Backup Exec 16 Support for Microsoft Server 2016

The purpose of this technical brief is to introduce Backup Exec 16 support for Microsoft Server 2016 and its new features.

Key Benefits

- Backup Exec 16 supports backing up and restoring Windows 2016 Servers including the Storage Replica source and destination volumes, containers, and container operating system base images
- SDR disk creation wizard is now updated to use ADK 10

Microsoft Server 2016: New Features

Microsoft Windows Server 2016 has some exciting new features. This section discusses them briefly.

Storage Space Direct

Microsoft Storage Spaces Direct is a Microsoft Windows Server 2016 feature that pools server storage to build a highly available and scalable software-defined storage system for Hyper-V virtual machines. Storage Spaces Direct makes two copies of data on other nodes in the cluster. Each node runs as a fault domain and data is spread across the fault domains to prevent data loss if a disk fails. If a disk fails, data will be replicated to another disk in the cluster so three copies of data are present at all times. By adding more nodes to the cluster, Storage Spaces Direct will automatically pool the storage into the cluster.

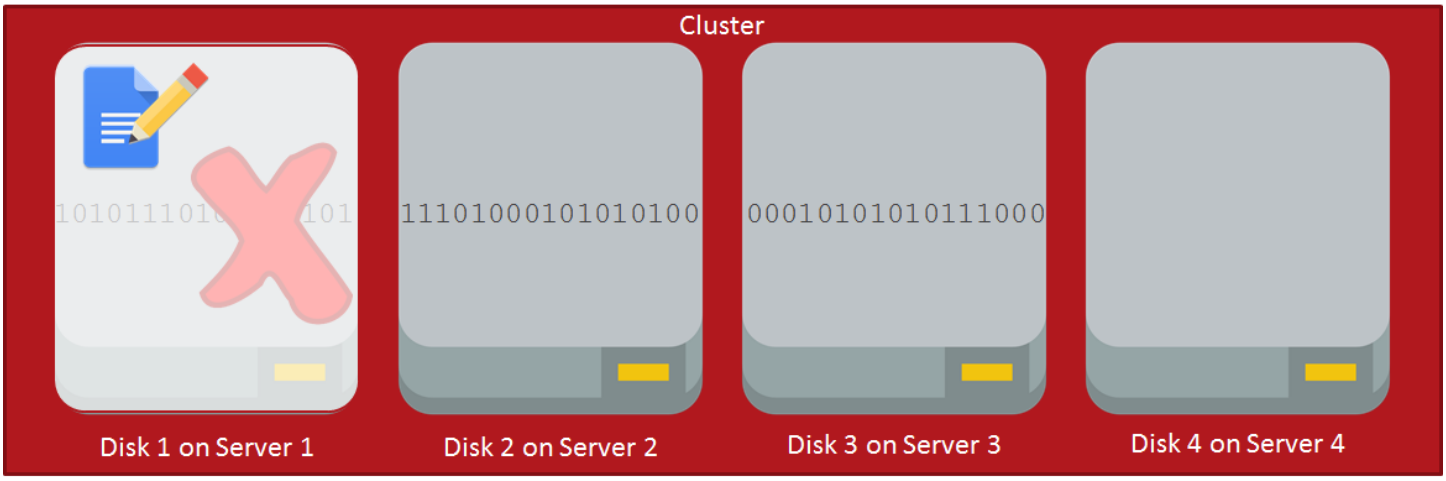

Figure 1 – Storage Spaces Direct

Storage Replica

Microsoft Storage Replica is a Microsoft Windows Server 2016 feature that provides synchronous block-level, volume-based replication for high availability and disaster recovery needs using the Server message block or SMB 3 technology. It can be used to:

- Enable replication between two servers,
- Between two clusters,
- Inside a stretch cluster to synchronize the nodes inside the cluster, and
- Server to self to copy data from one volume to another volume inside the same server.

Storage Replica is not meant to back up individual files because files that are deleted at the source will also get deleted at the destination.

