



HiCommand® Tuning Manager Hardware Reports Reference

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Document Revision Level

Revision	Date	Description
MK-95HC111-P	December 2005	Preliminary Release
MK-95HC111-00	June 2006	Initial release, supersedes and replaces MK-95HC111-P
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Preface

The *HiCommand® Tuning Manager Hardware Reports Reference* describes the functions of collecting and managing performance data. It is intended for system/account administrators who have a basic knowledge of both SANs (Storage Area Networks) and NAS (Network Attached Storage) and who are responsible for:

- Store database management
- Backup and disk management
- Cluster system set up and maintenance
- Data collection (system configuration detail records, log information, and workgroup information)

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Software Version

This document revision applies to software version 5.5.

Conventions for Storage Capacity Values

Storage capacity values displayed by HiCommand Tuning Manager are calculated based on the following values:

- 1 KB (kilobyte) = 1,024 bytes
- 1 MB (megabyte) = 1,024² bytes
- 1 GB (gigabyte) = 1,024³ bytes
- 1 TB (terabyte) = 1,024⁴ bytes

Referenced Documents

- *HiCommand Tuning Manager Agent Administration Guide*, MK-92HC013
- *HiCommand Tuning Manager Server Administration Guide*, MK-92HC021
- *HiCommand Tuning Manager User's Guide*, MK-92HC022
- *HiCommand Tuning Manager Operating System Reports Reference*, MK-95HC112
- *HiCommand Tuning Manager Application Reports Reference*, MK-95HC113
- *HiCommand Tuning Manager Messages Reference*, MK-95HC114
- *HiCommand Tuning Manager Command Line Interface Guide*, MK-96HC119
- *HiCommand Tuning Manager Installation Guide*, MK-96HC141

Readme and Release Notes Contents

These files can be found on the installation CD. They contain requirements and notes for use of HiCommand Tuning Manager that may not be fully described in the manual. Be sure to review these files before installing HiCommand Tuning Manager.

Comments

Please send us your comments on this document. Make sure to include the document title, number, and revision. Please refer to specific section(s) and paragraph(s) whenever possible.

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Chapter 1 Working with the Solution Set

This chapter describes alarms and reports that the Agent provides as part of a solution set. A solution set makes it easy for the user to set alarms and reports.

- Overview of the Solution Set (see section 1.1)
- Reviewing the Format of Alarm Explanations (see section 1.2)
- Agent for RAID Alarms (see section 1.3)
- Agent for SAN Switch Alarms (see section 1.4)
- Agent for NAS Alarms (see section 1.5)
- Reviewing the Format of Report Explanations (see section 1.6)
- Reviewing the Organization of Report Folders (see section 1.7)
- Notes on Using the Solution Set (see section 1.8)
- Abbreviations Used for Storage Subsystems (see section 1.9)
- Agent for RAID Reports (see section 1.10)
- Agent for SAN Switch Reports (see section 1.11)
- Agent for NAS Reports (see section 1.12)

1.1 Overview of the Solution Set

The Tuning Manager series programs enable you to define alarms and reports by the following methods:

- Use the default alarms and reports provided by the Agent.
- Customize the default alarms and reports provided by the Agent.
- Define new alarms and reports.

The alarms and reports provided by the Agent constitute a **solution set**. Because all required information is already defined for alarms and reports in the solution set, you can use them as they are or customize them as appropriate for your environment. Therefore, this enables you to complete the preparations for monitoring the operating status of a desired program without having to define new alarms and reports.

For details about how to use reports, see the *HiCommand[®] Tuning Manager User's Guide*. For details about how to use alarms, see the *HiCommand Tuning Manager Agent Administration Guide*.

1.2 Reviewing the Format of Alarm Explanations

This section describes the format that is used to explain alarms. This manual lists the alarms in alphabetical order.

Overview

Provides an overview of what can be monitored by the alarm.

Main Settings

Provides a table that lists and describes the main settings for the alarm. This table shows the correspondence between these alarm settings and the setting items for the alarm definition information output by the `jpcaalarm export` command. For details about the settings for each alarm, check the alarm definition information output by the `jpcaalarm export` command.

If the same value is set as the conditional expression for both the abnormal and warning conditions, only abnormal error alarms are issued.

1.3 Agent for RAID Alarms

Alarms defined in the Agent for RAID solution set are compiled in the alarm table **PFM RAID Solution Alarms 7.00**. 7.00 indicates the version of the alarm table. Table 1.1 lists and describes the alarms defined in this solution set.

Table 1.1 Agent for RAID Alarms

Name of Alarm	What Is Monitored
Read Cache Hit Rate	Cache hit rate for read processing on each logical device
Write Cache Hit Rate	Cache hit rate for write processing on each logical device

1.3.1 Read Cache Hit Rate

Overview

The Read Cache Hit Rate alarm monitors the cache hit rate for read processing on logical devices. The value monitored by this alarm is the ratio of successful reads from the cache compared with all read processing that occurs during a monitored interval. This value is the latest monitored value, not the average value.

Main Settings

Table 1.2 Main Settings for the Read Cache Hit Rate Alarm

Alarm definition output by the <code>jpcalarm export</code> command			Setting
Subsection	Label	Explanation	
Advanced Setting	Damping	Alarm when damping conditions are satisfied	Y
	Damping Count	Interval	6
		Maximum occurrences	3
Actions	SNMP	SNMP	Abnormal, Warning, Normal
Alarm Condition Expressions	Condition	Abnormal condition	<code>PI_LDS_READ_HIT_RATE < 90 & PI_LDS_READ_IO_COUNT > 0</code>
		Warning condition	<code>PI_LDS_READ_HIT_RATE < 95 & PI_LDS_READ_IO_COUNT > 0</code>

1.3.2 Write Cache Hit Rate

Overview

The Write Cache Hit Rate alarm monitors the cache hit rate for write processing on logical devices. The value monitored by this alarm is the ratio of successful writes from the cache compared with all write processing that occurs during a monitored interval. This value is the latest monitored value, not the average value.

Main Settings

Table 1.3 Main Settings for the Write Cache Hit Rate Alarm

Alarm definition output by the <code>jpcalarm export</code> command			Setting
Subsection	Label	Explanation	
Advanced Setting	Damping	Alarm when damping conditions are satisfied	Y
	Damping Count	Interval	6
		Maximum occurrences	3
Actions	SNMP	SNMP	Abnormal, Warning, Normal
Alarm Condition Expressions	Condition	Abnormal condition	<code>PI_LDS_WRITE_HIT_RATE < 90 & PI_LDS_WRITE_IO_COUNT > 0</code>
		Warning condition	<code>PI_LDS_WRITE_HIT_RATE < 95 & PI_LDS_WRITE_IO_COUNT > 0</code>

1.4 Agent for SAN Switch Alarms

Alarms defined in the Agent for SAN Switch solution set are compiled in the alarm table **PFM SAN Switch Solution Alarms 7.00**. 7.00 indicates the version of the alarm table. Table 1.4 lists and describes the alarms defined in this solution set.

Table 1.4 Agent for SAN Switch Alarms

Name of Alarm	What is Monitored
CRC Error Count	Ports on which the number of CRC errors significantly exceeds the error rate stipulated by the Fibre Channel transport standards
Encoding Error	Ports on which the number of encoding errors or disparity errors significantly exceeds the error rate stipulated by the Fibre Channel transport standards
Port Ops Status	Ports whose operating state is either alert or error
Switch Ops Status	Switches whose operating state is either alert or error

1.4.1 CRC Error Count

Overview

The CRC Error Count alarm monitors for ports on which the number of CRC errors significantly exceeds the error rate stipulated by the Fibre Channel transport standards.

Main Settings

Table 1.5 Main Settings for the CRC Error Count Alarm

Alarm definition output by the <code>jpcalarm export</code> command			Setting
Subsection	Label	Explanation	
Advanced Setting	Damping	Alarm when damping conditions are satisfied	Y
	Damping Count	Interval	3
		Maximum occurrences	2
Actions	SNMP	SNMP	Abnormal, Warning, Normal
Alarm Condition Expressions	Condition	Abnormal condition	<code>PI_PTES_CRC_ERROR_COUNT > 102000</code>
		Warning condition	<code>PI_PTES_CRC_ERROR_COUNT > 102</code>

1.4.2 Encoding Error

Overview

The Encoding Error alarm monitors for ports on which the number of encoding errors or disparity errors significantly exceeds the error rate stipulated by the Fibre Channel transport standards.

Main Settings

Table 1.6 Main Settings for the Encoding Error Alarm

Alarm definition output by the <code>jpcalarm export</code> command			Setting
Subsection	Label	Explanation	
Advanced Setting	Damping	Alarm when damping conditions are satisfied	Y
	Damping Count	Interval	3
		Maximum occurrences	2
Actions	SNMP	SNMP	Abnormal, Warning, Normal
Alarm Condition Expressions	Condition	Abnormal condition	PI_PTES_ENCODING_DISPARITY_COUNT > 127500
		Warning condition	PI_PTES_ENCODING_DISPARITY_COUNT > 128

1.4.3 Port Ops Status

Overview

The Ports Ops Status alarm monitors for ports whose operating state is either *alert* or *error*.

Main Settings

Table 1.7 Main Settings for the Port Ops Status Alarm

Alarm definition output by the <code>jpcalarm export</code> command			Setting
Subsection	Label	Explanation	
Advanced Setting	Damping	Alarm when damping conditions are satisfied	Y
	Damping Count	Interval	3
		Maximum occurrences	2
Actions	SNMP	SNMP	Abnormal, Warning, Normal
Alarm Condition Expressions	Condition	Abnormal condition	PI_PTES_PORT_OPERATION_STATUS = Faulty
		Warning condition	PI_PTES_PORT_OPERATION_STATUS = Warning

1.4.4 Switch Ops Status

Overview

The Switch Ops Status alarm monitors for switches whose operating state is either *alert* or *error*.

Main Settings

Table 1.8 Main Settings for the Switch Ops Status Alarm

Alarm definition output by the <code>jpcalarm export</code> command			Setting
Subsection	Label	Explanation	
Advanced Setting	Damping	Alarm when damping conditions are satisfied	Y
	Damping Count	Interval	3
		Maximum occurrences	2
Actions	SNMP	SNMP	Abnormal, Warning, Normal
Alarm Condition Expressions	Condition	Abnormal condition	PI_SWES_SWITCH_OPERATION_ST ATUS = Faulty
		Warning condition	PI_SWES_SWITCH_OPERATION_ST ATUS = Warning

1.5 Agent for NAS Alarms

Alarms defined in the Agent for NAS solution set are compiled in the alarm table **PFM NAS Solution Alarms 7.00**. 7.00 indicates the version of the alarm table. Table 1.9 lists and describes the alarms defined in this solution set.

Table 1.9 Agent for NAS Alarms

Name of Alarm	What Is Monitored
Kernel CPU	Percentage of time that the NAS system processor is running in kernel mode
Run Queue	Number of processes waiting in the execution queue or disk I/O queue
User CPU	Percentage of time that the NAS system processor is running in user mode

1.5.1 Kernel CPU

Overview

The Kernel CPU alarm monitors the percentage of time that the NAS system processor is running in kernel mode.

Main Settings

Table 1.10 Main Settings for the Kernel CPU Alarm

Alarm definition output by the <code>jpcalarm export</code> command			Setting
Subsection	Label	Explanation	
Advanced Setting	Damping	Alarm when damping conditions are satisfied	Y
	Damping Count	Interval	3
		Maximum occurrences	2
Actions	SNMP	SNMP	Abnormal, Warning, Normal
Alarm Condition Expressions	Condition	Abnormal condition	<code>PI_KERNELMODE_PERCENT > 75</code>
		Warning condition	<code>PI_KERNELMODE_PERCENT > 50</code>

1.5.2 Run Queue

Overview

The Run Queue alarm monitors the number of processes waiting in the execution queue or disk I/O queue.

Main Settings

Table 1.11 Main Settings for the Run Queue Alarm

Alarm definition output by the <code>jpcalarm export</code> command			Setting
Subsection	Label	Explanation	
Advanced Setting	Damping	Alarm when damping conditions are satisfied	N
	Damping Count	Interval	0
		Maximum occurrences	0
Actions	SNMP	SNMP	Abnormal, Warning, Normal
Alarm Condition Expressions	Condition	Abnormal condition	<code>PI_FIVE_MINUTE_RUN_QUEUE_AVG > 8</code>
		Warning condition	<code>PI_FIVE_MINUTE_RUN_QUEUE_AVG > 4</code>

1.5.3 User CPU

Overview

The User CPU alarm monitors the percentage of time that the NAS system processor is running in user mode.

Main Settings

Table 1.12 Main Settings for the User CPU Alarm

Alarm definition output by the <code>jpcalarm export</code> command			Setting
Subsection	Label	Explanation	
Advanced Setting	Damping	Alarm when damping conditions are satisfied	Y
	Damping Count	Interval	3
		Maximum occurrences	2
Actions	SNMP	SNMP	Abnormal, Warning, Normal
Alarm Condition Expressions	Condition	Abnormal condition	<code>PI_USERMODE_PERCENT > 85</code>
		Warning condition	<code>PI_USERMODE_PERCENT > 65</code>

1.6 Reviewing the Format of Report Explanations

This section describes the format that is used to explain reports. The manual lists the reports in alphabetical order.

Note: The report explanations use abbreviations and generic names to represent the storage subsystems supported by the Agent for RAID. For details on the abbreviations used for the storage subsystems, see section 1.9.

Report Name

Indicates the report name of a solution set.

Agent for RAID:

- Reports with names that include (5.0) indicate that the data model of the record used for the report is 5.0.
- Reports with names that include (6.0) indicate that the data model of the record used for the report is 6.0.
- Reports with names that include (7.0) indicate that the data model of the record used for the report is 7.0.
- Reports with names that do not include (5.0), (6.0) or (7.0) indicate that the data model of the record used for the report is 4.0.

For details about data models, see section 2.1.

Agent for SAN Switch and Agent for NAS:

- Reports with names that include (Multi-Agent) display information about multiple instances.
- Reports with names that do not include (Multi-Agent) display information about a single instance.

Overview

Provides an overview of the information that can be displayed in the report.

Storage Location

Indicates the storage location of the report.

Record

Indicates the record that contains the performance data (configuration information) used in the report. To display a historical report, you must specify information in advance in order to collect the record indicated in this column. Before you display a report, use the `jpcasrec output` command of Performance Reporter to confirm that the record indicated in this column is set as Log = Yes. For a real-time report, you do not need to set it. For details about the Performance Reporter command, see the *HiCommand Tuning Manager Command Line Interface Guide*.

Note: The maximum number of records that can be displayed in a report is set in advance. For details about how to change the maximum number of records that can be displayed, see the chapter that describes how to perform operations on reports in the *HiCommand Tuning Manager User's Guide*.

Report Data

This is a table that contains some or all of the following information:

- **Fields**

Describes the fields used in the report.

Note on using the Agent for RAID: Depending on the microcode version of the storage subsystem, some field values might not be acquired. For details on the microcode versions of storage subsystems and their correspondence to the Agent for RAID functions, see section 2.6.1.3.

- **Drilldown Reports (Report Level)**

Lists other reports in the solution set that are related to this report. For details about how to display a drilldown report, see the chapter that describes the report operations in the *HiCommand Tuning Manager User's Guide*. **Note:** Some reports and Agents do not have any drilldown reports.

- **Drilldown Reports (Field Level)**

Describes reports in the solution set that are associated with fields used in this report. For details about how to display a drilldown report, see the chapter that describes the report operations in the *HiCommand Tuning Manager User's Guide*. **Note:** Some reports and Agents do not have any drilldown reports.

Note: If a report only contains one field and no drilldown reports, the field data is listed beneath the 'Field' heading.

1.7 Reviewing the Organization of Report Folders

Listed below is a description of each folder:

- **Monthly Trend folder**

This folder contains reports that display daily information for the past month. In the Agent for SAN Switch, this folder also contains reports that display information for the past month. Use the reports in this folder to check monthly trends in the system.

- **Status Reporting folder**

This folder contains a report displaying information compiled on a day-to-day basis. Use this folder to check the overall status of the system. In addition, real-time reports as well as historical reports can be displayed.

- **Daily Trend folder**

This folder contains reports that display information for the last 24 hours, as well as hourly information for the past 24 hours. Use the reports in this folder to check the daily status of the system.

- **Real-Time folder**

This folder contains real-time reports for checking the current status of the system.

- **Troubleshooting folder**

This folder contains reports showing useful information for resolving problems. In the event of a system problem, use the reports in this folder to check the cause of the problem. In addition, real-time reports as well as historical reports can be displayed.

- **Real-Time folder**

This folder contains real-time reports for checking the current status of the monitored system.

- **Recent Past folder**

This folder contains historical reports showing the cumulative data every minute in the last hour. In the Agent for SAN Switch, this folder also contains historical reports that display information for the last 24 hours.

Also, some of the folders might contain the following subordinate folders, depending on the folders above each:

- **Advanced folder**

This folder contains reports that use records for which Log = No is set by default. To display these reports, change the record setting to Log = Yes by using the `jpcasrec update` command of Performance Reporter.

- **Drilldown Only folder**

This folder contains reports that are displayed as drilldown reports (field level). Use it to display detailed information about the fields contained in the applicable report.

The following are examples of the organization of report folders for each Agent. Angle brackets (< >) enclose folder names.

1.7.1 Agent for RAID

```
<RAID>
+-- <Monthly Trend>
|   +-- Subsystem Read IO Rate Trend
|   +-- Subsystem Read Transfer Rate Trend
|   +-- Subsystem Write IO Rate Trend
|   +-- Subsystem Write Transfer Rate Trend
|
+-- <Status Reporting>
|   +-- <Daily Trend>
|   |   +-- Array Group IO Rate Status(5.0)
|   |   +-- Array Group Transfer Rate Status(5.0)
|   |   +-- CLPR Usage Status(6.0)
|   |   +-- Logical Device IO Rate Status
|   |   +-- Logical Device Transfer Rate Status
|   |   +-- Port IO Rate Status
|   |   +-- Port Transfer Rate Status
|   |   +-- Processor Busy Rate Status(6.0)
|   |   +-- Subsystem Cache Memory Usage Status
|   |   +-- Subsystem IO Rate Status
|   |   +-- Subsystem Transfer Rate Status
|   |   +-- <Drilldown Only>
|   |   |   +-- Array Group Read IO Rate Status(5.0)
|   |   |   +-- Array Group Read Transfer Rate Status(5.0)
|   |   |   +-- Array Group Write IO Rate Status(5.0)
|   |   |   +-- Array Group Write Transfer Rate Status(5.0)
|   |   |   +-- Logical Device Read IO Rate Status
|   |   |   +-- Logical Device Read Transfer Rate Status
|   |   |   +-- Logical Device Write IO Rate Status
|   |   |   +-- Logical Device Write Transfer Rate Status
|   |   |   +-- Port Avg IO Rate Status
|   |   |   +-- Port Avg Transfer Rate Status
|   |
|   +-- <Real-Time>
|   |   +-- Array Group Configuration(5.0)
|   |   +-- Array Group IO Rate Status(5.0)
|   |   +-- Array Group Transfer Rate Status(5.0)
|   |   +-- CLPR Configuration(6.0)
|   |   +-- CLPR Usage Status(6.0)
|   |   +-- External LDEV Configuration(5.0)
|   |   +-- Logical Device Configuration
|   |   +-- Logical Device Configuration(5.0)
|   |   +-- Logical Device IO Rate Status
|   |   +-- Logical Device Transfer Rate Status
|   |   +-- LUSE Configuration(5.0)
|   |   +-- Port Configuration
|   |   +-- Port Configuration(5.0)
|   |   +-- Port Configuration(7.0)
|   |   +-- Port IO Rate Status
|   |   +-- Port Transfer Rate Status
|   |   +-- Processor Busy Rate Status(6.0)
|   |   +-- Subsystem Cache Memory Usage Status
|   |   +-- Subsystem Configuration
|   |   +-- Subsystem IO Rate Status
|   |   +-- Subsystem Transfer Rate Status
|
+-- <Troubleshooting>
|   +-- <Real-Time>
|   |   +-- Array Group Busy Rate - Top 10(6.0)
|   |   +-- Array Group Busy Rate - Top 10(7.0)
|   |   +-- Array Group Read Cache Hit Rate - Worst 10(5.0)
|   |   +-- Array Group Read IO Rate - Top 10(5.0)
|   |   +-- Array Group Read Transfer Rate - Top 10(5.0)
|   |   +-- Array Group Write Cache Hit Rate - Worst 10(5.0)
|   |   +-- Array Group Write IO Rate - Top 10(5.0)
|   |   +-- Array Group Write Transfer Rate - Top 10(5.0)
|   |   +-- Logical Device Read Cache Hit Rate - Worst 10
```

```
+-- Logical Device Read IO Rate - Top 10
+-- Logical Device Read Response Rate - Top 10(6.0)
+-- Logical Device Read Transfer Rate - Top 10
+-- Logical Device Write Cache Hit Rate - Worst 10
+-- Logical Device Write IO Rate - Top 10
+-- Logical Device Write Response Rate - Top 10(6.0)
+-- Logical Device Write Transfer Rate - Top 10
+-- Port IO Rate - Top 10
+-- Port Transfer Rate - Top 10
+-- Processor Busy Rate - Top 10(6.0)
+-- <Recent Past>
+-- Array Group Performance Details(5.0)
+-- Array Group Performance Details(7.0)
+-- CLPR Usage Details(6.0)
+-- Logical Device Performance Details
+-- Logical Device Performance Details(6.0)
+-- Logical Device Performance Details(7.0)
+-- Port Performance Details
+-- Processor Busy Rate Details(6.0)
+-- Subsystem Cache Memory Usage Details
+-- Subsystem Cache Memory Usage Details(6.0)
+-- Subsystem Performance Details
```

1.7.2 Agent for SAN Switch

```
<SAN Switch>
+-- <Monthly Trend>
    +-- Switch Rcvd Bytes Rate Trend
    +-- Switch Rcvd Kbytes Trend
    +-- Switch Xmitd Bytes Rate Trend
    +-- Switch Xmitd Kbytes Trend
    +-- <Drilldown Only>
        +-- Link Rcvd Bytes Rate
        +-- Link Rcvd Kbytes
        +-- Link Xmitd Bytes Rate
        +-- Link Xmitd Kbytes
        +-- Port Rcvd Bytes Rate Trend
        +-- Port Rcvd Kbytes Trend
        +-- Port Xmitd Bytes Rate Trend
        +-- Port Xmitd Kbytes Trend
+-- <Status Reporting>
    +-- <Daily Trend>
        +-- Device Detail Status
        +-- Port Detail Status
        +-- Port Operation Status
        +-- Switch Buffer Flow Status
        +-- Switch Detail Status
        +-- Switch Operation Status
        +-- Switch Rcvd Bytes Rate Status
        +-- Switch Rcvd Kbytes Status
        +-- Switch Xmitd Bytes Rate Status
        +-- Switch Xmitd Kbytes Status
        +-- <Drilldown Only>
            +-- Connected Port Detail Status
            +-- Link Buffer Flow
            +-- Link Rcvd Bytes Rate
            +-- Link Rcvd Kbytes
            +-- Link Xmitd Bytes Rate
            +-- Link Xmitd Kbytes
            +-- Port Buffer Flow Status
            +-- Port Detail Overview
            +-- Port Rcvd Bytes Rate Status
            +-- Port Rcvd Kbytes Status
            +-- Port Xmitd Bytes Rate Status
            +-- Port Xmitd Kbytes Status
            +-- Switch Detail Overview
    +-- <Real-Time>
        +-- Device Detail Status
        +-- Port Detail Status
        +-- Port Operation Status
        +-- Switch Buffer Flow Status
        +-- Switch Detail Status
        +-- Switch Operation Status
        +-- Switch Rcvd Bytes Rate Status
        +-- Switch Rcvd Kbytes Status
        +-- Switch Xmitd Bytes Rate Status
        +-- Switch Xmitd Kbytes Status
        +-- <Drilldown Only>
            +-- Connected Port Detail Status
            +-- Link Buffer Flow
            +-- Link Rcvd Bytes Rate
            +-- Link Rcvd Kbytes
            +-- Link Xmitd Bytes Rate
            +-- Link Xmitd Kbytes
            +-- Port Buffer Flow Status
            +-- Port Detail Overview
            +-- Port Rcvd Bytes Rate Status
            +-- Port Rcvd Kbytes Status
            +-- Port Xmitd Bytes Rate Status
            +-- Port Xmitd Kbytes Status
            +-- Switch Detail Overview
```

```

+-- <Troubleshooting>
  +-- <Real-Time>
  |   +-- CRC Error Count - Top 10 Port
  |   +-- CRC Error Count - Top 10 Switch
  |   +-- Encoding Disparity Count - Top 10 Port
  |   +-- Encoding Disparity Count - Top 10 Switch
  |   +-- Loss of Signal Count - Top 10 Port
  |   +-- Loss of Signal Count - Top 10 Switch
  |   +-- Loss of Sync Count - Top 10 Port
  |   +-- Loss of Sync Count - Top 10 Switch
  |   +-- Rcvd Kbytes - Top 10 Port
  |   +-- Rcvd Kbytes - Top 10 Switch
  |   +-- Xmitd Kbytes - Top 10 Port
  |   +-- Xmitd Kbytes - Top 10 Switch
  +-- <Recent Past>
  |   +-- Port Operation Status
  |   +-- Switch CRC Error Count
  |   +-- Switch Operation Status
  |   +-- Switch Rcvd Kbytes
  |   +-- Switch Xmitd Kbytes
  |   +-- <Drilldown Only>
  |       +-- Link CRC Error Count
  |       +-- Link Rcvd Kbytes
  |       +-- Link Xmitd Kbytes
  |       +-- Port CRC Error Count
  |       +-- Port Detail Overview
  |       +-- Port Rcvd Kbytes
  |       +-- Port Xmitd Kbytes
  |       +-- Switch Detail Overview

```

1.7.3 Agent for NAS

```
<NAS>
+-- <Monthly Trend>
|   +-- CPU Trend
|   +-- CPU Trend (Multi-Agent)
|   +-- Process Trend
+-- <Status Reporting>
|   +-- <Daily Trend>
|   |   +-- Channel Node Configuration (Multi-Agent)
|   |   +-- Channel Node Platform Configuration (Multi-Agent)
|   |   +-- CPU Status (Multi-Agent)
|   |   +-- Device Detail Status
|   |   +-- File System Configuration
|   |   +-- IP Address Configuration
|   |   +-- Local File System Status
|   |   +-- Network Status (Multi-Agent)
|   |   +-- Workload Status (Multi-Agent)
|   |   +-- <Advanced>
|   |       +-- Device Usage Summary (Multi-Agent)
|   +-- <Real-Time>
|   |   +-- Channel Node Configuration
|   |   +-- Channel Node Platform Configuration
|   |   +-- CPU Status
|   |   +-- Device Usage Status
|   |   +-- Device Usage Summary
|   |   +-- File System Configuration
|   |   +-- Free Space Mbytes - Top 10 Local File Systems
|   |   +-- IP Address Configuration
|   |   +-- Network Status
|   |   +-- System Utilization Status
|   |   +-- Workload Status
|   |   +-- <Drilldown Only>
|   |       +-- Device Detail
|   |       +-- File System Configuration Detail
+-- <Troubleshooting>
|   +-- <Real-Time>
|   |   +-- CPU Usage - Top 10 Processes
|   |   +-- Space Usage - Top 10 Local File Systems
|   |   +-- System Overview
|   |   +-- <Drilldown Only>
|   |       +-- Local File System Detail
|   |       +-- Process Detail
+-- <Recent Past>
|   +-- CPU Usage Summary
|   +-- I/O Overview
|   +-- Network Overview
+-- System Overview
```

1.8 Notes on Using the Solution Set

This section describes notes on using the solution set of the Agent for SAN Switch.

If all of the port information is displayed when a switch port module has 21 or more ports assigned, the graphs may become too complex. In this case, change the definitions for the solution set reports. When you use the following switches, change the report definitions before starting operations of the Agent for SAN Switch.

- Brocade® switches:
 - SilkWorm® 3900
 - SilkWorm 4100
 - SilkWorm 4900
 - SilkWorm 48000
- McDATA® switches:
 - Sphereon™ 3032
 - Sphereon 3232
 - Sphereon 4500
 - Intrepid® 6064 Director
 - Intrepid 6140 Director
 - Intrepid 10000 Director

Following is an example of changing the definitions for reports:

To display the data for the port numbers from 0 to 19, as well as for the switch whose WWN is 10000060691216D8 in the Port Rcvd Kbytes Status report, Use the **Edit > Filter** window of the Report wizard in Performance Reporter to specify the fields to be filtered and the conditional expression, as follows:

Fields to be filtered	Formula
■ PI_PTS_PORT_NUMBER	Port Number >= "0" AND
■ PI_PTS_SWITCH_WWN	Port Number <= "19" AND Switch WWN = "10000060691216D8"

Note: For details about the report definitions, see the chapter that describes report definitions and operations in the *HiCommand Tuning Manager User's Guide*.

1.9 Abbreviations Used for Storage Subsystems

This manual uses abbreviations and generic names to represent storage subsystems that the Agent for RAID supports. The following table lists abbreviations and generic names for the storage subsystems:

Table 1.13 Abbreviations Used for Storage Subsystems

Full Name	Abbreviation		
Thunder 9200	Thunder 9200	Thunder series	
Thunder 9520V	Thunder 9500V series		
Thunder 9530V			
Thunder 9570V			
Thunder 9580V			
Thunder 9585V			
Lightning 9910	Lightning 9900 series	Lightning series	
Lightning 9960			
Lightning 9970V	Lightning 9900V series		
Lightning 9980V			
Hitachi TagmaStore Adaptable Modular Storage 200	TagmaStore AMS200	TagmaStore AMS series	TagmaStore AMS/WMS series
Hitachi TagmaStore Adaptable Modular Storage 500	TagmaStore AMS500		
Hitachi TagmaStore Adaptable Modular Storage 1000	TagmaStore AMS1000		
Hitachi TagmaStore Workgroup Modular Storage 100	TagmaStore WMS100	TagmaStore WMS series	
Hitachi TagmaStore Universal Storage Platform 100	TagmaStore USP100	TagmaStore USP	
Hitachi TagmaStore Universal Storage Platform 600	TagmaStore USP600		
Hitachi TagmaStore Universal Storage Platform 1100	TagmaStore USP1100		
Hitachi TagmaStore Network Storage Controller NSC55	TagmaStore NSC55		

1.10 Agent for RAID Reports

The following table lists the reports defined in the solution set, in alphabetical order.

