VMware vSphere 6.5 Foundations Exam
Exam Preparation Guide

Exam Code: 2V0-602
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Disclaimer:
This preparation guide is intended to provide information about the objectives covered by this exam, as well as related resources. The material contained within this guide is not intended to guarantee that a passing score will be achieved on the exam. VMware recommends that a candidate thoroughly understands the objectives indicated in this guide and utilizes the resources recommended in this guide to gain that understanding.

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1   The Exam

1.1   Purpose of Exam

The VMware vSphere 6.5 Foundations Exam (2V0-602) tests candidates on their skills and abilities in deploying and configuring vSphere storage, networking, and compute resources as well as creating and administering vSphere virtual machines. Successful candidates demonstrate mastery of these skills and abilities.

1.2   Intended Audience

A minimally qualified candidate (MQC) for the vSphere 6.5 Foundations exam is capable of installing, configuring and managing a vSphere solution. The candidate is capable of deploying and configuring vSphere storage, networking, and compute resources as well as creating and administering vSphere virtual machines. Candidates should also be knowledgeable about optimizing, securing and performing basic troubleshooting for all components of the implementation.   A given solution may include any or all of these products and technologies:
•   All vSphere Features and Technologies included in Enterprise Plus
•   vSphere Replication
•   vRealize Log Insight for vCenter Server
•   VMware Virtual SAN

2   Objectives covered in the VMware vSphere 6.5 Foundations Exam

Section 1 – Install and Configure vCenter Server 6.x and ESXi 6.x Hosts

Objective 1.1 – Identify vSphere Architecture and Solutions for a given use case

☐ Explain available vSphere editions and features
☐ Explain the various data center solutions that interact with vSphere
☐ Explain ESXi and vCenter Server architectures
☐ Explain new solutions offered in the current version
☐ Determine appropriate vSphere edition based on customer requirements
☐ Deploy a vSphere 6.x Content Library
☐ Differentiate Update Manager deployment options

Objective 1.2 – Install and Configure vCenter Server 6.x

☐ Deploy the vCenter Appliance (vCSA)
☐ Install vCenter Server onto a virtual machine
☐ Create an ODBC Connection to a vCenter Server
☐ Differentiate vCenter Server deployment modes
☐ Differentiate Platform Services Controller deployment options
☐ Given a scenario, select and size the vCenter Database based on requirements
☐ Install additional vCenter Server Components

☐ Install and configure vSphere Client / vSphere Web Client
☐ Install/Remove vSphere Client plug-ins
☐ Enable/Disable vSphere Client plug-ins
☐ License vCenter Server using the Web Client
☐ Determine availability requirements for a vCenter Server in a given vSphere implementation

Objective 1.3 – Install and Configure ESXi 6.x Hosts

☐ Given a scenario, validate if an ESXi configuration meets given requirements
☐ Perform a scripted installation of ESXi
☐ Perform an interactive installation of ESXi using media or PXE
☐ Configure NTP on an ESXi Host
☐ Configure DNS and routing on an ESXi Host
☐ Configure SSH and Shell access on an ESXi Host
☐ Configure logs to be sent to a syslog server
☐ License an ESXi host using the Web Client
☐ Backup/Restore vCenter Server Virtual Appliance files
☐ Migrate a vCenter Server to vCenter Server Virtual Appliance

Section 2 – Configure and Manage vSphere 6.x Networking

Objective 2.1 – Configure vSphere Standard Switches (vSS)

☐ Explain vSphere Standard Switch (vSS) capabilities
☐ Create/Delete a vSphere Standard Switch
☐ Add/Configure/Remove vmnics on a vSphere Standard Switch
☐ Configure vmkernel ports for network services
☐ Add/Edit/Remove port groups on a vSphere Standard Switch
☐ Determine use case for a vSphere Standard Switch

Objective 2.2 – Configure vSphere Distributed Switches (vDS)

