VMware vSphere 8.0 with ESXi and vCenter

A 5-day Introductory Course on VMware vSphere 8.0

Downloadable Outlines	VMware vSphere 8.0 with ESXi and vCenter VMware vSphere 8.0 with ESXi and vCenter
Format	5-day, 8hr/day instructor led training
Course Books	640pg **Study Guide** with all slides and slide notes 220pg **Lab Guide** with detailed instructions on how to complete 39+ lab tasks
Delivery Options	Instructor led on-site Instructor led Webinar Instructor led mixed on-site and webinar Self-paced video training with lab access and support
Max. Attendees	For the best attendee experience, we recommend no more than 16 students per class
Requirements	A Windows, Mac or Linux PC with a 1080p display A quality Internet connection A microphone, speakers and a web cam if you are attending remotely
Lab Time	45+% of class time is devoted to hands-on labs
Recorded Lectures	Lifetime access to recorded lectures and labs is included
Suggested Price	$3,595 USD per seat

Overview

This powerful 5-day class is an intensive introduction to VMware vSphere™ 8.0 including VMware ESXi™ 8.0 and vCenter™ 8.0. This course has been completely updated to reflect the most recent changes introduced in vSphere 8.0.

Assuming no prior virtualization experience, this class starts with the basics and rapidly progresses to advanced topics. 45+% of class time is devoted to labs so students get the skills they need to become effective vSphere administrators.

Students use dedicated labs that start with installation and configuration of stand-alone ESXi hosts and progress through shared storage, networking, building VMs and centralized management. The class continues with rapid VM deployment, hot-plug virtual hardware, permissions, alarms resource management, VM high availability clusters, VM load balanced clusters, VM cold, hot and storage migration, updating / upgrading ESXi hosts and performance.

This class is unique in that, by the end of the class, students will have built a complete vSphere 8.0 environment from scratch inclulding installing and configuring ESXi 8.0 hosts and installing and configuring vCenter Server Appliance 8.0. We are the only major vSphere training provider where every student must install ESXi and vCenter to be successful.

By the end of the class, attendees will have acquired the knowledge, skills, and best practices needed to deploy, configure and administer VMware vSphere 8.0.

Objectives

At the end of the course, attendees will be able to:

- Explain the many significant benefits of virtualization
- Install ESXi 8.0 according to best practices
- Use Host Client to manage standalone ESXi hosts
- Configure and manage local storage resources
- Create virtual and virtual to physical network configurations
- Configure and use file share (NAS / NFS) datastores
- Create and customize virtual machines
- Install, configure and upgrade VMware Tools
- Install, configure and administer vCenter Server Appliance
- Perform rapid VM deployments using VM Clones and Templates
- Use Guest OS customization to rapidly and consistently configure new VMs
- Configure and use hotplug virtual hardware to add VM hardware with zero downtime
- Add and grow VM virtual disks including system disks and secondary volumes
- Manually upgrade VM virtual hardware
- Use Permissions to enable and customize user and group access to vSphere
- Configure ESXi to connect to shared storage resources
- Create VMFS datastores
- Grow VMFS datastore capacity with LUN Spans and by Extending VMFS volumes and file systems
- Explain and use VMware's three different multipathing policies – Round Robin, Fixed and MRU
- Use vCenter alarms to monitor ESXi, VM, storage and network health, performance, state
- Use Resource Pools to bulk delegate compute resource to VMs and child Resource Pools
- Perform VM cold migrations, hot VMotion migrations and hot Storage VMotion migrations
- Create VM Load Balanced DRS Clusters to dynamically balance VMs to Hosts to ensure compute resource availability
- Minimize unplanned VM down time with VMware High Availability clusters
- Update and Upgrade ESXi hosts using VMware Lifecycle Manager
- Use VMware Lifecycle Manager to upgrade VMware Tools and Virtual Hardware in VMs
- Monitor and tune both ESXi and virtual machine for best performance
- Troubleshoot common problems
- Use Best Practices to build a reliable, scalable and highly available vSphere environment

Attendee Prerequisites

Attendees should have user, operator or administrator experience on common operating systems such as Microsoft Windows, Linux™, Mac OS/X, etc. Experience installing, configuring and managing operating systems, storage and / or networks is helpful but not required. We assume that all attendees have a basic familiarity with PC server hardware, disk partitioning, IP addressing, O/S installation, networking, etc.

