**Microsoft | Learning**

# Implementing a Desktop Infrastructure

**Course 20415: 4 days; Instructor-Led**

## Introduction

This 4-day instructor-led course provides you with the skills and knowledge needed to plan, design, and implement a Windows 8 desktop infrastructure. The course provides guidance on planning and deploying desktops by using several technologies such as User State Migration Tool (USMT), Microsoft Deployment Toolkit (MDT), Virtual Desktop Infrastructure (VDI), and more. Additionally, the course describes how to protect desktops and monitor their health and performance.

## At Course Completion

After completing this course, students will be able to:

- Assess and determine desktop deployment options.
- Plan an image management strategy.
- Implement desktop security.
- Capture and manage a desktop operating system image.
- Plan and implement User State Migration.
- Plan and deploy desktops by using the Microsoft Deployment Toolkit.
- Plan and deploying desktops by using System Center 2012 Configuration Manager.
- Plan and  implement a Remote Desktop Services infrastructure.
- Manage user state virtualization for enterprise desktops.
- Plan and implement an updates infrastructure to support enterprise desktops.
- Protect enterprise desktops from malware and data loss.
- Monitoring the performance and health of the desktop infrastructure.

## Audience

The course is primarily intended for IT Professionals who manage the desktop environments for organizations, and want to specialize in Windows 8 desktop deployments. These IT professionals typically work in complex computing environments of large to enterprise-sized organizations. In addition. the secondary audience for this course includes IT professionals who want to take the 70-415: Implementing an Enterprise Desktop and Device Infrastructure exam as a stand-alone, or as part of the requirement for the MCSE: Desktop Infrastructure certification.

## Prerequisites

Before attending this course, students must have:

- Solid understanding of TCP/IP and networking concepts
- Solid knowledge of Windows and Active Directory Domain Services (AD DS)—for example, domain user accounts, domain vs. local user accounts, user profiles, and group membership
- Good understanding of scripts and batch files
- Solid understanding of security concepts such as authentication and authorization
- Familiarity with the client administration capabilities of Windows Server
- General knowledge of management tools such as System Center 2012 Configuration Manager, System Center 2012 Operations Manager, and System Center 2012 Data Protection Manager.

- Familiarity with imaging, packaging, and operating system deployment concepts
- Familiarity with certificates and Certification Authority (CA) implementation and configuration
- Knowledge equivalent to Windows 2012 MCSA
- Experience administering Windows Server in an environment that typically has the following characteristics:
  - 2,500 to 50,000 or more users
  - Multiple physical locations and multiple domain controllers
  - Network services and resources such as messaging, databases, file and print, firewalls, Internet access, an intranet, and client computer management
  - Support for Windows 8 client desktops
  - Deployment and management of both physical and virtual applications

## Course Outline

### Module 1: Assessing and Determining Desktop Deployment Options

This module describes the enterprise desktop lifecycle and explains how you can assess hardware and infrastructure readiness. The module then describes how to identify and select the most appropriate deployment option based upon organizational requirements.

### Lessons
- Overview of the Enterprise Desktop Life Cycle
- Assessing Hardware and Infrastructure Readiness for a Desktop Deployment
- Overview of Enterprise Desktop Deployment Methods
- Volume Activation Technologies for Enterprise Desktops

Lab: Assessing and Determining Desktop Deployment Options
- Planning a Desktop Deployment Strategy
- Collecting Infrastructure Data
- Implementing a Volume Activation Solution

After completing this module, students will be able to:
- Describe the enterprise desktop life cycle.
- Explain how to assess hardware and infrastructure readiness for a desktop deployment.
- Describe the available methods for deploying enterprise desktops.
- Describe volume activation technologies for enterprise desktops.

### Module 2: Planning An Image Management Strategy

This modules describes Windows image formats and helps you to define an efficient image management strategy based upon business requirements.

### Lessons
- Overview of Windows Image Formats
- Overview of Image Management

Lab: Planning an Image Management Strategy
- Assessing Business Requirements to Support an Image Management Strategy

After completing this module, students will be able to:

- Describe image formats used for Windows desktop deployments.
- Determine the type and content of images used in an image management strategy.

### Module 3: Implementing Desktop Security

This module describes how to deploy and manage a secure desktop by implementing centralized policies, BitLocker settings, and Encrypted File System (EFS) settings.

**Lessons**
- Implementing a Centralized Desktop Security Solution
- Planning and Implementing BitLocker
- Planning and Implementing Encrypted File System

Lab: Configuring Desktop Security
- Configuring Desktop Security using Group Policy
- Configuring Drive Encryption Using BitLocker

Lab: Configuring File Encryption Using EFS
- Implementing a Centrally Managed EFS Solution
- Implementing an EFS Recovery Solution

After completing this module, students will be able to:
- Implement a centralized secure desktop solution by using Group Policy settings.
- Plan and implement device encryption by using BitLocker.
- Plan and implement a centrally managed EFS solution to secure file and folders on enterprise desktops.

