

VCP 6 Notes

https://mylearn.vmware.com/mgrReg/plan.cfm?plan=64181&ui=www_cert

Objective 1.1: configure and administer role-based access control

Identify common vCenter Server privileges and roles

<http://www.virtuallanger.com/2011/09/14/vcp-5-objective-1-4-secure-vcenter-server-and-esxi/>

<http://blog.mwpreston.net/vcp-5/vcp-objective-1-4-secure-vcenter-server-and-esxi/>

Required Privileges for Common Tasks - <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.security.doc/GUID-4D0F8E63-2961-4B71-B365-BBFA24673FDB.html>

Describe how permissions are applied and inherited in vCenter Server -

<http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.security.doc/GUID-03B36057-B38C-479C-BD78-341CD83A0584.html>

View/Sort/Export user and group lists https://pubs.vmware.com/vsphere-4-esx-vcenter/index.jsp?topic=/com.vmware.vsphere.server_configclassic.doc_40/esx_server_config/authentication_and_user_management/t_view_sort_export_users_groups.html

Objective 1.2: Secure ESXi, vCenter Server, and vSphere Virtual Machines

<http://davidstamen.com/2015/04/03/vcp6-dcv-section-1-configure-and-administer-vsphere-security/>

Enable/Configure/Disable services in the ESXi firewall - <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.security.doc/GUID-9C8A0CD0-1664-4F21-B75A-541C03E37233.html>

Enable Lockdown Mode - <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.security.doc/GUID-88B24613-E8F9-40D2-B838-225F5FF480FF.html>

*If you enable or disable lockdown mode using the Direct Console User Interface, permissions for users and groups on the host are discarded. To preserve these permissions, you can enable and disable lockdown mode using the vSphere Web Client.

Configure network security policies <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.networking.doc/GUID-B5218294-9838-475F-8B28-B7EA077BE45C.html>

& <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.hostclient.doc/GUID-74E2059A-CC5E-4B06-81B5-3881C80E46CE.html>

Add an ESXi Host to a directory service - <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.hostclient.doc/GUID-A61A8FA4-A4AF-475C-860E-3FD8947F0D0B.html>

Apply permissions to ESXi Hosts using Host Profiles - http://pubs.vmware.com/vsphere-4-esx-vcenter/index.jsp?topic=/com.vmware.vsphere.server_configclassic.doc_41/esx_server_config/authentication_and_user_management/t_directory_service_host_profile.html

Configure virtual machine security policies - <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.security.doc/GUID-14CCC8CD-D90D-4227-B2C3-0A93D3C023BA.html>

Create/Manage vCenter Server Security Certificates - <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.security.doc/GUID-779A011D-B2DD-49BE-B0B9-6D73ECF99864.html>

If you use vSphere Certificate Manager, you are not responsible for placing the certificates in VECS (VMware Endpoint Certificate Store) and you are not responsible for starting and stopping services.

Objective 1.3: Enable SS and Active Directory Integration

Configure/Manage Active Directory Authentication page 80 of vcenter server deployment guide &

<http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.upgrade.doc/GUID-78933728-7F02-43AF-ABD8-0BDCE10418A6.html>

<http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.install.doc/GUID-1F0106C9-0524-4583-9AC5-A748FD1DC4C5.html>

Configure/Manage Platform Services Controller (PSC) basically most of the deployment guide.

Configure/Manage VMware Certificate Authority (VMCA) - page 88 of deployment guide,

<http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.security.doc/GUID-779A011D-B2DD-49BE-B0B9-6D73ECF99864.html>

<http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.install.doc/GUID-4469A6D3-048A-471C-9CB4-518A15EA2AC0.html>

Enable/Disable Single Sign-On (SSO) - <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.security.doc/GUID-AC8A1B39-8E0D-4604-82DF-C5FC92ECA50D.html>

Identify available authentication methods with VMware vCenter - <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.security.doc/GUID-B98DF9C2-FE7D-483F-9521-C17C138B59D8.html>

<http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.install.doc/GUID-1F0106C9-0524-4583-9AC5-A748FD1DC4C5.html>

Objective 2.1: Configure Advanced Policies/Features and Verify Network Virtualization Implementation

<http://www.valcolabs.com/2011/09/18/objective-2-3-%E2%80%93configure-vss-and-vds-policies/>

<http://blog.mwpreston.net/vcp-5/vcp-objective-2-3-configure-vss-and-vds-policies/>

