Deploying Windows 8.1 to Bare Metal Systems in System Center 2012 R2 Configuration Manager

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Objectives	After completing this lab, you will be able to: • Enable PXE support for a distribution point • Modify the boot image to prompt for user device affinity • Distribute operating system boot images to the distribution point • Capture a Windows 8.1 client reference system • Create a Windows 8.1 operating system image • Create a task sequence to install a bare metal system as a Configuration Manager 2012 client running Windows 8.1 • Modify the task sequence to enable user device affinity • Deploy the task sequence to the bare metal system • Monitor the operating system deployment process
Prerequisites	This lab requires an installed and functioning Configuration Manager 2012 R2 site (Primary1 is the site server virtual machine image). This lab also requires at least one Configuration Manager 2012 R2 client computer that is not the site server to be captured as a reference computer (Client81 is the reference computer virtual machine image). Finally, this lab requires a bare metal system that will be deployed as a client (BareMetal is the blank virtual machine for this lab environment).
Estimated Time to Complete This Lab	75 Minutes
Computers used in this Lab	Primary1 Client81 BareMetal The password for the **administrator** account on all computers in this lab is: **password**.

1 CONFIGURING A DISTRIBUTION POINT TO SUPPORT PXE

In this exercise, you will configure a distribution point to support bare metal client deployment through PXE. This is no longer a separate site system role as it was in Configuration Manager 2007 - in Configuration Manager 2012 it is a property of a distribution point. You will begin by installing and configuring Windows Deployment Services (WDS), which is a requirement for PXE deployments in Configuration Manager. You would not normally need to manually install and configure WDS, however in this lab environment, all components are installed on a single image and on the same computer. In scenarios with DHCP and WDS on the same computer, you do need to perform manual installation and configuration of WDS. With DHCP and WDS on separate computers, you could skip the first task of this lab and start with the second task (starting the Configuration Manager Console).

Tasks	Detailed steps
Complete the following task on: **Primary1**	
1. Install and configure Windows Deployment Services	1. On the **Start** menu, point to **Administrative Tools**, and then click **Server Manager**. **NOTE**: The Server Manager window appears. 2. In the tree pane, click **Roles**, and then in the results pane, click **Add Roles**. **NOTE**: The **Add Roles Wizard Before You Begin** dialog box appears. 3. Click **Next**. **NOTE**: The **Add Roles Wizard Select Server Roles** dialog box appears displaying the available roles that can be installed on this computer. Notice that the "Windows Deployment Services" role has not been installed. 4. Under **Roles**, click to select **Windows Deployment Services**, and then click **Next**. **NOTE**: The **Add Roles Wizard Overview of Windows Deployment Services** dialog box appears providing overview information of Windows Deployment Services. 5. Click **Next**. **NOTE**: The **Add Roles Wizard Select Role Services** dialog box appears allowing you to designate what services are to be installed with WDS. Notice that both "Deployment Server" and "Transport Server" are to be installed. 6. Click **Next**. **NOTE**: The **Add Roles Wizard Confirm Installation Selections** dialog box appears displaying information related to the role and services to be installed. 7. Click **Install**. **NOTE**: The Windows Deployment Services role is installed. When complete, the **Add Roles Wizard Installation Results** dialog box appears indicating that the installation was successful. 8. Click **Close**. **NOTE**: The Server Manager window appears. Notice that "Windows Deployment Services" is now listed as an installed role. 9. Close the Server Manager window.

	NOTE: The Windows desktop appears. 10. On the **Start** menu, point to **Administrative Tools**, and then click **Windows Deployment Services**. **NOTE**: The Windows Deployment Services window appears. 11. In the tree pane, expand **Servers**, and then click **Primary1.ConfigMgrDom.local**. **NOTE**: The Windows Deployment Services window displays the status of the local WDS server. Notice that it is not currently configured. 12. On the **Action** menu, click **Configure Server**. **NOTE**: The **Windows Deployment Services Configuration Wizard Before You Begin** dialog box appears. 13. Click **Next**. **NOTE**: The **Windows Deployment Services Configuration Wizard Remote Installation Folder Location** dialog box appears displaying the default folder to use for boot images and configuration files for Windows Deployment Services. The server image only has one drive, so you will use the default drive and path. 14. Click **Next**. **NOTE**: A **System Volume Warning** message box appears indicating that the designated path (C:\RemoteInstall) is on the same drive as the Windows system volume, which is not recommended. In our lab environment that is fine, as our server only had one drive, however in a production environment, it is recommended to put the Windows Deployment Services images and configuration files on a different volume. 15. Click **Yes**. **NOTE**: The **Windows Deployment Services Configuration Wizard DHCP Option 60** dialog box appears indicating that if DHCP is configured on this same server, that you should select both the check boxes to configure DHCP to not listen over port 67, and to configure port 60 as a DHCP option. 16. Click to select both **Do not listen on port 67** and **Configure DHCP option 60 to 'PXEClient'**, and then click **Next**. **NOTE**: The **Windows Deployment Services Configuration Wizard PXE Server Initial Settings** dialog box appears allowing you to configure how the PXE server responds to network boot requests. 17. Click **Respond to all client computers (known and unknown)**, and then click **Next**. **NOTE**: Windows Deployment Services is configured. When complete, the **Windows Deployment Services Configuration Wizard Operation Complete** dialog box appears. As there are no boot images needed at this time, you will clear the option to add images to the server now. 18. Click to clear **Add images to the server now**, and then click **Finish**. **NOTE**: The Windows Deployment Services window appears. Notice that the server is now configured, as folders appear in the results pane. You do not need to do any additional configuration of Windows Deployment Services at this time. 19. Close the Windows Deployment Services window.

	NOTE: You will now use the System Center 2012 Configuration Manager console to configure Configuration Manager 2012 to use Windows Deployment Services to deploy operating system images. This will then allow Configuration Manager to use WDS for deployment of images through PXE. As mentioned previously, if the distribution point site system is not also a DHCP Server computer, you would not have to complete the steps in the above task – they would have been done automatically for you in the following tasks.
2. Start the Configuration Manager Console	1. On the **Start** menu, click **Configuration Manager Console**. **NOTE**: The System Center 2012 Configuration Manager console window appears displaying the Assets and Compliance Overview page. You could also have launched the Configuration Manager Console from **Start**, **All Programs**, **Microsoft System Center 2012 R2**, and **Configuration Manager**.
3. Configure PXE support for a distribution point	1. Click the **Administration** workspace. **NOTE**: The Administration workspace appears displaying the Overview page. 2. In the navigation pane, click **Distribution Points**. **NOTE**: The list of distribution points in the site appears in the results pane. Notice that there is only one distribution point in the site, that being the default distribution point on the site server, "Primary1". 3. In the results pane, click **Primary1**, and then on the Ribbon, click **Properties**. **NOTE**: The **Primary1.ConfigMgrDom.Local Properties** dialog box appears displaying general properties for the distribution point, including the protocol to be used (HTTP), whether or not clients can connect anonymously, the certificate configuration (use a self-signed certificate that expires one year after distribution point installation), and that it does not support prestaged content deployment. 4. Click the **PXE** tab. **NOTE**: The **Primary1.ConfigMgrDom.Local Properties** dialog box appears allowing you to configure this distribution point to support the PXE operating system deployments. To use PXE, a distribution point requires WDS to be installed and configured, which you did previously in this exercise. Notice that WDS will be automatically installed if not already installed. 5. Click to select **Enable PXE support for clients**. **NOTE**: A **Review Required Ports for PXE** message box appears indicating that specific ports (UDP 67, 68, 69, and 4011) must be opened in order to respond to PXE requests. 6. Click **Yes** to allow Configuration Manager to open those ports. **NOTE**: The **Primary1.ConfigMgrDom.Local Properties** dialog box appears. You now need to configure PXE integration with Configuration Manager. 7. Click to select both **Allow this distribution point to respond to incoming PXE requests** and **Enable unknown computer support**. **NOTE**: A **Configuration Manager** message box appears indicating that with unknown computer support enabled, any unknown computers will attempt to install a new operating system from a mandatory task sequence, and thus may be reimaged and lose data. 8. Click **OK**.

