

Exam 70-417: Upgrading Your Skills to MCSA Windows Server 2012 R2

Course Overview

This course prepares students to demonstrate your real-world knowledge of Windows Server 2012 core infrastructure services. Exam 70-417 is an upgrade exam that is a composite of three standalone exams: 70-410, 70-411, and 70-412. The course validates skills related to the core technology features and functionality of Windows Server 2012, from the existing knowledge base of a Microsoft Certified Systems Administrator (MCSA) on Windows Server 2008.

Course Introduction

4m

Course Introduction

Module 01 - Install and Configure Servers

1h 9m

Install and Configure Servers

On Premise vs. Cloud

Common Cloud Computing

Cloud Computing

Local Resources Provided to Clients

Windows Server 2012 Editions

Server 2012 Server Roles

Features with Windows Server 2012

Server Core

Installation Options

Install Options Integrated

Media Formats

Windows DS

Other Install Options

Demo - Installing Windows 2012 Enterprise

Windows Server Installation

Server Upgrades

Server Migration

Minimum Hardware Requirements

Installation Steps

Post Server Installation Tasks – Round One

Demo - Introduction to Server Manager

Windows Activation

Offline Domain Join

Post Server Installation Tasks – Round Two

Using PowerShell to Manage Servers

Resources Utilization by Using Features on Demand

Features on Demand – Order of Search

How to Override Features on Demand (Default Behavior)

Removing Feature Files

Migrate Roles from Previous Versions of Windows Server
Supported Operation Systems (Source)
Module 01 Review

Module 02 - Configure Server Roles and Features

2h 21m

Configure Server Roles and Features
Server Manager
Demo - Add Roles Server Manager
Demo - Event Viewer
Demo - Best Practice Analyzer
Administrative Tools Available
Demo - Administrative Tools Available
Enabling Remote Management
Delegate Administration
Delegation Planning
Demo - Delegation of Domain Administration
Advanced Services
Configuring NIC Teaming
Switch Dependent Teaming Modes
802.11ac Support
Netsh Commands with Windows Server 2012 R2
Wired and Wireless Ethernet Access Passwords
Demo - Installing Server Core
Introduction to PowerShell
Demo - PowerShell
Adding GUI to Server Core
Removing GUI to Server Core
To Install a Removed Role or Feature Using WIM Image
Server Core Tools
Demo - Recover from Closing Command Prompt
Roles Available to Server Core
Listing Roles on Server Core
Enabling Remote Management (Cont.)
Demo - Netsh-Firewall
Server Configuration - Core
Demo - Sconfig on Server Core
Features Not Supported by Server Core
Installing Domain Controllers on Server Core - Options
PowerShell Examples for User Management
PowerShell Examples for Group Management
PowerShell Examples for Computer Management
PowerShell Examples for OU's
Module 02 Review

Module 03 - Configure Hyper-V

1h 54m

Configure Hyper-V
Remote Management
Demo - Enable Remote Management
Remote Management - MISC
Remote Desktop

Remote Desktop Services Role Services
Server 2012 R2 Improvements and Additions
Demo - Remote Desktop
Multi-Server Management
Demo - Server Groups
Virtualization
Presentation Virtualization
Remote Desktop Gateway
Virtualization
Hyper-V
Application Virtualization (App-V)
Simulated Hardware for VM's
Demo - Create a VM
Demo - Hyper-V Settings
Dynamic Memory
Integration Services
Start and Stop Actions
Resource Metering
Virtual Hard Disk
Virtual Disk Types
Shrinking Fixed Virtual Hard Disks
VHD's vs. VHDX
Demo - Managing VHD's
Differencing Disks
Virtual Hard Disk Operations/Maintenance Operations
Methods of Creating Virtual Hard Disk
VHD's and File Shares
Differencing Disks
Virtual Networks
Virtual Network Extensions
Demo - Hyper-V Network Settings
Virtual Adapters
Legacy Network Adapters
Demo - Creating Network Adapters
Considerations for VM Network Configuration
Important Note – External Virtual Networks
Virtual Machine MAC Address
Using Snapshots
Module 03 Review

