Hyper-V

Virtualization

To view the Hyper-V cmdlets type (remember to run as Administrator)

Get-Command –Module Hyper-V | Sort Noun,Verb

Before you begin

Before You Begin

Installation Type

Server Selection

Server Roles

Features

Hyper-V

Virtual Switches

Migration

Default Stores

Confirmation

Results

This wizard helps you install roles, role services, or features. You determine which roles, role services, or features to install based on the computing needs of your organization, such as sharing documents, or hosting a website.

To remove roles, role services, or features:
Start the Remove Roles and Features Wizard

Before you continue, verify that the following tasks have been completed:

* The Administrator account has a strong password
* Network settings, such as static IP addresses, are configured
* The most current security updates from Windows Update are installed

If you must verify that any of the preceding prerequisites have been completed, close the wizard, complete the steps, and then run the wizard again.

To continue, click Next.

☐ Skip this page by default

What is Network Virtualization?

Similar to running multiple virtual servers on a single host, with network virtualization it is possible to run multiple isolated virtual networks on a single host. In essence this is not a new feature, because with VLANs this has already become possible in the Windows 2008 hypervisor. But VLANs – for larger organizations – have limitations (4096 to be exact) and in these environments VLAN maintenance can be error-prone and cumbersome. Network virtualization is a great feature for hosters, but many private clouds can take advantage of this in multiple ways as well.

Add Roles and Features Wizard

Select installation type

- Before You Begin
- **Installation Type**
- Server Selection
- Server Roles
- Features
- Hyper-V
  - Virtual Switches
  - Migration
  - Default Stores
- Confirmation
- Results

Select the installation type. You can install roles and features on a running physical computer or virtual machine, or on an offline virtual hard disk (VHD).

○ **Role-based or feature-based installation**

Configure a single server by adding roles, role services, and features.

○ **Remote Desktop Services installation**

Install required role services for Virtual Desktop Infrastructure (VDI) to create a virtual machine-based or session-based desktop deployment.

< Previous   Next >   Install   Cancel

Add Roles and Features Wizard

Select destination server

Before You Begin
Installation Type
Server Selection
Server Roles
Features
Hyper-V
  Virtual Switches
  Migration
  Default Stores
Confirmation
Results

Select a server or a virtual hard disk on which to install roles and features.

◉ Select a server from the server pool
○ Select a virtual hard disk

Server Pool

Filter:

Name	IP Address	Operating System
WIN-6NQ842FMB9T.ete...	192.168.254.13	Microsoft Windows Server 2012 Standard Evaluation

1 Computer(s) found

This page shows servers that are running Windows Server 2012, and that have been added by using the Add Servers command in Server Manager. Offline servers and newly-added servers from which data collection is still incomplete are not shown.

< Previous   Next >   Install   Cancel

Select server roles

Before You Begin

Installation Type

Server Selection

Server Roles

Features

Hyper-V

   Virtual Switches

   Migration

   Default Stores

Confirmation

Results

Select one or more roles to install on the selected server.

Roles

- ☐ Active Directory Certificate Services
- ☑ Active Directory Domain Services (Installed)
- ☐ Active Directory Federation Services
- ☐ Active Directory Lightweight Directory Services
- ☐ Active Directory Rights Management Services
- ☐ Application Server
- ☐ DHCP Server
- ☑ DNS Server (Installed)
- ☐ Fax Server
- ▷ ☑ File And Storage Services (Installed)
- ☑ **Hyper-V**
- ☐ Network Policy and Access Services
- ☐ Print and Document Services
- ☐ Remote Access
- ☐ Remote Desktop Services

Description

Hyper-V provides the services that you can use to create and manage virtual machines and their resources. Each virtual machine is a virtualized computer system that operates in an isolated execution environment. This allows you to run multiple operating systems simultaneously.

< Previous   Next >   Install   Cancel

Hyper-V

Before You Begin

Installation Type

Server Selection

Server Roles

Features

Hyper-V

    Virtual Switches

    Migration

    Default Stores

Confirmation

Results

Hyper-V allows you to virtualize your server workloads by running those workloads on virtual machines. You can use virtual machines to consolidate multiple workloads on one physical server, to improve server availability, and to increase efficiency in developing and testing software.

