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VCAP-DCA Objective 4.3 : Configure a vSphere Environment to Support MSCS Clustering

Another VCAP-DCA objective here. For a complete list of study objectives for the VCAP-DCA (VDCa-410) browse to <http://www.vfail.net/vcap-dca/>.

This is the first pass through the objective for vCenter Server Heartbeat . I will admit I've never touched or even read up on vCenter heartbeat that much before going through this objective, however it does seem relatively easy to setup and maintain. Your main resource for this section will be the [vCenter Server Heartbeat and Reference Guide](#) and most of the following notes are directly from that document.

Knowledge

Identify the five protection levels for vCenter Server Heartbeat

- Server Protection- Provides continuous availability to end users through hardware failures or operating system crashes.
- Network Protection- Polls up to three nodes and ensures that the active server is visible on the network.
- Application Protection- Ensures applications and services stay alive on the network.
- Performance Protection- Monitors specific application attributes to ensure they remain within normal operating ranges.
- Data Protection- Intercepts data and maintains a copy of the data on the passive server for use in the event of a failure.

Identify the three server protection options for vCenter Server Heartbeat

- vCenter Server with SQL on same host
- vCenter Server with SQL Server on separate host
- vCenter Server only

Identify supported cloning options

- For creating supported pre-cloned images for use as a secondary server you can either use VMware Converter for a P2V or VMware vCenter to clone a VM for a V2V.
- At the time of installation you may also select "Not a clone of the Primary Server". This option will run a clone process for the specified secondary (physical or vm) and clone the servers for you.

Skills and Abilities

Install and configure vCenter Server Heartbeat

RTFM on this one and even literally if you take a look at the recent [blogs from Mike Laverick](#), the first 2 of a four part series.

Determine use cases for and execute a manual switchover

You can click Make Active on the vCenter Server Heartbeat Console Server: Summary page to manually initiate a managed switchover. When a managed switchover is triggered, the running of protected applications is transferred from the active machine to the passive machine in the server pair. The server roles are reversed.

Recover from a failover

- 1 Correct the conditions that caused the failover.
- 2 Verify the integrity of the disk data on the failed server.
- 3 Restart the failed, now passive, server after all issues are resolved.
- 4 Start vCenter Server Heartbeat on the passive server.

At this point, the instances of vCenter Server Heartbeat running on the servers connect and begin to re-synchronize the data on the Primary server.

5 Wait until vCenter Server Heartbeat is fully synchronized. When the re-synchronization is complete, you can continue



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operating with this configuration (for example, the Secondary server is the active server and the Primary server is the passive server), or initiate a managed switchover.

6 Optionally, perform a managed switchover to return the Primary and Secondary servers to the same roles they had before the failover.

Monitor vCenter Server Heartbeat and communication status

The server monitoring page provides information about the status of communications between the pair of vCenter servers. In addition to a heartbeat a ping is also sent to ensure the servers can see each other.

Configure heartbeat settings

On the server monitoring page you can configure pings, configure failover, and configure response times.

To configure pings

- 1 Click Configure Pings to open the Server Monitoring: Ping Configuration dialog.
- 2 Click on the Ping Settings tab to configure the Ping Interval.
- 3 Click on the Ping Routing tab to add additional IP address for redundant NICs.

To configure failover(default 60 seconds)

- 1 Click Configure Failover to open the Server Monitoring: Failover Configuration dialog.
- 2 Type a new numeric value (seconds) in the Failover timeout text box or use the arrow buttons to set a new value.
- 3 Mark or clear the check boxes to select the actions to take if the specified Failover timeout is exceeded.
- 4 Click OK.

To configure response times

- 1 Click Configure Response Times to open the Server Monitoring: Response Times dialog.
- 2 Type new numeric values (seconds) into the text boxes or use the arrow buttons to select new values.
- 3 Click OK.

Configure shutdown options

Shutdown — Prompts you to select the server(s) to shut down. If you select the active server, additional options to stop or not stop protected applications appear in the dialog. Click OK.

Configure application protection

To configure applications

- 1 Click Configure on the Applications page.

You can protect services and start monitoring applications or unprotect services and stop monitoring applications. You can also enable Verbose Plugin logging, Discover protected data at startup, Discover protected services at startup, and set the rule trigger count.

- 2 After making modifications to the configuration, click OK.

Add/Edit Services

To protect a service

- 1 Right-click on a service and select Add from the menu or click Add on Applications: Services page to invoke the Add Service dialog. The Name drop-down list contains a list of all currently running services.
- 2 Select the service and set the values for Target State on Active and Target State on Passive. Normally the Target State on Active is set to Running and the Target State on Passive is set to Stopped.
- 3 If vCenter Server Heartbeat is to manage the start and stop of the service, select Manage Starting and Stopping. If vCenter Server Heartbeat is to monitor the state of the service, select Monitor State. vCenter Server Heartbeat also assigns three sequential tasks to perform in the event of failure. Task options include Recover Service, Application Restart, Log Warning, Switchover, and any additional user-defined tasks previously created.
- 4 Assign a task to each of the three failure options and click OK.