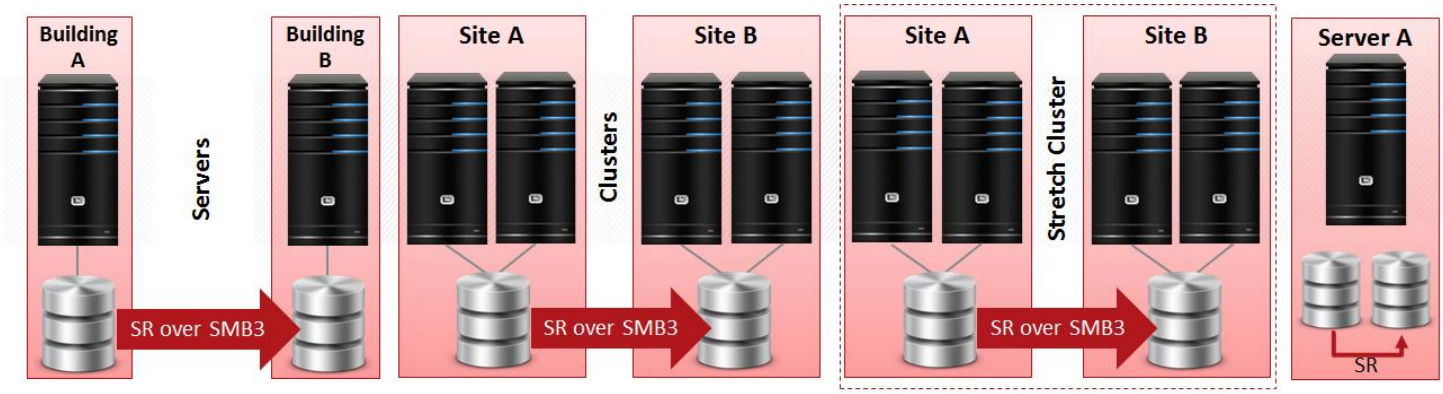

Figure 2 – Storage Replica

Containers

Microsoft Windows Containers is an option introduced in Microsoft Windows Server 2016. A container is an isolated place where an application can run without affecting the rest of the system and without the system affecting the application. There are two types of containers:

- *Windows Server Containers* provide application isolation through process and namespace isolation technology. It can be managed using Docker. For more information on Docker, visit the Docker Web site.
- *Hyper-V Containers* expand on the isolation provided by Windows Server Containers by running each container in a highly optimized virtual machine.

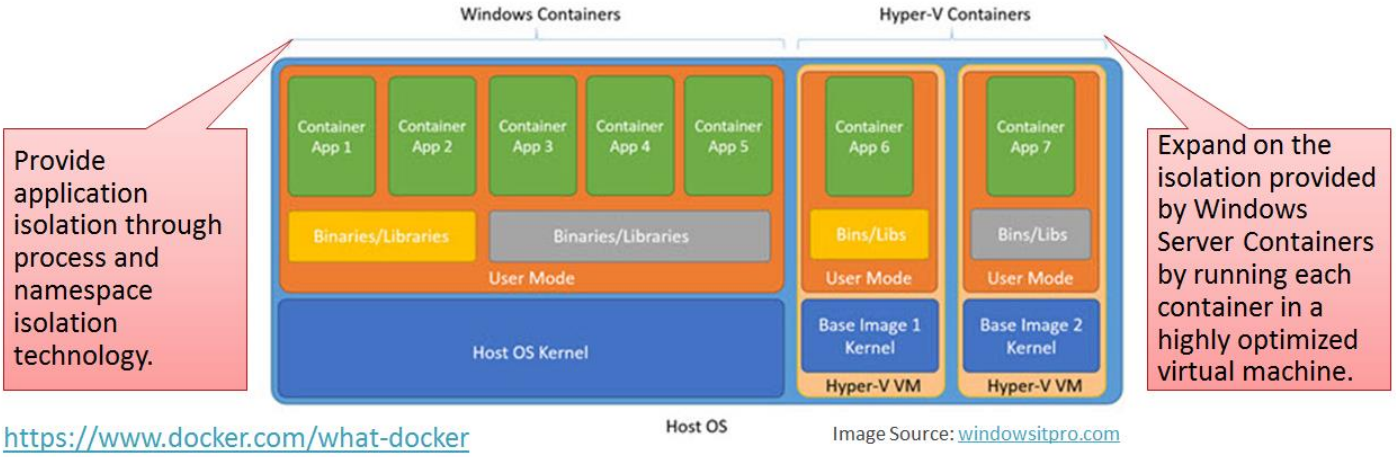

Figure 3 – Microsoft Windows Containers

NANO Server

The Microsoft 2016 Nano Server is a minimal-footprint or headless version of the Windows Server. It is managed remotely using Windows Management Instrumentation or WMI, Windows PowerShell, and Remote Server Management Tools.