Things to note:

* Before you install this role, you should identify which network connections on this server you want to use for setting up virtual switches.

* After you install Hyper-V, you can use Hyper-V Manager to create and configure your virtual machines.

More information about Hyper-V

< Previous   Next >   Install   Cancel

Create Virtual Switches

Before You Begin

Installation Type

Server Selection

Server Roles

Features

Hyper-V

Virtual Switches

Migration

Default Stores

Confirmation

Results

Virtual machines require virtual switches to communicate with other computers. After you install this role, you can create virtual machines and attach them to a virtual switch.

One virtual switch will be created for each network adapter you select. We recommend that you create at least one virtual switch now to provide virtual machines with connectivity to a physical network. You can add, remove, and modify your virtual switches later by using the Virtual Switch Manager.

Network adapters:

Name	Description
☐ Ethernet	Realtek PCIe GBE Family Controller
☐ Myteam	Microsoft Network Adapter Multiplexor Driver

ⓘ We recommend that you reserve one network adapter for remote access to this server. To reserve a network adapter, do not select it for use with a virtual switch.

< Previous   Next >   Install   Cancel

Virtual Machine Migration

Before You Begin

Installation Type

Server Selection

Server Roles

Features

Hyper-V

   Virtual Switches

   Migration

   Default Stores

Confirmation

Results

Hyper-V can be configured to send and receive live migrations of virtual machines on this server. Configuring Hyper-V now enables any available network on this server to be used for live migrations. If you want to dedicate specific networks for live migration, use Hyper-V settings after you install the role.

☐ Allow this server to send and receive live migrations of virtual machines

Authentication protocol

Select the protocol you want to use to authenticate live migrations.

◉ Use Credential Security Support Provider (CredSSP)
   This protocol is less secure than Kerberos, but does not require you to set up constrained delegation. To perform a live migration, you must be logged on to the source server.

◯ Use Kerberos
   This protocol is more secure but requires you to set up constrained delegation in your environment to perform tasks such as live migration when managing this server remotely.

⚠ If this server will be part of a cluster, do not enable migration now. Instead, you will configure the server for live migration, including specifying networks, when you create the cluster.

< Previous   Next >   Install   Cancel

Add Roles and Features Wizard

Default Stores

Before You Begin
Installation Type
Server Selection
Server Roles
Features
Hyper-V
    Virtual Switches
    Migration
    Default Stores
Confirmation
Results

Hyper-V uses default locations to store virtual hard disk files and virtual machine configuration files, unless you specify different locations when you create the files. You can change these default locations now, or you can change them later by modifying Hyper-V settings.

Default location for virtual hard disk files:

C:\Users\Public\Documents\Hyper-V\Virtual Hard Disks   Browse...

Default location for virtual machine configuration files:

C:\ProgramData\Microsoft\Windows\Hyper-V   Browse...

< Previous   Next >   Install   Cancel

Add Roles and Features Wizard

Confirm installation selections

Before You Begin
Installation Type
Server Selection
Server Roles
Features
Hyper-V
    Virtual Switches
    Migration
    Default Stores
Confirmation
Results

To install the following roles, role services, or features on selected server, click Install.

☐ Restart the destination server automatically if required

Optional features (such as administration tools) might be displayed on this page because they have been selected automatically. If you do not want to install these optional features, click Previous to clear their check boxes.

Hyper-V

Remote Server Administration Tools

    Role Administration Tools

        Hyper-V Management Tools

            Hyper-V Module for Windows PowerShell

            Hyper-V GUI Management Tools

Export configuration settings
Specify an alternate source path

< Previous   Next >   Install   Cancel

his local server

and features

servers to manage

rver group

Active Directory Administrative Center
Active Directory Domains and Trusts
Active Directory Module for Windows PowerShell
Active Directory Sites and Services
Active Directory Users and Computers
ADSI Edit
Component Services
Computer Management
Defragment and Optimize Drives
Disk Cleanup
DNS
Event Viewer
Group Policy Management
Hyper-V Manager
iSCSI Initiator
Local Security Policy
ODBC Data Sources (32-bit)
ODBC Data Sources (64-bit)
Performance Monitor
Resource Monitor
Security Configuration Wizard
Services
System Configuration
System Information
Task Scheduler
Windows Firewall with Advanced Security
Windows Memory Diagnostic
Windows PowerShell

