# Preparation VMware vSphere: Install,Configure, Manage [V6.7]

This five-day course features intensive hands-on training that focuses on installing, configuring, and managing VMware vSphere® 6.7, which includes VMware ESXi™ 6.7 and VMware vCenter Server® This course prepares you to administer a vSphere infrastructure for an organization of any size.
This course is the foundation for most of the other VMware technologies in the software-defined data center.

## Who Needs to Attend

- System administrators
- System engineer

## Prerequisites

System administration experience on Microsoft Windows or Linux operating systems

## Certification

VMware Certified Professional 6.5 – Data Center Virtualization (VCP6.5-DCV)

## Objectives

- Describe the software-defined data center
- Explain the vSphere components and their function in the infrastructure
- Deploy an ESXi host
- Deploy VMware vCenter® Server Appliance™
- Use a local content library as an ISO store and deploy a virtual machine
- Describe vCenter Server architecture
- Use vCenter Server to manage an ESXi host
- Configure and manage vSphere infrastructure with VMware Host Client™ and VM Web Client
- Describe virtual networks with vSphere standard switches
- Configure standard switch policies

- Use vCenter Server to manage various types of host storage: VMware vSphere® VMFS, NFS, iSCSI, and RDM
- Examine the features and functions of Fibre Channel and VMware vSAN™
- Manage virtual machines, templates, clones, and snapshots
- Create, clone, and deploy a vApp
- Describe and use the content library
- Migrate virtual machines with VMware vSphere® vMotion®
- Use VMware vSphere® Storage vMotion® to migrate virtual machine storage
- Monitor resource usage and manage resource pools
- Use esxtop to identify and solve performance issues
- Discuss the VMware vSphere® High Availability cluster architecture
- Configure vSphere HA
- Manage vSphere HA and VMware vSphere® Fault Tolerance
- Use VMware vSphere® Replication™ and VMware vSphere®Data Protection™ to replicate vi machines and perform data recovery
- Use VMware vSphere® Distributed Resource Scheduler™ clusters to improve host s
- Use VMware vSphere® Update Manager™ to apply patchesndperforma basic troubleshooting of ESXi hosts, virtual machines, and vCenter Server operations
- Identify troubleshooting methodology to logically diagnose faults and improve troubleshooting efficiency

## Course Content

### Module 1: Course Introduction

- Introductions and course logistics
- Course objectives
- Describe the content of this course
- Gain a complete picture of the VMware certification system
- Familiarize yourself with the benefits of the VMware Education Learning Zone
- Identify additional resources

### Module 2: Introduction to vSphere and the Software-Defined Data Center

- Describe the topology of a physical data center
- Explain the vSphere virtual infrastructure
- Define the files and components of virtual machines
- Describe the benefits of using virtual machines
- Explain the similarities and differences between physical architectures and virtual architectures

- Define the purpose of ESXi
- Define the purpose of vCenter Server
- Explain the software-defined data center
- Describe private, public, and hybrid clouds

## Module 3: Creating Virtual Machines

- Introduce virtual machines, virtual machine hardware, and virtual machine files
- Identify the files that make up a virtual machine
- Discuss the latest virtual machine hardware and its features
- Describe virtual machine CPU, memory, disk, and network resource usage
- Explain the importance of VMware Tools™
- Discuss PCI pass-through, Direct I/O, remote direct memory access, and NVMe
- Deploy and configure virtual machines and templates
- Identify the virtual machine disk format

## Module 4: vCenter Server

- Introduce the vCenter Server architecture
- Deploy and configure vCenter Server Appliance
- Use vSphere Web Client
- Back up and restore vCenter Server
- Examine vCenter Server permissions and roles
- Explain the vSphere HA architectures and features
- Examine the new vSphere authentication proxy
- Manage vCenter Server inventory objects and licenses
- Access and navigate the new vSphere clients

## Module 5: Configuring and Managing Virtual Networks

- Describe, create, and manage standard switches
- Configure virtual switch security and load-balancing policies
- Contrast and compare vSphere distributed switches and standard switches
- Describe the virtual switch connection types
- Describe the new TCP/IP stack architecture
- Use VLANs with standard switches

## Module 6: Configuring and Managing Virtual Storage

- Introduce storage protocols and storage device types
- Discuss ESXi hosts using iSCSI, NFS, and Fibre Channel storage
- Create and manage VMFS and NFS datastores
- Describe the new features of VMFS 6.5
- Introduce vSAN
- Describe guest file encryption

## Module 7: Virtual Machine Management

- Use templates and cloning to deploy new virtual machines
- Modify and manage virtual machines
- Clone a virtual machine
- Upgrade virtual machine hardware to version 12
- Remove virtual machines from the vCenter Server inventory and datastore
- Customize a new virtual machine using customization specification files
- Perform vSphere vMotion and vSphere Storage vMotion migrations
- Create and manage virtual machine snapshots
- Create, clone, and export vApps
- Introduce the types of content libraries and how to deploy and use them

## Module 8: Resource Management and Monitoring

- Introduce virtual CPU and memory concepts
- Explain virtual memory reclamation techniques
- Describe virtual machine overcommitment and resource competition
- Configure and manage resource pools
- Describe methods for optimizing CPU and memory usage
- Use various tools to monitor resource usage
- Create and use alarms to report certain conditions or events
- Describe and deploy resource pools
- Set reservations, limits, and shares
- Describe expandable reservations
- Schedule changes to resource settings
- Create, clone, and export vApps
- Use vCenter Server performance charts and esxtop to analyze vSphere performance

## Module 9: vSphere HA, vSphere Fault Tolerance, and Protecting Data

- Explain the vSphere HA architecture
- Configure and manage a vSphere HA cluster
- Use vSphere HA advanced parameters
- Define clusterwide restart ordering capabilities
- Enforce infrastructural or intra-app dependencies during failover
- Describe vSphere HA heartbeat networks and datastore heartbeats
- Introduce vSphere Fault Tolerance
- Enable vSphere Fault Tolerance on virtual machines
- Support vSphere Fault Tolerance interoperability with vSAN
- Examine enhanced consolidation of vSphere Fault Tolerance virtual machines
- Introduce vSphere Replication
- Use vSphere Data Protection to back up and restore data

## Module 10: vSphere DRS

- Describe the functions and benefits of a vSphere DRS cluster
- Configure and manage a vSphere DRS cluster
- Work with affinity and anti-affinity rules
- Describe the new capabilities for what-if analysis and proactive vSphere DRS
- Highlight the evolution of vSphere DRS using predictive data from VMware vRealize®
  Operations
  Manager™
- Perform preemptive actions to prepare for CPU or memory changes
- Describe the vCenter Server embedded vSphere Update Manager, VMware vSphere®
  ESXi™ Image Builder CLI, and VMware vSphere® Auto Deploy capabilities
- Use vSphere HA and vSphere DRS together for business continuity

## Module 11: vSphere Update Manager

- Describe the new vSphere Update Manager architecture, components, and capabilities
- Use vSphere Update Manager to manage ESXi, virtual machine, and vApp patching
- Install vSphere Update Manager and the vSphere Update Manager plug-in
- Create patch baselines
- Use host profiles to manage host configuration compliance
- Scan and remediate hosts

**Module 12: vSphere Troubleshooting**

- Apply a troubleshooting methodology to logically diagnose faults and improve troubleshooting efficiency
- Review troubleshooting tools
- Find important log files
- Use vSphere Syslog Collector