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# HP Certified Professional

## Implementing HP Enterprise Virtual Array Solutions HP0-402 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 to 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**

This exam is for technical presales personnel who design, deploy, configure and provide start-up & implementation services for SAN-based storage solutions.

Examples of job roles:

- HP SAN Architect
- Storage SA

General areas of content include:

- Solution Overview
- HSV Controllers
- Hardware Configuration
- HP StorageWorks Command View EVA
- Concepts and Terminology
- Storage System Configuration
- Advanced Concepts and Terminology
- Storage System Management
- System Integration
- Storage System Scripting Utility
- Troubleshooting

## Certification requirements

Implementing HP Enterprise Virtual Array, exam HP0-402, is one of the core requirements to be certified as an Accredited Systems Engineer (ASE) – HP StorageWorks.

This level of certification measures the competencies required for hands-on integration and support of technical solutions in complex, enterprise class environments. Given a set of customer business requirements, this individual is expected to be able to design, support and integrate platform, operating system, storage, network and option components to solve business needs. The ideal candidate is anyone who deploys complex solutions based on HP technologies. Individuals pursuing this level must meet the prerequisite of having the Accredited Integration Specialist certification.

Implementing HP Enterprise Virtual Array, exam HP0-402, is also one of the core requirements to be certified as an Accredited Presales Consultant (APC) - HP Enterprise Storage Solutions. This level of certification requires an individual to take a set of customer business requirements, and plan and design a solution (including application, platform, operating system, storage, network and option components) within a specialty area. Accredited Presales Consultants are expected to be able to explain and position business class and enterprise class products, as well as solutions and services at a generalist level. The ideal candidate for this certification level is any technology-aligned specialist who plans and designs solutions for their customers based on HP technologies.

## Prerequisites

- APC requires no prerequisites, AIS level certification is required for ASE

## Exam details

At the beginning of the exam, you will be asked to answer several survey questions. The survey questions are designed to assist the exam development team in accurately profiling test results and to improve future exams.

The following are details about the exam:

- **Number of items:** 71
- **Item types:** multiple choice, drag and drop
- **Time commitment:** 105 minutes
- **Passing Score:** 73%
- **Reference Material:** No on-line or hard copy reference material will be allowed at the testing site.

## Exam Registration

- This exam is available at [Prometric](#).

## Comments on the exam

During the exam, participants can make specific comments about the items (i.e., accuracy, appropriateness to audience, etc). HP welcomes these comments as part of our continuous improvement process.

## Exam content

The following sections and testing objectives represent the specific areas of content covered in the exam. Use this outline to guide your study and to check your readiness for the exam. The exam measures your understanding of these areas.

<b>Solution Overview</b>
Describe the key customer value and product positioning of the EVA solution.
Recognize the attributes and features of EVA hardware, including racks, rack models, controllers, disk drive enclosures, disk drives, and loop switches.
Recognize the attributes and features of EVA software, including VCS and Command View EVA
Identify the current types of service solutions.
<b>HSV Controllers</b>
Describe the main features of the HSV controller.
Identify and describe the components of the HSV controller.
<b>Disk Drive Enclosures</b>
Describe the features of the disk drive enclosures.
Identify and describe the components of the disk drive modules and enclosures (LEDs, blowers, power supplies, EMU, I/O modules, etc.).
<b>Hardware Configuration</b>
Identify and describe the components of the EVA racks (EAB, PDU, PDM).
Identify and describe the components and cabling for the FC configurations (loop switch, backend loop connections, and expansion cabinets).
<b>HP StorageWorks Command View EVA and EVAPerf</b>
Explain how to access Command View EVA and EVAPerf on what platforms Command View EVA can be implemented.
Describe features of Command View EVA and EVAPerf and rules for implementing Command View EVA.
<b>Concepts and Terminology</b>