DNS	1		File and Storage Services	1		Hyper
Manageability		⊕	Manageability		⊕	Manag
Events			Events			Events
Services			Services			Service
Performance			Performance			Perform
BPA results			BPA results			BPA re
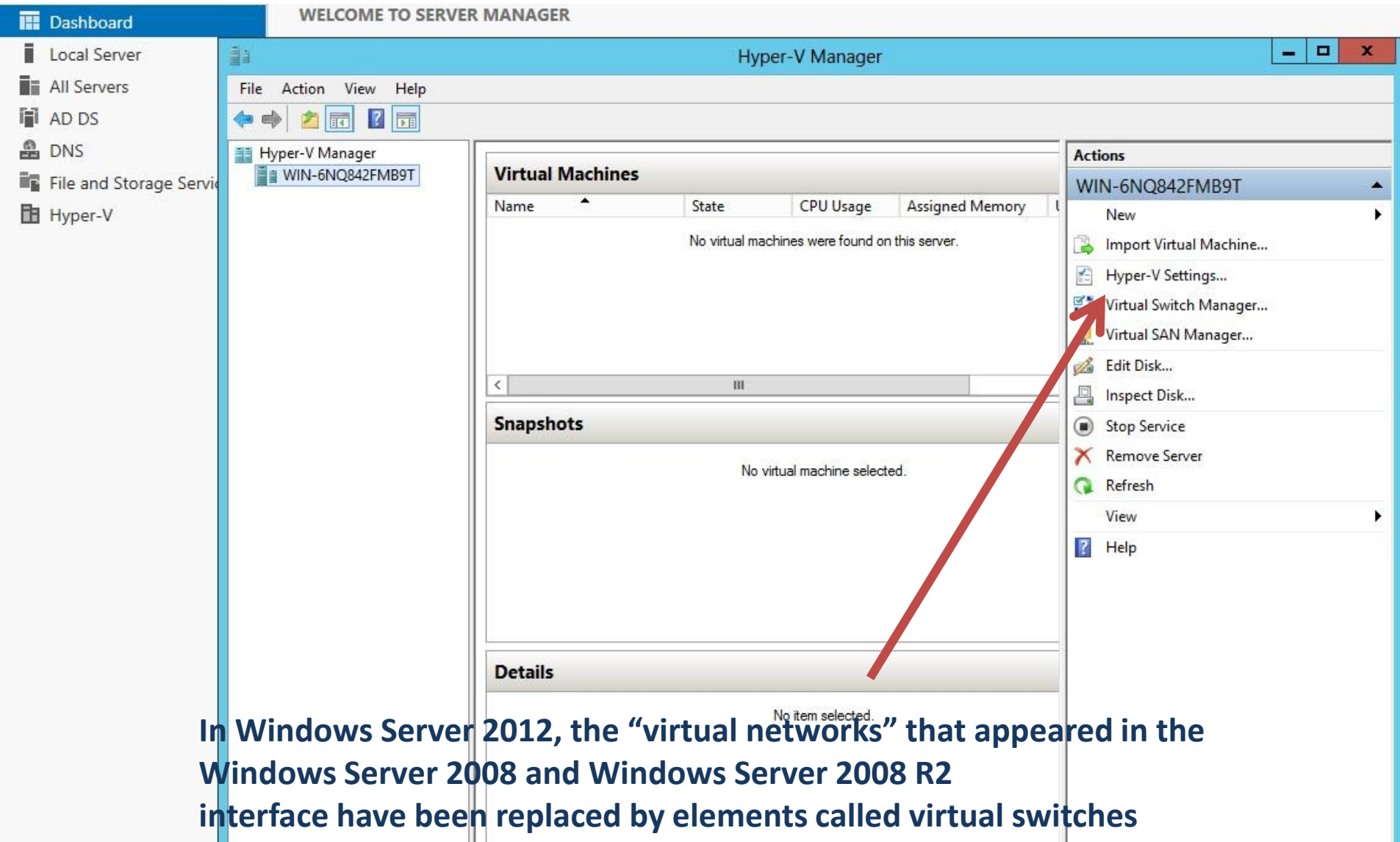
In Windows Server 2012, the "virtual networks" that appeared in the Windows Server 2008 and Windows Server 2008 R2 interface have been replaced by elements called virtual switches

Server

📂 **Virtual Hard Disks**
   C:\Users\Public\Documents\Hyper-...