	NOTE: The **Primary1.ConfigMgrDom.Local Properties** dialog box appears displaying the current configuration of the PXE support for the distribution point. For the lab environment, we will not use a password for PXE support, and will enable user device affinity. 9. Click to clear **Require a password when computers use PXE**. 10. In the **User device affinity** box, click **Allow user device affinity with automatic approval**. **NOTE**: The **Primary1.ConfigMgrDom.Local Properties** dialog box appears displaying the current configuration of the PXE support for the distribution point. For the lab environment, the remaining configuration settings are fine as configured at default. However in a production environment, you may need to configure the additional settings. 11. Click **OK**. **NOTE**: The distribution points appear in the results pane. Notice that there is only one distribution point in the site. Notice also that the preview pane displays additional information about the distribution point, including that it is now PXE enabled. It will take a few moments to install Windows Deployment Services (WDS) as part of the PXE enabling for the distribution point. You may need to refresh the console to see the updated status of the distribution point, including that it is now PXE enabled.
4. Modifying a boot image to prompt for user device affinity relationship	1. Click the **Software Library** workspace. **NOTE**: The Software Library workspace appears displaying the Overview page. 2. In the navigation pane, expand **Operating Systems**, and then click **Boot Images**. **NOTE**: The list of boot images appears in the results pane. Notice that there are two default boot images, one for 64-bit and one for 32-bit operating systems. 3. In the results pane, click **Boot image (x64)**, and then on the Ribbon, click **Properties**. **NOTE**: The **Boot image (x64) Properties** dialog box appears displaying general properties of the boot image, including the version of the boot image. 4. Click the **Customization** tab. **NOTE**: The **Boot image (x64) Properties** dialog box appears displaying the available options for customization of the boot image. Notice that you can enable a "prestart command ", specify a different background image for Windows PE, as well as to enable "command support". The "command support" option, which enables the use of a Command Prompt window to access log files, is useful in troubleshooting issues while running in Windows PE, however if you do start a command prompt in WinPE, you will need to manually close it after the task sequence has completed and before restarting in the installed operating system. 5. Click to select **Enable prestart command**, and then in the **Command line** box, type **cmd /c SetUDA.hta** **NOTE**: The SetUDA.hta file is a custom file and is not included with Configuration Manager 2012 R2 however has been added to the image for this lab. The path used is hard coded, that you need to specify for any prestart command processes, though you can designate a different file to execute.

	6. Click to select **Include files for the prestart command**, and then click **Browse**. **NOTE**: The **Select Folder** dialog box appears. 7. Open **\\Primary1\Lab Files\OSD Files\OSDPrestart** **NOTE**: The **Boot image (x64) Properties** dialog box appears displaying the customizations configured for this boot image. You do not need to configure a custom background or command prompt support for the lab, however you may wish to do so in your own environments. You have specified a prestart command that references an .hta file. In the Configuration Manager 2012 RTM release, you have to enable this support from a command line. However, in Configuration Manager 2012 SP1 and R2, you can enable optional components for use in WinPE from the Configuration Manager console, which you will do next. 8. Click the **Optional Components** tab. **NOTE**: The **Boot image (x64) Properties** dialog box appears displaying the components that are installed for use during WinPE. There are also many optional components available that can be installed. 9. Click **New** (the icon resembles a starburst). **NOTE**: The **Select optional components** dialog box appears displaying the components that are available to be installed for use during WinPE, as well as the component size. Notice that there is an optional component for .hta support. 10. Under **Available Optional Components**, click to select **HTML (WinPE-HTA)**, and then click **OK**. **NOTE**: The **Boot image (x64) Properties** dialog box appears displaying the components that are installed for use during WinPE, as well as the one additional component to be installed. 11. Click **OK**. **NOTE**: A **Configuration Manager** message box appears indicating that the distribution point must be updated with this updated package. This is not really updating the distribution with the new version of the boot image, as the boot images have not been distributed to the distribution point yet. Rather this process is updating the master boot image that you will distribute to the distribution point in the next task. 12. Click **Yes**. **NOTE**: The **Update Distribution Points Wizard Summary** dialog box appears indicating that the x64 boot image is being updated and the reasons why it is being updated. 13. Click **Next**. **NOTE**: The **Update Distribution Points Wizard Progress** dialog box appears indicating the progress of updating the x64 boot image. This process takes a moment to complete, though as the boot images have not been distributed to any distribution points yet, this will be a quick update to the boot image. When complete, the **Update Distribution Points Wizard Completion** dialog box appears indicating that the update was successful. 14. Click **Close**. **NOTE**: The list of boot images appears in the results pane. In our environment, we are only going to use the 64-bit boot image, so no need to add the prestart

	command to the 32-bit boot image. However, in your production environment, you may need to modify both images to support any customizations that you need to implement. You will now distribute both boot images to the distribution point. Even though you are only going to use the 64-bit boot image, it is always a best practice to distribute both boot images to your distribution points.
5. Distributing boot images to the distribution point	1. In the results pane, click **Boot image (x64)**, and then on the Ribbon, click **Properties**. **NOTE**: The **Boot image (x64) Properties** dialog box appears displaying general properties of the boot image, including the version of the boot image. 2. Click the **Data Source** tab. **NOTE**: The **Boot image (x64) Properties** dialog box appears displaying the image path as well as additional configuration. In order to deploy a boot image using PXE/WDS, the boot image must be enabled for PXE. Notice that in Configuration Manager 2012 R2, this feature is enabled by default. In the RTM release of Configuration Manager 2012, you were required to enable this support manually. 3. Click **Cancel**. **NOTE**: The list of boot images appears in the results pane. 4. In the results pane, multi-select both **Boot image (x64)** and **Boot image (x86)**, and then on the Ribbon, click **Distribute Content**. **NOTE**: The **Distribute Content Wizard General** dialog box appears displaying the content to be distributed. Notice that both boot images are listed for distribution. 5. Click **Next**. **NOTE**: The **Distribute Content Wizard Content Destination** dialog box appears displaying the target for the content to be distributed. Notice that no targets are listed by default. 6. Click **Add**. **NOTE**: A new menu appears. Notice that you can target collections, distribution points, or distribution point groups. 7. Click **Distribution Point**. **NOTE**: The **Add Distribution Points** dialog box appears displaying the available distribution points. Notice that there is only one distribution point available. 8. Under **Available distribution points**, click to select **Primary1**, and then click **OK**. **NOTE**: The **Distribute Content Wizard Content Destination** dialog box appears displaying the target for the content to be distributed. Notice that your one distribution point is now displayed. 9. Click **Next**. **NOTE**: The **Distribute Content Wizard Summary** dialog box appears indicating that the wizard is ready to distribute the content to one distribution point. 10. Click **Next**. **NOTE**: The **Distribute Content Wizard Completion** dialog box appears indicating that the wizard completed successfully.