- Identify vSphere Distributed Switch (vDS) capabilities page <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.networking.doc/GUID-B15C6A13-797E-4BCB-B9D9-5CBC5A60C3A6.html> & <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.networking.doc/GUID-6E51D76A-DC9F-44E2-B673-7D92384AFDE4.html>
- Create/Delete a vSphere Distributed Switch <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.networking.doc/GUID-D21B3241-0AC9-437C-80B1-0C8043CC1D7D.html>
- Add/Remove ESXi hosts from a vSphere Distributed Switch - <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.networking.doc/GUID-E90C1B0D-82CB-4A3D-BE1B-0FDCD6575725.html>
- <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.networking.doc/GUID-9C1791EC-7EDA-4945-A799-0409AE46C40A.html>
- Add/Configure/Remove dvPort groups - <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.networking.doc/GUID-809743E1-F366-4454-9BA5-9C3FD8C56D32.html>
- Add/Remove uplink adapters to dvUplink groups <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.networking.doc/GUID-0CBF12A2-1074-4514-BE36-B09565BC4620.html>
- Configure vSphere Distributed Switch general and dvPort group settings page 33 of network guide
- Create/Configure/Remove virtual adapters - this is for workstation, but they're talking about NICs in guest adapters; https://www.vmware.com/support/ws5/doc/ws_net_configurations_changing_host_adapter.html
- Migrate virtual machines to/from a vSphere Distributed Switch - <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.networking.doc/GUID-0E91679E-A896-45B9-A489-5325BE1E86BB.html>
- Configure LACP on Uplink portgroups - <http://pubs.vmware.com/vsphere->

60/topic/com.vmware.vsphere.networking.doc/GUID-0D1EF5B4-7581-480B-B99D-5714B42CD7A9.html

- Describe vDS Security Policies/Settings - <http://kb.vmware.com/kb/1010593>
- Configure dvPort group blocking policies <http://pubs.vmware.com/vsphere-60/index.jsp#com.vmware.vsphere.hostclient.doc/GUID-BF732074-3341-453A-B89B-35021A6BBD89.html>
- Configure load balancing and failover policies <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.networking.doc/GUID-959E1CFE-2AE4-4A67-B4D4-2D2E13765715.html>
- Configure VLAN/PVLAN settings <http://kb.vmware.com/kb/1003825>
- <http://kb.vmware.com/kb/1010691>
- <http://wahlnetwork.com/2012/05/14/understanding-vsphere-private-vlans-for-fun-and-profit/>
- <http://pubs.vmware.com/vsphere-60/index.jsp#com.vmware.vsphere.hostclient.doc/GUID-07167C1A-AC5A-40FE-A50F-5BA9DD138CA0.html?resultof=%2522%2570%2572%2569%2576%2561%2574%2565%2520%2576%256c%2561%256e%2522%2520>
- Configure traffic shaping policies - <http://pubs.vmware.com/vsphere-60/index.jsp#com.vmware.vsphere.hostclient.doc/GUID-D3A091C0-0D0D-480D-ACE3-62524E2E0D0A.html?resultof=%2522%2574%2572%2561%2566%2566%2569%2563%2520%2573%2568%2561%2570%2569%256e%2567%2522%2520>
- Enable TCP Segmentation Offload support for a virtual machine - <http://pubs.vmware.com/vsphere-60/index.jsp?topic=%2Fcom.vmware.vsphere.networking.doc%2FGUID-D80AEC2F-E0DA-4172-BFFD-B721BF36C2E8.html>
- <http://pubs.vmware.com/vsphere-60/index.jsp?topic=%2Fcom.vmware.vsphere.networking.doc%2FGUID-E105A601-9331-496C-A213-F76EA3863E31.html>
- Enable Jumbo Frames support on appropriate components - <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.networking.doc/GUID-53F968D9-2F91-41DA-B7B2-48394D997F2A.html>
- Determine appropriate VLAN configuration for a vSphere implementation

Objective 2.2: Configure Network I/O Control

- Identify Network I/O Control requirements - <http://www.vmware.com/products/vsphere/features/network-io-control>
- Identify Network I/O Control capabilities <http://frankdenneman.nl/2013/01/17/a-primer-on-network-io-control/>
- Enable/Disable Network I/O Control <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.networking.doc/GUID-E13CC2B0-5357-4261-8C0E-8BE5BD56BD20.html> <http://pubs.vmware.com/vsphere-60/index.jsp?topic=%2Fcom.vmware.vsphere.networking.doc%2FGUID-ADEA0213-C969-43E4-B1F4-66D4A916EBDF.html>
- Monitor Network I/O Control

Objective 2.3: configure vSS and vDS policies

<http://www.valcolabs.com/2011/09/18/objective-2-3-%E2%80%93-configure-vss-and-vds-policies/>
<http://blog.mwpreston.net/vcp-5/vcp-objective-2-3-configure-vss-and-vds-policies/>

