

# Install, Upgrade, and Migrate Servers and Workloads

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**Greg Shields**

AUTHOR EVANGELIST

@concentratdgreg [www.pluralsight.com](http://www.pluralsight.com)



# What This Module Covers



Determine appropriate Windows Server 2016 editions per workloads

Determine Windows Server 2016 installation requirements

Install Windows Server 2016

Install Windows Server 2016 features and roles

Install and configure Windows Server Core

Manage Windows Server Core installations using Windows PowerShell, command line, and remote management capabilities



# What This Module Covers<sup>2</sup>



Implement Windows PowerShell DSC to install and maintain integrity of installed environments

Perform upgrades and migrations of servers and core workloads from Windows Server 2008 and Windows Server 2012 to Windows Server 2016

Determine the appropriate activation model for server installation, such as AVMA, KMS, and Active Directory-based Activation



# Determine Windows Server 2016 Editions



# Determine Windows Server 2016 Editions

Datacenter Edition

Standard Edition



# Determine Windows Server 2016 Editions

**Datacenter Edition**

**Core functionality**

**Standard Edition**

**Core functionality**



# Determine Windows Server 2016 Editions

## Datacenter Edition

Core functionality

**Unlimited Hyper-V Containers**

## Standard Edition

Core functionality

**Two Hyper-V Containers**



# Determine Windows Server 2016 Editions

## Datacenter Edition

Core functionality  
Unlimited Hyper-V Containers  
**Unlimited Containers**  
**Host Guardian Service**  
**Nano Server option**

## Standard Edition

Core functionality  
Two Hyper-V Containers  
**Unlimited Containers**  
**Host Guardian Service**  
**Nano Server option**





# Determine Windows Server 2016 Editions

## Datacenter Edition

Core functionality  
Unlimited Hyper-V Containers  
Unlimited Containers  
Host Guardian Service  
Nano Server option  
**Storage Spaces Direct**  
**Storage Replica**  
**Shielded VMs**  
**Advanced Networking Stack**

## Standard Edition

Core functionality  
Two Hyper-V Containers  
Unlimited Containers  
Host Guardian Service  
Nano Server option  
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# Determine Installation Requirements

1.4 GHz x64 processor with support for NX, DEP, CMPXCHG16b, LAHF/SAHF, and PrefetchW

SLAT support (EPT or NPT)

512 MB\* or 2 GB ECC-type (or similar) RAM

32 GB\* hard disk space

Gigabit Ethernet NIC that is PCI Express compliant and supports PXE



# Determine Installation Options

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# Determine Installation Options

## Server Core

Small-footprint, headless OS that removes the desktop UI and runs only minimal code

Includes only limited graphical tools like Task Manager and Windows PowerShell

Use with Long Term Service Branch servicing model



# Determine Installation Options

## Nano Server

Extremely small footprint, headless OS  
ideal for compatible services, containers,  
and microservices

Designed for total remote management via  
PowerShell, Server Management, or remote  
MMC or System Center consoles

Requires Software Assurance and Current  
Branch for Business servicing model



# Determine Installation Options

## Server with Desktop Experience

Traditional graphical user interface equivalent to “Server with a GUI” plus Desktop Experience feature

Intended for legacy applications and Remote Desktop Services

Use with Long Term Service Branch servicing model



# Install Features and Roles

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# Install Features and Roles

## Role

“Something a Windows Server aspires to be.”





# Install Features and Roles

## Role

“Something a Windows Server aspires to be.”

## Role Service

“The functions that fulfill those aspirations.”



# Install Features and Roles

## Role

“Something a Windows Server aspires to be.”

## Role Service

“The functions that fulfill those aspirations.”

## Feature

“Everything else.”



# Configure Server Core

Set display resolution, date, and time

Configure IP addressing

Change computer name

Configure licensing and activation

Configure Windows firewall

Join Active Directory domain

Add roles and features



# Perform Upgrades and Migrations

Clean Install

Upgrade

Cluster OS Rolling Upgrade

License Conversion

Role Migration



“Upgrade works best in VMs where specific OEM hardware drivers are not needed for a successful upgrade.”

– TechNet



# Perform Upgrades and Migrations

Clean Install

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# License Conversions

Conversion not supported on Server Core  
or with Domain Controllers

`Slmgr.vbs /dlv`  
Check for “EVAL” in the output

`DISM /online /Get-CurrentEdition`  
Identify the installed Edition

`DISM /online /Set-Edition:<edition ID>  
/ProductKey:<product key> /AcceptEula`

This command also used to convert  
Standard Edition to Datacenter Edition



# Perform Upgrades and Migrations

Clean Install

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# Determine an Appropriate Activation Model

**Retail and  
Multiple Activation Keys**

**Key Management Service**

**Active Directory-based  
Activation**

**Automatic VM Activation**



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