HP Storage Essentials Performance Edition

Software Version: 9.4

Quick Start Guide

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Acknowledgements

This product includes software developed by the Apache Software Foundation (http://www.apache.org/).

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This product includes cryptographic software written by Eric Young (eay@cryptsoft.com).

This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit (http://www.openssl.org/).

This product includes software written by Tim Hudson (tjh@cryptsoft.com).

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- Search for knowledge documents of interest

- Submit and track support cases and enhancement requests

- Download software patches

- Manage support contracts

- Look up HP support contacts

- Review information about available services

- Enter into discussions with other software customers

- Research and register for software training

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http://h20229.www2.hp.com/passport-registration.html

To find more information about access levels, go to:

http://h20230.www2.hp.com/new_access_levels.jsp

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1 About This Guide

This guide was prepared to help new users and administrators become familiar with the product more quickly. The guide is not a stand-alone document; rather, it highlights topics that are important to typical new users and to help them locate where additional details about the listed topic can be found in the product documentation.

The guide assumes your installation team has already installed and set up your management server, performed checks to confirm its successful installation, and performed the initial discovery tasks needed for your installation.

Product Benefits

Your management server software simplifies your enterprise heterogeneous storage management with powerful Storage Resource Management (SRM) provisioning, storage metering, and customized reporting for EVA, HDS and XP arrays, as well as supporting many storage management capabilities for other storage environment elements.

The management server enables you to manage and quickly visualize and analyze your XP, HDS and EVA SAN and your "big picture" performance. You can analyze path performance information, as well as general system and performance reporting for these arrays.

Using the management server GUI, you can select, locate, identify, and "drill down" to your specific EVA, HDS and XP array components and utilize the management server's many performance management capabilities. Other elements in your topology can also be analyzed through the management server GUI, without the need to switch to or install additional management software applications.

Components of Storage Essentials Performance Edition

The management server software for this edition includes the following software components:

- HP Storage Essentials Management Server

- Oracle 10g Standard Edition (automatically installed by the management server installation wizard)

- CIM Extension files – Common Information Module files that you install on the hosts and other network elements you want to manage and for which you want to automate discovery

- CIM Extension Management tool for installing some of the supported CIM extensions in batch mode, remotely on multiple hosts

Initial Tasks

In addition to the basic tasks performed as part of your management server installation and setup, there are recommended additional, related tasks that you should perform as you begin using the product. Collectively, these basic tasks and the recommended additional tasks are called "initial tasks" in this guide.

Your installation and setup requirements determine which of these initial tasks are performed as part of your basic installation and setup, and which tasks are performed as you begin using the product.

For initial tasks that have not been performed yet, complete some or all of them now, if they are relevant to your installation and system environment needs. Performing all the relevant initial tasks gives you a more complete picture, or "baseline," of your system's environment topology and performance. If you have a baseline, you can plan more appropriately for future changes. You will also be able to evaluate the performance effects of future changes to your system environment.

The initial tasks that you should perform are the following.

Verify Your System Environment Meets Support Matrix Requirements

Ensure those who are responsible for your system environment and its support understand how to use the support matrix. They should understand that components added to the system environment must meet the requirements stated in the support matrix; otherwise, problems can be introduced.

For additional information about requirements, refer to the product support matrix. The support matrix is provided at the top level of the management server CD-ROM.

Redeem Your License from Webware

Redeem your license(s) to activate product features from webware. The URL is:

   https://webware.hp.com

For additional information about redeeming your license(s), see the Managing Licenses chapter in the Installation Guide.

Import Your License File

Import the license(s) into HP Storage Essentials. You will import your license for the XP, HDS and EVA Array Performance Pack at a later time.

For additional information, see the Managing Licenses chapter in the refer to the User Guide.

Set up XP and HDS Performance Monitoring with the Array Performance Pack

You must do the following:

- **Create a command LUN on the XP array**.

- **Set up a host proxy**. You must do the following:

- Verify the Command LUN is accessible to the host bus adaptor (HBA) on the host proxy using the native HBA tool set.

- Install the RMLIB API set.

- Install the management server CIM extension on the host proxy. This is the same CIM extension as for other hosts of the same operating system. No additional configuration is needed.

