



HP Certified Professional

OpenVMS System Administration

Exam #HP0-081
Exam Preparation Guide

Purpose of the exam prep guide

The intent of this guide is to set expectations about the content and the context of the exam and to help candidates prepare for the exam. In this guide, you will find recommended HP training courses, reference and study material help you achieve a successful passing score. Studies conducted by HP and Prometric show that a combination of course attendance and self-study maximizes the likelihood of passing the exam on the first attempt.

Audience

The OpenVMS System Administration exam is intended for IT professionals who understand networking fundamentals and who typically support non-clustered AlphaServer systems running OpenVMS. These professionals are expected to have an intermediate knowledge level of OpenVMS, and one year of hands-on experience with OpenVMS.

Candidates should take the exam after acquiring the necessary competencies and when able to meet the exam objectives outlined in this document.

Exam Details

These details refer to the exam described in this document:

- Number of questions: 73
- Time allotted to take the beta exam: 90 minutes
- Passing score: 70%
- No on-line or hard copy sources may be referenced during the exam.

Scope of the Exam

The OpenVMS System Administration exam measures intermediate level knowledge and skills related to the major competencies and technologies listed below. You need hands-on experience to pass this exam. Candidates typically require 12 months to obtain this experience, and to develop the desired competencies sufficiently.

Major Competencies

Exam candidates should be able to:

- Install OpenVMS V8.2
- Configure/customize OpenVMS to customer's specifications
- Upgrade OpenVMS to its latest version
- Manage Devices, Queues, Users, and Files
- Backup files
- Set and manage security and performance features
- Demonstrate knowledge of OpenVMS concepts and terminology

Major Strategies, Technologies, and Concepts

Exam candidates should have intermediate level knowledge of the following strategies, technologies, and concepts:

- OpenVMS operating system V8.2
- File systems
- OpenVMS Volume Shadowing
- RAID
- Batch and print queuing
- Networking
- System Security
- User Interface
- Basic cluster concepts

Exam Objectives

Use the exam objectives listed in this section to guide your study and to check your readiness for the exam. The exam measures your understanding of these objectives. The approximate percentage of exam questions dedicated to each major category of objectives is included in parenthesis.

OpenVMS System Administration

Installation, Configuration and Upgrade (9%)

- Explain the prerequisites for operating system installation/upgrade.
- List the steps needed to perform operating system installation/upgrade.
- List the steps needed for managing OpenVMS licensing.
- Explain how to manage patches and layered product revision levels.
- Explain how to display key network parameters.
- Explain the purpose and conventions for TCP/IP domain names, node names, IP addresses, and DHCP.
- Explain the purpose and how to use the following utilities/procedures during a basic network installation: LANCP, NETCONFIG.COM, NET\$CONFIG.COM, UCX\$CONFIG.COM, TCPIP\$CONFIG.COM, and LAT\$STARTUP.COM.
- Explain how to configure a system to boot from a SAN device.

System Startup and Shutdown (9%)

- List and describe the sequence of events of normal system startup.
- Define the purpose of OPCOM, ERRFMT and JOB_CONTROL processes.
- List the steps used to boot a powered-down, halted or crashed system.
- Explain the console variables used to control the normal boot process.
- Explain how to force a crash dump.
- Explain how to collect and preserve BUGCHECK information.
- Explain how to examine the error log.
- List and describe the sequence of events of an orderly system shutdown or reboot.
- Explain how SYSTARTUP_VMS.COM and SYSMAN are used to perform common startup tasks.

Device Management (11%)

- Explain how to set the characteristics of individual terminals.
- Explain the system parameters used to set default terminal characteristics.
- Explain how to display terminal information.
- Explain how to set printer characteristics.
- Explain how to display device and printer information.
- Explain how to allocate and deallocate devices.
- Explain how to configure or initialize volumes.
- Explain how to add members to and remove members from shadow sets.
- Explain how to display storage device information.
- Explain the purpose of mount verification.
- Explain how to display and configure a network interface.
- Recognize Fibre Channel.