Table 1.14 Agent for RAID Reports

Report Name	Displayed Information	Storage Location
Array Group Busy Rate - Top 10 (6.0)	Ten array groups with the highest usage.	Reports/RAID/Troubleshooting/Real-Time/
Array Group Busy Rate - Top 10 (7.0)	Ten array groups with the highest usage, and their frequency and transfer rate of sequential/random operations.	Reports/RAID/Troubleshooting/Real-Time/
Array Group Configuration (5.0)	Array group configuration information.	Reports/RAID/Status Reporting/Real-Time/
Array Group IO Rate Status (5.0) (Hourly historical report)	Array group read/write frequency in the last 24 hours.	Reports/RAID/Status Reporting/Daily Trend/
Array Group IO Rate Status (5.0) (Real-time report)	Array group read/write frequency.	Reports/RAID/Status Reporting/Real-Time/
Array Group Performance Details (5.0)	Array group read/write frequency, transfer rate, cache hit ratio, and usage in the last hour.	Reports/RAID/Troubleshooting/Recent Past/
Array Group Performance Details (7.0)	Array group read/write frequency, transfer rate, cache hit ratio, usage, and frequency and transfer rate of sequential/random operations in the last hour.	Reports/RAID/Troubleshooting/Recent Past/
Array Group Read Cache Hit Rate - Worst 10 (5.0)	Ten array groups with the lowest cache hit rates for reads.	Reports/RAID/Troubleshooting/Real-Time/
Array Group Read IO Rate - Top 10 (5.0)	Ten array groups with the highest frequencies for the reads.	Reports/RAID/Troubleshooting/Real-Time/
Array Group Read IO Rate Status (5.0)	Array group read frequency in the last 24 hours.	Reports/RAID/Status Reporting/Daily Trend/Drilldown Only/
Array Group Read Transfer Rate - Top 10 (5.0)	Ten array groups with the fastest data transfer rates for reads.	Reports/RAID/Troubleshooting/Real-Time/
Array Group Read Transfer Rate Status (5.0)	Array group read data transfer rate in the last 24 hours.	Reports/RAID/Status Reporting/Daily Trend/Drilldown Only/
Array Group Transfer Rate Status (5.0) (Hourly historical report)	Array group read/write data transfer rate in the last 24 hours.	Reports/RAID/Status Reporting/Daily Trend/

Array Group Transfer Rate Status (5.0) (Real-time report)	Array group read/write data transfer rate.	Reports/RAID/Status Reporting/Real-Time/
Array Group Write Cache Hit Rate - Worst 10 (5.0)	Ten array groups with the lowest cache hit rates for writes.	Reports/RAID/Troubleshooting/Real-Time/
Array Group Write IO Rate - Top 10 (5.0)	Ten array groups with the highest frequencies for writes.	Reports/RAID/Troubleshooting/Real-Time/
Array Group Write IO Rate Status (5.0)	Array group write frequency in the last 24 hours.	Reports/RAID/Status Reporting/Daily Trend/Drilldown Only/
Array Group Write Transfer Rate - Top 10 (5.0)	Ten array groups with the fastest data transfer rates for writes.	Reports/RAID/Troubleshooting/Real-Time/
Array Group Write Transfer Rate Status (5.0)	Array group write data transfer rate in the last 24 hours.	Reports/RAID/Status Reporting/Daily Trend/Drilldown Only/
CLPR Configuration (6.0)	CLPR configuration information.	Reports/RAID/Status Reporting/Real-Time/
CLPR Usage Details (6.0)	Cache memory usage statuses in the last hour for each CLPR.	Reports/RAID/Troubleshooting/Recent Past/
CLPR Usage Status (6.0) (Hourly historical report)	Cache memory usage statuses in the last 24 hours for each CLPR.	Reports/RAID/Status Reporting/Daily Trend/
CLPR Usage Status (6.0) (Real-time report)	Cache memory usage statuses for each CLPR.	Reports/RAID/Status Reporting/Real-Time/
External LDEV Configuration (5.0)	Externally connected LDEV (an externally connected logical device) configuration information.	Reports/RAID/Status Reporting/Real-Time/
Logical Device Configuration	Logical device configuration information.	Reports/RAID/Status Reporting/Real-Time/
Logical Device Configuration (5.0)	Logical device configuration information.	Reports/RAID/Status Reporting/Real-Time/
Logical Device IO Rate Status (Hourly historical report)	Logical device read/write frequency in the last 24 hours.	Reports/RAID/Status Reporting/Daily Trend/
Logical Device IO Rate Status (Real-time report)	Logical device read/write frequency.	Reports/RAID/Status Reporting/Real-Time/

Logical Device Performance Details	Logical device read/write frequency, data transfer rate and cache hit rate in the last hour.	Reports/RAID/Troubleshooting/Recent Past/
Logical Device Performance Details (6.0)	Logical device read/write frequency, transfer rate, cache hit rate, and average processing time per request in the last hour.	Reports/RAID/Troubleshooting/Recent Past/
Logical Device Performance Details (7.0)	Logical device read/write frequency, transfer rate, cache hit rate, frequency and transfer rate of sequential/random operations, and average processing time per request in the last hour.	Reports/RAID/Troubleshooting/Recent Past/
Logical Device Read Cache Hit Rate - Worst 10	Ten logical devices with the lowest cache hit rates for reads.	Reports/RAID/Troubleshooting/Real-Time/
Logical Device Read IO Rate - Top 10	Ten logical devices with the highest frequencies for reads.	Reports/RAID/Troubleshooting/Real-Time/
Logical Device Read IO Rate Status	Logical device read frequency in the last 24 hours.	Reports/RAID/Status Reporting/Daily Trend/Drilldown Only/
Logical Device Read Response Rate - Top 10 (6.0)	Ten logical devices with the longest average processing time per read request.	Reports/RAID/Troubleshooting/Real-Time/
Logical Device Read Transfer Rate - Top 10	Ten logical devices with the fastest data transfer rates for reads.	Reports/RAID/Troubleshooting/Real-Time/
Logical Device Read Transfer Rate Status	Logical device read data transfer rate in the last 24 hours.	Reports/RAID/Status Reporting/Daily Trend/Drilldown Only/
Logical Device Transfer Rate Status (Hourly historical report)	Logical device read/write data transfer rate in the last 24 hours.	Reports/RAID/Status Reporting/Daily Trend/
Logical Device Transfer Rate Status (Real-time report)	Logical device read/write data transfer rate.	Reports/RAID/Status Reporting/Real-Time/
Logical Device Write Cache Hit Rate - Worst 10	Ten logical devices with the lowest cache hit rates for writes.	Reports/RAID/Troubleshooting/Real-Time/
Logical Device Write IO Rate - Top 10	Ten logical devices with the highest frequencies for writes.	Reports/RAID/Troubleshooting/Real-Time/
Logical Device Write IO Rate Status	Logical device write frequency in the last 24 hours.	Reports/RAID/Status Reporting/Daily Trend/Drilldown Only/
Logical Device Write Response Rate - Top 10 (6.0)	Ten logical devices with the longest average processing time per write request.	Reports/RAID/Troubleshooting/Real-Time/
Logical Device Write Transfer Rate - Top 10	Ten logical devices with the fastest data transfer rates for writes.	Reports/RAID/Troubleshooting/Real-Time/

Logical Device Write Transfer Rate Status	Logical device write data transfer rate in the last 24 hours.	Reports/RAID/Status Reporting/Daily Trend/Drilldown Only/
LUSE Configuration (5.0)	Configuration information of the logical device that configures the LUSE.	Reports/RAID/Status Reporting/Real-Time/
Port Avg IO Rate Status	Average read/write frequency for disk array device port in the last 24 hours.	Reports/RAID/Status Reporting/Daily Trend/Drilldown Only/
Port Avg Transfer Rate Status	Average data transfer rate for disk array device port read/write in the last 24 hours.	Reports/RAID/Status Reporting/Daily Trend/Drilldown Only/
Port Configuration	Disk array device port configuration information.	Reports/RAID/Status Reporting/Real-Time/
Port Configuration (5.0)	Disk array device port configuration information.	Reports/RAID/Status Reporting/Real-Time/
Port Configuration (7.0)	Disk array device port configuration information.	Reports/RAID/Status Reporting/Real-Time/
Port IO Rate - Top 10	Ten disk array device ports with the highest read/write frequencies.	Reports/RAID/Troubleshooting/Real-Time/
Port IO Rate Status (Hourly historical report)	Average read/write frequency for disk array device port in the last 24 hours	Reports/RAID/Status Reporting/Daily Trend/
Port IO Rate Status (Real-time report)	Average read/write frequency for disk array device port.	Reports/RAID/Status Reporting/Real-Time/
Port Performance Details	Read/write frequency and data transfer rate for disk array device port in the last hour.	Reports/RAID/Troubleshooting/Recent Past/
Port Transfer Rate - Top 10	Ten disk array device ports with the fastest read/write data transfer rates.	Reports/RAID/Troubleshooting/Real-Time/
Port Transfer Rate Status (Hourly historical report)	Average read/write data transfer rate for disk array device port in the last 24 hours.	Reports/RAID/Status Reporting/Daily Trend/
Port Transfer Rate Status (Real-time report)	Average read/write data transfer rate for disk array device port.	Reports/RAID/Status Reporting/Real-Time/
Processor Busy Rate - Top 10 (6.0)	Ten storage subsystem processors with the highest usage.	Reports/RAID/Troubleshooting/Real-Time/
Processor Busy Rate Details (6.0)	Storage subsystem processor usage in the last hour.	Reports/RAID/Troubleshooting/Recent Past/
Processor Busy Rate Status (6.0) (Hourly historical report)	Storage subsystem processor usage in the last 24 hours.	Reports/RAID/Status Reporting/Daily Trend/
Processor Busy Rate Status (6.0) (Real-time report)	Storage subsystem processor usage.	Reports/RAID/Status Reporting/Real-Time/
Subsystem Cache	Cache memory usage for disk	Reports/RAID/Troubleshooting/Recent Past/

Memory Usage Details	array device in the last hour.	
Subsystem Cache Memory Usage Details (6.0)	Cache memory usage for disk array device in the last hour.	Reports/RAID/Troubleshooting/Recent Past/
Subsystem Cache Memory Usage Status (Hourly historical report)	Cache memory usage for disk array device in the last 24 hours.	Reports/RAID/Status Reporting/Daily Trend/
Subsystem Cache Memory Usage Status (Real-time report)	Cache memory usage for disk array device.	Reports/RAID/Status Reporting/Real-Time/
Subsystem Configuration	Storage subsystem configuration information.	Reports/RAID/Status Reporting/Real-Time/
Subsystem IO Rate Status (Hourly historical report)	Read/write frequency for the entire storage subsystem in the last 24 hours.	Reports/RAID/Status Reporting/Daily Trend/
Subsystem IO Rate Status (Real-time report)	Read/write frequency for the entire storage subsystem.	Reports/RAID/Status Reporting/Real-Time/
Subsystem Performance Details	Read/write frequency and data transfer rate for the entire storage subsystem in the last hour.	Reports/RAID/Troubleshooting/Recent Past/
Subsystem Read IO Rate Trend	Read frequency for the entire storage subsystem in the last month.	Reports/RAID/Monthly Trend/
Subsystem Read Transfer Rate Trend	Read data transfer rate for the entire storage subsystem in the last month.	Reports/RAID/Monthly Trend/
Subsystem Transfer Rate Status (Hourly historical report)	Read/write data transfer rate for the entire storage subsystem in the last 24 hours.	Reports/RAID/Status Reporting/Daily Trend/
Subsystem Transfer Rate Status (Real-time report)	Read/write data transfer rate for the entire storage subsystem.	Reports/RAID/Status Reporting/Real-Time/
Subsystem Write IO Rate Trend	Write frequency for the entire storage subsystem in the last month.	Reports/RAID/Monthly Trend/
Subsystem Write Transfer Rate Trend	Write data transfer rate for the entire storage subsystem in the last month.	Reports/RAID/Monthly Trend/

1.10.1 Array Group Busy Rate - Top 10(6.0)

Overview

The Array Group Busy Rate - Top 10(6.0) report displays a table giving ten array groups with the highest usage in real-time. **Note:** The field value for the usage is invalid if the monitored storage device belongs to the TagmaStore AMS/WMS series, the Thunder 9500V series or Thunder 9200.

Storage Location

Reports/RAID/Troubleshooting/Real-Time/

Record

RAID Group Summary (PI_RGS)

Table 1.15 Report Data for Array Group Busy Rate - Top 10(6.0)

Fields	
Field Name	Description
Busy%	Array group usage
RAID Group Number	Array group number
Drilldown Report (Field Level)	
Report Name	Description
Array Group Configuration(5.0)	Displays a table giving array group configuration information in real-time. In order to display this report, click the following field in the Array Group Busy Rate - Top 10(6.0) report: RAID Group Number

1.10.2 Array Group Busy Rate - Top 10(7.0)

Overview

The Array Group Busy Rate - Top 10(7.0) report displays a table listing the ten array groups with the highest usage, and the frequency and transfer rate of random/sequential operations for those array groups in real-time. However, if the monitored storage device belongs to the TagmaStore AMS/WMS series, the Thunder 9500V series or Thunder 9200, the field value for the usage will be invalid.

Storage Location

Reports/RAID/Troubleshooting/Real-Time/

Record

RAID Group Summary (PI_RGS)

Table 1.16 Report Data for Array Group Busy Rate - Top 10(7.0)

Fields	
Field Name	Description
Busy %	Array group usage.
RAID Group Number	Array group number.
Random Total I/O /sec	Frequency of random operations (times per second).
Random Total Xfer /sec	Transfer rate of random operations (megabytes per second).
Sequential Total I/O /sec	Frequency of sequential operations (times per second).
Sequential Total Xfer /sec	Transfer rate of sequential operations (megabytes per second).
Drilldown Report (Field Level)	
Report Name	Description
Array Group Configuration (5.0)	Displays a table giving array group configuration information in real-time. To display this report, click the following field in the Array Group Busy Rate - Top 10 (7.0) report. <ul style="list-style-type: none">RAID Group Number

1.10.3 Array Group Configuration(5.0)

Overview

The Array Group Configuration(5.0) report displays a table giving configuration information of the array group in real-time.

Storage Location

Reports/RAID/Status Reporting/Real-Time/

Record

RAID Group Configuration (PD_RGC)

Table 1.17 Report Data for Array Group Configuration(5.0)

Fields	
Field Name	Description
RAID Group Number	Array group number.
RAID Level	RAID level.
RAID Type	RAID level and HDU combination. <i>Example:</i> RAID5 (3D+1P)

1.10.4 Array Group IO Rate Status(5.0) (Hourly Historical Report)

Overview

The Array Group IO Rate Status(5.0) (Hourly historical report) displays a table giving the frequency of the read/write operations in the last 24 hours for the array group.

Storage Location

Reports/RAID/Status Reporting/Daily Trend/

Record

RAID Group Summary (PI_RGS)

Table 1.18 Report Data for Array Group IO Rate Status(5.0) (Hourly Historical Report)

Fields	
Field Name	Description
RAID Group Number	Array group number
Read I/O / sec	Read frequency (times per second)
Write I/O / sec	Write frequency (times per second)
Drilldown Report (Report Level)	
Report Name	Description
Array Group Transfer Rate Status(5.0) (Hourly historical report)	Displays a table giving the read/write data transfer rate for the array group in the last 24 hours.
Drilldown Reports (Field Level)	
Report Name	Description
Array Group Configuration(5.0)	Displays a table giving array group configuration information in real-time. In order to display this report, click the following field in the Array Group IO Rate Status (5.0) report: RAID Group Number
Array Group Read IO Rate Status(5.0)	Displays a line graph giving read frequency in the last 24 hours for the array group. In order to display this report, click the following field in the Array Group IO Rate Status (5.0) report: Read I/O / sec
Array Group Write IO Rate Status(5.0)	Displays a line graph giving write frequency in the last 24 hours for the array group. In order to display this report, click the following field in the Array Group IO Rate Status (5.0) report: Write I/O / sec

1.10.5 Array Group IO Rate Status(5.0) (Real-Time Report)

Overview

The Array Group IO Rate Status(5.0) (Real-time report) displays a table giving the frequency of read/write operations for the array group in real-time.

Storage Location

Reports/RAID/Status Reporting/Real-Time/

Record

RAID Group Summary (PI_RGS)

Table 1.19 Report Data for Array Group IO Rate Status(5.0) (Real-Time Report)

Fields	
Field Name	Description
RAID Group Number	Array group number
Read I/O / sec	Read frequency (times per second)
Write I/O / sec	Write frequency (times per second)
Drilldown Report (Report Level)	
Report Name	Description
Array Group Transfer Rate Status (5.0) (Real-time report)	Displays the read/write data transfer rate in the last 24 hours for the array group in real-time.
Drilldown Report (Field Level)	
Report Name	Description
Array Group Configuration (5.0)	Displays a table giving array group configuration information in real-time. In order to display this report, click the following field in the Array Group IO Rate Status (5.0) report: RAID Group Number

1.10.6 Array Group Performance Details(5.0)

Overview

The Array Group Performance Details(5.0) report displays a table giving the read/write frequency, data transfer rate, cache hit ratio, and usage in the last hour. However, if the monitored storage device belongs to TagmaStore USP, the Lightning 9900V series or the Lightning 9900 series, the field value for the cache hit rate of write operations will be invalid.

Storage Location

Reports/RAID/Troubleshooting/Recent Past/

Record

RAID Group Summary (PI_RGS)

Table 1.20 Report Data for Array Group Performance Details(5.0)

Fields	
Field Name	Description
Busy %	Array group usage
RAID Group Number	Array group number
Read Hit %	Cache hit rate for reads.
Read I/O / sec	Read frequency (times per second)
Read Xfer / sec	Data transfer rate for reads (megabytes per second).
Write Hit %	Cache hit rate for writes.
Write I/O / sec	Write frequency (times per second)
Write Xfer / sec	Data transfer rate for writes (megabytes per second)
Drilldown Report (Field Level)	
Report Name	Description
Array Group Configuration(5.0)	Displays configuration information of the array group in real-time. In order to display this report, click the following field in the Array Group Performance Details(5.0) report: RAID Group Number

1.10.7 Array Group Performance Details(7.0)

Overview

The Array Group Performance Details(7.0) report displays a table giving the frequency, transfer rate, cache hit ratio of array group read/write operations and the frequency and transfer rate of random/sequential operations, and array group usage in the last hour.

Note: If the monitored storage device belongs to TagmaStore USP, the Lightning 9900V series or the Lightning 9900 series, the field value for the cache hit rate of write operations will be invalid.

Storage Location

Reports/RAID/Troubleshooting/Recent Past/

Record

RAID Group Summary (PI_RGS)

Table 1.21 Report Data for Array Group Performance Details(7.0)

Fields	
Field Name	Description
Busy %	Array group usage.
RAID Group Number	Array group number.
Random Total I/O /sec	Frequency of random operations (times per second).
Random Total Xfer /sec	Transfer rate of random operations (megabytes per second).
Read Hit %	Cache hit rate of read operations.
Read I/O /sec	Frequency of read operations (times per second).
Read Xfer /sec	Transfer rate of read operations (megabytes per second).
Sequential Total I/O /sec	Frequency of sequential operations (times per second).
Sequential Total Xfer /sec	Transfer rate of sequential operations (megabytes per second).
Write Hit %	Cache hit rate of write operations.
Write I/O /sec	Frequency of write operations (times per second).
Write Xfer /sec	Transfer rate of write operations (megabytes per second).
Drilldown Report (Field Level)	
Report Name	Description
Array Group Configuration (5.0)	Displays a table giving array group configuration information in real-time. To display this report, click the following field in the Array Group Performance Details (7.0) report. <ul style="list-style-type: none"> ▪ RAID Group Number

1.10.8 Array Group Read Cache Hit Rate - Worst 10(5.0)

Overview

The Array Group Read Cache Hit Rate - Worst 10(5.0) report displays a table giving ten array groups with the lowest cache hit rates for read operations in real-time.

Storage Location

Reports/RAID/Troubleshooting/Real-Time/

Record

RAID Group Summary (PI_RGS)

Table 1.22 Report Data for Array Group Read Cache Hit Rate - Worst 10(5.0)

Fields	
Field Name	Description
RAID Group Number	Array group number
Read Hit %	Cache hit rate for reads
Drilldown Reports (Report Level)	
Report Name	Description
Array Group Read IO Rate - Top 10(5.0)	Displays a table giving ten array groups with the highest read frequencies in real-time.
Array Group Read Transfer Rate - Top 10(5.0)	Displays a table giving ten array groups with the fastest data transfer rates for read operations in real-time.
Array Group Write Cache Hit Rate - Worst 10(5.0)	Displays a table giving ten array groups with the lowest cache hit rates for write operations in real-time.
Array Group Write IO Rate - Top 10(5.0)	Displays a table giving ten array groups with the highest write frequencies in real-time.
Array Group Write Transfer Rate - Top 10(5.0)	Displays a table giving ten array groups with the fastest data transfer rates for write operations in real-time.
Drilldown Report (Field Level)	
Report Name	Description
Array Group Configuration(5.0)	Displays a table giving array group configuration information in real-time. In order to display this report, click the following field in the Array Group Read Cache Hit Rate - Worst 10(5.0) report: RAID Group Number

1.10.9 Array Group Read IO Rate - Top 10(5.0)

Overview

The Array Group Read IO Rate - Top 10(5.0) report displays a table giving ten array groups with the highest frequencies of read operations in real-time.

Storage Location

Reports/RAID/Troubleshooting/Real-Time/

Record

RAID Group Summary (PI_RGS)

Table 1.23 Report Data for Array Group Read IO Rate - Top 10(5.0)

Fields	
Field Name	Description
RAID Group Number	Array group number
Read I/O / sec	Read frequency (times per second)
Drilldown Reports (Report Level)	
Report Name	Description
Array Group Read Cache Hit Rate - Worst 10 (5.0)	Displays a table giving ten array groups with the lowest cache hit rates for read operations in real-time.
Array Group Read Transfer Rate - Top 10 (5.0)	Displays a table giving ten array groups with the fastest data transfer rates for read operations in real-time.
Array Group Write Cache Hit Rate - Worst 10 (5.0)	Displays a table giving ten array groups with the lowest cache hit rates for write operations in real-time.
Array Group Write IO Rate - Top 10 (5.0)	Displays a table giving ten array groups with the highest write frequencies in real-time.
Array Group Write Transfer Rate - Top 10 (5.0)	Displays a table giving ten array groups with the fastest data transfer rates for write operations in real-time.
Drilldown Report (Field Level)	
Report Name	Description
Array Group Configuration(5.0)	Displays a table giving array group configuration information in real-time. In order to display this report, click the following field in the Array Group Read IO Rate - Top 10 (5.0) report: RAID Group Number

1.10.10 Array Group Read IO Rate Status(5.0)

Overview

The Array Group Read IO Rate Status(5.0) report displays a line graph giving the frequency of read operations in the last 24 hours for the array group, and a table giving the read/write frequency and data transfer rate in the last 24 hours for the array group. **Note:** The field value for the data transfer rate is invalid if the monitored storage device belongs to Thunder 9200.

Storage Location

Reports/RAID/Status Reporting/Daily Trend/Drilldown Only/

Record

RAID Group Summary (PI_RGS)

Table 1.24 Report Data for Array Group Read IO Rate Status(5.0)

Fields	
Field Name	Description
RAID Group Number	Array group number
Read I/O / sec	Read frequency (times per second)
Read Xfer / sec	Data transfer rate for reads (megabytes per second)
Write I/O / sec	Write frequency (times per second)
Write Xfer / sec	Data transfer rate for writes(megabytes per second)
Drilldown Reports (Field Level)	
Report Name	Description
Array Group Configuration(5.0)	Displays a table giving array group configuration information in real-time. In order to display this report, click the following field in the Array Group Read IO Rate Status(5.0) report: RAID Group Number
Array Group Read IO Rate Status(5.0)	Displays a graph giving the read frequency in the last 24 hours for the array group. In order to display this report, click the following field in the Array Group Read IO Rate Status(5.0) report: Read I/O / sec

Drilldown Reports (Field Level)	
Report Name	Description
Array Group Read Transfer Rate Status (5.0)	Displays a graph giving the read data transfer rate in the last 24 hours for the array group. In order to display this report, click the following field in the Array Group Read IO Rate Status (5.0) report: Read Xfer / sec
Array Group Write IO Rate Status (5.0)	Displays a graph giving the write frequency in the last 24 hours for the array group. In order to display this report, click the following field in the Array Group Read IO Rate Status (5.0) report: Write I/O / sec
Array Group Write Transfer Rate Status (5.0)	Displays a graph giving the write data transfer rate in the last 24 hours for the array group. In order to display this report, click the following field in the Array Group Read IO Rate Status (5.0) report: Write Xfer / sec

1.10.11 Array Group Read Transfer Rate - Top 10(5.0)

Overview

The Array Group Read Transfer Rate - Top 10(5.0) report displays a table giving ten array groups with the fastest read data transfer rates in real-time. **Note:** The field value for the data transfer rate is invalid if the monitored storage device belongs to Thunder 9200.

Storage Location

Reports/RAID/Troubleshooting/Real-Time/

Record

RAID Group Summary (PI_RGS)

Table 1.25 Report Data for Array Group Read Transfer Rate - Top 10(5.0)

Fields	
Field Name	Description
RAID Group Number	Array group number
Read Xfer / sec	Data transfer rate for reads (megabytes per second)
Drilldown Reports (Report Level)	
Report Name	Description
Array Group Read Cache Hit Rate - Worst 10(5.0)	Displays a table giving ten array groups with the lowest cache hit rates for read operations in real-time.
Array Group Read IO Rate - Top 10(5.0)	Displays a table giving ten array groups with the highest read frequencies in real-time.
Array Group Write Cache Hit Rate - Worst 10(5.0)	Displays a table giving ten array groups with the lowest cache hit rates for write operations in real-time.
Array Group Write IO Rate - Top 10(5.0)	Displays a table giving ten array groups with the highest write frequencies in real-time.
Array Group Write Transfer Rate - Top 10(5.0)	Displays a table giving ten array groups with the fastest data transfer rates for write operations in real-time.
Drilldown Report (Field Level)	
Report Name	Description
Array Group Configuration(5.0)	Displays a table giving array group configuration information in real-time. In order to display this report, click the following field in the Array Group Read Transfer Rate - Top 10(5.0) report: RAID Group Number

1.10.12 Array Group Read Transfer Rate Status(5.0)

Overview

The Array Group Read Transfer Rate Status(5.0) report displays a line graph giving the data transfer rate of read operations in the last 24 hours for the array group and a table giving the frequency and data transfer rate of read/write operations in the last 24 hours for the array group. **Note:** The field value for the data transfer rate is invalid if the monitored storage device belongs to Thunder 9200.

Storage Location

Reports/RAID/Status Reporting/Daily Trend/Drilldown Only/

Record

RAID Group Summary (PI_RGS)

Table 1.26 Report Data for Array Group Read Transfer Rate Status(5.0)

Fields	
Field Name	Description
RAID Group Number	Array group number
Read I/O / sec	Read frequency (times per second)
Read Xfer / sec	Data transfer rate for reads (megabytes per second)
Write I/O / sec	Write frequency (times per second)
Write Xfer / sec	Data transfer rate for writes(megabytes per second)
Drilldown Reports (Field Level)	
Report Name	Description
Array Group Configuration(5.0)	Displays a table giving array group configuration information in real-time. In order to display this report, click the following field in the Array Group Read Transfer Rate Status(5.0) report: RAID Group Number
Array Group Read IO Rate Status(5.0)	Displays a graph giving the read frequency for the array group in the last 24 hours. In order to display this report, click the following field in the Array Group Read Transfer Rate Status(5.0) report: Read I/O / sec
Array Group Read Transfer Rate Status(5.0)	Displays a graph giving the read data transfer rate in the last 24 hours for the array group. In order to display this report, click the following field in the Array Group Read Transfer Rate Status(5.0) report: Read Xfer / sec

Drilldown Reports (Field Level)	
Report Name	Description
Array Group Write IO Rate Status (5.0)	Displays a graph giving the write frequency in the last 24 hours for the array group. In order to display this report, click the following field in the Array Group Read Transfer Rate Status (5.0) report: Write I/O / sec
Array Group Write Transfer Rate Status (5.0)	Displays a graph giving the write data transfer rate in the last 24 hours for the array group. In order to display this report, click the following field in the Array Group Read Transfer Rate Status (5.0) report: Write Xfer / sec

1.10.13 Array Group Transfer Rate Status(5.0) (Hourly Historical Report)

Overview

The Array Group Transfer Rate Status(5.0) report displays a table giving the data transfer rate of read/write operations in the last 24 hours for the array group. **Note:** The field value for the data transfer rate is invalid if the monitored storage device belongs to Thunder 9200.

Storage Location

Reports/RAID/Status Reporting/Daily Trend/

Record

RAID Group Summary (PI_RGS)

Table 1.27 Report Data for Array Group Transfer Rate Status(5.0) (Hourly Historical Report)

Fields	
Field Name	Description
RAID Group Number	Array group number
Read Xfer / sec	Data transfer rate for reads (megabytes per second)
Write Xfer / sec	Data transfer rate for writes (megabytes per second)
Drilldown Report (Report Level)	
Report Name	Description
Array Group IO Rate Status (5.0) (Hourly historical report)	Displays a table giving the read/write frequency in the last 24 hours for the array group.
Drilldown Reports (Field Level)	
Report Name	Description
Array Group Configuration (5.0)	Displays a table giving array group configuration information in real-time. In order to display this report, click the following field in the Array Group Transfer Rate Status (5.0) report: RAID Group Number
Array Group Read Transfer Rate Status (5.0)	Displays a line graph giving the read data transfer rate in the last 24 hours for the array group. In order to display this report, click the following field in the Array Group Transfer Rate Status (5.0) report: Read Xfer / sec
Array Group Write Transfer Rate Status (5.0)	Displays a line graph giving the write data transfer rate in the last 24 hours for the array group. In order to display this report, click the following field in the Array Group Transfer Rate Status (5.0) report: Write Xfer / sec

1.10.14 Array Group Transfer Rate Status(5.0) (Real-Time Report)

Overview

The Array Group Transfer Rate Status(5.0) report displays a table giving the data transfer rate of read/write operations for the array group in real-time. **Note:** The field value for the data transfer rate is invalid if the monitored storage device belongs to Thunder 9200.

Storage Location

Reports/RAID/Status Reporting/Real-Time/

Record

RAID Group Summary (PI_RGS)

Table 1.28 Report Data for Array Group Transfer Rate Status(5.0) (Real-Time Report)

Fields	
Field Name	Description
RAID Group Number	Array group number
Read Xfer / sec	Data transfer rate for reads (megabytes per second)
Write Xfer / sec	Data transfer rate for writes(megabytes per second)
Drilldown Report (Report Level)	
Report Name	Description
Array Group IO Rate Status (5.0) (Real-time report)	Displays a table giving the read/write frequency in the last 24 hours for the array group in real-time.
Drilldown Report (Field Level)	
Report Name	Description
Array Group Configuration (5.0)	Displays a table giving array group configuration information in real-time. In order to display this report, click the following field in the Array Group Transfer Rate Status (5.0) report: RAID Group Number

1.10.15 Array Group Write Cache Hit Rate - Worst 10(5.0)

Overview

The Array Group Write Cache Hit Rate - Worst 10(5.0) report displays a table giving ten array groups with the lowest cache hit rates of write operations in real-time. **Note:** The field value for the cash hit rate of write operations is invalid if the monitored storage device belongs to TagmaStore USP, the Lightning 9900V series or the Lightning 9900 series.

Storage Location

Reports/RAID/Troubleshooting/Real-Time/

Record

RAID Group Summary (PI_RGS)

Table 1.29 Report Data for Array Group Write Cache Hit Rate - Worst 10(5.0)

Fields	
Field Name	Description
RAID Group Number	Array group number
Write Hit %	Cache hit rate for writes
Drilldown Reports (Report Level)	
Report Name	Description
Array Group Read Cache Hit Rate - Worst 10 (5.0)	Displays a table giving ten array groups with the lowest cache hit rates for read operations in real-time.
Array Group Read IO Rate - Top 10 (5.0)	Displays a table giving ten array groups with the highest read frequencies in real-time.
Array Group Read Transfer Rate - Top 10 (5.0)	Displays a table giving ten array groups with the fastest data transfer rates for read operations in real-time.
Array Group Write IO Rate - Top 10 (5.0)	Displays a table giving ten array groups with the highest write frequencies in real-time.
Array Group Write Transfer Rate - Top 10 (5.0)	Displays a table giving ten array groups with the fastest data transfer rates for write operations in real-time.
Drilldown Report (Field Level)	
Report Name	Description
Array Group Configuration (5.0)	Displays a table giving array group configuration information in real-time. In order to display this report, click the following field in the Array Group Write Cache Hit Rate - Worst 10 (5.0) report: RAID Group Number

1.10.16 Array Group Write IO Rate - Top 10(5.0)

Overview

The Array Group Write IO Rate - Top 10(5.0) report displays a table giving ten array groups with the highest frequencies of write operations in real-time.