☐ Create/Delete a vSphere Distributed Switch
☐ Add/Remove ESXi hosts from a vSphere Distributed Switch
☐ Add/Configure/Remove dvPort groups
☐ Add/Remove uplink adapters to dvUplink groups
☐ Configure vSphere Distributed Switch general and dvPort group settings
☐ Create/Configure/Remove virtual adapters
☐ Migrate virtual adapters to/from a vSphere Standard Switch
☐ Migrate virtual machines to/from a vSphere Distributed Switch
☐ Configure LACP on Uplink portgroups
☐ Determine use case for a vSphere Distributed Switch

Objective 2.3 – Configure vSS and vDS features based on given requirements

- ☐ Explain common vSS and vDS policies
- ☐ Describe vDS Security Polices/Settings
- ☐ Configure dvPort group blocking policies
- ☐ Configure load balancing and failover policies
- ☐ Configure VLAN/PVLAN settings
- ☐ Configure traffic shaping policies
- ☐ Enable TCP Segmentation Offload support for a virtual machine
- ☐ Enable Jumbo Frames support on appropriate components
- ☐ Given a scenario, determine appropriate VLAN configuration for a vSphere implementation

Section 3 –Configure and Manage vSphere 6.x Storage

Objective 3.1 – Connect Shared Storage devices to ESXi 6.x Hosts

- ☐ Explain storage naming conventions
- ☐ Explain hardware/dependent hardware/software iSCSI initiator requirements
- ☐ Configure FC/iSCSI/FCoE storage devices
- ☐ Describe zoning and LUN masking practices
- ☐ Configure/Edit hardware/dependent hardware initiator
- ☐ Connect/Configure NFS 3 and 4.1 datastores
- ☐ Enable/Disable software iSCSI initiator
- ☐ Configure/Edit software iSCSI initiator settings
- ☐ Configure iSCSI port binding
- ☐ Enable/Configure/Disable iSCSI CHAP
- ☐ Configure Dynamic and Static Target Discovery Addresses

Objective 3.2 – Configure and Manage Software Defined Storage

- ☐ Explain Virtual SAN (VSAN) Architecture
- ☐ Create/Delete VSAN Cluster
- ☐ Manage VSAN disk groups
- ☐ Monitor VSAN storage
- ☐ Add/Remove VSAN Nodes
- ☐ Explain benefits of NFS 4.1
- ☐ Determine use cases for Virtual SAN configurations

Objective 3.3 – Create and Configure VMFS and NFS Datastores

- ☐ Compare/Contrast supported NFS versions
- ☐ Configure NFS storage for VMDK formatting
- ☐ Configure storage multi-pathing
- ☐ Compare/Contrast VMFS6 and VMFS5
- ☐ Configure Storage Distributed Resource Scheduler (SDRS)
- ☐ Extend/Expand VMFS Datastores
- ☐ Place a VMFS Datastore in Maintenance Mode

Section 4 – Deploy and Administer Virtual Machines and vApps

Objective 4.1 – Create and Deploy Virtual Machines

- ☐ Place virtual machines in selected ESXi hosts/Clusters/Resource Pools
- ☐ Configure and deploy a Guest OS into a new virtual machine
- ☐ Configure/Modify virtual hardware:
  - o CPU
  - o RAM
  - o Disk
  - o vNIC
- ☐ Create/Convert thin/thick provisioned virtual disks
- ☐ Install/Upgrade VMware Tools and Virtual Hardware
- ☐ Configure PCI Passthrough and Direct I/O
- ☐ Configure virtual machine time synchronization

Objective 4.2 – Create and Deploy vApps

- ☐ Create/Deploy/Clone a vApp
- ☐ Add objects to an existing vApp
- ☐ Edit vApp settings
- ☐ Configure IP pools
- ☐ Suspend/Resume a vApp

Objective 4.3 – Manage Virtual Machine Clones and Templates

- ☐ Explain Cloning and Template options
- ☐ Clone an existing virtual machine
- ☐ Create a template from an existing virtual machine
- ☐ Deploy a virtual machine from a template
- ☐ Update existing virtual machine templates
- ☐ Deploy virtual appliances and/or vApps from an OVF template
- ☐ Import an OVF template
- ☐ Create a Local Library
- ☐ Create a Remote Library with/without external storage
- ☐ Publish/Subscribe/Share Content Library
- ☐ Deploy a virtual machine from a content library

