

VMware Certified Advanced Professional 6 – Data Center Virtualization Deployment Exam

Exam Preparation Guide

Exam Code: 3V0-623

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Disclaimer:

This blueprint is intended to provide information about the objectives covered by this exam, related resources, and recommended courses. The material contained within this blueprint 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 and courses recommended in this guide where needed to gain that understanding.

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1. The Exam

1.1 Purpose of Exam

The VMware Certified Advanced Professional 6 – Data Center Virtualization Deployment Exam (3V0-623) tests candidates on their skills and abilities in implementation of a VMware vSphere 6.x solution, including deployment, administration, optimization, and troubleshooting. A given solution may include any of these products and technologies:

- vSphere 6.x
- vCenter
- VMware Virtual SAN
- Update Manager
- vSphere Replication
- vSphere Data Protection

1.2 Intended Audience

A typical candidate for the VCAP6-DCV certification has two years of experience deploying VMware virtualized data center environments. They are typically infrastructure personnel who are capable of deploying, optimizing and troubleshooting large and/or more complex virtualized environments. Large environments are those that require cooperative administration among the members of a team of administrators. Complex environments are those managed in a hierarchical manner, with different policies applied at different levels of the hierarchy. The candidate demonstrates technical leadership with vSphere technologies, including the use of automation tools, implementing virtualized environments and administering all vSphere enterprise components. Candidates are required to obtain a valid VMware Certified Professional 6 certification prior to attempting this certification.

2. Objectives covered in the VCAP6-DCV Exam (3V0-623):

2.1 Introduction

It is recommended that candidates have the knowledge and skills necessary to install, configure and administer a vSphere 6.x environment before taking the VCAP6-DCV Exam. While there is no course requirement for this exam, VMware recommends that candidates complete the [VMware vSphere: Design and Deploy Fast Track \[V6\]](#) course. It is recommended that the candidate utilize these courses and/or other materials where needed to provide background information on the objectives in the exam.

2.2 Objectives

Prior to taking this exam, candidates should understand each of the following objectives. Each objective is listed below; along with related tools the candidate should have experience with, and related documentation that contains information relevant to the 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 skillset.

Section 1 – Create and Deploy vSphere 6.x Infrastructure Components

Objective 1.1 – Perform Advanced ESXi Host Configuration

Skills and Abilities

- Configure and Manage Auto Deploy configurations
 - Determine use case for Stateless vs Stateful installs
 - Create / Modify rules and rule sets
 - Create and associate Host Profiles for an Auto Deploy reference host
- Configure Kernel Boot Parameters for scripted install according to a deployment plan:
 - Modify scripted weasel install (ks.cfg)
 - Create / Modify scripted installation
- Configure Advanced System Settings according to a deployment plan:
 - Edit System Swap / Scratch Configuration
 - Configure ESXi host to use a central Syslog Server
- Manage/Edit the Core Dump configuration of an ESXi host

Tools

- [vSphere Installation and Setup](#)
- [vCenter Server and Host Management](#)
- [What's New in the VMware vSphere 6.0 Platform](#)
- [vCenter Server 6.0 Deployment Guide](#)
- [vSphere Upgrade](#)
- vSphere Client / vSphere Web Client
- esxcli

Objective 1.2 – Deploy and Configure Core Management Infrastructure Components

Skills and Abilities

- Deploy vCenter core components according to a deployment plan:
 - Deploy and Configure a Platform Services Controller (PSC):
 - Determine use case for embedded vs external PSC

- Re-point a vCenter Server Appliance to another External PSC
 - Deploy and Configure Identity Sources for Single Sign-On:
 - Configure Single Sign-On users and groups
 - Change Default domain for Single Sign-On
 - List services registered with Single Sign-on
 - Deploy and configure vCenter Server
 - Deploy / Configure Enhanced Link Mode
- Manage / Configure vCenter components according to a deployment plan:
 - Configure Global Permissions for vCenter services
 - Configure Dump Collector service
 - Configure the Syslog Collector / Syslog service
 - Managing vCenter Server advanced configurations

Tools

- [vSphere Installation and Setup](#)
- [What's New in the VMware vSphere 6.0 Platform](#)
- [List of recommended topologies for VMware vSphere 6.0.x](#)
- [vCenter Server and Host Management](#)
- [vCenter Server 6.0 Deployment Guide](#)
- [vSphere Upgrade](#)
- vSphere Client / vSphere Web Client
- esxcli

