Hewlett Packard
Enterprise

HPE StoreFront Analytics Content Pack for VMware vRealize Log Insight

User Guide 1.1

Abstract

This guide describes how to install, configure, and use HPE StoreFront Analytics Content Pack with VMware vRealize™ Log Insight product. The content pack integrates with VMware Log Insight to deliver real-time log management for not only VMware environments, but also for the storage systems associated with that VMware environment to provide an end to end analysis of the physical and virtual environment. The guide is intended for system administrators that monitor and direct system configurations and resource allocation for HPE Storage Systems.

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1 Introduction

HPE StoreFront Analytics Content Pack integrates with VMware vRealize™ Log Insight to extend log management and analysis to Hewlett Packard Enterprise storage systems in addition to VMware environment. The StoreFront Analytics Content Pack takes advantage of the pre-defined queries and alerts to simplify and provide meaningful insights from terabytes of log data and correlate events across multiple tiers of a hybrid cloud environment in a single location, cutting down troubleshooting times, improving operational efficiency and reducing IT costs.

StoreFront Analytics Content Pack delivers out of the box dashboards, pre-defined fields, queries, and alerts based on the content of the HPE 3PAR StoreServ systems syslogs. This enables VMware and storage administrators to proactively detect and analyze potential capacity, health, configuration and performance related problems ahead of time without having to go through tons of log messages. The ability to view logs from multiple devices in one place helps to correlate and triage problems occurring across multiple platforms.

For information on vRealize Log Insight 2.5, refer to VMware vRealize Log Insight documentation at:

https://www.vmware.com/support/pubs/log-insight-pubs.html

http://pubs.vmware.com/log-insight-25/index.jsp

StoreFront Analytics Content Pack for VMware vRealize Log Insight v1.1 supports VMware vRealize Log Insight 2.5 and later.

2 Installation and Configuration

Installing and configuring StoreFront Analytics Content Pack involves two steps:

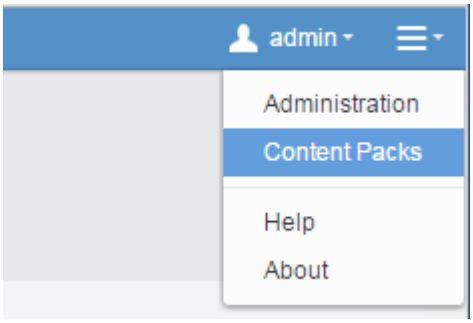
1. Download and install the StoreFront Analytics Content Pack.
2. Configure the 3PAR StoreServ syslogs server.

Installing the HPE StoreFront Analytics Content Pack

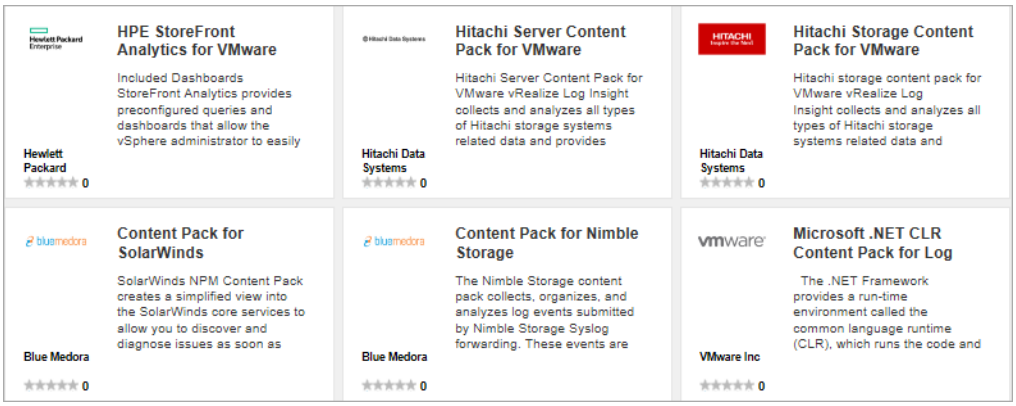
The content pack is delivered as a file with `vlcp` extension. It can be downloaded and manually imported into Log Insight or it can be directly installed from Log Insight Marketplace.

Installing content pack from Log Insight Marketplace

1. On the upper right menu bar, click the configuration drop-down menu icon and select **Content Packs**.



2. Click **Marketplace** under **Content Pack Marketplace**.



3. Click on HP StoreFront Analytics on the right pane, and then click **Install**.

Downloading and Installing content pack manually

1. Download StoreFront Analytics content pack from Hewlett Packard Enterprise Software Depot or VMware Solution Exchange.

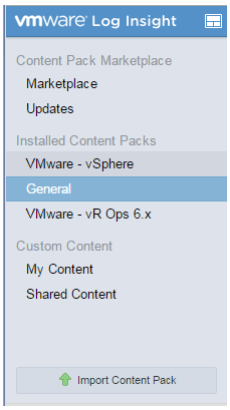
   Hewlett Packard Enterprise Software Depot:

   http://www.hpe.com/downloads/LogInsight

   VMware Solution Exchange:

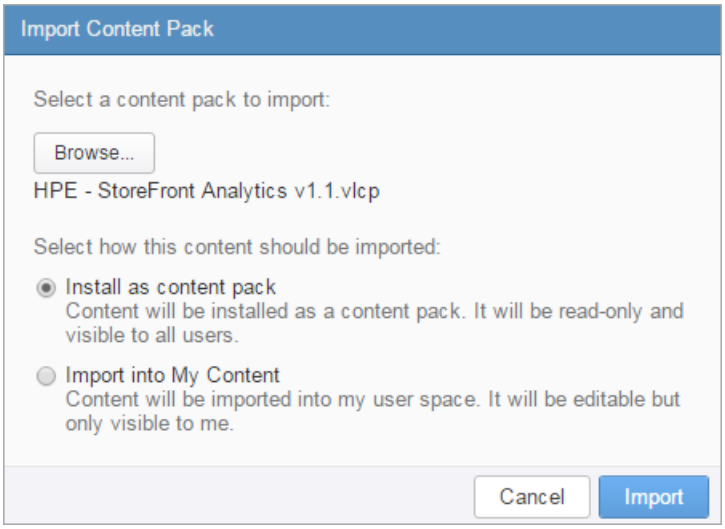
   https://solutionexchange.vmware.com/store/loginsight

2. On the upper right menu bar, click the configuration drop-down menu icon and select **Content Packs**.
3. Click **Import Content Pack** on the bottom left corner of the Content Pack window.