- Identify common vSS and vDS policies <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.hostclient.doc/GUID-5D367C45-7650-4636-B2F4-590EDF9E9176.html>
- Describe vDS Security Policies/Settings - see above and objective 2.1
- Configure dvPort group blocking policies - see above and objective 2.1
- Configure load balancing and failover policies <http://pubs.vmware.com/vsphere-60/index.jsp?topic=%2Fcom.vmware.vsphere.networking.doc%2FGUID-B5218294-9838-475F-8B28-B7EA077BE45C.html>
- Configure VLAN/PVLAN settings <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.networking.doc/GUID-CF00FE1E-4BA4-4949-949B-29CAD52F3A89.html>
- Configure traffic shaping policies <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.networking.doc/GUID-D3A091C0-0D0D-480D-ACE3-62524E2E0D0A.html>
- Enable TCP Segmentation Offload support for a virtual machine see above and objective 2.1
- Enable Jumbo Frames support on appropriate components see above and objective 2.1
- Determine appropriate VLAN configuration for a vSphere implementation see above and objective 2.1

Objective 3.1: Manage vSphere Storage Virtualization

<http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.storage.doc/GUID-F602EB17-8D24-400A-9B05-196CEA66464F.html>

<http://www.valcolabs.com/2011/09/27/objective-3-1-%E2%80%93-configure-shared-storage-for-vsphere/>

<http://blog.mwpreston.net/vcp-5/vcp-objective-3-1-configure-shared-storage-for-vsphere/>

- Identify storage adapters and devices
- Identify storage naming conventions <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.storage.doc/GUID-A36810F4-00EC-4EA8-A242-2A0DBBF56731.html>
- Identify hardware/dependent hardware/software iSCSI initiator requirements
- Compare and contrast array thin provisioning and virtual disk thin provisioning <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.hostclient.doc/GUID-AC8E9C20-C05F-4FB5-A5DA-11D0A77A291B.html>
- Describe zoning and LUN masking practices
- Scan/Rescan storage
- Configure FC/iSCSI LUNs as ESXi boot devices <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.storage.doc/GUID-9004389B-E2C0-4BE5-811C-E4886E3B7450.html>
- <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.storage.doc/GUID-03E73408-076A-4A7F-9732-3BB816A16CA1.html>
- <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.storage.doc/GUID-9004389B-E2C0-4BE5-811C-E4886E3B7450.html>
- Create an NFS share for use with vSphere <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.storage.doc/GUID-9FE32DE2-148C-4441-A859-18B4CC24207C.html>
- Enable/Configure/Disable vCenter Server storage filters <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.storage.doc/GUID-352D574A-CB43-4275-97AB-822EE294BC93.html>
- <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.hostclient.doc/GUID-86C65463-5277-438E-A633-DB7074740117.html>
- Configure/Edit hardware/dependent hardware initiators <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.storage.doc/GUID-9004389B-E2C0-4BE5-811C-E4886E3B7450.html>

[60/topic/com.vmware.vsphere.storage.doc/GUID-7A4E3767-CB54-4E88-9BA8-298876119465.html](http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.storage.doc/GUID-7A4E3767-CB54-4E88-9BA8-298876119465.html)

- Enable/Disable software iSCSI initiator <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.hostclient.doc/GUID-779D9D10-0C69-4D34-899E-921198D9B2DC.html>
- <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.hostclient.doc/GUID-6CED4320-C634-42BB-A527-80403DFF2509.html>
- Configure/Edit software iSCSI initiator settings
- Configure iSCSI port binding <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.storage.doc/GUID-4C19E34E-764C-4069-9D9F-D0F779F2A96C.html>
-
- Enable/Configure/Disable iSCSI CHAP <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.storage.doc/GUID-AC65D747-728F-4109-96DD-49B433E2F266.html>
- Determine use case for hardware/dependent hardware/software iSCSI initiator <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.storage.doc/GUID-7A4E3767-CB54-4E88-9BA8-298876119465.html>
- Determine use case for and configure array thin provisioning <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.storage.doc/GUID-08CBB1F0-0CF5-4783-9A12-EB3B5A2BB830.html>

Objective 3.2: Configure Software-defined Storage

- Configure/Manage VMware Virtual SAN <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.virtualsan.doc/GUID-53571374-B3E5-4767-A372-FEB7C995AF71.html>
- Create/Modify VMware Virtual Volumes (VVOs) <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.storage.doc/GUID-0F225B19-7C2B-4F33-BADE-766DA1E3B565.html>
- Configure Storage Policies <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.storage.doc/GUID-A8BA9141-31F1-4555-A554-4B5B04D75E54.html>
- Enable/Disable Virtual SAN Fault Domains <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.virtualsan.doc/GUID-8491C4B0-6F94-4023-8C7A-FD7B40D0368D.html>

