Microsoft® Hyper-V™ for
Dell™ PowerEdge™ Systems

Important Information Guide

Notes and Cautions

NOTE: A NOTE indicates important information that helps you make better use of your computer.

CAUTION: A CAUTION indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.

Contents

Overview

This document provides the following information:

- List of Dell™ systems supporting Hyper-V™
- Features required to configure Hyper-V on Dell systems
- Instructions for Upgrading Hyper-V Role from Beta to RTM
- Instructions for enabling Hyper-V role on Microsoft® Windows Server® 2008 x64
- Hyper-V configuration tool on Hyper-V Server 2008
- Instructions for creating and managing Virtual Machines on Hyper-V Server 2008
- Known Issues and resolutions for Hyper-V Role and Hyper-V Server 2008

Microsoft Hyper-V is a hypervisor based virtualization technology designed for x64 based systems. Microsoft provides virtualization in two forms:

- As a Hyper-V role.
- As a standalone operating system, Hyper-V Server 2008.

📝 **NOTE:** Dell does not offer factory installations of the Windows Server 2008 x64 editions without Hyper-V.

📝 **NOTE:** The Hyper-V role is not available on x86 based Windows Server 2008 operating system.

Supported Hardware

This section provides the Dell hardware requirements for supporting Microsoft Hyper-V based products.

📝 **NOTE:** For latest information on supported hardware for Hyper-V, see the Dell website at **dell.com/microsoft/virtualization**.

Supported Dell PowerEdge™ Systems

Table 1-1. Table of Supported Dell Systems

System Model	Processor	Socket	Remark
Dell PowerEdge R610	Intel®	2	
PowerEdge R710	Intel	2	
PowerEdge T610	Intel	2	
PowerEdge M610	Intel	2	
PowerEdge M710	Intel	2	
PowerEdge R905	AMD™	4	
PowerEdge R900	Intel	4	
PowerEdge 6950	AMD	4	
PowerEdge 6800	Intel	4	Only with select processors[a]
PowerEdge 6850	Intel	4	Only with select processors[a]
PowerEdge R805	AMD	2	
PowerEdge M600	Intel	2	
PowerEdge M605	AMD	2	
PowerEdge 2970	AMD	2	
PowerEdge 1950 I/II/III	Intel	2	
PowerEdge 2900 I/II/III	Intel	2	
PowerEdge 2950 I/II/III	Intel	2	
PowerEdge T605	AMD	2	
PowerEdge 1900	Intel	2	
PowerEdge 1955	Intel	2	
PowerEdge SC1435	AMD	2	
PowerEdge R300	Intel	1	Only with Xeon
PowerEdge T300	Intel	1	Only with Xeon
PowerEdge R200	Intel	1	Only with Xeon
PowerEdge T105	AMD	1	

Table 1-1. Table of Supported Dell Systems _(continued)_

System Model	Processor	Socket	Remark
PowerEdge T100	Intel	1	Only with Xeon
PowerEdge 1430	Intel	1	Only with Xeon
PowerEdge 840	Intel	1	Only with Xeon
PowerEdge 860	Intel	1	Only with Xeon
PowerEdge SC440	Intel	1	Only with Xeon

a   PowerEdge 6800 and PowerEdge 6850 systems having Intel Processors with Processor ID F48 support Hyper-V. The Processor ID information is available in System BIOS Setup→ CPU Information. Press <F2> during boot to access the system BIOS Setup.

NOTE: Download the latest BIOS version from the Dell Support website at support.dell.com.

Enabling Hardware Features on Dell PowerEdge Systems to Support Hyper-V

The following processor features are required to configure Hyper-V:

- Extended Memory 64 Technology (EM64T) compatibility
- Data Execution Prevention (DEP) support

  NOTE: By default, DEP is enabled on all Dell systems.