Objective 1.3 – Deploy and Configure Update Manager Components

Skills and Abilities

- Deploy / Configure Update Manager components according to a deployment plan:
 - Configure VUM Update Manager download service
 - Configure a VUM shared repository
 - Configure VUM smart rebooting
 - Manually download updates to a VUM repository
 - Create and modify VUM baseline groups
- Perform VUM orchestrated vSphere upgrades
- Troubleshoot Update Manager problem areas and issues
- Utilize Update Manager to reconfigure VUM settings

Tools

- [Installing and Administering VMware Update Manager](#)
- [Reconfiguring VMware Update Manager](#)
- [vCenter Server 6.0 Deployment Guide](#)
- vSphere Client / vSphere Web Client

Objective 1.4 - Perform Advanced Virtual Machine Configurations

Skills and Abilities

- Tune Virtual Machine disk controller configurations according to a deployment plan
- Configure .vmx file for advanced configuration scenarios
- Configure a virtual machine for Hot Add features
- Upgrade virtual machine hardware and VMware Tools
- Troubleshoot virtual machine deployment issues

Tools

- [vSphere Virtual Machine Administration](#)
- [vSphere Troubleshooting](#)
- vSphere Client / vSphere Web Client

Section 2 – Deploy and Manage a vSphere 6.x Storage Infrastructure

Objective 2.1 – Implement Complex Storage Solutions

Skills and Abilities

- Determine use cases for Raw Device Mapping
- Apply storage presentation characteristics according to a deployment plan:
 - VMFS re-signaturing
 - LUN masking using PSA-related commands
- Create / Configure multiple VMkernels for use with iSCSI port binding
- Configure / Manage vSphere Flash Read Cache
- Create / Configure Datastore Clusters
- Upgrade VMware storage infrastructure
- Deploy virtual volumes
- Deploy and configure VMware Virtual SAN
- Configure / View VMFS locking mechanisms
 - ATS-Only mechanism
 - ATS_SCSI mechanism
- Configure Storage I/O Control to allow I/O prioritization
- Configure Storage Multi-pathing according to a deployment plan

Tools

- [vSphere 6 Storage Guide](#)
- [vSphere Resource Management Guide 6.0](#)
- [vSphere 6 Command Line Documentation](#)

- [VMware Virtual SAN administration Guide](#)
- [vSphere Troubleshooting Guide 6.0](#)
- [VMware®Virtual SAN Diagnostics and Troubleshooting Reference Manual](#)
- [vScsiStats](#)
- vSphere Web Client
- esxcli

Objective 2.2 – Manage Complex Storage Solutions

Skills and Abilities

- Identify and tag (mark) SSD and local devices
- Administer hardware acceleration for VAAI
- Configure, administer, and apply storage policies
- Prepare storage for maintenance
- Apply space utilization data to manage storage resources
- Provision and manage storage resources according to Virtual Machine requirements
- Configure datastore alarms, including Virtual SAN alarms
- Expand (Scale up / Scale Out) Virtual SAN hosts and diskgroups

Tools

- [vSphere 6 Storage Guide](#)
- [vSphere Resource Management Guide 6.0](#)
- [vSphere 6 Command Line Documentation](#)
- [VMware Virtual SAN administration Guide](#)
- [VMware®Virtual SAN Diagnostics and Troubleshooting Reference Manual](#)

Objective 2.3 – Troubleshoot Complex Storage Solutions

Skills and Abilities

- Analyze and resolve storage multi-pathing and failover issues
- Troubleshoot storage device connectivity
- Analyze and resolve Virtual SAN configuration issues
- Troubleshoot iSCSI connectivity issues
- Analyze and resolve NFS issues
- Troubleshoot RDM issues

Tools

- [VMware®Virtual SAN Diagnostics and Troubleshooting Reference Manual](#)
- [vSphere 6 Storage Guide](#)
- [vSphere Resource Management Guide 6.0](#)
- [vSphere 6 Command Line Documentation](#)
- vSphere Client / vSphere Web Client
- esxcli

Section 3 – Deploy and Manage a vSphere 6.x Network Infrastructure

Objective 3.1 – Implement and Manage vSphere Standard Switch (vSS) Networks

Skills and Abilities

- Create and manage vSS components according to a deployment plan:
 - VMkernel ports on standard switches
 - Advanced vSS settings
- Configure TCP/IP stack on a host
- Create a custom TCP/IP stack
- Configure and analyze vSS settings using command line tools

