Administration of High Availability Solutions using Veritas™ Cluster Server 5.0 for UNIX
Study Guide

The following tables list the Symantec SCS Certification exam objectives for the Administration of High Availability Solutions Using VCS 5.0 for UNIX exam and how these objectives align to the Veritas Cluster Server 5.x for UNIX course.

For more information on the Symantec Certification Program, visit:


EXAM SECTION 1
Verify and Adjust Pre-installation Environment

<table>
<thead>
<tr>
<th>Certification Objectives</th>
<th>Course Topics from Veritas Cluster Server 5.x for UNIX</th>
</tr>
</thead>
</table>
| Given a design, verify the environment is still suitable                                 | Lesson: High Availability Concepts  
|                                                                                            | Topic: HA Application Services  
|                                                                                            | Topic: Clustering Prerequisites  
|                                                                                            | Lesson: Preparing a Site for VCS  
|                                                                                            | Topic: Hardware Requirements and Recommendations  
| Verify existing software, patches to be installed, and license keys.                     | Lesson: Installing VCS  
|                                                                                            | Topic: Using the VERITAS Product Installer  
| Given a scenario, verify suitability for secure VCS                                     | Lesson: Preparing a Site for VCS  
|                                                                                            | Topic: Software Requirements and Recommendations  
|                                                                                            | Lesson: Clustering Databases  
|                                                                                            | Topic: The Enterprise Agent for Oracle  
| Perform pre-installation tasks to ensure baseline environment.                         | Lesson: High Availability Concepts  
|                                                                                            | Topic: Clustering Concepts  
|                                                                                            | Lesson: Preparing a Site for VCS  
|                                                                                            | Topic: Hardware Requirements and Recommendations  
|                                                                                            | Lesson: Preparing Services for VCS  
|                                                                                            | Topic: Preparing Applications for VCS  
|                                                                                            | Lesson: Online Configuration  
|                                                                                            | Topic: Adding Resources  
| Verify ability to cluster application with VCS.                                         | Lesson: High Availability Concepts  
|                                                                                            | Topic: HA Application Services  
|                                                                                            | Lesson: Online Configuration  
|                                                                                            | Topic: Adding Resources  
|                                                                                            | Lesson: Sharing Network Interfaces  
|                                                                                            | Topic: Sharing Network Interfaces  

### EXAM SECTION 2
Perform Installation of Software

<table>
<thead>
<tr>
<th>Certification Objectives</th>
<th>Course Topics from Veritas Cluster Server 5.x for UNIX</th>
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<tbody>
<tr>
<td>Describe the process for installing VCS.</td>
<td>Lesson: Preparing a Site for VCS&lt;br&gt;Lesson: Installing VCS&lt;br&gt;Lesson: Using the VERITAS Product Installer&lt;br&gt;Lesson: Viewing the Default VCS Configuration&lt;br&gt;Lesson: VCS Configuration Methods&lt;br&gt;Lesson: Starting and Stopping VCS&lt;br&gt;Lesson: Changing the Cluster Interconnect Configuration</td>
</tr>
<tr>
<td>Describe the process for verifying VCS installation.</td>
<td>Lesson: Preparing a Site for VCS&lt;br&gt;Lesson: Installing VCS&lt;br&gt;Lesson: VCS Configuration Files&lt;br&gt;Lesson: VCS Configuration Methods&lt;br&gt;Lesson: Starting and Stopping VCS&lt;br&gt;Lesson: Offline Configuration&lt;br&gt;Lesson: Offline Configuration Procedures&lt;br&gt;Lesson: Cluster Communications&lt;br&gt;Topic: Cluster Membership&lt;br&gt;Topic: Cluster Interconnect Configuration</td>
</tr>
<tr>
<td>Assess a system diagram to determine if it is configured correctly.</td>
<td>Lesson: Cluster Communications&lt;br&gt;Lesson: VCS Communications Review&lt;br&gt;Lesson: Clustering Applications&lt;br&gt;Topic: VCS Agents for Managing Applications</td>
</tr>
</tbody>
</table>