- Hardware-assisted virtualization (Intel VT or AMD-V) support by processors

  NOTE: By default, hardware assisted virtualization is enabled on PowerEdge T105. To enable hardware assisted virtualization for other PowerEdge systems, go to System BIOS→Processor Information.

To enable hardware-assisted virtualization:

1   Press <F2> in the **POST** screen to go to the BIOS setup.

2   Navigate to the **CPU Information** section.

3   Press <Enter> and navigate to **Virtualization Technology**.

4   Select **Enabled** by toggling the left and right arrow keys.

5   Save the selection and exit the BIOS setup.

Hyper-V Role on Windows Server 2008 x64

Upgrading Hyper-V Role from Beta to RTM

If your system has Windows Server 2008 x64 Edition, you must upgrade from Hyper-V Beta version to Hyper-V RTM version.

For more information on updating to Hyper-V RTM, see article 950050 on the Microsoft Help and Support website at **support.microsoft.com\kb**.

NOTE: Dell no longer supports the Hyper-V Beta version. For information on upgrading from Hyper-V Beta to Hyper-V RTM, see the Virtualization and Server Consolidation website at **microsoft.com/hyper-v.**

NOTE: Upgrading from Hyper-V Beta to Hyper-V RTM is applicable for Hyper-V role but not applicable for Hyper-V Server 2008.

Enabling Hyper-V Role on Windows Server 2008 X64 Edition

To install the Hyper-V role on a full installation of Windows Server 2008 x64 Edition:

1 Ensure that the required hardware features are enabled in the system BIOS.

2 Log on to the Windows Server 2008 x64 edition operating system using an account with administrator privileges.

3 Click **Start**→**Administrative Tools**→**Server Manager** to start the **Server Manager**.

4 Click **Add Roles** to launch the **Add Roles Wizard**.

5 Select **Hyper-V** as shown in Figure 1-1 and click **Next**.

The **Create Virtual Networks** page appears.

Figure 1-1.   Hyper-V Role Selection Page
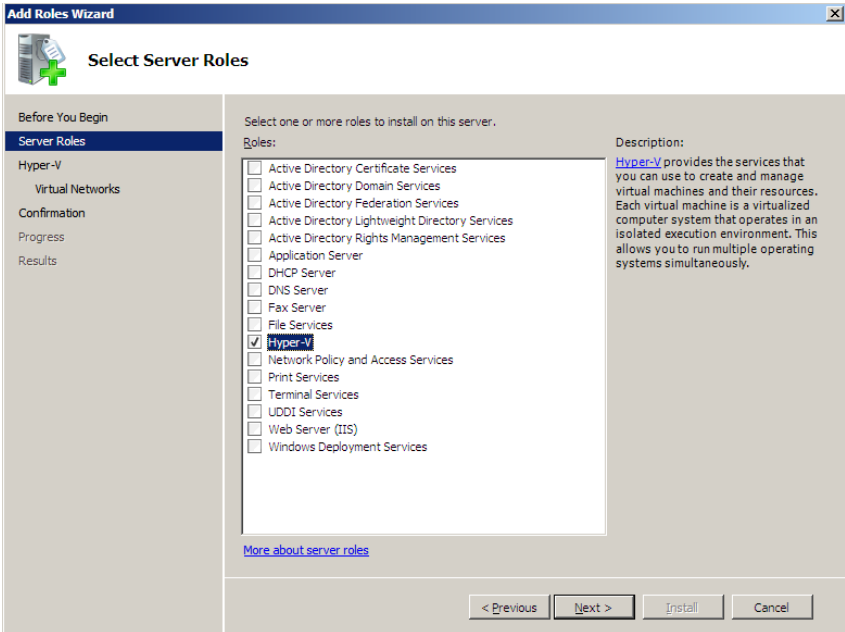
6 Select one of the network adapters as shown in Figure 1-2 and click **Next**.