Tools

- [vSphere Installation and Setup](#)
- [vSphere Networking Guide 6.0](#)
- [vSphere Command-Line Interface Concepts and Examples v6.0](#)
- vSphere Client / Web Client
- esxcli

Objective 3.2 – Implement and Manage vSphere 6.x Distributed Switch (vDS) Networks

Skills and Abilities

- Deploy a LAG and migrate to LACP
- Migrate a vSS network to a hybrid or full vDS solution
- Analyze vDS settings using command line tools
- Configure Advanced vDS settings (NetFlow, QOS, etc.)
- Determine which appropriate discovery protocol to use for specific hardware vendors
- Configure VLANs/PVLANS according to a deployment plan

- Create / Apply traffic marking and filtering rules

Tools

- [vSphere Installation and Setup](#)
- [vSphere Networking Guide 6.0](#)
- [vSphere Command-Line Interface Concepts and Examples v6.0](#)
- vSphere Client / Web Client
- vSphere CLI
- esxcli

Objective 3.3 – Scale a vSphere 6.x Network Implementation

Skills and Abilities

- Configure appropriate NIC teaming failover type and related physical network settings
- Determine and apply failover settings according to a deployment plan
- Configure and manage network I/O control 3
- Determine and configure vDS port binding settings according a deployment plan

Tools

- [vSphere Installation and Setup](#)
- [vSphere Networking Guide 6.0](#)
- [vSphere Command-Line Interface Concepts and Examples v6.0](#)
- [vSphere Troubleshooting Guide 6.0](#)
- vSphere Client / Web Client
- vSphere CLI
- esxcli

Objective 3.4 - Troubleshoot a vSphere 6.x Network Implementation

Skills and Abilities

- Perform a vDS Health Check for teaming, MTU, mismatches, etc.
- Configure port groups to properly isolate network traffic
- Use command line tools to troubleshoot and identify configuration issues
- Use command line tools to troubleshoot and identify VLAN configurations
- Use DCUI network tool to correct network connectivity issues

Tools

- [vSphere Installation and Setup](#)
- [vSphere Networking Guide 6.0](#)
- [vSphere Command-Line Interface Concepts and Examples v6.0](#)
- [vSphere Troubleshooting Guide 6.0](#)
- vSphere Client / Web Client
- vSphere CLI
- esxcli

Section 4 – Configure a vSphere Deployment for Availability and Scalability

Objective 4.1 – Implement and Maintain Complex vSphere Availability Solutions

Skills and Abilities

- Configure a HA cluster to meet resource and availability requirements
- Configure custom isolation response settings
- Configure VM Component Protection (VMCP)
- Configure HA redundancy settings:
 - Management network
 - Datastore heartbeat
 - Network partitions
- Configure HA related alarms and analyze a HA cluster
- Configure VMware Fault Tolerance for single and multi-vCPU virtual machines

Tools

- [vSphere 6.0 Availability Guide](#)
- [vSphere Networking Guide 6.0](#)
- vSphere Client / Web Client

Objective 4.2 – Implement and Manage Complex DRS solutions

Skills and Abilities

- Configure DPM, including appropriate DPM threshold
- Configure / Modify EVC mode on an existing DRS cluster
- Create DRS and DPM alarms
- Configure applicable power management settings for ESXi hosts
- Configure DRS cluster for efficient/optimal load distribution

- Properly apply virtual machine automation levels based upon application requirements
- Administer DRS / Storage DRS
- Create DRS / Storage DRS affinity and anti-affinity rules
- Configure advanced DRS / Storage DRS settings
- Configure and Manage vMotion / Storage vMotion
- Create and manage advanced resource pool configurations

Tools

- [vSphere Resource Management Guide 6.0](#)
- [vSphere 6.0 Monitoring and Performance Guide](#)
- [vSphere Networking Guide 6.0](#)
- vSphere Client / vSphere Web Client

Objective 4.3 – Troubleshoot vSphere clusters

Skills and Abilities

- Analyze and resolve DRS/HA faults
- Troubleshoot DRS/HA configuration issues
- Troubleshoot Virtual SAN/HA interoperability
- Resolve vMotion and storage vMotion issues
- Troubleshoot VMware Fault Tolerance

