Hewlett Packard Enterprise

HPE XP7 Performance Advisor Software v6.3 Best Practices Guide

Abstract

This document provides recommendations on using the Performance Advisor at an optimal level.

Acknowledgments

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1 Overview of HPE XP7 Performance Advisor Software

HPE XP7 Performance Advisor Software collects, monitors, and displays the performance of XP and XP7 disk arrays. XP7 Performance Advisor collects performance data for individual components such as LDEV, CHIP/CHA, ACP/DKA, DKC, and MP blades (applicable for only XP7 disk arrays). XP7 Performance Advisor is a web-based application that includes the following resources:

- Centralized management station

- Distributed host stations

- Browser-based interface

- Command-line presentation client

Data communication between the above-mentioned is achieved through Internet-based protocols that eliminate geographical limitations to XP7 Performance Advisor resource distribution. XP7 Performance Advisor provides effective, point-in time displays that provide an overall view of subsystem performance. It includes the following:

- View the overall usage summary of an XP or a XP7 disk array against set threshold limits for a specified duration.

- Monitor large array configuration (XP7 Performance Advisor can monitor up to 64000 LDEVs).

- Create custom groups to monitor specific LDEVs, and view a graphical representation of their performance.

- Stay informed regarding array component utilization by configuring thresholds and alarms.

- Forecast a ThP pool utilization for the next week or month.

- Configure and manage the extensive historical database.

- Review history when a component crosses a threshold or triggers an alarm.

- View real time component usage. Up-to-the-minute performance data and history for array logical devices, frontend ports, backend ports, and internal bus.

- Plot graphs for components to view point in time performance data.

- Save floor space and resources by sharing the XP7 Performance Advisor management station with HP7 Command View AE.

- Compatible with other third-party products.

- Identify bottlenecks in the performance of applications residing on systems or hosts that use XP and XP7 disk arrays for storing their data.

- Generate reports on the overall performance of an XP or a XP7 disk array or on individual components in these arrays.

- Review a log of events that have been triggered within XP7 Performance Advisor.

2 General best practices for using Performance Advisor

- For Performance Advisor and Command View AE to coexist, ensure that the following minimum prerequisites are met before you proceed with the Performance Advisor installation:

  - 30 GB free space on hard drive

  - 4 GHz CPU or Dual processor system with minimum 2 GHz CPU each

  - 4 GB RAM

- Hewlett Packard Enterprise recommends that the host system communicate with a maximum of three disk arrays (XP and XP7 disk arrays) at a time.

- Hewlett Packard Enterprise recommends that there be at least a week's historic data available for the forecasting feature to provide accurate results, when you forecast using charts or alarms.

- To efficiently utilize the HPE XPWatch troubleshooting capabilities, avoid selecting the option "ALL" from the available menus. XPWatch is designed for focused troubleshooting and can capture data as frequently as every 10 seconds.

- Hewlett Packard Enterprise recommends to install XP7 Performance Advisor management station on standalone servers.

- To avoid residual cache reference, Hewlett Packard Enterprise recommends that you configure the browser settings as described below:
  1. In Internet Explorer, click **Tools**, and then click **Internet Options**. The **Internet Options** window appears.
  2. Click the **General** tab, and then under **Browsing history**, click **Settings**. The **Temporary Internet Files** and **History Settings** window appears.
  3. Under **Temporary Internet Files**, select **Every time I visit the webpage**.
  4. Click **OK**.
  5. Click the **Privacy** tab, and then under **Settings**, set the vertical slider to either Medium, High, or Low.
  6. Click **OK**.

3 Configuration and performance collection

> (!) **IMPORTANT:**   XP7 Performance Advisor Software v6.3 Management Station does not support upgrade.

- Hewlett Packard Enterprise recommends that you do not upgrade an XP7 Performance Advisor when a scheduled configuration collection or a manual configuration collection for an array is in progress.

- Hewlett Packard Enterprise recommends using two command devices that connect through two different ports (two different MPs) to achieve the optimal CHIP port (MP) performance utilization during performance data collection.