Module 04 - Install and Administer Active Directory

3h 29m

Install and Administer Active Directory
Physical Components of Active Directory
Logical Components of Active Directory
Domain Structures - Domain and Forest
Domain Structure - Forest
Domain Structure - Schema
Domain Structures - Logical
Default Containers and OU's
Domain Structures - Sites (Physical)

Components of Site Structure
Domain - Wide Scope
Overview of Domain Controllers
What Domain Controllers Do
Deprecated Features Server 2012 Related to AD DS
Server 2012 R2 Enhancements
AD and Workplace Join
Global Catalog
Demo - Global Catalog
Operations Master Roles
Best Practices - FSMO and GC
Forest and Domain Functional Levels
Guidelines for Raising Domain and Forest Functional Levels
Functional Level Options
Functional Levels and Recycle Bin
Demo - Functional Levels and FSMO
Forest Functional Levels
ADPrep Commands
RODC
How DC's are Found and Used
Demo - SRV Records DNS
The AD DS Logon Process
Install Domain Controllers
DC Install Questions and Required Information
Required Information to Collect Pre-Install
Demo - Install Domain Controllers
Upgrading Domain Controllers
Clean Installation of Windows Server 2012 Domain Controllers
Install Domain Controller Using IFM
Demo - Remove a Domain Controller from a Domain
Active Directory Management Tools
User Accounts
Uniqueness of Accounts
Attributes of Users
Creating Account Templates
Locking vs. Disabled
Directory Service Command Line Tools
Groups
Group Scopes
Helpful Acronyms
E-Notes
Default Groups
Protected Users Security Group
Protected Users Security Group User Limitations
Special Identities
Computer Accounts
Troubleshooting Computer Accounts
Troubleshooting Steps
Listing Group Membership
Delegate Management of Active Directory Objects

CSVDE for Exporting
CSVDE for Importing
Ldifde
Ldifde - Export
Ldifde - Import
Managing AD DS with PowerShell
Module 04 Review

Module 05 - Deploy, Manage, and Maintain Servers

3h 47m

Deploy, Manage, and Maintain Servers
WDS Server Role Services
Windows Deployment Services
Functionality
PowerShell Cmdlets for WDS
Prerequisites for Installing WDS Deployment and Transport Server (AD Integrated)
Prerequisites for Installing WDS Deployment and Transport Server (Standalone)
Demo - Installing WDS
Installing with Windows PowerShell
Demo - Installing with Windows PowerShell and WDSUTIL
Configuring WDS Role
Types of Images
Steps for Adding Images
Demo - Configuring WDS
Demo - WDS Install Images and Server Configuration
Client Prerequisites for Installing Images
Client Steps for Installing Images
Configuring Boot Menu
Creating Capture Image
Custom Install Images
Creating Custom Install Images
Discover Images
Creating Discover Images
Creating Media for Discover Image
Demo - Creating Media for Discover Image
Unattended Installations
Unattended Steps
Sample Unattended File
Multicast Transmissions
Demo - Configuring Transmissions
Demo - Adding Second Image Files
Adding Driver Packages to Boot Images
Common Administrative Tasks
Phases of Automated Deployments
Tools to Create and Service Images
WSUS
Implementing Update Management
WSUS 3.0 SP2 Prerequisites
Computer Groups
Approval - Updates
WSUS Management Process

Group Policy and Automatic Updates
Demo - Configuring WSUS Group Policy
WSUS Management with PowerShell
Demo - Installing and Configuring WSUS
Demo - Approve Updates
Monitoring Servers
Monitor Servers
Tools
Demo - Task Manager and Resource Monitor
Demo - Performance Monitor
Demo - Performance Monitor Counters
Demo - Data Collector Sets
Virtual Machine Overview
Demo - Monitoring Virtual Machines
Monitoring Event Logs
Demo - Event Viewer
Demo - Event Forwarding
Monitoring Network Infrastructure
Demo - Monitoring Network Infrastructure
Module 05 Review

