Technical white paper Installing Windows[®] 7 on NVMe



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Overview

Windows[®] 7 does not include NVM Express (NVMe) support during installation. If you use NVMe, you might experience issues when installing Windows[®] 7. This white paper provides instructions for inserting Windows updates for NVMe support and then deploying the Windows[®] 7 image.

Downloading the updates

- 1. Go to https://support.microsoft.com/en-us/kb/2990941.
- 2. Select Hotfix Download Available, and then follow the on-screen instructions to download hotfix KB2990941.
- 3. Go to https://support.microsoft.com/en-us/kb/3087873.
- 4. Select Hotfix Download Available, and then follow the on-screen instructions to download hotfix KB3087873.

Deploying the image

Note

If you are using Microsoft[®] System Center Configuration Manager to deploy the Windows[®] 7 image, the USB flash drive with NVMe support might be assigned to Drive 1. For instructions on targeting the specific disk and partition where you want to install the operating system, see Appendix A: Deploying the image using Configuration Manager.

- 1. Create a USB flash drive that contains a bootable Windows[®] 7 image.
- 2. Connect the USB flash drive into a computer where you can modify the image to include the NVMe drivers.
- 3. Run **Command Prompt** as an administrator.
- 4. Configure install.wim. See Configuring install.wim.
- 5. Configure **boot.wim**. See <u>Configuring boot.wim</u>.
- 6. Disconnect the USB flash drive, and then connect it to the computer that you will install Windows® 7 on.
- 7. Reboot the computer and start the BIOS. See your computer's user manual for instructions on starting the BIOS.
- Disable fast boot.
- Make sure that USB is set to No Security.
- Make sure that Legacy Boot or UEFI Boot is enabled.
- Make sure that Secure Boot is disabled.
- 8. Save changes, reboot the computer, and start the BIOS.
- 9. Under the boot mode (Legacy Boot or UEFI Boot), select the USB flash drive.
- 10. Follow the on-screen instructions to install Windows® 7.
- 11. Once the installation is complete, check to see if the STORPORT.SYS was updated:
- Open File Explorer.
- Go to Windows\System32\drivers.
- Find storport.sys, and right click.
- Choose Properties.
- Open the Details tab, and confirm that the Product Version is 6.1.7601.23172.

Configuring install.wim

```
1. Enter the following command to retrieve the WIM index information:
Dism /Get-WimInfo /WimFile:<install wim file>
```

Note

<install wim file> is the path to the install.wim file. Generally, this is d:\sources\install.wim.

- 2. Most operations that specify a WIM file require a name or index value. Be sure to note the index number of the Windows version that you are deploying.
- 3. Create a directory to mount the Windows image to. Enter the following command:

```
MD <mount directoryl>
```

For example, MD C:\temp\installw7 creates the folder installw7 in C:\temp.

4. Mount install.wim to this directory. Enter the following command:

```
DISM /Mount-Wim /WimFile:<install _wim _file> /name: ``<Name>'' /MountDir:<mount _
directoryl>
```

Note

<Name> is the name of the Windows version; for example, Windows® 7 Professional.

5. Enter the following command to insert the update:

DISM /image:<mount _ directory1> /Add-Package /Packagepath:<msu _ file>

Note

<msu ______file> is the path to hotfix KB2990941, which you downloaded using the procedure in Downloading the updates.

- 6. Make a directory for the downloaded hotfix KB3087873: MD <KB3087873 _ directory> For example: MD C:\KB3087873
- 7. Copy the .msu file downloaded from the link for KB3087873 into this new directory.
- 8. Type the following command to move to that specific directory:
- CD <KB3087873 _ directory> 9. Expand the contents of the msu using the following command: EXPAND ``<.msu file name>'' -f:* ``.''
 - For example: EXPAND "Windows6.1-KB3087873-v2-x64.msu" -f:* "."
- 10. Further expand the contents using the following command: EXPAND *.* -f:* "."
- 11. Many files will be in the directory. Confirm the file update-bf.mum exists.
- 12. Install the package "update-bf.mum" using DISM with the following command:
- DISM /image:<mount _ directory1> /Add-Package /Packagepath: "update-bf.mum" 13. Once the installation is complete, unmount install.wim. To unmount, enter the following command:
 - DISM /Unmount-Wim /MountDir:<mount _ directoryl> /Commit

Configuring boot.wim

Note

If you need to create an operating system DVD, go to <u>https://support.microsoft.com/en-us/kb/2990941</u>, and follow the on-screen instructions under **How to insert hotfixes and drivers and then create a bootable Windows Setup DVD**.