The Nano server is similar to Windows server core. However, it is significantly smaller, has no local logon capability, and only supports 64-bit applications, tools, and agents. It takes up less disk space, sets up significantly faster, and requires fewer updates and restarts than Windows Server. Additionally, it restarts very fast.

Backup Exec 16 Support for Windows Server 2016

Backup Exec 16 supports backing up and restoring a Microsoft Windows 2016 Server including the Storage Replica source and destination volumes, containers, and container operating system base images.

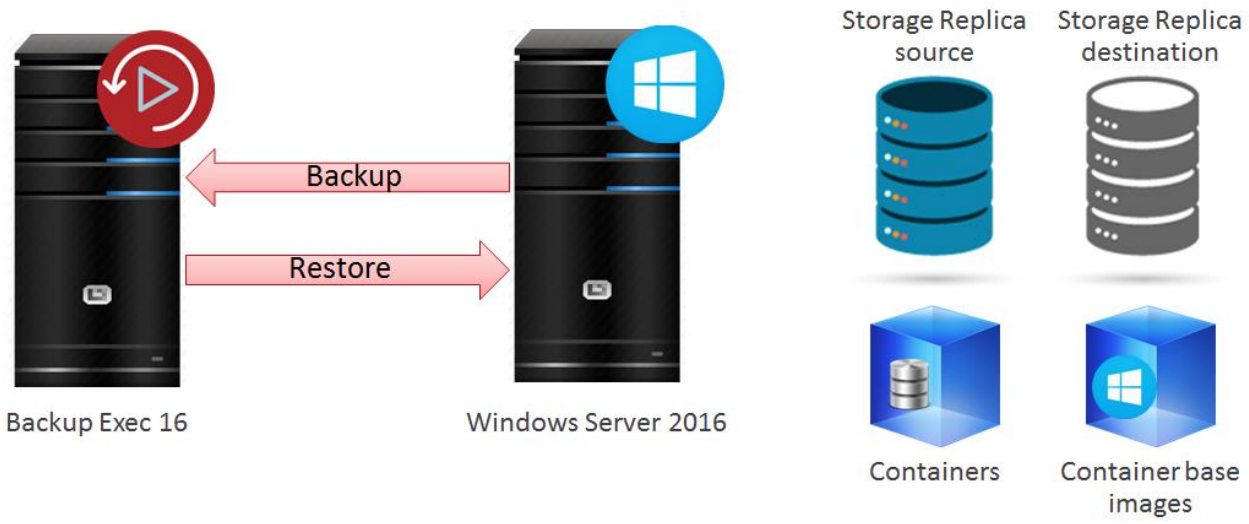

Figure 4 –Backup Exec 16 support for Windows Server 2016

Microsoft Signed Drivers

Two kernel drivers are updated in Backup Exec 16:

- The `virtfile.sys` driver is associated with the Virtual File Filter or VFF. It enables Instant Recovery as well as Exchange GRT, and
- The `pdfsd.sys` driver is associated with Deduplication devices. It allows GRT backups of some applications to dedupe destinations.

These drivers support all systems running Windows 2008 R2 and later operating systems. The properties of these drivers display three digital signatures on systems running Windows Server 2008 R2 and later. However, the properties of these drivers display only one digital signature on a system running Windows Server 2008.

Simplified Disaster Recovery (SDR) Support for Windows Server 2016

The Microsoft Windows Assessment and Deployment Kit 8.1 or ADK 8.1, and ADK 8.1 Update 1 is supported only on Windows Server 2008 Service Pack 2. On Windows 2008 R2 and later, you must create a Simplified Disaster Recovery disk or SDR disk using only ADK 10. It is important to note that the advanced features of systems running Windows 2012 R2 or later operating systems, like storage pools and spaces *cannot* be recovered, if you create an SDR disk using ADK 8.1 in Backup Exec 16. Backup Exec 16 SDR supports the recovery of cluster sizes and recreates volumes of the original cluster size using ADK 10. It also supports XTS-AES 128-bit and 256-bit encryption.

The details of the ADK version update is displayed in the **Environment Check** page in the **Simplified Disaster Recovery Disk Creation Wizard**.