Editing a Service

- 1 Select the service and click Edit. The Edit Service dialog opens to provide a subset of same options available when adding a new service.
- 2 Make the modifications and click OK.

Add/Edit Tasks


To add a task

- 1 Click Add to invoke the Add Task dialog. Assign a name to the task.
- 2 Select the task type from the drop-down list.
- 3 Select the identity of the server the task runs on (Primary or Secondary).
- 4 In the Command text box, type in the path or browse to the script, .bat file, or command for the task to perform.
- 5 Click OK.

Editing a Task

- 1 Right-click on an existing task and select Edit from the menu or select the task and click Edit at the top of the pane to invoke the Edit Task dialog.
- 2 Edit the parameters of the task.
- 3 Click OK.

Edit/Test Rules



Configuration
Maximums for
VMware
vSphere is my favorite
VMware document. It
answers many of the "How
many", "How much" type
questions about VI
capabilities. This is one of
the documents that will
most often be updated as
new releases of VMware VI
are released so it's a good
one to keep tabs on.

<http://www.vmware.com/pdf/vsphere4/r41>

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To edit a rule

- 1 Right-click on the rule and select Edit from the menu or click Edit at the top of the pane.
- 2 Edit the parameters of the rule and click OK.

To check a rule condition

Right-click on the rule and select Check Now from the menu or click Check Now at the top of the pane. The rule condition is displayed in the pane.

Install/Edit Plug-ins

To install a new plug-in

- 1 Click Applications: Plugin to open the Plugins page.
- 2 Right-click an existing plug-in and select Install from the menu or click Install at the top of the pane to invoke the Install Plugins dialog.
- 3 Type a path to the plug-in location or click Browse to navigate to the plug-in location. The path statement is case-sensitive.
- 4 Click OK.

To edit the plug-in configuration

- 1 Right-click on an existing plug-in from the Plugins list and select Edit from the menu or select the plug-in and click Edit at the top of the pane to invoke the Edit Plugin dialog.
- 2 Review the configuration options before making modifications as they are specific to each plug-in.
- 3 Click OK.

Add/Remove Inclusion/Exclusion Filters

To define filters that include files and folders for protection and replication

- 1 In the Data: File Filters pane, click Add Inclusion Filter to open the Add Inclusion Filter dialog.
- 2 Type the complete path and pattern, specify a pattern containing wildcards, or use Browse to locate the file or folder.
- 3 Click OK. The two forms of wildcards available are *, which matches all files in the folder, and **, which matches all files, subfolders and the files in the subfolders of the folder. After defining the filter, you can add additional Inclusion Filters.

Inclusion and exclusion filters can be edited by selecting the filter and clicking Edit at the top of the File Filters pane or right-clicking the filter and selecting Edit from the menu. Edit the value in the Pattern: text box by typing over the current file filter definition.

Perform Full System and Full Registry checks

To initiate a full registry check Click Full Registry Check in the Registry Synchronization pane.

When you click Full System Check, a dialog asks you to confirm the request and warns you that depending on the amount of data under protection, this task can take a long time to complete (for example, a number of hours). Click Yes to perform the check.

Configure/Test Alerts

You can configure alerts in by clicking Configure Alerts on the Logs page

Click Test Alert Reporting to run a test alert email. This way you can avoid triggering an actual alert during the operation of the active server

Troubleshoot common vCenter Server Heartbeat error conditions

Refer to the troubleshooting section of the guide of the [vCenter Server Heartbeat and Reference Guide](#) for common scenarios and troubleshooting.

Tools

vCenter Server Heartbeat QuickStart Guide

[vCenter Server Heartbeat and Reference Guide](#)

Product Documentation

vSphere Client

Other relevant blogs and websites related to this section

http://www.vmware.com/support/pubs/heartbeat_pubs.html

https://www.vmware.com/tryvmware/p/activate.php?p=vmware-vsphere&lp=1#tab_install

http://searchvirtualdatacentre.techtarget.co.uk/news/column/0,294698,sid203_gci1518928,00.html

http://searchvirtualdatacentre.techtarget.co.uk/news/column/0,294698,sid203_gci1518932,00.html

[vCenter Server Heartbeat and Reference Guide](#)

- [Objective 9.3 – Configure vCenter Server Linked Mode](#)
- [Objective 9.2 – Plan and Execute Scripted Installations](#)
- [Objective 8.2 – Administer vCenter Orchestrator](#)
- [VCAP-DCA Brownbag Session #1](#)
- [VCAP-DCA Objective 7.1 : Secure ESX\(i\) Hosts](#)
- [VCAP-DCA Objective 9.1 : Install ESX Server with Custom Settings](#)
- [VCAP-DCA Objective 3.5 – Utilize Advanced vSphere Performance Monitoring Tools](#)

- [VCAP-DCA Objective 3.4 – Perform Capacity Planning in a vSphere Environment](#)
- [VCAP-DCA Objective 3.3 – Implement and Maintain Complex DRS Solutions](#)
- [VCAP-DCA Objective 3.2 – Optimize Virtual Machine Resources](#)

 [VCAP-DCA](#), [vcenter heartbeat](#), [VMware](#), [vsphere](#)

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