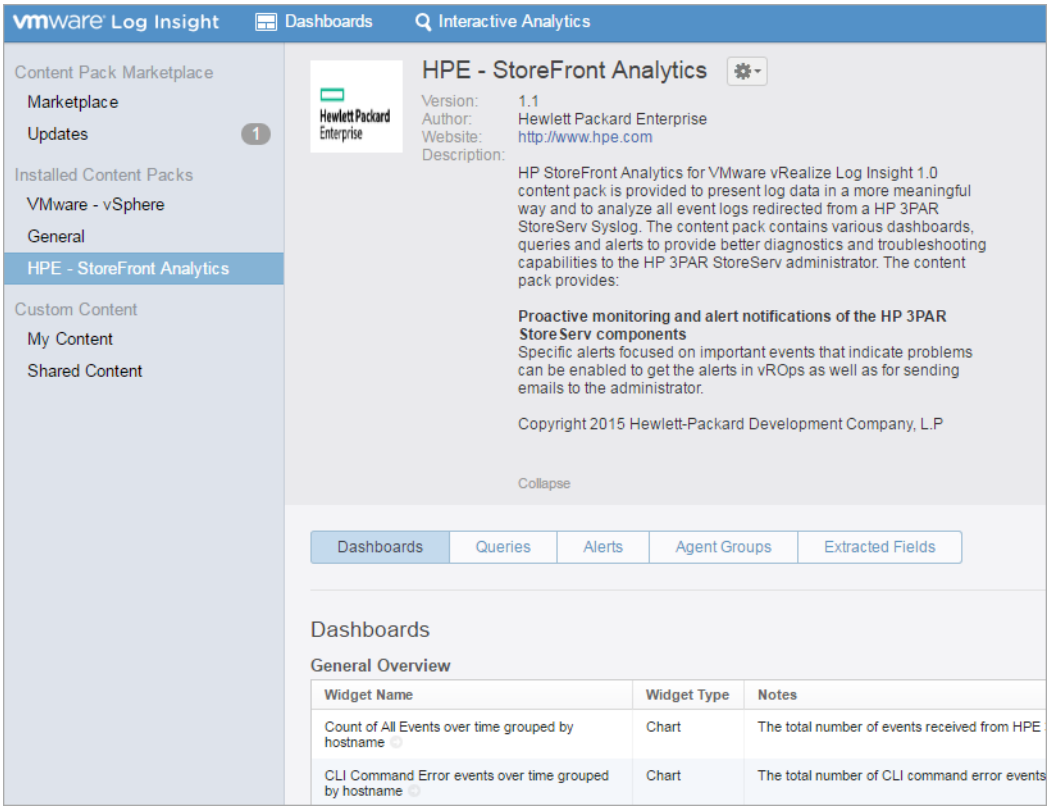


4. In the **Import Content Pack** window, click **Browse** and navigate to the location of the HP StoreFront Analytics for VMware vReailze Log Insight content pack `.vlcp` file. Select the file and then click **Import**.

   Alternatively, **Import into My Content** can be selected if you choose to customize the content pack further.



The StoreFront Analytics for Log Insight is now installed and shows up under the Installed Content Packs.



Configuring syslog server

To view 3PAR StoreServ syslog messages in the Log Insight user interface, the remote syslog server needs to be configured on the 3PAR StoreServ system.

NOTE: You need to forward syslogs to the Log Insight server for each of the 3PAR StoreServ Storage Systems that need to be monitored.

To configure the remote syslog server on each of the 3PAR StoreServ systems, do the following:

Follow the below steps to configure the remote syslog server on each of the 3PAR systems:

1. Log in to the 3PAR storage system CLI and run the following commands:

   ```
   setsys RemoteSyslogHost x.x.x.x
   setsys RemoteSyslog 1
   ```

   Where x.x.x.x is the IP address of the Log Insight server
2. Run the `showsys -param` command to verify the syslog server is set to the right address:

An example of the Log Insight server with the IP Address 10.10.11.22 is shown below:

```
setsys RemoteSyslogHost 10.10.11.22
setsys RemoteSyslog 1
Showsys -param
  ——Parameter—— –Value–
  RawSpaceAlertFC : 0
  RawSpaceAlertNL : 0
  RawSpaceAlertSSD : 0
  RemoteSyslog : 1
  RemoteSyslogHost : 10.10.11.22
  SparingAlgorithm : Default
  EventLogSize : 3M
  VVRetentionTimeMax : 336 Hours
  UpgradeNote :
  PortFailoverEnabled : yes
  AutoExportAfterReboot : yes
  AllowR5OnNLDrives : no
  AllowR0 : no
  ThermalShutdown : yes
  FailoverMatchedSet : no
```

Contents of HPE StoreFront Analytics Content Pack

The StoreFront Analytics content pack for VMware vRealize Log Insight v1.0 comes with out of the box dashboards, user-defined fields, queries, and alerts.

Dashboards

Dashboards are collections of chart and query list widgets to help visualize information. There are two different types of dashboard widgets in Log Insight:

- A Chart widget that contains a visual representation of events with a link to a saved query.
- A Query List that contains title links to saved queries.

There are five dashboards included with StoreFront Analytics Content Pack.

- General Overview — Contains widgets with information about the general health of the 3PAR StoreServ Storage System.
- Provisioning Warning Events — Contains widgets that show events related to 3PAR StoreServ's provisioning such as events for CPG's, virtual volumes, and thin provisioning operations.
- Replication Warning Events — Contains widgets that show events related to 3PAR StoreServ's replication events such as events for remote copies and snapshots.

- Disk, Cage Warning Events — Contains widgets that show events related to 3PAR StoreServ Storage System's disk drives and cages.
- System, Port, Node Events — Contains widgets that show events related to 3PAR StoreServ Storage System's ports, nodes, and power system.

Screenshots of the dashboards are presented below.