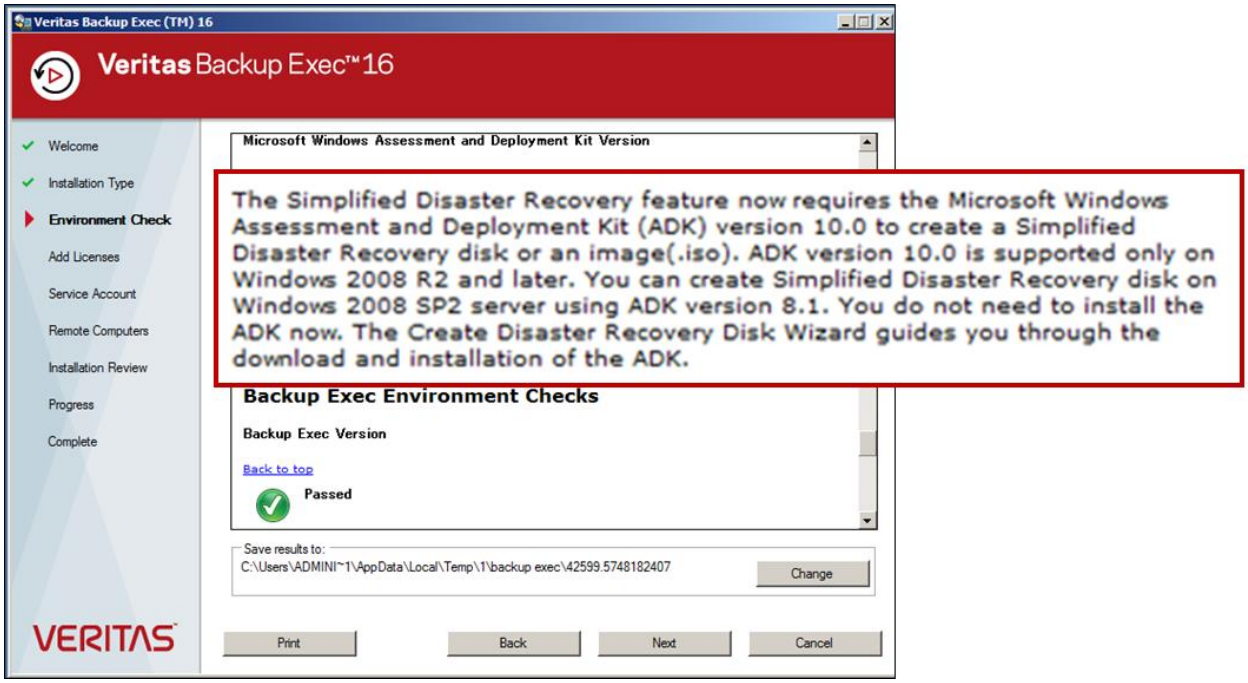

Figure 5 – Simplified Disaster Recovery and ADK 10.0

SDR Disk Creation Wizard Changes

Backup Exec 16 introduces changes to the SDR disk creation wizard. The **Create Simplified Disaster Recovery Disk Wizard** guides you through the process of creating a startup recovery disk image that you can use to recover backed up computers. This wizard is now updated to use ADK 10.

SDR Creation Wizard on Windows 2008 SP2 with ADK 8.1

Backup Exec supports Windows ADK 8.1 on Windows 2008 Service Pack 2. If Windows ADK is not installed on a Windows 2008 Service Pack 2 system, the **Create Simplified Disaster Recovery** wizard downloads and installs Windows ADK 8.1. Note that when you create an SDR disk on a Windows 2008 Service Pack 2 server, a warning that the SDR does not support recovery of advanced features for servers with Windows 2012 R2 and later is displayed.