Who Should Attend

This class is suitable for anyone who want to learn how to obtain the maximum benefit from their investment in VMware vSphere Virtual Infrastructure, including:

- **System architects** or others who need to understand / design virtual infrastructure
- **Security specialists** responsible for administering, managing, securing virtual infrastructure
- **Operators** responsible for day-to-day operation of virtual infrastructure
- **Performance analysts** who need to understand, provision, monitor vrtual infrastructure
- **Business Continuity specialists** responsible for disaster recovery and high availability
- **Storage administrators** who work with Fibre / iSCSI SAN volumes and NAS volumes
- **Managers** who need an unbiased understanding of virtualization before committing their organization to a virtual infrastructure deployment

Chapter List

This class includes the following chapters:

0. Course Introduction
1. Virtualization Infrastructure Overview
2. How to Install, Configure ESXi 8.0 (HoL[1])
3. Virtual and Physical Networking (HoL)
4. Connecting to and Using NAS Shared Storage (HoL)
5. Virtual Hardware and Virtual Machines (HoL)
6. vCenter Server Appliance (HoL)
7. VM Rapid Deployment using Templates, Clones (HoL)
8. VM Hotplug Virtual Hardware (HoL)
9. Working with Shared Storage (HoL)
10. VMware File System (VMFS) (HoL)
11. ESXi and vCenter Permission Model (HoL)
12. Infrastructure Monitoring with vCenter Alarms (HoL)
13. Resource Management and Resource Pools (HoL)
14. VMotion Migration, Cold Migration, Storage VMotion (HoL)
15. Distributed Resource Scheduling Clusters (HoL)
16. VM Failure Recovery with High Availability Clusters (HoL)
17. VMware Lifecycle Manager (HoL)
18. Managing Scalability and Performance (HoL)
19. Final Thoughts

[1] **HoL** – These chapters include a **Hands-on Lab** that is completed at the end of the lecture

Hands On Lab Tasks

Attendees complete the following hands-on lab tasks during the class:

1. Connect to your dedicated Remote Lab environment
2. Install ESXi 8.0, and perform post-install configurations
3. Create, update Standard vSwitches. Use pNIC Teams for performance and redundancy
4. Define, connect to and browse NFS based datastores
5. Create a Virtual Machine and install a guest OS into the VM
6. Install VMware Tools into a VM. Add 3rd party tools and utilities into a VM
7. Export a VM in Open Virtual Machine Format (OVF) and then re-import it back into ESXi
8. Install and configure the vCenter Server Appliance (vCSA)
9. Configure vCSA Single Sign On (SSO) identity sources including Active Directory
10. Configure vCenter's inventory views to organize inventory objects
11. Import ESXi hosts into vCenter management
12. Work with VM Clones and Templates. Convert a VM into a template
13. Rapidly deploy new VMs from template
14. Perform ad-hoc VMs rapid deployments using VM cloning
15. Rapidly deploy VMs using Guest OS Customization Specifications
16. Work with hot-add virtual hardware
17. Hot add, and then grow, a secondary virtual disk
18. Grow a Windows system disk and partition with no downtime
19. Configure and test hotplug memory
20. Hotplug a new virtual CPU package into a running VM
21. Configure the Software iSCSI adapter. Scan for and review SAN based storage volumes
22. VMware VMFS 6 – VMware's cluster file system
23. Grow VMFS volumes using LUN Spans. Growing volumes and their VMFS datastores
24. Review and update VMFS properties including Space Reclaim
25. Review and select the best VMFS multipath policy for optimal performance and reliability
26. Work with vCenter permissions using stock and custom Roles
27. Configure vCenter alarms to monitor select infrastructure objects
28. Configure Alarm actions to Send SNMP traps to a trap receiver on high VM compute resource use
29. Create and tune Resource Pools. Test Resource Pool compute resource delegations
30. Cold Migrate VMs from one ESXi host and storage volume to another
31. Hot VMotion migrate the running compute state of a VM from one ESXi host to another
32. Hot Storage migrate the running disk state of a VM from one datastore to another
33. Build and test an automated compute resource load balancing DRS cluster
34. Create and configure a VMware High Availability cluster
35. Manually fail a host and watch the cluster place and restart impacted VMs onto healthy hosts
36. Set up VMware Lifecycle Manager to update/update ESXi hosts
37. Perform an ESXi host Compliance Scan, review host non-compliance
38. Use VLM to automatically upgrade an ESXi 7.0 host to ESXi 8.0
39. Use VLM to upgrade a VM's virtual hardware to ESXi 8.0 compatibility

Every attendee gets the use of a dedicated lab environment for their exclusive use during the class. Student labs are available 24hrs/day for review and practice, during your course

Detailed Chapter List

Chapter 0 – Course Introduction

- vSphere 8.0 overview
- Brief overview of the course and labs

Chapter 1 – Virtualization Infrastructure Overview

- Virtualization explained
- How virtualization solves common issues with workload management
- Overview of VMware vSphere software components and features
- What's New in vSphere 8.0

Chapter 2 – How to Install, Configure ESXi 8.0

- Understanding ESXi
- Selecting, validating and preparing your server
- Software installation and best practices
- Join ESXi to a Domain
- Local User Management and Policies
- Managing ESXi hosts with Host Client

Chapter 3 – Virtual and Physical Networking

- vNetwork standard virtual Switches
- Virtual switch Ports and Port Groups
- Creating and configuring VMkernel NICs for ESXi networking
- vSwitch pNIC teaming for performance and reliability

Chapter 4 – Connecting to and Using NAS Shared Storage

- Shared Storage benefits
- NFS Overview
- Configuring ESXi to use NFS shares
- NFS Use Cases
- Troubleshooting NFS common problems