	11. Click **Close**. **NOTE**: The list of boot images appears in the results pane. You now need to verify the distribution of the boot images to the distribution point. There is no longer a requirement to deploy the boot images to the PXE Service Point as you have to do in Configuration Manager 2007 as the "PXE Service Point" role is part of a distribution point. 12. Click the **Monitoring** workspace. **NOTE**: The Monitoring workspace appears displaying the Overview page. 13. In the navigation pane, expand **Distribution Status**, and then click **Content Status**. **NOTE**: The content distribution status appears in the results pane. Notice that the content for both boot images have been successfully distributed to your distribution point. If the status still shows "In Progress", wait a moment, and then refresh the "Content Status" node until the "Compliance %" displays "100.0". You have now enabled and configured Windows Deployment Services as part of the operating system (manually although in most cases you could have allowed Configuration Manager to do the WDS installation and configuration automatically), and enabled integration of Windows Deployment Services and Configuration Manager 2012 R2. You also verified that the two boot images were configured to support deployment through PXE, and finally distributed the two boot images to your site's distribution point. You will next capture a reference system that will then become the operating system image to deploy to your bare metal client computer later in this lab.

2 CAPTURING A REFERENCE COMPUTER

In this exercise, you will capture a reference computer. A reference computer is the "master" computer that you want to capture an image of to deploy to other computers. You will begin by creating a capture media to create an image of the reference computer.

Tasks	Detailed steps
Complete the following task on: **Primary1**	
1. Creating a media capture "CD"	1. Click the **Software Library** workspace. **NOTE**: The Software Library workspace appears displaying the available boot images in the results pane. 2. In the navigation pane, click **Task Sequences**. **NOTE**: The list of task sequences appears in the results pane. Notice that there are no task sequences at this time. You will create a task sequence later in this lab. At this time, you will create a task sequence media that will be used in the next procedure to capture the reference computer. You do create task sequence media from this node. 3. On the Ribbon, click **Create Task Sequence Media**. **NOTE**: The **Create Task Sequence Media Wizard Select Media Type** dialog box appears displaying the four types of task sequence media that can be created. • Stand-alone media is to deploy an operating system to a new computer only using media • Bootable media is to deploy an operating system to a new computer, starting from a bootable media, then completing from a Configuration Manager distribution point on the network • Capture media is to create media to be used to capture a reference computer (this is what you will create now) • Prestaged media is media to be delivered to a computer vendor to prestage the hard drive with an operating system prior to delivery to the customer. In Configuration Manager 2012 R2, this feature has been extended to support applications, packages, and drivers, as well as the operating system image, to be included in the prestaged media 4. Click **Capture media**, and then click **Next**. **NOTE**: The **Create Task Sequence Media Wizard Media Type** dialog box appears allowing you to configure the target path and file for the capture media. Notice that the default option is to create a "CD" for the capture process. 5. In the **Media file** box, type **C:\MYCapture.iso** and then click **Next**. **NOTE**: The **Create Task Sequence Media Wizard Boot Image** dialog box appears allowing you to designate the boot image to use for the capture media. 6. After **Boot image**, click **Browse**. **NOTE**: The **Select a Boot Image** dialog box appears allowing you to select the boot image to be used. As the reference computer is a 64-bit version of

	Windows 8.1, you will use the x64 boot image you previously configured and distributed. 7. Under **Boot images**, click **Boot image (x64)**, and then click **OK**. **NOTE**: The **Create Task Sequence Media Wizard Boot Image** dialog box appears displaying the boot image to use to create the capture media. Notice that you need to designate the distribution point to retrieve the boot image from. 8. After **Distribution point**, click **Browse**. **NOTE**: The **Select Distribution Point** dialog box appears allowing you to select the distribution point to receive the boot image. Notice that only one distribution point appears. 9. Under **Available distribution points**, click **Primary1**, and then click **OK**. **NOTE**: The **Create Task Sequence Media Wizard Boot Image** dialog box appears displaying the boot image and distribution point to use to create the capture media. Notice that your primary site server (as a distribution point) is displayed. 10. Click **Next**. **NOTE**: The **Create Task Sequence Media Wizard Summary** dialog box appears indicating that the wizard is ready to create the capture media. 11. Click **Next**. **NOTE**: The capture media is created. When complete, the **Create Task Sequence Media Wizard Completion** dialog box appears indicating that the wizard successfully created the capture media. 12. Click **Close**. **NOTE**: The list of task sequences appears in the results pane. Capture media will not appear in the list of task sequences. You can view the capture media output by viewing the C:\MYCapture.iso file created. You will now use this media to capture an image from the Windows 8.1 reference computer. In a production environment, you would take the generated "MYCapture.iso" file and burn it to a physical CD. You would then use the CD to capture the reference computer. However, in our virtual lab environment, it is not possible to create the CD and capture it for the reference computer. A capture media .iso has been made available to the virtual computer for capturing, which you will do after preparing the reference computer in the next procedure.

In the following procedure, you will prepare the Windows 8.1 client computer to be captured, and then capture its operating system to a .wim file to be deployed to a bare metal client later in this lab. Reference computers cannot be domain joined, so you will remove the client from the domain for capturing.

Tasks	Detailed steps
Complete the following task on: **Client81**	
1. Prepare the client for image capture	1. On the **Start** page, type **System** **Note**: A search result appears displaying references to "system". 2. Click **System**. **Note**: The Control Panel | System and Security | System window appears displaying the properties of the computer. Notice that the computer is currently a member of a domain. A computer cannot be domain-joined to be captured. **Note:** If the client is already **not** a member of a domain, then skip this task and jump to **Task 2. Capturing the operating system** on the next page. 3. Click **Change settings**. **Note**: The **System Properties** dialog box appears displaying the computer name properties of the client. Notice that it is listed as being a member of the "ConfigMgrDom.local" domain. 4. Click **Change**. **Note**: The **Computer Name/Domain Changes** dialog box appears displaying the computer name and domain membership of the client. Notice that it is listed as being a member of the "ConfigMgrDom.local" domain. 5. Click **Workgroup**, and then in the **Workgroup** box, type **workgroup** 6. Click **OK**. **Note**: A **Computer Name/Domain Changes** message box appears indicating that you need to know the local administrator account and password to log into the computer. 7. Click **OK**. **Note**: The **Computer Name/Domain Changes** dialog box appears indicating that the computer is now a member of the workgroup "Workgroup". 8. Click **OK**. **Note**: The **Computer Name/Domain Changes** dialog box appears indicating that the computer must now be restarted. 9. Click **OK**. **Note**: The **System Properties** dialog box appears displaying the computer name and domain membership of the client. Notice that it is listed as being a member of the "Workgroup" workgroup.

	10. Click **Close**. **Note**: A **Microsoft Windows** message box appears prompting to restart the computer. 11. Click **Restart Now**. **Note**: The computer is restarted.
2. Capturing the operating system	In the HOLSystems lab environment, Steps 1 – 3 have already been completed for you. The steps are here for reference only. 1. Log on as **Administrator** with a password of **password**. 2. On the Hyper-V **Media** menu, point to **DVD Drive**, and then click **Insert Disk**. **Note**: The **Open** dialog box appears allowing you to specify the .iso file to attach to the virtual system. This simulates inserting a CD into the computer, which is what you would create by burning the C:\MYCapture.iso to a CD. A pre-created Capture.iso was saved to the physical host computer for this process. Depending on the virtual environment you are running this lab on, you may not have access to the Hyper-V environment to manually attach the Capture.iso file. In that environment, Capture.iso should be attached already, and appear as the DVD drive for "Windows8Client". If so, then you can double-click on the DVD drive in Windows Explorer, which is essentially the same as steps 3 and 4 below. If that is configured for you, jump to step 5 to begin the capture process. If the Capture.iso is not attached as a DVD for you, you will need to check with a proctor for your lab environment to see how to access the Capture.iso file to begin the reference computer capture process, or if that is even possible at all. You may need to skip the remainder of this exercise and use a pre-captured Windows7.wim file for the remainder of the lab. 3. Open **D:\MyCapture.iso**. **Note**: A **DVD Drive (D:) Configuration Manager 2012** message box appears prompting to tap to display the options for the "DVD Drive (D:) Configuration Manager 2012". 4. Click the **DVD Drive (D:) Configuration Manager 2012** ~~message box~~. **Note**: The **DVD Drive (D:) Configuration Manager 2012** message box appears displaying options for the drive. Notice that one option is to "Run TSMBAutorun.exe". That will initiate the capture process, just as if you had inserted the CD into the DVD drive of the reference computer. 5. Click **Run LaunchMedia.cmd or D:\SMS\bin\i386\TSMBAutorun.exe** If TSMBAutorun.exe does not run automatically, browse to the path above and run it manually.~~.~~