- Hewlett Packard Enterprise recommends using a command device and a port that is not shared with other critical applications to collect performance data of RAID groups (RAID groups, snapshot, THP, External RAID groups) and journal components. This is because collecting performance data for RAID groups is an intensive operation. To collect performance data for the remaining set of components, you can create another schedule through a different command device and port.

- Stagger schedule — a brief on when to use a stagger schedule:

  If the data collection Frequency is set to 15 minutes, performance data collection occurs at every quarter hour, irrespective of when the schedule is created. For example, if the schedule is created at 10.12 a.m., the first collection occurs immediately and the next collection occurs at the quarter of the hour, which is 10.15 a.m. Subsequent collections occur at 10.30 a.m., 10.45 a.m., and so on.

  If you select the **Stagger Schedule** checkbox, performance data collection occurs every 15 minutes from the time the schedule is created. For example, if the schedule is created at 10.12 a.m., the first collection occurs immediately and the next collection is 15 minutes later, which is at 10.27 a.m., and subsequent collections every 15 minutes after that. The Stagger schedule ensures that the load on Performance Advisor at any point in time is balanced because data collection occurs for all the XP and XP7 disk arrays not every 15 minutes of the hour, but at varied points of time in the day.

- **Host Agent minimum configuration**

  Following is the recommendation for a two minute collection interval:

  - Install host agent on a server (preferably UNIX host) where XP7 Performance Advisor is not installed

  - Minimum 2 GHz CPU speed

  - Minimum 2 GB RAM

  - Minimum 3 GB virtual memory (swap space)

  - Minimum 100 MB LAN speed

  - Maximum 65,000 LDEVS for all the XP and XP7 disk arrays whose data is collected by the host agent

  - Maximum four XP and XP7 disk arrays per host agent, if none of the disk arrays have more than 2,500 LDEVs (total of 10,000)

  - Minimum 512 MB heap size

  > **NOTE:**   All the above depends on other applications running on the host agent.

Example configuration for a host agent that collects data for four XP24000 disk arrays at 2 minute collection interval with <10,000 LDEVs (combined from all four XP24000 disk arrays):

- ◦ CPU: SUNW, UltraSPARC-T2 1165 MHz

- ◦ RAM: 8 GB

- ◦ SWAP:16 GB

- ◦ LAN speed: 1000 Mbps FD

- ◦ OS: Solaris v10

- ◦ JAVA Heap Size: 1 GB

- • Maximum number of LDEVs

  Table 1 (page 7) provides the list of tested configurations that Hewlett Packard Enterprise recommends for using Performance Advisor.

Table 1 Large XP array configurations

Management Station	Host Agent	# Arrays Managed	# LDEVs	Data Collection Frequency	Components
1	1	4	65K	30 mins	LDEVs
1	2	8	130K	45 mins	LDEVs
1	4	13	148K	60 mins	LDEVs

For DKC and Ports, you can set the data collection frequency to 10 minutes.

- • A maximum of six disk arrays can be managed from a single host agent.

- • A maximum of 13 disk arrays can be managed by one management station.

- • Maximum java heap size setting

  Table 2 (page 7) provides the list of tested java heap size configurations that Hewlett Packard Enterprise recommends on the management station and host agents system.

Table 2 Java heap size settings

Host agents	Number of LDEVs	RecommendedJava heap size
1	< 30,000 LDEVs	1024MB
1	> 30,000 LDEVs	1536MB **NOTE:** Systems with low main memory (less than 2GB) might not be able to allocate 1536MB of memory to Java, due to which the Java application will not start. In such a case, it is suggested that you set the heap size value to an MB value lesser than 1536MB or use the default value set on the host system.
Management Station	**Number of LDEVs**	**Recommended Java heap size**
1	< 64,000 LDEVs	Set an appropriate value or use the default value that is set on the management station.
1	> 64,000 LDEVs	1024MB 1536

4 Database configuration

- Database growth size depends on the number of schedules, LDEVs, and the frequency of schedules.