Objective 4.4 – Administer Virtual Machines and vApps

- ☐ Explain files used by virtual machines
- ☐ Explain common practices for securing virtual machines
- ☐ Hot Extend a virtual disk
- ☐ Configure virtual machine options
- ☐ Configure virtual machine power settings
- ☐ Configure virtual machine boot options
- ☐ Administer virtual machine snapshots

☐ Assign a Storage Policy to a virtual machine
☐ Verify Storage Policy compliance for virtual machines
☐ Adjust virtual machine resources
☐ Differentiate between stop/shutdown/reboot/restart of a virtual machine

Section 5 – Establish and Maintain Availability and Resource Management Features

Objective 5.1 – Create and Configure VMware Clusters

☐ Determine how DRS and HA are applicable to an environment
☐ Create/Delete a DRS/HA Cluster
☐ Add/Remove ESXi Hosts from a DRS/HA Cluster
☐ Add/Remove virtual machines from a DRS/HA Cluster
☐ Configure Storage DRS
☐ Configure Enhanced vMotion Compatibility
☐ Monitor a DRS/HA Cluster
☐ Configure migration thresholds for DRS and virtual machines
☐ Configure automation levels for DRS and virtual machines
☐ Configure Virtual Machine Component Protection (VMCP) settings
☐ Configure orchestrated VM restart with HA
☐ Enable/Configure/Disable Host Power Management/Distributed Power Management
☐ Enable/Disable HA Host Monitoring
☐ Understand the features of Proactive HA
☐ Understand the features of Proactive DRS
☐ Configure HA Cluster-wide VM restart ordering
☐ Enforce infrastructural or intra-app dependencies in HA

Objective 5.2 – Plan and Implement VMware Fault Tolerance

☐ Configure VMware Fault Tolerance networking
☐ Given a scenario, determine an appropriate VMware Fault Tolerance configuration
☐ Enable/Disable VMware Fault Tolerance on a virtual machine
☐ Test a Fault Tolerant configuration
☐ Determine use case for enabling VMware Fault Tolerance on a virtual machine
☐ Configure NIC aggregation for Fault Tolerance

Objective 5.3 – Create and Administer Resource Pools

☐ Explain vFlash architecture
☐ Explain use cases for Resource Pools
☐ Create/Remove a Resource Pool
☐ Configure Resource Pool attributes
☐ Add/Remove virtual machines from a Resource Pool
☐ Create/Delete vFlash Resource Pool
☐ Assign vFlash resources to VMDKs
☐ Determine Resource Pool requirements for a given vSphere implementation

Objective 5.4 – Migrate Virtual Machines

- ☐ Explain Enhanced vMotion Compatibility (EVC)
- ☐ Explain Long Distance vMotion
- ☐ Explain process for vMotion/Storage vMotion migrations
- ☐ Configure virtual machine swap file location
- ☐ Migrate a powered-off or suspended virtual machine
- ☐ Migrate virtual machines using vMotion/Storage vMotion

Objective 5.5 – Backup and Restore Virtual Machines

- ☐ Explain VMware Data Protection sizing Guidelines
- ☐ Describe vSphere Replication architecture
- ☐ Install and Configure VMware Data Protection
- ☐ Create a backup job with VMware Data Protection
- ☐ Perform a live full/file-level restore with VMware Data Protection
- ☐ Create/Delete/Consolidate virtual machine snapshots
- ☐ Perform a failback operation using vSphere Replication
- ☐ Determine appropriate backup solution for a given vSphere implementation

Objective 5.6 – Update ESXi and Virtual Machines

- ☐ Create/Edit/Remove a Host Profile from an ESXi host
- ☐ Attach/Apply a Host Profile to an ESXi host or cluster
- ☐ Perform compliance scanning and remediation of an ESXi host using Host Profiles
- ☐ Install and Configure vCenter Update Manager
- ☐ Configure patch download options
- ☐ Create/Edit/Delete an Update Manager baseline
- ☐ Attach an Update Manager baseline to an ESXi host or cluster
- ☐ Scan and remediate ESXi hosts and virtual machines using Update Manager