Figure 1 General Overview dashboard

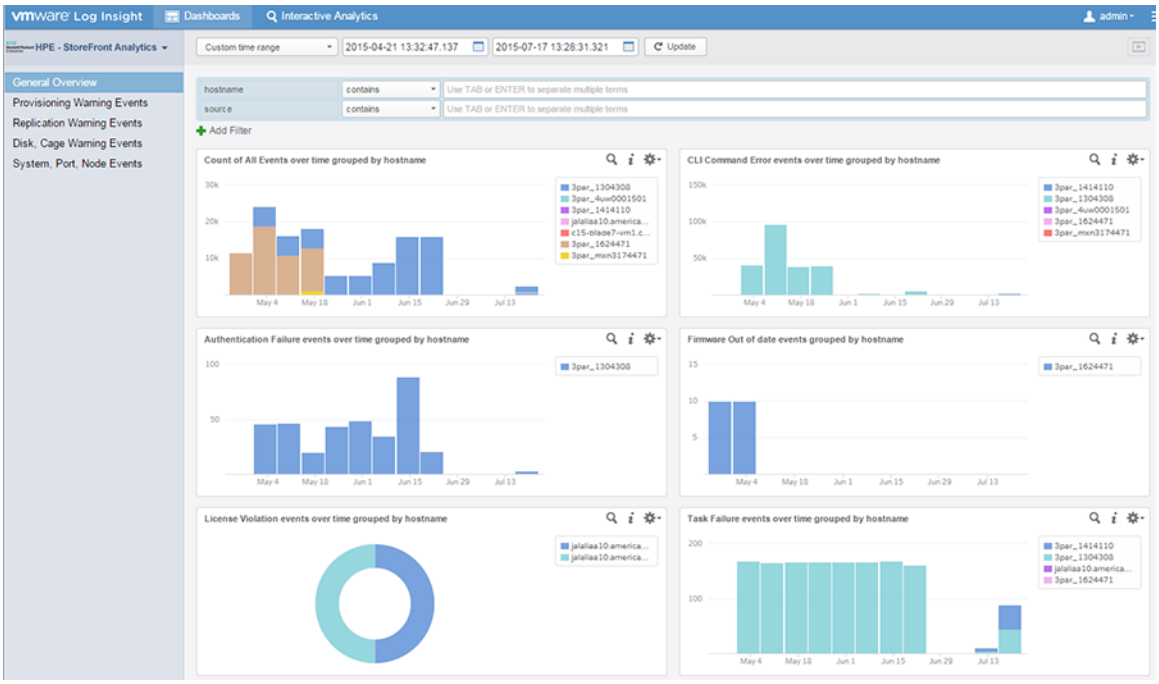


Figure 2 Provisioning Warning Events

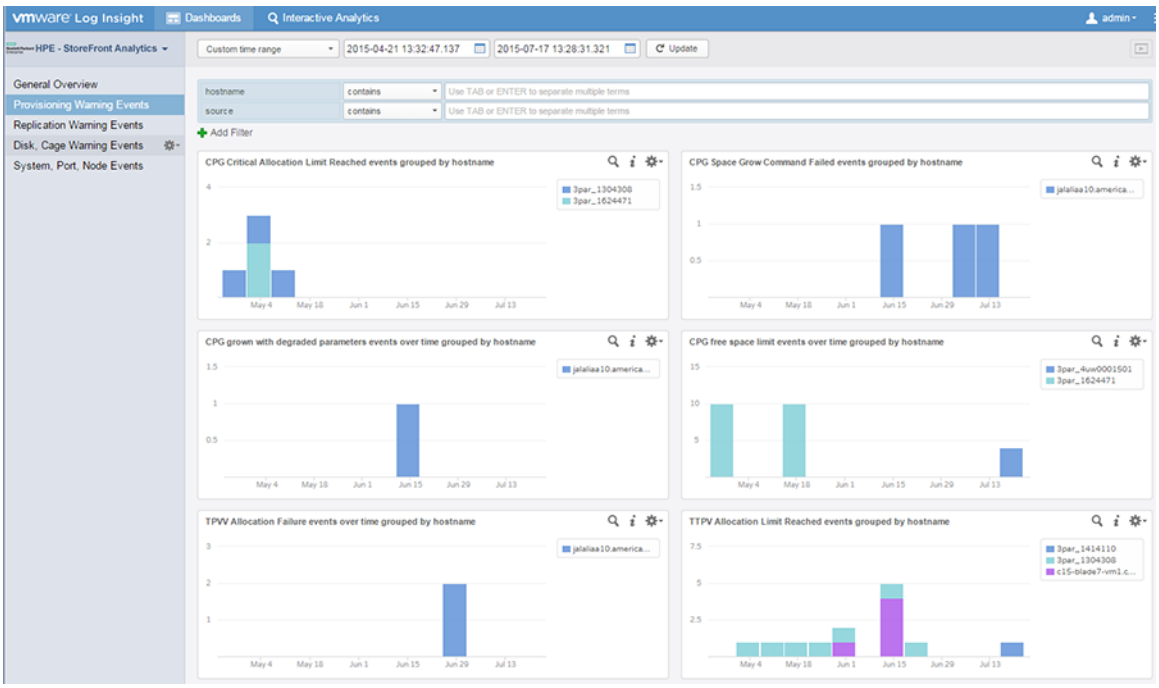


Figure 3 Replication Warning Events

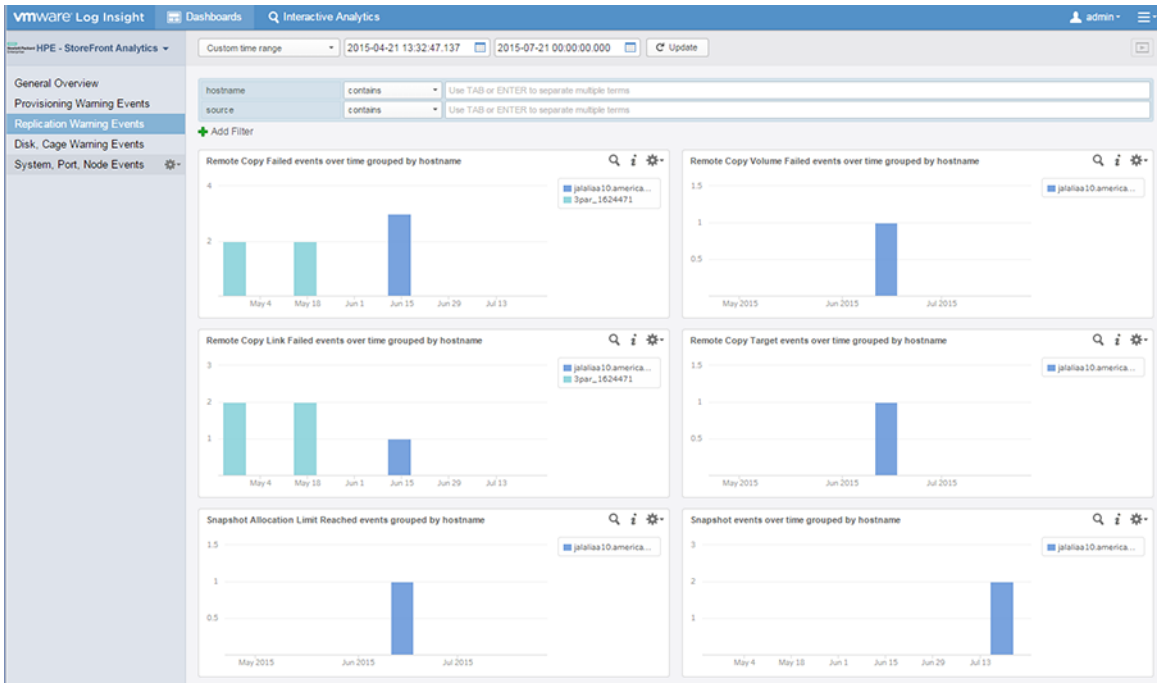


Figure 4 Disk, Cage Warning Events

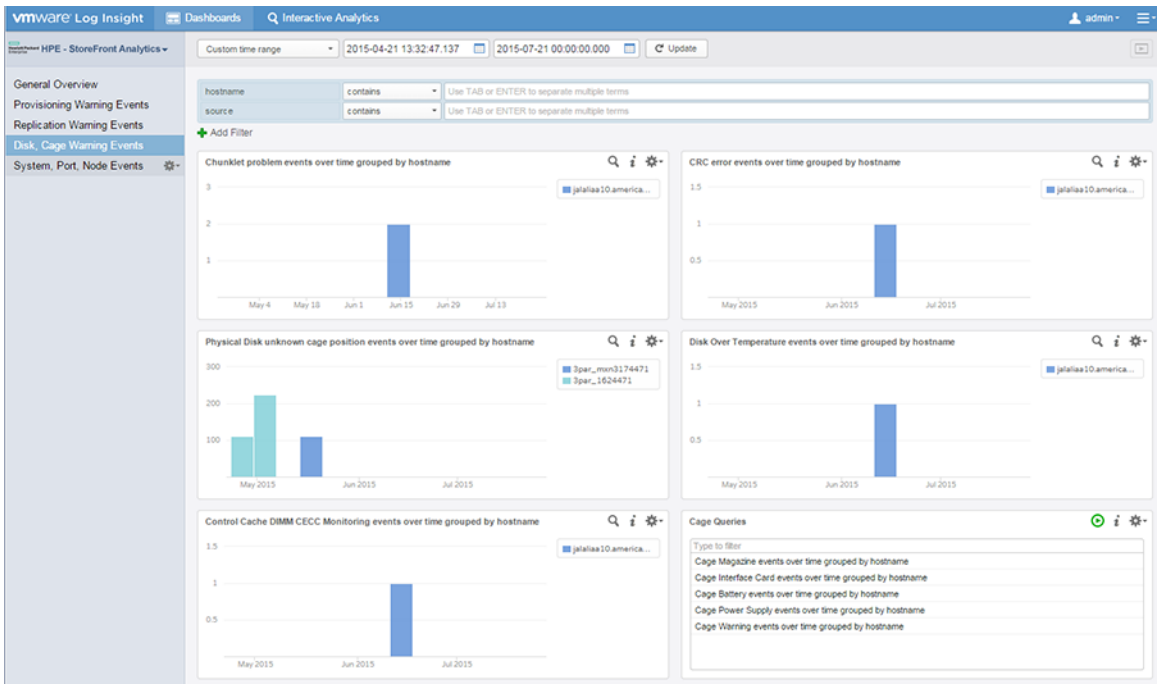
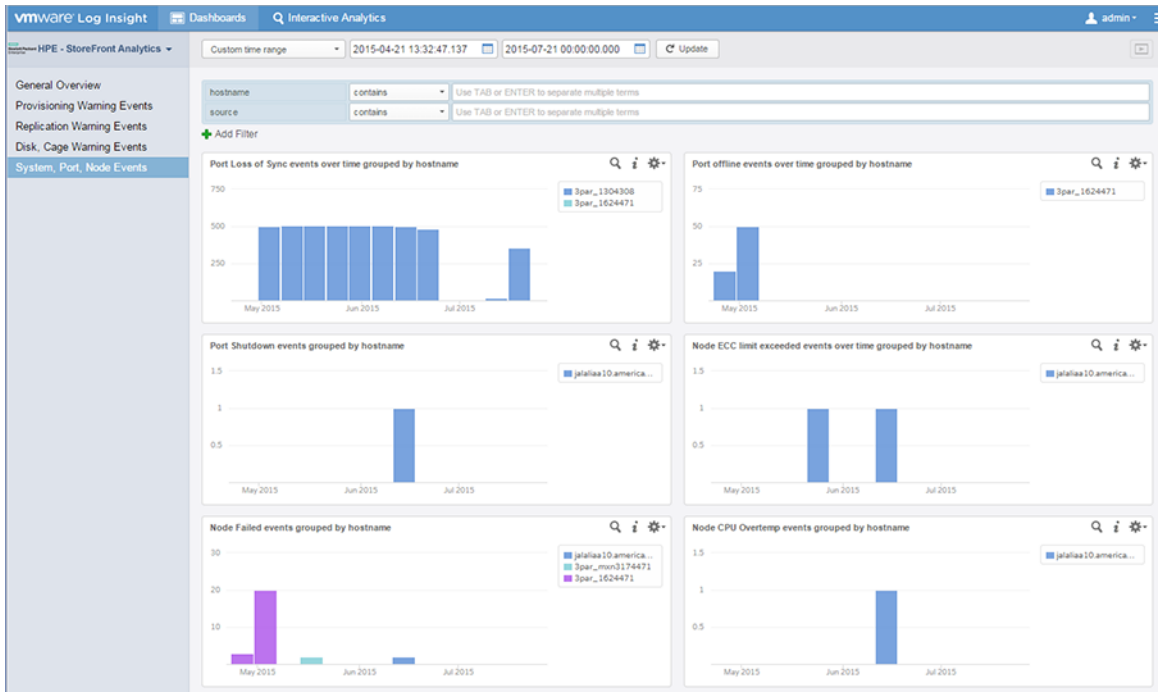


Figure 5 System, Port, Node Events



User-defined fields

StoreFront Analytics for VMware vRealize Log Insight v1.0 comes with several preconfigured user-defined fields for most common objects in the log files. These fields are mostly based on 3PAR alert definitions found in 3PAR Alerts Reference (**http://www.hpe.com/info/3PAROS-manuals**)

StoreFront Analytics for Log Insight fields have the prefix "hp_3par_" so they can be identified easily. The following is a list of these fields:

- hpe_3par_authentication_failure
- hpe_3par_cage_battery_degraded
- hpe_3par_cage_battery_failed
- hpe_3par_cage_degraded
- hpe_3par_cage_failed
- hpe_3par_cage_ic_degraded
- hpe_3par_cage_ic_failed
- hpe_3par_cage_magazine_degraded
- hpe_3par_cage_magazine_failed
- hpe_3par_cage_ps_degraded
- hpe_3par_cage_ps_failed
- hpe_3par_chunklets_failed_relocating
- hpe_3par_chunklets_marked_failed
- hpe_3par_chunklets_relocation_failure
- hpe_3par_cpg_alocation_limit
- hpe_3par_cpg_grown_degraded_params
- hpe_3par_cpg_space_grow_failed

- hpe_3par_disk_degraded
- hpe_3par_disk_failed
- hpe_3par_disk_overtemp
- hpe_3par_host_port_crc_errors
- hpe_3par_host_port_is_down
- hpe_3par_license_node_violation
- hpe_3par_license_violation
- hpe_3par_no_chunklet_found
- hpe_3par_node_cpu_overtemp
- hpe_3par_node_degraded
- hpe_3par_node_ecc_limit
- hpe_3par_node_failed
- hpe_3par_node_license_violation
- hpe_3par_node_limit_exceeded
- hpe_3par_port_degraded
- hpe_3par_port_failed
- hpe_3par_port_shutdown
- hpe_3par_power_supply_degraded
- hpe_3par_power_supply_failed
- hpe_3par_raw_space_threshold
- hpe_3par_rcip_port_crc_errors
- hpe_3par_remote_copy_link_degraded
- hpe_3par_remote_copy_link_failed
- hpe_3par_remote_copy_volume_degraded
- hpe_3par_remote_copy_volume_failed
- hpe_3par_snapshot_allocation_limit
- hpe_3par_task_failed
- hpe_3par_tpvv_allocation_failure
- hpe_3par_tpvv_allocation_limit
- hpe_3par_virtual_volume_degraded
- hpe_3par_virtual_volume_failed
- hpe_3parcpg_free_space_limit

Alerts

Alerts provide a way to trigger a reaction when a certain type of event occurs. StoreFront Analytics for VMware vRealize Log Insight v1.0 content pack contains seven alerts for 3PAR StoreServ. These are:

- 3PAR: Disk Over temperature Alert
- 3PAR: TPVV Allocation Limit Reached Alert

- 3PAR: License Violation Alert
- 3PAR: Node CPU Over temperature
- 3PAR: CPG capacity is over 80%
- 3PAR: CPG Space Grow Command Failed
- 3PAR: Port Shutdown Alert
- 3PAR: Power Supply Failure Alert

Content pack alerts are initially disabled and must be manually activated. See section below on Enabling StoreFront Analytics alerts and forwarding them as Notification Events to StoreFront Analytics for vROps v3.0.

Saved Queries

StoreFront Analytics for VMware vRealize Log Insight v1.0 content pack contains several saved queries. These queries are incorporated into list widgets in some of the above dashboards as well as in Favorite queries. HPE SFA vRLI queries are:

- License Violation Query
- Degraded Events Queries:
  - Disk Degraded events over time grouped by hostname
  - Port Degraded events over time grouped by hostname
  - Node Degraded events over time grouped by hostname
  - Cage Degraded events over time grouped by hostname
  - Power Supply Degraded events over time grouped by hostname
  - Virtual Volume Degraded events over time grouped by hostname
  - Remote Copy Volume Degraded events over time grouped by hostname
  - Remote Copy Link Degraded events over time grouped by hostname
- Failed Events Queries:
  - Disk Failed events over time grouped by hostname
  - Port Failed events over time grouped by hostname
  - Node Failed events over time grouped by hostname
  - Cage Failed events over time grouped by hostname
  - Power Supply Failed events over time grouped by hostname
  - Virtual Volume Failed events over time grouped by hostname
  - Remote Copy Volume Failed events over time grouped by hostname
  - Remote Copy Link Failed events over time grouped by hostname
- Cage Queries:
  - Cage Magazine events over time grouped by hostname
  - Cage Interface Card events over time grouped by hostname

    - Cage Battery events over time grouped by hostname
    - Cage Power Supply events over time grouped by hostname
- Power Events Queries
    - Powerfail events over time grouped by hostname
    - No Power Detected events over time grouped by hostname
    - Power Supply Warning events over time grouped by hostname

Integration with vRealize Operations

Integration of vRealize Log Insight with the vRealize Operations platform helps you maximize ROI and value by bringing unstructured data (such as log files) together with structured data (such as metrics and key performance indicators), offering a significantly enhanced solution for end-to-end operations management. StoreFront Analytics management pack for VMware vRealize Operations displays alerts based on different metrics. It does not report the alerts reported by the storage system itself. So, forwarding alerts from the SFA content pack to the SFA management pack will provide more information that will help understand the root cause of the alerts. If the user has vRealize Operations Manager 6.0 with StoreFront Analytics management pack version 3.0 or later installed, Log Insight server can be configured to send Notification Events to vRealize Operations Manager for specific alerts.

Prerequisite

Verify that an administrator has configured the connection between vRealize Log Insight and vRealize Operations Manager to enable alert integration.

For more information about integration with vROps please refer to VMware Log Insight documentation at:

http://pubs.vmware.com/log-insight-25/index.jsp?topic=%2Fcom.vmware.log-insight.administration.doc%2FGUID-5B66DDB2-577D-49E0-8911-86AAD883CD4B.html&resultof=%22vrealize%22%20%22vrealiz%22%20%22operation%22%20%22oper%22%20

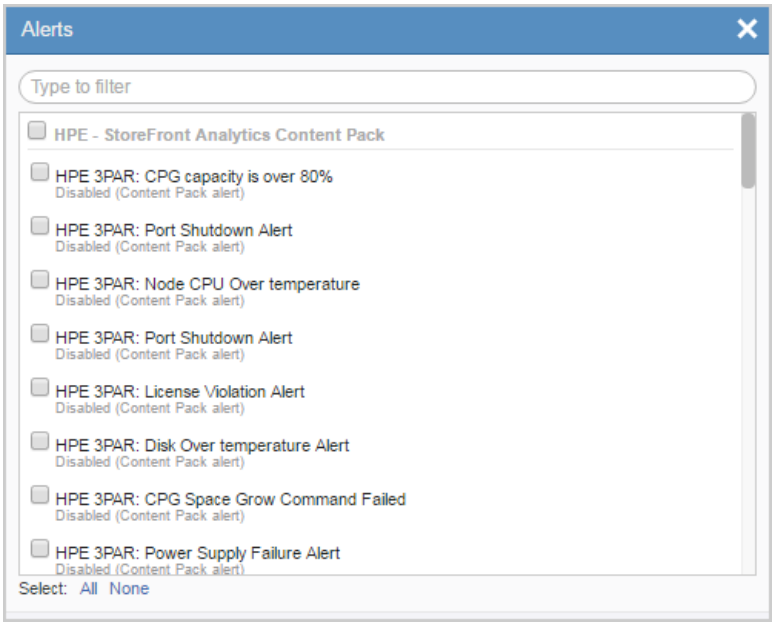
Configuring Notification Events to HPE StoreFront Analytics for vRealize Operations

NOTE: This needs to be done for each alert that needs to be sent.