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	Note: The **Image Capture Wizard Welcome to the Image Capture Wizard** dialog box appears. 6. Click **Next**. **Note**: The **Image Capture Wizard Image destination** dialog box appears prompting for a location to create the image from the local computer. You should create the image on a network location, as you will be capturing the local hard drive. 7. In the **Destination** box, type **\\Primary1\Lab Files\ OSD Files\MyWindows81.wim** **Note**: There is no requirement to store images here. You are using this location only as a storage location to write the image to. You now need to specify an account that has rights to write the captured image to. 8. In the **Account Name** box, type **Configmgrdom\administrator** 9. In the **Password** box, type **password** and then click **Next**. **Note**: The **Image Capture Wizard Image information** dialog box appears allowing you to supply additional properties for the image capture. 10. In the **Created by** box, type your name. 11. In the **Version** box, type **1.0** 12. In the **Description** box, type **Windows 8.1 Enterprise x64** and then click **Next**. **Note**: The **Image Capture Wizard Summary** dialog box appears displaying the information supplied in the wizard. 13. Click **Finish**. **Note**: The image capture preparation process begins. When ready, an **Installation Progress** message box appears displaying the progress of the image preparation process. Part of the capture process involves running sysprep on the computer to de-personalize the system for imaging. After sysprep has completed, the computer will restart automatically and boot using the boot image that was configured for the capture media. After the computer restart, an **Installation Progress** message box appears again as part of the capture process. Notice that the **Installation Progress** message box indicates that it is currently running the "Image Capture Wizard". This process may take over an hour to complete, depending on the hardware used in the lab environment (likely much less time in your own environment). A previously captured .wim file from this same Windows 8.1 client computer is already available in the site server's hard drive. You do not need to complete the image capture process (though can do so if you have the time to). You can shut down the "Client81" virtual computer at this point to save the processing on the host computer.

3 PREPARING THE SITE TO SUPPORT OPERATING SYSTEM DEPLOYMENT

In this exercise, you will prepare the Configuration Manager site to deploy a Windows 8.1 operating system image to a bare metal system. You will begin by creating a boundary for the bare metal client when it is booted under Windows PE (at that point it will not be a member of a domain or an AD site). You will then create and assign a network access account (to be used to access content on the distribution point while the computer is running in WinPE).

Tasks	Detailed steps
Complete the following task on: **Primary1**	
1. Configure a boundary for WinPE	1. Click the **Administration** workspace. **NOTE**: The Administration workspace appears displaying the distribution points in the site. 2. In the navigation pane, expand **Hierarchy Configuration**, and then click **Boundaries**. **NOTE**: The list of boundaries appears in the results pane. Notice that there are two boundaries in the site, both Active Directory site boundaries. When the bare metal system is being installed, it will not be a member of an Active Directory environment, so you will need to either use an IP subnet or IP address range boundary for the bare metal system. As the default configuration for Windows PE is to use DHCP, you will add the DHCP scope as an IP address range for the boundary and boundary group. For the purposes of this lab, you will add a specific IP address range boundary for easy identification of the DHCP clients for OSD. 3. On the Ribbon, click **Create Boundary**. **NOTE**: The **Create Boundary** dialog box appears allowing you to specify the details of the new boundary. 4. In the **Description** box, type **Range for DHCP clients** 5. In the **Type** box, click **IP address range**. 6. In the **Starting IP address** box, type **192.168.3.200** 7. In the **Ending IP address** box, type **192.168.3.210** and then click **OK**. **NOTE**: The list of boundaries appears in the results pane. Notice that there are now three boundaries in the site, two Active Directory site boundaries and the new IP address range boundary. You now need to add this new boundary to the boundary group to allow the client to find the management point and distribution point to use. 8. In the results pane, click **192.168.3.200-192.168.3.210**, and then on the Ribbon, click **Add Selected Items**. **NOTE**: A new menu appears. Notice that you can add the boundary to an existing boundary group, or create a new boundary group. 9. Click **Add Selected Items to Existing Boundary Groups**.

	NOTE: The **Add Boundary Groups** dialog box appears displaying the available boundary groups. Notice that there is only one boundary group available. 10. Under **Boundary groups**, click to select **Local Clients in MCM**, and then click **OK**. **NOTE**: The list of boundaries appears in the results pane. Notice that the new boundary created is now a member of one group. You will likely need to refresh the console to view the updated group membership.
2. Create and assign the Network Access Account	1. Click **Start | Administrative Tools | Active Directory Users and Computers**. **NOTE**: The Active Directory Users and Computers window appears. 2. In the tree pane, under **ConfigMgrDom.local**, click **Users**. **NOTE**: The Active Directory Users and Computers window displays the user accounts in the results pane. 3. On the **Action** menu, point to **New**, and then click **User**. **NOTE**: The **New Object – User** dialog box appears allowing you to add a new user. 4. In the **Full name** box, type **Network Access Account** 5. In the **User logon name** box, type **naa** and then click **Next**. **NOTE**: The **New Object – User** dialog box appears allowing you to configure a password for the new user. 6. In the **Password** and **Confirm password** boxes, type **password** 7. Click to clear **User must change password at next logon**. **NOTE**: If you do not clear this checkbox, the new user account will not be able to be used until the password has been changed. 8. Click to select both **User cannot change password** and **Password never expires**, and then click **Next**. **NOTE**: In your production environment, you will set the password and account options here according to your corporate policies. You are configuring them for simplicity in the lab environment. The **New Object – User** dialog box appears indicating that the new account is ready to be created. 9. Click **Finish**. **NOTE**: The Active Directory Users and Computers window appears displaying the new account in the results pane. This is the account that will be used to access the content from a Configuration Manager distribution point when the computer account and logged on user are not valid accounts - such as when a computer is running Windows PE. The account is only required to be a domain user. 10. Close Active Directory Users and Computers. **NOTE**: The System Center 2012 R2 Configuration Manager console window appears displaying the boundaries in the site. You will now need to configure the new account to be used as the network access account in Configuration Manager. 11. In the navigation pane, expand **Site Configuration**, and then click **Sites**.

	NOTE: The list of sites appears in the results pane. Notice that there is only one site, that being the local site "MCM". 12. On the Ribbon, click **Settings**. **NOTE**: A new menu appears with settings that can be configured. 13. Click **Configure Site Components**. **NOTE**: A new menu appears with site components that can be configured. 14. Click **Software Distribution**. **NOTE**: The **Software Distribution Component Properties** dialog box appears displaying the general settings for software distribution. 15. Click the **Network Access Account** tab. **NOTE**: The **Software Distribution Component Properties** dialog box appears displaying the account to use for software distribution content access. Notice that by default, Configuration Manager will use the computer account of the client for accessing content from a distribution point. In an operating system deployment scenario, while running in WinPE, the computer is not a member of any domain, so the computer account would not be valid for accessing the distribution point. 16. Click **Specify the account that accesses network locations**, and then click **Set**. **NOTE**: A new menu appears with two options for adding an account. 17. Click **New Account**. **NOTE**: The **Windows User Account** dialog box appears allowing you to configure the account to use. 18. Click **Browse**. **NOTE**: The **Select User** dialog box appears allowing you to specify the account to be used for the Network Access Account. 19. In the **Enter the name of the object to select** box, type **naa** and then click **OK**. **NOTE**: The **Windows User Account** dialog box appears displaying the account to use as the Network Access Account. 20. In the **Password** and **Confirm password** boxes, type **password** and then click **Verify**. **NOTE**: The **Windows User Account** dialog box expands to allow you to verify the account credentials. Notice that the default verification is to a local network share. You need to specify a network share to connect to in order to validate the account. 21. In the **Network share** box, type **\\Primary1\Lab Files** and then click **Test connection**. **NOTE**: A **Configuration Manager** message box appears indicating that the verification was successful. This validation ensures that the configured network access account credentials are valid for accessing the network. 22. Click **OK**. **NOTE**: The **Windows User Account** dialog box appears. 23. Click **OK**. **NOTE**: The **Software Distribution Component Properties** dialog box appears displaying the account to use for software distribution content access.