### EXAM SECTION 3
Configure the High Availability Environment

<table>
<thead>
<tr>
<th>Certification Objectives</th>
<th>Course Topics from Veritas Cluster Server 5.x for UNIX</th>
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</thead>
<tbody>
<tr>
<td>Explain cluster communications concepts via LLT and GAB.</td>
<td>Lesson: Cluster Communications&lt;br&gt;Lesson: Cluster Interconnect Configuration&lt;br&gt;Lesson: System and Communication Faults&lt;br&gt;Topic: Cluster Interconnect Failures</td>
</tr>
<tr>
<td>Given output of 'lltstat', 'gabconfig', etc., identify possible heartbeat problems.</td>
<td>Lesson: Cluster Communications&lt;br&gt;Topic: Cluster Membership&lt;br&gt;Topic: Cluster Interconnect Configuration&lt;br&gt;Lesson: System and Communication Faults&lt;br&gt;Topic: Cluster Interconnect Failures</td>
</tr>
<tr>
<td>Describe how to set up cluster communications.</td>
<td>Lesson: Installing VCS&lt;br&gt;Lesson: Viewing the Default VCS Configuration&lt;br&gt;Lesson: Cluster Communications&lt;br&gt;Topic: Cluster Membership</td>
</tr>
<tr>
<td>Certification Objectives</td>
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<tr>
<td>Explain the configuration of notification within VCS.</td>
<td>Lesson: Configuring Notification Topic: Notification Overview Topic: Configuring Notification</td>
</tr>
<tr>
<td>Given a configuration and resource dependencies, explain the expected reactions to a change in resource state.</td>
<td>Lesson: Configuring VCS Response to Resource Faults Topic: VCS Response to Resource Faults</td>
</tr>
</tbody>
</table>

**EXAM SECTION 4**

**Advanced Configuration**

<table>
<thead>
<tr>
<th>Certification Objectives</th>
<th>Course Topics from Veritas Cluster Server 5.x for UNIX</th>
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<tbody>
<tr>
<td>Describe the steps involved in setting up service group workload</td>
<td>Lesson: Startup and Failover Policies</td>
</tr>
<tr>
<td>Certification Objectives</td>
<td>Course Topics from Veritas Cluster Server 5.x for UNIX</td>
</tr>
<tr>
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<td>management.</td>
<td>Topic: Testing Failover Policies (lab)</td>
</tr>
</tbody>
</table>
| Determine which resource attributes to set. | Lesson: VCS Configuration Methods  
Topic: Controlling Access to VCS  
Lesson: Sharing Network Interfaces  
Topic: Localizing Resource Attributes  
Lesson: Configuring Notification  
Topic: Configuring Notification  
Lesson: Configuring VCS Response to Resource Faults  
Topic: VCS Response to Resource Faults  
Topic: Controlling Fault Behavior |
| Determine which service group attributes to set. | Lesson: VCS Configuration Methods  
Topic: Common VCS Operations  
Topic: Starting and Stopping VCS  
Lesson: Configuring VCS Response to Resource Faults  
Topic: VCS Response to Resource Faults  
Lesson: Cluster Communications  
Topic: Joining the Cluster Membership  
Lesson: System and Communication Faults  
Topic: Cluster Interconnect Failures  
Lesson: Startup and Failover Policies  
Topic: Startup Rules and Policies |
| Determine which resource type attributes to set. | Lesson: VCS Response to Resource Faults  
Topic: Controlling Fault Behavior  
Topic: Determining Failover Duration |
| Describe trigger locations and roles. | Lesson: Configuring Notification  
Topic: Using Triggers for Notification  
Lesson: Multiple Network Interfaces  
Topic: Example Configuration |
| Given a desired behavior, determine the failover policy. | Lesson: Configuring VCS Response to Resource Faults  
Topic: VCS Response to Resource Faults  
Lesson: Startup and Failover Policies  
Topic: Failover Rules and Policies |
| Given a desired behavior, determine proper configuration. | Lesson: VCS Operations  
Topic: Managing Applications in a Cluster Environment  
Lesson: VCS Configuration Methods  
Topic: Overview of Configuration Methods  
Lesson: Preparing Resources for VCS  
Topic: Performing One-Time Configuration Tasks  
Lesson: Online Configuration  
Topic: Testing the Service Group  
Lesson: Offline Configuration  
Topic: Offline Configuration Procedures  
Lesson: Configuring VCS Response to Resource Faults  
Topic: VCS Response to Resource Faults  
Lesson: Sharing Network Interfaces  
Topic: Parallel Service Groups  
Lesson: I/O Fencing  
Topic: I/O Fencing Concepts and Components  
Lesson: Clustering Databases  
Topic: The Enterprise Agent for Oracle |
## EXAM SECTION 5
Validate Implementation and Make Adjustments for High Availability