Section 6 – Perform Basic Troubleshooting of a vSphere 6.x Implementation

Objective 6.1 – Perform basic troubleshooting of ESXi and vCenter installation issues

- ☐ Troubleshoot common installation issues
- ☐ Monitor status of ESXi management agents
- ☐ Determine ESXi host stability issues and gather diagnostics information
- ☐ Export diagnostic information
- ☐ Monitor status of the vCenter Server service
- ☐ Perform basic maintenance of a vCenter Server database

Objective 6.2 – Perform basic troubleshooting of ESXi and vCenter operational issues

- ☐ Verify network configuration
- ☐ Troubleshoot common storage issues
- ☐ Troubleshoot common virtual machine issues

☐ Given a scenario, verify a virtual machine is configured with the correct network resources
☐ Troubleshoot virtual switch and port group configuration issues
☐ Troubleshoot physical network adapter configuration issues
☐ Recognize and detect common knowledge base article solutions

Objective 6.3 – Perform basic troubleshooting of Virtual Machine operational issues

☐ Troubleshoot virtual machine resource contention issues
☐ Recognize and detect:
  o Fault Tolerant network latency issues
  o VMware Tools installation issues
  o Virtual machines states
  o Virtual machine constraints
  o Guest OS installation issues
☐ Given a scenario, determine root cause of a storage issue based on troubleshooting information
☐ Explain common virtual machine boot disk errors

Objective 6.4 – Identify and troubleshoot basic misconfigurations

☐ Troubleshoot:
  o Virtual switch and distributed switches port group configuration issues
  o Physical network adapter configuration issues
  o NFS networking configuration issues
  o iSCSI software initiator configuration issues
  o HA configuration and redundancy issues
  o DRS Resource Distribution Graph
  o vMotion/Storage vMotion migration issues
☐ Interpret vMotion Resource Maps
☐ Given a scenario, verify a virtual machine is configured with the correct network resources

Section 7 – Perform Basic Monitoring of a vSphere Implementation

Objective 7.1 – Monitor ESXi, vCenter, and Virtual Machines

☐ Explain:
  o Common memory metrics
  o Common CPU metrics
  o Common network metrics
  o Common storage metrics
  o Configure SNMP for vCenter Server
  o Configure SMTP settings for vCenter Server
☐ Create a log bundle
☐ Create/Edit/Delete a Scheduled Task
☐ Configure/View/Print/Export resource maps
☐ Start/Stop/Verify vCenter Server service status
☐ Start/Stop/Verify ESXi host agent status
☐ Configure vCenter Server timeout settings

☐ Identify vCenter Server connection object status
☐ Create an Advanced Chart

Objective 7.2 – Create and Administer vCenter Server Alarms

☐ List vCenter Server default utilization alarms
☐ List vCenter Server default connectivity alarms
☐ List possible actions for utilization and connectivity alarms
☐ Create a vCenter Server utilization alarm
☐ Create a vCenter Server connectivity alarm
☐ Configure alarm triggers
☐ Configure alarm actions
☐ For a given alarm, identify the affected resource in a vSphere implementation

Objective 7.3 – Configure and Manage vRealize Log Insight

☐ Explain vRealize Log Insight real-time log management
☐ Identify use cases for vRealize Log Insight
☐ Deploy the vRealize Log Insight virtual appliance
☐ Configure vRealize Log Insight for initial use
☐ Configure availability and scalability options for vRealize Log Insight
☐ Use vRealize Log Insight logs to identify and troubleshoot issues
☐ Integrate Content Packs with vRealize Log Insight
☐ Configure Agents for use with vRealize Log Insight
☐ Create Alerts
☐ Create Snapshots
☐ Build a query
☐ Create/Edit charts
☐ Clone/Rename/Delete a Dashboard
☐ Given a solution, determine appropriate sizing for a vRealize Log Insight appliance

3   Tools and References

The tools and references listed below were used to help write the exam items, and can be used to help prepare for the exam. All links were valid at the time of publication, but are subject to change. The tools listed contains information relevant to each respective objective. All objectives may also be referenced in other product documentation not specifically highlighted below. The candidate should be familiar with all relevant product documentation or have an equivalent skill set.