Objective 3.3: Configure vSphere Storage Multi-pathing and failover

- Configure/Manage Storage Load Balancing <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.storage.doc/GUID-C1C4A725-8BE4-4875-919E-693812961366.html>
- Identify available Storage Load Balancing options <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.storage.doc/GUID-37F97D1C-4E4F-460B-ACF9-04D1347959CC.html>
- Identify available Storage Multi-pathing Policies <http://pubs.vmware.com/vsphere-60/index.jsp#com.vmware.vsphere.storage.doc/GUID-4D64F3DA-9701-4210-B34A-0A44D3A0100C.html>
- Identify features of Pluggable Storage Architecture (PSA) http://pubs.vmware.com/vsphere-60/topic/com.vmware.vcli.examples.doc/cli_advanced_storage.8.1.html
- Configure Storage Policies above
- Enable/Disable Virtual SAN Fault Domains above

Objective 3.4: Perform Advanced VMFS and NFS configurations and upgrades

<http://blog.mwpreston.net/vcp-5/vcp-5-objective-3-3-create-and-configure-vmfs-and-nfs-datastores/>

- Identify VMFS and NFS Datastore properties <http://blog.mwpreston.net/vcp-5/vcp-5-objective-3-3-create-and-configure-vmfs-and-nfs-datastores/>
- Identify VMFS5 capabilities <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.storage.doc/GUID-7552DAD4-1809-4687-B46E-ED9BB42CE277.html>
- <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.storage.doc/GUID-7552DAD4-1809-4687-B46E-ED9BB42CE277.html>
- Create/Rename/Delete/Unmount a VMFS Datastore <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.storage.doc/GUID-998AC583-EBC5-4DDA-9B00-2D6011FE9117.html>
- Mount/Unmount an NFS Datastore <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.storage.doc/GUID-B52657D0-248D-4A99-99CC-D35B350461D5.html>
- Extend/Expand VMFS Datastores <http://kb.vmware.com/kb/1017662>
- <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.storage.doc/GUID-97FED1EC-35A5-4EF2-80BA-7131F8455702.html>
- Place a VMFS Datastore in Maintenance Mode - right-click
- Identify available Raw Device Mapping (RDM) solutions <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.storage.doc/GUID-9E206B41-4B2D-48F0-85A3-B8715D78E846.html>
- Select the Preferred Path for a VMFS Datastore <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.hostclient.doc/GUID-C1358DCD-E4F2-49A5-842D-EDADA1784E9A.html>
- Enable/Disable vStorage API for Array Integration (VAAI) <http://kb.vmware.com/kb/1021976>
- host settings from the Configuration > Software >Advanced Settings menu in the vSphere client:
 - To disable copy offload, set DataMover.HardwareAcceleratedMove to 0.
 - To disable write same offload, set DataMover.HardwareAcceleratedInit to 0.
 - To disable hardware-assisted locking, set VMFS3.HardwareAssistedLocking to 0.
- Disable a path to a VMFS Datastore <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.storage.doc/GUID-D8EF6B42-86C5-422A-B78C-28942A59B711.html>
- Determine use case for multiple VMFS/NFS Datastores Storage DRS
- A feature that enables you to manage multiple datastores as a single compute resource, called a datastore cluster. A datastore cluster is an aggregation of multiple datastores into a single logical, load-balanced pool. You can treat the datastore cluster as a single flexible storage resource for resource management purposes. You can assign a virtual disk to a datastore cluster, and Storage DRS finds an appropriate datastore for it. The load balancer takes care of initial placement and future migrations based on workload measurements. Storage space balancing and I/O balancing minimize the risk of running out of space and the risk of I/O bottlenecks slowing the performance of virtual machines.
- <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.storage.doc/GUID-8A929FE4-1207-4CC5-A086-7016D73C328F.html>

Objective 3.5: Setup and configure storage I/O control

<http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.resmgmt.doc/GUID-7686FEC3-1FAC-4DA7-B698-B808C44E5E96.html>

- Enable/Disable Storage I/O Control <http://pubs.vmware.com/vsphere-60/index.jsp?topic=%2Fcom.vmware.vsphere.hostclient.doc%2FGUID-59A602E8-5915-4EE7-B62E-C583856E7203.html&resultof=%22storage%20I%2fo%20control%22%20>
- Configure/Manage Storage I/O Control <http://kb.vmware.com/kb/1022091>
- <http://blogs.vmware.com/vsphere/2014/05/enabling-monitoring-storage-io-control.html>
- Monitor Storage I/O Control - Once you have SIOC enabled, you can monitor it by selecting a

data store and choosing the Performance tab and then selecting Performance from the view drop-down menu. This allows you to see average latency and aggregated IOPS for the data store as well as for individual VMs. Note that latency is displayed in microseconds; you can convert this to milliseconds by multiplying the value by 0.001 (for example, 8,000 microseconds equals 8 milliseconds). <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.resmgmt.doc/GUID-45A22E5E-5025-4760-92E6-BAB82153F641.html>