Storage Location

Reports/RAID/Troubleshooting/Real-Time/

Record

RAID Group Summary (PI_RGS)

Table 1.30 Report Data for Array Group Write IO Rate - Top 10(5.0)

Fields	
Field Name	Description
RAID Group Number	Array group number
Write I/O / sec	Write frequency (times per second)
Drilldown Reports (Report Level)	
Report Name	Description
Array Group Read Cache Hit Rate - Worst 10 (5.0)	Displays a table giving ten array groups with the lowest cache hit rates for read operations in real-time.
Array Group Read IO Rate - Top 10 (5.0)	Displays a table giving ten array groups with the highest read frequencies in real-time.
Array Group Read Transfer Rate - Top 10 (5.0)	Displays a table giving ten array groups with the fastest data transfer rates for read operations in real-time.
Array Group Write Cache Hit Rate - Worst 10 (5.0)	Displays a table giving ten array groups with the lowest cache hit rates for write operations in real-time.
Array Group Write Transfer Rate - Top 10 (5.0)	Displays a table giving ten array groups with the fastest data transfer rates for write operations in real-time.
Drilldown Report (Field Level)	
Report Name	Description
Array Group Configuration(5.0)	Displays a table giving array group configuration information in real-time. In order to display this report, click the following field in the Array Group Write IO Rate - Top 10(5.0) report: RAID Group Number

1.10.17 Array Group Write IO Rate Status(5.0)

Overview

The Array Group Write IO Rate Status(5.0) report displays a line graph giving the frequency of write operations in the last 24 hours for the array group, and a table giving the frequency and transfer rate of read/write operations for the array group. **Note:** The field value for the data transfer rate is invalid if the monitored storage device belongs to Thunder 9200.

Storage Location

Reports/RAID/Status Reporting/Daily Trend/Drilldown Only/

Record

RAID Group Summary (PI_RGS)

Table 1.31 Report Data for Array Group Write IO Rate Status(5.0)

Fields	
Field Name	Description
RAID Group Number	Array group number
Read I/O / sec	Read frequency (times per second)
Read Xfer / sec	Data transfer rate for reads (megabytes per second).
Write I/O / sec	Write frequency (times per second).
Write Xfer / sec	Data transfer rate for writes(megabytes per second).
Drilldown Reports (Field Level)	
Report Name	Description
Array Group Configuration(5.0)	Displays a table giving array group configuration information in real-time. In order to display this report, click the following field in the Array Group Write IO Rate Status(5.0) report: RAID Group Number
Array Group Read IO Rate Status(5.0)	Displays a graph giving the read frequency in the last 24 hours for the array group. In order to display this report, click the following field in the Array Group Write IO Rate Status(5.0) report: Read I/O / sec

Drilldown Reports (Field Level)	
Report Name	Description
Array Group Read Transfer Rate Status (5.0)	Displays a graph giving the read data transfer rate in the last 24 hours for the array group. In order to display this report, click the following field in the Array Group Write IO Rate Status (5.0) report: Read Xfer / sec
Array Group Write IO Rate Status (5.0)	Displays a graph giving the write frequency in the last 24 hours for the array group. In order to display this report, click the following field in the Array Group Write IO Rate Status (5.0) report: Write I/O / sec
Array Group Write Transfer Rate Status (5.0)	Displays a graph giving the write data transfer rate in the last 24 hours for the array group. In order to display this report, click the following field in the Array Group Write IO Rate Status (5.0) report: Write Xfer / sec

1.10.18 Array Group Write Transfer Rate - Top 10(5.0)

Overview

The Array Group Write Transfer Rate - Top 10(5.0) report displays a table giving ten array groups with the fastest transfer rates of write operations in real-time. **Note:** The field value for the data transfer rate is invalid if the monitored storage device belongs to Thunder 9200.

Storage Location

Reports/RAID/Troubleshooting/Real-Time/

Record

RAID Group Summary (PI_RGS)

Table 1.32 Report Data for Array Group Write Transfer Rate - Top 10(5.0)

Fields	
Field Name	Description
RAID Group Number	Array group number
Write Xfer / sec	Data transfer rate for writes(megabytes per second)
Drilldown Reports (Report Level)	
Report Name	Description
Array Group Read Cache Hit Rate - Worst 10(5.0)	Displays a table giving ten array groups with the lowest cache hit rates for read operations in real-time.
Array Group Read IO Rate - Top 10(5.0)	Displays a table giving ten array groups with the highest read frequencies in real-time.
Array Group Read Transfer Rate - Top 10(5.0)	Displays a table giving ten array groups with the fastest data transfer rates for read operations in real-time.
Array Group Write Cache Hit Rate - Worst 10(5.0)	Displays a table giving ten array groups with the lowest cache hit rates for write operations in real-time.
Array Group Write IO Rate - Top 10(5.0)	Displays a table giving ten array groups with the highest write frequencies in real-time.
Drilldown Report (Field Level)	
Report Name	Description
Array Group Configuration(5.0)	Displays a table giving array group configuration information in real-time. In order to display this report, click the following field on the Array Group Write Transfer Rate - Top 10(5.0) report: RAID Group Number

1.10.19 Array Group Write Transfer Rate Status(5.0)

Overview

The Array Group Write Transfer Rate Status(5.0) report displays a line graph giving the data transfer rate of write operations in the last 24 hours for the array group, and a table giving the frequency and data transfer rate of read/write operations in the last 24 hours for the array group. **Note:** The field value for the data transfer rate is invalid if the monitored storage device belongs to Thunder 9200.

Storage Location

Reports/RAID/Status Reporting/Daily Trend/Drilldown Only/

Record

RAID Group Summary (PI_RGS)

Table 1.33 Report Data for Array Group Write Transfer Rate Status(5.0)

Fields	
Field Name	Description
RAID Group Number	Array group number
Read I/O / sec	Read frequency (times per second)
Read Xfer / sec	Data transfer rate for reads (megabytes per second)
Write I/O / sec	Write frequency (times per second)
Write Xfer / sec	Data transfer rate for writes (megabytes per second)
Drilldown Reports (Field Level)	
Report Name	Description
Array Group Configuration(5.0)	Displays a table giving array group configuration information in real-time. In order to display this report, click the following field in the Array Group Write Transfer Rate Status (5.0) report: RAID Group Number
Array Group Read IO Rate Status(5.0)	Displays a graph giving the read frequency in the last 24 hours for the array group. In order to display this report, click the following field in the Array Group Write Transfer Rate Status (5.0) report: Read I/O / sec
Array Group Read Transfer Rate Status (5.0)	Displays a graph giving the read data transfer rate in the last 24 hours for the array group. In order to display this report, click the following field in the Array Group Write Transfer Rate Status (5.0) report: Read Xfer / sec

Drilldown Reports (Field Level)	
Report Name	Description
Array Group Write IO Rate Status (5.0)	Displays a graph giving the write frequency in the last 24 hours for the array group. In order to display this report, click the following field in the Array Group Write Transfer Rate Status (5.0) report: Write I/O / sec
Array Group Write Transfer Rate Status (5.0)	Displays a graph giving the write data transfer rate in the last 24 hours for the array group. In order to display this report, click the following field in the Array Group Write Transfer Rate Status (5.0) report: Write Xfer / sec

1.10.20 CLPR Configuration(6.0)

Overview

The CLPR Configuration(6.0) report displays a table giving CLPR configuration information in real-time. However, if the storage subsystem being monitored does not support the Cache Logical Partition (CLPR) function, the Agent for RAID does not collect records for this information.

Storage Location

Reports/RAID/Status Reporting/Real-Time

Record

CLPR Configuration (PD_CLPC)

Table 1.34 Report Data for CLPR Configuration(6.0)

Fields	
Field Name	Description
Cache Memory Capacity	Cache memory capacity allocated for this CLPR instance (MB).
CLPR Name	CLPR name.
CLPR Number	CLPR number.
SLPR Name	SLPR name of the SLPR to which this CLPR instance belongs.
SLPR Number	SLPR number of the SLPR to which this CLPR instance belongs.

1.10.21 CLPR Usage Details(6.0)

Overview

The CLPR Usage Details(6.0) reports displays a table giving the cache memory usage statuses for each CLPR in the last hour. However, if the storage subsystem being monitored does not support the Cache Logical Partition (CLPR) function, the Agent for RAID does not collect records for this information.

Storage Location

Reports/RAID/Troubleshooting/Recent Past/

Record

CLPR Summary (PI_CLPS)

Table 1.35 Report Data for CLPR Usage Details(6.0)

Fields	
Field Name	Description
Cache Memory Capacity	Cache memory capacity allocated for this CLPR instance (MB).
Cache Side File Usage	Size of cache memory (allocated to this CLPR instance) that is being used by the side file (MB).
Cache Side File Usage %	The cache memory size being used by the side file, as a percentage of the total cache memory size allocated to this CLPR instance.
Cache Write Pending Usage	Size of cache memory (allocated to this CLPR instance) that is being used by write pending data (MB).
Cache Write Pending Usage %	The cache memory size being used by write pending data, as a percentage of the total cache memory size allocated to this CLPR instance.
CLPR Number	CLPR number.
Drilldown Report (Field Level)	
Report Name	Description
CLPR Configuration(6.0)	Displays a table giving the CLPR configuration information in real-time. In order to display this report, click the following field in the CLPR Usage Details(6.0) report: CLPR Number

1.10.22 CLPR Usage Status(6.0) (Hourly Historical Report)

Overview

The CLPR Usage Status(6.0) report displays a table giving the cache memory usage statuses for each CLPR in the last 24 hours. However, if the storage subsystem being monitored does not support the Cache Logical Partition (CLPR) function, The Agent for RAID does not collect records for this information.

Storage Location

Reports/RAID/Status Reporting/Daily Trend/

Record

CLPR Summary (PI_CLPS)

Table 1.36 Report Data for CLPR Usage Status(6.0) (Hourly historical report)

Fields	
Field Name	Description
Cache Memory Capacity	Cache memory capacity allocated for this CLPR instance (MB).
Cache Side File Usage	Size of cache memory (allocated to this CLPR instance) that is being used by the side file (MB).
Cache Side File Usage %	The cache memory size being used by the side file, as a percentage of the total cache memory size allocated to this CLPR instance.
Cache Write Pending Usage	Size of cache memory (allocated to this CLPR instance) that is being used by write pending data (MB).
Cache Write Pending Usage %	The cache memory size being used by write pending data, as a percentage of the total cache memory size allocated to this CLPR instance.
CLPR Number	CLPR number.
Drilldown Report (Field Level)	
Report Name	Description
CLPR Configuration(6.0)	Displays a table giving the CLPR configuration information in real-time. In order to display this report, click the following field in the CLPR Usage Details(6.0) report: CLPR Number

1.10.23 CLPR Usage Status(6.0) (Real-Time Report)

Overview

The CLPR Usage Status(6.0) report displays a table giving the cache memory usage statuses for each CLPR in real-time. However, if the storage subsystem being monitored does not support the Cache Logical Partition (CLPR) function, The Agent for RAID does not collect records for this information.

Storage Location

Reports/RAID/Status Reporting/ Real-Time/

Record

CLPR Summary (PI_CLPS)

Table 1.37 Report Data for CLPR Usage Status(6.0) (Real-Time Report)

Fields	
Field Name	Description
Cache Memory Capacity	Cache memory capacity allocated for this CLPR instance (MB).
Cache Side File Usage	Size of cache memory (allocated to this CLPR instance) that is being used by the side file (MB).
Cache Side File Usage %	The cache memory size being used by the side file, as a percentage of the total cache memory size allocated to this CLPR instance.
Cache Write Pending Usage	Size of cache memory (allocated to this CLPR instance) that is being used by write pending data (MB).
Cache Write Pending Usage %	The cache memory size being used by write pending data, as a percentage of the total cache memory size allocated to this CLPR instance.
CLPR Number	CLPR number.
Drilldown Report (Field Level)	
Report Name	Description
CLPR Configuration(6.0)	Displays a table giving the CLPR configuration information in real-time. In order to display this report, click the following field in the CLPR Usage Details(6.0) report: CLPR Number

1.10.24 External LDEV Configuration(5.0)

Overview

The External LDEV Configuration(5.0) report displays a table giving configuration information of the array group in real-time. **Note:** If there is no disk array device which is mapped as an externally connected LDEV, the records will not be collected.

Storage Location

Reports/RAID/Status Reporting/Real-Time/

Record

External LDEV Configuration (PD_ELC)

Table 1.38 Report Data for External LDEV Configuration(5.0)

Fields	
Field Name	Description
DKC Name	Externally connected disk array product name.
External LDEV Number	Externally connected LDEV logical device number.
LDEV Number	Logical device number.
Serial Number	Externally connected disk array serial number.
Vendor ID	Externally connected disk array vendor name.

1.10.25 Logical Device Configuration

Overview

The Logical Device Configuration report displays a table giving configuration information of the logical device in real-time.

Storage Location

Reports/RAID/Status Reporting/Real-Time/

Record

Logical Device Configuration (PD_LDC)

Table 1.39 Report Data for Logical Device Configuration

Fields	
Field Name	Description
LDEV Number	Logical device number.
RAID Group Number	Array group number.

1.10.26 Logical Device Configuration(5.0)

Overview

The Logical Device Configuration(5.0) report displays a table giving configuration information of the logical device in real-time.

Storage Location

Reports/RAID/Status Reporting/Real-Time/

Record

Logical Device Configuration (PD_LDC)

Table 1.40 Report Data for Logical Device Configuration(5.0)

Fields	
Field Name	Description
Emulation Type	Logical device emulation type
LDEV Location	Information to indicate if the logical device is an externally connected LDEV. <ul style="list-style-type: none">▪ Internal▪ External
LDEV Number	Logical device number.
LUSE Volume	Information indicating whether the logical device is a component of a LUSE.
RAID Group Number	Array group number
Drilldown Reports (Field Level)	
Report Name	Description
Array Group Configuration(5.0)	Displays a table giving array group configuration information in real-time. In order to display this report, click the following field in the Logical Device Configuration(5.0) report: RAID Group Number
External LDEV Configuration(5.0)	Displays configuration information of the externally connected LDEV in real-time. In order to display this report, click the following field in the Logical Device Configuration(5.0) report: LDEV Location The drilldown report will only be displayed if the LDEV Location value is "External".

Drilldown Report (Field Level)	
Report Name	Description
LUSE Configuration(5.0)	<p>Displays a table giving configuration information of the logical device which configures the LUSE in real-time. In order to display this report, click the following field in the Logical Device Configuration(5.0) report:</p> <p>LUSE Volume</p> <p>The drilldown report will only be displayed if the LUSE Volume value is "LUSE".</p>

1.10.27 Logical Device IO Rate Status (Hourly Historical Report)

Overview

The Logical Device IO Rate Status report displays a table giving the frequency of read/write operations in the last 24 hours for the logical device.

Storage Location

Reports/RAID/Status Reporting/Daily Trend/

Record

Logical Device Summary (PI_LDS)

Table 1.41 Report Data for Logical Device IO Rate Status (Hourly Historical Report)

Fields	
Field Name	Description
LDEV Number	Logical device number
Read I/O / sec	Read frequency (times per second)
Write I/O / sec	Write frequency (times per second)
Drilldown Report (Report Level)	
Report Name	Description
Logical Device Transfer Rate Status (Hourly historical report)	Displays a table giving the read/write data transfer rate in the last 24 hours for the logical device.
Drilldown Reports (Field Level)	
Report Name	Description
Logical Device Configuration (Real-time report)	Displays a table giving configuration information of the logical device in real-time. In order to display this report, click the following field in the Logical Device IO Rate Status report: LDEV Number
Logical Device Read IO Rate Status	Displays a line graph giving the read frequency in the last 24 hours for the logical device. In order to display this report, click the following field in the Logical Device IO Rate Status report: Read I/O / sec
Logical Device Write IO Rate Status	Displays a line graph giving the write frequency in the last 24 hours for the logical device. In order to display this report, click the following field in the Logical Device IO Rate Status report: Write I/O / sec

1.10.28 Logical Device IO Rate Status (Real-Time Report)

Overview

The Logical Device IO Rate Status report displays a table giving the frequency of read/write operations for the logical device in real-time.

Storage Location

Reports/RAID/Status Reporting/Real-Time/

Record

Logical Device summary (PI_LDS)

Table 1.42 Report Data for Logical Device IO Rate Status (Real-Time Report)

Fields	
Field Name	Description
LDEV Number	Logical device number.
Read I/O / sec	Read frequency (times per second).
Write I/O / sec	Write frequency (times per second).
Drilldown Report (Report Level)	
Report Name	Description
Logical Device Transfer Rate Status (Real-time report)	Displays a table giving the read/write data transfer rate for the logical device in real-time.
Drilldown Report (Field Level)	
Report Name	Description
Logical Device Configuration	Displays a table giving configuration information of the logical device in real-time. In order to display this report, click the following field in the Logical Device IO Rate Status report: LDEV Number

1.10.29 Logical Device Performance Details

Overview

The Logical Device Performance Details report displays a table giving the frequency, transfer rate and cache hit rate of read/write operations for the logical device. **Note:** The field value for the cache hit rate of write operations is invalid if the monitored storage device belongs to TagmaStore USP, the Lightning 9900 series or the Lightning 9900V series.

Storage Location

Reports/RAID/Troubleshooting/Recent Past/

Record

Logical Device Summary (PI_LDS)

Table 1.43 Report Data for Logical Device Performance Details

Fields	
Field Name	Description
LDEV Number	Logical device number.
Read Hit %	Cache hit rate for reads.
Read I/O / sec	Read frequency (times per second).
Read Xfer / sec	Read data transfer rate (megabytes per second).
Write Hit %	Cache hit rate for writes.
Write I/O / sec	Write frequency (times per second).
Write Xfer / sec	Write data transfer rate (megabytes per second).
Drilldown Report (Field Level)	
Report Name	Description
Logical Device Configuration	Displays a table giving configuration information of the logical device in real-time. In order to display this report, click the following field in the Logical Device Performance Details report: LDEV Number

1.10.30 Logical Device Performance Details(6.0)

Overview

The Logical Device Performance Details(6.0) report displays a table giving the logical device read/write frequency, transfer rate, cache hit ratio, and average processing time per read/write request in the last hour.

Note: The field value for the cache hit rate of write operations is invalid if the monitored storage device belongs to TagmaStore USP, the Lightning 9900 series or the Lightning 9900V series. If the storage device being monitored belongs to the TagmaStore AMS/WMS series, the Thunder 9500V series or Thunder 9200, the value for the average read/write processing time will be invalid.

Storage Location

Reports/RAID/Troubleshooting/Recent Past/

Record

Logical Device Summary (PI_LDS)

Table 1.44 Report Data for Logical Device Performance Details(6.0)

Fields	
Field Name	Description
LDEV Number	Logical device number.
Read Hit %	Cache hit rate for reads.
Read I/O / sec	Read frequency (times per second).
Read Response Rate	Average processing time per read request (microseconds).
Read Xfer / sec	Read data transfer rate (megabytes per second).
Total Response Rate	Average processing time per read/write request (microseconds).
Write Hit %	Cache hit rate for writes.
Write I/O / sec	Write frequency (times per second).
Write Response Rate	Average processing time per write request (microseconds).
Write Xfer / sec	Write data transfer rate (megabytes per second).
Drilldown Report (Field Level)	
Report Name	Description
Logical Device Configuration(5.0)	Displays a table giving configuration information of the logical device in real-time. In order to display this report, click the following field in the Logical Device Performance Details(6.0) report: LDEV Number

1.10.31 Logical Device Performance Details(7.0)

Overview

The Logical Device Performance Details(7.0) report displays a table giving the frequency, transfer rate, cache hit ratio of logical device read/write operations and the frequency and transfer rate of random/sequential operations, and average processing time per read/write request in the last hour.

Note: If the monitored storage device belongs to TagmaStore USP, the Lightning 9900V series or the Lightning 9900 series, the field value for the cache hit rate of write operations will be invalid. Also, if the monitored storage device belongs to the TagmaStore AMS/WMS series, Thunder 9500V series or Thunder 9200, the field value for the average processing time per read/write request will be invalid.

Storage Location

Reports/RAID/Troubleshooting/Recent Past/

Record

Logical Device Summary (PI_LDS)

Table 1.45 Report Data for Logical Device Performance Details(7.0)

Fields	
Field Name	Description
LDEV Number	Logical device number.
Random Total I/O /sec	Frequency of random operations (times per second).
Random Total Xfer /sec	Transfer rate of random operations (megabytes per second).
Read Hit %	Cache hit rate of read operations
Read I/O /sec	Frequency of read operations (times per second).
Read Response Rate	Average processing time per read request (microseconds).
Read Xfer /sec	Transfer rate of read operations (megabytes per second).
Sequential Total I/O /sec	Frequency of sequential operations (times per second).
Sequential Total Xfer /sec	Transfer rate of sequential operations (megabytes per second).
Total Response Rate	Average processing time per read/write request (microseconds).
Write Hit %	Cache hit rate of write operations.
Write I/O /sec	Frequency of write operations (times per second).
Write Response Rate	Average processing time per write request (microseconds).
Write Xfer /sec	Transfer rate of write operations (megabytes per second).

Drilldown Report (Field Level)	
Report Name	Description
Logical Device Configuration (5.0)	<p>Displays a table giving logical device configuration information in real-time. To display this report, click the following field in the Logical Device Performance Details (7.0) report.</p> <ul style="list-style-type: none"> ▪ LDEV Number

1.10.32 Logical Device Read Cache Hit Rate - Worst 10

Overview

The Logical Device Read Cache Hit Rate - Worst 10 report displays a table giving ten logical devices with the lowest cache hit rates of read operations in real-time.

Storage Location

Reports/RAID/Troubleshooting/Real-Time/

Record

Logical Device Summary (PI_LDS)

Table 1.46 Report Data for Logical Device Read Cache Hit Rate - Worst 10

Fields	
Field Name	Description
LDEV Number	Logical device number.
Read Hit %	Cache hit rate for reads.
Drilldown Reports (Report Level)	
Report Name	Description
Logical Device Read IO Rate - Top 10	Displays a table giving ten logical devices with the highest read frequencies in real-time.
Logical Device Read Transfer Rate - Top 10	Displays a table giving ten logical devices with the fastest read data transfer rates in real-time.
Logical Device Write Cache Hit Rate - Worst 10	Displays a table giving ten logical devices with the lowest write cache hit rate in real time.
Logical Device Write IO Rate - Top 10	Displays a table giving ten logical devices with the highest write frequencies in real-time.
Logical Device Write Transfer Rate - Top 10	Displays a table giving ten logical devices with the fastest write data transfer rates in real-time.
Drilldown Report (Field Level)	
Report Name	Description
Logical Device Configuration	Displays a table giving configuration information of the logical device in real-time. In order to display this report, click the following field in the Logical Device Read Cache Hit Rate - Worst 10 report: LDEV Number

1.10.33 Logical Device Read IO Rate - Top 10

Overview

The Logical Device Read IO Rate - Top 10 report displays a table giving ten logical devices with the highest frequencies of read operations in real-time.

Storage Location

Reports/RAID/Troubleshooting/Real-Time/

Record

Logical Device Summary (PI_LDS)

Table 1.47 Report Data for Logical Device Read IO Rate - Top 10

Fields	
Field Name	Description
LDEV Number	Logical device number.
Read I/O / sec	Read frequency (times per second).
Drilldown Reports (Report Level)	
Report Name	Description
Logical Device Read Cache Hit Rate - Worst 10	Displays a table giving ten logical devices with the lowest read cache hit rates in real-time.
Logical Device Read Transfer Rate - Top 10	Displays a table giving ten logical devices with the fastest read data transfer rates in real-time.
Logical Device Write Cache Hit Rate - Worst 10	Displays a table giving ten logical devices with the lowest write cache hit rate in real time.
Logical Device Write IO Rate - Top 10	Displays a table giving ten logical devices with the highest write frequencies in real-time.
Logical Device Write Transfer Rate - Top 10	Displays a table giving ten logical devices with the fastest write data transfer rates in real-time.
Drilldown Report (Field Level)	
Report Name	Description
Logical Device Configuration	Displays a table giving configuration information of the logical device in real-time. In order to display this report, click the following field in the Logical Device Read IO Rate - Top 10 report: LDEV Number

1.10.34 Logical Device Read IO Rate Status

Overview

The Logical Device Read IO Rate Status report displays a line graph giving the frequency of read operations in the last 24 hours for the logical device, and a table giving the frequency and transfer rate of read/write operations in the last 24 hours for the logical device.

Storage Location

Reports/RAID/Status Reporting/Daily Trend/Drilldown Only/

Record

Logical Device Summary (PI_LDS)

Table 1.48 Report Data for Logical Device Read IO Rate Status

Fields	
Field Name	Description
LDEV Number	Logical device number.
Read I/O / sec	Read frequency (times per second).
Read Xfer / sec	Data transfer rate for reads (megabytes per second).
Write I/O / sec	Write frequency (times per second).
Write Xfer / sec	Data transfer rate for writes(megabytes per second).
Drilldown Reports (Field Level)	
Report Name	Description
Logical Device Configuration	Displays a table giving configuration information of the logical device in real-time. In order to display this report, click the following field in the Logical Device Read IO Rate Status report: LDEV Number
Logical Device Read IO Rate Status	Displays a graph giving the read frequency in the last 24 hours for the logical device. In order to display this report, click the following field in the Logical Device Read IO Rate Status report: Read I/O / sec

Drilldown Reports (Field Level)	
Report Name	Description
Logical Device Read Transfer Rate Status	Displays a graph giving the read data transfer rate in the last 24 hours for the logical device. In order to display this report, click the following field in the Logical Device Read IO Rate Status report: Read Xfer / sec
Logical Device Write IO Rate Status	Displays a graph giving the write frequency in the last 24 hours for the logical device. In order to display this report, click the following field in the Logical Device Read IO Rate Status report: Write I/O / sec
Logical Device Write Transfer Rate Status	Displays a graph giving the write data transfer rate in the last 24 hours for the logical device. In order to display this report, click the following field in the Logical Device Read IO Rate Status report: Write Xfer / sec

1.10.35 Logical Device Read Response Rate - Top 10(6.0)

Overview

The Logical Device Read Response Rate - Top 10(6.0) report displays a table giving ten logical devices with the longest average processing time per read request in real-time. However, if the storage device being monitored belongs to the TagmaStore AMS/WMS series, the Thunder 9500V series or Thunder 9200, the value in the field for the average processing time per read request will be invalid.

Storage Location

Reports/RAID/Troubleshooting/Real-Time/

Record

Logical Device Summary (PI_LDS)

Table 1.49 Report Data for Logical Device Read Response Rate - Top 10(6.0)

Fields	
Field Name	Description
LDEV Number	Logical device number.
Read Response Rate	Average processing time per read request (microseconds).
Drilldown Report (Report Level)	
Report Name	Description
Logical Device Write Response Rate - Top 10 (6.0)	Displays a table giving ten logical devices with the longest average processing time per write request.
Drilldown Report (Field Level)	
Report Name	Description
Logical Device Configuration(5.0)	Displays a table giving configuration information of the logical device in real-time. In order to display this report, click the following field in the Logical Device Read Response Rate - Top 10 (6.0) report: LDEV Number

1.10.36 Logical Device Read Transfer Rate - Top 10

Overview

The Logical Device Read Transfer Rate - Top 10 report displays a table giving ten logical devices with the fastest data transfer rates of read operations in real-time.

Storage Location

Reports/RAID/Troubleshooting/Real-Time/

Record

Logical Device Summary (PI_LDS)

Table 1.50 Report Data for Logical Device Read Transfer Rate - Top 10

Fields	
Field Name	Description
LDEV Number	Logical device number.
Read Xfer / sec	Data transfer rate for reads (megabytes per second).
Drilldown Reports (Report Level)	
Report Name	Description
Logical Device Read Cache Hit Rate - Worst 10	Displays a table giving ten logical devices with the lowest read cache hit rates in real-time.
Logical Device Read IO Rate - Top 10	Displays a table giving ten logical devices with the highest read frequencies in real-time.
Logical Device Write Cache Hit Rate - Worst 10	Displays a table giving ten logical devices with the lowest write cache hit rate in real time.
Logical Device Write IO Rate - Top 10	Displays a table giving ten logical devices with the highest write frequencies in real-time.
Logical Device Write Transfer Rate - Top 10	Displays a table giving ten logical devices with the fastest write data transfer rates in real-time.
Drilldown Report (Field Level)	
Report Name	Description
Logical Device Configuration	Displays a table giving configuration information of the logical device in real-time. In order to display this report, click the following field in the Logical Device Read Transfer Rate - Top 10 report: LDEV Number

1.10.37 Logical Device Read Transfer Rate Status

Overview

The Logical Device Read Transfer Rate Status report displays a line graph giving the data transfer rate of read operations in the last 24 hours for the logical device, and a table giving the frequency and the data transfer rate of read/write operations in the last 24 hours for the logical device.

Storage Location

Reports/RAID/Status Reporting/Daily Trend/Drilldown Only/

Record

Logical Device Summary (PI_LDS)

Table 1.51 Report Data for Logical Device Read Transfer Rate Status

Fields	
Field Name	Description
LDEV Number	Logical device number.
Read I/O / sec	Read frequency (times per second).
Read Xfer / sec	Data transfer rate for reads (megabytes per second).
Write I/O / sec	Write frequency (times per second).
Write Xfer / sec	Data transfer rate for writes(megabytes per second).
Drilldown Reports (Field level)	
Report Name	Description
Logical Device Configuration	Displays a table giving configuration information of the logical device in real-time. In order to display this report, click the following field in the Logical Device Read Transfer Rate Status report: LDEV Number
Logical Device Read IO Rate Status	Displays a graph giving the read frequency for the logical device in the last 24 hours. In order to display this report, click the following field in the Logical Device Read Transfer Rate Status report: Read I/O / sec
Logical Device Read Transfer Rate Status	Displays a graph giving the read data transfer rate for the logical device in the last 24 hours. In order to display this report, click the following field in the Logical Device Read Transfer Rate Status report: Read Xfer / sec
Logical Device Write IO Rate Status	Displays a graph giving the write frequency for the logical device in the last 24 hours. In order to display this report, click the following field in the Logical Device Read Transfer Rate Status report: Write I/O / sec

Drilldown Report (Field level)	
Report Name	Description
Logical Device Write Transfer Rate Status	<p>Displays a graph giving the write data transfer rate for the logical device in the last 24 hours. In order to display this report, click the following field in the Logical Device Read Transfer Rate Status report. In order to display this report, click the following field in the Logical Device Read Transfer Rate Status report:</p> <p>Write Xfer / sec</p>

1.10.38 Logical Device Transfer Rate Status (Hourly Historical Report)

Overview

The Logical Device Transfer Rate Status report displays a table giving the data transfer rate of read/write operations in the last 24 hours for the logical device.

Storage Location

Reports/RAID/Status Reporting/Daily Trend/

Record

Logical Device Summary (PI_LDS)

Table 1.52 Report Data for Logical Device Transfer Rate Status (Hourly Historical Report)

Fields	
Field Name	Description
LDEV Number	Logical device number.
Read Xfer / sec	Read data transfer rate (megabytes per second).
Write Xfer / sec	Write data transfer rate (megabytes per second).
Drilldown Report (Report Level)	
Report Name	Description
Logical Device IO Rate Status (Hourly historical report)	Displays a table giving the read/write frequency in the last 24 hours for the logical device.
Drilldown Reports (Field Level)	
Report Name	Description
Logical Device Configuration	Displays a table giving configuration information of the logical device in real-time. In order to display this report, click the following field in the Logical Device Transfer Rate Status report: LDEV Number
Logical Device Read Transfer Rate Status	Displays a line graph giving the read frequency for the logical device in the last 24 hours. In order to display this report, click the following field in the Logical Device Transfer Rate Status report: Read Xfer / sec
Logical Device Write Transfer Rate Status	Displays a line graph giving the write frequency for the logical device in the last 24 hours. In order to display this report, click the following field in the Logical Device Transfer Rate Status report: Write Xfer / sec

1.10.39 Logical Device Transfer Rate Status (Real-Time Report)

Overview

The Logical Device Transfer Rate Status report displays a table giving the data transfer rate of read/write operations for the logical device in real-time.

Storage Location

Reports/RAID/Status Reporting/Real-Time/

Record

Logical Device Summary (PI_LDS)

Table 1.53 Report Data for Logical Device Transfer Rate Status (Real-Time Report)

Fields	
Field Name	Description
LDEV Number	Logical device number.
Read Xfer / sec	Data transfer rate for reads (megabytes per second).
Write Xfer / sec	Data transfer rate for writes (megabytes per second).
Drilldown Report (Report Level)	
Report Name	Description
Logical Device IO Rate Status (Real-time report)	Displays a table giving the read/write frequency for the logical device in real-time.
Drilldown Report (Field Level)	
Report Name	Description
Logical Device Configuration	Displays a table giving configuration information of the logical device in real-time. In order to display this report, click the following field in the Logical Device Transfer Rate Status report: LDEV Number

1.10.40 Logical Device Write Cache Hit Rate - Worst 10

Overview

The Logical Device Write Cache Hit Rate - Worst 10 report displays a table giving ten logical devices with the lowest cache hit rates of write operations in real-time. **Note:** The field value for the cache hit rate of write operations is invalid if the monitored storage device belongs to TagmaStore USP, the Lightning 9900 series or the Lightning 9900V series.