Module 06 - Configure Network Services and Access

1h 29m

Configure Network Services and Access
DNS Components
DNS Zones
Demo - DNS Zones
Stub Zones vs. Conditional Forwarders
DNS Records
Demo - DNS Zones and Records
Demo - Using DNSCMD
How DNS Forwarding Works
Demo - Adding DNS and Conditional Forwarders
DNS Namespaces
DNS Naming Contexts and Rules
External vs. Internal Namespaces
Zone Transfers
Demo - Using DNSCMD and Zone Transfers
Demo - Troubleshooting DNS
Zone Scavenging
Configuring Zone Scavenging
Demo - Scavenging DNS
Other Configuration Options
DNS Caching
Commands for DNS Cache
Storage of Information
Considerations
Module 06 Review

Module 07 - Configure a Network Policy Server Infrastructure

2h 23m

Configure a Network Policy Server Infrastructure
Remote Access Methods
Components of Network Access Services
Roles and Features
VPN and Routing Configuration Components
Demo - Configure Routing and Remote Access
Network Authentication
PKI Components
DHCP Relationship with Remote Access
VPN Access
Requirements of VPN Server
Properties of VPN Connection
Tunneling Protocols for VPN Connections
VPN Reconnect
Demo - Advanced RAS Configuration
VPN Post Installation Checklist
Demo - Using CMAK
Components of Network Policy
Properties of Network Policy
Network Policy Processing
Direct Access Features
What's New in Direct Access
Deployment Phases of Direct Access
Required Infrastructure: Server
Required Infrastructure: Clients
Required Infrastructure: Network Location Server
Required Infrastructure: Internal Resources
Required Infrastructure: Active Directory Domain | Group Policy | DNS
Required Infrastructure: PKI | NAP
Name Resolution Policy Table
Internal Client Interaction with Direct Access
External Client Interaction with Direct Access
Troubleshooting Tools
VPN Connectivity Troubleshooting
Common Error Codes
Network Address Translation
Configure Remote Dial-in Settings for Users
Network Policy and Access Services
Network Policy Server
Demo - Installing NPS Role
Network Policy Server Tools
RADIUS Clients
RADIUS Proxy
Certificates
Required Certificates
Monitoring NPS
Module 07 Review

Module 08 - Configure and Manage Active Directory

2h 38m

Configure and Manage Active Directory

Active Directory Directory Services (AD DS)

AD DS Forest Structure

AD DS Schema

AD DS Domain Structure

AD DS Domain Controllers

AD DS Default Containers

Organizational Units

Virtualized Domain Controllers

Cloning Virtual Domain Controllers

Process: Cloning Server 2012 VDC

DcCloneConfig.xml Syntax

DcCloneConfig.xml Parameters

Domain Controller Safe Backup and Restore

PowerShell for Hyper-V Snapshot Management

Demo - Introduction to Active Directory Administration Tools

Importing User Accounts

Common LDAP Attributes

Demo - Advanced AD Attributes

Demo - Using CSVDE

Demo - Export User Accounts Using CSVDE

Demo - Importing Accounts Using LDIF

Demo - Active Directory and PowerShell

Managed Service Accounts

Requirements for Service Accounts

Configuring Managed Service Accounts Using PowerShell

Kerberos Version 5 – Server 2012 Features

Kerberos Configurations Available

Service Principal Names (SPNs)

Passwords

Create Account Policies and User Rights Assignments

Demo - Creating Password Policies

Notes Create Fine Grained Password Policies

Demo - Password Settings Container

Universal Group Membership Caching (UGMC)

Operations Master Roles

Demo - Operations Master Roles

Maintain Active Directory Domain Services

Demo - AD Recycle Bin

Demo - Restore Deleted Items

Demo - AD DB Maintenance and Snapshots

Read Only Domain Controllers (RODC)