	Notice that there is now a network access account specified. Configuration Manager 2012 R2 supports multiple network access accounts per site. This is very useful when the site has to support operating system deployment to clients in multiple untrusted forests. You simply add multiple (Configuration Manager 2012 R2 supports up to 10) network access accounts and order them from most commonly used to least commonly used. 24. Click **OK**. **NOTE**: The list of sites appears in the results pane. You have now successfully configured the site to support operating system deployments, with the appropriate boundary and network access account. The two required packages – one for installation of the Configuration Manager client, and the other for the User State Migration Tool – are automatically created in Configuration Manager 2012 R2. You will now add the operating system image to the site and then create a task sequence to deploy the operating system image.

4 DEPLOYING AN OPERATING SYSTEM IMAGE TO A BARE METAL CLIENT

In this exercise, you will create and deploy the Windows 8.1 operating system image to a bare metal system. You will begin by creating an operating system image from a pre-captured image of the Windows 8.1 64-bit computer. You will then create a task sequence to deploy the image to the bare metal system, including establishing a user device affinity relationship between the user and the new computer.

Tasks	Detailed steps
Complete the following task on: **Primary1**	
1. Create an operating system image	1. In the navigation pane of the **Software Library** workspace, expand **Operating Systems**, and then click **Operating System Images**. **NOTE**: The list of operating system images appears in the results pane. Notice that there are no operating system images available. 2. On the Ribbon, click **Add Operating System Image**. **NOTE**: The **Add Operating System Image Wizard Data Source** dialog box appears allowing you to specify the .wim file to use for the new operating system image. 3. In the **Path** box, type **\\Primary1\Lab Files\ OSD Files\Windows81.wim** and then click **Next**. **NOTE**: Be sure to use the "Windows81.wim" file, which was previously captured from the Windows 8.1 client, and provided for use in this lab. Do not use the "MyWindows81.wim" file unless you allowed the capture process earlier in this lab to complete. Alternately, you could use the Install.wim file that comes from the Windows 8.1 source media files if you prefer to use it instead of capturing an installed reference computer image. The **Add Operating System Image Wizard General** dialog box appears allowing you to specify the general properties for the new operating system image. 4. In the **Name** box, type **Windows 8.1 x64 Enterprise** and then click **Next**. **NOTE**: The **Add Operating System Image Wizard Summary** dialog box appears indicating that the wizard is ready to create the operating system image. Notice the path to the .wim file and general properties configured are displayed. 5. Click **Next**. **NOTE**: The **Add Operating System Image Wizard Completion** dialog box appears indicating that the wizard successfully created the operating system image. 6. Click **Close**. **NOTE**: The list of operating system images appears in the results pane. Notice the new operating system image is now displayed.

	7. In the preview pane, click the **Details** tab. **NOTE**: The details of Windows 8.1 x64 Enterprise operating system image appears in the preview pane. Notice that the reference computer had two partitions, with the primary partition being over 12 GB in size (although the Windows81.wim file was just over 3 GB in size when compressed as part of the capture process). 8. In the preview pane, click the **Disk Configuration** tab. **NOTE**: The disk information of Windows 8.1 x64 Enterprise operating system image appears in the preview pane. Notice that the reference computer's primary partition was almost 130 GB in size (the **Details** tab indicated that over 12 GB was actually used). You will deploy this operating system image in this exercise after creating a task sequence. You first need to distribute the operating system image to a distribution point, which you will do in the next task.
2. Distribute the operating system image to the distribution point	1. On the Ribbon, click **Distribute Content**. **NOTE**: The **Distribute Content Wizard General** dialog box appears displaying the content to be distributed. Notice that the one operating system image is listed. 2. Click **Next**. **NOTE**: The **Distribute Content Wizard Content Destination** dialog box appears displaying the target for the content to be distributed. Notice that no targets are listed by default. 3. Click **Add**. **NOTE**: A new menu appears. Notice that you can distribute to collections, distribution points, or distribution point groups. 4. Click **Distribution Point**. **NOTE**: The **Add Distribution Points** dialog box appears displaying the available distribution points. Notice that there is only one distribution point available. 5. Under **Available distribution points**, click to select **Primary1**, and then click **OK**. **NOTE**: The **Distribute Content Wizard Content Destination** dialog box appears displaying the target for the content to be distributed. Notice that your one distribution point is now displayed. 6. Click **Next**. **NOTE**: The **Distribute Content Wizard Summary** dialog box appears indicating that the wizard is ready to distribute the operating system image content to one distribution point. 7. Click **Next**. **NOTE**: The **Distribute Content Wizard Completion** dialog box appears indicating that the wizard completed successfully. 8. Click **Close**. **NOTE**: The list of operating system images appears in the results pane. You now need to verify that the distribution of the operating system image to the distribution point was successful. 9. Click the **Monitoring** workspace, and then in the navigation pane, click **Content Status**.

	NOTE: The Monitoring workspace appears displaying the available content and the content's distribution status. Notice that the "Windows 8 x64 Enterprise" content is currently being distributed to the distribution point. As this content is just over 3 GB in size, it will take a few minutes to distribute to the distribution point. You do not need wait for this to complete, however it needs to be complete prior to the client attempting to retrieve the operating system image from the distribution point while running the task sequence. You will need to refresh the **Content Status** node to view the updated status as it may take a few minutes to distribute the content to the distribution point.
3. Create a task sequence to deploy the new Windows 8.1 operating system image	1. Click the **Software Library** workspace, and then in the navigation pane, click **Task Sequences**. **NOTE**: The Software Library workspace appears displaying the available task sequences in the results pane. Notice that there are no current task sequences available. The capture media you created earlier in this lab, even though created from this node, is not a task sequence, so does not appear as a task sequence. You will now create a task sequence to deploy the Windows 8 x64 Enterprise operating system image to target systems. 2. On the Ribbon, click **Create Task Sequence**. **NOTE**: The **Create Task Sequence Wizard Create New Task Sequence** dialog box appears allowing you to specify the type of task sequence to create. As you already have an operating system image created from capturing a reference system, you will use the default option of "Install an existing image package". If you have not yet captured a reference system, and have not even installed a reference system, you could use the "Build and capture a reference operating system image" task sequence to install a reference computer from an operating system install package, and then capture it. If you prefer to create a virtual hard disk instead of a physical computer, you can use the "Install an existing image package to a virtual hard disk" action (a new feature of Configuration Manager 2012 R2). This requires the Hyper-V role to be installed on the same computer as the Configuration Manager console is installed on. This is recommended to be completed on a different computer than the site server computer. The final option is to create a custom task sequence that could be used outside of an operating system deployment scenario. 3. Verify that **Install an existing image package** is selected, and then click **Next**. **NOTE**: The **Create Task Sequence Wizard Task Sequence Information** dialog box appears allowing you to specify the name and boot image for the task sequence. 4. In the **Task sequence name** box, type **Windows 8.1 Enterprise x64** and then click **Browse**. **NOTE**: The **Select a Boot Image** dialog box appears allowing you to specify the boot image for this task sequence. Notice that both your default boot images appear in the list. You want to use the boot image that was customized to include the prestart command to prompt for user device affinity, as well as to support deployment through PXE. 5. Under **Boot images**, click **Boot image (x64)**, and then click **OK**.