	1.1	1.2	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3	4.4	4.5	5.1	5.2	5.3	5.4	5.5	5.6
vSphere with Operations Management	✓																				
VMware Virtual SAN 6.2 Licensing Guide	✓																				
VMware Virtual SAN 6.2 Design and Sizing Guide	✓																				
ESXi and vCenter Server 6.5 Documentation	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
VMware Micro-Segmentation	✓																				
List of recommended topologies for VMware vSphere 6.0	✓																				
Supported vCenter Server High Availability Options	✓																				
Configuration Maximums			✓								✓										
Host requirements for link aggregation				✓																	
Considerations for using software iSCSI port binding					✓																
iSCSI and Jumbo Frames configuration					✓																
Beacon probing					✓																

	1.1	1.2	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3	4.4	4.5	5.1	5.2	5.3	5.4	5.5	5.6
VLAN configuration on virtual switches, physical switches, and virtual machines					✓																
What's New in vSphere 6.5									✓												
Configuring disks to use VMware PVSCSI adapters											✓										
Which vSCSI controller for performance											✓										
Understanding virtual machine snapshots														✓							
What's New in vSphere 6.5 Host and Resource Management															✓						
vSphere Data Protection Admin Guide																				✓	
Installing and Administering VMware vSphere Update Manager																					✓

	6.1	6.2	6.3	6.4	7.1	7.2	7.3
ESXi and vCenter Server 6.5 Documentation	✓	✓	✓	✓	✓	✓	
Reverting to a previous version of EXSi	✓						

	6.1	6.2	6.3	6.4	7.1	7.2	7.3
Restarting the Management agent	✓						
vSphere HA virtual machine failed to failover		✓					
Testing VMkernel network connectivity		✓					
Stopping, starting, or restarting services in vCenter Server Appliance 6.5		✓					
ESXi host disconnects from vCenter Server		✓					
Determining Network/Storage firmware		✓					
Troubleshooting virtual machine performance			✓				
Windows virtual machine configured to use BusLogic SCSI controller			✓				
Best practices for using snapshots			✓				
VMware vSphere VMDirectPath I/O			✓				
vSphere Client reports the status of VMware Tools			✓				
Troubleshooting iSCSI LUN connectivity issues				✓			

	6.1	6.2	6.3	6.4	7.1	7.2	7.3
Cannot connect to NFS network share				✓			
Troubleshooting virtual machine performance				✓			
ESXi hosts have intermittent or no network connectivity				✓			
A virtual machine loses network connectivity				✓			
Network redundancy message				✓			
ESXi host displays warning message				✓			
DRS Performance				✓			
"Operation Timed out" error				✓			
Choosing a network adapter				✓			
VMware vRealize Log Insight Information Center							✓

3.1   Practice Exam

PearsonVUE will provide a practice exam for the VMware vSphere Foundations Exam soon. Please be advised that the pass score for the practice exam is unrelated to the pass score for the actual exam. The location for the practice exam will be available soon.

3.2   Sample Exam

VMware will provide a sample exam soon, consisting of a question from each of the seven sections listed above, along with an answer key.

3.3   VCP Community

VMware provides an online community for VCP candidates. This community contains valuable information from other candidates and senior VCPs, and is moderated by VMware certification staff. The community is located here: VMware Certified Professional Community

3.4   Test Driving a VMware vRealize environment

VMware provides Hands-on Labs for Cloud Management and Automation. These labs provide an environment where you can work with the products covered in this exam. The labs can be accessed by going here: Try VMware Hands-On Labs

Version	Date	Change Notes
1.1	2016-05-23	Updated content
2.0	2016-11-28	Updated formatting and added Tools table
3.0	2016-12-20	Updated content and added second tools table
4.0	2017-4-23	Updated formatting
5.0	2017-4-26	Updated text