Describe features and terminology of the EVA (disk group, virtual disk, VRAID, disk leveling, hosts and LUNs, storage system, snapshots, snapclones, etc.).
<b>Storage System Configuration</b>
Demonstrate and describe the steps used to configure an EVA solution (how to create disk groups, virtual disks, snapshots, and snapclones).
<b>Host System Configuration</b>
Demonstrate and describe the steps used to connect and configure the EVA solution for use in the SAN (managing hosts and presenting Vdisks with Command View EVA).
<b>Advanced Concepts and Terminology</b>
Describe advanced features and terminology of the EVA (distributed sparing, failure protection levels, RSS, etc.)
<b>Storage System Management</b>
Describe and identify the storage management agent options that you can set in Command View EVA and demonstrate how to configure them (discovery, passwords, user interface and licenses).
Determine the EVA hardware properties and configuration using Command View EVA (rack, controller, disk drive enclosure and disk drive properties).
<b>System Integration</b>
Describe the steps involved to set up event notification and remote monitoring (SNMP and ISEE).
Describe key considerations, best practices and tools for designing disk groups and types of disks with respect to availability, performance, cost, and capacity.
<b>Storage System Scripting Utility</b>
Demonstrate and describe how to install and start SSSU and use commands to create scripts and configure and manage the EVA using SSSU.
<b>Troubleshooting</b>
Demonstrate and describe troubleshooting procedures for common EVA problems.
List the replaceable units and describe replacement procedures. (FRUs and CRUs).

## Recommended Training and Study References

This section lists training courses and documents that can help you acquire a majority of the knowledge and skills needed to pass the exam. You must also gain the practical experience outlined in this guide

You are not required to take the courses listed in this section. However, HP **strongly recommends** that you attend the classes, participate in class labs, and thoroughly review all course material and documents before taking the exam, even if you believe you have sufficient on-the-job experience.

## Instructor-Led Training

Use the information in this guide and the practical experience you have gained to determine your need for either of the following instructor-led courses.

Title	Course Number	How to Enroll
Implementing HP Enterprise Virtual Array Solutions Instructor-led Course	eLMS: 24987	<p><u>Internal</u></p> <p><a href="http://tslearner.den.hp.com/">http://tslearner.den.hp.com/</a></p> <p><u>External</u></p> <p>Americas:</p> <p><a href="http://www.hp.com/go/training">www.hp.com/go/training</a></p>

## Web-based Training

Self-paced training and technical documentation may provide appropriate learning alternatives to instructor-led training for more experienced candidates.

Title	How to Order/Obtain
HP Storage Technologies Web-based Training (Course 1822)	<a href="http://h20181.www2.hp.com/plm/">http://h20181.www2.hp.com/plm/</a>
HP Storage Software and Solutions Full-Line Technical Web-based Training (Course 489)	<a href="http://h20181.www2.hp.com/plm/">http://h20181.www2.hp.com/plm/</a>
HP StorageWorks Full-Line Product Technical Web-based Training (488)	<a href="http://h20181.www2.hp.com/plm/">http://h20181.www2.hp.com/plm/</a>
Command View EVA Simulation (Download)	<a href="http://h20181.www2.hp.com/plm/">http://h20181.www2.hp.com/plm/</a>
HP StorageWorks Enterprise Virtual Array Family and Software Solutions KMT	<a href="http://h20181.www2.hp.com/plm/">http://h20181.www2.hp.com/plm/</a>
HP StorageWorks Enterprise Virtual Array VCS v3.x	<a href="http://h20181.www2.hp.com/plm/">http://h20181.www2.hp.com/plm/</a>