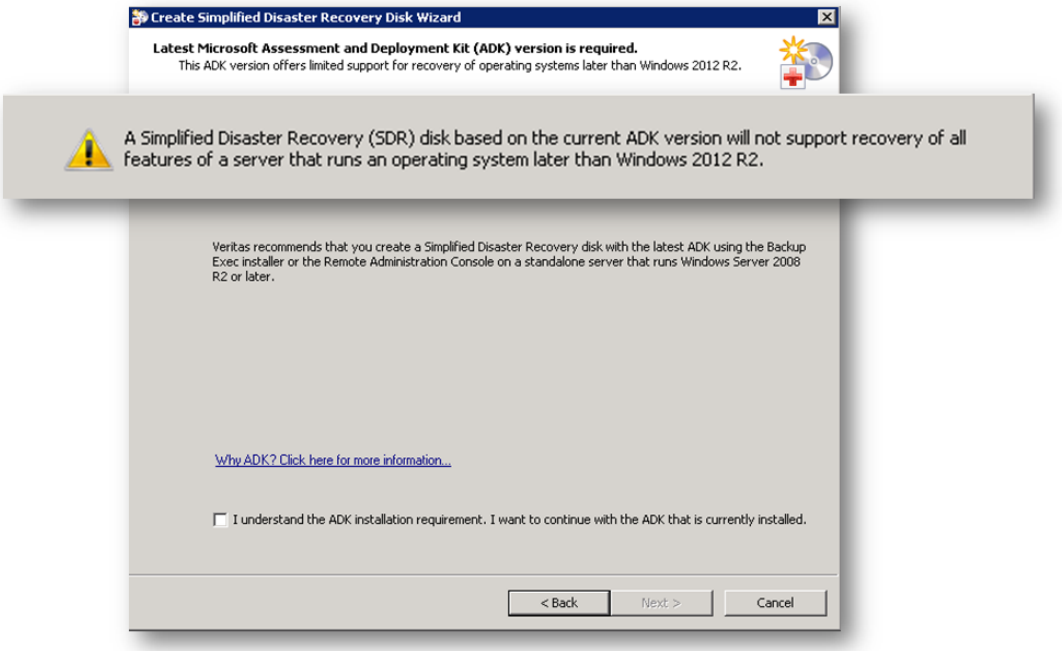

Figure 6 – SDR disk on a Windows 2008 Service Pack 2 server warning message

Windows 2016 Restore with Storage Pool

The **Recover This Computer Wizard** prompts you to reconfigure storage pools and storage spaces, remove them, or restore them as they are. To reconfigure or remove the storage pools and storage spaces, click the **PowerShell** button on the **Recover This Computer Wizard** dialog box to open a PowerShell window.

Note that the **Recover This Computer Wizard** automatically maps volumes to their original virtual disks or storage spaces if you restore to the same computer. If you do not restore to the same computer, you must use PowerShell and the SDR Advanced Disk Configuration utility to manually map the volumes to the virtual disks or storage spaces.