Objective 4.1: Perform ESXi host and virtual machine upgrades

- Identify upgrade requirements for ESXi hosts <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.upgrade.doc/GUID-E170469F-9C33-4950-8672-9825501557AE.html>
- Upgrade a vSphere Distributed Switch <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.networking.doc/GUID-330A0689-574A-4589-9462-14CA03F3F2F4.html>
- Upgrade VMware Tools http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.vm_admin.doc/GUID-B632D26F-410A-43C9-9BFD-21EBB21DE397.html
- Upgrade Virtual Machine hardware http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.vm_admin.doc/GUID-EE77B0A9-F8FF-4785-BEAD-B6F04EE04492.html
- Upgrade an ESXi Host using vCenter Update Manager <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.upgrade.doc/GUID-AA106086-E10D-456E-B0B9-340D3D1462C3.html>
- Stage multiple ESXi Host upgrades
- Determine whether an in-place upgrade is appropriate in a given upgrade scenario <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.upgrade.doc/GUID-CD26D0E7-D18C-482F-88BC-69139BDEC0FB.html>

Objective 4.2: Perform vCenter Server Upgrades

- Identify steps required to upgrade a vSphere implementation <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.upgrade.doc/GUID-7AFB6672-0B0B-4902-B254-EE6AE81993B2.html>
- Identify upgrade requirements for vCenter <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.upgrade.doc/GUID-F072712B-F568-4C3A-A4BC-EE6856D50CDA.html#GUID-F072712B-F568-4C3A-A4BC-EE6856D50CDA>
- <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.upgrade.doc/GUID-752FCA83-1A9B-499E-9C65-D5625351C0B5.html>
- Upgrade vCenter Server Appliance (VCA) <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.upgrade.doc/GUID-66836F60-A095-4749-86C9-1DAFB5D21070.html#GUID-66836F60-A095-4749-86C9-1DAFB5D21070>
- <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.upgrade.doc/GUID-6A5C596D-103E-4024-9353-5569263EB427.html>
- Identify the methods of upgrading vCenter <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.upgrade.doc/GUID-78B9F91E-36BE-4B76-B214-BF8229576C30.html>
- Identify/troubleshoot vCenter upgrade errors <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.upgrade.doc/GUID-30C9DC56-11AC-4C7E-9D67-1BEEDD53BE4E.html>
- <http://kb.vmware.com/kb/2106760>

Objective 5.1: Configure Advanced/Multilevel Resource Pools

- Describe the Resource Pool hierarchy <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.hostadmt.doc/GUID-6077540-605E-4005-934A->

[ou/topic/com.vmware.vspnere.nostclient.doc/GUID-60077B40-00FF-4625-934A-641703ED7601.html](http://pubs.vmware.com/vsphere-60/topic/com.vmware.vspnere.nostclient.doc/GUID-60077B40-00FF-4625-934A-641703ED7601.html)

- Define the Expandable Reservation parameter http://pubs.vmware.com/vsphere-60/topic/com.vmware.wssdk.pg.doc/PG_Resources.15.5.html#1081577
- <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.resmgmt.doc/GUID-8D813BB8-CE07-40F2-B2CA-269C1FB39475.html>
- Describe vFlash architecture <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.storage.doc/GUID-E69F0809-3B19-483A-B906-4CE397CE56D6.html>
- Create/Remove a Resource Pool <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.hostclient.doc/GUID-3BD591CC-F685-4843-A46E-836B33E91B3E.html>
- Configure Resource Pool attributes https://pubs.vmware.com/vsphere-4-esx-vcenter/index.jsp?topic=/com.vmware.vsphere.resourcemanagement.doc_40/managing_resource_pools/r_resource_pool_attributes.html
- Add/Remove virtual machines from a Resource Pool
- Create/Delete vFlash Resource Pool <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.storage.doc/GUID-392BFA2C-CC7A-40BC-BC33-4089714E3B81.html>
- Assign vFlash resources to VMDKs <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.storage.doc/GUID-211CE783-51A8-4B65-BFF6-434D1C272308.html>
- Determine Resource Pool requirements for a given vSphere implementation <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.resmgmt.doc/GUID-AA95D1D1-55C0-419D-9E1A-C523C138CC65.html>
- Evaluate appropriate shares, reservations and limits for a Resource Pool based on virtual machine workloads <http://www.valcolabs.com/2011/10/10/objective-5-3-%E2%80%93create-and-administer-resource-pools/>

Objective 6.1: Configure and Administer a vsphere backups/restore/replication solution