Demo - Installing RODC

Manage RODC Caching

Module 08 Review

Module 09 - Configure and Manage Group Policy

2h 27m

Configure and Manage Group Policy
Group Policy
Defining Options
Group Policy and IPv6
Group Policy Examples of Usage
Demo - Group Policy Management Console
Group Policy Objects
Group Policy Application
CSE Policy Refresh
Windows Client Policy Processing
Scripts Node of Group Policy
Group Policy Nodes
Default Group Policies
Group Policy Storage
Replication of GPO's
Starter GPO's
Slow Link Processing
Configure Loopback Processing
Security Templates
Demo - Group Policy Folder Redirection
Demo - Group Policy Software Installation
Demo - Administrative Templates
Group Policy Links
Group Policy Processing
Group Policy Inheritance and Precedence
Precedence: How to Handle Multiple Linked GPOs
Demo - Local Policies
Other Group Policy Options
WMI Filters
Security Templates (Cont.)
Demo - Group Policy Objects
Group Policy Preferences
Demo - Configure Group Policy Preferences
Maintaining GPO's
Group Policy and PowerShell
Demo - Creating Login Policies
Demo - Configuring User Desktops
Module 09 Review

Module 10 - Configure and Manage High Availability

1h 40m

Configure and Manage High Availability
NLB – Network Load Balancing
NLB Uses
NLB Prerequisites
How NLB Works
Server Failures & NLB
NLB PowerShell Cmdlets
NLB Port Rules
Configuring NLB Networks

Using NLB with VMs
Upgrading NLB Clusters
Demo - Implementing NLB Clusters
Demo - Configuring NLB Affinity and Port Rules
Securing NLB
Server 2012 Failover Clustering
Windows Server 2012 R2 Failover Clustering
Clustering and High Availability
Deprecated Cluster Features
Storage Options
CSV – Cluster Shared Volumes
CSV – Clustered Shared Volumes
Network Considerations | CSV
Windows Requirements for Failover Cluster
Infrastructure Requirements
Failover Clustering - Quorum
Failover Clustering: Hardware Requirements
Clustering and Hyper-V Hardware Requirements
Quorum | Definitions
Quorum Witness
Quorum Configuration Options
Quorum Nodes
Failover Cluster Networks
Cluster Networking
Demo - Create a Cluster
Multi-Site Failover Cluster
Configuring Multi-Site Failover Clusters
Configuring Applications and Services
Procedure Reference: Installing Clustering Server Roles
Demo - Deploying Highly Available Servers
Cluster Aware Updating
Common Cluster Management Tasks
Management Tools
Backing up Clusters
Restoring a Cluster
DHCP Failover
Configuring DHCP Failover
DHCP Failover Modes
Demo - Configuring DHCP Failover
DHCP MCLT Parameters
Module 10 Review

Module 11 - Configure File and Storage Solutions

1h 58m

Configure File and Storage Solutions
File and Storage Services
Work Folders
Work Folder Functionality
BranchCache
SMB Server 2012 R2 Enhancements
BranchCache Requirements

BranchCache Server Settings
BranchCache Client Settings
Demo - Configure Client Firewall Rules
Demo - Implementing BranchCache
Demo - Simulate Slow Link to Branch Office
Enabling Distributed Cache Mode or Hosted Cache Mode
Discretionary Access Control
DAC Scenarios
DAC Claims
Resource Properties
Accessing Resources with DAC
DAC Requirements
Enabling Support in AD DS KDC
Creating Claims
Creating Resource Properties
Central Access Control Rules
Demo - Enable File Share for BranchCache
Demo - Configure BranchCache for Branch Office
File Server Resource Manager
Demo - Installing FSRM
File Classification
File Classification Properties
File Classification Rules Properties
Demo - Implementing DAC
Demo - Resource Property Definitions
Demo - Configure Central Access Rules and Policies
Demo - Configure Central Access Denied
Demo - Manual Classification
Demo - Publish Central Group Policy
Optimizing Classification Management
Storage Optimization Features
iSCSI
iSCSI Components
iSCSI Security Components
Demo - Configure iSCSI
Demo - iSCSI PowerShell
Demo - Bring a New Volume Online
Module 11 Review