	NOTE: The **Create Task Sequence Wizard Task Sequence Information** dialog box appears displaying the name and boot image for the task sequence. 6. Click **Next**. **NOTE**: The **Create Task Sequence Wizard Install Windows** dialog box appears allowing you to configure the image to use from the .wim, the product key, and local administrator account and password. 7. After **Image package**, click **Browse**. **NOTE**: The **Select an Operating System Image** dialog box appears allowing you to specify the operating system image for this task sequence. Notice that the only operating system image available is the "Windows 8 x64 Enterprise" image previously added. 8. Under **Operating system images**, click **Windows 8.1 x64 Enterprise**, and then click **OK**. **NOTE**: The **Create Task Sequence Wizard Install Windows** dialog box appears. Notice that the default is to install all images from the .wim file. Recall that this .wim contains two images, one for the reserved system partition, and one for the operating system partition. You only need to install the second image from the .wim. Notice also that the default action is to partition and format the target computer's hard drive. 9. In the **Image** box, click **2 - 2**. **NOTE**: The **Create Task Sequence Wizard Install Windows** dialog box appears. Notice that the default is to not specify a product key (which assumes that the environment includes a key management server to provide product keys when required) and to disable the local administrator account on the target computer. Disabling the local administrator account is the default action, and requires that you know the local administrator account and password to log into the client computer locally (or have a domain account to use). Notice also that Configuration Manager 2012 R2 automatically configures the task sequence to partition and format the hard disk, and to use Bitlocker. This allows pre-provisioning drives with Bitlocker for systems with TPM chips. In a virtual environment, there is no TPM, so this step would fail in the lab environment. 10. Click to clear **Configure task sequence for use with BitLocker**, and then click **Next** to accept the remaining default actions. **NOTE**: The **Create Task Sequence Wizard Configure Network** dialog box appears allowing you to configure the domain membership of the target computer after it has installed the new operating system. 11. Click **Join a domain**, and then after **Domain**, click **Browse**. **NOTE**: The **Select a Domain** dialog box appears displaying the available domains that the computer can be assigned to. Notice that this environment only has one domain available. 12. Under **Domains**, click **ConfigMgrDom.local**, and then click **OK**. **NOTE**: The **Create Task Sequence Wizard Configure Network** dialog box appears allowing you to configure the domain organizational unit for the target computer account to be added to when it joins the domain, as well as the account to use to join the computer to the domain. By default, the deployed computer will be added to the "Computers" OU in Active Directory, which is fine for our lab environment.

	13. After **Account**, click **Set**. **NOTE**: The **Windows User Account** dialog box appears allowing you to configure the account credentials to use to join the target computer to the domain. Notice that you can either manually enter the account to use, or browse to an existing account (as you did previously for your Network Access Account). Notice that Configuration Manager 2012 SP1 also allows you to verify this account against a configured LDAP path to ensure proper credentials have been provided. 14. In the **User name** box, type **ConfigMgrDom\administrator** 15. In both the **Password** and **Confirm password** boxes, type **password** and then click **OK**. **NOTE**: The **Create Task Sequence Wizard Configure Network** dialog box appears displaying the domain and account information. 16. Click **Next**. **NOTE**: The **Create Task Sequence Wizard Install Configuration Manager** dialog box appears allowing you to configure the Configuration Manager package to be used to deploy the Configuration Manager client on the target computer after the operating system has been installed. After an operating system deployment process, each deployed computer becomes a Configuration Manager client so that it can be managed, and a package is required to complete this process. You can use a built-in package for installation of the Configuration Manager client, which is configured to be used automatically in Configuration Manager 2012 R2. Notice that you can also specify additional installation properties, such as specifying the fallback status point to use for client deployment reporting (as is configured in the lab environment by default). Configuration Manager operating system deployment automatically configures the "SMSSITECODE" property to the local site code, and will ignore that property if configured (as it is by default in the program properties). 17. Click **Next**. **NOTE**: The **Create Task Sequence Wizard State Migration** dialog box appears allowing you to configure the use of user state migration. In our lab environment, you do not need to use state migration, as the deployment is occurring to a bare metal system, and there is no existing computer to capture state from. If you are migrating from one computer to a new computer, you would want to migrate state information. Notice that there is a default package configured for User State Migration. This package is built into Configuration Manager 2012 R2. 18. Click to clear **Capture user settings and files**, click to clear **Capture network settings**, click to clear **Capture Microsoft Windows settings**, and then click **Next**. **NOTE**: The **Create Task Sequence Wizard Include Updates** dialog box appears allowing you to configure if Configuration Manager will deploy software updates to the target computer as part of the task sequence after the operating system has been installed and the computer is installed as a Configuration Manager client. Notice that the default is to not include any software updates when running the task sequence, however you can configure to deploy all approved updates, or only those already deployed as required updates. 19. Click **Next** to not deploy any software updates in the lab environment.

	NOTE: The **Create Task Sequence Wizard Install Applications** dialog box appears allowing you to configure whether Configuration Manager deploys any applications as part of the task sequence after the operating system has been installed and the computer is installed as a Configuration Manager client. The lab environment includes one application ("Configuration Manager 2012 Toolkit") that you will deploy as part of the task sequence. 20. Click **New** (the icon resembles a starburst). **NOTE**: The **Select Software to Deploy** dialog box appears displaying the applications and packages that are available to be deployed via the task sequence. Notice that only one application appears in the list. 21. Under **Name**, click **Configuration Manager 2012 Toolkit**, and then click **OK**. **NOTE**: The **Create Task Sequence Wizard Install Applications** dialog box appears displaying the application to be installed through the task sequence, after the new operating system has been installed. 22. Click **Next**. **NOTE**: The **Create Task Sequence Wizard Summary** dialog box appears indicating that the wizard is ready to create the task sequence. Notice the details provided in the Summary page. 23. Click **Next**. **NOTE**: The **Create Task Sequence Wizard Confirmation** dialog box appears indicating that the wizard successfully created the task sequence. 24. Click **Close**. **NOTE**: The list of task sequences appears in the results pane. Notice that your new task sequence is displayed. You will now modify the task sequence to configure the user device affinity relationship as part of the task sequence process.
4. Configure user device affinity for the new computer from the task sequence	1. In the results pane, click **Windows 8.1 Enterprise x64**, and then on the Ribbon, click **Edit**. **NOTE**: The **Windows 8.1 Enterprise x64 Task Sequence Editor** dialog box appears displaying the task sequence actions. Notice that the task sequence is going to perform the following actions: • Restart in Windows PE • Partition and format the hard drive (by default, Configuration Manager 2012 performs a quick format) - notice that Configuration Manager 2012 R2 includes separate task sequence steps for BIOS vs. UEFI systems • Install the operating system image - only image 2 of 2 from the .wim • Apply Windows settings - local time zone and configured licensing • Apply network settings - join the configured domain using the designated account • Determine which device drivers need to be installed automatically • Install the Configuration Manager client on the newly installed computer • Install configured applications (only one in our lab)