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<tr>
<th>Certification Objectives</th>
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| Determine expected outcomes of a "service group freeze" test. | Lesson: VCS Operations  
Topic: Common VCS Operations  
Lesson: Configuring VCS Response to Resource Faults  
Topic: VCS Response to Resource Faults |
| Determine expected outcomes of a "loss of public interface" test. | Lesson: Configuring VCS Response to Resource Faults  
Topic: VCS Response to Resource Faults  
Lesson: Multiple Network Interfaces  
Topic: Alternative Network Configurations  
Topic: MultiNICB  
Topic: IPMultiNICB |
| Determine expected outcomes of a "heartbeat" failure test. | Lesson: Cluster Communications  
Topic: Cluster Membership  
Lesson: System and Communication Faults  
Topic: Cluster Interconnect Failures  
Lesson: I/O Fencing  
Topic: I/O Fencing Operations |
| Determine expected outcomes of a manual failover test. | Lesson: Configuring VCS Response to Resource Faults  
Topic: VCS Response to Resource Faults  
Lesson: Service Group Dependencies  
Topic: Service Group Dependencies |
| Determine expected outcomes of a "trigger operation" test. | Lesson: Configuring Notification  
Topic: Using Triggers for Notification  
Topic: Fault Notification and Event Handling |
| Determine expected outcomes of a "failure of an application" test. | Lesson: Sharing Network Interfaces  
Topic: Sharing Network Interfaces  
Topic: Using Parallel Service Groups  
Lesson: Configuring VCS Response to Resource Faults  
Topic: VCS Response to Resource Faults  
Topic: Controlling Fault Behavior  
Lesson: System and Communication Faults  
Topic: Ensuring Data Integrity  
Topic: Cluster Interconnect Failure |
| Determine if an application will fail over. | Lesson: Configuring VCS Response to Resource Faults  
Topic: VCS Response to Resource Faults  
Lesson: Service Group Dependencies  
Topic: Service Group Dependencies  
Lesson: Startup and Failover Policies  
Topic: Failover Rules and Policies |
| Determine where a particular application is expected to start. | Lesson: VCS Operations  
Topic: Common VCS Operations  
Lesson: VCS Configuration Methods  
Topics: Starting and Stopping VCS  
Lesson: Configuring VCS Response to Resource Faults  
Topic: VCS Response to Resource Faults  
Lesson: Cluster Communications |
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| Determine expected outcomes of a "system failure" test. | Lesson: System and Communication Faults  
Topic: Cluster Interconnect Failures  
Lesson: Startup and Failover Policies  
Topic: Testing Failover Policies (lab)  
Lesson: Clustering Databases  
Topic: The Enterprise Agent for Oracle  
Lesson: Configuring VCS Response to Resource Faults  
Topic: VCS Response to Resource Faults |
| Determine the expected outcome of a work load management test. | Lesson: Startup and Failover Policies  
Topic: Testing Failover Policies (lab) |
| Given a configuration and a notification test failure, determine the changes needed to fix the notification. | Lesson: Configuring Notification  
Topic: Notification Overview  
Topic: Configuring Notification  
Lesson: Configuring VCS Response to Resource Faults  
Topic: VCS Response to Resource Faults |
| Describe how to verify main.cf and *.cf files. | Lesson: Offline Configuration  
Topic: Offline Configuration Procedure |
| Describe uses and implementation of the VCS Simulator. | Lesson: VCS Operations  
Topic: Using the VCS Simulator |
| Describe uses and implementation of fire drill. | Lesson: Online Configuration  
Topic: Testing the Service Group |