Storage Location

Reports/RAID/Troubleshooting/Real-Time/

Record

Logical Device Summary (PI_LDS)

Table 1.54 Report Data for Logical Device Write Cache Hit Rate - Worst 10

Fields	
Field Name	Description
LDEV Number	Logical device number.
Write Hit %	Cache hit rate for writes.
Drilldown Reports (Report Level)	
Report Name	Description
Logical Device Read Cache Hit Rate - Worst 10	Displays a table giving ten logical devices with the lowest read cache hit rates in real-time.
Logical Device Read IO Rate - Top 10	Displays a table giving ten logical devices with the highest read frequencies in real-time.
Logical Device Read Transfer Rate - Top 10	Displays a table giving ten logical devices with the fastest read data transfer rates in real-time.
Logical Device Write IO Rate - Top 10	Displays a table giving ten logical devices with the highest write frequencies in real-time.
Logical Device Write Transfer Rate - Top 10	Displays a table giving ten logical devices with the fastest write data transfer rates in real-time.
Drilldown Report (Field Level)	
Report Name	Description
Logical Device Configuration	Displays a table giving configuration information of the logical device in real-time. In order to display this report, click the following field in the Logical Device Write Cache Hit Rate - Top 10 report: LDEV Number

1.10.41 Logical Device Write IO Rate - Top 10

Overview

The Logical Device Write IO Rate - Top 10 report displays a table giving ten logical devices with the highest frequency of write operations in real-time.

Storage Location

Reports/RAID/Troubleshooting/Real-Time/

Record

Logical Device Summary (PI_LDS)

Table 1.55 Report Data for Logical Device Write IO Rate - Top 10

Fields	
Field Name	Description
LDEV Number	Logical device number.
Write I/O / sec	Write frequency (times per second).
Drilldown Reports (Report Level)	
Report Name	Description
Logical Device Read Cache Hit Rate - Worst 10	Displays a table giving ten logical devices with the lowest read cache hit rates in real-time.
Logical Device Read IO Rate - Top 10	Displays a table giving ten logical devices with the highest read frequencies in real-time.
Logical Device Read Transfer Rate - Top 10	Displays a table giving ten logical devices with the fastest read data transfer rates in real-time.
Logical Device Write Cache Hit Rate - Worst 10	Displays a table giving ten logical devices with the lowest write cache hit rate in real time.
Logical Device Write Transfer Rate - Top 10	Displays a table giving ten logical devices with the fastest write data transfer rates in real-time.
Drilldown Report (Field Level)	
Report Name	Description
Logical Device Configuration	Displays a table giving configuration information of the logical device in real-time. In order to display this report, click the following field in the Logical Device Write IO Rate - Top 10 report: LDEV Number

1.10.42 Logical Device Write IO Rate Status

Overview

The Logical Device Write IO Rate Status report displays a line graph giving the frequency of write operations in the last 24 hours for the logical device, and a table giving the frequency and data transfer rate of read/write operations in the last 24 hours for the logical device.

Storage Location

Reports/RAID/Status Reporting/Daily Trend/Drilldown Only/

Record

Logical Device Summary (PI_LDS)

Table 1.56 Report Data for Logical Device Write IO Rate Status

Fields	
Field Name	Description
LDEV Number	Logical device number.
Read I/O / sec	Read frequency (times per second).
Read Xfer / sec	Data transfer rate for reads (megabytes per second).
Write I/O / sec	Write frequency (times per second).
Write Xfer / sec	Data transfer rate for writes (megabytes per second).
Drilldown Reports (Field Level)	
Report Name	Description
Logical Device Configuration	Displays a table giving configuration information of the logical device in real-time. In order to display this report, click the following field in the Logical Device Write IO Rate Status report: LDEV Number
Logical Device Read IO Rate Status	Displays a graph giving the read frequency for the logical device in the last 24 hours. In order to display this report, click the following field in the Logical Device Write IO Rate Status report: Read I/O / sec
Logical Device Read Transfer Rate Status	Displays a graph giving the read data transfer rate for the logical device in the last 24 hours. In order to display this report, click the following field in the Logical Device Write IO Rate Status report: Read Xfer / sec
Logical Device Write IO Rate Status	Displays a graph giving the write frequency for the logical device in the last 24 hours. In order to display this report, click the following field in the Logical Device Write IO Rate Status report: Write I/O / sec

Drilldown Report (Field Level)	
Report Name	Description
Logical Device Write Transfer Rate Status	Displays a graph giving the write data transfer rate for the logical device in the last 24 hours. In order to display this report, click the following field in the Logical Device Write IO Rate Status report: Write Xfer / sec

1.10.43 Logical Device Write Response Rate - Top 10(6.0)

Overview

The Logical Device Write Response Rate - Top 10(6.0) report displays a table giving ten logical devices with the longest average processing time per write request in real-time. However, if the storage device being monitored belongs to the TagmaStore AMS/WMS series, the Thunder 9500V series or Thunder 9200, the value in the field for the average processing time per write request will be invalid.

Storage Location

Reports/RAID/Troubleshooting/Real-Time/

Record

Logical Device Summary (PI_LDS)

Table 1.57 Report Data for Logical Device Write Response Rate - Top 10(6.0)

Fields	
Field Name	Description
LDEV Number	Logical device number.
Write Response Rate	Average processing time per write request (microseconds).
Drilldown Report (Report Level)	
Report Name	Description
Logical Device Read Response Rate - Top 10 (6.0)	Displays a table giving ten logical devices with the longest average processing time per read request in real-time.
Drilldown Report (Field Level)	
Report Name	Description
Logical Device Configuration(5.0)	Displays a table giving configuration information of the logical device in real-time. In order to display this report, click the following field in the Logical Device Write Response Rate - Top 10 (6.0) report: LDEV Number

1.10.44 Logical Device Write Transfer Rate - Top 10

Overview

The Logical Device Write Transfer Rate - Top 10 report displays a table giving ten logical devices with the fastest data transfer rates of write operations in real-time.

Storage Location

Reports/RAID/Troubleshooting/Real-Time/

Record

Logical Device Summary (PI_LDS)

Table 1.58 Report Data for Logical Device Write Transfer Rate - Top 10

Fields	
Field Name	Description
LDEV Number	Logical device number.
Write Xfer / sec	Data transfer rate for writes (megabytes per second).
Drilldown Reports (Report Level)	
Report Name	Description
Logical Device Read Cache Hit Rate - Worst 10	Displays a table giving ten logical devices with the lowest read cache hit rates in real-time.
Logical Device Read IO Rate - Top 10	Displays a table giving ten logical devices with the highest read frequencies in real-time.
Logical Device Read Transfer Rate - Top 10	Displays a table giving ten logical devices with the fastest read data transfer rates in real-time.
Logical Device Write Cache Hit Rate - Worst 10	Displays a table giving ten logical devices with the lowest write cache hit rate in real time.
Logical Device Write IO Rate - Top 10	Displays a table giving ten logical devices with the highest write frequencies in real-time.
Drilldown Report (Field Level)	
Report Name	Description
Logical Device Configuration	Displays a table giving configuration information of the logical device in real-time. In order to display this report, click the following field in the Logical Device Write Transfer Rate - Top 10 report: LDEV Number

1.10.45 Logical Device Write Transfer Rate Status

Overview

The Logical Device Write Transfer Rate Status report displays a line graph giving the data transfer rate of write operations in the last 24 hours for the logical device, and a table giving the frequency and transfer rate of read/write operations in the last 24 hours for the logical device.

Storage Location

Reports/RAID/Status Reporting/Daily Trend/Drilldown Only/

Record

Logical Device Summary (PI_LDS)

Table 1.59 Report Data for Logical Device Write Transfer Rate Status

Fields	
Field Name	Description
LDEV Number	Logical device number.
Read I/O / sec	Read frequency (times per second).
Read Xfer / sec	Data transfer rate for reads (megabytes per second).
Write I/O / sec	Write frequency (times per second).
Write Xfer / sec	Data transfer rate for writes (megabytes per second).
Drilldown Reports (Field Level)	
Report Name	Description
Logical Device Configuration	Displays a table giving configuration information of the logical device in real-time. In order to display this report, click the following field in the Logical Device Write Transfer Rate Status report: LDEV Number
Logical Device Read IO Rate Status	Displays a graph giving the read frequency for the logical device in the last 24 hours. In order to display this report, click the following field in the Logical Device Write Transfer Rate Status report: Read I/O / sec
Logical Device Read Transfer Rate Status	Displays a graph giving the read data transfer rate for the logical device in the last 24 hours. In order to display this report, click the following field in the Logical Device Write Transfer Rate Status report: Read Xfer / sec
Logical Device Write IO Rate Status	Displays a graph giving the write frequency for the logical device in the last 24 hours. In order to display this report, click the following field in the Logical Device Write Transfer Rate Status report: Write I/O / sec

Drilldown Report (Field Level)	
Report Name	Description
Logical Device Write Transfer Rate Status	Displays a graph giving the write data transfer rate for the logical device in the last 24 hours. In order to display this report, click the following field in the Logical Device Write Transfer Rate Status report: Write Xfer / sec

1.10.46 LUSE Configuration(5.0)

Overview

The LUSE Configuration(5.0) report displays a table giving configuration information of the logical device which configures the LUSE in real-time. **Note:** If there is no LUSE in the disk array device, the report will not be displayed.

Storage Location

Reports/RAID/Status Reporting/Real-Time/

Record

LUSE Configuration (PD_LSEC)

Table 1.60 Report Data for LUSE Configuration(5.0)

Fields	
Field Name	Description
Emulation Type	Emulation type for the logical device.
LDEV Location	Information to indicate if the logical device is an externally connected LDEV. <ul style="list-style-type: none"> ▪ Internal ▪ External
LDEV Number	Logical device number.
Main LDEV Number	Representative logical device number of the LUSE to which the logical device belongs.
RAID Group Number	Array group number.
Drilldown Reports (Field Level)	
Report Name	Description
Array Group Configuration(5.0)	Displays a table giving array group configuration information in real-time. In order to display this report, click the following field in the LUSE Configuration(5.0) report: RAID Group Number
External LDEV Configuration(5.0)	Displays a table giving configuration information of the externally connected LDEV in real-time. In order to display this report, click the following field in the LUSE Configuration(5.0) report: LDEV Location The drilldown report will only be displayed if the value of LDEV Location is "External".
Logical Device Configuration(5.0)	Displays a table giving configuration information of the logical device in real-time. In order to display this report, click the following field in the LUSE Configuration(5.0) report: Main LDEV Number

1.10.47 Port Avg IO Rate Status

Overview

The Port Avg IO Rate Status report displays a line graph giving the average frequency of the read/write operations in the last 24 hours for disk array device port, and a table giving the average frequency and average data transfer rate of the read/write operations in the last 24 hours for disk array device port.

Storage Location

Reports/RAID/Status Reporting/Daily Trend/Drilldown Only/

Record

Port Summary (PI_PTS)

Table 1.61 Report Data for Port Avg IO Rate Status

Fields	
Field Name	Description
Avg I/O / sec	Average read/write frequency (times per second) for disk array device port.
Avg Xfer / sec	Average read/write data transfer rate (megabytes per second) for disk array device port.
Port Name	Disk array device port name.
Port Number	Disk array device port number.
Drilldown Reports (Field Level)	
Report Name	Description
Port Avg IO Rate Status	Displays a line graph giving the read/write average frequency in the last 24 hours for disk array device port. In order to display this report, click the following field in the Port Avg IO Rate Status report: Avg I/O / sec
Port Avg Transfer Rate Status	Displays a line graph giving the average read/write data transfer rate in the last 24 hours for disk array device port. In order to display this report, click the following field in the Port Avg IO Rate Status report: Avg Xfer / sec
Port Configuration	Displays a table giving configuration information of disk array device port in real-time. In order to display this report, click the following field in the Port Avg IO Rate Status report: Port Name

1.10.48 Port Avg Transfer Rate Status

Overview

The Port Avg Transfer Rate Status report displays a line graph giving the average transfer rate of read/write operations in the last 24 hours for disk array device port, and a table giving the average frequency and average transfer rate of read/write operations in the last 24 hours for disk array device port.

Storage Location

Reports/RAID/Status Reporting/Daily Trend/Drilldown Only/

Record

Port Summary (PI_PTS)

Table 1.62 Report Data for Port Avg Transfer Rate Status

Fields	
Field Name	Description
Avg I/O / sec	Average read/write frequency (times per second) for disk array device port.
Avg Xfer / sec	Average read/write data transfer rate (megabytes per second) for disk array device port.
Port Name	Disk array device port name.
Port Number	Disk array device port number.
Drilldown Reports (Field Level)	
Report Name	Description
Port Avg IO Rate Status	Displays a line graph giving the read/write average frequency in the last 24 hours for disk array device port. In order to display this report, click the following field in the Port Avg IO Rate Status report: Avg I/O / sec
Port Avg Transfer Rate Status	Displays a line graph giving the average read/write data transfer rate in the last 24 hours for disk array device port. In order to display this report, click the following field in the Port Avg IO Rate Status report: Avg Xfer / sec
Port Configuration	Displays a table giving configuration information of disk array device port in real-time. In order to display this report, click the following field in the Port Avg IO Rate Status report: Port Name

1.10.49 Port Configuration

Overview

The Port Configuration report displays a table giving configuration information of disk array device port in real-time.

Storage Location

Reports/RAID/Status Reporting/Real-Time/

Record

Port Configuration (PD_PTC)

Table 1.63 Report Data for Port Configuration

Fields	
Field Name	Description
Port Name	Disk array device port name.
Port Number	Disk array device port number.
Port Type	Disk array device port type.

1.10.50 Port Configuration(5.0)

Overview

The Port Configuration(5.0) report displays a table giving configuration information of disk array device port in real-time.

Storage Location

Reports/RAID/Status Reporting/Real-Time/

Record

Port Configuration (PD_PTC)

Table 1.64 Report Data for Port Configuration(5.0)

Fields	
Field Name	Description
Port Name	Disk array device port name.
Port Number	Disk array device port number.
Port Type	Disk array device port type.
Port WWN	Disk array device port WWN.

1.10.51 Port Configuration(7.0)

Overview

The Port Configuration(7.0) report displays a table giving disk array device port configuration information in real-time.

Storage Location

Reports/RAID/Status Reporting/Real-Time/

Record

Port Configuration (PD_PTC)

Table 1.65 Report Data for Port Configuration(7.0)

Fields	
Field Name	Description
Port Name	Disk array device port name.
Port Number	Disk array device port number.
Port Role	Disk array device port role.
Port Type	Disk array device port type.
Port WWN	Disk array device port WWN.

1.10.52 Port IO Rate - Top 10

Overview

The Port IO Rate - Top 10 report displays a table giving ten disk array device ports with the highest frequencies of read/write operations in real-time.

Storage Location

Reports/RAID/Troubleshooting/Real-Time/

Record

Port Summary (PI_PTS)

Table 1.66 Report Data for Port IO Rate - Top 10

Fields	
Field Name	Description
Avg I/O / sec	Average read/write frequency (times per second) for disk array device port.
Port Name	Disk array device port name.
Port Number	Disk array device port number.
Drilldown Report (Report Level)	
Report Name	Description
Port Transfer Rate - Top 10	Displays a table giving ten disk array device ports with the fastest read/write data transfer rates in real-time.
Drilldown Report (Field Level)	
Report Name	Description
Port Configuration	Displays a table giving configuration information of disk array device port in real-time. In order to display this report, click the following field in the Port IO Rate - Top 10 report: Port Name

1.10.53 Port IO Rate Status (Hourly Historical Report)

Overview

The Port IO Rate Status report displays a table giving the average frequency of read/write operations in the last 24 hours for disk array device port.

Storage Location

Reports/RAID/Status Reporting/Daily Trend/

Record

Port Summary (PI_PTS)

Table 1.67 Report Data for Port IO Rate Status (Hourly Historical Report)

Fields	
Field Name	Description
Avg I/O / sec	Disk array device port average read/write frequency (times per second).
Port Name	Disk array device port name.
Port Number	Disk array device port number.
Drilldown Report (Report Level)	
Report Name	Description
Port Transfer Rate Status (Hourly historical report)	Displays a table giving the average read/write data transfer rate in the last 24 hours for disk array device port.
Drilldown Reports (Field Level)	
Report Name	Description
Port Avg IO Rate Status	Displays a line graph giving the average read/write frequency in the last 24 hours for disk array device port. In order to display this report, click the following field in the Port IO Rate Status report: Avg I/O / sec
Port Configuration	Displays a table giving configuration information of disk array device port in real-time. In order to display this report, click the following field in the Port IO Rate Status report: Port Name

1.10.54 Port IO Rate Status (Real-Time Report)

Overview

The Port IO Rate Status report displays a table giving the average frequency of read/write operations for disk array device port in real-time.

Storage Location

Reports/RAID/Status Reporting/Real-Time/

Record

Port Summary (PI_PTS)

Table 1.68 Report Data for Port IO Rate Status (Real-Time Report)

Fields	
Field Name	Description
Avg I/O / sec	Average read/write frequency (times per second) for disk array device port.
Port Name	Disk array device port name.
Port Number	Disk array device port number.
Drilldown Report (Report Level)	
Report Name	Description
Port Transfer Rate Status (Real-time report)	Displays a table giving the average read/write data transfer rate in the last 24 hours for disk array device port in real-time.
Drilldown Report (Field Level)	
Report Name	Description
Port Configuration	Displays a table giving configuration information of disk array device port in real-time. In order to display this report, click the following field in the Port IO Rate Status report: Port Name

1.10.55 Port Performance Details

Overview

The Port Performance Details report displays a table giving the frequency and transfer rate of read/write operations in the last hour for disk array device port.

Storage Location

Reports/RAID/Troubleshooting/Recent Past/

Record

Port Summary (PI_PTS)

Table 1.69 Report Data for Port Performance Details

Fields	
Field Name	Description
Avg I/O / sec	Disk array device port average read/write frequency (times per second).
Avg Xfer / sec	Average data transfer rate for disk array device port read/write operations (megabytes per second).
Max I/O / sec	Disk array device port operation maximum read/write frequency (times per second).
Max Xfer / sec	Maximum data transfer rate for disk array device port read/write operations (megabytes per second).
Min I/O / sec	Disk array device port operation minimum read/write frequency (times per second).
Min Xfer / sec	Minimum data transfer rate for disk array device port read/write operations (megabytes per second).
Port Name	Disk array device port name.
Port Number	Disk array device port number.
Drilldown Report (Field Level)	
Report Name	Description
Port Configuration	Displays a table giving configuration information of disk array device port in real-time. In order to display this report, click the following field in the Port Performance Details report: Port Name

1.10.56 Port Transfer Rate - Top 10

Overview

The Port Transfer Rate - Top 10 report displays a table giving ten disk array device ports with the fastest transfer rates of read/write operations in real-time.

Storage Location

Reports/RAID/Troubleshooting/Real-Time/

Record

Port Summary (PI_PTS)

Table 1.70 Report Data for Port Transfer Rate - Top 10

Fields	
Field Name	Description
Avg Xfer / sec	Average data transfer rate for disk array device port read/write operations (megabytes per second).
Port Name	Disk array device port name.
Port Number	Disk array device port number.
Drilldown Report (Report Level)	
Report Name	Description
Port IO Rate - Top 10	Displays a table giving ten disk array device ports with the highest read/write frequency in real-time.
Drilldown Report (Field Level)	
Report Name	Description
Port Configuration	Displays a table giving configuration information of disk array device port in real-time. In order to display this report, click the following field in the Port Transfer Rate - Top 10 report: Port Name

1.10.57 Port Transfer Rate Status (Hourly Historical Report)

Overview

The Port Transfer Rate Status report displays a table giving the average transfer rate of read/write operations in the last 24 hours for disk array device port.

Storage Location

Reports/RAID/Status Reporting/Daily Trend/

Record

Port Summary (PI_PTS)

Table 1.71 Report Data for Port Transfer Rate Status (Hourly Historical Report)

Fields	
Field Name	Description
Avg Xfer / sec	Average data transfer rate for disk array device port read/write operations (megabytes per second).
Port Name	Disk array device port name.
Port Number	Disk array device port number.
Drilldown Report (Report Level)	
Report Name	Description
Port IO Rate Status (Hourly historical report)	Displays a table giving average read/write frequency in the last 24 hours for disk array device port.
Drilldown Reports (Field Level)	
Report Name	Description
Port Avg Transfer Rate Status	Displays a line graph giving the average read/write data transfer rate in the last 24 hours for disk array device port. In order to display this report, click the following field in the Port Transfer Rate Status report: Avg Xfer / sec
Port Configuration	Displays a table giving configuration information of disk array device port in real-time. In order to display this report, click the following field in the Port Transfer Rate Status report: Port Name

1.10.58 Port Transfer Rate Status (Real-Time Report)

Overview

The Port Transfer Rate Status report displays a table giving the average transfer rate of read/write operations for disk array device port in real-time.

Storage Location

Reports/RAID/Status Reporting/Real-Time/

Record

Port Summary (PI_PTS)

Table 1.72 Report Data for Port Transfer Rate Status (Real-Time Report)

Fields	
Field Name	Description
Avg Xfer / sec	Average read/write data transfer rate (megabytes per second) for disk array device port.
Port Name	Disk array device port name.
Port Number	Disk array device port number.
Drilldown Report (Report Level)	
Report Name	Description
Port IO Rate Status (Real-time report)	Displays a table giving the average read/write data frequency for disk array device port in real-time.
Drilldown Report (Field Level)	
Report Name	Description
Port Configuration	Displays a table giving configuration information of disk array device port in real-time. In order to display this report, click the following field in the Port Transfer Rate Status report: Port Name

1.10.59 Processor Busy Rate - Top 10(6.0)

Overview

The Processor Busy Rate - Top 10(6.0) report displays a table giving ten storage subsystem processors with the highest usage in real-time.

Storage Location

Reports/RAID/Troubleshooting/Real-Time/

Record

Processor Summary (PI_PRCS)

Table 1.73 Report Data for Processor Busy Rate - Top 10(6.0)

Fields	
Field Name	Description
Adaptor ID	Character string that identifies a disk controller or channel adapter instance.
Processor Busy %	Processor usage.
Processor ID	Character string that identifies a processor instance.
Processor Type	Character string that identifies the type of a processor instance.

1.10.60 Processor Busy Rate Details(6.0)

Overview

The Processor Busy Rate Details(6.0) report displays a table giving the storage subsystem processor usage in the last hour.

Storage Location

Reports/RAID/Troubleshooting/Recent Past/

Record

Processor Summary (PI_PRCS)

Table 1.74 Report Data for Processor Busy Rate Details(6.0)

Fields	
Field Name	Description
Adaptor ID	Character string that identifies a disk controller or channel adapter instance.
Processor Busy %	Processor usage.
Processor ID	Character string that identifies a processor instance.
Processor Type	Character string that identifies the type of a processor instance.

1.10.61 Processor Busy Rate Status(6.0) (Hourly Historical Report)

Overview

The Processor Busy Rate Status(6.0) report displays a table giving the storage subsystem processor usage in the last 24 hours.

Storage Location

Reports/RAID/Status Reporting/Daily Trend/

Record

Processor Summary (PI_PRCS)

Table 1.75 Report Data for Processor Busy Rate Status(6.0) (Hourly Historical Report)

Fields	
Field Name	Description
Adaptor ID	Character string that identifies a disk controller or channel adapter instance.
Processor Busy %	Processor usage.
Processor ID	Character string that identifies a processor instance.
Processor Type	Character string that identifies the type of a processor instance.

1.10.62 Processor Busy Rate Status(6.0) (Real-Time Report)

Overview

The Processor Busy Rate Status(6.0) report displays a table giving the storage subsystem processor usage in real-time.

Storage Location

Reports/RAID/Status Reporting/Real-Time/

Record

Processor Summary (PI_PRCS)

Table 1.76 Report Data for Processor Busy Rate Status(6.0) (Real-Time Report)

Fields	
Field Name	Description
Adaptor ID	Character string that identifies a disk controller or channel adapter instance.
Processor Busy %	Processor usage.
Processor ID	Character string that identifies a processor instance.
Processor Type	Character string that identifies the type of a processor instance.

1.10.63 Subsystem Cache Memory Usage Details

Overview

The Subsystem Cache Memory Usage Details report displays a table and a line graph giving the cache memory usage on the disk array device in the last hour.

Storage Location

Reports/RAID/Troubleshooting/Recent Past/

Record

Storage Summary (PI)

Field

Name: Cache Memory Usage

Description: Cache memory usage on the disk array device (megabytes).

1.10.64 Subsystem Cache Memory Usage Details(6.0)

Overview

The Subsystem Cache Memory Usage Details(6.0) report displays a table giving the disk array cache memory usage in the last hour. However, if the storage device being monitored belongs to the TagmaStore AMS/WMS series, the Thunder 9500V series or Thunder 9200, the value in the field for cache memory size used by the side file will be invalid.

Storage Location

Reports/RAID/Troubleshooting/Recent Past/

Record

Storage Summary (PI)

Table 1.77 Report Data for Subsystem Cache Memory Usage Details(6.0)

Fields	
Field Name	Description
Cache Memory Capacity	Cache memory capacity on the disk array device (MB).
Cache Memory Usage	Cache memory usage on the disk array device (MB).
Cache Side File Usage	Cache memory size used by the side file (MB).
Cache Side File Usage %	The cache memory size being used by the side file, as a percentage of the total cache memory size.
Cache Write Pending Usage	Cache memory size being used by write pending data (MB).
Cache Write Pending Usage %	The cache memory size being used by write pending data, as a percentage of the total cache memory size.

1.10.65 Subsystem Cache Memory Usage Status (Hourly Historical Report)

Overview

The Subsystem Cache Memory Usage Status report displays a table and a line graph giving the cache memory usage on the disk array device in the last 24 hours.

Storage Location

Reports/RAID/Status Reporting/Daily Trend/

Record

Storage Summary (PI)

Field

Name: Cache Memory Usage

Description: Cache memory usage on the disk array device (megabytes).

1.10.66 Subsystem Cache Memory Usage Status (Real-Time Report)

Overview

The Subsystem Cache Memory Usage Status report displays a table giving the cache memory usage on the disk array device in real-time.

Storage Location

Reports/RAID/Status Reporting/Real-Time/

Record

Storage Summary (PI)

Field

Name: Cache Memory Usage

Description: Cache memory usage on the disk array device (megabytes).

1.10.67 Subsystem Configuration

Overview

The Subsystem Configuration report displays a table giving configuration information of the storage subsystem in real-time.

Storage Location

Reports/RAID/Status Reporting/Real-Time/

Record

Storage Detail (PD)

Table 1.78 Report Data for Subsystem Configuration

Fields	
Field Name	Description
Cache Memory Capacity	Cache memory capacity on the disk array device (megabytes).
DKC Name	Disk array device product name.
DKC Serial Number	Disk array serial number.
Vendor ID	Disk array device vendor name.

1.10.68 Subsystem IO Rate Status (Hourly Historical Report)

Overview

The Subsystem IO Rate Status report displays a table giving the frequency of read/write operations in the last 24 hours for the entire storage subsystem.

Storage Location

Reports/RAID/Status Reporting/Daily Trend/

Record

Logical Device Aggregation (PI_LDA)

Table 1.79 Report Data for Subsystem IO Rate Status (Hourly Historical Report)

Fields	
Field Name	Description
Read I/O / sec	Logical device read frequency (times per second) summarized for the entire storage subsystem.
Write I/O / sec	Logical device write frequency (times per second) summarized for the entire storage subsystem.
Drilldown Report (Report Level)	
Report Name	Description
Subsystem Transfer Rate Status (Hourly historical report)	Displays a table giving the read/write data transfer rate in the last 24 hours for the entire storage subsystem.

1.10.69 Subsystem IO Rate Status (Real-Time Report)

Overview

The Subsystem IO Rate Status report displays a table giving the frequency of read/write operations for the entire storage subsystem in real-time.

Storage Location

Reports/RAID/Status Reporting/Real-Time/

Record

Logical Device Aggregation (PI_LDA)

Table 1.80 Report Data for Subsystem IO Rate Status (Real-Time Report)

Fields	
Field Name	Description
Read I/O / sec	Read frequency for the logical device (times per second) summarized for the entire storage subsystem.
Write I/O / sec	Write frequency for the logical device (times per second) summarized for the entire storage subsystem.
Drilldown Report (Report Level)	
Report Name	Description
Subsystem Transfer Rate Status (Real-time report)	Displays the read/write data transfer rate for the entire storage subsystem in real-time.

1.10.70 Subsystem Performance Details

Overview

The Subsystem Performance Details report displays a table giving the frequency, data transfer rate and cache hit rate of read/write operations in the last hour for the entire storage subsystem. If the monitored storage device belongs to TagmaStore USP, the Lightning 9900V series or the Lightning 9900 series, the field values for the cache hit rate of write operations will be invalid.

Storage Location

Reports/RAID/Troubleshooting/Recent Past/

Record

Logical Device Aggregation (PI_LDA)

Table 1.81 Report Data for Subsystem Performance Details

Fields	
Field Name	Description
Read Hit %	Read cache hit rate for the logical device summarized for the entire storage subsystem.
Read I/O / sec	Read frequency for the logical device (times per second) summarized for the entire storage subsystem.
Read Xfer / sec	Read data transfer rate for the logical device (megabytes per second) summarized for the entire storage subsystem.
Write Hit %	Write cache hit rate for the logical device summarized for the entire storage subsystem.
Write I/O / sec	Write frequency for the logical device (times per second) summarized for the entire storage subsystem.
Write Xfer / sec	Write data transfer rate for the logical device (megabytes per second) summarized for the entire storage subsystem.

1.10.71 Subsystem Read IO Rate Trend

Overview

The Subsystem Read IO Rate Trend report displays a table and a line graph giving the frequency of read operations in the last month for the entire storage subsystem.

Storage Location

Reports/RAID/Monthly Trend/

Record

Logical Device Aggregation (PI_LDA)

Table 1.82 Report Data for Subsystem Read IO Rate Trend

Field	
Field Name	Description
Read I/O / sec	This field displays the logical device read frequency (times per second) summarized for the entire storage subsystem.
Drilldown Reports (Report Level)	
Report Name	Description
Subsystem Read Transfer Rate Trend	Displays a table and a line graph giving the read data transfer rate in the last month for the entire storage subsystem.
Subsystem Write IO Rate Trend	Displays a table and a line graph giving the write frequency in the last month for the entire storage subsystem.
Subsystem Write Transfer Rate Trend	Displays a table and a line graph giving the write data transfer rate in the last month for the entire storage subsystem.

1.10.72 Subsystem Read Transfer Rate Trend

Overview

The Subsystem Read Transfer Rate Trend report displays a table and a line graph giving the data transfer rate of read operations in the last month for the entire storage subsystem.

Storage Location

Reports/RAID/Monthly Trend/

Record

Logical Device Aggregation (PI_LDA)

Table 1.83 Report Data for Subsystem Read Transfer Rate Trend

Field	
Field Name	Description
Read Xfer / sec	This field displays the data transfer rate for logical device read operations (megabytes per second) summarized for the entire storage subsystem
Drilldown Reports (Report Level)	
Report Name	Description
Subsystem Read IO Rate Trend	Displays a table and a line graph giving the read frequency in the last month for the entire storage subsystem.
Subsystem Write IO Rate Trend	Displays a table and a line graph giving the write frequency in the last month for the entire storage subsystem.
Subsystem Write Transfer Rate Trend	Displays a table and a line graph giving the write data transfer rate in the last month for the entire storage subsystem.

1.10.73 Subsystem Transfer Rate Status (Hourly Historical Report)

Overview

The Subsystem Transfer Rate Status report displays a table giving the data transfer rate of read/write operations in the last 24 hours for the entire storage subsystem.