- Identify snapshot requirements http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.vm_admin.doc/GUID-CA948C69-7F58-4519-AEB1-739545EA94E5.html
- Identify VMware Data Protection requirements <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.install.doc/GUID-98C885FB-004B-486C-A9DE-096D1FA20F79.html>
- Explain VMware Data Protection sizing Guidelines page 21 <http://pubs.vmware.com/vsphere-60/topic/com.vmware.ICbase/PDF/vmware-data-protection-administration-guide-60.pdf>
- Identify VMware Data Protection version offerings page 15 <http://pubs.vmware.com/vsphere-60/topic/com.vmware.ICbase/PDF/vmware-data-protection-administration-guide-60.pdf>
- Describe vSphere Replication architecture <http://pubs.vmware.com/vsphere-replication-60/topic/com.vmware.vsphere.replication-admin.doc/GUID-C521A814-91E1-4092-BD29-7E2BA256E67E.html>
- Create/Delete/Consolidate virtual machine snapshots http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.vm_admin.doc/GUID-64B866EF-7636-401C-A8FF-2B4584D9CA72.html
- Install and Configure VMware Data Protection page 19 <http://pubs.vmware.com/vsphere-60/topic/com.vmware.ICbase/PDF/vmware-data-protection-administration-guide-60.pdf>
- Create a backup job with VMware Date Protection <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.install.doc/GUID-1220812C-482C-44E8-BACC-D155C6DDDD8A.html>
- Install/Configure/Upgrade vSphere Replication <http://pubs.vmware.com/vsphere-replication-60/topic/com.vmware.vsphere.replication-admin.doc/GUID-E35492F0-24A5-4539-8A6F-52222DC8D8.html>

[ESX202DCoDDU.html](#)

- Configure VMware Certificate Authority (VMCA) integration with vSphere Replication <http://pubs.vmware.com/vsphere-replication-60/topic/com.vmware.vsphere.replication-admin.doc/GUID-C960E9B0-BFF5-4A56-9CBD-7142DA6FB5C6.html>
- Configure Replication for Single/Multiple VMs
- Identify vSphere Replication compression methods <http://pubs.vmware.com/vsphere-replication-60/topic/com.vmware.vsphere.replication-admin.doc/GUID-49BD66E1-8C8B-4184-8664-3E085C269897.html>
- Recover a VM using vSphere Replication <http://pubs.vmware.com/vsphere-replication-60/topic/com.vmware.vsphere.replication-admin.doc/GUID-356D2357-67A5-42CD-91A7-BDEDDCEDA662.html>
- Perform a failback operation using vSphere Replication <http://pubs.vmware.com/vsphere-replication-60/topic/com.vmware.vsphere.replication-admin.doc/GUID-0594C104-1381-4EE7-8C6A-A44E9F380AAB.html>
- Determine appropriate backup solution for a given vSphere implementation

Objective 7.1: Troubleshoot vCenter Server, ESXi hosts, and virtual machines

- Identify general ESXi host troubleshooting Guidelines <http://blog.mwpreston.net/vcp-5/vcp-5-objective-6-1-perform-basic-troubleshooting-for-esxi-hosts/>
- <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.troubleshooting.doc/GUID-6F6CE545-58FA-490B-8C8A-3CB8196CAEA8.html>
- Identify general vCenter troubleshooting Guidelines <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.troubleshooting.doc/GUID-5C19AC6C-39E9-4451-A34B-11D15F67FEF4.html>
- Troubleshoot Platform Services Controller (PSC) issues <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.install.doc/GUID-14307A58-5C7D-42BE-A7B3-F03ACBAC2CA7.html>
- Troubleshoot common installation issues <http://kb.vmware.com/kb/1003649>
- Monitor ESXi system health <http://www.tomsitpro.com/articles/vcp5-dcv-official-cert-guide-book-excerpt,2-894-3.html>
- Locate and analyze vCenter and ESXi logs <http://kb.vmware.com/kb/2110014>
- <http://kb.vmware.com/kb/2032076>
- Export diagnostic information <http://kb.vmware.com/kb/1011641>
- <http://kb.vmware.com/kb/2032892>
- <http://kb.vmware.com/kb/653>
- Identify common Command Line Interface (CLI) commands http://pubs.vmware.com/vsphere-60/topic/com.vmware.vcli.examples.doc/cli_overviews.3.1.html
- Troubleshoot common virtual machine issues <http://kb.vmware.com/kb/1008360>
-
- Troubleshoot virtual machine resource contention issues <http://buildvirtual.net/troubleshoot-esxi-host-and-virtual-machine-cpu-performance-issues-using-appropriate-metrics/>
- Identify Fault Tolerant network latency issues <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.troubleshooting.doc/GUID-6F893381-BD0B-4825-B4CD-414854A9D9D9.html>
- Troubleshoot VMware Tools installation issues <http://kb.vmware.com/kb/1003908>
- Identify/Troubleshoot virtual machines various states (e.g. orphaned, unknown, etc.) <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.troubleshooting.doc/GUID-BFD8C9BC-30FB-4A92-AFEC-2FC9FF387920.html>
- <http://kb.vmware.com/kb/2172>
- Identify virtual machine constraints <http://kb.vmware.com/kb/2001003>
- Identify the root cause of a storage issue based on troubleshooting information <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.troubleshooting.doc/GUID-604D97FB-553C-4D98-A10E-8093DAFA7194.html>
- Identify common virtual machine host disk errors <http://kb.vmware.com/kb/1003999>