**Module 4: Capturing and Managing a Desktop Operating System Image**

This module describes how to use the Windows Assessment and Deployment Kit (ADK) and

Windows Deployment Services (WDS) to create, capture, and manage a desktop operating system

image.

**Lessons**
- Overview of Windows ADK
- Managing the Windows Preinstallation Environment
- Building a Reference Image Using Windows SIM and Sysprep
- Capturing and Servicing a Reference Image
- Configuring and Managing Windows Deployment Services

Lab: Preparing the Imaging and Preinstallation Environment
- Installing Windows ADK
- Configuring a Custom Windows PE Environment

Lab: Building a Reference Image Using Windows SIM and Sysprep
- Building a Custom Answer File Using Windows SIM
- Installing a Reference Computer Using a Custom Answer File
- Generalizing a Reference Computer Using Sysprep

Lab: Capturing and Servicing a Reference Image
- Capturing a Reference System Image
- Servicing a Reference System Image

Lab: Configuring and Managing Windows Deployment Services
- Planning the Windows Deployment Services Environment
- Installing and Configuring the Windows Deployment Services Server Role
- Capturing a Reference Image Using WDS
- Deploying an Image Using WDS

After completing this module, students will be able to:
- Identify the purpose and key features of the Windows Assessment and Deployment Kit (Windows ADK).
- Describe the Windows Preinstallation (Windows PE) environment and how it can be customized to address specific image and deployment requirements.
- Describe the Windows Setup and preparation process and how it can be modified using answer files created with Windows SIM and the Sysprep utility.
- Use Deployment Image Servicing and Management (DISM) to capture and service a reference image.

- Configure and manage Windows Deployment Services (WDS) to help support an image capture and deployment solution.

## Module 5: Planning and Implementing User State Migration

This modules describes how to use the User State Migration Tool (USMT) to migrate appropriate user data and settings to a new desktop operating system.

### Lessons
- Overview of User State Migration
- Planning User State Migration by Using USMT
- Migrating User State by Using USMT

Lab: Planning and Implementing User State Migration
- Planning for User State Migration
- Creating and Customizing the USMT XML Files
- Capturing and Restoring User State by Using USMT

Lab: Migrating User State Using Hard-Link Migration
- Performing a Hard-Link Migration

After completing this module, students will be able to:
- Describe the concept of user state migration and identify the features available in USMT 5.0 to assist in the migration task.
- Plan the appropriate scenario, data to be migrated, and storage location for a user state migration task.
- Migrate user state by using USMT 5.0.

## Module 6: Planning and Deploying Desktops Using the Microsoft Deployment Toolkit

This module describes how to use the Microsoft Deployment Toolkit (MDT) 2012 to deploy Windows operating systems in lite touch installation scenarios.

### Lessons
- Planning for the Lite Touch Installation Environment
- Implementing MDT 2012 for Lite Touch Installation
- Integrating Windows Deployment Services with MDT

Lab: Planning and Deploying Desktops Using the Microsoft Deployment Toolkit
- Planning for the MDT Lite Touch Installation Environment
- Installing MDT 2012 and the Prerequisite Components
- Creating and Configuring the MDT 2012 Deployment Share
- Deploying and Capturing a Reference Operating System Image
- Integrating WDS with MDT 2012 To Provide PXE Boot Capabilities

After completing this module, students will be able to:
- Identify the process and components needed to plan a Lite Touch Installation (LTI) environment.
- Understand the process and tasks needed to implement MDT 2012 to support LTI.
- Describe how Windows Deployment Services can be configured to integrate with MDT 2012.

## Module 7: Planning and Deploying Desktops by Using System Center 2012 Configuration Manager

This describes how to use System Center 2012 Configuration Manager to implement a zero touch installation for deploying enterprise desktops.

### Lessons
- Planning the Zero Touch Installation Environment
- Preparing the Site for Operating System Deployment
- Building a Reference Image Using a Configuration Manager Task Sequence

- Using MDT Task Sequences to Deploy Client Images

Lab: Preparing the Environment for Operating System Deployment
- Planning the Operating System Deployment Infrastructure
- Preparing the Zero Touch Installation Environment
- Configuring the Deployment Packages and System Images

Lab: Using MDT and Configuration Manager to Perform a Zero-Touch Installation
- Performing a Zero Touch Installation

After completing this module, students will be able to:
- Identify the infrastructure and components required to support a Zero Touch Installation scenario.
- Describe the preparation tasks required to support operating system deployment using Configuration Manager 2012.
- Describe how Configuration Manager task sequences are used to build a reference image to be used in a zero touch installation solution.
- Configure a MDT task sequence to be used to deploy a client image.