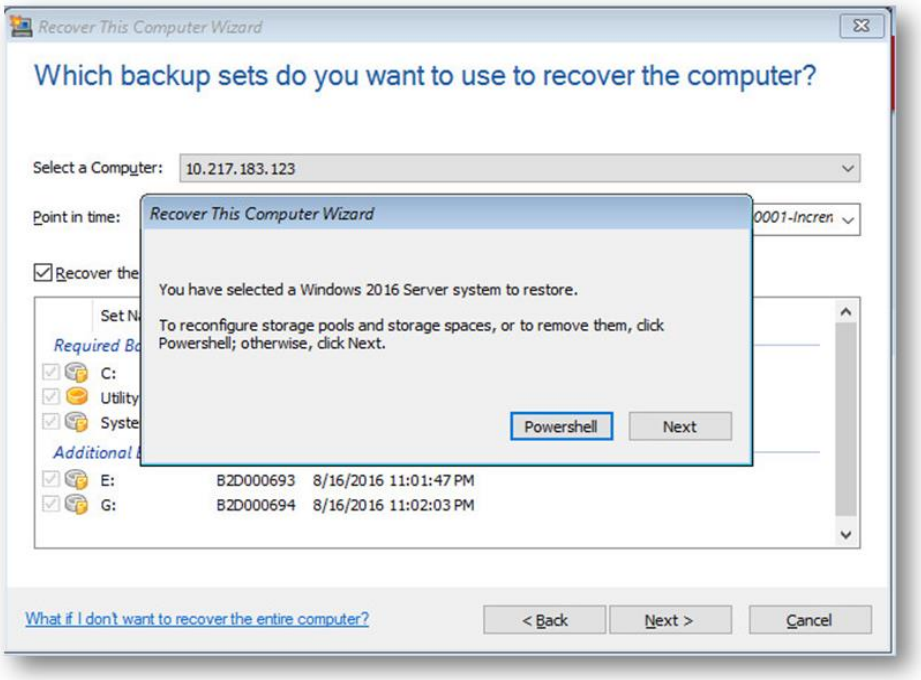

Figure 7 – PowerShell button in the Recover This Computer Wizard dialog box

Windows 2012 R2 Recovery with ADK10

While restoring a Windows Server 2012, Windows Server 2012 R2, Windows 8, or Windows 8.1 system, a warning message is displayed, which states that you must create a customized SDR disk with ADK 8.1 to restore storage pools and spaces. Note that if you create the storage pools and spaces using the recovery disk created with Windows ADK 10, after system restore, the Windows Server 2012, Windows Server 2012 R2, Windows 8, or Windows 8.1 operating system does not detect the storage pools and spaces.

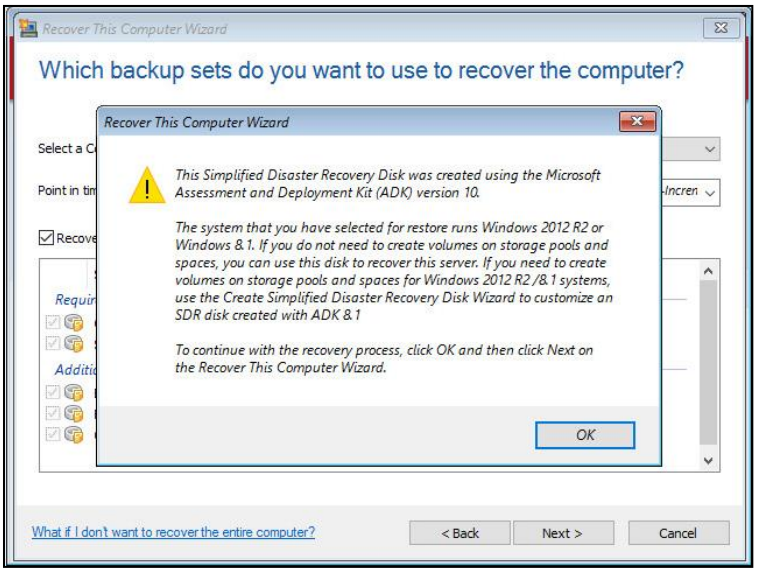

Figure 8 – SDR warning message for Windows Server 2012 and 2012 R2, Windows 8 and 8.1

Windows 2016 Recovery with ADK 8.1

While restoring a Windows Server 2016 system, a warning message is displayed, which states that you must create a customized SDR disk with ADK 10 to restore storage pools and spaces. Note that if you create the storage pools and spaces using the recovery disk created with Windows ADK 8.1, after system restore, the Windows Server 2016 operating system does not detect the storage pools and spaces.

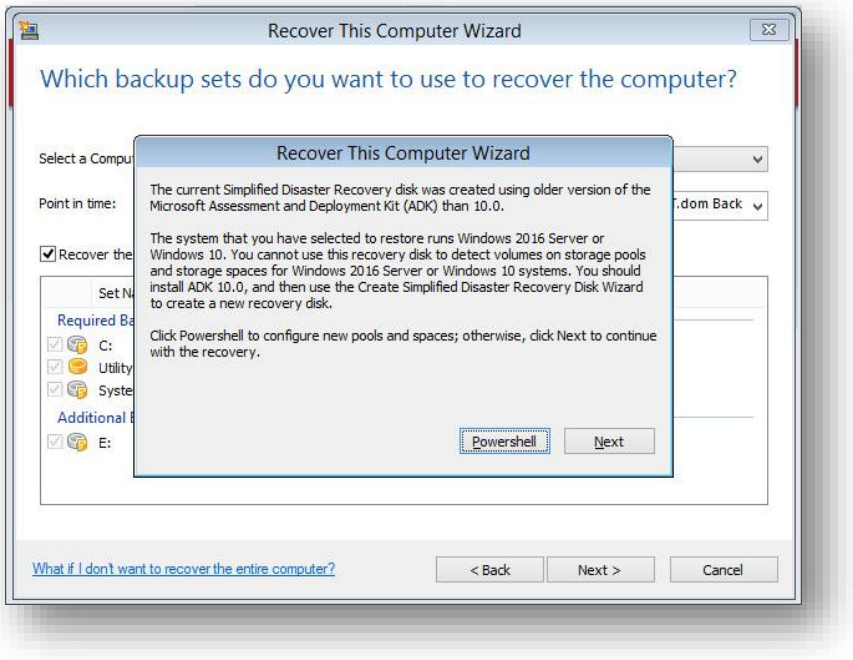

Figure 9 – SDR Windows 2016 Warning message for Windows Server 2016

SDR for Windows without ADK

If you run the **Create Simplified Disaster Recovery Disk** Wizard on a system without ADK installed, the Microsoft Assessment and Deployment Kit update is required dialog box is displayed.