1. Enter the following command to retrieve the WIM index information: Dism /Get-WimInfo /WimFile:<boot wim file>

Note

<boot _ wim _ file> is the path to the boot.wim file. Generally, this is d:\sources\boot.wim.

- 2. Most operations that specify a WIM file require an index value. Be sure to note the index number for Windows Preinstallation Environment.
- 3. Create a directory to mount the Windows image to. Enter the following command: MD <mount _ directory2>
- For example, MD C:\temp\bootw7 creates the folder bootw7 in C:\temp. 4. Mount boot.wim to this directory. Enter the following command:
- DISM /Mount-Wim /WimFile:<boot __wim __file> /index:2 /MountDir:<mount __directory2> 5. Insert the updates into the Windows Preinstallation Environment. Enter the following command:
 - DISM /image:<mount _ directory2> /Add-Package /Packagepath:<msu _ file>

Note

<msu file> is the path to hotfix KB2990941, which you downloaded using the procedure in Downloading the updates.

6. Insert the updates into the Windows Preinstallation Environment. Enter the following command: DISM /image:<mount _ directory2> /Add-Package /Packagepath: "update-bf.mum"

Note

The packagepath is based on the assumption that you have NOT changed directories since step 12 of Configuring install. wim. If you have changed directories, please replace "update-bf.mum" with the correct location of update-bf.mum (this is the same file which was checked for in step 11 of Confugiring install.wim).

7. Copy all files from the <mount _ directory2>\sources to the <USB _ drive>:\sources location on the USB drive. Several files will be replaced by newer versions.

8. Unmount boot.wim. Enter the following command:

DISM /Unmount-Wim /MountDir:<mount _ directory2> /Commit

Appendix A: Deploying the image using Configuration Manager

To target the specific disk and partition where you want to install the operating system:

1. In Configuration Manager, select **1** as the **Disk number** to format and partition.

	SCCM_Win7	SP1 x64 Task Sequence Editor	x t
Add • Remove	Properties Options		
Install Operating System	Туре:	Format and Partition Disk	
Partition Disk 0 - BIOS	Name:	Partition Disk1 - BIOS	
Partition Disk1 - BIOS Apply Operating System Apply Windows Settings	Description:	This action partitions and formats the disk for new deployments of BIOS-based computers. This step will not run for Unified Extensible Firmware Interface (UEFI)-based computers.	< >
Apply Network Settings Apply Device Drivers Setup Operating System	Select the physical any data on the dis	disk to format and partition. Specify the partition layout to use in the list below. This action overwrite c.	15
Setup Windows and Configuration Manager	Disk number:	1	~
	Disk type:	Standard(MBR)	~
	Volume: System Reserve 350 MB fixed size Windows (Prima 100% of remainin	d (Phimary) NTFS file system. y) space on disk. NTFS file system.	

2. Under Destination, select Specific disk and partition.

	Properties Options			
Install Operating System	Type:	Apply Operating System Image		
Petation Turk 0 - BICS Pattion Disk 0 - BICS Pattion Disk 1 - BICS Apply Operating System Apply Windows Settings Apply Windows Settings Apply Device Drivers Setup Operating System Setup Windows and Configuration Manager	Name:	Apply Operating System		
	Description:	Actions to apply operating system		
	Apply operating system from a captured image			
	Image package:	Windows 7 sp1 x64 w/ KB2685811 en-US	Browse	
	Image:	1 - Win 7 Pro SP1 x64 V		
	 Apply operating sy 	stem from an original installation source		
	Package:		Browse	
	Edition:			
	Package: File name:		Browse	
	Package: File name: Select the location wh	here you want to apply this operating system.	Browse	
	Package: File name: Select the location wh Destination:	here you want to apply this operating system. Next available formatted partition	Browse	
	Package: File name: Select the location wh Destination:	here you want to apply this operating system. Next available formatted partition Next available formatted partition Specific locket of partition Specific locket of partition Specific locket better Locgical drive letter stored in a variable	Browse	
	Package: File name: Select the location wh Destination:	here you want to apply this operating system. Next available formatted partition Next available formatted partition Specific logical drive letter Logical drive letter stored in a variable	Browse	

3. Under **Disk**, select **1**.4. Under **Partition**, select **2**.

Select the location	where you want	to apply this op	erating system.		
Destination:	Specific disk and partition				~
Disk:	1	~	Partition:	2	~

For more information

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