Storage Location

Reports/RAID/Status Reporting/Daily Trend/

Record

Logical Device Aggregation (PI_LDA)

Table 1.84 Report Data for Subsystem Transfer Rate Status (Hourly Historical Report)

Fields	
Field Name	Description
Read Xfer / sec	Data transfer rate for logical device read operations (megabytes per second) summarized for the entire storage subsystem.
Write Xfer / sec	Data transfer rate for logical device write operations (megabytes per second) summarized for the entire storage subsystem.
Drilldown Report (Report Level)	
Report Name	Description
Subsystem IO Rate Status	Displays a table giving the read/write frequency in the last 24 hours for the entire storage subsystem.

1.10.74 Subsystem Transfer Rate Status (Real-Time Report)

Overview

The Subsystem Transfer Rate Status report displays a table giving the data transfer rate of read/write operations for the entire storage subsystem in real-time.

Storage Location

Reports/RAID/Status Reporting/Real-Time/

Record

Logical Device Aggregation (PI_LDA)

Table 1.85 Report Data for Subsystem Transfer Rate Status (Real-Time Report)

Fields	
Field Name	Description
Read Xfer / sec	Read data transfer rate for the logical device (megabytes per second) summarized for the entire storage subsystem.
Write Xfer / sec	Write data transfer rate for the logical device (megabytes per second) summarized for the entire storage subsystem.
Drilldown Report (Report Level)	
Report Name	Description
Subsystem IO Rate Status	Displays a table giving the read/write frequency for the entire storage subsystem in real-time.

1.10.75 Subsystem Write IO Rate Trend

Overview

The Subsystem Write IO Rate Trend report displays a table and a line graph giving the frequency of write operations in the last month for the entire storage subsystem.

Storage Location

Reports/RAID/Monthly Trend/

Record

Logical Device Aggregation (PI_LDA)

Table 1.86 Report Data for Subsystem Write IO Rate Trend

Field	
Field Name	Description
Write I/O / sec	This field displays the logical device write frequency (times per second) summarized for the entire storage subsystem.
Drilldown Reports (Report Level)	
Report Name	Description
Subsystem Read IO Rate Trend	Displays a table and a line graph giving the read frequency in the last month for the entire storage subsystem.
Subsystem Read Transfer Rate Trend	Displays a table and a line graph giving the read data transfer rate in the last month for the entire storage subsystem.
Subsystem Write Transfer Rate Trend	Displays a table and a line graph giving the write data transfer rate in the last month for the entire storage subsystem.

1.10.76 Subsystem Write Transfer Rate Trend

Overview

The Subsystem Write Transfer Rate Trend report displays a table and a line graph giving the data transfer rate of write operations in the last month for the entire storage subsystem.

Storage Location

Reports/RAID/Monthly Trend/

Record

Logical Device Aggregation (PI_LDA)

Table 1.87 Report Data for Subsystem Write Transfer Rate Trend

Field	
Field Name	Description
Write Xfer / sec	This field displays the data transfer rate for logical device write operations (megabytes per second) summarized for the entire storage subsystem.
Drilldown Reports (Report Level)	
Report Name	Description
Subsystem Read IO Rate Trend	Displays a table and a line graph giving the read frequency in the last month for the entire storage subsystem.
Subsystem Read Transfer Rate Trend	Displays a table and a line graph giving the read data transfer rate in the last month for the entire storage subsystem.
Subsystem Write IO Rate Trend	Displays a table and a line graph giving the write frequency in the last month for the entire storage subsystem.

1.11 Agent for SAN Switch Reports

Table 1.88 lists the reports defined in the solution set in alphabetical order.

Table 1.88 Agent for SAN Switch Reports

Report Name	Displayed Information	Storage Location
Connected Port Detail Status (real-time report)	Details of the configuration of a connected destination port	Reports/SAN Switch/Status Reporting/Real-Time/Drilldown Only/
Connected Port Detail Status (hourly historical report)	Details of the configuration of a connected destination port	Reports/SAN Switch/Status Reporting/Daily Trend/Drilldown Only/
CRC Error Count - Top 10 Port	Performance of the ten ports that currently have the highest number of detected CRC errors	Reports/SAN Switch/Troubleshooting /Real-Time/
CRC Error Count - Top 10 Switch	Performance of the ten switches that currently have the highest number of CRC errors detected in total on their ports	Reports/SAN Switch/Troubleshooting /Real-Time/
Device Detail Status (real-time report)	Configuration of the devices and nodes	Reports/SAN Switch/Status Reporting/Real-Time/
Device Detail Status (hourly historical report)	Configuration of the devices and nodes	Reports/SAN Switch/Status Reporting/Daily Trend/
Encoding Disparity Count - Top 10 Port	Performance of the ten ports that currently have the highest number of detected encoding errors and disparity errors	Reports/SAN Switch/Troubleshooting /Real-Time/
Encoding Disparity Count - Top 10 Switch	Performance of the ten switches that currently have the highest number of encoding errors and disparity errors detected in total on their ports	Reports/SAN Switch/Troubleshooting /Real-Time/
Link Buffer Flow (real-time report)	Linkage between a graph indicating the total number of times that the port buffers became full for each switch, and a graph indicating the number of times that the buffers became full for each port	Reports/SAN Switch/Status Reporting/Real-Time/Drilldown Only/
Link Buffer Flow (hourly historical report)	Linkage between a graph indicating the total number of times that the port buffers became full for each switch, and a graph indicating the number of times that the buffers became full for each port	Reports/SAN Switch/Status Reporting/Daily Trend/Drilldown Only/
Link CRC Error Count	Linkage between a graph indicating the total number of CRC errors detected on the ports of each switch, and a graph indicating the number of CRC errors detected on each port	Reports/SAN Switch/Troubleshooting/Recent Past/Drilldown Only/
Link Rcvd Bytes	Linkage between a graph indicating	Reports/SAN Switch/Status

Rate (real-time report)	the total number of bytes received on the ports of each switch per unit of time, and a graph indicating the total number of bytes received on each port per unit of time	Reporting/Real-Time/Drilldown Only/
Link Rcvd Bytes Rate (hourly historical report)	Linkage between a graph indicating the total number of bytes received on the ports of each switch per unit of time, and a graph indicating the total number of bytes received on each port per unit of time	Reports/SAN Switch/Status Reporting/Daily Trend/Drilldown Only/
Link Rcvd Bytes Rate (daily historical report)	Linkage between a graph indicating the total number of bytes received on the ports of each switch per unit of time, and a graph indicating the total number of bytes received on each port per unit of time	Reports/SAN Switch/Monthly Trend/Drilldown Only/
Link Rcvd Kbytes (real-time report)	Linkage between a graph indicating the total number of kilobytes received on the ports of each switch, and a graph indicating the total number of kilobytes received on each port	Reports/SAN Switch/Status Reporting/Real-Time/Drilldown Only/
Link Rcvd Kbytes (hourly historical report)	Linkage between a graph indicating the total number of kilobytes received on the ports of each switch, and a graph indicating the total number of kilobytes received on each port	Reports/SAN Switch/Status Reporting/Daily Trend/Drilldown Only/
Link Rcvd Kbytes (hourly historical report for troubleshooting use)	Linkage between a graph indicating the total number of kilobytes received on the ports of each switch, and a graph indicating the number of kilobytes received on each port	Reports/SAN Switch/Troubleshooting/Recent Past/Drilldown Only/
Link Rcvd Kbytes (daily historical report)	Linkage between a graph indicating the total number of kilobytes received on the ports of each switch, and a graph indicating the number of kilobytes received on each port	Reports/SAN Switch/Monthly Trend/Drilldown Only/
Link Xmitd Bytes Rate (real-time report)	Linkage between a graph indicating the total number of bytes sent through the ports for each switch per unit of time, and a graph indicating the number of bytes sent through each port per unit of time	Reports/SAN Switch/Status Reporting/Real-Time/Drilldown Only/
Link Xmitd Bytes Rate (hourly historical report)	Linkage between a graph indicating the total number of bytes sent through the ports for each switch per unit of time, and a graph indicating the number of bytes sent through each port per unit of time	Reports/SAN Switch/Status Reporting/Daily Trend/Drilldown Only/
Link Xmitd Bytes Rate (daily historical report)	Linkage between a graph indicating the total number of bytes sent through the ports for each switch per unit of time, and a graph indicating the number of bytes sent through each port per unit of time	Reports/SAN Switch/Monthly Trend/Drilldown Only/

Link Xmitd Kbytes (real-time report)	Linkage between a graph indicating the total number of kilobytes sent through the ports for each switch, and a graph indicating the number of kilobytes sent through each port	Reports/SAN Switch/Status Reporting/Real-Time/Drilldown Only/
Link Xmitd Kbytes (hourly historical report)	Linkage between a graph indicating the total number of kilobytes sent through the ports for each switch, and a graph indicating the number of kilobytes sent through each port	Reports/SAN Switch/Status Reporting/Daily Trend/Drilldown Only/
Link Xmitd Kbytes (hourly historical report for troubleshooting use)	Linkage between a graph indicating the total number of kilobytes sent through the ports for each switch, and a graph indicating the number of kilobytes sent through each port	Reports/SAN Switch/Troubleshooting/Recent Past/Drilldown Only/
Link Xmitd Kbytes (daily historical report)	Linkage between a graph indicating the total number of kilobytes sent through the ports for each switch, and a graph indicating the number of kilobytes sent through each port	Reports/SAN Switch/Monthly Trend/Drilldown Only/
Loss of Signal Count - Top 10 Port	Performance of the ten ports that currently have the highest number of detections of optical signal losses	Reports/SAN Switch/Troubleshooting /Real-Time/
Loss of Signal Count - Top 10 Switch	Performance of the ten switches that currently have the highest number of detections of optical signal losses on their ports	Reports/SAN Switch/Troubleshooting /Real-Time/
Loss of Sync Count - Top 10 Port	Performance of the ten ports that currently have the highest number of detected sync losses	Reports/SAN Switch/Troubleshooting /Real-Time/
Loss of Sync Count - Top 10 Switch	Performance of the ten switches that currently have the highest number of detected sync losses in total on their ports	Reports/SAN Switch/Troubleshooting /Real-Time/
Port Buffer Flow Status (real-time report)	Number of times that the port buffers became full and the number of times that the credit count in Buffer-To-Buffer flow control became 0	Reports/SAN Switch/Status Reporting/Real-Time/Drilldown Only/
Port Buffer Flow Status (hourly historical report)	Number of times that the port buffers became full and the number of times that the credit count in Buffer-To-Buffer flow control became 0	Reports/SAN Switch/Status Reporting/Daily Trend/Drilldown Only/
Port CRC Error Count	Details of the number of CRC errors detected on each port	Reports/SAN Switch/Troubleshooting/Recent Past/Drilldown Only/
Port Detail Overview (real-time report)	Details of the configuration of ports	Reports/SAN Switch/Status Reporting/Real-Time/Drilldown Only/
Port Detail Overview (hourly historical report for troubleshooting use)	Details of the configuration of ports	Reports/SAN Switch/Troubleshooting/Recent Past/Drilldown Only/
Port Detail Overview (hourly)	Details of the configuration of ports	Reports/SAN Switch/Status

historical report)		Reporting/Daily Trend/Drilldown Only/
Port Detail Status (real-time report)	Port configuration	Reports/SAN Switch/Status Reporting/Real-Time/
Port Detail Status (hourly historical report)	Port configuration	Reports/SAN Switch/Status Reporting/Daily Trend/
Port Operation Status (real-time report)	Operating mode and status of ports	Reports/SAN Switch/Status Reporting/Real-Time/
Port Operation Status (minute-by-minute historical report)	Operating mode and status of ports	Reports/SAN Switch/Troubleshooting/Recent Past/
Port Operation Status (hourly historical report)	Operating mode and status of ports	Reports/SAN Switch/Status Reporting/Daily Trend/
Port Rcvd Bytes Rate Status (real-time report)	Details of the number of bytes and frames received on each port per unit of time	Reports/SAN Switch/Status Reporting/Real-Time/Drilldown Only/
Port Rcvd Bytes Rate Status (hourly historical report)	Details of the number of bytes and frames received on each port per unit of time	Reports/SAN Switch/Status Reporting/Daily Trend/Drilldown Only/
Port Rcvd Bytes Rate Trend	Details of the number of bytes and frames received on each port per unit of time	Reports/SAN Switch/Monthly Trend/Drilldown Only/
Port Rcvd Kbytes	Details of the number of kilobytes received on each port	Reports/SAN Switch/Troubleshooting/Recent Past/Drilldown Only/
Port Rcvd Kbytes Status (real-time report)	Details of the number of kilobytes and frames received on each port	Reports/SAN Switch/Status Reporting/Real-Time/Drilldown Only/
Port Rcvd Kbytes Status (hourly historical report)	Details of the number of kilobytes and frames received on each port	Reports/SAN Switch/Status Reporting/Daily Trend/Drilldown Only/
Port Rcvd Kbytes Trend	Details of the number of kilobytes and frames received on each port	Reports/SAN Switch/Monthly Trend/Drilldown Only/
Port Xmitd Bytes Rate Status (real-time report)	Details of the number of bytes and frames sent through each port per unit of time	Reports/SAN Switch/Status Reporting/Real-Time/Drilldown Only/
Port Xmitd Bytes Rate Status (hourly historical report)	Details of the number of bytes and frames sent through each port per unit of time	Reports/SAN Switch/Status Reporting/Daily Trend/Drilldown Only/
Port Xmitd Bytes Rate Trend	Details of the number of bytes and frames sent through each port per unit of time	Reports/SAN Switch/Monthly Trend/Drilldown Only/
Port Xmitd Kbytes	Details of the number of kilobytes sent through each port	Reports/SAN Switch/Troubleshooting/Recent Past/Drilldown Only/
Port Xmitd Kbytes Status (real-time report)	Details of the number of kilobytes and frames sent through each port	Reports/SAN Switch/Status Reporting/Real-Time/Drilldown Only/
Port Xmitd Kbytes Status (hourly historical report)	Details of the number of kilobytes and frames sent through each port	Reports/SAN Switch/Status Reporting/Daily Trend/Drilldown Only/

Port Xmitd Kbytes Trend	Details of the number of kilobytes and frames sent through each port	Reports/SAN Switch/Monthly Trend/Drilldown Only/
Rcvd Kbytes - Top 10 Port	Performance of the ten ports that currently have the most received kilobytes	Reports/SAN Switch/Troubleshooting/Real-Time/
Rcvd Kbytes - Top 10 Switch	Performance of the ten switches that currently have the highest number of kilobytes in total received on their ports	Reports/SAN Switch/Troubleshooting/Real-Time/
Switch Buffer Flow Status (real-time report)	Total number of times for each switch that the port buffers became full and that the credit count in Buffer-To-Buffer flow control became 0	Reports/SAN Switch/Status Reporting/Real-Time/
Switch Buffer Flow Status (hourly historical report)	Total number of times for each switch that the port buffers became full and that the credit count in Buffer-To-Buffer flow control became 0	Reports/SAN Switch/Status Reporting/Daily Trend/
Switch CRC Error Count	Total number of CRC errors detected on the ports for each switch	Reports/SAN Switch/Troubleshooting/Recent Past/
Switch Detail Overview (real-time report)	Details of the configuration of the fabric and switches	Reports/SAN Switch/Status Reporting/Real-Time/Drilldown Only/
Switch Detail Overview (hourly historical report for troubleshooting use)	Details of the configuration of the fabric and switches	Reports/SAN Switch/Troubleshooting/Recent Past/Drilldown Only/
Switch Detail Overview (hourly historical report)	Details of the configuration of the fabric and switches	Reports/SAN Switch/Status Reporting/Daily Trend/Drilldown Only/
Switch Detail Status (real-time report)	Fabric and switch configuration	Reports/SAN Switch/Status Reporting/Real-Time/
Switch Detail Status (hourly historical report)	Fabric and switch configuration	Reports/SAN Switch/Status Reporting/Daily Trend/
Switch Operation Status (real-time report)	Operating mode and status of a switch	Reports/SAN Switch/Status Reporting/Real-Time/
Switch Operation Status (minute-by-minute historical report)	Operating mode and status of a switch	Reports/SAN Switch/Troubleshooting/Recent Past/
Switch Operation Status (hourly historical report)	Operating mode and status of a switch	Reports/SAN Switch/Status Reporting/Daily Trend/
Switch Rcvd Bytes Rate Status (real-time report)	Total number of bytes and frames received on the ports for each switch per unit of time	Reports/SAN Switch/Status Reporting/Real-Time/
Switch Rcvd Bytes Rate Status (hourly historical report)	Total number of bytes and frames received on the ports for each switch per unit of time	Reports/SAN Switch/Status Reporting/Daily Trend/
Switch Rcvd Bytes	Total number of bytes and frames	Reports/SAN Switch/Monthly Trend/

Rate Trend	received on the ports for each switch per unit of time	
Switch Rcvd Kbytes	Total number of kilobytes received on the ports for each switch	Reports/SAN Switch/Troubleshooting/Recent Past/
Switch Rcvd Kbytes Status (real-time report)	Total number of kilobytes and frames received on the ports for each switch	Reports/SAN Switch/Status Reporting/Real-Time/
Switch Rcvd Kbytes Status (hourly historical report)	Total number of kilobytes and frames received on the ports for each switch	Reports/SAN Switch/Status Reporting/Daily Trend/
Switch Rcvd Kbytes Trend	Total number of kilobytes and frames received on the ports for each switch	Reports/SAN Switch/Monthly Trend/
Switch Xmitd Bytes Rate Status (real-time report)	Total number of bytes and frames sent through the ports for each switch per unit of time	Reports/SAN Switch/Status Reporting/Real-Time/
Switch Xmitd Bytes Rate Status (hourly historical report)	Total number of bytes and frames sent through the ports for each switch per unit of time	Reports/SAN Switch/Status Reporting/Daily Trend/
Switch Xmitd Bytes Rate Trend	Total number of bytes and frames sent through the ports for each switch per unit of time	Reports/SAN Switch/Monthly Trend/
Switch Xmitd Kbytes	Total number of kilobytes sent through the ports for each switch	Reports/SAN Switch/Troubleshooting/Recent Past/
Switch Xmitd Kbytes Status (real-time report)	Total number of kilobytes and frames sent through the ports for each switch	Reports/SAN Switch/Status Reporting/Real-Time/
Switch Xmitd Kbytes Status (hourly historical report)	Total number of kilobytes and frames sent through the ports for each switch	Reports/SAN Switch/Status Reporting/Daily Trend/
Switch Xmitd Kbytes Trend	Total number of kilobytes and frames sent through the ports for each switch	Reports/SAN Switch/Monthly Trend/
Xmitd Kbytes - Top 10 Port	Performance of the ten ports that, at present, have sent the highest number of kilobytes	Reports/SAN Switch/Troubleshooting/Real-Time/
Xmitd Kbytes - Top 10 Switch	Performance of the ten switches that, at present, have sent the highest number of kilobytes in total through their ports	Reports/SAN Switch/Troubleshooting/Real-Time/

1.11.1 Connected Port Detail Status (Real-Time Report)

Overview

The Connected Port Detail Status report shows a table containing configuration information for a connected destination port in real time. This is a drilldown report.

Storage Location

Reports/SAN Switch/Status Reporting/Real-Time/Drilldown Only/

Record

Connected Port Detail (PD_CPTD)

Table 1.89 Report Data for Connected Port Detail Status (Real-Time Report)

Fields	
Field Name	Description
Conn Port WWN	WWN of the connected destination port
Port WWN	WWN of the port
Drilldown Report (Field Level)	
Report Name	Description
Port Detail Status	Displays a table containing configuration information for the port. To display this report, click the following field in the Connected Port Detail Status report: <ul style="list-style-type: none">▪ Conn Port WWN

1.11.2 Connected Port Detail Status (Hourly Historical Report)

Overview

The Connected Port Detail Status report shows a table containing configuration information for a connected destination port for the past 24 hours. This is a drilldown report.

Storage Location

Reports/SAN Switch/Status Reporting/Daily Trend/Drilldown Only/

Record

Connected Port Detail (PD_CPTD)

Table 1.90 Report Data for Connected Port Detail Status (Hourly Historical Report)

Fields	
Field Name	Description
Conn Port WWN	WWN of the connected destination port
Port WWN	WWN of the port
Drilldown Report (Field Level)	
Report Name	Description
Port Detail Status	Displays a table containing configuration information for the port. To display this report, click the following field in the Connected Port Detail Status report: <ul style="list-style-type: none">▪ Conn Port WWN

1.11.3 CRC Error Count - Top 10 Port

Overview

The CRC Error Count - Top 10 Port report shows a table and a horizontal bar graph indicating performance information for the ten ports that currently have the highest number of detected CRC errors. The report displays information in real time.

Storage Location

Reports/SAN Switch/Troubleshooting/Real-Time/

Record

Port Error Summary (PI_PTES)

Table 1.91 Report Data for CRC Error Count - Top 10 Port

Fields	
Field Name	Description
Area ID	Area identifier, in hexadecimal (<i>Example:</i> 0x1c). In an arbitrated loop configuration, the switches, hosts, and storage ports have the same area ID.
CRC Error Count	Number of CRC errors detected for the port
Port Module Number	Module number of the port
Port Number	Number assigned to the port
Port Type	Type of the port (<i>Example:</i> F port)
Port WWN	WWN of the port
Switch WWN	WWN of the switch
Drilldown Reports (Report Level)	
Report Name	Description
Encoding Disparity Count - Top 10 Port	Displays a table and a horizontal bar graph indicating performance information for the ten ports that currently have the highest number of detected encoding errors and disparity errors.
Loss of Signal Count - Top 10 Port	Displays a table and a horizontal bar graph indicating performance information for the ten ports that currently have the highest number of detections of optical signal losses.
Loss of Sync Count - Top 10 Port	Displays a table and a horizontal bar graph indicating performance information for the ten ports that currently have the highest number of detected sync losses.
Rcvd Kbytes - Top 10 Port	Displays a table and a horizontal bar graph indicating performance information for the ten ports that have, at present, received the highest number of kilobytes.
Xmitd Kbytes - Top 10 Port	Displays a table and a horizontal bar graph indicating performance information for the ten ports that have, at present, sent the highest number of kilobytes.

Drilldown Reports (Field Level)	
Report Name	Description
CRC Error Count - Top 10 Switch	<p>Displays a table and a horizontal bar graph indicating performance information for the ten switches that currently have the highest number of CRC errors detected in total on their ports. To display this report, click the following field in the CRC Error Count - Top 10 Port report:</p> <ul style="list-style-type: none"> ▪ Switch WWN
Port Detail Overview	<p>Displays port configuration information in list form. To display this report, click the following field in the CRC Error Count - Top 10 Port report:</p> <ul style="list-style-type: none"> ▪ Port WWN

1.11.4 CRC Error Count - Top 10 Switch

Overview

The CRC Error Count - Top 10 Switch report shows a table and a horizontal bar graph indicating performance information for the ten switches that currently have the highest number of CRC errors detected in total on their ports. The report displays information in real time.

Storage Location

Reports/SAN Switch/Troubleshooting/Real-Time/

Record

Switch Error Summary (PI_SWES)

Table 1.92 Report Data for CRC Error Count - Top 10 Switch

Fields	
Field Name	Description
CRC Error Count	Total CRC errors detected on the ports for each switch
Domain ID	Domain identifier for the switch (decimal value in the range 1-239). This number uniquely identifies each switch making up a fabric.
Model Name	Model name of the switch
Switch Name	Name of the switch
Switch WWN	WWN of the switch
Drilldown Reports (Report Level)	
Report Name	Description
Encoding Disparity Count - Top 10 Switch	Displays a table and a horizontal bar graph indicating performance information for the ten switches that currently have the highest number of encoding errors and disparity errors detected in total on their ports.
Loss of Signal Count - Top 10 Switch	Displays a table and a horizontal bar graph indicating performance information for the ten switches that currently have the highest number of detections of optical signal loss on their ports.
Loss of Sync Count - Top 10 Switch	Displays a table and a horizontal bar graph indicating performance information for the ten switches that currently have the highest number of sync losses detected in total on their ports.
Rcvd Kbytes - Top 10 Switch	Displays a table and a horizontal bar graph indicating performance information for the ten switches that currently have the highest number of kilobytes in total received on their ports.
Xmitd Kbytes - Top 10 Switch	Displays a table and a horizontal bar graph indicating performance information for the ten switches that currently have the highest number of kilobytes in total sent through their ports.

Drilldown Report (Field Level)	
Report Name	Description
CRC Error Count - Top 10 Port	<p>Displays a table and a horizontal bar graph indicating performance information for the ten ports that currently have the highest number of detected CRC errors. To display this report, click the following field in the CRC Error Count - Top 10 Switch report:</p> <ul style="list-style-type: none"> ▪ Switch WWN

1.11.5 Device Detail Status (Real-Time Report)

Overview

The Device Detail Status report shows a table containing configuration information for devices and nodes in real time. The information is displayed for each node.

Storage Location

Reports/SAN Switch/Status Reporting/Real-Time/

Record

Device Detail (PD_DEVD)

Table 1.93 Report Data for Device Detail Status (Real-Time Report)

Fields	
Field Name	Description
Device Name	Name of the device
Device Type	Type of device: Host, Storage
Node Name	Name of the node
Node WWN	WWN of the node
Drilldown Reports (Report Level)	
Report Name	Description
Port Detail Status	Displays a table containing configuration information for the ports.
Switch Detail Status	Displays a table containing fabric and switch configuration information listed by switch.
Drilldown Report (Field Level)	
Report Name	Description
Port Detail Status	Displays a table containing configuration information for the ports. To display this report, click the following field in the Device Detail Status report: <ul style="list-style-type: none">Node WWN

1.11.6 Device Detail Status (Hourly Historical Report)

Overview

The Device Detail Status report shows a table containing configuration information for devices and nodes for the past 24 hours. The information is displayed for each node.

Storage Location

Reports/SAN Switch/Status Reporting/Daily Trend/

Record

Device Detail (PD_DEVD)

Table 1.94 Report Data for Device Detail Status (Hourly Historical Report)

Fields	
Field Name	Description
Device Name	Name of the device
Device Type	Type of device: Host, Storage
Node Name	Name of the node
Node WWN	WWN of the node
Drilldown Reports (Report Level)	
Report Name	Description
Port Detail Status	Displays a table containing configuration information for a port.
Switch Detail Status	Displays a table containing fabric and switch configuration information listed by switch.
Drilldown Report (Field Level)	
Report Name	Description
Port Detail Status	Displays a table containing configuration information for the ports. To display this report, click the following field in the Device Detail Status report: <ul style="list-style-type: none">Node WWN

1.11.7 Encoding Disparity Count - Top 10 Port

Overview

The Encoding Disparity Count - Top 10 Port report shows a table and a horizontal bar graph indicating performance information for the ten ports that currently have the highest number of detected encoding errors and disparity errors. The report displays information in real time.

Storage Location

Reports/SAN Switch/Troubleshooting/Real-Time/

Record

Port Error Summary (PI_PTES)

Table 1.95 Report Data for Encoding Disparity Count - Top 10 Port

Fields	
Field Name	Description
Area ID	Area identifier, in hexadecimal (<i>Example:</i> 0x1c). In an arbitrated loop configuration, the switches, hosts, and storage ports have the same area ID.
Encoding Disparity Count	Number of encoding errors and disparity errors detected for the port
Port Module Number	Module number of the port
Port Number	Number assigned to the port
Port Type	Type of the port (<i>Example:</i> F port)
Port WWN	WWN of the port
Switch WWN	WWN of the switch
Drilldown Reports (Report Level)	
Report Name	Description
CRC Error Count - Top 10 Port	Displays a table and a horizontal bar graph indicating performance information for the ten ports that currently have the highest number of detected CRC errors.
Loss of Signal Count - Top 10 Port	Displays a table and a horizontal bar graph indicating performance information for the ten ports that currently have the highest number of detections of optical signal losses.
Loss of Sync Count - Top 10 Port	Displays a table and a horizontal bar graph indicating performance information for the ten ports that currently have the highest number of detected sync losses.
Rcvd Kbytes - Top 10 Port	Displays a table and a horizontal bar graph indicating performance information for the ten ports that have, at present, received the highest number of kilobytes.
Xmitd Kbytes - Top 10 Port	Displays a table and a horizontal bar graph indicating performance information for the ten ports that have, at present, sent the highest number of kilobytes.

Drilldown Reports (Field Level)	
Report Name	Description
Encoding Disparity Count - Top 10 Switch	Displays a table and a horizontal bar graph indicating performance information for the ten switches that currently have the highest number of encoding errors and disparity errors detected in total on their ports. To display this report, click the following field in the <code>Encoding Disparity Count - Top 10 Port</code> report: <ul style="list-style-type: none"> Switch WWN
Port Detail Overview	Displays port configuration information in list form. To display this report, click the following field in the <code>Encoding Disparity Count - Top 10 Port</code> report: <ul style="list-style-type: none"> Port WWN

1.11.8 Encoding Disparity Count - Top 10 Switch

Overview

The Encoding Disparity Count - Top 10 Switch report shows a table and a horizontal bar graph indicating performance information for the ten switches that currently have the highest number of encoding errors and disparity errors detected in total on their ports. The report displays information in real time.

Storage Location

Reports/SAN Switch/Troubleshooting/Real-Time/

Record

Switch Error Summary (PI_SWES)

Table 1.96 Report Data for Encoding Disparity Count - Top 10 Switch

Fields	
Field Name	Description
Domain ID	Domain identifier for the switch (decimal value in the range 1-239). This number uniquely identifies each switch making up a fabric.
Encoding Disparity Count	Total number of encoding errors and disparity errors detected on the ports for each switch
Model Name	Model name of the switch
Switch Name	Name of the switch
Switch WWN	WWN of the switch
Drilldown Reports (Report Level)	
Report Name	Description
CRC Error Count - Top 10 Switch	Displays a table and a horizontal bar graph indicating performance information for the ten switches that currently have the highest number of CRC errors detected in total on their ports.
Loss of Signal Count - Top 10 Switch	Displays a table and a horizontal bar graph indicating performance information for the ten switches that currently have the highest number of detections of optical signal losses on their ports.
Loss of Sync Count - Top 10 Switch	Displays a table and a horizontal bar graph indicating performance information for the ten switches that currently have the highest number of sync losses detected in total on their ports.
Rcvd Kbytes - Top 10 Switch	Displays a table and a horizontal bar graph indicating performance information for the ten switches that currently have the highest number of kilobytes in total received on their ports.
Xmitd Kbytes - Top 10 Switch	Displays a table and a horizontal bar graph indicating performance information for the ten switches that currently have the highest number of kilobytes sent in total through their ports.

Drilldown Report (Field Level)	
Report Name	Description
Encoding Disparity Count - Top 10 Port	Displays a table and a horizontal bar graph indicating performance information for the ten ports that currently have the highest number of detected encoding errors and disparity errors. To display this report, click the following field in the <code>Encoding Disparity Count - Top 10 Switch</code> report: <ul style="list-style-type: none"> ▪ Switch WWN

1.11.9 Link Buffer Flow (Real-Time Report)

Overview

The Link Buffer Flow report shows a table linking a graph indicating the total number of times that the port buffers became full for each switch, and a graph indicating the number of times that the buffers became full for each port. The report displays information in real time. This is a drilldown report.

Storage Location

Reports/SAN Switch/Status Reporting/Real-Time/Drilldown Only/

Record

Port Detail (PD_PTD)

Table 1.97 Report Data for Link Buffer Flow (Real-Time Report)

Fields	
Field Name	Description
Parent WWN	WWN of the object to which the port belongs
Port Module Number	Module number of the port
Port Number	Number assigned to the port
Port Type	Type of the port (<i>Example:</i> F port)
Port WWN	WWN of the port
Drilldown Reports (Field Level)	
Report Name	Description
Port Buffer Flow Status	Displays the number of times that the port buffers became full and the number of times that the credit count in Buffer-To-Buffer flow control became 0. This report displays a horizontal bar graph indicating the number of times that the buffers became full, and a table containing those data values along with the number of times that the credit count in Buffer-to-Buffer flow control became 0. To display this report, click either of the following fields in the Link Buffer Flow report: <ul style="list-style-type: none"> ▪ Port Module Number ▪ Port WWN
Switch Buffer Flow Status	Displays for each switch the total number of times that the port buffers became full and the credit count in Buffer-To-Buffer flow control became 0. This report displays a horizontal bar graph indicating the number of times that the buffers became full, and a table containing those data values along with the number of times that the credit count in Buffer-to-Buffer flow control became 0. To display this report, click the following field in the Link Buffer Flow report: <ul style="list-style-type: none"> ▪ Parent WWN

1.11.10 Link Buffer Flow (Hourly Historical Report)

Overview

The Link Buffer Flow report shows a table linking a graph indicating the total number of times that the port buffers became full for each switch, and a graph indicating the number of times that the buffers became full for each port. The report displays information for the past 24 hours on an hourly basis. This is a drilldown report.

