardless of architecture or platform. You treat images created with SmartDeploy like you would any other install image in WDS. And the hardware-independent capabilities of SmartDeploy reduce the pain and frustration experienced by IT professionals who are responsible for supporting multiple computer models from multiple manufacturers.

More Information

The following links provide further information:

- [SmartDeploy Enterprise User's Guide](#)
- [SmartDeploy Home Page](#)
- [DeployCentral Forum](#)
- [Windows Deployment Services Getting Started Guide](#)