	You will modify this task sequence to configure a user device affinity relationship for this computer for a user. 2. In the tree pane, click the group **Install Operating System**, and then on the **Add** menu, point to **General**. **NOTE**: A new menu appears providing a list of available actions from the "General" group to add to the task sequence. Notice that a number of new actions have been included that formerly were included in the Microsoft Deployment Toolkit: • "Run PowerShell Script" – allows the execution of PowerShell scripts from within the task sequence • "Set Dynamic Variables" – allows you to configure variable to help control the task sequence execution • "Check Readiness" – allows you to validate that the target system meets specific values (client versus server, memory, disk space, processor) before execution 3. Click **Set Task Sequence Variable**. **NOTE**: The "Set Task Sequence Variable" action appears in the results pane. This allows you to configure the specific task sequence variable to include in this task sequence. 4. In the **Name** box, type **Enable UDA Support** 5. In the **Task Sequence Variable** box, type **SMSTSAssignUsersMode** 6. In the **Value** box, type **Auto** **NOTE**: The **Windows 8.1 Enterprise x64 Task Sequence Editor** dialog box displays the current configuration of the task sequence variable. Notice that it is included as the first action of the "Install Operating System" group. While the specific location of this action is not that important, just for clarity, you will move it above the "Install Operating System" group. 7. In the tree pane, click **Enable UDA Support**, drag it to the top of the list of task sequence actions, and then click **OK**. **NOTE**: The list of task sequences appears in the results pane. Notice that your modified task sequence is displayed. You now will deploy the task sequence to your bare metal system as an "unknown" system. This will display the prestart command that will prompt the user booting the bare metal system for the user to associate with this new client computer, thus setting the user device affinity relationship through the operating system deployment process.
5. Deploy the task sequence to bare metal systems	1. In the results pane, click **Windows 8.1 Enterprise x64**, and then on the Ribbon, click **Deploy**. **NOTE**: The **Deploy Software Wizard General** dialog box appears displaying the software to deploy (the task sequence), and allowing you to specify the target collection for the deployment. 2. After **Collection**, click **Browse**. **NOTE**: The **Select Collection** dialog box appears displaying the available device collections. The task sequence will be targeted to a bare metal system, which is currently not known to Configuration Manager, so you will target the "All Unknown Computers" collection. Notice that the "All Unknown Computers" collection contains two members. These are default resource records for

	systems that are not currently members of the Configuration Manager database. One record is for 64-bit clients and the other for 32-bit clients. 3. Under **Name**, click **All Unknown Computers**, and then click **OK**. **NOTE**: The **Deploy Software Wizard General** dialog box appears displaying the software to deploy (the task sequence), as well as the target collection for the deployment ("All Unknown Computers"). You now need to configure whether or not the task sequence deployment is required or available. 4. Click **Next**. **NOTE**: The **Deploy Software Wizard Deployment Settings** dialog box appears allowing you to designate whether the deployment of the operating system through the task sequence is required or available. In the lab environment, you want the process to be as automated as possible, so you will configure the deployment to be "Required". If you make it "Available", then the end user starting the bare metal computer will need to select the available task sequence to start the operating system deployment process. 5. In the **Purpose** box, click **Required**. **NOTE**: Notice that the default for **Make available to the following** box is "Only Configuration Manager clients". This option would prevent the task sequence from running for an unknown bare metal system. 6. Under **Make available to the following**, click the drop-down arrow. **NOTE**: A new menu of choices appears. Notice that you can configure the task sequence to support existing Configuration Manager clients, only media and PXE, or all. The default configuration of "Only Configuration Manager clients" will not work for this lab environment when trying to deploy to an unknown bare metal system. If you configure to support "Only media and PXE", the task sequence can only run when the computer is running in WinPE. 7. Click **Only media and PXE**, and then click **Next**. **NOTE**: The **Deploy Software Wizard Scheduling** dialog box appears allowing you to schedule the required deployment time. For the lab environment, we want the deployment to happen as soon as possible, so will configure the schedule for that option. 8. Click **New**. **NOTE**: The **Assignment Schedule** dialog box appears allowing you to configure when you want the assignment to be required. Notice that the default is the current date and time. 9. Click **OK** to accept the default date and time (assuming the date and time is correct for your virtual computer). **NOTE**: The **Deploy Software Wizard Scheduling** dialog box appears displaying the schedule for the required deployment. Notice that the schedule is for the current date and time. 10. Click **Next**. **NOTE**: The **Deploy Software Wizard User Experience** dialog box appears allowing you to configure the user experience for the deployment. Notice that by default, the user is not able to run the assignment manually, task sequence progress will be displayed, and maintenance windows are adhered to (though none applicable for a bare metal system), changes would be committed for Windows Embedded devices, and Internet-based clients are not allowed to run the task sequence.

	11. Click **Next** to accept the default configuration. **NOTE**: The **Deploy Software Wizard Alerts** dialog box appears allowing you to configure alert creation in the event that the task sequence deployment is below a designated threshold for success (by percent), or failed deployments are above a percent threshold. Notice that the defaults (if enabled) are to alert if the success percent is less than one percent after a week, or the failure percentage is greater than zero. You can enable alerts if you wish to, however they are not necessary for this lab. 12. Click **Next** to accept the default configuration of no alerts. **NOTE**: The **Deploy Software Wizard Distribution Points** dialog box appears allowing you to configure how to access the content from the distribution point. Notice that the default is to download content from the distribution point when requested by the task sequence, not to allow fallback to remote distribution points, and not to allow fallback to unprotected distribution points. You can configure these as required for your production environments, however the default configuration is fine for the lab. 13. Click **Next** to accept the default configuration. **NOTE**: The **Deploy Software Wizard Summary** dialog box appears indicating that the wizard is ready to deploy the task sequence. Notice the details listed include the configuration options you set in the wizard. 14. Click **Next**. **NOTE**: The **Deploy Software Wizard Completion** dialog box appears indicating that the wizard successfully deployed the task sequence. 15. Click **Close**. **NOTE**: The list of task sequences appears in the results pane. You can view the "Deployments" tab in the preview pane to view the deployment summary. You will now run the task sequence from the bare metal system in the next exercise. 16. In the preview pane, click the **References** tab. **NOTE**: The packages (content) that this task sequence requires are displayed in the preview pane. Notice that the "Compliance %" value is displayed for each package required by this task sequence, and that each is listed as "100.0" percent compliant. If any of these content items have not been targeted to a distribution point prior, they would be distributed to the assigned distribution point(s) at this time. You now have completed all the steps necessary to prepare the site for operating system deployment through network boot integration (PXE) and deployed a task sequence to deploy an image captured from a reference computer. The final action to complete is to boot the bare metal system and launch the task sequence from the PXE-enabled distribution point. You will initiate that action in the next exercise.

5 INSTALLING THE OPERATING SYSTEM IMAGE ON A BARE METAL SYSTEM

In this exercise, you will boot the bare metal system, start the task sequence, and then designate the user to associate with this new system. The bare metal system will be installed as a Windows 8.1 client, installed as a Configuration Manager 2012 R2 client, and report to the site as a client.