Storage Location

Reports/SAN Switch/Status Reporting/Daily Trend/Drilldown Only/

Record

Port Detail (PD_PTD)

Table 1.98 Report Data for Link Buffer Flow (Hourly Historical Report)

Fields	
Field Name	Description
Parent WWN	WWN of the object to which the port belongs
Port Module Number	Module number of the port
Port Number	Number assigned to the port
Port Type	Type of the port (<i>Example: F port</i>)
Port WWN	WWN of the port
Drilldown Reports (Field Level)	
Report Name	Description
Port Buffer Flow Status	Displays the number of times that the port buffers became full and the number of times that the credit count in Buffer-To-Buffer flow control became 0. This report displays a horizontal bar graph indicating the number of times that the buffers became full, and a table containing those data values along with the number of times that the credit count in Buffer-to-Buffer flow control became 0. To display this report, click one of the following fields in the <code>Link Buffer Flow</code> report: <ul style="list-style-type: none"> ▪ Port Module Number ▪ Port WWN
Switch Buffer Flow Status	Displays for each switch the total number of times that the port buffers became full and the number of times that the credit count in Buffer-To-Buffer flow control became 0. This report displays a horizontal bar graph indicating the number of times that the buffers became full, and a table containing those data values along with the number of times that the credit count in Buffer-to-Buffer flow control became 0. To display this report, click the following field in the <code>Link Buffer Flow</code> report: <ul style="list-style-type: none"> ▪ Parent WWN

1.11.11 Link CRC Error Count

Overview

The Link CRC Error Count report shows a table linking a graph indicating the total number of CRC errors detected on the ports of each switch, and a graph indicating the number of CRC errors detected on each port. The report displays minute-by-minute information for the past hour. This is a drilldown report.

Storage Location

Reports/SAN Switch/Troubleshooting/Recent Past/Drilldown Only/

Record

Port Detail (PD_PTD)

Table 1.99 Report Data for Link CRC Error Count

Fields	
Field Name	Description
Parent WWN	WWN of the object to which the port belongs
Port Module Number	Module number of the port
Port Number	Number assigned to the port
Port Type	Type of the port (<i>Example: F port</i>)
Port WWN	WWN of the port
Drilldown Reports (Field Level)	
Report Name	Description
Port CRC Error Count	Displays the number of CRC errors detected on a port. This report displays a horizontal bar graph indicating the number of CRC errors, as well as a table containing those data values. To display this report, click one of the following fields in the Link CRC Error Count report: <ul style="list-style-type: none">Port Module NumberPort WWN
Switch CRC Error Count	Displays a table and a horizontal bar graph indicating the total number of CRC errors detected on the ports for each switch. To display this report, click the following field in the Link CRC Error Count report: <ul style="list-style-type: none">Parent WWN

1.11.12 Link Rcvd Bytes Rate (Real-Time Report)

Overview

The Link Rcvd Bytes Rate report shows a table linking a graph indicating the total number of bytes received on the ports of each switch per unit of time, and a graph indicating the total number of bytes received on each port per unit of time. The report displays information in real time. This is a drilldown report.

Storage Location

Reports/SAN Switch/Status Reporting/Real-Time/Drilldown Only/

Record

Port Detail (PD_PTD)

Table 1.100 Report Data for Link Rcvd Bytes Rate (Real-Time Report)

Fields	
Field Name	Description
Parent WWN	WWN of the object to which the port belongs
Port Module Number	Module number of the port
Port Number	Number assigned to the port
Port Type	Type of the port (<i>Example:</i> F port)
Port WWN	WWN of the port
Drilldown Reports (Field Level)	
Report Name	Description
Port Rcvd Bytes Rate Status	Displays the number of bytes and frames received on each port per unit of time. This report displays a horizontal bar graph indicating the number of bytes received, as well as a table containing those data values along with the number of frames received. To display this report, click either of the following links in the Link Rcvd Bytes Rate report: <ul style="list-style-type: none">Port Module NumberPort WWN
Switch Rcvd Bytes Rate Status	Displays the total number of bytes and frames received on the ports for each switch per unit of time. This report displays a horizontal bar graph indicating the number of bytes received, and a table containing those data values along with the number of frames received. To display this report, click the following field in the Link Rcvd Bytes Rate report: <ul style="list-style-type: none">Parent WWN

1.11.13 Link Rcvd Bytes Rate (Hourly Historical Report)

Overview

The Link Rcvd Bytes Rate report shows a table that links a graph indicating the total number of bytes received on the ports of each switch per unit of time, and a graph indicating the total number of bytes received on each port per unit of time. The report displays information for the past 24 hours on an hourly basis. This is a drilldown report.

Storage Location

Reports/SAN Switch/Status Reporting/Daily Trend/Drilldown Only/

Record

Port Detail (PD_PTD)

Table 1.101 Report Data for Link Rcvd Bytes Rate (Hourly Historical Report)

Fields	
Field Name	Description
Parent WWN	WWN of the object to which the port belongs
Port Module Number	Module number of the port
Port Number	Number assigned to the port
Port Type	Type of the port (<i>Example:</i> F port)
Port WWN	WWN of the port
Drilldown Reports (Field Level)	
Report Name	Description
Port Rcvd Bytes Rate Status	<p>Displays the total number of bytes and frames received on a port per unit of time. This report displays a horizontal bar graph indicating the number of bytes received, as well as a table containing those data values along with the number of frames received. To display this report, click one of the following links in the Link Rcvd Bytes Rate report:</p> <ul style="list-style-type: none"> ▪ Port Module Number ▪ Port WWN
Switch Rcvd Bytes Rate Status	<p>Displays the total number of bytes and frames received on the ports for each switch per unit of time. This report displays a horizontal bar graph indicating the number of bytes received, as well as a table containing those data values along with the number of frames received. To display this report, click the following field in the Link Rcvd Bytes Rate report:</p> <ul style="list-style-type: none"> ▪ Parent WWN

1.11.14 Link Rcvd Bytes Rate (Daily Historical Report)

Overview

The Link Rcvd Bytes Rate report shows a table that links a graph indicating the total number of bytes received on the ports of each switch per unit of time, and a graph indicating the total number of bytes received on each port per unit of time. The report displays information for the past month on a daily basis. This is a drilldown report.

Storage Location

Reports/SAN Switch/Monthly Trend/Drilldown Only/

Record

Port Detail (PD_PTD)

Table 1.102 Report Data for Link Rcvd Bytes Rate (Daily Historical Report)

Fields	
Field Name	Description
Parent WWN	WWN of the object to which the port belongs
Port Module Number	Module number of the port
Port Number	Number assigned to the port
Port Type	Type of the port (<i>Example: F port</i>)
Port WWN	WWN of the port
Drilldown Reports (Field Level)	
Report Name	Description
Port Rcvd Bytes Rate Trend	Displays the total number of bytes and frames received on a port per unit of time. This report displays a line graph indicating the number of bytes received, as well as a table containing those data values along with the number of frames received. To display this report, click one of the following links in the Link Rcvd Bytes Rate report: <ul style="list-style-type: none">Port Module NumberPort WWN
Switch Rcvd Bytes Rate Trend	Displays the total number of bytes and frames received on the ports for each switch per unit of time. This report displays a line graph indicating the number of bytes received, as well as a table containing those data values along with the number of frames received. To display this report, click the following field in the Link Rcvd Bytes Rate report: <ul style="list-style-type: none">Parent WWN

1.11.15 Link Rcvd Kbytes (Real-Time Report)

Overview

The Link Rcvd Kbytes report shows a table that links a graph indicating the total number of kilobytes received on the ports of each switch, and a graph indicating the number of kilobytes received on each port, in real time. This is a drilldown report.

Storage Location

Reports/SAN Switch/Status Reporting/Real-Time/Drilldown Only/

Record

Port Detail (PD_PTD)

Table 1.103 Report Data for Link Rcvd Kbytes (Real-Time Report)

Fields	
Field Name	Description
Parent WWN	WWN of the object to which the port belongs
Port Module Number	Module number of the port
Port Number	Number assigned to the port
Port Type	Type of the port (<i>Example:</i> F port)
Port WWN	WWN of the port
Drilldown Reports (Field Level)	
Report Name	Description
Port Rcvd Kbytes Status	Displays the number of kilobytes and frames received on a port. This report displays a horizontal bar graph indicating the number of kilobytes received, as well as a table containing those data values and the number of frames received. To display this report, click either of the following fields in the Link Rcvd Kbytes report: <ul style="list-style-type: none"> ▪ Port Module Number ▪ Port WWN
Switch Rcvd Kbytes Status	Displays the total number of kilobytes and frames received on the ports for each switch. This report displays a horizontal bar graph indicating the number of kilobytes received, as well as a table containing those data values and the number of frames received. To display this report, click the following field in the Link Rcvd Kbytes report: <ul style="list-style-type: none"> ▪ Parent WWN

1.11.16 Link Rcvd Kbytes (Hourly Historical Report)

Overview

The Link Rcvd Kbytes report shows a table that links a graph indicating the total number of kilobytes received on the ports of each switch, and a graph indicating the number of kilobytes received on each port. The report displays information for the past 24 hours on an hourly basis. This is a drilldown report.

Storage Location

Reports/SAN Switch/Status Reporting/Daily Trend/Drilldown Only/

Record

Port Detail (PD_PTD)

Table 1.104 Report Data for Link Rcvd Kbytes (Hourly Historical Report)

Fields	
Field Name	Description
Parent WWN	WWN of the object to which the port belongs
Port Module Number	Module number of the port
Port Number	Number assigned to the port
Port Type	Type of the port (<i>Example: F port</i>)
Port WWN	WWN of the port
Drilldown Reports (Field Level)	
Report Name	Description
Port Rcvd Kbytes Status	Displays the number of kilobytes and frames received on a port. This report displays a horizontal bar graph indicating the number of kilobytes received, as well as a table containing those data values and the number of frames received. To display this report, click one of the following field in the Link Rcvd Kbytes report: <ul style="list-style-type: none"> ▪ Port Module Number ▪ Port WWN
Switch Rcvd Kbytes Status	Displays the total number of kilobytes and frames received on the ports for each switch. This report displays a horizontal bar graph indicating the number of kilobytes received, as well as a table containing those data values and the number of frames received. To display this report, click the following field in the Link Rcvd Kbytes report: <ul style="list-style-type: none"> ▪ Parent WWN

1.11.17 Link Rcvd Kbytes (Hourly Historical Report for Troubleshooting Use)

Overview

The Link Rcvd Kbytes report shows a table that links a graph indicating the total number of kilobytes received on the ports of each switch, and a graph indicating the number of kilobytes received on each port. The report displays minute-by-minute information for the past hour. This is a drilldown report.

Storage Location

Reports/SAN Switch/Troubleshooting/Recent Past/Drilldown Only/

Record

Port Detail (PD_PTD)

Table 1.105 Report Data for Link Rcvd Kbytes (Hourly Historical Report for Troubleshooting Use)

Fields	
Field Name	Description
Parent WWN	WWN of the object to which the port belongs
Port Module Number	Module number of the port
Port Number	Number assigned to the port
Port Type	Type of the port (<i>Example:</i> F port)
Port WWN	WWN of the port
Drilldown Reports (Field Level)	
Report Name	Description
Port Rcvd Kbytes	Displays the number of kilobytes and frames received on a port. This report displays a horizontal bar graph indicating the number of kilobytes received, as well as a table containing those data values and the number of frames received. To display this report, click either of the following fields in the Link Rcvd Kbytes report: <ul style="list-style-type: none"> Port Module Number Port WWN
Switch Rcvd Kbytes	Displays the total number of kilobytes and frames received on the ports for each switch. This report displays a horizontal bar graph indicating the number of kilobytes received, as well as a table containing those data values and the number of frames received. To display this report, click the following field in the Link Rcvd Kbytes report: <ul style="list-style-type: none"> Parent WWN

1.11.18 Link Rcvd Kbytes (Daily Historical Report)

Overview

The Link Rcvd Kbytes report shows a table that links a graph indicating the total number of kilobytes received on the ports for each switch, and a graph indicating the number of kilobytes received on each port. The report shows information for the past month on a daily basis. This is a drilldown report.

Storage Location

Reports/SAN Switch/Monthly Trend/Drilldown Only/

Record

Port Detail (PD_PTD)

Table 1.106 Report Data for Link Rcvd Kbytes (Daily Historical Report)

Fields	
Field Name	Description
Parent WWN	WWN of the object to which the port belongs
Port Module Number	Module number of the port
Port Number	Number assigned to the port
Port Type	Type of the port (<i>Example: F port</i>)
Port WWN	WWN of the port
Drilldown Reports (Field Level)	
Report Name	Description
Port Rcvd Kbytes Trend	Displays the number of kilobytes and frames received on a port. This report displays a line graph indicating the number of kilobytes received, as well as a table containing those data values and the number of frames received. To display this report, click one of the following fields in the Link Rcvd Kbytes report: <ul style="list-style-type: none"> ▪ Port Module Number ▪ Port WWN
Switch Rcvd Kbytes Trend	Displays the total number of kilobytes and frames received on the ports for each switch. This report displays a line graph indicating the number of kilobytes received, as well as a table containing those data values and the number of frames received. To display this report, click the following field in the Link Rcvd Kbytes report: <ul style="list-style-type: none"> ▪ Parent WWN

1.11.19 Link Xmitd Bytes Rate (Real-Time Report)

Overview

The Link Xmitd Bytes Rate report shows a table that links a graph indicating the total number of bytes sent through the ports for each switch per unit of time, and a graph indicating the number of bytes sent through each port per unit of time. The report displays information in real time. This is a drilldown report.

Storage Location

Reports/SAN Switch/Status Reporting/Real-Time/Drilldown Only/

Record

Port Detail (PD_PTD)

Table 1.107 Report Data for Link Xmitd Bytes Rate (Real-Time Report)

Fields	
Field Name	Description
Parent WWN	WWN of the object to which the port belongs
Port Module Number	Module number of the port
Port Number	Number assigned to the port
Port Type	Type of the port (<i>Example:</i> F port)
Port WWN	WWN of the port
Drilldown Reports (Field Level)	
Report Name	Description
Port Xmitd Bytes Rate Status	Displays the number of bytes and frames sent through each port per unit of time. This report displays a horizontal bar graph indicating the number of bytes sent, as well as a table containing those data values and the number of frames sent. To display this report, click either of the following fields in the Link Xmitd Bytes Rate report: <ul style="list-style-type: none">Port Module NumberPort WWN
Switch Xmitd Bytes Rate Status	Displays the total number of bytes and frames sent through the ports for each switch per unit of time. This report displays a horizontal bar graph indicating the number of bytes sent, as well as a table containing those data values and the number of frames sent. To display this report, click the following field in the Link Xmitd Bytes Rate report: <ul style="list-style-type: none">Parent WWN

1.11.20 Link Xmitd Bytes Rate (Hourly Historical Report)

Overview

The Link Xmitd Bytes Rate report shows a table that links a graph indicating the total number of bytes sent through the ports for each switch per unit of time, and a graph indicating the number of bytes sent through each port per unit of time. The report displays information for the past 24 hours on an hourly basis. This is a drilldown report.

Storage Location

Reports/SAN Switch/Status Reporting/Daily Trend/Drilldown Only/

Record

Port Detail (PD_PTD)

Table 1.108 Report Data for Link Xmitd Bytes Rate (Hourly Historical Report)

Fields	
Field Name	Description
Parent WWN	WWN of the object to which the port belongs
Port Module Number	Module number of the port
Port Number	Number assigned to the port
Port Type	Type of the port (<i>Example:</i> F port)
Port WWN	WWN of the port
Drilldown Reports (Field Level)	
Report Name	Description
Port Xmitd Bytes Rate Status	<p>Displays the number of bytes and frames sent through a port per unit of time. This report displays a horizontal bar graph indicating the number of bytes sent, as well as a table containing those data values and the number of frames sent. To display this report, click one of the following fields in the Link Xmitd Bytes Rate report:</p> <ul style="list-style-type: none"> ▪ Port Module Number ▪ Port WWN
Switch Xmitd Bytes Rate Status	<p>Displays the total number of bytes and frames sent through the ports for each switch per unit of time. This report displays a horizontal bar graph indicating the number of bytes sent, as well as a table containing those data values and the number of frames sent. To display this report, click the following field in the Link Xmitd Bytes Rate report:</p> <ul style="list-style-type: none"> ▪ Parent WWN

1.11.21 Link Xmitd Bytes Rate (Daily Historical Report)

Overview

The Link Xmitd Bytes Rate report shows a table that links a graph indicating the total number of bytes sent through the ports for each switch per unit of time, and a graph indicating the number of bytes sent through each port per unit of time. This report displays information for the past month on a daily basis. This is a drilldown report.

Storage Location

Reports/SAN Switch/Monthly Trend/Drilldown Only/

Record

Port Detail (PD_PTD)

Table 1.109 Report Data for Link Xmitd Bytes Rate (Daily Historical Report)

Fields	
Field Name	Description
Parent WWN	WWN of the object to which the port belongs
Port Module Number	Module number of the port
Port Number	Number assigned to the port
Port Type	Type of the port (<i>Example:</i> F port)
Port WWN	WWN of the port
Drilldown Reports (Field Level)	
Report Name	Description
Port Xmitd Bytes Rate Trend	Displays the number of bytes and frames sent through a port per unit of time. This report displays a line graph indicating the number of bytes sent, as well as a table containing those data values and the number of frames sent. To display this report, click one of the following fields in the Link Xmitd Bytes Rate report: <ul style="list-style-type: none"> ▪ Port Module Number ▪ Port WWN
Switch Xmitd Bytes Rate Trend	Displays the total number of bytes and frames sent through the ports for each switch per unit of time. This report displays a line graph indicating the number of bytes sent, as well as a table containing those data values and the number of frames sent. To display this report, click the following field in the Link Xmitd Bytes Rate report: <ul style="list-style-type: none"> ▪ Parent WWN

1.11.22 Link Xmitd Kbytes (Real-Time Report)

Overview

The Link Xmitd Kbytes report shows a table that links a graph indicating the total number of kilobytes sent through the ports for each switch, and a graph indicating the number of kilobytes sent through each port. The report displays information in real time. This is a drilldown report.

Storage Location

Reports/SAN Switch/Status Reporting/Real-Time/Drilldown Only/

Record

Port Detail (PD_PTD)

Table 1.110 Report Data for Link Xmitd Kbytes (Real-Time Report)

Fields	
Field Name	Description
Parent WWN	WWN of the object to which the port belongs
Port Module Number	Module number of the port
Port Number	Number assigned to the port
Port Type	Type of the port (<i>Example:</i> F port)
Port WWN	WWN of the port
Drilldown Reports (Field Level)	
Report Name	Description
Port Xmitd Kbytes Status	Displays the number of kilobytes and frames sent through each port. This report displays a horizontal bar graph indicating the number of kilobytes sent, as well as a table containing those data values along with the number of frames sent. To display this report, click either of the following fields in the Link Xmitd Kbytes report: <ul style="list-style-type: none"> ▪ Port Module Number ▪ Port WWN
Switch Xmitd Kbytes Status	Displays the total number of kilobytes and frames sent through the ports for each switch. This report displays a horizontal bar graph indicating the number of kilobytes sent, as well as a table containing those data values along with the number of frames sent. To display this report, click the following field in the Link Xmitd Kbytes report: <ul style="list-style-type: none"> ▪ Parent WWN

1.11.23 Link Xmitd Kbytes (Hourly Historical Report)

Overview

The Link Xmitd Kbytes report shows a table that links a graph indicating the total number of kilobytes sent through the ports for each switch per unit of time, and a graph indicating the number of kilobytes sent through each port. The report displays information for the past 24 hours on an hourly basis. This is a drilldown report.

Storage Location

Reports/SAN Switch/Status Reporting/Daily Trend/Drilldown Only/

Record

Port Detail (PD_PTD)

Table 1.111 Report Data for Link Xmitd Kbytes (Hourly Historical Report)

Fields	
Field Name	Description
Parent WWN	WWN of the object to which the port belongs
Port Module Number	Module number of the port
Port Number	Number assigned to the port
Port Type	Type of the port (<i>Example: F port</i>)
Port WWN	WWN of the port
Drilldown Reports (Field Level)	
Report Name	Description
Port Xmitd Kbytes Status	Displays the number of kilobytes and frames sent through a port. This report displays a horizontal bar graph indicating the number of kilobytes sent, as well as a table containing those data values along with the number of frames sent. To display this report, click one of the following fields in the Link Xmitd Kbytes report: <ul style="list-style-type: none">Port Module NumberPort WWN
Switch Xmitd Kbytes Status	Displays the total number of kilobytes and frames sent through the ports for each switch. This report displays a horizontal bar graph indicating the number of kilobytes sent, as well as a table containing those data values along with the number of frames sent. To display this report, click the following field in the Link Xmitd Kbytes report: <ul style="list-style-type: none">Parent WWN

1.11.24 Link Xmitd Kbytes (Hourly Historical Report for Troubleshooting Use)

Overview

The Link Xmitd Kbytes report shows a table that links a graph indicating the total number of kilobytes sent through the ports for each switch, and a graph indicating the number of kilobytes sent through each port. The report displays minute-by-minute information for the past hour. This is a drilldown report.

Storage Location

Reports/SAN Switch/Troubleshooting/Recent Past/Drilldown Only/

Record

Port Detail (PD_PTD)

Table 1.112 Report Data for Link Xmitd Kbytes (Hourly Historical Report for Troubleshooting Use)

Fields	
Field Name	Description
Parent WWN	WWN of the object to which the port belongs
Port Module Number	Module number of the port
Port Number	Number assigned to the port
Port Type	Type of the port (<i>Example:</i> F port)
Port WWN	WWN of the port
Drilldown Reports (Field Level)	
Report Name	Description
Port Xmitd Kbytes	Displays the number of kilobytes and frames sent through each port. This report displays a horizontal bar graph indicating the number of kilobytes sent, as well as a table containing those data values along with the number of frames sent. To display this report, click either of the following fields in the Link Xmitd Kbytes report: <ul style="list-style-type: none"> ▪ Port Module Number ▪ Port WWN
Switch Xmitd Kbytes	Displays the total number of kilobytes and frames sent through the ports for each switch. This report displays a horizontal bar graph indicating the number of kilobytes sent, as well as a table containing those data values along with the number of frames sent. To display this report, click the following field in the Link Xmitd Kbytes report: <ul style="list-style-type: none"> ▪ Parent WWN

1.11.25 Link Xmitd Kbytes (Daily Historical Report)

Overview

The Link Xmitd Kbytes report shows a table that links a graph indicating the total number of kilobytes sent through the ports for each switch per unit of time, and a graph indicating the number of kilobytes sent through each port. The report displays information for the past month on a daily basis. This is a drilldown report.

Storage Location

Reports/SAN Switch/Monthly Trend/Drilldown Only/

Record

Port Detail (PD_PTD)

Table 1.113 Report Data for Link Xmitd Kbytes (Daily Historical Report)

Fields	
Field Name	Description
Parent WWN	WWN of the object to which the port belongs
Port Module Number	Module number of the port
Port Number	Number assigned to the port
Port Type	Type of the port (<i>Example:</i> F port)
Port WWN	WWN of the port
Drilldown Reports (Field Level)	
Report Name	Description
Port Xmitd Kbytes Trend	Displays the number of kilobytes and frames sent through a port. This report displays a line graph indicating the number of kilobytes sent, as well as a table containing those data values along with the number of frames sent. To display this report, click one of the following fields in the Link Xmitd Kbytes report: <ul style="list-style-type: none"> ▪ Port Module Number ▪ Port WWN
Switch Xmitd Kbytes Trend	Displays the total number of kilobytes and frames sent through the ports for each switch. This report displays a line graph indicating the number of kilobytes sent, as well as a table containing those data values along with the number of frames sent. To display this report, click the following field in the Link Xmitd Kbytes report: <ul style="list-style-type: none"> ▪ Parent WWN

1.11.26 Loss of Signal Count - Top 10 Port

Overview

The Loss of Signal Count - Top 10 Port report shows a table and a horizontal bar graph indicating performance information for the ten ports that currently have the highest number of detections of optical signal losses. The report displays information in real time.

Storage Location

Reports/SAN Switch/Troubleshooting/Real-Time/

Record

Port Error Summary (PI_PTES)

Table 1.114 Report Data for Loss of Signal Count - Top 10 Port

Fields	
Field Name	Description
Area ID	Area identifier, in hexadecimal (<i>Example:</i> 0x1c). In an arbitrated loop configuration, the switches, hosts, and storage ports have the same area ID.
Loss of Signal Count	Number of times that loss of an optical signal was detected for the port
Port Module Number	Module number of the port
Port Number	Number assigned to the port
Port Type	Type of the port (<i>Example:</i> F port)
Port WWN	WWN of the port
Switch WWN	WWN of the switch
Drilldown Reports (Report Level)	
Report Name	Description
CRC Error Count - Top 10 Port	Displays a table and a horizontal bar graph indicating performance information for the ten ports that currently have the highest number of detected CRC errors.
Encoding Disparity Count - Top 10 Port	Displays a table and a horizontal bar graph indicating performance information for the ten ports that currently have the highest number of detected encoding errors and disparity errors.
Loss of Sync Count - Top 10 Port	Displays a table and a horizontal bar graph indicating performance information for the ten ports that currently have the highest number of detected sync losses.
Recv Kbytes - Top 10 Port	Displays a table and a horizontal bar graph indicating performance information for the ten ports that have, at present, received the highest number of kilobytes.
Xmitd Kbytes - Top 10 Port	Displays a table and a horizontal bar graph indicating performance information for the ten ports that have, at present, sent the highest number of kilobytes.

Drilldown Reports (Field Level)	
Report Name	Description
Loss of Signal Count - Top 10 Switch	<p>Displays a table and a horizontal bar graph indicating performance information for the ten switches that currently have the highest number of detections of optical signal losses on their ports. To display this report, click the following field in the Loss of Signal Count - Top 10 Port report:</p> <ul style="list-style-type: none"> Switch WWN
Port Detail Overview	<p>Displays port configuration information in list form. To display this report, click the following field in the Loss of Signal Count - Top 10 Port report:</p> <ul style="list-style-type: none"> Port WWN

1.11.27 Loss of Signal Count - Top 10 Switch

Overview

The Loss of Signal Count - Top 10 Switch report shows a table and a horizontal bar graph indicating performance information for the ten switches that currently have the highest number of detections of optical signal losses on their ports. The report displays information in real time.

Storage Location

Reports/SAN Switch/Troubleshooting/Real-Time/

Record

Switch Error Summary (PI_SWES)

Table 1.115 Report Data for Loss of Signal Count - Top 10 Switch

Fields	
Field Name	Description
Domain ID	Domain identifier for the switch (decimal value in the range 1-239). This number uniquely identifies each switch making up a fabric.
Loss of Signal Count	Total number of times that loss of an optical signal was detected on the ports per switch
Model Name	Model name of the switch
Switch Name	Name of the switch
Switch WWN	WWN of the switch
Drilldown Reports (Report Level)	
Report Name	Description
CRC Error Count - Top 10 Switch	Displays a table and a horizontal bar graph indicating performance information for the ten switches that currently have the highest number of CRC errors detected in total on their ports.
Encoding Disparity Count - Top 10 Switch	Displays a table and a horizontal bar graph indicating performance information for the ten switches that currently have the highest number of encoding errors and disparity errors detected in total on their ports.
Loss of Sync Count - Top 10 Switch	Displays a table and a horizontal bar graph indicating performance information for the ten switches that currently have the highest number of sync losses detected in total on their ports.
Rcvd Kbytes - Top 10 Switch	Displays a table and a horizontal bar graph indicating performance information for the ten switches that currently have the highest number of kilobytes in total received on their ports.
Xmitd Kbytes - Top 10 Switch	Displays a table and a horizontal bar graph indicating performance information for the ten switches that currently have the highest number of kilobytes in total sent through their ports.

Drilldown Report (Field Level)	
Report Name	Description
Loss of Signal Count - Top 10 Port	<p>Displays a table and a horizontal bar graph indicating performance information for the ten ports that currently have the highest number of detections of optical signal losses. To display this report, click the following field in the Loss of Signal Count - Top 10 Switch report:</p> <ul style="list-style-type: none"> ▪ Switch WWN

1.11.28 Loss of Sync Count - Top 10 Port

Overview

The Loss of Sync Count - Top 10 Port report shows a table and a horizontal bar graph indicating performance information for the ten ports that currently have the highest number of detected sync losses. The report displays information in real time.

Storage Location

Reports/SAN Switch/Troubleshooting/Real-Time/

Record

Port Error Summary (PI_PTES)

Table 1.116 Report Data for Loss of Sync Count - Top 10 Port

Fields	
Field Name	Description
Area ID	Area identifier in hexadecimal (<i>Example: 0x1c</i>). In an arbitrated loop configuration, the switches, hosts, and storage ports have the same area ID.
Loss of Sync Count	Number of sync losses detected for the port
Port Module Number	Module number of the port
Port Number	Number assigned to the port
Port Type	Type of the port (<i>Example: F port</i>)
Port WWN	WWN of the port
Switch WWN	WWN of the switch
Drilldown Reports (Report Level)	
Report Name	Description
CRC Error Count - Top 10 Port	Displays a table and a horizontal bar graph indicating performance information for the ten ports that currently have the highest number of detected CRC errors.
Encoding Disparity Count - Top 10 Port	Displays a table and a horizontal bar graph indicating performance information for the ten ports that currently have the highest number of detected encoding errors and disparity errors.
Loss of Signal Count - Top 10 Port	Displays a table and a horizontal bar graph indicating performance information for the ten ports that currently have the highest number of detections of optical signal losses.
Rcvd Kbytes - Top 10 Port	Displays a table and a horizontal bar graph indicating performance information for the ten ports that have, at present, received the highest number of kilobytes.
Xmitd Kbytes - Top 10 Port	Displays a table and a horizontal bar graph indicating performance information for the ten ports that have, at present, sent the highest number of kilobytes.

Drilldown Reports (Field Level)	
Report Name	Description
Loss of Sync Count - Top 10 Switch	<p>Displays a table and a horizontal bar graph indicating performance information for the ten switches that currently have the highest number of sync losses detected in total on their ports. To display this report, click the following field in the Loss of Sync Count - Top 10 Port report:</p> <ul style="list-style-type: none"> Switch WWN
Port Detail Overview	<p>Displays port configuration information in list form. To display this report, click the following field in the Loss of Sync Count - Top 10 Port report:</p> <ul style="list-style-type: none"> Port WWN

1.11.29 Loss of Sync Count - Top 10 Switch

Overview

The Loss of Sync Count - Top 10 Switch report shows a table and a horizontal bar graph indicating performance information for the ten switches that currently have the highest number of sync losses detected in total on their ports. The report displays information in real time.