- Identify common virtual machine boot disk errors <http://kb.vmware.com/kb/1003999>
- Identify and detect common knowledge base article solutions

Objective 7.2: Troubleshoot vsphere storage and network issues

- Verify network configuration <http://kb.vmware.com/kb/1003724>
- <http://blog.mwpreston.net/vcp-5/vcp-5-objective-6-2-perform-basic-vsphere-network-troubleshooting/>
- Verify storage configuration <http://kb.vmware.com/kb/1020100>
- <http://blog.mwpreston.net/vcp-5/vcp-5-objective-6-3-perform-basic-vsphere-storage-troubleshooting/>
- Troubleshoot common storage issues <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.troubleshooting.doc/GUID-604D97FB-553C-4D98-A10E-8093DAFA7194.html>
- Troubleshoot common network issues <https://richdowling.wordpress.com/2014/12/12/objective-9-5-troubleshoot-common-vsphere-networking-issues-2/>
- <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.troubleshooting.doc/GUID-217384C2-B361-471D-90C8-BC2676A0ECA6.html>
- Verify a given virtual machine is configured with the correct network resources <http://kb.vmware.com/kb/1003893>
- Troubleshoot virtual switch and port group configuration issues <http://blog.pluralsight.com/vmware-networking-configuring-vnetwork-1>
- <http://blog.pluralsight.com/vmware-networking-configuring-vnetwork-2>
- Troubleshoot physical network adapter configuration issues
- Troubleshoot VMFS metadata consistency <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.troubleshooting.doc/GUID-6F991DB5-9AF0-4F9F-809C-B82D3EED7DAF.html>
- <http://kb.vmware.com/kb/2036767>
- <http://cormachogan.com/2012/09/04/vsphere-5-1-storage-enhancements-part-1-vmfs-5/>
- Identify Storage I/O constraints <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.resmgmt.doc/GUID-37CC0E44-7BC7-479C-81DC-FFFC21C1C4E3.html>
- Monitor/Troubleshoot Storage Distributed Resource Scheduler (SDRS) issues https://pubs.vmware.com/vsphere-50/index.jsp?topic=%2Fcom.vmware.vsphere.troubleshooting.doc_50%2FGUID-142C5ED0-09E6-4EB3-BC7A-A93317E3156A.html
- <http://cormachogan.com/2015/02/05/vsphere-6-0-storage-features-part-2-storage-drs-and-sioc/>

Objective 7.3: Troubleshoot vSphere Upgrades

- Identify vCenter Server and vCenter Server Appliance upgrade issues <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.upgrade.doc/GUID-30C9DC56-11AC-4C7E-9D67-1BEEDD53BE4E.html>
- <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.troubleshooting.doc/GUID-F3C42E3B-590E-4DEA-8382-C7588D986C9E.html>
- Create a log bundle <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.monitoring.doc/GUID-5085A0ED-EF03-402D-B2FB-1A61FB934C46.html>
- Locate/Analyze VMware log bundles <http://kb.vmware.com/kb/1011641>
- <https://paulgrevink.wordpress.com/2012/09/04/vcap5-dca-objective-6-1-configure-manage-and-analyse-vsphere-log-files/>
- Identify alternative methods to upgrade ESXi hosts in event of failure <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.upgrade.doc/GUID-122035F6-8433-463E-A0F7-B4FC71A05B04.html>
- Configure vCenter Logging options <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.vcenterhost.doc/GUID-0439D577-66F7-4584-4F05->

<http://pubs.vmware.com/vsphere/inst/doc/GUID-21FF3053-F77C-49E6-81A2-9369B85F5D52.html>
[5EB41A761873.html](http://pubs.vmware.com/vsphere/inst/doc/GUID-A9FFFEDEE-1A3D-4EFD-A130-F6E78C727380.html)

Objective 8.1: Deploy ESXi Hosts using auto deploy

- Identify ESXi Autodeploy requirements <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.install.doc/GUID-21FF3053-F77C-49E6-81A2-9369B85F5D52.html>
- Configure Autodeploy <http://www.yellow-bricks.com/2011/08/25/using-vsphere-5-auto-deploy-in-your-home-lab/>
- <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.install.doc/GUID-A9FFFEDEE-1A3D-4EFD-A130-F6E78C727380.html>
- Explain PowerCLI cmdlets for Autodeploy <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.install.doc/GUID-30C5FD99-2771-4766-8860-AF8CA9BA41F3.html#GUID-30C5FD99-2771-4766-8860-AF8CA9BA41F3>
- Deploy/Manage multiple ESXi hosts using Autodeploy