📑 **Virtual Machines**
   C:\ProgramData\Microsoft\Windo...

🖥️ **Physical GPUs**
   Manage RemoteFX GPUs

🖥️ **NUMA Spanning**
   Allow NUMA Spanning

🔀 **Live Migrations**
   No Live Migrations

💾 **Storage Migrations**
   2 Simultaneous Migrations

📋 **Replication Configuration**
   Not enabled as a Replica server

User

⌨️ **Keyboard**
   Use on the virtual machine

🖱️ **Mouse Release Key**
   CTRL+ALT+LEFT ARROW

☑️ **Reset Check Boxes**
   Reset check boxes

📁 Virtual Hard Disks ────────────────────────────────

Specify the default folder to store virtual hard disk files.

C:\Users\Public\Documents\Hyper-V\Virtual Hard Disks

Browse...

OK   Cancel   Apply

Virtual Switches

- **New virtual network switch**
- ⊞ My Virtual Switch
  - Private virtual switch

Global Network Settings

- MAC Address Range
  - 00-15-5D-FE-0D-00 to 00-15-5D-F...

Create virtual switch

What type of virtual switch do you want to create?

External
Internal
Private

Create Virtual Switch

Creates a virtual switch that can be used only by the virtual machines that run on this physical computer.

OK   Cancel   Apply

Virtual Switches

- New virtual network switch
- My Virtual Switch
  - Private virtual switch

Global Network Settings

- MAC Address Range
  - 00-15-5D-FE-0D-00 to 00-15-5D-F...

Virtual Switch Properties

Name:

My Virtual Switch

Notes:

Connection type

What do you want to connect this virtual switch to?

○ External network:

Microsoft Network Adapter Multiplexor Driver

☑ Allow management operating system to share this network adapter

☐ Enable single-root I/O virtualization (SR-IOV)

○ Internal network

⦿ Private network

VLAN ID

☐ Enable virtual LAN identification for management operating system

The VLAN identifier specifies the virtual LAN that the management operating system will use for all network communications through this network adapter. This setting does not affect virtual machine networking.

2

Remove

ⓘ SR-IOV can only be configured when the virtual switch is created. An external virtual switch with SR-IOV enabled cannot be converted to an internal or private switch.

OK   Cancel   Apply

Hyper-V Manager

Local Server

All Servers

AD DS

DNS

File and Storage Serv

Hyper-V

File   Action   View   Help

Hyper-V Manager
    WIN-6NQ842FMB9T

New Virtual Machine Wizard

Before You Begin

Before You Begin
Specify Name and Location
Assign Memory
Configure Networking
Connect Virtual Hard Disk
    Installation Options
Summary

This wizard helps you create a virtual machine. You can use virtual machines in place of physical computers for a variety of uses. You can use this wizard to configure the virtual machine now, and you can change the configuration later using Hyper-V Manager.

To create a virtual machine, do one of the following:

- Click Finish to create a virtual machine that is configured with default values.
- Click Next to create a virtual machine with a custom configuration.

☐ Do not show this page again

< Previous   Next >   Finish   Cancel

WELCOME TO SERVER MANAGER

QUICK START

WHAT'S NEW

LEARN MORE

ROLES AND SERVE
Roles: 4 | Server gro

AD DS

Manageabil
Events
Services
Performanc
BPA results

New Virtual Machine Wizard ✕

Specify Name and Location

- Before You Begin
- **Specify Name and Location**
- Assign Memory
- Configure Networking
- Connect Virtual Hard Disk
-     Installation Options
- Summary

Choose a name and location for this virtual machine.

The name is displayed in Hyper-V Manager. We recommend that you use a name that helps you easily identify this virtual machine, such as the name of the guest operating system or workload.

Name: `New Virtual Machine`

You can create a folder or use an existing folder to store the virtual machine. If you don't select a folder, the virtual machine is stored in the default folder configured for this server.

☐ Store the virtual machine in a different location

Location: `C:\ProgramData\Microsoft\Windows\Hyper-V\` Browse...

⚠ If you plan to take snapshots of this virtual machine, select a location that has enough free space. Snapshots include virtual machine data and may require a large amount of space.