> 📝 **NOTE:** The **Hyper-V Role** Wizard allows you to proceed with the Hyper-V Role configuration without creating a virtual network. The virtual network may be created later using the **Virtual Network Manager** from the **Hyper-V Manager Console**.

To allow virtual machines to communicate on the external network, you must create at least one virtual network that is bound to a physical network adapter on the system. You can create, modify or delete virtual networks by using the **Virtual Network Manager** available in the **Hyper-V Manager Console**.

> 📝 **NOTE:** To facilitate uninterrupted host server management, it is recommended that you reserve at least one physical network adapter without any virtual network associated with it.

Figure 1-2.   Virtual Network Creation Page
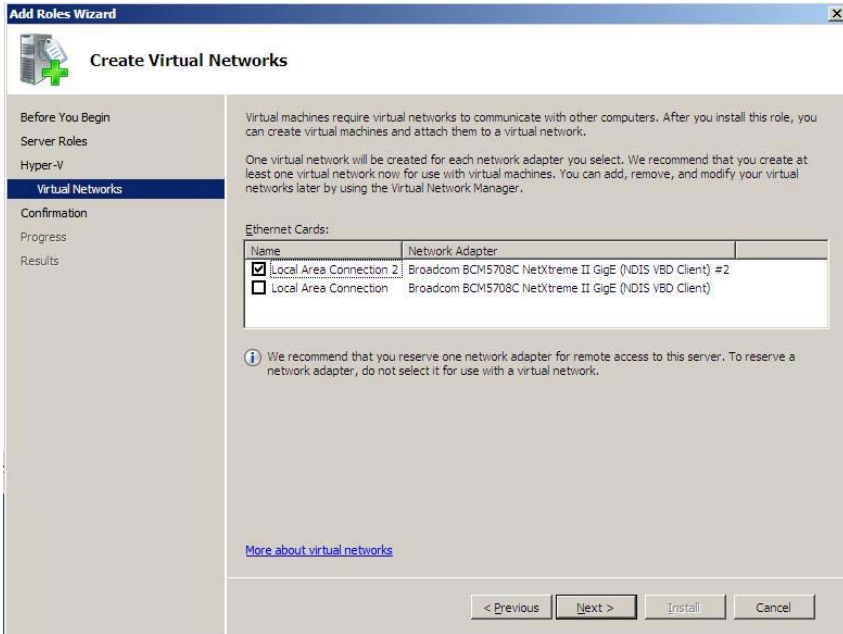
7   Follow the instructions on the screen to complete the role installation.

8   Reboot the system when prompted.

   The Hyper-V role installation is complete.

A Hyper-V Manager Microsoft Management Console (MMC) may be used either locally or remotely to manage the virtual environment on this system.

To install the Hyper-V role on a Server Core installation of Windows Server 2008 x64 Editions:

1   Ensure that the required hardware features are enabled in the system BIOS.

2   Log on to the Windows Server 2008 x64 Server Core edition operating system using an account with administrator privileges.

3 At the command prompt, type the following command:

```
start /w ocsetup Microsoft-Hyper-V
```

4 Reboot the system when prompted.

The Hyper-V Role installation is now complete.

A remote Hyper-V Manager console can be used to manage the Hyper-V Role on Server Core.

Hyper-V Server 2008

Hyper-V Server 2008 is hypervisor-based server virtualization technology designed to run virtualization as a role. It is a stand alone operating system, based on Windows® 2008 x64 Standard Server Core with Hyper-V as the role.

NOTE: For instructions on installing Hyper-V Server 2008 on Dell PowerEdge server, see *Installing Microsoft Hyper-V™ Server 2008 Using the Operating System Media* and *Installing Microsoft Hyper-V Server 2008 Using the Dell™ Systems Management Tools and Documentation Media* on the Dell Support site at **support.dell.com**.

For more information on Hyper-V Server 2008, see the Microsoft website at **microsoft.com/servers/hyper-v-server/default.mspx**.