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## Documentation

Title	Source/Order Number
Adding M5314 Drive Enclosures to an EVA5000 Configuration Instructions	<a href="#">Adding M5314 Drive Enclosures to an EVA5000 Configuration Instructions (EK-DEIRE-AA. C01, May 2004)</a>
Fibre Channel Disk Drive Replacement Card	<a href="#">Fibre Channel Disk Drive Replacement Card</a>
HP StorageWorks Command View EVA V3.2 Release Notes	<a href="#">HP StorageWorks Command View EVA V3.2 Release Notes (AA-RT6YF-TE, July 2004)</a>
HP StorageWorks Enterprise Virtual Array Configuration Best Practices	<a href="#">HP StorageWorks Enterprise Virtual Array Configuration Best Practices (5982-9140EN, October 2004)</a>
HP StorageWorks Enterprise Virtual Array Important Requirements for the Use of 250 GB Fibre Channel Disk Drives Read Me First, V3.020	<a href="#">HP StorageWorks Enterprise Virtual Array Important Requirements for the Use of 250 GB Fibre Channel Disk Drives Read Me First, V3.020 (EK-250GD-RM. A01, July 2004)</a>
HP StorageWorks Enterprise Virtual Array Important Requirements for the Use of 300 GB Fibre Channel Disk Drives Read Me First, V3.020	<a href="#">HP StorageWorks Enterprise Virtual Array Important Requirements for the Use of 300 GB Fibre Channel Disk Drives Read Me First, V3.020 (EK-300GD-RM. A01, July 2004)</a>

## Sample Test Items

The sample test items give you a preview of what the actual test items will look like. It is important to note that these items WILL NOT be on the exam itself. However, they are representative of the actual items, and they should help you become familiar you with the format and complexity of the test items. These sample test items are not a check for readiness.

1. What does the EVA8000 product support? Select TWO.
  - a. SCSI disk drives
  - b. FATA disk drives
  - c. SATA disk drives
  - d. only one operating system

- e. 168 disk drives in one 42U cabinet
2. How many cache batteries does the EVA4000 contain by default?
    - a. 1
    - b. 2
    - c. 4
    - d. 8
  3. The enclosure address bus cable in an EVA system is part of which assembly?
    - a. Mirrored port link
    - b. Fibre Channel host link
    - c. Enclosure Address Bus (EAB)
    - d. Fibre Channel Arbitrated Loop
  4. HP StorageWorks Command View EVAPerf enables you to monitor and display which three performance metrics? Select THREE.
    - a. virtual disks
    - b. physical disks
    - c. cache utilization
    - d. array controllers
    - e. disk group utilization
    - f. environmental levels
  5. What are configurable virtual disk features? Select TWO.
    - a. cache policy
    - b. metadata size
    - c. failover path/mode
    - d. preferred path/mode
  6. Dual HBA attached hosts present their WWID's to the EVA using the fabric. Which utility can be used to identify the WWIDs of the hosts in a Windows based environment?
    - a. lputilnt
    - b. lsconfig
    - c. fcmsutil
    - d. analyze/system
  7. How is EVA license information entered?
    - a. through the HSV OCP
    - b. through Command View EVA

- c. through the host requiring access
  - d. through the Storage System Scripting Utility (SSSU)
8. What is the redundancy overhead for Vraid5?
- a. one parity block for five blocks of data
  - b. one parity block for four blocks of data
  - c. depends on the number of disks in the RAID set
  - d. depends on the number of disks in the disk group
  - e. determined by the protection level of the disk group
9. After starting the SSSU and selecting a management server, which command should you use to view the HSV systems available on the manager?
- a. `LS HSV`
  - b. `show all`
  - c. `LS system`
  - d. `select system`
10. An EMU in a drive enclosure has detected an error and set off an audible alarm. How can you mute the alarm until another error occurs?
- a. push the top pushbutton on the EMU
  - b. push the bottom pushbutton on the EMU
  - c. push and hold the top pushbutton on the EMU
  - d. push and hold the bottom pushbutton on the EMU



Answers:

- |            |       |
|------------|-------|
| 1. b, e    | 6. a  |
| 2. b       | 7. b  |
| 3. c       | 8. b  |
| 4. a, b, d | 9. c  |
| 5. a, d    | 10. d |

## Conclusion

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