Storage Location

Reports/SAN Switch/Troubleshooting/Real-Time/

Record

Switch Error Summary (PI_SWES)

Table 1.117 Report Data for Loss of Sync Count - Top 10 Switch

Fields	
Field Name	Description
Domain ID	Domain identifier for the switch (decimal value in the range 1-239). This number uniquely identifies each switch making up a fabric.
Loss of Sync Count	Total number of sync losses on the ports per switch
Model Name	Model name of the switch
Switch Name	Name of the switch
Switch WWN	WWN of the switch
Drilldown Reports (Report Level)	
Report Name	Description
CRC Error Count - Top 10 Switch	Displays a table and a horizontal bar graph indicating performance information for the ten switches that currently have the highest number of CRC errors detected in total on their ports.
Encoding Disparity Count - Top 10 Switch	Displays a table and a horizontal bar graph indicating performance information for the ten switches that currently have the highest number of encoding errors and disparity errors detected in total on their ports.
Loss of Signal Count - Top 10 Switch	Displays a table and a horizontal bar graph indicating performance information for the ten switches that currently have the highest number of detections of optical signal losses on their ports.
Rcvd Kbytes - Top 10 Switch	Displays a table and a horizontal bar graph indicating performance information for the ten switches that currently have the highest number of kilobytes in total received on their ports.
Xmitd Kbytes - Top 10 Switch	Displays a table and a horizontal bar graph indicating performance information for the ten switches that currently have the highest number of kilobytes in total sent through their ports.

Drilldown Report (Field Level)	
Report Name	Description
Loss of Sync Count - Top 10 Port	<p>Displays a table and a horizontal bar graph indicating performance information for the ten ports that currently have the highest number of detected sync losses. To display this report, click the following field in the Loss of Sync Count - Top 10 Switch report:</p> <ul style="list-style-type: none"> ▪ Switch WWN

1.11.30 Port Buffer Flow Status (Real-Time Report)

Overview

The Port Buffer Flow Status report shows the number of times that the port buffers became full and the number of times that the credit count in the Buffer-To-Buffer flow control for each port became 0. The report displays a horizontal bar graph indicating the number of times that the buffers became full, as well as a table containing those data values along with the number of times that the credit count in the Buffer-To-Buffer flow control became 0. The report displays information in real time. This is a drilldown report.

Storage Location

Reports/SAN Switch/Status Reporting/Real-Time/Drilldown Only/

Record

Port Summary (PI_PTS)

Table 1.118 Report Data for Port Buffer Flow Status (Real-Time Report)

Fields	
Field Name	Description
Area ID	Area identifier, in hexadecimal (<i>Example:</i> 0x1c). In an arbitrated loop configuration, the switches, hosts, and storage ports have the same area ID.
Buffer Credit Zero State Count	Number of times that the credit count in the Buffer-To-Buffer flow control for the port became 0
Input Buffers Full Count	Number of times that the buffer for the port became full
Port Module Number	Module number of the port
Port Number	Number assigned to the port
Port Type	Type of the port (<i>Example:</i> F port)
Port WWN	WWN of the port
Switch WWN	WWN of the switch

Drilldown Reports (Field Level)	
Report Name	Description
Port Detail Overview	<p>Displays port configuration information in list form. To display this report, click the following field in the Port Buffer Flow Status report:</p> <ul style="list-style-type: none"> Port WWN
Switch Buffer Flow Status	<p>Displays for each switch the total number of times that the port buffers became full and the credit count in Buffer-To-Buffer flow control became 0. This report displays a horizontal bar graph indicating the number of times that the buffers became full, and a table containing those data values along with the number of times that the credit count in the Buffer-To-Buffer flow control became 0. To display this report, click the following field in the Port Buffer Flow Status report:</p> <ul style="list-style-type: none"> Switch WWN

1.11.31 Port Buffer Flow Status (Hourly Historical Report)

Overview

The Port Buffer Flow Status report shows the number of times that the port buffers became full and the number of times that the credit count in the Buffer-To-Buffer flow control for the port became 0. The report displays a horizontal bar graph indicating the number of times that the buffers became full, and a table containing those data values along with the number of times that the credit count in the Buffer-To-Buffer flow control became 0. The report displays information for the past 24 hours on an hourly basis. This is a drilldown report.

Storage Location

Reports/SAN Switch/Status Reporting/Daily Trend/Drilldown Only/

Record

Port Summary (PI_PTS)

Table 1.119 Report Data for Port Buffer Flow Status (Hourly Historical Report)

Fields	
Field Name	Description
Area ID	Area identifier, in hexadecimal (<i>Example:</i> 0x1c). In an arbitrated loop configuration, the switches, hosts, and storage ports have the same area ID.
Buffer Credit Zero State Count	Number of times that the credit count in the Buffer-To-Buffer flow control for the port became 0
Input Buffers Full Count	Number of times that the buffer for the port became full
Port Module Number	Module number of the port
Port Number	Number assigned to the port
Port Type	Type of the port (<i>Example:</i> F port)
Port WWN	WWN of the port
Switch WWN	WWN of the switch

Drilldown Reports (Field Level)	
Report Name	Description
Port Detail Overview	<p>Displays port configuration information in list form. To display this report, click the following field in the Port Buffer Flow Status report:</p> <ul style="list-style-type: none"> Port WWN
Switch Buffer Flow Status	<p>Displays for each switch the total number of times that the port buffers became full and the credit count in Buffer-To-Buffer flow control became 0. This report displays a horizontal bar graph indicating the number of times that the buffers became full, and a table containing those data values along with the number of times that the credit count in the Buffer-To-Buffer flow control became 0. To display this report, click the following field in the Port Buffer Flow Status report:</p> <ul style="list-style-type: none"> Switch WWN

1.11.32 Port CRC Error Count

Overview

The Port CRC Error Count report shows a table and a horizontal bar graph indicating the number of CRC errors on each port. The report displays minute-by-minute information for the past hour. This is a drilldown report.

Storage Location

Reports/SAN Switch/Troubleshooting/Recent Past/Drilldown Only/

Record

Port Summary (PI_PTS)

Table 1.120 Report Data for Port CRC Error Count

Fields	
Field Name	Description
Area ID	Area identifier, in hexadecimal (<i>Example:</i> 0x1c). In an arbitrated loop configuration, the switches, hosts, and storage ports have the same area ID.
CRC Error Count	Number of CRC errors detected on the port
Port Module Number	Module number of the port
Port Number	Number assigned to the port
Port Type	Type of the port (<i>Example:</i> F port)
Port WWN	WWN of the port
Switch WWN	WWN of the switch
Drilldown Reports (Field Level)	
Report Name	Description
Port Detail Overview	Displays port configuration information in list form. To display this report, click the following field in the Port CRC Error Count report: <ul style="list-style-type: none">Port WWN
Switch CRC Error Count	Displays a table and a horizontal bar graph indicating the total number of CRC errors detected on the ports for each switch. To display this report, click the following field in the Port CRC Error Count report: <ul style="list-style-type: none">Switch WWN

1.11.33 Port Detail Overview (Real-Time Report)

Overview

The Port Detail Overview report shows port configuration information in list form. The report displays information in real time. This is a drilldown report.

Storage Location

Reports/SAN Switch/Status Reporting/Real-Time/Drilldown Only/

Record

Port Detail (PD_PTD)

Table 1.121 Report Data for Port Detail Overview (Real-Time Report)

Fields	
Field Name	Description
Address ID	Address identifier in hexadecimal (<i>Example:</i> 0x0E010A). The high-order byte is the Domain ID, the middle byte is the Area ID, and the low-order byte is the Port ID.
Area ID	Area identifier in hexadecimal (<i>Example:</i> 0x1c). In an arbitrated loop configuration, the switches, hosts, and storage ports have the same area ID.
GBIC Type	Type of the GBIC (light module): Short-wave, Long-wave, etc.
Parent Type	Type of the object to which the port belongs: Switch, Node
Parent WWN	WWN of the object to which the port belongs
Port ID	Port identifier, in hexadecimal (<i>Example:</i> 0x00). In an arbitrated loop configuration, AL_PA is the Port ID.
Port Module Number	Module number of the port
Port Name	Name of the port
Port Number	Number assigned to the port
Port Speed	Signal transmission speed of the port
Port Type	Type of the port (<i>Example:</i> F port)
Port WWN	WWN of the port
Drilldown Report (Field Level)	
Report Name	Description
Switch Detail Overview	Displays switch configuration information in list form. To display this report, click the following field in the Port Detail Overview report: <ul style="list-style-type: none"> Parent WWN

1.11.34 Port Detail Overview (Hourly Historical Report for Troubleshooting Use)

Overview

The Port Detail Overview report shows port configuration information for the past 24 hours in list form. This is a drilldown report.

Storage Location

Reports/SAN Switch/Troubleshooting/Recent Past/Drilldown Only/

Record

Port Detail (PD_PTD)

Table 1.122 Report Data for Port Detail Overview (Hourly Historical Report for Troubleshooting Use)

Fields	
Field Name	Description
Address ID	Address identifier, in hexadecimal (<i>Example:</i> 0x0E010A). The high-order byte is the Domain ID, the middle byte is the Area ID, and the low-order byte is the Port ID.
Area ID	Area identifier, in hexadecimal (<i>Example:</i> 0x1c). In an arbitrated loop configuration, the switches, hosts, and storage ports have the same area ID.
GBIC Type	Type of the GBIC (light module): Short-wave, Long-wave, etc.
Parent Type	Type of the object to which the port belongs: Switch, Node
Parent WWN	WWN of the object to which the port belongs
Port ID	Port identifier, in hexadecimal (<i>Example:</i> 0x00). In an arbitrated loop configuration, AL_PA is the Port ID.
Port Module Number	Module number of the port
Port Name	Name of the port
Port Number	Number assigned to the port
Port Speed	Signal transmission speed of the port
Port Type	Type of the port (<i>Example:</i> F port)
Port WWN	WWN of the port
Drilldown Report (Field Level)	
Report Name	Description
Switch Detail Overview	Displays switch configuration information in list form. To display this report, click the following field in the Port Detail Overview report: <ul style="list-style-type: none"> ▪ Parent WWN

1.11.35 Port Detail Overview (Hourly Historical Report)

Overview

The Port Detail Overview report shows port configuration information for the past 24 hours in list form. This is a drilldown report.

Storage Location

Reports/SAN Switch/Status Reporting/Daily Trend/Drilldown Only/

Record

Port Detail (PD_PTD)

Table 1.123 Report Data for Port Detail Overview (Hourly Historical Report)

Fields	
Field Name	Description
Address ID	Address identifier, in hexadecimal (<i>Example:</i> 0x0E010A). The high-order byte is the Domain ID, the middle byte is the Area ID, and the low-order byte is the Port ID.
Area ID	Area identifier, in hexadecimal (<i>Example:</i> 0x1c). In an arbitrated loop configuration, the switches, hosts, and storage ports have the same area ID.
GBIC Type	Type of the GBIC (light module): Short-wave, Long-wave, etc.
Parent Type	Type of the object to which the port belongs: Switch, Node
Parent WWN	WWN of the object to which the port belongs
Port ID	Port identifier, in hexadecimal (<i>Example:</i> 0x00). In an arbitrated loop configuration, AL_PA is the Port ID.
Port Module Number	Module number of the port
Port Name	Name of the port
Port Number	Number assigned to the port
Port Speed	Signal transmission speed of the port
Port Type	Type of the port (<i>Example:</i> F port)
Port WWN	WWN of the port
Drilldown Report (Field Level)	
Report Name	Description
Switch Detail Overview	Displays switch configuration information in list form. To display this report, click the following field in the Port Detail Overview report: <ul style="list-style-type: none"> ▪ Parent WWN

1.11.36 Port Detail Status (Real-Time Report)

Overview

The Port Detail Status report shows a table containing port configuration information in real time.

Storage Location

Reports/SAN Switch/Status Reporting/Real-Time/

Record

Port Detail (PD_PTD)

Table 1.124 Report Data for Port Detail Status (Real-Time Report)

Fields	
Field Name	Description
Address ID	Address identifier in hexadecimal (<i>Example:</i> 0x0E010A). The high-order byte is the Domain ID, the middle byte is the Area ID, and the low-order byte is the Port ID.
Area ID	Area identifier in hexadecimal (<i>Example:</i> 0x1c). In an arbitrated loop configuration, the switches, hosts, and storage ports have the same area ID.
GBIC Type	Type of the GBIC (light module): Short-wave, Long-wave, etc.
Parent Type	Type of the object to which the port belongs: Switch, Node
Parent WWN	WWN of the object to which the port belongs
Port ID	Port identifier, in hexadecimal (<i>Example:</i> 0x00). In an arbitrated loop configuration, AL_PA is the Port ID.
Port Module Number	Module number of the port
Port Name	Name of the port
Port Number	Number assigned to the port
Port Speed	Signal transmission speed of the port
Port Type	Type of the port (<i>Example:</i> F port)
Port WWN	WWN of the port
Drilldown Reports (Report Level)	
Report Name	Description
Device Detail Status	Displays a table containing device and node configuration information listed by node.
Switch Detail Status	Displays a table containing fabric and switch configuration information listed by switch.

Drilldown Report (Field Level)	
Report Name	Description
Connected Port Detail Status	<p>Displays a table containing configuration information for the connected destination port. To display this report, click the following field in the Port Detail Status report:</p> <ul style="list-style-type: none"> ▪ Port WWN

1.11.37 Port Detail Status (Hourly Historical Report)

Overview

The Port Detail Status report shows a table containing port configuration information for the past 24 hours.

Storage Location

Reports/SAN Switch/Status Reporting/Daily Trend/

Record

Port Detail (PD_PTD)

Table 1.125 Report Data for Port Detail Status (Hourly Historical Report)

Fields	
Field Name	Description
Address ID	Address identifier, in hexadecimal (<i>Example:</i> 0x0E010A). The high-order byte is the Domain ID, the middle byte is the Area ID, and the low-order byte is the Port ID.
Area ID	Area identifier, in hexadecimal (<i>Example:</i> 0x1c). In an arbitrated loop configuration, the switches, hosts, and storage ports have the same area ID.
GBIC Type	Type of the GBIC (light module): Short-wave, Long-wave, etc.
Parent Type	Type of the object to which the port belongs: Switch, Node
Parent WWN	WWN of the object to which the port belongs
Port ID	Port identifier, in hexadecimal (<i>Example:</i> 0x00). In an arbitrated loop configuration, AL_PA is the Port ID.
Port Module Number	Module number of the port
Port Name	Name of the port
Port Number	Number assigned to the port
Port Speed	Signal transmission speed of the port
Port Type	Type of the port (<i>Example:</i> F port)
Port WWN	WWN of the port
Drilldown Reports (Report Level)	
Report Name	Description
Device Detail Status	Displays a table containing device and node configuration information listed by node.
Switch Detail Status	Displays a table containing fabric and switch configuration information listed by switch.

Drilldown Report (Field Level)	
Report Name	Description
Connected Port Detail Status	<p>Displays a table containing configuration information for the connected destination port. To display this report, click the following field in the Port Detail Status report:</p> <ul style="list-style-type: none"> ▪ Port WWN

1.11.38 Port Operation Status (Real-Time Report)

Overview

The Port Operation Status report shows a table containing information on the operating mode and status of the port in real time.

Storage Location

Reports/SAN Switch/Status Reporting/Real-Time/

Record

Port Error Summary (PI_PTES)

Table 1.126 Report Data for Port Operation Status (Real-Time Report)

Fields	
Field Name	Description
Area ID	Area identifier, in hexadecimal (<i>Example:</i> 0x1c). In an arbitrated loop configuration, the switches, hosts, and storage ports have the same area ID.
Port Mode	Operating mode of the port: Online, Offline
Port Module Number	Module number of the port
Port Number	Number assigned to the port
Port Ops Status	Operating status of the port: Ok, Warning, Faulty
Port Type	Type of the port (<i>Example:</i> F port)
Port WWN	WWN of the port
Switch WWN	WWN of the switch
Drilldown Report (Field Level)	
Report Name	Description
Port Detail Overview	Displays port configuration information in list form. To display this report, click the following field in the Port Operation Status report: <ul style="list-style-type: none">Port WWN

1.11.39 Port Operation Status (Minute-by-Minute Historical Report)

Overview

The Port Operation Status report shows a table containing information on the operating mode and status of the port. The report displays minute-by-minute information for the past hour.

Storage Location

Reports/SAN Switch/Troubleshooting/Recent Past/

Record

Port Error Summary (PI_PTES)

Table 1.127 Report Data for Port Operation Status (Minute-by-Minute Historical Report)

Fields	
Field Name	Description
Area ID	Area identifier, in hexadecimal (<i>Example:</i> 0x1c). In an arbitrated loop configuration, the switches, hosts, and storage ports have the same area ID.
Port Mode	Operating mode of the port: Online, Offline
Port Module Number	Module number of the port
Port Number	Number assigned to the port
Port Ops Status	Operating status of the port: Ok, Warning, Faulty
Port Type	Type of the port (<i>Example:</i> F port)
Port WWN	WWN of the port
Switch WWN	WWN of the switch
Drilldown Report (Field Level)	
Report Name	Description
Port Detail Overview	Displays port configuration information in list form. To display this report, click the following field in the Port Operation Status report: <ul style="list-style-type: none">Port WWN

1.11.40 Port Operation Status (Hourly Historical Report)

Overview

The Port Operation Status report shows a table containing information on the operating mode and status of the port. The report displays information for the past 24 hours on an hourly basis.

Storage Location

Reports/SAN Switch/Status Reporting/Daily Trend/

Record

Port Error Summary (PI_PTES)

Table 1.128 Report Data for Port Operation Status (Hourly Historical Report)

Fields	
Field Name	Description
Area ID	Area identifier, in hexadecimal (<i>Example:</i> 0x1c). In an arbitrated loop configuration, the switches, hosts, and storage ports have the same area ID.
Port Mode	Operating mode of the port: Online, Offline
Port Module Number	Module number of the port
Port Number	Number assigned to the port
Port Ops Status	Operating status of the port: Ok, Warning, Faulty
Port Type	Type of the port (<i>Example:</i> F port)
Port WWN	WWN of the port
Switch WWN	WWN of the switch
Drilldown Report (Field Level)	
Report Name	Description
Port Detail Overview	Displays port configuration information in list form. To display this report, click the following field in the Port Operation Status report: <ul style="list-style-type: none">Port WWN

1.11.41 Port Rcvd Bytes Rate Status (Real-Time Report)

Overview

The Port Rcvd Bytes Rate Status report shows the number of bytes and frames received on each port per unit of time. The report displays a horizontal bar graph indicating the number of bytes received, as well as a table containing those data values along with the number of frames received. The report displays information in real time. This is a drilldown report.

Storage Location

Reports/SAN Switch/Status Reporting/Real-Time/Drilldown Only/

Record

Port Summary (PI_PTS)

Table 1.129 Report Data for Port Rcvd Bytes Rate Status (Real-Time Report)

Fields	
Field Name	Description
Area ID	Area identifier, in hexadecimal (<i>Example:</i> 0x1c). In an arbitrated loop configuration, the switches, hosts, and storage ports have the same area ID.
Port Module Number	Module number of the port
Port Number	Number assigned to the port
Port Type	Type of the port (<i>Example:</i> F port)
Port WWN	WWN of the port
Rcvd Bytes / sec	Number of bytes received by the port per unit of time
Rcvd Frames / sec	Number of frames received by the port per unit of time
Switch WWN	WWN of the switch
Drilldown Reports (Field Level)	
Report Name	Description
Port Detail Overview	Displays port configuration information in list form. To display this report, click the following field in the Port Rcvd Bytes Rate Status report: <ul style="list-style-type: none"> Port WWN
Switch Rcvd Bytes Rate Status	Displays the total number of bytes and frames received on the ports for each switch per unit of time. This report displays a horizontal bar graph indicating the number of bytes received, as well as a table containing those data values along with the number of frames received. To display this report, click the following field in the Port Rcvd Bytes Rate Status report: <ul style="list-style-type: none"> Switch WWN

1.11.42 Port Rcvd Bytes Rate Status (Hourly Historical Report)

Overview

The Port Rcvd Bytes Rate Status report shows the number of bytes and frames received on each port per unit of time. The report displays a horizontal bar graph indicating the number of bytes received per unit of time, as well as a table containing those data values along with the number of frames received per unit of time. The report displays information for the past 24 hours on an hourly basis. This is a drilldown report.

Storage Location

Reports/SAN Switch/Status Reporting/Daily Trend/Drilldown Only/

Record

Port Summary (PI_PTS)

Table 1.130 Report Data for Port Rcvd Bytes Rate Status (Hourly Historical Report)

Fields	
Field Name	Description
Area ID	Area identifier, in hexadecimal (<i>Example:</i> 0x1c). In an arbitrated loop configuration, the switches, hosts, and storage ports have the same area ID.
Port Module Number	Module number of the port
Port Number	Number assigned to the port
Port Type	Type of the port (<i>Example:</i> F port)
Port WWN	WWN of the port
Rcvd Bytes / sec	Number of bytes received by the port per unit of time
Rcvd Frames / sec	Number of frames received by the port per unit of time
Switch WWN	WWN of the switch
Drilldown Reports (Field Level)	
Report Name	Description
Port Detail Overview	Displays port configuration information in list form. To display this report, click the following field in the Port Rcvd Bytes Rate Status report: <ul style="list-style-type: none"> Port WWN
Switch Rcvd Bytes Rate Status	Displays the total number of bytes and frames received on the ports for each switch per unit of time. This report displays a horizontal bar graph indicating the number of bytes received, as well as a table containing those data values along with the number of frames received. To display this report, click the following field in the Port Rcvd Bytes Rate Status report: <ul style="list-style-type: none"> Switch WWN

1.11.43 Port Rcvd Bytes Rate Trend

Overview

The Port Rcvd Bytes Rate Trend shows the number of bytes and frames received on each port per unit of time. The report displays a line graph indicating the number of bytes received per unit of time, as well as a table containing those data values along with the number of frames received per unit of time. The report displays information for the past month on a daily basis. This is a drilldown report.

Storage Location

Reports/SAN Switch/Monthly Trend/Drilldown Only/

Record

Port Summary (PI_PTS)

Table 1.131 Report Data for Port Rcvd Bytes Rate Trend

Fields	
Field Name	Description
Area ID	Area identifier, in hexadecimal (<i>Example:</i> 0x1c). In an arbitrated loop configuration, the switches, hosts, and storage ports have the same area ID.
Port Module Number	Module number of the port
Port Number	Number assigned to the port
Port Type	Type of the port (<i>Example:</i> F port)
Port WWN	WWN of the port
Rcvd Bytes / sec	Number of bytes received by the port per unit of time
Rcvd Frames / sec	Number of frames received by the port per unit of time
Switch WWN	WWN of the switch
Drilldown Report (Field Level)	
Report Name	Description
Switch Rcvd Bytes Rate Trend	Displays the total number of bytes and frames received on the ports for each switch per unit of time. This report displays a line graph indicating the number of bytes received, and a table containing those data values along with the number of frames received. To display this report, click the following field in the Port Rcvd Bytes Rate Trend report: <ul style="list-style-type: none">Switch WWN

1.11.44 Port Rcvd Kbytes

Overview

The Port Rcvd Kbytes report shows a table and a horizontal bar graph indicating the number of kilobytes received on each port. The report displays minute-by-minute information for the past hour. This is a drilldown report.

Storage Location

Reports/SAN Switch/Troubleshooting/Recent Past/Drilldown Only/

Record

Port Summary (PI_PTS)

Table 1.132 Report Data for Port Rcvd Kbytes

Fields	
Field Name	Description
Area ID	Area identifier, in hexadecimal (<i>Example:</i> 0x1c). In an arbitrated loop configuration, the switches, hosts, and storage ports have the same area ID.
Port Module Number	Module number of the port
Port Number	Number assigned to the port
Port Type	Type of the port (<i>Example:</i> F port)
Port WWN	WWN of the port
Rcvd Kbytes	Number of kilobytes received by the port
Switch WWN	WWN of the switch
Drilldown Reports (Field Level)	
Report Name	Description
Port Detail Overview	Displays port configuration information in list form. To display this report, click the following field in the Port Rcvd Kbytes report: <ul style="list-style-type: none">Port WWN
Switch Rcvd Kbytes	Displays a table and a horizontal bar graph indicating the total number of kilobytes received on the ports for each switch. To display this report, click the following field in the Port Rcvd Kbytes report: <ul style="list-style-type: none">Switch WWN

1.11.45 Port Rcvd Kbytes Status (Real-Time Report)

Overview

The Port Rcvd Kbytes Status report shows the number of kilobytes and frames received on each port, in real time. The report displays a horizontal bar graph indicating the number of kilobytes received, as well as a table containing those values along with the number of frames received. This is a drilldown report.

Storage Location

Reports/SAN Switch/Status Reporting/Real-Time/Drilldown Only/

Record

Port Summary (PI_PTS)

Table 1.133 Report Data for Port Rcvd Kbytes Status (Real-Time Report)

Fields	
Field Name	Description
Area ID	Area identifier in hexadecimal (<i>Example:</i> 0x1c). In an arbitrated loop configuration, the switches, hosts, and storage ports have the same area ID.
Port Module Number	Module number of the port
Port Number	Number assigned to the port
Port Type	Type of the port (<i>Example:</i> F port)
Port WWN	WWN of the port
Rcvd Frames	Number of frames received by the port
Rcvd Kbytes	Number of kilobytes received by the port
Switch WWN	WWN of the switch
Drilldown Reports (Field Level)	
Report Name	Description
Port Detail Overview	Displays port configuration information in list form. To display this report, click the following field in the Port Rcvd Kbytes Status report: <ul style="list-style-type: none"> Port WWN
Switch Rcvd Kbytes Status	Displays the total number of kilobytes and frames received on the ports for each switch. This report displays a horizontal bar graph indicating the number of kilobytes received, and a table containing those data values along with the number of frames received. To display this report, click the following field in the Port Rcvd Kbytes Status report: <ul style="list-style-type: none"> Switch WWN

1.11.46 Port Rcvd Kbytes Status (Hourly Historical Report)

Overview

The Port Rcvd Kbytes Status report displays the number of kilobytes and frames received on each port. The report displays a horizontal bar graph indicating the number of kilobytes received, as well as a table containing those values along with the number of frames received. The report displays information for the past 24 hours on an hourly basis. This is a drilldown report.

Storage Location

Reports/SAN Switch/Status Reporting/Daily Trend/Drilldown Only/

Record

Port Summary (PI_PTS)

Table 1.134 Report Data for Port Rcvd Kbytes Status (Hourly Historical Report)

Fields	
Field Name	Description
Area ID	Area identifier, in hexadecimal (<i>Example:</i> 0x1c). In an arbitrated loop configuration, the switches, hosts, and storage ports have the same area ID.
Port Module Number	Module number of the port
Port Number	Number assigned to the port
Port Type	Type of the port (<i>Example:</i> F port)
Port WWN	WWN of the port
Rcvd Frames	Number of frames received by the port
Rcvd Kbytes	Number of kilobytes received by the port
Switch WWN	WWN of the switch
Drilldown Reports (Field Level)	
Report Name	Description
Port Detail Overview	Displays port configuration information in list form. To display this report, click the following field in the Port Rcvd Kbytes Status report: <ul style="list-style-type: none"> Port WWN
Switch Rcvd Kbytes Status	Displays the total number of kilobytes and frames received on the ports for each switch. This report displays a horizontal bar graph indicating the number of kilobytes received, as well as a table containing those data values along with the number of frames received. To display this report, click the following field in the Port Rcvd Kbytes Status report: <ul style="list-style-type: none"> Switch WWN

1.11.47 Port Rcvd Kbytes Trend

Overview

The Port Rcvd Kbytes Trend report shows the number of kilobytes and frames received on each port. The report displays a line graph of the number of kilobytes received, as well as a table containing those values along with the number of frames received. The report displays information for the past month on a daily basis. This is a drilldown report.

Storage Location

Reports/SAN Switch/Monthly Trend/Drilldown Only/

Record

Port Summary (PI_PTS)

Table 1.135 Report Data for Port Rcvd Kbytes Trend

Fields	
Field Name	Description
Area ID	Area identifier, in hexadecimal (<i>Example:</i> 0x1c). In an arbitrated loop configuration, the switches, hosts, and storage ports have the same area ID.
Port Module Number	Module number of the port
Port Number	Number assigned to the port
Port Type	Type of the port (<i>Example:</i> F port)
Port WWN	WWN of the port
Rcvd Frames	Number of frames received by the port
Rcvd Kbytes	Number of kilobytes received by the port
Switch WWN	WWN of the switch
Drilldown Report (Field Level)	
Report Name	Description
Switch Rcvd Kbytes Trend	Displays the total number of kilobytes and frames received on the ports for each switch. This report displays a line graph indicating the number of kilobytes received, as well as a table containing those data values along with the number of frames received. To display this report, click the following field in the Port Rcvd Kbytes Trend report: <ul style="list-style-type: none">Switch WWN

1.11.48 Port Xmitd Bytes Rate Status (Real-Time Report)

Overview

The Port Xmitd Bytes Rate Status report shows the number of bytes and frames sent through each port per unit of time, in real time. The report displays a horizontal bar graph indicating the number of bytes sent, as well as a table containing those values along with the number of frames sent. This is a drilldown report.

Storage Location

Reports/SAN Switch/Status Reporting/Real-Time/Drilldown Only/

Record

Port Summary (PI_PTS)

Table 1.136 Report Data for Port Xmitd Bytes Rate Status (Real-Time Report)

Fields	
Field Name	Description
Area ID	Area identifier, in hexadecimal (<i>Example:</i> 0x1c). In an arbitrated loop configuration, the switches, hosts, and storage ports have the same area ID.
Port Module Number	Module number of the port
Port Number	Number assigned to the port
Port Type	Type of the port (<i>Example:</i> F port)
Port WWN	WWN of the port
Switch WWN	WWN of the switch
Xmitd Bytes / sec	Number of bytes sent by the port per unit of time
Xmitd Frames / sec	Number of frames sent by the port per unit of time
Drilldown Reports (Field Level)	
Report Name	Description
Port Detail Overview	Displays port configuration information in list form. To display this report, click the following field in the Port Xmitd Bytes Rate Status report: <ul style="list-style-type: none"> Port WWN
Switch Xmitd Bytes Rate Status	Displays the total number of bytes and frames sent through the ports for each switch per unit of time. This report displays a horizontal bar graph indicating the number of bytes sent, and a table containing those data values along with the number of frames sent. To display this report, click the following field in the Port Xmitd Bytes Rate Status report: <ul style="list-style-type: none"> Switch WWN

1.11.49 Port Xmitd Bytes Rate Status (Hourly Historical Report)

Overview

The Port Xmitd Bytes Rate Status report shows the number of bytes and frames sent through each port per unit of time. The report displays a horizontal bar graph indicating the number of bytes sent, as well as a table containing those values along with the number of frames sent. The report displays information for the past 24 hours on an hourly basis. This is a drilldown report.

Storage Location

Reports/SAN Switch/Status Reporting/Daily Trend/Drilldown Only/

Record

Port Summary (PI_PTS)

Table 1.137 Report Data for Port Xmitd Bytes Rate Status (Hourly Historical Report)

Fields	
Field Name	Description
Area ID	Area identifier, in hexadecimal (<i>Example:</i> 0x1c). In an arbitrated loop configuration, the switches, hosts, and storage ports have the same area ID.
Port Module Number	Module number of the port
Port Number	Number assigned to the port
Port Type	Type of the port (<i>Example:</i> F port)
Port WWN	WWN of the port
Switch WWN	WWN of the switch
Xmitd Bytes / sec	Number of bytes sent by the port per unit of time
Xmitd Frames / sec	Number of frames sent by the port per unit of time
Drilldown Reports (Field Level)	
Report Name	Description
Port Detail Overview	Displays port configuration information in list form. To display this report, click the following field in the Port Xmitd Bytes Rate Status report: <ul style="list-style-type: none"> Port WWN
Switch Xmitd Bytes Rate Status	Displays the total number of bytes and frames sent through the ports for each switch per unit of time. This report displays a horizontal bar graph indicating the number of bytes sent, and a table containing those data values along with the number of frames sent. To display this report, click the following field in the Port Xmitd Bytes Rate Status report: <ul style="list-style-type: none"> Switch WWN

1.11.50 Port Xmitd Bytes Rate Trend

Overview

The Port Xmitd Bytes Rate Trend report shows the number of bytes and frames sent through each port per unit of time. The report displays a line graph indicating the number of bytes sent, as well as a table containing those values along with the number of frames sent. The report displays information for the past month on a daily basis. This is a drilldown report.