- For better capacity planning, consider the current database size and the available disk space. You can view this information in the **Database Configure** screen.

- Set a database size based on the necessity and available disk space. For example, if you do not want the database to grow to more than 20 GB, set the database size to 20 GB.

- To preserve historical performance data of an XP or a XP7 disk array before auto purge, use the DB Archival option to archive old performance data of the array.

  Auto purge starts when the current XP7 Performance Advisor database size reaches x % of the configured maximum database size, where x is the threshold value specified in the `purgeparameters.properties` file. When auto purge triggers, it will delete old performance data of the arrays.

  When the current database size is close to 60% of the maximum database size, enter the Array Serial Number, start date and end date for the data that must be archived using the Archive option of the Database Manager screen. During DB Archival, data is archived. This causes the database size to shrink, and it takes longer to activate auto-purge.

  For example, if the maximum database size is 8 GB, and the current database size is 4.8 GB, start DB archival for the array that you want to preserve historical data.

5 Charts and reports

- Do not generate charts or reports when the data purge or archival is in progress.

- To improve charting and overall XP7 Performance Advisor GUI response, perform a manual purge, so that auto purge does not run during the time when XP7 Performance Advisor is most frequently used.

- When determining if auto purge is running, check Event log.

- It is advisable to schedule multiple ExportDB reports for an XP or a XP7 disk array by staggering the data collection at different time intervals.

  NOTE:

  ○ Hewlett Packard Enterprise recommends that you maintain a 30-minute interval between each scheduled report.

  ○ Hewlett Packard Enterprise recommends that you generate reports in .docx format instead of .rtf format.

- Hewlett Packard Enterprise recommends to use different name for different host groups in order to view their respective charts and reports. If multiple host groups have the same name, charts and reports are displayed for only one host group.

6 Performance Advisor deployment

The typical and recommended Performance Advisor – XP and XP7 disk arrays – host agent configurations are as shown in the following figures:

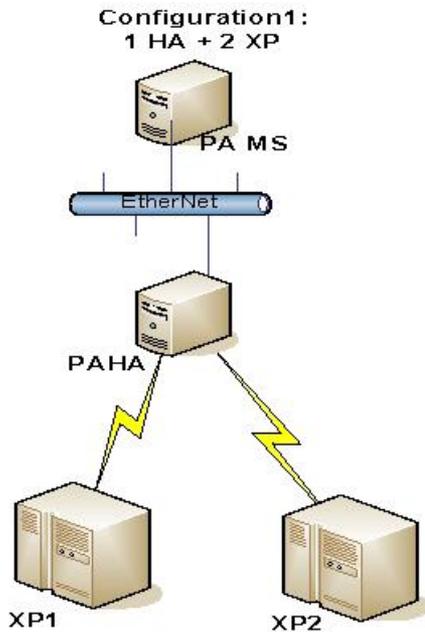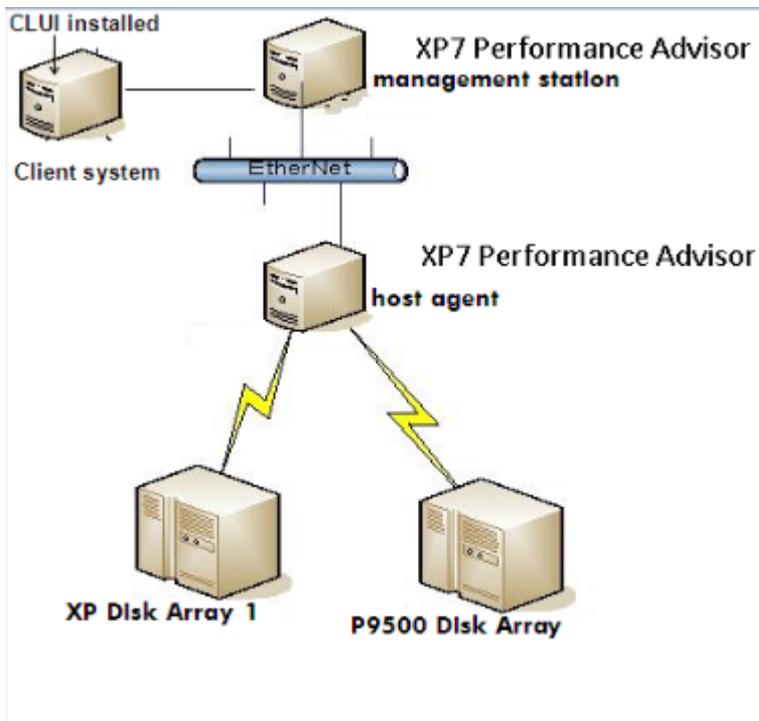**Figure 1 Performance Advisor – XP array – host agent configuration 1**