File System Management and Backup (12%)

- Define file fragmentation and explain its consequences.
- Differentiate between ODS-2 and ODS-5.
- Explain how to set, modify, and display volume high-water marking, the volume label, and other volume attributes.
- Explain how to use ANALYZE/DISK to obtain error reports, recover lost files and blocks and resolve multiply-allocated blocks.

Explain the SET command for rebuilding the file system.
Explain how to transfer files between storage volumes.
Differentiate image, incremental, and physical backups.
Explain risks of using volume shadowing in place of backup.
Explain how to backup and restore files or volumes.
Explain how to create and restore image backups.
Explain how to list the contents of a saveset.
Explain the BACKUP qualifiers used to ensure data integrity.
Define and explain the issues associated with setting files to NOBACKUP.
Explain how to locate files on tapes.

User Management (13%)

Define pooled, deductible, and nondeductible user limits and quotas.
Explain the relationships between UAF and PQL system parameters.
Define the categories of user privileges, and identify the activities permitted with each privilege.
Explain the purpose of SYSUAF.DAT and RIGHTSLIST.DAT.
Explain the purpose of the system-supplied DEFAULT, FIELD, SYSTEM, and SYSTEST accounts.
Explain the purpose of the common configuration files such as VMSMAIL_PROFILE.DATA.
Explain how to use AUTHORIZE to manage user accounts.
Explain how to manage identifiers.
Describe the steps needed to add a user to the system

Queue Management (7%)

Define the concepts of queuing and spooling.
Explain the purpose of queue managers, forms, and library modules.
Differentiate and explain the relationship between generic and execution queues.
Explain how to create, start and stop batch and print queues.
Explain how to set and modify queue parameters and characteristics.
Identify the files that comprise the queue database.
Explain how to identify why a queue is stalled, and how to resume a stalled queue.

System Performance and Customization (13%)

Manage primary and secondary page files
Identify potential sources of CPU bottlenecks.
Identify potential sources of memory bottlenecks.
Identify potential sources of I/O bottlenecks.
Define balance set and working set.
Define modified page list and free page list.
List and explain the phases of AUTOGEN.
Explain the purpose and contents of MODPARAMS.DAT.
Explain the basics of TDC.
Explain the basics of XFC.

Security (7%)

Define and explain the purpose of security auditing.
Define the purpose of the AUDIT_SERVER process and the security audit journal.
Explain how to enable and disable security auditing.
Explain how to examine audit events.
Explain how to display and delete intrusion records.

User Interface (11%)

Explain the purpose of the syntactical components (i.e. verb, parameter, and qualifier) of a generic DCL command.

Identify the elements of the DCL message: facility, severity, ident, and text.
Explain how to pass parameters to a command file.
Explain how to obtain log files for command files run interactively and as batch jobs.
Explain how to monitor the execution of each command in a command file.
Explain how to define, display, and delete logical names and symbols.
Identify the lexical functions for obtaining system, device, and job process information.
Explain how to set DECwindows remote display.

Basic OpenVMS Operating System Concepts and Terminology (8%)

Define working set.
Explain the purpose of the page file and the swap file.
Explain and differentiate between paged and non-paged pool.
Differentiate between buffered and direct I/O.
Explain the purpose of clustering.
Explain the purpose of a cluster interconnect.

Recommended Training Courses and Documents

This section lists training courses and documents that can help you acquire a majority of knowledge and skills needed to pass the exam, but you must also gain the practical experience outlined in this guide. Specifically, you should have 12 months practical experience installing and administering a networked AlphaServer system running OpenVMS, which should include each major competency cited in the previous section.

You are not required to take the courses listed in this section before taking the exam. However, HP **strongly recommends** that you attend the appropriate classes, participate in class labs, and thoroughly review course materials and reference documents before taking the exam.

Instructor-Led Training

Use the information in this guide and the practical experience you have gained to determine which of the following courses, if any, you should take to prepare for this exam.

You can learn more about these courses and register at <http://education.hp.com/openvms.htm>.

- HP OpenVMS V8.s Technical Update (u8631)
- HP OpenVMS Fundamentals (u3716s)
- HP OpenVMS System Management I: Essentials for Established Systems (u3724s)
- HP OpenVMS System Management II: Installation, Configuration & Customization (u3725s)

Self-Paced Training

This section lists the relevant self-paced courseware available from HP.