- Verify that the RMLIB API is installed and returning data through the Command LUN by using the management server tool arrayScan (located in the \tools directory where the CIM extension is installed).

If you are using the Performance Advisor software to collect information about the XP and HDS array, you can use the same proxy host used with Performance Advisor to be the proxy host that you use for the management server. Both the management server and Performance Advisor use a similar host proxy configuration. They both use the RAID Manager Library (RMLIB API) and a command LUN.

- **Set up the Management Server for the XP and HDS Performance Pack**.

The following is an overview of the tasks you must complete to set up the XP and HDS Array Performance Pack:

- Discover the XP and HDS arrays.

- Import the license for the XP and HDS arrays.

You can find detailed information about the proceeding tasks in the "Setting up XP Performance Monitoring with the Array Performance Pack" chapter of the Installation Guide.

Collect EVA and XP Array Performance Data

You must set up your collectors for EVA and XP arrays:

To enable EVA collectors for EVA arrays, follow these steps:

1. Discover the EVA array, as described in Installation Guide, Chapter: Discovering Switches, Storage Systems, NAS Devices, and Tape Libraries.

2. Set up the license for the Performance Pack for the EVA array, as described in User Guide chapter: Managing Licenses.

3. Set up the collectors for the EVA array, as described in User Guide chapter: Viewing Performance Data and chapter: Configuring the Management Server.

To enable collectors for the XP and HDS arrays, follow these steps:

1. Discover the XP and HDS arrays, as described in Installation Guide, Chapter: Discovering Switches, Storage Systems, NAS Devices, and Tape Libraries.

   If you already set up the XP and HDS Performance Pack, you most likely discovered the XP and HDS arrays and set up its collectors.

2. Set up the license for the Performance Pack for the XP and HDS array, as described in User Guide chapter: Managing Licenses.

3. Set up the collectors for the XP and HDS array, as described in User Guide chapter: Viewing Performance Data and chapter: Configuring the Management Server.

You also should verify that data is seen in HP Storage Essentials. The first data point typically will be seen within 15-30 minutes of the start time (depending if the Spread Start Time option is checked), plus the interval time. It takes this amount of time because the management server requires two data collections to make a point.

For testing, you may want to change the interval to a lower value to speed the process. However, remember to change the interval back to a reasonable value for your business needs. The recommendation for setting performance collection is that it should be set at no less than 15 minute intervals. It is best practice to avoid setting collectors under 15 minutes. Small time intervals of one to five minutes, for example, should be used only for troubleshooting issues and only for limited periods of time (for example, under 24 hours). In general, the recommendation is to use the default values unless HP support advises you to do otherwise.

Set up Product Health, Discover Management Server

Set up and configure the product health agent to monitor the health of the HP Storage Essentials database and the disk space available for the management server. For additional information, see the "Managing Product Health" section of the "Configuring the Management Server" chapter of the Installation Guide.

Configure Switches for Discovery

Configure the host proxy server for Brocade and McDATA so that they can be discovered. Cisco switches use an embedded provider, which may need to be enabled and configured so that it can be discovered.

See the "Discovering Switches, Storage Systems, NAS Devices, and Tape Libraries" chapter of the Installation Guide.

Discover Arrays and Elements

It is assumed from the previous sections that you have already discovered your XP, HDS and EVA arrays and that you now need to discover the other elements on your network.

When logging in or supplying credential information for discovery or other functions, be aware that some elements lock you out without warning after multiple failed login attempts. This can also occur with hosts, depending on your security settings.

For EVA Discovery, the user name and password are the credentials of the Command View EVA administrator login.

You should use a phased discovery process.

You should discover your switches, storage systems, NAS devices, and tape libraries before you discover applications, backup servers, and hosts. For detailed information, see the "Discovering Switches, Storage Systems, NAS Devices, and Tape Libraries" chapter of the Installation Guide.

If you want to monitor more arrays than your current license allows, you can purchase additional licenses or you can change the arrays you monitor by transferring the license from one array to another. For detailed information, see the "Managing Licenses" chapter in the User Guide.

Discover Elements Not Requiring a CIM Extension

Discover arrays and the following elements not requiring a CIM extension:

- Switches

- Storage systems other than XP arrays that were discovered previously.