< Previous | Next > | Finish | Cancel

Dashboard

- Local Server
- All Servers
- AD DS
- DNS
- File and Storage
- Hyper-V

File   Home   View

Paste	Cut	Crop
	Copy	Resize
Select		Rotate
Clipboard	Image	

New Virtual Machine Wizard

Installation Options

- Before You Begin
- Specify Name and Location
- Assign Memory
- Configure Networking
- Connect Virtual Hard Disk
- **Installation Options**
- Summary

You can install an operating system now if you have access to the setup media, or you can install it later.

- ◉ Install an operating system later

- ○ Install an operating system from a boot CD/DVD-ROM

  Media
  - ○ Physical CD/DVD drive: [▼]
  - ◉ Image file (.iso): [   ]   Browse...

- ○ Install an operating system from a boot floppy disk

  Media
  - Virtual floppy disk (.vfd): [   ]   Browse...

- ○ Install an operating system from a network-based installation server

  ⚠ Your network adapter is disconnected. To perform a network-based installation, return to the Configure Networking page and connect the network adapter.

[< Previous]   [Next >]   [Finish]   [Cancel]

File   Action   View   Help

Hyper-V Manager
   WIN-6NQ842FMB9T

New Virtual Hard Disk Wizard

Before You Begin

Before You Begin	This wizard helps you create a new virtual hard disk. Virtual hard disks provide storage for virtual machines and are stored on physical media as .vhd or .vhdx files.
Choose Disk Format	
Choose Disk Type	
Specify Name and Location	
Configure Disk	
Summary	

☐ Do not show this page again

< Previous   Next >   Finish   Cancel

File   Action   View   Help

Hyper-V Manager
WIN-6NQ842FMB9T

Before You Begi

Before You Begin
Choose Disk Format
Choose Disk Type
Specify Name and Location
Configure Disk
Summary

New Virtual Hard Disk Wizard   x

Choose Disk Format

Before You Begin
Choose Disk Format
Choose Disk Type
Specify Name and Location
Configure Disk
Summary

What format do you want to use for the virtual hard disk?

○ VHD

Supports virtual hard disks up to 2,040 GB in size.

⦿ VHDX

This format supports virtual disks up to 64 TB and is resilient to consistency issues that might occur
from power failures. This format is not supported in operating systems earlier than Windows
Server 2012.

[< Previous]   [Next >]   [Finish]   [Cancel]

Before You Begi

Choose Disk Format

Before You Begin
Choose Disk Format
Choose Disk Type
Specify Name and Location
Configure Disk
Summary

Before You Begin
Choose Disk Format
Choose Disk Type
Specify Name and Location
Configure Disk
Summary

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◉ VHDX

This format supports virtual disks up to 64 TB and is resilient to consistency issues that might occur from power failures. This format is not supported in operating systems earlier than Windows Server 2012.

< Previous   Next >   Finish   Cancel

Hyper-V Manager
WIN-6NQ842FMB9T

Specify Name and Location

Before You Begin

Choose Disk Format

Choose Disk Type

Specify Name and Location

Configure Disk

Summary

Specify the name and location of the virtual hard disk file.

Name: New Virtual Hard Disk.vhdx

Location: C:\Users\Public\Documents\Hyper-V\Virtual Hard Disks\   Browse...