**Module 8: Planning and Implementing a Remote Desktop Services Infrastructure**

This module describes how to plan and implement session virtualization deployment and a virtual

desktop infrastructure (VDI) based upon Windows Server 2012 Remote Desktop Services.

**Lessons**
- Overview of Remote Desktop Services
- Planning the Remote Desktop Services Environment
- Configuring a Virtual Desktop Infrastructure Deployment
- Configuring a Session-Based Desktop Deployment
- Extending the Remote Desktop Services Environment to the Internet

Lab: Planning and Implementing a Remote Desktop Services Infrastructure
- Planning the Remote Desktop Services Environment
- Configuring a Virtual Desktop Infrastructure Scenario
- Configuring a Session-Based Desktop Scenario

Lab: Extending Internet Access to the RDS Infrastructure
- Planning the RD Gateway Policies
- Configuring the RD Gateway

After completing this module, students will be able to:
- Describe how Remote Desktop Services supports VDI and session virtualization deployment.
- Plan the appropriate infrastructure and role requirements for a Remote Desktop Services environment.
- Describe processes and tasks needed to configure a VDI deployment scenario.
- Describe processes and tasks needed to configure a session-based desktop scenario.
- Describe the components needed to extend remote desktop services to the Internet.

**Module 9: Managing User State Virtualization For Enterprise Desktops**

This module describes how to plan and configure user state virtualization to provide a consistent

desktop client experience.

**Lessons**
- Overview of User State Virtualization
- Planning User State Virtualization
- Configuring Roaming Profiles, Folder Redirection, and Offline Files
- Implementing Microsoft User Experience Virtualization

Lab: Deploying and Managing User State Virtualization
- Planning User State Virtualization

- Implementing User State Virtualization

After completing this module, students will be able to:

- Describe the components, benefits, and technologies that makes up USV.
- Describe the planning process used to assess and implement User State Virtualization.
- Configure roaming profiles, folder redirection, and manage offline file settings.
- Describe the planning and tasks required to implement Microsoft UE-V.

## Module 10: Planning and Implementing an Updates Infrastructure to Support Enterprise Desktops

Students will be able to plan and implement an updates infrastructure to support both physical and virtual enterprise desktops.

### Lessons

- Planning an Updates Infrastructure for the Enterprise
- Implementing Configuration Manager 2012 to Support Software Updates
- Managing Updates for Virtual Machines and Images
- Using Windows Intune for Managing Software Updates

Lab: Planning and Implementing an Updates Infrastructure

- Planning an Updates Infrastructure
- Implementing Software Updates Using Configuration Manager 2012
- Implementing Software Updates for Virtual Machine Libraries

After completing this module, students will be able to:

- Describe considerations and methods used for implementing an enterprise-based updates infrastructure.
- Describe how to use Configuration Manager 2012 to deploy and manage software updates.
- Describe how software updates can be managed for virtual machines and images.
- Describe how Windows Intune can be configured to deploy and manage software updates.

## Module 11: Protecting Enterprise Desktops from Malware and Data Loss

This module describes how to use System Center technologies such as Endpoint protection and Data Protection Manager (DPM) to protect enterprise desktops from malware and data loss.

### Lessons

- Overview of System Center 2012 Endpoint Protection
- Configuring Endpoint Protection Client Settings and Monitoring Status
- Using Windows Intune Endpoint Protection
- Protecting Desktops by Using System Center 2012 Data Protection Manager

Lab: Implementing Client Endpoint Protection

- Configuring the Endpoint Protection Point
- Configuring and Deploying Endpoint Protection Polices
- Configuring Client Settings to Support Endpoint Protection
- Monitoring Endpoint Protection

Lab: Configuring Data Protection for Client Computer Data

- Configuring and Verifying Client Data Protection

After completing this module, students will be able to:

- Describe how System Center 2012 Endpoint Protection is configured to provide malware protection for desktops.
- Configure the Endpoint Protection client settings and monitor Endpoint Protection status.
- Describe how to integrate and configure Windows Intune to provide endpoint protection services.
- Describe how System Center 2012 DPM can be used to protect enterprise desktops.

**Module 12: Monitoring the Performance and Health of the Desktop Infrastructure**

This module describes how to identify and monitor relevant services and components to ensure the health and performance of the enterprise desktop infrastructure.

**Lessons**
- Performance and Health Monitoring for the Desktop Infrastructure
- Monitoring the Virtual Desktop Infrastructure

Lab: Monitoring the Performance and Health of the Desktop Infrastructure
- Configuring Performance and Reliability Monitoring for Desktops
- Configuring Operations Manager for Monitoring Virtual Environments

After completing this module, students will be able to:
- Describe methods used to monitor the performance and health of the physical desktop infrastructure.
- Describe methods used to monitor the health and performance of the virtual desktop infrastructure.