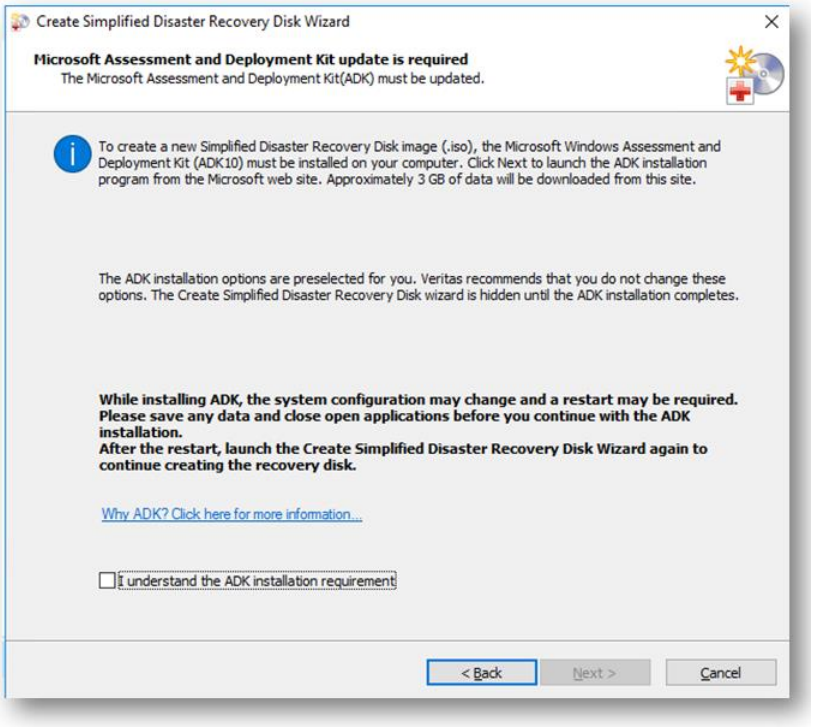

Figure 10 – Microsoft Assessment and Deployment Kit update

Backup Exec 16 Limitations for Windows Server 2016

The following Windows Server 2016 features are not supported by Backup Exec 16:

SIS Redirected Restore: Not supported

The redirected restore of a Single Instance Storage or SIS data is not supported by Backup Exec. If the source SIS volume is no longer available, you must create a new SIS volume with the same drive letter to perform a standard restore. For more information on SIS redirect restore, refer to the Microsoft KB article 263027.

Active Directory GRT of Windows 2016 Domain Controller

While performing a GRT restore of Active Directory data on a Windows 2016 domain controller, the operating system on the Backup Exec server must be of the same or higher version. However, non-GRT backups of a Windows 2016 domain controller work successfully.

GRT for 2016 ReFS and Deduplication Volumes

While performing a file or folder GRT for ReFS and Windows Dedupe volumes, or application-level GRT for virtual machines, the operating system on the Backup Exec server must be of the same or higher version.

Silent Skipping of the Windows Apps Folder During Backups

Microsoft does not recommend restoring any WindowsApps folders. Hence, the Backup Exec Agent for Windows silently ignores WindowsApps when restoring a Microsoft Windows 2016 Server.

Windows 2016 Nano Server: Not Supported

Backup Exec 16 does not support backup and restore of a Windows Server 2016 NANO server.

Summary

Microsoft Windows Server 2016 has some exciting new features like Storage Space Direct, Storage Replica, Containers, and NANO server. Backup Exec 16 supports backing up and restoring a Microsoft Windows 2016 Server including the Storage Replica source and destination volumes, containers, and container operating system base images. Backup Exec 16 introduces changes to the SDR disk creation wizard. The **Create Simplified Disaster Recovery Disk Wizard** is now updated to use ADK 10 and supports Server Windows 2016.

For More Information

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