Tasks	Detailed steps
Complete the following task on: **BareMetal**	
1. Start the task sequence to deploy the image to the bare metal system	1. In Hyper-V, start the **Bare Metal** virtual machine. **NOTE**: The Bare Metal virtual machine starts. This is a bare metal system, with no operating system currently installed. The bare metal system will acquire an IP address from the DHCP server (which is running on the site server computer in the lab environment). It will then run the task sequence deployed to the "All Unknown Computers" collection, as this system is not a known computer to Configuration Manager. This will then boot under Windows PE as the initial operating system. A **Set User Device Affinity** dialog box appears prompting for the user to associate with this computer. This is the prestart command hook that you configured as part of the boot image. Depending on your virtual environment, you may not be able to access the Hyper-V environment to start the bare metal system. It may already be started for you, displaying a command prompt window. If so, click in the window to gain mouse and keyboard context, and then hit ENTER on the keyboard to retry the PXE boot now that the Configuration Manager environment is prepared to support bare metal deployments. If that is not an option to you, ask your lab proctor how to start your bare metal system for this exercise. 2. In the **User ID** box, type **ConfigMgrDom\User1** and then click **Set**. **NOTE**: A **Configuration Manager** message box appears indicating that the computer will install the Windows 8.1 Enterprise x64 operating system automatically after 180 seconds. 3. Click **OK** to install without waiting for automated deployment. **NOTE**: The Windows 8.1 Enterprise x64 task sequence continues and the Installation Progress message box appears displaying the tasks the computer under goes as part of the operating system deployment, including: • Partitioning and formatting the hard drive • Applying the operating system (will take several minutes to complete the download of the Windows81.wim file) • Applying image 2 from the Windows81.wim file (this will take several minutes to complete) • Install and configure the Configuration Manager client (after a system restart)

	When the process is complete, you will be able to log onto the newly installed computer. The entire task sequence process may take over 30 minutes, depending on the hardware configuration and network availability. If you do not have the time to complete the process, you can skip the remainder of this procedure, and move to the next procedure to verify status of the client installation, understanding that you will not have complete results to view status of. 4. Log on as **ConfigMgrDom\administrator** with a password of **password**. **NOTE**: Notice that the computer name is automatically generated by Windows Setup. If you want to control the computer name, you could prompt the user for the computer name in a prestart execution, such as was used to prompt for the user account to use for configuration of user device affinity.

In the following procedure, you will view the status of the task sequence deployment, report on the process, and verify that the new client has joined the site as a new client.

Tasks	Detailed steps
Complete the following task on: **Primary1**	
1. Validate task sequence deployment status	1. Click the **Monitoring** workspace. **NOTE**: The Monitoring workspace appears displaying the "Content Status" node. Notice the content status appears in the results pane, including the boot images, operating system image, and the Configuration Manager client install package. 2. In the navigation pane, click **Deployments**. **NOTE**: The list of deployments appears in the results pane. Notice that you only have one deployment, that being the task sequence. Notice that the status indicates 0% compliance. This is due to the fact that summarization has not occurred since the client was installed using this deployment. 3. On the Ribbon, click **Run Summarization**. **NOTE**: A **Configuration Manager** message box appears indicating that this summarization process will occur throughout the hierarchy. 4. Click **OK**, wait a moment, and then click **Refresh**. **NOTE**: The list of deployments appears in the results pane. Notice that the status indicates 100% compliance. If the compliance does not indicate 100% compliance, and you did complete the client deployment, wait a minute, force another summarization cycle, and then refresh the console. 5. On the Ribbon, click **View Status**. **NOTE**: The status of the "Windows 8.1 Enterprise x64" deployment appears in the results pane. Notice that there is one tab that contains any status, that being "Success" with the asset that successfully completed the deployment in the preview pane.

	Notice also that the asset name is the computer name assigned to the installed bare metal system. The other tabs in the results pane should not have any data to display assuming that the deployment process has completed, and state has been delivered to the site and processed. 6. In the preview pane, under **Asset Details**, click the one record for the new computer, and then click **More Details** (to the upper right in the preview pane). **NOTE**: The **Asset Message** dialog box appears displaying the final status of the deployment. 7. Click the **Status** tab. **NOTE**: The **Asset Message** dialog box appears displaying the full status details of the deployment. In this view, you can see each step processed in the task sequence, and the status for each step. This provides a full view into the processing of the task sequence by the client without having to run reports (if you choose to not want to run reports to see deployment status). 8. Click **Close**. **NOTE**: The status of the "Windows 8.1 Enterprise x64" deployment appears in the results pane.
2. Running reports for the operating system deployment process	1. In the navigation pane, expand **Reporting**, and then expand **Reports**. **NOTE**: The list of report folders appears in the navigation pane. Notice that there are four folders that include "Task Sequence" in the name. 2. In the navigation pane, click **Task Sequence - Deployments**. **NOTE**: The list of reports in the "Task Sequence - Deployments" folder appears in the results pane. Notice that there are 11 reports available. 3. In the results pane, click **All task sequence deployments**, and then on the Ribbon, click **Run**. **NOTE**: The **All task sequence deployments** report window appears displaying the results of the report. Notice that there is only one deployed task sequence, the source site, that it is a "Required" deployment, the target collection ("All Unknown Computers") and the deployment ID. 4. Under **Deployment Name**, click **Windows8.1Enterprisex64_MCM00008_ AllUnknownComputers**. **NOTE**: The **Status summary of a specific task sequence deployment** report window appears displaying the results of the report. Notice that there is only one status for the deployment, that being "Succeeded", for "1" system, and "100%" successful. 5. Under **Execution State**, click **Succeeded**. **NOTE**: The **All system resources for a specific task sequence deployment in a specific state** report window appears displaying the results of the report. Notice that there is

	only one computer displayed, as the task sequence was only successfully run on the one computer. Notice also that the last task sequence step run on the computer was step 14. You can view the individual steps in the next report that you will run. 6. Under **Computer Name**, click the one computer listed (the computer name is randomly generated). **NOTE**: The **History of a task sequence deployments on a computer** report window appears displaying the results of the report. Notice that the report shows the individual task sequence steps run on this computer (up to the last numbered step run, #14, for this task sequence deployment on this specific client). This report includes actions attempted prior to the operating system being installed on the computer. 7. Close the **History of a task sequence deployments on a computer** report window. **NOTE**: The list of filtered reports appears in the results pane.
3. View the client status in collections	1. Click the **Assets and Compliance** workspace. **NOTE**: The Assets and Compliance workspace appears displaying the Overview page. 2. In the navigation pane, click **Devices**. **NOTE**: The list of devices in the site appears in the results pane. Notice that the newly installed client (computer name starting with "MININT" appears in the list. Notice also that it appears as a client assigned to the local site. This is assuming that you did complete the client installation process. If you did not complete the client deployment process, you may not see the newly installed client. 3. In the results pane, click the new client, and then on the Ribbon, click **Properties**. **NOTE**: The **MININT-*computer* Properties** dialog box appears displaying the properties of the computer. Notice the following attributes: • "Active Directory Site Name" indicates that the computer is a member of the "ConfigMgrSite" AD site • "Agent Name" indicates that the computer was discovered by "Heartbeat Discovery" as one of its discovery methods - which only comes from installed clients • "Client Version" is "5.00.7958.1000" which is the version for Configuration Manager 2012 R2 • "Resource Domain or Workgroup" indicates that the computer was added to the "ConfigMgrDom" domain, which you configured as part of the task sequence 4. Click **Cancel**. **NOTE**: The list of computer resources appears in the results pane. Notice that there are still two resources for "unknown" computers. This new computer was an "unknown" system initially, however after being deployed through Configuration

	Manager, it registered in the site as a client, with the record you just viewed. 5. On the Ribbon, click **Edit Primary Users**. **NOTE**: The **Edit Primary Users** dialog box appears displaying the users associated with this computer. Notice that under "Primary Users", "ConfigMgrDom\User1" is listed as a primary user of this computer. Notice also that the relationship is listed as "OSD Defined" under "Affinity Type". This relationship was established from the prestart command added to the boot image and the response from the user when the task sequence was run locally. 6. Click **Cancel**. **NOTE**: The list of computer resources appears in the results pane. You have now successfully used Configuration Manger 2012 R2 to capture a reference computer running Windows 8.1, and then deployed that captured image to a bare metal system. You configured Windows Deployment Services, and integrated it with Configuration Manager as a PXE enabled distribution point - which is an attribute of the distribution point. You prepared the site to support operating system deployment, including creating the network access account, and configuring a boundary for a bare metal client deployment. Finally you created a task sequence that was used to prepare the bare metal client, and install the Windows 8.1 operating system image.