Figure 2 Performance Advisor – XP and P9500 disk array – host agent configuration 2

7 Support and other resources

Accessing Hewlett Packard Enterprise Support

- For live assistance, go to the Contact Hewlett Packard Enterprise Worldwide website:

  www.hpe.com/assistance

- To access documentation and support services, go to the Hewlett Packard Enterprise Support Center website:

  www.hpe.com/support/hpesc

Information to collect

- Technical support registration number (if applicable)

- Product name, model or version, and serial number

- Operating system name and version

- Firmware version

- Error messages

- Product-specific reports and logs

- Add-on products or components

- Third-party products or components

Accessing updates

- Some software products provide a mechanism for accessing software updates through the product interface. Review your product documentation to identify the recommended software update method.

- To download product updates, go to either of the following:

  ○ Hewlett Packard Enterprise Support Center **Get connected with updates** page:

    www.hpe.com/support/e-updates

  ○ Software Depot website:

    www.hpe.com/support/softwaredepot

- To view and update your entitlements, and to link your contracts and warranties with your profile, go to the Hewlett Packard Enterprise Support Center **More Information on Access to Support Materials** page:

  www.hpe.com/support/AccessToSupportMaterials

- ⚠ **IMPORTANT:** Access to some updates might require product entitlement when accessed through the Hewlett Packard Enterprise Support Center. You must have an HP Passport set up with relevant entitlements.

Websites

Website	Link
Hewlett Packard Enterprise Information Library	www.hpe.com/info/enterprise/docs
Hewlett Packard Enterprise Support Center	www.hpe.com/support/hpesc

Website	Link
Contact Hewlett Packard Enterprise Worldwide	www.hpe.com/assistance
Subscription Service/Support Alerts	www.hpe.com/support/e-updates
Software Depot	www.hpe.com/support/softwaredepot
Customer Self Repair	www.hpe.com/support/selfrepair
Insight Remote Support	www.hpe.com/info/insightremotesupport/docs
Serviceguard Solutions for HP-UX	www.hpe.com/info/hpux-serviceguard-docs
Single Point of Connectivity Knowledge (SPOCK) Storage compatibility matrix	www.hpe.com/storage/spock
Storage white papers and analyst reports	www.hpe.com/storage/whitepapers
Performance Advisor Software Manuals	www.hpe.com/info/PerformanceAdvisorSoftware-Manuals
Storage Products Information	www.hpe.com/info/storage
Service Locator	www.hpe.com/support/service_locator

Customer self repair

Hewlett Packard Enterprise customer self repair (CSR) programs allow you to repair your product. If a CSR part needs to be replaced, it will be shipped directly to you so that you can install it at your convenience. Some parts do not qualify for CSR. Your Hewlett Packard Enterprise authorized service provider will determine whether a repair can be accomplished by CSR.

For more information about CSR, contact your local service provider or go to the CSR website:

www.hpe.com/support/selfrepair

Remote support

Remote support is available with supported devices as part of your warranty or contractual support agreement. It provides intelligent event diagnosis, and automatic, secure submission of hardware event notifications to Hewlett Packard Enterprise, which will initiate a fast and accurate resolution based on your product's service level. Hewlett Packard Enterprise strongly recommends that you register your device for remote support.

For more information and device support details, go to the following website:

www.hpe.com/info/insightremotesupport/docs

Documentation feedback

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