Title	Source or Part Number
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Documentation

This section lists reference documents that describe the major competencies, technologies, and concepts covered in the exam. HP **strongly recommends** that you review the specific sections listed for each document. Since some sections may describe topics in more depth than is required for the exam, you should use the exam objectives listed in this publication to guide your study.

Contents	URL
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OpenVMS Systems Documentation search	http://h71000.www7.hp.com/doc/index.html#ovmsdocset
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OpenVMS V8.2-1 and 8.2 Documentation	http://h71000.www7.hp.com/doc/os82_index.html
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OpenVMS V7.3-2 Documentation	http://h71000.www7.hp.com/doc/os732_index.html
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OpenVMS V 7.3 Documentation	http://h71000.www7.hp.com/doc/os73_index.html
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Section 2: Sample Exam Questions

Sample Exam Questions

This set of sample exam questions will help you become familiar with the types of questions on the exam. This set of questions is NOT intended to test your readiness for the exam, since the questions do not cover every test objective. None of these questions is contained on the actual exam. The actual exam questions may be more or less difficult than this set of questions.

After answering these questions, check your responses using the answer key provided at the end of this section.

1. Which command copies the product release notes from a PCSI kit?
 - A. PRODUCT LIST
 - B. PRODUCT INSTALL
 - C. PRODUCT REMOVE
 - D. PRODUCT EXTRACT

2. During a system boot, which file loads the system parameters?
 - A. APB.EXE
 - B. VMB.EXE
 - C. SYSINIT.EXE
 - D. SYSBOOT.EXE

3. What is used to locate the primary bootstrap image?
 - A. STARTUP
 - B. boot block
 - C. initial boot stack
 - D. restart parameter block

4. An OpenVMS shadow set, DSA1, is mounted by only one OpenVMS node. The shadow set consists of three devices: \$1\$DGA1, \$1\$DGA2, and \$1\$DGA3.

Select the correct method for removing \$1\$DGA3 from the shadow set while

- preserving the integrity of the file system on \$1\$DGA3.
- A. DISMOUNT DSA1 /SHADOW=(\$1\$DGA3)
 - B. REMOVE \$1\$DGA3 DSA1
 - C. REMOVE /SHADOW_SET=DSA1 \$1\$DGA3
 - D. DISMOUNT DSA1
MOUNT /SHADOW=(\$1\$DGA1,\$1\$DGA2) DSA1 PAYROLL
 - E. SET VOLUME DSA1 /NOUSE
SET VOLUME \$1\$DGA3 /REMOVE
SET VOLUME DSA1 /AVAILABLE
5. Which process quota cannot be set on a batch queue?
- A. WSMAX
 - B. WSQUOTA
 - C. WSEXTENT
 - D. WSDEFAULT
6. Which VMSINSTAL.COM option will extract only the product release notes?
- A. D
 - B. E
 - C. L
 - D. N
7. What are components of a fully qualified TCP/IP node name? Select THREE.
- A. node name
 - B. subnet mask
 - C. TCP/IP address
 - D. geographical domain
 - E. organizational domain
8. What is the correct syntax for the SET TIME command?

- A. SET TIME=12/8/2004:3:33
 - B. SET TIME 12/8/2004 3:33
 - C. SET TIME=8-DEC-2004:3:33
 - D. SET TIME 8-DEC-2004 3:33
9. A SHOW SYSTEM command shows many processes in the RWMPB state. What is the most likely reason?
- A. excessive disk consumption
 - B. excessive pagefile consumption
 - C. excessive swapfile consumption
 - D. excessive multiprocessor synchronization
10. Which statement is true regarding non-paged pool?
- A. Non-paged pool pages can be written only to the swapfile.
 - B. Non-paged pool contains all process private images and data.
 - C. Non-paged pool is limited by the sysgen parameter CTLPAGES.
 - D. Non-paged pool can expand dynamically within defined limits.

Answer Key

#	Answer
1.	D
2.	D
3.	B
4.	D
5.	A
6.	D
7.	A,D,E
8.	C
9.	B
10.	D

Conclusion

HP wishes you success in the HP Certified Professional Program and in passing the exam for which you are preparing.