Module 12 - Implement Business Continuity and Disaster Recovery

1h 15m

Implement Business Continuity and Disaster Recovery
Disaster Recovery Requirements
Service Level Agreements
Recovery Plans
Data Recovery
Service Recovery
Full Server Recovery
Site Recovery
Backup Types
Backup Technologies

VSS Admin
Backup Planning
Backup Security
Windows Server Backup
Demo - Installing and Using Windows Server Backup
Demo - Create a Scheduled Backup
Options | Windows Backup
Options | Recovery Wizard
System Restore
Demo - Restoring Files Using Windows Server Backup
Windows Azure Online Backup
Demo - Windows Azure Backup
Data Protection Manager (DPM)
Installing DPM
Demo - Installing DPM
Single Instance Storage
Windows RE
Windows RE Entry Points
Windows Setup and Windows RE
Demo - Windows RE Entry Points
Safe Boot
Demo - Safe Boot
Boot Configuration Data Store
Module 12 Review

Module 13 - Configure Network Services

2h 23m

Configure Network Services
Demo - Navigation in Windows Server 2012
DHCP – Definition and Purpose
Components of DHCP Server
Components of Scopes
DHCP Lease Process
DHCP Options
DNS Integration
Super Scopes and Multinetting
Demo - Create a Super Scope
Multicast Scopes
DHCPv6
DHCPv6 Regional Registries
Demo - Configuring DHCP Scope
DHCP Name Protection
Demo - Enable DHCP Name Protection
DNS Solutions
Basics of DNS Permissions
DNS Logging
Demo - Configuring DNS Debug Logging
DNS Security
DNSSEC
DNSSEC Overview
Deploying DNSSEC

DNSSEC Zone Signing Wizard
Improvements to DNSSEC Windows Server 2012 R2
Resource Records
Signing the Zone
Demo - Deploying DNSSEC
DNS Cache Locking
Demo - DNS Cache Locking
DNS Socket Pool
Demo - DNS Socket Pool
DNS Aging and Scavenging
Maintaining DNS Database
Demo - Maintaining DNS Database
Name Resolution Optimization
Creating Stub Zones
Global Names Zone
Demo - Create Global Names Zone
Demo - Add Alias Global Names Zone
IPAM (IP Address Management)
IPAM and DHCP
Role Based Access Control
Role Based Access Control Roles Provided by Default
IPAM Monitoring
VMM and System Center 2012 Integration
IPAM Prerequisites
Hardware & Software Requirements Server 2012
Hardware & Software Requirements Server 2008/2008 R2
IPAM Abilities
IPAM Database Support
IPAM Users and Groups
IPAM Modules
IPAM Deployment Methods
IPAM Components
Provisioning for IPAM
Manual Provisioning for IPAM
GPO Provisioning
Views of IP Address Space
Monitoring and Managing IPAM
Migrating IPAM to Windows Server 2012
Using PowerShell with IPAM
Demo - Installing IPAM
Demo - Configuring IPAM
Adding Address Space to IPAM
Adding IP Address Block to IPAM
Adding IP Address Subnet to IPAM
Adding IP Address Range to IPAM
Adding IP Address to IPAM
Importing and Updating Address Spaces
Text File Examples
Module 13 Review

Module 14 - Configure Identity and Access Solutions

39m

Configure Identity and Access Solutions

Active Directory Federation Services

AD FS

Authentication Policies

Multi-Factor Authentication

AD FS Claim Rules

Claims Provider Trusts

Claims Based Identity

Web Services

New Features to Server 2012

SSO within Organization

SSO Business to Business

Prerequisites for AD FS

Certificate Requirements

AD FS Components

Demo - Install AD Federation Services Role

Multi-Factor Access Control in AD FS

Multi-Factor Access Control in AD FS with Windows Server 2012 R2

Claim Types Available in AD FS with Windows Server 2012 R2

AD and Workplace Join

Device Registration Service

Accessing Web Application before Workplace Join your Device

Workplace Joining Your Windows Device

Workplace Joining Your iOS Device

Module 14 Review

Course Closure

Total Duration: 29h 35m