- Tape Libraries

- NAS Devices

For detailed information, see the "Discovering Switches, Storage Systems, NAS Devices, and Tape Libraries" chapter in the User Guide.

Deploy CIM Extensions

If you have access to hosts and you have permission to install software on them, deploy the CIM extensions to the most signification application servers in your system environment, so that the management server can acquire status information and data from them.

For detailed information, see the "Deploying and Managing CIM Extensions" chapter in the Installation Guide.

Discover Elements Requiring CIM Extensions

Discover elements that require a CIM extension, such as:

- Applications

- Backup Hosts

- Hosts

- XP and HDS arrays, if they were not discovered previously. Even though you can discover XP and HDS arrays without the Performance Pack, you will not be provided with all of the performance metrics.

For information about discovering XP and HDS arrays, see the "Discovering Switches, Storage Systems, NAS Devices, and Tape Libraries" chapter in the User Guide.

For information about discovering, applications, backup hosts, and hosts, see the "Discovering Applications, Backup Hosts and Hosts" chapter in the Installation Guide.

Typical Post-Discovery Tasks

The following are tasks to perform after discovery.

Validate Topology

Validate the topology to confirm that the high level topology is correct: Switches show their fan out with both generic "discovered objects" (aka "UNKNOWN") placeholders with "?" above them seen from the fabric, as well as managed hosts (hosts with the CIM extension) showing their HBAs and connections to switch ports. A properly discovered array will be denoted with "HP" above its icon, not the generic "?" that is retrieved from the switches nameserver.

From the array perspective, you confirm that the arrays are showing their controllers connected to switch ports. Validate the high level port connectivity and drill down into each "Element Topology" for applications/hosts/switches/arrays to confirm the full path "stitching" is in place such that HP Storage Essentials correctly shows the paths from application to LUN.

If your viewed topology is missing elements, or does not conform to your system environment, you may want to review the procedures in the *Installation Guide, Chapter: Discovering Switches, Storage Systems, NAS Devices, and Tape Libraries*. Also, *User Guide, Chapter: Viewing Element Topology and Properties*.

Define Capacity Collection Schedules

Define the schedules for the management server to run and collect information for capacity. For additional information, refer to the *User Guide, Chapter: Configuring the Management Server.*

Define Security and Accounts

Set up accounts (Users/Roles/Organizations) and define the security levels for those accounts with regard to Authorization and Authentication.

For additional information, see the "Managing Security" chapter in the Installation Guide.

Create Organizations (Optional)

You can create logical organizations in the management server. For example, you can create Organizations to filter the topology to allow users to see only selected objects. This useful capability is leveraged throughout the product.

Group Generic Hosts (Optional)

This topic relates to the generic hosts that do not have CIM extensions installed. For these generic hosts, you can define properties, and group and rename them, as needed, to meet your environment management needs.

For additional information, see the "Discovering Applications, Backup Hosts and Hosts" chapter in the Installation Guide and User Guide.

Define Report Cache Refresh Schedule

Define the schedule for refreshing the report cache. The report cache is the cache containing the acquired data which is then passed to Report Optimizer. You will want to run a Report Cache Refresh after running Get Details. Then generally, let it run and refresh every six hours (its default value).

For detailed information, see the "Configuring the Management Server" chapter in the User Guide. Refer specifically to the "Managing Reports" section and the documentation for Report Optimizer.

Verify Metrics Displayed in Capacity Manager

Verify your capacity metrics to check whether you have included all of the elements you intended to monitor and that the results approximate what you expect.

Capacity collectors are limited to collecting metrics from applications, hosts, and switches. Capacity metrics from arrays are collected only during Get Details.

For detailed information, see the "Finding an Element's Storage Capacity" chapter in the User Guide.

Verify Expected and Historical Metrics Displayed in Performance Manager

Verify expected metrics in real time and possibly historical metrics if there is sufficient time.

You can validate expected metrics in real-time since this information should be available immediately after configuring the performance collection dependencies. If no real-time metrics are available, you should ask yourself the following questions to troubleshoot the problem:

- Is the EVAperf service running?

- Was the Command View server multi-homed and the wrong IP address used in the discovery?

- Did one of the pre-requisites for XP and HDS discovery get skipped, for example, selecting the host proxy in the configuration?