NOTE: All the servers that support Hyper-V role on Windows Server 2008 x64 also support Hyper-V Server 2008.

Hyper-V Configuration Tool on Hyper-V Server 2008

Hyper-V Configuration tool (HVConfig.cmd) enables administrators to configure the server using a menu driven user interface.

NOTE: By default, the Hyper-V Configuration tool starts automatically when you login. You can also start the configuration manually by using the **hvconfig** command from the command prompt.

Below is a brief description of functions of each item in the menu:

- Domain/Workgroup: Joins/Disjoins from a Domain or Workgroup
- Computer Name: Changes computer Name
- Network Settings:
  - Sets IP address to Static or Dynamic (DHCP)
  - Configures or clears DNS Server Settings

- Add Local Administrator: Adds existing user to Local Admin Group
- Windows Update Settings: Sets to Manual or Automatic
- Download and Install Updates: Manually Downloads Windows Updates
- Remote Desktop: Enables or Disables Remote Access system

Creating and Managing Virtual Machines on Hyper-V Server 2008

A remote Hyper-V Manager or Virtual Machine Manager 2008 console is used to create and manage virtual machines on Hyper-V Server 2008. For more information about creating and managing virtual machines on Hyper-V Server 2008, see the Microsoft website at **microsoft.com/servers/hyper-v-server/default.mspx**

Known Issues and Resolutions for Hyper-V Role and Hyper-V Server 2008

Unable to Create Hyper-V Virtual Machines on a Supported Dell Server

Hardware-assisted virtualization is one of the pre-requisites for installing Hyper-V. The Hyper-V Role configuration wizard allows you to install the Hyper-V Role even with the Hardware Assisted Virtualization (Intel-VT or AMD-V) capability disabled in the system BIOS. When you attempt to create or start a virtual machine, you may receive an error message: `Virtual machine failed to initialize.`

To workaround this issue, ensure that the Virtualization Technology feature is enabled in the BIOS and reboot the system. The Hyper-V hypervisor loads successfully.

Guest Operating System Installed Using Dell Recovery Media for Windows Server 2008 x64 Editions Prompts for Activation.

You must enter a virtual PID key when you create a guest operating system in a virtualized environment.

A Windows Server 2008 guest operating system installation using the Dell Recovery media for Windows Server 2008 is not pre-activated. To activate the guest operating system:

1 Boot into the guest operating system and choose the option to enter a new product key.

   Enter the *Virtual Key* that is available on the right hand side of the Certificate of Authenticity (COA) sticker on your system.

   NOTE: The Virtual Key is different from the Product Key, also present on the COA sticker.

2 After entering the Virtual Key, activate the Windows Server 2008 guest operating system using the regular Microsoft activation channels– manually via telephone or automatically via the internet if your virtual machine has direct access to the internet.

   NOTE: For more information on Windows Server 2008 activation, see the Microsoft website at microsoft.com/windowsserver2008.

NOTE: This only applies to guest operating system installations done with the Dell Recovery media.

In-place Upgrade From One Windows Server 2008 Edition to Another.

In-place upgrade of the host operating system from one Windows Server 2008 x64 edition to another is supported by Dell. However, the virtual machine configuration of existing Hyper-V virtual machines may be lost after the upgrade.

To prevent the loss of the virtual machine configuration, use the Export/Import functionality in the Hyper-V Manager to export the existing virtual machine configuration to a network location, prior to the in-place upgrade and then import it after the upgrade is complete.

Hyper-V role installations Fails With Non-US (English) Locale Setting on Hyper-V Beta.

Hyper-V does not initialize if you install the Hyper-V Beta role with non-US (English) locale setting.

Hyper-V role installation with non-US (English) Locale Setting is only supported with the Hyper-V RTM version and not with Hyper-V Beta version.

Windows Server 2008 Document on Beta Hyper-V Shipped Along With Your System.