To send notification events to vRealize Operations Manager:

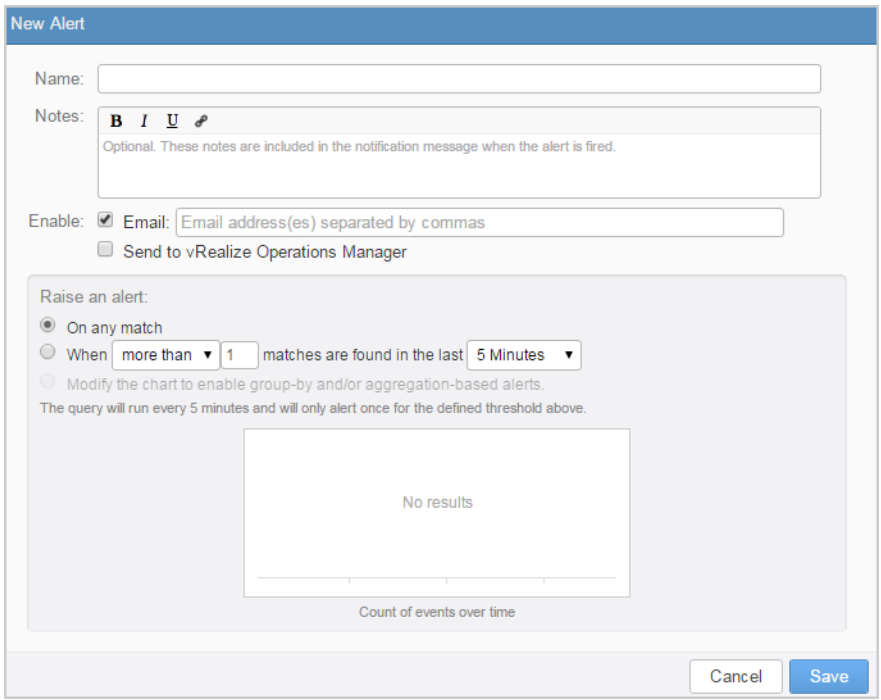
1. Click on the **Interactive Analytics** tab.
2. From the menu on the right of the Search button, click and select **Manage Alerts**.

3. In the **Alerts** window, select the SFA vRLI alert that should be enabled. User can enable the alert to be sent as an email and/or to the vRealize Operations manager.

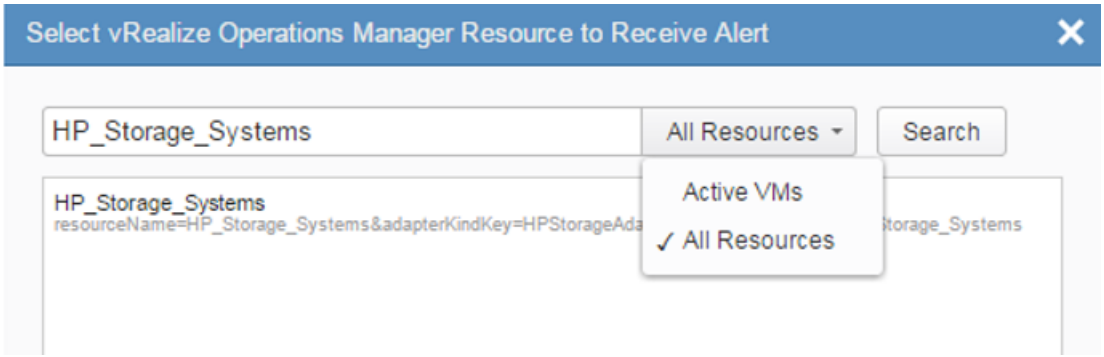


a. Click on the edit icon to configure this alert query.

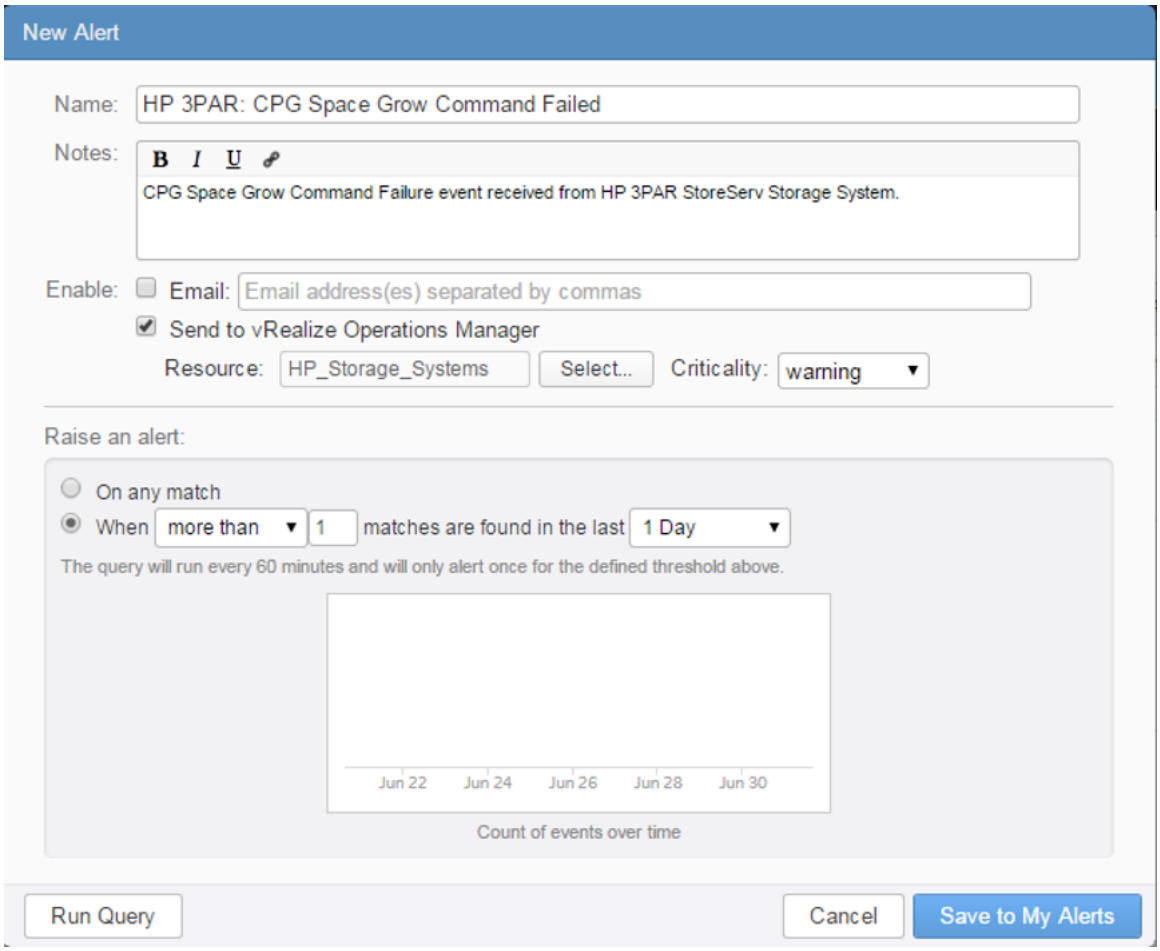
b. In the **New Alert** window, select **Send to vRealize Operations Manager**, then click **Select** to choose a vRealize Operations Manager resource to be associated with the notification events that vRealize Log Insight sends.