Historical metrics can be validated after just a few cycles of collection have passed, usually two to three cycles. As a result, if the default interval is hourly, it will take two to three hours. If the interval is 15 minutes, some data points will be available after about 30 minutes.

For detailed information, see the "Viewing Performance Data" chapter in the User Guide.

Run Report Cache Refresh

Refresh the reports cache, which is the cache that contains the information used in generating reports. By refreshing your report cache, your reports will be based on recent, fresh data in the cache. You set up the schedule for running the Report Cache Refresh previously in Define Report Cache Refresh Schedule on previous page.

For detailed information, see the "Configuring the Management Server" chapter in the User Guide.

Verify Reports are Populating

Check that your generated reports contain the desired data. Access Report Optimizer to verify that the reports for the EVA, HDS and XP arrays are populated correctly.

For additional information, refer to the documentation for Report Optimizer.

Set up Report Delivery via Email

Set up Report delivery through email as described in the *Quick Start Guide for Report Optimizer*.

Path Performance Analysis Use Case

Overview

This particular use case helps in troubleshooting a production application performance problem using all of the tools and performance metrics available in the Performance Edition.

Assume that there is a MS Exchange Server running on a physical Windows Server provisioned with EVA, HDS and XP storage. Also, assume that there is a VMware environment consuming the same EVA, HDS and XP storage. Due to server consolidation efforts in the company, more and more Virtual Machines (VMs) are being added to the environment to share the storage environment without paying attention to performance bottlenecks.

Eventually, the storage administrator receives a trouble ticket from the Exchange Server administrator indicating that the application is running painfully slow and the Exchange Server administrator suspects that storage is the problem. Without proper tools to map applications, VMs, servers (hypervisors), SAN, and storage, the storage administrator does not know where the problem is and how to troubleshoot it.

HP Storage Essentials, Performance Edition is just such a tool that allows the administrator to identify and remedy these types of problems. When HP Storage Essentials, Performance Edition is installed and configured, it only takes minutes to identify, isolate, troubleshoot, and report on the storage bottleneck.

The following is a walk-through of how this can be accomplished.

Use Case Steps

- **Identify:** Use the System Manager to identify the exact element that the server and application teams complained about. In this case, the MS Exchange Server and the Windows Server configured for it.

- **Isolate:** Use the end to end path topology view of the server to identify all of the connected elements to see how the storage service is configured for it. Isolate the path that leads to potential problem areas.

- **Troubleshoot:** Launch the Performance Manager, keeping in the reference of the path topology from the isolate step. Start walking through each connected device in the storage path of the Exchange application and chart performance data for each one of the devices. Using the XP, HDS and EVA performance packs, walk through the device elements and see if there are problems at the controllers, array groups, volumes, or the cache level. Keeping in the context of the application and also the VMware topology, it is likely that the virtualization effort might be ultimately causing the performance bottleneck for the Exchange server.

- **Reporting:** Once the troubleshooting is complete, it makes sense to see how this particular storage environment has been performing historically. You can get this information by using several out of the box reports in Report Optimizer. It is also possible to draw best practices for future storage performance and capacity planning by using Performance Manager and Capacity Manager in HP Storage Essentials.

Frequently Asked Questions

What does real-time mean?

"Real-time" refers to the 15/20/30 second interactive sampling of performance metrics in the Performance Manager. The specific frequency (15/20/30) depends on the device being monitored. For EVA, HDS and XP arrays, the frequency is every 20 seconds. These frequencies are not changeable.

The data is only as fresh as how often the collectors are run and how frequently the EVA and Command View EVA proxies are updated.

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Which metrics are relevant?

You can find many useful metrics about your system in the following areas of the product:

- Capacity Manager
- Performance Manager
- Provisioning Manager
- System Manager
- Report Optimizer

For detailed information, see the Finding an Element's Storage Capacity, Viewing Performance Data, Provisioning Manager, Viewing Element Topology and Properties chapters in the User Guide and the documentation for Report Optimizer.

Is there a way to preserve Performance Manager chart window settings across sessions?

This version management server provides the option of saving Performance Manager "workspace" layouts. You must "save" the charts. Otherwise, the charts will be lost.

Where can the user find additional documentation and patches?

You can find additional documentation and patches at the following Software Support Online (SSO) URL:

http://support.openview.hp.com