Along with your operating system kit, a document is shipped with the following information: This copy of Windows Server® 2008 contains a beta version of Hyper-V™, the hypervisor-based virtualization feature. The final version of this feature will be released in the near future and will be available for download on Windows Update.

You can download the final version of this feature from the Microsoft support website at **support.microsoft.com**.

Guest Operating System Installation of Windows Vista or Windows Server 2008 May BSOD on a Power Edge R805 System.

If you are installing the Microsoft Windows Vista® or Windows Server 2008 as a guest operating system in a Hyper-V virtual machine that is configured to boot from a local optical drive of a PowerEdge R805 system, the host operating system may crash and display either a 0xD1 or a 0x3D bug check error.

This issue is caused by a bug in the default chipset driver that is included in the Windows Server 2008 installation media.

To resolve this issue, update the nVidia Chipset IDE/SATA driver on the host Windows Server 2008 x64 to the latest version available for the PowerEdge R805 system on the Dell Support website at **support.dell.com**.

Hyper-V Guest Operating System Installation Via DRAC May Fail Displaying an Error Message

If you are installing Windows Vista or Windows Server 2008 guest operating systems on Hyper-V that has an operating system ISO image remotely attached to the Hyper-V system's DRAC4 or DRAC5 virtual media, the installation may fail displaying the following message:

A required CD/DVD drive device driver is missing. If you have a driver floppy disk, CD, DVD, or USB flash drive, please insert it now

To resolve this issue, download the latest firmware version from the Dell Support website at **support.dell.com**.

> **NOTE:** The minimum required firmware version for DRAC 4 is 1.61, and for DRAC 5 is 1.4.0.

Hyper-V VLAN Capability Not Functional on Intel and Broadcom Network Adapters

When you enable VLAN tagging using Hyper-V's VLAN capability, the parent partition and child partitions may lose network connectivity with the external network. This issue can occur with Intel Single-Port and Dual-Port as well as Broadcom Gigabit network adapters.

To resolve this issue, download and install the latest version of the network driver from the Dell Support website at **support.dell.com**.

> **NOTE:** The minimum required network driver version for Broadcom NIC is 12.6.0, and for Intel NIC is 11.0.

Hyper-V Virtual Networking Not Functional on Broadcom Network Adapters With BACS-Based Teaming and VLANs

You can use the Broadcom Advanced Control Suite (BACS) software to team multiple adapters to offer fault-tolerance and load-balancing capabilities. Hyper-V virtual networks that are bound to network adapters configured with BACS-based teaming or VLANs may not be functional and may disrupt network traffic from virtual machines to the external network.

To resolve this issue, you must follow certain guidelines to create teaming on Broadcom NetXtreme II® adapters using BACS teaming utility:

- Create a team, and then assign the team to the Hyper-V virtual network.
- Do not create a team with an adapter that is already assigned to a Hyper-V virtual network.

> **NOTE:** The minimum required network driver version for Broadcom NIC is 12.6.0.

Hyper-V supports the following Broadcom team types:

- Smart Load Balancing and Failover (configured only for one primary and one standby)
- Link Aggregation (IEEE 802.3ad LACP)
- Generic Trunking (FEC/GEC) 802.3ad Draft Static.

The limitations of the Hyper-V are:

- A TOE-enabled team that is assigned to a Hyper-V virtual network may report TOE as an offload capability in BACS console, but the TOE feature for the team does not work since Hyper-V does not support this functionality yet.

- In an IPv6 network, a team that supports Checksum Offload (CO) and/or Large Send Offload (LSO) assigned to a Hyper-V virtual network reports CO and LSO as an offload capability in BACS console, but the CO and LSO features for the team do not work since Hyper-V does not support these functionalities in an IPv6 network.

- To successfully perform VLAN tagging for both the host (parent partition) and the guest (child partition) with the BACS teaming software, you must configure the team for tagging. Unlike VLAN tagging with a single adapter, tagging cannot be managed by Hyper-V when using BACS software.