Objective 8.2: Customize host profile settings

- Create/Edit/Remove a Host Profile from an ESXi host <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.hostclient.doc/GUID-95864464-72AB-48FE-8CB4-07B3A9CB874B.html>
- Import/Export a Host Profile <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.hostclient.doc/GUID-D858AA12-9AC2-438A-B07E-F92394E8116F.html>
- <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.hostclient.doc/GUID-749F9FF7-2B1E-4E5C-A5BA-A7EF36F7B896.html>
- Attach/Apply a Host Profile to an ESXi host or cluster <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.hostclient.doc/GUID-9B27A219-AC2B-4657-8F85-64C8A7339C64.html>
- Perform compliance scanning and remediation of an ESXi host using Host Profiles <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.hostclient.doc/GUID-F3CF57FF-B2C7-40B2-A130-E64C93DFC2E7.html>

Objective 9.1: Configure advanced vsphere HA features

- Explain Advanced vSphere HA settings <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.avail.doc/GUID-85D9E522-52BE-41F9-A6A9-09B790AC8AA6.html>
- Enable/Disable Advanced vSphere HA settings <http://kb.vmware.com/kb/2033250>
- Explain how vSphere HA interprets heartbeats http://pubs.vmware.com/vsphere-60/topic/com.vmware.guestsdk.pg.doc/guest_sdk_HAappmon.5.2.html
- Interpret and correct errors during conversion
- Identify virtual machine override priorities - overrides are not really covered, but related doc is here; <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.resmgmt.doc/GUID-48F642B7-99B1-475F-AFD7-3CC01B0DA00A.html>
- Identify Virtual Machine Component Protection (VMCP) settings <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.avail.doc/GUID-F01F7EB8-FF9D-45E2-A093-5F56A788D027.html>

Objective 9.2: Configure advanced vsphere DRS features

- Identify Distributed Resource Scheduler (DRS) affinity rules <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.hostclient.doc/GUID-FF28F29C-8B67-4EFF-A2EF-63B3537E6934.html>
- Enable/Disable Distributed Resource Scheduler (DRS) affinity rules <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.hostclient.doc/GUID-DA508DEA-6095-4EEC-B6CD-9FE4CC533A62.html>
- Identify Distributed Resource Scheduler (DRS) Automation levels <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.resmgmt.doc/GUID-C21C0609-923R-46FR-920C-887F00DRCAR9.html>

- <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.resmgmt.doc/GUID-C21C0609-923B-46FB-920C-887F00DBCAB9.html>

Objective 9.3: Setup and configure AppHA

- Identify vSphere App HA requirements - page 11 <http://pubs.vmware.com/appha-1/topic/com.vmware.ICbase/PDF/vsphere-app-ha-install-guide-1.pdf>
- Identify available services protected by vSphere App HA - page 8 - <http://pubs.vmware.com/appha-1/topic/com.vmware.ICbase/PDF/vsphere-app-ha-install-guide-1.pdf>
- Add applications to vSphere App HA - page 16 - <http://pubs.vmware.com/appha-1/topic/com.vmware.ICbase/PDF/vsphere-app-ha-install-guide-1.pdf>
- Configure vSphere App HA policies - page 8 - <http://pubs.vmware.com/appha-1/topic/com.vmware.ICbase/PDF/vsphere-app-ha-install-guide-1.pdf>

Objective 10.1: Configure Advanced vsphere virtual machine settings

- Identify available virtual machine configuration settings <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.hostclient.doc/GUID-345722F3-F46A-4409-98E1-5FF62A4CEFE4.html>
- Interpret virtual machine configuration files (.vmx) settings <http://kb.vmware.com/kb/1714>
- Identify virtual machine DirectPath I/O feature <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.networking.doc/GUID-BF2770C3-39ED-4BC5-A8EF-77D55EFE924C.html>
- Enable/Disable Advanced virtual machine settings <http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.resmgmt.doc/GUID-4C27B0A4-0064-4C21-9208-CEBBB689A093.html>

Objective 10.2: Create and manage a multi-site content library

- Configure Content Library to work across sites http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.vm_admin.doc/GUID-254B2CE8-20A8-43F0-90E8-3F6776C2C896.html
- Configure Content Library authentication http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.vm_admin.doc/GUID-2A0F1C13-7336-45CE-B211-610D39A6E1F4.html
- Set/Configure Content Library roles http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.vm_admin.doc/GUID-B5E4FD42-59AE-4DE0-A986-C10C3A2181D7.html
- Add/Remove Content Libraries http://pubs.vmware.com/vsphere-60/topic/com.vmware.vsphere.vm_admin.doc/GUID-A3543CA1-A77D-4C22-A54B-3666A1ACCACC.html

–