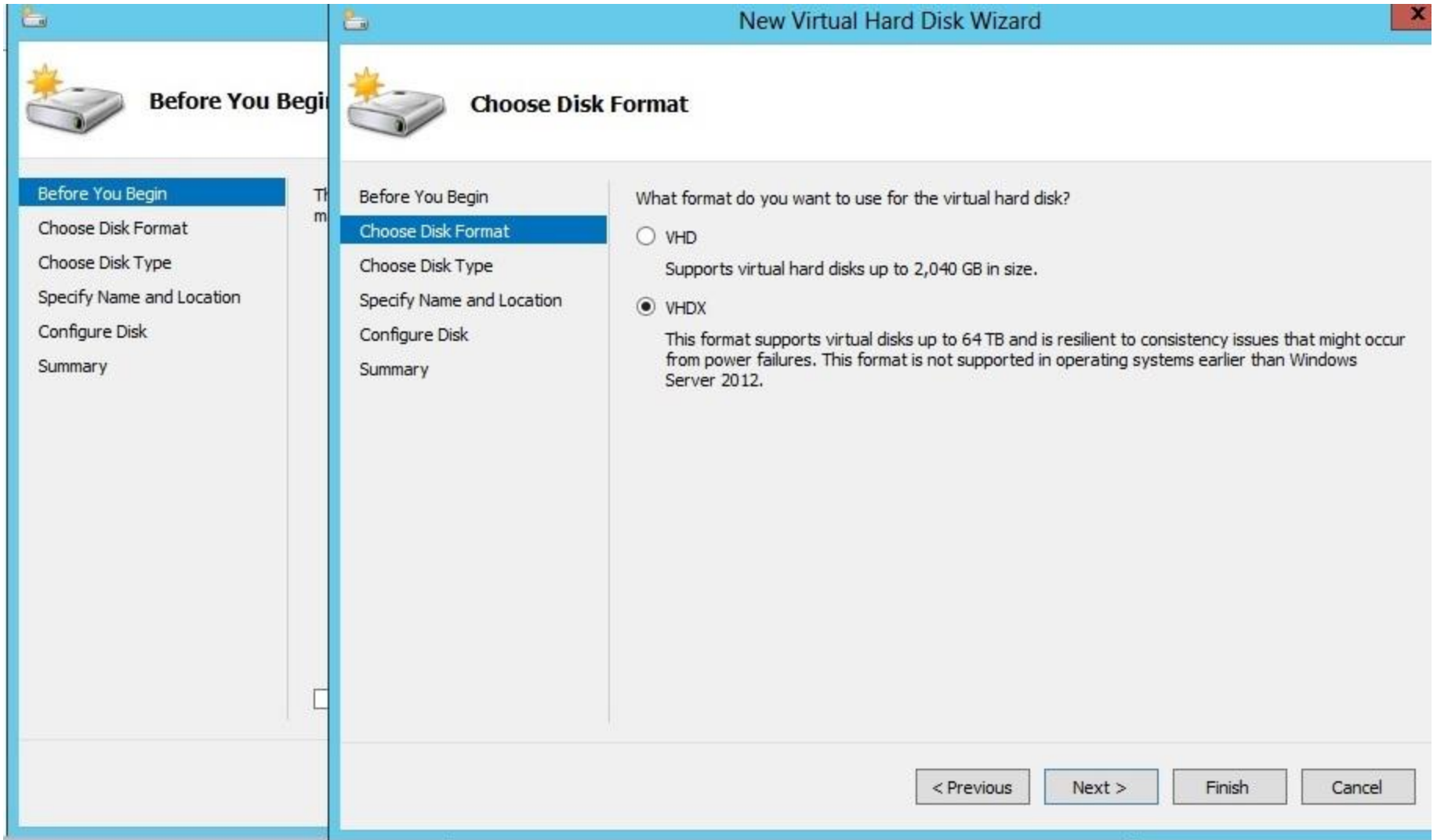< Previous   Next >   Finish   Cancel

New Virtual Hard Disk Wizard

Configure Disk

- Before You Begin
- Choose Disk Format
- Choose Disk Type
- Specify Name and Location
- **Configure Disk**
- Summary

You can create a blank virtual hard disk or copy the contents of an existing physical disk.

◉ Create a new blank virtual hard disk

Size: [127] GB (Maximum: 64 TB)

○ Copy the contents of the specified physical disk:

Physical Hard Disk	Size
\\.\PHYSICALDRIVE0	465 GB

○ Copy the contents of the specified virtual hard disk

Path: [   ] Browse...

[< Previous] [Next >] [Finish] [Cancel]

New Virtual Hard Disk Wizard

Completing the New Virtual Hard Disk Wizard

Before You Begin
Choose Disk Format
Choose Disk Type
Specify Name and Location
Configure Disk
Summary

You have successfully completed the New Virtual Hard Disk Wizard. You are about to create the following virtual hard disk.

Description:

Format: VHDX
Type: dynamically expanding
Name: New Virtual Hard Disk.vhdx
Location: C:\Users\Public\Documents\Hyper-V\Virtual Hard Disks
Size: 127 GB

To create the virtual hard disk and close this wizard, click Finish.

< Previous   Next >   Finish   Cancel