**EXAM SECTION 6**

**Document and Maintain**

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<tr>
<th>Certification Objectives</th>
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| Describe how to capture a configuration. | Lesson: VCS Configuration Methods  
Topic: Online Configuration  
Lesson: Offline Configuration  
Topic: Solving Offline Configuration Problems  
Lesson: Troubleshooting  
Topic: Archiving VCS-Related Files |
| Describe procedure for adding/removing/modify resources in a running cluster. | Lesson: VCS Building Blocks  
Topic: VCS Terminology  
Lesson: Online Configuration  
Topic: Adding Resources  
Topic: Testing the Service Group  
Topic: Solving Common Configuration Errors  
Lesson: Configuring VCS Response to Resource Faults  
Topic: Recovering from Resource Faults |
| Describe procedure for adding/removing/modify resource types in a running cluster. | Lesson: Configuring VCS Response to Resource Faults  
Topic: Controlling Fault Behavior |
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<th>Certification Objectives</th>
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| Describe procedure for adding/removing nodes in a running cluster. | Lesson: Preparing a Site for VCS  
Topic: Hardware Requirements and Recommendations  
Lesson: Reconfiguring Cluster Membership  
Topic: Adding a New System to a Running VCS Cluster  
Topic: Merging Two Running Clusters |
| Describe procedure for adding/removing/modify groups in a running cluster. | Lesson: Service Group Dependencies  
Topic: Configuring Service Group Dependencies |
| Describe procedure for upgrading software in a running cluster. | Lesson: High Availability Concepts  
Topic: High Availability Concepts  
Lesson: Preparing a Site for VCS  
Topic: Software Requirements and Recommendations  
Lesson: Installing VCS  
Topic: Using the VERITAS Product Installer  
Lesson: VCS Operations  
Topic: Managing Applications in a Cluster Environment  
Topic: Common VCS Operations  
Lesson: VCS Configuration Methods  
Topic: Starting and Stopping VCS  
Topic: Controlling Access to VCS  
Lesson: Offline Configuration  
Topic: Offline Configuration Procedure  
Lesson: Clustering Applications  
Topic: VCS Agents for Managing Applications  
Lesson: Clustering Databases  
Topic: Database Preparation |
| Determine where to locate the logs. | Lesson: Installing VCS  
Topic: VCS Configuration Files  
Lesson: VCS Operations  
Topic: Common VCS Operations  
Lesson: Online Configuration  
Topic: Solving Common Configuration Errors  
Lesson: Troubleshooting  
Topic: Monitoring VCS |
| Resolve common cluster start-up problems. | Lesson: VCS Operations  
Topic: Common VCS Operations  
Lesson: Online Configuration  
Topic: Adding Resources  
Lesson: Offline Configuration  
Topic: Offline Configuration Procedure  
Topic: Solving Offline Configuration Problems  
Lesson: Cluster Communications  
Topic: VCS Communications Review  
Topic: Joining the Cluster Membership  
Lesson: Troubleshooting  
Topic: Troubleshooting Guide  
Topic: Monitoring VCS |
Obtaining Symantec Certification

To become Symantec certified, candidates must pass exam(s) available through Prometric testing centers. To assist in preparation for the certification exams, candidates are strongly encouraged to attend training course(s) available through Symantec, in addition to meeting any necessary prerequisites, on-the-job experience, and study. Be cautioned that attendance in a training course does not guarantee passage of a certification exam.

If you have questions about the Symantec Certification Program, send an email to Customer_Certifications@Symantec.com.

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<tr>
<td>Define the steps to add a new cluster user to an active cluster.</td>
<td>Lesson: VCS Configuration Methods</td>
</tr>
<tr>
<td></td>
<td>Topic: Controlling Access to VCS</td>
</tr>
</tbody>
</table>
About Symantec
Symantec is a global leader in providing security, storage and systems management solutions to help consumers and organizations secure and manage their information-driven world. Our software and services protect against more risks at more points, more completely and efficiently, enabling confidence wherever information is used or stored.

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