c. Hewlett Packard Enterprise recommends choosing the HP_Storage_Systems resource to receive all the Notification Alerts. To do this select **All Resources** from the drop-down menu, enter HP_Storage_Systems in the text box, click **Search**, and then click on the HP_Storage_Systems resource found.



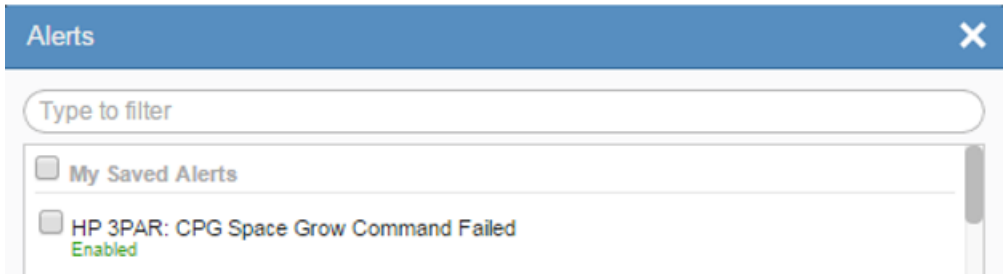
d. From the Criticality drop-down menu, select the criticality level for the notification events that appear in vRealize Operations Manager Custom UI.



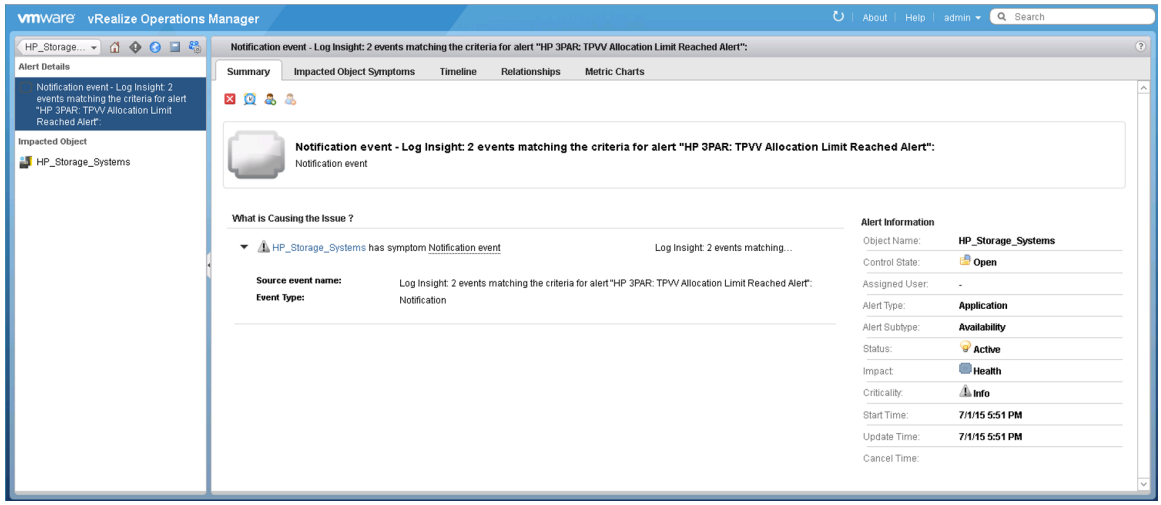
e. Adjust the alert threshold if necessary.

f. Click **Save to My Alerts** to save and enable the alert.

When the alert query returns results that match the alert criteria, a notification event is sent to vRealize Operations Manager. Alert queries run on a predefined schedule and are triggered only once for a given threshold time range.



Here is an example of a Notification Alert sent by Log Insight 2.6 to vROps 6.0.2:



NOTE: It does take some time before the notification events appear in the vRealize Operations Manager UI.

3 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:

    http://www.hpe.com/info/subscriberschoice

  - 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.

HPE 3PAR documentation

For information about:	See:
Supported hardware and software platforms	The Single Point of Connectivity Knowledge for HPE Storage Products (SPOCK) website:

For information about:	See:
	http://www.hpe.com/storage/spock
Locating 3PAR documents	The 3PAR StoreServ Storage site: http://www.hpe.com/info/3par To access 3PAR documents, click the **Support** link for your product.
HPE 3PAR storage system software	
Storage concepts and terminology	HPE 3PAR StoreServ Storage Concepts Guide
Using the 3PAR Management Console (GUI) to configure and administer 3PAR storage systems	HPE 3PAR Management Console User's Guide
Using the 3PAR CLI to configure and administer storage systems	HPE 3PAR Command Line Interface Administrator's Manual
CLI commands	HPE 3PAR Command Line Interface Reference
Analyzing system performance	HPE 3PAR System Reporter Software User's Guide
Installing and maintaining the Host Explorer agent in order to manage host configuration and connectivity information	HPE 3PAR Host Explorer User's Guide
Creating applications compliant with the Common Information Model (CIM) to manage 3PAR storage systems	HPE 3PAR CIM API Programming Reference
Migrating data from one 3PAR storage system to another	HPE 3PAR-to-3PAR Storage Peer Motion Guide
Configuring the Secure Service Custodian server in order to monitor and control 3PAR storage systems	HPE 3PAR Secure Service Custodian Configuration Utility Reference
Using the CLI to configure and manage 3PAR Remote Copy	HPE 3PAR Remote Copy Software User's Guide
Updating 3PAR operating systems	HPE 3PAR Upgrade Pre-Planning Guide
Identifying storage system components, troubleshooting information, and detailed alert information	HPE 3PAR F-Class, T-Class, and StoreServ 10000 Storage Troubleshooting Guide
Installing, configuring, and maintaining the 3PAR Policy Server	HPE 3PAR Policy Server Installation and Setup Guide HPE 3PAR Policy Server Administration Guide
Planning for HPE 3PAR storage system setup Hardware specifications, installation considerations, power requirements, networking options, and cabling information for 3PAR storage systems	
HPE 3PAR 7200, 7400, and 7450 storage systems	HPE 3PAR StoreServ 7000 Storage Site Planning Manual HPE 3PAR StoreServ 7450 Storage Site Planning ManualV
HPE 3PAR 10000 storage systems	HPE 3PAR StoreServ 10000 Storage Physical Planning Manual HPE 3PAR StoreServ 10000 Storage Third-Party Rack Physical Planning Manual
Installing and maintaining HPE 3PAR 7200, 7400, and 7450 storage systems	
Installing 7200, 7400, and 7450 storage systems and initializing the Service Processor	HPE 3PAR StoreServ 7000 Storage Installation Guide HPE 3PAR StoreServ 7450 Storage Installation Guide HPE 3PAR StoreServ 7000 Storage SmartStart Software User's Guide

For information about:	See:
Maintaining, servicing, and upgrading 7200, 7400, and 7450 storage systems	HPE 3PAR StoreServ 7000 Storage Service Guide HPE 3PAR StoreServ 7450 Storage Service Guide
Troubleshooting 7200, 7400, and 7450 storage systems	HPE 3PAR StoreServ 7000 Storage Troubleshooting Guide HPE 3PAR StoreServ 7450 Storage Troubleshooting Guide
Maintaining the Service Processor	HPE 3PAR Service Processor Software User Guide HPE 3PAR Service Processor Onsite Customer Care (SPOCC) User's Guide
HPE 3PAR host application solutions	
Backing up Oracle databases and using backups for disaster recovery	HPE 3PAR Recovery Manager Software for Oracle User's Guide
Backing up Exchange databases and using backups for disaster recovery	HPE 3PAR Recovery Manager Software for Microsoft Exchange 2007 and 2010 User's Guide
Backing up SQL databases and using backups for disaster recovery	HPE 3PAR Recovery Manager Software for Microsoft SQL Server User's Guide
Backing up VMware databases and using backups for disaster recovery	HPE 3PAR Management Plug-in and Recovery Manager Software for VMware vSphere User's Guide
Installing and using the HPE 3PAR VSS (Volume Shadow Copy Service) Provider software for Microsoft Windows	HPE 3PAR VSS Provider Software for Microsoft Windows User's Guide
Best practices for setting up the Storage Replication Adapter for VMware vCenter	HPE 3PAR Storage Replication Adapter for VMware vCenter Site Recovery Manager Implementation Guide
Troubleshooting the Storage Replication Adapter for VMware vCenter Site Recovery Manager	HPE 3PAR Storage Replication Adapter for VMware vCenter Site Recovery Manager Troubleshooting Guide
Installing and using vSphere Storage APIs for Array Integration (VAAI) plug-in software for VMware vSphere	HPE 3PAR VAAI Plug-in Software for VMware vSphere User's Guide

HPE StoreVirtual documentation

For detailed instructions about using HPE StoreVirtual Storage, see the following resources:

- StoreVirtual Storage Online Help—Click **Help→Help Topics** from the menu bar to open the online help. Context-sensitive help is available by clicking the question mark on any screen.
- StoreVirtual Storage User Guide—Provides complete instructions for configuring and managing storage systems and clustered storage volumes.
- StoreVirtual Storage VSA Installation and Configuration Guide—Provides instructions for planning and installing the VSA and getting started with the Centralized Management Console.
- StoreVirtual Storage Remote Copy User Guide—Provides information about configuring and using asynchronous replication of storage volumes and snapshots across geographic distances.
- StoreVirtual Storage Multi-Site Configuration Guide—Provides instructions for designing and implementing the Multi-Site SAN features to synchronously and automatically mirror data between geographic sites.
- StoreVirtual Storage Release Notes—Provides the latest information about the product.

The latest versions of these documents, including localized versions are available at:

- Hewlett Packard Enterprise Support Center : **http://www.hpe.com/support/StoreVirtualManuals**
- Storage Information Library: **http://www.hpe.com/info/storage/docs**

HPE 3PAR branding information

- The server previously referred to as the "InServ" is now referred to as the "HPE 3PAR StoreServ Storage system."
- The operating system previously referred to as the "InForm OS" is now referred to as the "HPE 3PAR OS."
- The UI previously referred to as the "InForm Management Console (IMC)" is now referred to as the "HPE 3PAR Management Console."
- All products previously referred to as “3PAR” products are now referred to as "HPE 3PAR" products.

Websites

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

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

Hewlett Packard Enterprise is committed to providing documentation that meets your needs. To help us improve the documentation, send any errors, suggestions, or comments to Documentation Feedback (**docsfeedback@hpe.com**). When submitting your feedback, include the document title, part number, edition, and publication date located on the front cover of the document. For online help content, include the product name, product version, help edition, and publication date located on the legal notices page.

Glossary

CPG	Common Provisioning Group - defines the Logical Disk creation characteristics, such as RAID type, set size, disk type for chunklet selection, plus total space warning and limit points. A CPG creates a virtual pool of LDs that allows Volumes to share resources and to allocate space on demand. A volume created from a CPG can automatically be grown on demand by mapping new regions from the LDs associated with the CPG.
HPE SFA	StoreFront Analytics
KPI	Key Performance Indicator (as in the VMware metric - Full Set - Active KPI Breach Count)
Utilization Index	A value that is calculated by the vROps analytics to indicate the usage level of a resource. The higher the value, the greater the resource is being used.
vApp	A collection of virtual machines.
VM	Virtual Machine
vROps	vRealize Operations Manager

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