Hyper-V Virtual Networking Not Functional on Intel Network Adapters With PROSet-Based Teaming And VLANs

You can use the Intel PROset software provided by Dell to team multiple adapters to offer fault-tolerance and load-balancing and specify multiple VLAN tags to physical network adapters. You may encounter issues when attempting to configure Hyper-V virtual network on adapters configured with PROSet. Additionally, virtual networks bound to network adapters configured with PROSet-based teaming or VLANs may not be functional and may disrupt network traffic from virtual machines to the external network.

To resolve this issue, download and install the latest version of the Intel network driver from the Dell Support website at **support.dell.com**.

NOTE: The minimum required Intel network driver version is 11.0.

Static IP Setting Information May be Lost When Creating a Hyper-V Virtual Network

If you create an *External* Virtual network and bind it to a physical network adapter that is configured with static settings in the parent partition, the static settings may be lost.

This feature is working as designed. Hyper-V generates a warning message alerting you to this behavior when creating a virtual network using the Hyper-V Network Manager.

To workaround this issue, manually reconfigure the static settings on the new virtual network adapter created in the parent partition.

To prevent this issue, it is recommended that you set static network settings on the parent partition network adapters only after creating the required virtual networks.

Remote Network Connection May be Lost When Creating a Hyper-V Virtual Network

When you bind an *External* Virtual Network is to a physical network adapter, the remote network connections may be lost temporarily during the virtual network creation process. The issue occurs if the remote network connection to the Hyper-V host uses the physical network adapter on which the new virtual network was bound to.

This feature is working as designed. In most cases, the remote connection is automatically re-established. To workaround this issue, it is recommended that you dedicate a specific network adapter in the parent partition strictly for managing the system. You must not bind the *Management* network adapter to any Hyper-V virtual network. Also, you must make remote connections, if any, to the parent partition via the IP address of this *Management* NIC.

System prompts for product key during Hyper-V Server 2008 installation

When you install Hyper-V Server 2008, the system prompts for the product key during any one of the following instances:

- When you install Hyper-V Server 2008 using unattended install method, the system prompts for the product key despite providing the Product Identification (PID) in **unattended.xml**.
- When you execute the **sysprep/oobe** command, the system prompts for the product key when the system reboots.

To resolve these issues, use the product key from the operating system installation media located at **<root>\Sources\PID.txt**.

Issue with Remote connection of virtual machines

When you attempt to create or start a virtual machine using the Hyper-V Manager, the following error message may be displayed: `Cannot connect to the virtual machine because the authentication certificate is expired or invalid.`

To resolve this issue, see article 967902 on the Microsoft Help and Support website at **support.microsoft.com\kb**.

Unexpected errors on Hyper-V during normal usage

When running the Windows Server 2008 with Hyper-V role or Hyper-V Server 2008, you may encounter any one of the following errors:

- The system may restart unexpectedly and display a blue screen with the following error message: `STOP Error: 0x0000001A`
- The system may display a blue screen with the following error message `STOP Error: 0x0000003B on file vid.sys`, when creating a virtual machine.
- The system may report a bugcheck code error if you try to create a partition during the virtual machine creation process.

To resolve any of these issues, see article 957967 on the Microsoft Help and Support website at **support.microsoft.com\kb**.

Cannot install agent portion of Modular Disk Storage Manager (MDSM) for MD3000/MD3000i on Hyper-V Server 2008

If you install the Modular Disk Storage Manager (MDSM) on a Windows Hyper-V Server 2008, you do not have the option to install the **Agent Only** version. Modular Disk Storage Manager installation setup does not install the **Agent** version even after the installation is complete.

To resolve this issue:

1 Download the **agent.zip** file from the Dell Support website at **support.dell.com**
2 Unzip the contents of **agent.zip** under **c:\Program Files\Dell\MD Storage Manager**. A subfolder named **agent** is created along with the files.
3 Restart the application.