Chapter 5 – Virtual Hardware and Virtual Machines

- VM virtual hardware, options and maximums
- Sizing and creating a new VM
- Assigning, modifying and removing Virtual Hardware
- VMware remote console applications
- Installing an OS into a VM
- Adding VMware Tools to a VM
- Saving and restoring a VM’s state with snapshots

Chapter 6 – vCenter Server Appliance

- vCenter overview and components
- Installing and configuring vCenter Server Appliance
- Complete post-install configuration tasks using vCSA's VAMI interface
- Connecting vCenter's base Linux Photon OS to Active Directory
- Updating Single Sign On's directory source database to query Active Directory
- Organizing vCenter's inventory views
- Importing ESX hosts into vCenter management
- Administering vCenter Server with HTML 5 based vSphere Client

Chapter 7 – VM Rapid Deployment using Templates, Clones

- Virtual Machine Golden Master rapid deployment using templates
- Creating, updating and working with Templates
- Rapid ad-hoc VM duplication using Cloning
- Best practices for cloning and templating

Chapter 8 – VM Hotplug Virtual Hardware

- Update VM vHardware with no downtime with hotplug virtual hardware
- Configuring VMs to support hotplug vCPUs and vRAM
- Hot-plugging vNICs and vDisks into a running VM
- Windows Guest OS experience when hot-pluging virtual hardware

Chapter 9 – Working with Shared Storage

- Fibre SAN overview
- World Wide Names and LUN identifiers
- Fibre Soft Zoning and Hard Zoning
- iSCSI overview
- Virtual and physical iSCSI storage adapters
- Configuring ESXi's iSCSI software adaptor
- Scanning and rescanning for iSCSI volumes
- Performance and redundancy considerations
- Storage and storage network design and best practices
- Understanding the capabilities and benefits of VMware VAAI compliant storage

Chapter 10 – VMware File System (VMFS)

- VMFS 6 features and benefits
- Creating new VMFS datastores
- Managing VMFS capacity with LUN spanning and LUN expansion
- Native and 3rd party Multipathing including policies, benefits and use cases
- VMFS performance, design and configuration tips

Chapter 11 – ESXi and vCenter Permission Model

- The ESXi and vCenter Security model
- Configuring local users and groups
- Managing local permissions
- Granting access to local and Active Directory based users and groups
- How permissions are applied

Chapter 12 – Infrastructure Monitoring with vCenter Alarms

- Alarm categories and definitions
- Creating custom alarms and setting alarm actions
- Configure vCenter so it can send E-mail and SNMP alerts
- Reviewing existing alarms and acknowledging them
- Identify the most useful alarms to review and enable

Chapter 13 – Resource Management and Resource Pools

- Delegate compute resources in bulk with Resource Pools
- How ESXi delivers compute resources to VMs
- Compute resource tunes - Shares, Reservations and Limits
- Configure and test predictable compute resource delegations

Chapter 14 – VMotion Migration, Cold Migration, Storage VMotion

- Cold VM migrations to new ESX hosts, datastores
- Hot VM compute state migrations between ESXi hosts with VMotion
- VMotion requirements and dependencies
- How VMotion works – detailed explanation
- How to test hosts and VMs for VMotion compatibility
- Hot VM disk state migrations between datastores with Storage VMotion

Chapter 15 – Distributed Resource Scheduling Clusters

- Automatic CPU and Memory resource balancing clusters with VMware DRS
- DRS Cluster configuration and tuning
- Per-VM cluster policy overrides
- Features, benefits and use cases for Enhanced VMotion Compatibility (EVC)
- Configuring Per-VM EVC

Chapter 16 – VM Failure Recovery with High Availability Clusters

- High Availability options to minimize unplanned VM down time due to infrastructure issues
- VMware HA policies to protect against ESXi host, storage network and SAN volume failures
- Admission Control for guaranteed compute resource availability after a host failure
- Heartbeat Datastores to quickly resolve host isolation vs. host failure situations

Chapter 17 – VMware Lifecycle Manager

- Configure and enable VMware Lifecycle Manager
- Create an ESXi host upgrade baseline
- Checking ESXi host compliance with attached host upgrade baselines
- How to upgrade ESXi 7.0 hosts to ESXi 8.0 using VLM

Chapter 18 – Managing Scalability and Performance

- VMkernel CPU and memory resource management mechanisms
- Tuning VM storage I/O performance
- Identifying and resolving resource contention issues
- Monitoring VM and ESX host performance
- Performance and capacity planning strategies

Chapter 19 – Final Thoughts

- What to virtualize and what not to virtualize
- VM guest OS security in a virtual environment
- How to protect VMs and their data from unauthorized copying
- Useful books, white papers and online resources

For More Information

This class can be customized to meet your unique training and delivery needs, including:

- On-site delivery at your facility
- Custom timetables including 3-day rapid delivery boot-camps
- Content and Lab customization to meed your unique training needs
- Webinar distance training
- Mentoring, implementation planning and assistance

For more information or to check pricing and availability, please contact your authorized **ESXLab.com** training partner or visit www.esxlab.com.