Tools

- [vSphere 6.0 Availability Guide](#)
- [vSphere 6.0 Resource Management Guide](#)
- [vSphere 6.0 Monitoring and Performance Guide](#)
- [vSphere Troubleshooting Guide 6.0](#)
- vSphere Client / vSphere Web Client

Section 5 – Configure a vSphere Deployment for Manageability

Objective 5.1 – Execute VMware Cmdlets and Customize Scripts Using PowerCLI

Skills and Abilities

- Install and configure vSphere PowerCLI
- Use basic and advanced PowerCLI Cmdlets to manage a vSphere deployment
- Analyze a sample script, then modify the script to perform a given action
- Use PowerCLI to configure and administer Auto Deploy (including Image Builder)

- Create a report from a PowerCLI script

Tools

- [VMware vSphere PowerCLI User's Guide](#)
- [VMware vSphere PowerCLI Cmdlets Reference](#)
- [Scripting with Windows PowerShell](#)
- PowerCLI

Objective 5.2 – Implement and Maintain Host Profiles

Skills and Abilities

- Use Profile Editor to edit and / or disable policies
- Create and apply host profiles
- Use Host Profiles to deploy vDS
- Use Host Profiles to deploy vStorage policies
- Import / Export Host Profiles
- Manage Answer Files
- Configure stateful caching and installation for host deployment

Tools

- [vSphere Installation and Setup](#)
- [vSphere Host Profiles 6.0](#)
- vSphere Web Client
- PowerCLI

Objective 5.3 – Manage and analyze vSphere log files

Skills and Abilities

- Generate vSphere log bundles
- Configure and test centralized logging
- Analyze log entries to obtain configuration information
- Analyze log entries to identify and resolve issues
- Configure logging levels for vSphere

Tools

- [vSphere Monitoring and Performance Guide v6.0](#)
- [vSphere Troubleshooting Guide 6.0](#)
- [vSphere Command-Line Interface Concepts and Examples v6.0](#)
- vSphere Web Client
- VMware Syslog Collector
- ESXi Dump Collector
- esxcli

Objective 5.4 - Configure and manage Content Library

Skills and Abilities

- Create a Global User
- Create a Content Library
- Subscribe to a Content Library
- Configure a Content Library for space efficiency
- Synchronize a subscribed Content Library

Tools

- [Using Content Libraries](#)
- [vSphere Virtual Machine Administration](#)
- [What's New in the VMware vSphere 6.0 Platform](#)
- vSphere Web Client

Section 6 – Configure a vSphere Deployment for Performance

Objective 6.1 – Utilize Advanced vSphere Performance Monitoring Tools

Skills and Abilities

- Configure esxtop / resxtop custom profiles
- Evaluate use cases for and apply esxtop / resxtop Interactive, Batch and Replay modes
- Use vscsiStats to gather storage performance data
- Use esxtop / resxtop to collect performance data
- Given esxtop / resxtop output, identify relative performance data for capacity planning purposes

Tools

- [Interpreting esxtop statistics](#)
- [vSphere Monitoring and Performance Guide](#)
- [Using vscsiStats for Storage Performance Analysis](#)
- [vSphere Command-Line Interface Concepts and Examples](#)
- [Command-Line Management of vSphere 5 and vSphere 6 for Service Console Users](#)
- [vScsiStats](#)
- esxtop / resxtop

Objective 6.2 – Optimize Virtual Machine resources

Skills and Abilities

- Adjust Virtual Machine properties according to a deployment plan:
 - Network configurations
 - CPU configurations
 - Storage configurations
- Troubleshoot Virtual Machine performance issues based on application workload
- Modify Transparent Page Sharing and large memory page settings
- Optimize a Virtual Machine for latency sensitive workloads
- Configure Flash Read Cache reservations

Tools

- [vSphere Virtual Machine Administration Guide](#)
- [vSphere Monitoring and Performance Guide](#)
- [vSphere Resource Management Guide 6.0](#)
- [vSphere Troubleshooting Guide 6.0](#)
- vSphere Web Client

Section 7 – Configure a vSphere 6.x Environment for Recoverability

Objective 7.1– Deploy and manage vSphere Replication

Skills and Abilities

- Configure and manage a vSphere Replication infrastructure:
 - Isolate vSphere Replication network traffic

