Exam Audience
The Servicing the HP StorageWorks MSA1000/1500 exam is for field and customer engineers, call center personnel, field personnel, and channel partners who provide installation and/or operational support assistance for HP StorageWorks MSA1000 and MSA1500 products.

Exam Specifications
- Number of items: 53
- Passing Criteria: 62%
- Time allocated: 1 hour and 15 minutes

Exam Preparation
- Prerequisite Training
  - HP StorageWorks MSA1000/1500 Service and Support
- Prerequisite Knowledge
  - Fibre Channel Switch and Fabric Fundamentals
  - Fibre Channel Switch Technology Training
  - Smart Array Controller Technology
  - Working knowledge and understanding of the MSA1000 and MSA1500
- Key Topics
  1.0 Fundamental Storage Technologies
    - SCSI ID priorities
    - devices that can be attached to SCSI busses
    - SCSI bus bandwidths
    - drive types
    - connectors and connector attachments
    - recommended actions to avoid functional problems when configuring or installing a SCSI bus
• drive failures in arrays
• RAID levels
• caching mechanisms
• dual path configurations

2.0 HP Product and Solution Sets
• HP’s Modular Storage Array product family information, e.g., MSA1000, MSA500cs, MSA30, SATA and SCSI disk drives, supported switches, hubs, host bus adapters, connectors, controllers, and cabling
• hardware configurations and limitations
• Fibre Channel transition speeds
• different firmware versions on the MSA1000
• cache modules and memory

3.0 Installation, Configuration, Setup & Upgrade
• installing/upgrading a redundant MSA1000 controller in an MSA1500cs
• slot use of the MSA1500cs
• installing additional SCSI I/O modules for the MSA1500cs
• hot-pluggable parts of an MSA1500cs
• providing controller redundancy
• SCSI I/O module electrical specifications
• MSA1000 Software Support CD use
• multipath MSA1500cs configuration requirements
• updating a second controller through ROM cloning
• tools for updating firmware on the MSA1000
• MSAFLASH.EXE functional specifications
• logging into an MSA SAN Switch 6
• backing up/restoring configuration files on the MSA1000 Fabric Switch 2/8
• performing firmware updates to the MSA1000 Fabric Switch 2/8 through the Command Line Interface
• Secure Path functionality
• Command Line Interface functionality
4.0 Troubleshooting & Repair/Replacement Procedures

- power-on/power-down sequences and implications
- identifying primary/redundant controllers in an active-passive MSA1500cs controller configuration
- MSA1000 controller functionality
- MSA1500cs controller display messages
- Environmental Monitoring Unit status LED indicators and indications
- changing a defective FCA2101 host bus adapter
- LCD display messages and implications
- steps to resolve an MSA30 power supply failure
- troubleshooting problems in an MSA20 connected to an MSA1500
- Fibre Channel cable routing and handling
- controller failures
- replacing the active MSA controller in a redundant MSA1000 configuration in a Windows 2003 environment
- cooling blower failures
- replacing defective power supplies
- corrupted MSA1000 firmware consequences
- temperature problems
- controller display message deletion
- recording the IEEE world wide ID of the Fibre Channel Adapter
- replacing array accelerator (cache) module

5.0 Administration

- isolating a storage system
- Array Configuration Utility characteristics
- Selective Storage Provisioning
- migrating a logical drive
- controller settings to ensure maximum data protection
- using Distributed Data Guarding
- expanding an array
- extending or migrating a logical drive
Available Study Materials

This section lists training course to help you acquire a majority of the knowledge and skills needed to pass the exam. You are not required to take the courses listed in this section; however, HP strongly recommends 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 datasheet and the practical experience you have gained to determine your need for the instructor-led training.

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<th>Title</th>
<th>Course Number</th>
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