- Enable data compression of vSphere Replication traffic
- Configure and manage vSphere Replication of virtual machines
- Analyze and resolve vSphere Replication issues:
 - Storage configuration
 - Multiple point in time snapshots
 - Enabling vSphere Replication on VMs

Tools

- [VMware vSphere Replication Administration](#)
- [vSphere Replication 6.0 Release Notes](#)
- [VMware vSphere Replication 6.0 Technical Overview](#)
- vSphere Web Client

Objective 7.2 - Deploy and Manage vSphere Data Protection

Skills and Abilities

- Create, edit and clone a vSphere Data Protection backup job
- Modify a preconfigured backup job.
- Backup and restore a Virtual Machine (file level restore, full VM backup)
- Create a replication job according to a deployment plan
- Configure a Backup Verification job to ensure integrity of restore points

Tools

- [vSphere Data Protection Administration Guide](#)
- [Introduction to vSphere Data Protection](#)
- [VMware vSphere Data Protection 6.1](#)
- vSphere Web Client

Objective 7.3 - Backup and Recover vSphere Configurations

Skills and Abilities

- Backup and restore distributed switch configurations
- Backup and restore resource pool configurations
- Export Virtual Machines to OVA/OVF format
- Use a Host profile to recover an ESXi host configuration

Tools

- [vSphere Networking Guide 6.0](#)
- [vSphere Resource Management Guide 6.0](#)
- [vSphere Virtual Machine Administration](#)
- [vSphere Host Profiles 6.0](#)
- vSphere Web Client

Section 8 – Configure a vSphere 6.x Environment for Security

Objective 8.1 – Manage authentication and end-user security

Skills and Abilities

- Add/Edit Remove users on an ESXi host
- Configure vCenter Roles and Permissions according to a deployment plan
- Configure and manage Active Directory integration
- Analyze logs for security-related messages
- Enable and configure an ESXi Pass Phrase
- Disable the Managed Object Browser (MOB) to reduce attack surface

Tools

- [vCenter Server and Host Management](#)
- [vSphere Security Guide v6.0](#)
- [vSphere 6.0 Hardening Guide](#)
- vSphere Client / vSphere Web Client

Objective 8.2 – Manage SSL certificates

Skills and Abilities

- Configure and manage VMware Certificate Authority
- Configure and manage VMware Endpoint Certificate Store
- Enable / Disable certificate checking
- Generate ESXi host certificates
- Replace default certificate with CA-signed certificate
- Configure SSL timeouts according to a deployment plan

Tools

- [vCenter Server and Host Management](#)
- [vSphere Security Guide v6.0](#)
- [vSphere 6.0 Hardening Guide](#)
- [VMware vSphere 6.0 Documentation Center - Security](#)
- [vSphere Installation and Setup](#)
- [VMware vCenter Server Deployment Guide 6.0](#)
- vSphere Client / vSphere Web Client

Objective 8.3 - Harden a vSphere 6.x Deployment

Skills and Abilities

- Enable and configure ESXi Lockdown mode (Strict / Normal)
- Configure a user on the Lockdown Mode Exception Users list
- Customize SSH settings for increased security
- Enable strong passwords and configure password policies
- Configure vSphere hardening of virtual machines according to a deployment plan

Tools

- [vCenter Server and Host Management](#)
- [vSphere Security Guide v6.0](#)
- [vSphere 6.0 Hardening Guide](#)
- [VMware vSphere 6.0 Documentation Center - Security](#)
- vSphere Client / vSphere Web Client

3. Additional Resources

3.1 Interactive Exam Simulation

VMware provides an interactive exam simulation for the VCAP6-DCV Exam. The simulation uses a sample question and lab activity to demonstrate the exam environment.

The interactive exam simulation will be located at: TBD

3.2 VCAP/VCIX Community

VMware provides an online community for VCAP6-DCV candidates. This community contains valuable information from other candidates and senior VCAPs/VCIXs, and is moderated by VMware certification staff.

The community is located at: <http://communities.vmware.com/community/vmtn/certedu/certification/vcix>

3.3 Test Driving a VMware vSphere environment

VMware provides Hands-On Labs for VMware vSphere 6.x technologies. These labs provide an environment where you can work with the products covered in this exam. The labs can be accessed here:

<https://www.vmware.com/go/try-vsphere-hol>

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1.0	Initial Prep Guide Creation	10/25/2015
1.1	Standardized formatting	11/10/2015
1.2	Added designation	12/04/2015