Storage Location

Reports/SAN Switch/Monthly Trend/Drilldown Only/

Record

Port Summary (PI_PTS)

Table 1.138 Report Data for Port Xmitd Bytes Rate Trend

Fields	
Field Name	Description
Area ID	Area identifier, in hexadecimal (<i>Example:</i> 0x1c). In an arbitrated loop configuration, the switches, hosts, and storage ports have the same area ID.
Port Module Number	Module number of the port
Port Number	Number assigned to the port
Port Type	Type of the port (<i>Example:</i> F port)
Port WWN	WWN of the port
Switch WWN	WWN of the switch
Xmitd Bytes / sec	Number of bytes sent by the port per unit of time
Xmitd Frames / sec	Number of frames sent by the port per unit of time
Drilldown Report (Field Level)	
Report Name	Description
Switch Xmitd Bytes Rate Trend	Displays the total number of bytes and frames sent through the ports for each switch per unit of time. This report displays a line graph indicating the number of bytes sent, and a table containing those data values and the number of frames sent. To display this report, click the following field in the Port Xmitd Bytes Rate Trend report: <ul style="list-style-type: none">Switch WWN

1.11.51 Port Xmitd Kbytes

Overview

The Port Xmitd Kbytes report shows a table and a horizontal bar graph indicating the number of kilobytes sent from each port. The report displays minute-by-minute information for the past hour. This is a drilldown report.

Storage Location

Reports/SAN Switch/Troubleshooting/Recent Past/Drilldown Only/

Record

Port Summary (PI_PTS)

Table 1.139 Report Data for Port Xmitd Kbytes

Fields	
Field Name	Description
Area ID	Area identifier, in hexadecimal (<i>Example:</i> 0x1c). In an arbitrated loop configuration, the switches, hosts, and storage ports have the same area ID.
Port Module Number	Module number of the port
Port Number	Number assigned to the port
Port Type	Type of the port (<i>Example:</i> F port)
Port WWN	WWN of the port
Switch WWN	WWN of the switch
Xmitd Kbytes	Number of kilobytes sent by the port
Drilldown Reports (Field Level)	
Report Name	Description
Port Detail Overview	Displays port configuration information in list form. To display this report, click the following field in the Port Xmitd Kbytes report: <ul style="list-style-type: none">Port WWN
Switch Xmitd Kbytes	Displays a table and a horizontal bar graph indicating the total number of kilobytes sent through the ports for each switch. To display this report, click the following field in the Port Xmitd Kbytes report: <ul style="list-style-type: none">Switch WWN

1.11.52 Port Xmitd Kbytes Status (Real-Time Report)

Overview

The Port Xmitd Kbytes Status report shows the number of kilobytes and frames sent through each port, in real time. The report displays a horizontal bar graph indicating the number of kilobytes sent, as well as a table containing those data values along with the number of frames sent. This is a drilldown report.

Storage Location

Reports/SAN Switch/Status Reporting/Real-Time/Drilldown Only/

Record

Port Summary (PI_PTS)

Table 1.140 Report Data for Port Xmitd Kbytes Status (Real-Time Report)

Fields	
Field Name	Description
Area ID	Area identifier, in hexadecimal (<i>Example:</i> 0x1c). In an arbitrated loop configuration, the switches, hosts, and storage ports have the same area ID.
Port Module Number	Module number of the port
Port Number	Number assigned to the port
Port Type	Type of the port (<i>Example:</i> F port)
Port WWN	WWN of the port
Switch WWN	WWN of the switch
Xmitd Frames	Number of frames sent by the port
Xmitd Kbytes	Number of kilobytes sent by the port
Drilldown Reports (Field Level)	
Report Name	Description
Port Detail Overview	Displays port configuration information in list form. To display this report, click the following field in the Port Xmitd Kbytes Status report: <ul style="list-style-type: none"> Port WWN
Switch Xmitd Kbytes Status	Displays the total number of kilobytes and frames sent through the ports for each switch. This report displays a horizontal bar graph indicating the number of kilobytes sent, and a table containing those data values along with the number of frames sent. To display this report, click the following field in the Port Xmitd Kbytes Status report: <ul style="list-style-type: none"> Switch WWN

1.11.53 Port Xmitd Kbytes Status (Hourly Historical Report)

Overview

The Port Xmitd Kbytes Status report shows the number of kilobytes and frames sent through each port. The report displays a horizontal bar graph indicating the number of kilobytes sent, as well as a table containing those data values along with the number of frames sent. The report displays information for the past 24 hours on an hourly basis. This is a drilldown report.

Storage Location

Reports/SAN Switch/Status Reporting/Daily Trend/Drilldown Only/

Record

Port Summary (PI_PTS)

Table 1.141 Report Data for Port Xmitd Kbytes Status (Hourly Historical Report)

Fields	
Field Name	Description
Area ID	Area identifier, in hexadecimal (<i>Example:</i> 0x1c). In an arbitrated loop configuration, the switches, hosts, and storage ports have the same area ID.
Port Module Number	Module number of the port
Port Number	Number assigned to the port
Port Type	Type of the port (<i>Example:</i> F port)
Port WWN	WWN of the port
Switch WWN	WWN of the switch
Xmitd Frames	Number of frames sent by the port
Xmitd Kbytes	Number of kilobytes sent by the port
Drilldown Reports (Field Level)	
Report Name	Description
Port Detail Overview	Displays port configuration information in list form. To display this report, click the following field in the Port Xmitd Kbytes Status report: <ul style="list-style-type: none"> Port WWN
Switch Xmitd Kbytes Status	Displays the total number of kilobytes and frames sent through the ports for each switch. This report displays a horizontal bar graph indicating the number of kilobytes sent, as well as a table containing those data values along with the number of frames sent. To display this report, click the following field in the Port Xmitd Kbytes Status report: <ul style="list-style-type: none"> Switch WWN

1.11.54 Port Xmitd Kbytes Trend

Overview

The Port Xmitd Kbytes Trend report shows the number of kilobytes and frames sent through each port over the past month on a daily basis. The report displays a line graph indicating the number of kilobytes sent, as well as a table containing those data values along with the number of frames sent. This is a drilldown report.

Storage Location

Reports/SAN Switch/Monthly Trend/Drilldown Only/

Record

Port Summary (PI_PTS)

Table 1.142 Report Data for Port Xmitd Kbytes Trend

Fields	
Field Name	Description
Area ID	Area identifier, in hexadecimal (<i>Example:</i> 0x1c). In an arbitrated loop configuration, the switches, hosts, and storage ports have the same area ID.
Port Module Number	Module number of the port
Port Number	Number assigned to the port
Port Type	Type of the port (<i>Example:</i> F port)
Port WWN	WWN of the port
Switch WWN	WWN of the switch
Xmitd Frames	Number of frames sent by the port
Xmitd Kbytes	Number of kilobytes sent by the port
Drilldown Report (Field Level)	
Report Name	Description
Switch Xmitd Kbytes Trend	Displays the total number of kilobytes and frames sent through the ports for each switch. This report displays a line graph indicating the number of kilobytes sent, as well as a table containing those data values along with the number of frames sent. To display this report, click the following field in the Port Xmitd Kbytes Trend report: <ul style="list-style-type: none">Switch WWN

1.11.55 Rcvd Kbytes - Top 10 Port

Overview

The Rcvd Kbytes - Top 10 Port report shows a table and bar graph indicating performance information for the ten ports that have, at present, received the highest number of kilobytes, in real time.

Storage Location

Reports/SAN Switch/Troubleshooting/Real-Time/

Record

Port Summary (PI_PTS)

Table 1.143 Report Data for Rcvd Kbytes - Top 10 Port

Fields	
Field Name	Description
Area ID	Area identifier in hexadecimal (<i>Example</i> : 0x1c). In an arbitrated loop configuration, the switches, hosts, and storage ports have the same area ID.
Port Module Number	Module number of the port
Port Number	Number assigned to the port
Port Type	Type of the port (<i>Example</i> : F port)
Port WWN	WWN of the port
Rcvd Kbytes	Number of kilobytes received by the port
Switch WWN	WWN of the switch
Drilldown Reports (Report Level)	
Report Name	Description
CRC Error Count - Top 10 Port	Displays a table and a horizontal bar graph indicating performance information for the ten ports that currently have the highest number of detected CRC errors.
Encoding Disparity Count - Top 10 Port	Displays a table and a horizontal bar graph indicating performance information for the ten ports that currently have the highest number of detected encoding errors and disparity errors.
Loss of Signal Count - Top 10 Port	Displays a table and a horizontal bar graph indicating performance information for the ten ports that currently have the highest number of detections of optical signal losses.

Drilldown Reports (Report Level)	
Report Name	Description
Loss of Sync Count - Top 10 Port	Displays a table and a horizontal bar graph indicating performance information for the ten ports that currently have the highest number of detected sync losses.
Xmitd Kbytes - Top 10 Port	Displays a table and a horizontal bar graph indicating performance information for the ten ports that have, at present, sent the highest number of kilobytes.
Drilldown Report (Field Level)	
Report Name	Description
Rcvd Kbytes - Top 10 Switch	Displays a table and bar graph indicating the performance information of the ten switches that currently have the highest number of kilobytes in total received on their ports. To display this report, click the following field in the Rcvd Kbytes - Top 10 Port report: <ul style="list-style-type: none"> ▪ Switch WWN

1.11.56 Rcvd Kbytes - Top 10 Switch

Overview

The Rcvd Kbytes - Top 10 Switch report shows a table and a horizontal bar graph indicating performance information in real time for the ten switches that have, at present, received the highest number of kilobytes in total on their ports.

Storage Location

Reports/SAN Switch/Troubleshooting/Real-Time/

Record

Switch Summary (PI_SWS)

Table 1.144 Report Data for Rcvd Kbytes - Top 10 Switch

Fields	
Field Name	Description
Domain ID	Domain identifier for the switch (decimal value in the range 1-239). This number uniquely identifies each switch making up a fabric.
Model Name	Model name of the switch
Rcvd Kbytes	Total number of kilobytes received by the ports for each switch
Switch Name	Name of the switch
Switch WWN	WWN of the switch
Drilldown Reports (Report Level)	
Report Name	Description
CRC Error Count - Top 10 Switch	Displays a table and a horizontal bar graph indicating performance information for the ten switches that currently have the highest number of CRC errors detected in total on their ports.
Encoding Disparity Count - Top 10 Switch	Displays a table and a horizontal bar graph indicating performance information for the ten switches that currently have the highest number of encoding errors and disparity errors detected in total on their ports.
Loss of Signal Count - Top 10 Switch	Displays a table and a horizontal bar graph indicating performance information for the ten switches that currently have the highest number of detections of optical signal losses on their ports.
Loss of Sync Count - Top 10 Switch	Displays a table and a horizontal bar graph indicating performance information for the ten switches that currently have the highest number of sync losses detected in total on their ports.
Xmitd Kbytes - Top 10 Switch	Displays a table and a horizontal bar graph indicating performance information for the ten switches that have, at present, sent the highest number of kilobytes in total through their ports.

Drilldown Report (Field Level)	
Report Name	Description
Rcvd Kbytes - Top 10 Port	<p>Displays a table and a horizontal bar graph indicating performance information for the ten ports that have, at present, received the highest number of kilobytes. To display this report, click the following field in the Rcvd Kbytes - Top 10 Switch report:</p> <ul style="list-style-type: none"> ▪ Switch WWN

1.11.57 Switch Buffer Flow Status (Real-Time Report)

Overview

The Switch Buffer Flow Status report shows for each switch the total number of times the port buffers became full and the total number of times that the credit count in the Buffer-To-Buffer flow control became 0. The report displays a horizontal bar graph indicating the number of times that the buffers became full, and a table containing those data values along with the number of times that the credit count in the Buffer-To-Buffer flow control became 0. The report displays information in real time.

Storage Location

Reports/SAN Switch/Status Reporting/Real-Time/

Record

Switch Summary (PI_SWS)

Table 1.145 Report Data for Switch Buffer Flow Status (Real-Time Report)

Fields	
Field Name	Description
Buffer Credit Zero State Count	Total number of times per switch that the credit count became 0 in Buffer-To-Buffer flow control for each port
Domain ID	Domain identifier for the switch (decimal value in the range 1-239). This number uniquely identifies each switch making up a fabric.
Input Buffers Full Count	Total number of times that the port buffers became full, for each switch
Model Name	Model number of the switch
Switch Name	Name of the switch
Switch WWN	WWN of the switch
Drilldown Reports (Report Level)	
Report Name	Description
Switch Rcvd Bytes Rate Status	Displays the total number of bytes and frames received on the ports for each switch per unit of time. This report displays a horizontal bar graph indicating the number of bytes received, and a table containing those data values along with the number of frames received.
Switch Rcvd Kbytes Status	Displays the total number of kilobytes and frames received on the ports for each switch. This report displays a horizontal bar graph indicating the number of kilobytes received, and a table containing those data values along with the number of frames received.
Switch Xmitd Bytes Rate Status	Displays the total number of bytes and frames sent through the ports for each switch per unit of time. This report displays a horizontal bar graph indicating the number of bytes sent, and a table containing those data values along with the number of frames.

Drilldown Reports (Report Level)	
Report Name	Description
Switch Xmitd Kbytes Status	Displays the total number of kilobytes and frames sent through the ports for each switch. This report displays a horizontal bar graph indicating the number of kilobytes sent, and a table containing those data values along with the number of frames sent.
Drilldown Report (Field Level)	
Report Name	Description
Link Buffer Flow	Provides a link between a graph indicating the total number of times that the port buffers became full for each switch, and a graph indicating the number of times that the buffers became full for each port. To display this report, click the following field in the Switch Buffer Flow Status report: <ul style="list-style-type: none"> ▪ Switch WWN

1.11.58 Switch Buffer Flow Status (Hourly Historical Report)

Overview

The Switch Buffer Flow Status report shows for each switch the total number of times that the port buffers became full, and the total number of times that the credit count in the Buffer-To-Buffer flow control became 0. The report displays a horizontal bar graph indicating the number of times that the buffers became full, as well as a table containing those data values along with the number of times that the credit count in the Buffer-To-Buffer flow control became 0. The report displays information for the past 24 hours on an hourly basis.

Storage Location

Reports/SAN Switch/Status Reporting/Daily Trend/

Record

Switch Summary (PI_SWS)

Table 1.146 Report Data for Switch Buffer Flow Status (Hourly Historical Report)

Fields	
Field Name	Description
Buffer Credit Zero State Count	Total number of times per switch that the credit count became 0 in Buffer-To-Buffer flow control for each port
Domain ID	Domain identifier for the switch (decimal value in the range 1-239). This number uniquely identifies each switch making up a fabric.
Input Buffers Full Count	Total number of times that the port buffers became full, for each switch
Model Name	Model number of the switch
Switch Name	Name of the switch
Switch WWN	WWN of the switch
Drilldown Reports (Report Level)	
Report Name	Description
Switch Rcvd Bytes Rate Status	Displays the total number of bytes and frames received on the ports for each switch per unit of time. This report displays a horizontal bar graph indicating the number of bytes received, as well as a table containing those data values along with the number of frames received.
Switch Rcvd Kbytes Status	Displays the total number of kilobytes and frames received on the ports for each switch. This report displays a horizontal bar graph indicating the number of kilobytes received, as well as a table containing those data values along with the number of frames received.
Switch Xmitd Bytes Rate Status	Displays the total number of bytes and frames sent through the ports for each switch per unit of time. This report displays a horizontal bar graph indicating the number of bytes sent, as well as a table containing those data values along with the number of frames.

Drilldown Reports (Report Level)	
Report Name	Description
Switch Xmitd Kbytes Status	Displays the total number of kilobytes and frames sent through the ports for each switch. This report displays a horizontal bar graph indicating the number of kilobytes sent, as well as a table containing those data values along with the number of frames sent.
Drilldown Report (Field Level)	
Report Name	Description
Link Buffer Flow	Provides a link between a graph indicating the total number of times that the buffers became full for the ports of each switch, and a graph indicating the total number of times that the buffer became full for each port. To display this report, click the following field in the Switch Buffer Flow Status report: <ul style="list-style-type: none"> ▪ Switch WWN

1.11.59 Switch CRC Error Count

Overview

The Switch CRC Error Count report shows a table and a horizontal bar graph indicating the total number of CRC errors detected on the ports for each switch. The report displays minute-by-minute information for the past hour.

Storage Location

Reports/SAN Switch/Troubleshooting/Recent Past/

Record

Switch Error Summary (PI_SWES)

Table 1.147 Report Data for Switch CRC Error Count

Fields	
Field Name	Description
CRC Error Count	Total number of CRC errors on the ports for each switch
Domain ID	Domain identifier for the switch (decimal value in the range 1-239). This number uniquely identifies each switch making up a fabric.
Model Name	Model name of the switch
Switch Name	Name of the switch
Switch WWN	WWN of the switch
Drilldown Reports (Report Level)	
Report Name	Description
Switch Rcvd Kbytes	Displays a table and a horizontal bar graph indicating the total number of kilobytes received on the ports for each switch.
Switch Xmitd Kbytes	Displays a table and a horizontal bar graph indicating the total number of kilobytes sent through the ports for each switch.
Drilldown Report (Field Level)	
Report Name	Description
Link CRC Error Count	Provides a link between a graph indicating the total number of CRC errors detected on the ports of each switch, and a graph indicating the number of CRC errors detected on each port. To display this report, click the following field in the Switch CRC Error Count report: <ul style="list-style-type: none">Switch WWN

1.11.60 Switch Detail Overview (Real-Time Report)

Overview

The Switch Detail Overview report shows, in list form, configuration information for the fabric and switches, in real time. This is a drilldown report.

Storage Location

Reports/SAN Switch/Status Reporting/Real-Time/Drilldown Only/

Record

Switch Detail (PD)

Table 1.148 Report Data for Switch Detail Overview (Real-Time Report)

Fields	
Field Name	Description
Domain ID	Domain identifier for the switch (decimal value in the range 1-239). This number uniquely identifies each switch making up a fabric.
Fabric Name	Name of the fabric
Firmware Version	Firmware version of the switch
Model Name	Model name of the switch
Port Count	Number of ports with which the switch is equipped
Port Module Count	Number of port modules with which the switch is equipped
Principal Switch WWN	WWN of the principal switch
Switch Name	Name of the switch
Switch Role	Role of the switch
Switch WWN	WWN of the switch
Vendor Name	Vendor name of the switch

1.11.61 Switch Detail Overview (Hourly Historical Report for Troubleshooting Use)

Overview

The Switch Detail Overview report shows, in list form, configuration information for the fabric and switches over the past 24 hours. This is a drilldown report.

Storage Location

Reports/SAN Switch/Troubleshooting/Recent Past/Drilldown Only/

Record

Switch Detail (PD)

Table 1.149 Report Data for Switch Detail Overview (Hourly Historical Report for Troubleshooting Use)

Fields	
Field Name	Description
Domain ID	Domain identifier for the switch (decimal value in the range 1-239). This number uniquely identifies each switch making up a fabric.
Fabric Name	Name of the fabric
Firmware Version	Firmware version of the switch
Model Name	Model name of the switch
Port Count	Number of ports with which the switch is equipped
Port Module Count	Number of port modules with which the switch is equipped
Principal Switch WWN	WWN of the principal switch
Switch Name	Name of the switch
Switch Role	Role of the switch
Switch WWN	WWN of the switch
Vendor Name	Vendor name of the switch

1.11.62 Switch Detail Overview (Hourly Historical Report)

Overview

The Switch Detail Overview report shows, in list form, configuration information for the fabric and switches for the past 24 hours. This is a drilldown report.

Storage Location

Reports/SAN Switch/Status Reporting/Daily Trend/Drilldown Only/

Record

Switch Detail (PD)

Table 1.150 Report Data for Switch Detail Overview (Hourly Historical Report)

Fields	
Field Name	Description
Domain ID	Domain identifier for the switch (decimal value in the range 1-239). This number uniquely identifies each switch making up a fabric.
Fabric Name	Name of the fabric
Firmware Version	Firmware version of the switch
Model Name	Model name of the switch
Port Count	Number of ports with which the switch is equipped
Port Module Count	Number of port modules with which the switch is equipped
Principal Switch WWN	WWN of the principal switch
Switch Name	Name of the switch
Switch Role	Role of the switch
Switch WWN	WWN of the switch
Vendor Name	Vendor name of the switch

1.11.63 Switch Detail Status (Real-Time Report)

Overview

The Switch Detail Status report shows a table showing the configuration information for the fabric and switches in real time.

Storage Location

Reports/SAN Switch/Status Reporting/Real-Time/

Record

Switch Detail (PD)

Table 1.151 Report Data for Switch Detail Status (Real-Time Report)

Fields	
Field Name	Description
Domain ID	Domain identifier for the switch (decimal value in the range 1-239). This number uniquely identifies each switch making up a fabric.
Fabric Name	Name of the fabric
Firmware Version	Firmware version of the switch
Model Name	Model name of the switch
Port Count	Number of ports with which the switch is equipped
Port Module Count	Number of port modules with which the switch is equipped
Principal Switch WWN	WWN of the principal switch
Switch Name	Name of the switch
Switch Role	Role of the switch
Switch WWN	WWN of the switch
Vendor Name	Vendor name of the switch
Drilldown Reports (Report Level)	
Report Name	Description
Device Detail Status	Displays a table containing device and node configuration information listed by node.
Port Detail Status	Displays a table containing configuration information for the port.
Drilldown Report (Field Level)	
Report Name	Description
Port Detail Status	Displays a table containing configuration information for the port. To display this report, click the following field in the Switch Detail Status report: <ul style="list-style-type: none"> ▪ Switch WWN

1.11.64 Switch Detail Status (Hourly Historical Report)

Overview

The Switch Detail Status report shows a table containing the configuration information for the fabric and switches, over the past 24 hours.

Storage Location

Reports/SAN Switch/Status Reporting/Daily Trend/

Record

Switch Detail (PD)

Table 1.152 Report Data for Switch Detail Status (Hourly Historical Report)

Fields	
Field Name	Description
Domain ID	Domain identifier for the switch (decimal value in the range 1-239). This number uniquely identifies each switch making up a fabric.
Fabric Name	Name of the fabric
Firmware Version	Firmware version of the switch
Model Name	Model name of the switch
Port Count	Number of ports with which the switch is equipped
Port Module Count	Number of port modules with which the switch is equipped
Principal Switch WWN	WWN of the principal switch
Switch Name	Name of the switch
Switch Role	Role of the switch
Switch WWN	WWN of the switch
Vendor Name	Vendor name of the switch
Drilldown Reports (Report Level)	
Report Name	Description
Device Detail Status	Displays a table containing device and node configuration information listed by node.
Port Detail Status	Displays a table containing configuration information for the port.
Drilldown Report (Field Level)	
Report Name	Description
Port Detail Status	Displays a table containing configuration information for the port. To display this report, click the following field in the Switch Detail Status report: <ul style="list-style-type: none"> ▪ Switch WWN

1.11.65 Switch Operation Status (Real-Time Report)

Overview

The Switch Operation Status report shows a table containing information on the operating mode and status of a switch in real time.

Storage Location

Reports/SAN Switch/Status Reporting/Real-Time/

Record

Switch Error Summary (PI_SWES)

Table 1.153 Report Data for Switch Operation Status (Real-Time Report)

Fields	
Field Name	Description
Domain ID	Domain identifier for the switch (decimal value in the range 1-239). This number uniquely identifies each switch making up a fabric.
Model Name	Model name of the switch
Switch Mode	Operating mode of the switch: Online, Offline
Switch Name	Name of the switch
Switch Ops Status	Operating status of the switch: Ok, Warning, Faulty
Switch WWN	WWN of the switch
Drilldown Report (Field Level)	
Report Name	Description
Port Operation Status	Displays a table containing information on the operating mode and status of the port. To display this report, click the following field in the Switch Operation Status report: <ul style="list-style-type: none">Switch WWN

1.11.66 Switch Operation Status (Minute-by-Minute Historical Report)

Overview

The Switch Operation Status report shows a table containing minute-by-minute information on the operating mode and status of a switch over the past hour.

Storage Location

Reports/SAN Switch/Troubleshooting/Recent Past/

Record

Switch Error Summary (PI_SWES)

Table 1.154 Report Data for Switch Operation Status (Minute-by-Minute Historical Report)

Fields	
Field Name	Description
Domain ID	Domain identifier for the switch (decimal value in the range 1-239). This number uniquely identifies each switch making up a fabric.
Model Name	Model name of the switch
Switch Mode	Operating mode of the switch: Online, Offline
Switch Name	Name of the switch
Switch Ops Status	Operating status of the switch: Ok, Warning, Faulty
Switch WWN	WWN of the switch
Drilldown Report (Field Level)	
Report Name	Description
Port Operation Status	Displays a table containing information on the operating mode and status of the active port. To display this report, click the following field in the Switch Operation Status report: <ul style="list-style-type: none">Switch WWN

1.11.67 Switch Operation Status (Hourly Historical Report)

Overview

The Switch Operation Status report shows a table containing information on the operating mode and status of a switch for the past 24 hours on an hourly basis.

Storage Location

Reports/SAN Switch/Status Reporting/Daily Trend/

Record

Switch Error Summary (PI_SWES)

Table 1.155 Report Data for Switch Operation Status (Hourly Historical Report)

Fields	
Field Name	Description
Domain ID	Domain identifier for the switch (decimal value in the range 1-239). This number uniquely identifies each switch making up a fabric.
Model Name	Model name of the switch
Switch Mode	Operating mode of the switch: Online, Offline
Switch Name	Name of the switch
Switch Ops Status	Operating status of the switch: Ok, Warning, Faulty
Switch WWN	WWN of the switch
Drilldown Report (Field Level)	
Report Name	Description
Port Operation Status	Displays a table containing information on the operating mode and status of the active port. To display this report, click the following field in the Switch Operation Status report: <ul style="list-style-type: none">Switch WWN

1.11.68 Switch Rcvd Bytes Rate Status (Real-Time Report)

Overview

The Switch Rcvd Bytes Rate Status report shows the total number of bytes and frames received on the ports for each switch per unit of time. The report displays a horizontal bar graph indicating the number of bytes received, as well as a table containing those data values along with the number of frames received. The report displays information in real time.

Storage Location

Reports/SAN Switch/Status Reporting/Real-Time/

Record

Switch Summary (PI_SWS)

Table 1.156 Report Data for Switch Rcvd Bytes Rate Status (Real-Time Report)

Fields	
Field Name	Description
Domain ID	Domain identifier for the switch (decimal value in the range 1-239). This number uniquely identifies each switch making up a fabric.
Model Name	Model name of the switch
Rcvd Bytes / sec	Total number of bytes received on the ports for each switch per unit of time
Rcvd Frames / sec	Total number of frames received on the ports for each switch per unit of time
Switch Name	Name of the switch
Switch WWN	WWN of the switch
Drilldown Reports (Report Level)	
Report Name	Description
Switch Buffer Flow Status	Displays for each switch the total number of times that the port buffers became full and the number of times that the credit count in Buffer-To-Buffer flow control became 0. This report displays a horizontal bar graph indicating the number of times that the buffers became full, and a table containing those data values along with the number of times that the credit count in Buffer-to-Buffer flow control became 0.
Switch Rcvd Kbytes Status	Displays the total number of kilobytes and frames received on the ports for each switch. This report displays a horizontal bar graph indicating the number of kilobytes received, as well as a table containing those data values along with the number of frames received.
Switch Xmitd Bytes Rate Status	Displays the total number of bytes and frames sent through the ports for each switch per unit of time. This report displays a horizontal bar graph indicating the number of bytes sent, as well as a table containing those data values and the number of frames sent.

Drilldown Reports (Report Level)	
Report Name	Description
Switch Xmitd Kbytes Status	Displays the total number of kilobytes and frames sent through the ports for each switch. This report displays a horizontal bar graph indicating the number of kilobytes sent, as well as a table containing those data values along with the number of frames sent.
Drilldown Report (Field Level)	
Report Name	Description
Link Rcvd Bytes Rate	Provides a link between a graph indicating the total number of bytes received on the ports of each switch per unit of time, and a graph indicating the total number of bytes received on each port per unit of time. To display this report, click the following field in the Switch Rcvd Bytes Rate Status report: <ul style="list-style-type: none"> ▪ Switch WWN

1.11.69 Switch Rcvd Bytes Rate Status (Hourly Historical Report)

Overview

The Switch Rcvd Bytes Rate Status report shows the total number of bytes and frames received on the ports for each switch per unit of time. The report displays a horizontal bar graph indicating the number of bytes received, as well as a table containing those data values along with the number of frames received. The report displays information for the past 24 hours on an hourly basis.

Storage Location

Reports/SAN Switch/Status Reporting/Daily Trend/

Record

Switch Summary (PI_SWS)

Table 1.157 Report Data for Switch Rcvd Bytes Rate Status (Hourly Historical Report)

Fields	
Field Name	Description
Domain ID	Domain identifier for the switch (decimal value in the range 1-239). This number uniquely identifies each switch making up a fabric.
Model Name	Model name of the switch
Rcvd Bytes / sec	Total number of bytes received on the ports for each switch per unit of time
Rcvd Frames / sec	Total number of frames received on the ports for each switch per unit of time
Switch Name	Name of the switch
Switch WWN	WWN of the switch
Drilldown Reports (Report Level)	
Report Name	Description
Switch Buffer Flow Status	Displays for each switch the total number of times that the port buffers became full, and the number of times the credit count in Buffer-To-Buffer flow control became 0. This report displays a horizontal bar graph indicating the number of times that the buffers became full, and a table containing those data values along with the number of times that the credit count in Buffer-to-Buffer flow control became 0.
Switch Rcvd Kbytes Status	Displays the total number of kilobytes and frames received on the ports for each switch. This report displays a horizontal bar graph indicating the number of kilobytes received, as well as a table containing those data values along with the number of frames received.
Switch Xmitd Bytes Rate Status	Displays the total number of bytes and frames sent through the ports for each switch per unit of time. This report displays a horizontal bar graph indicating the number of bytes sent, as well as a table containing those data values and the number of frames sent.

Drilldown Reports (Report Level)	
Report Name	Description
Switch Xmitd Kbytes Status	Displays the total number of kilobytes and frames sent through the ports for each switch. This report displays a horizontal bar graph indicating the number of kilobytes sent, as well as a table containing those data values along with the number of frames sent.
Drilldown Report (Field Level)	
Report Name	Description
Link Rcvd Bytes Rate	Provides a link between a graph indicating the total number of bytes received on the ports of each switch per unit of time, and a graph indicating the total number of bytes received on each port per unit of time. To display this report, click the following field in the Switch Rcvd Bytes Rate Status report: <ul style="list-style-type: none"> Switch WWN

1.11.70 Switch Rcvd Bytes Rate Trend

Overview

The Switch Rcvd Bytes Rate Trend report shows the total number of bytes and frames received on the ports for each switch per unit of time. The report displays a line graph indicating the number of bytes received, as well as a table containing those data values along with the number of frames received. The report displays information for the past month on a daily basis.

Storage Location

Reports/SAN Switch/Monthly Trend/

Record

Switch Summary (PI_SWS)

Table 1.158 Report Data for Switch Rcvd Bytes Rate Trend

Fields	
Field Name	Description
Domain ID	Domain identifier for the switch (decimal value in the range 1-239). This number uniquely identifies each switch making up a fabric.
Model Name	Model name of the switch
Rcvd Bytes / sec	Total number of bytes received on the ports for each switch per unit of time
Rcvd Frames / sec	Total number of frames received on the ports for each switch per unit of time
Switch Name	Name of the switch
Switch WWN	WWN of the switch
Drilldown Reports (Report Level)	
Report Name	Description
Switch Rcvd Kbytes Trend	Displays the total number of kilobytes and frames received on the ports for each switch. This report displays a line graph indicating the number of kilobytes received, as well as a table containing those data values and the number of frames received.
Switch Xmitd Bytes Rate Trend	Displays the total number of bytes and frames sent through the ports for each switch per unit of time. This report displays a line graph indicating the number of bytes sent, as well as a table containing those data values and the number of frames sent.
Switch Xmitd Kbytes Trend	Displays the total number of kilobytes and frames sent through the ports for each switch. This report displays a line graph indicating the number of kilobytes sent, as well as a table containing those data values along with the number of frames sent.

Drilldown Report (Field Level)	
Report Name	Description
Link Rcvd Bytes Rate	<p>Provides a link between a graph indicating the total number of bytes received on the ports of each switch per unit of time, and a graph indicating the total number of bytes received on each port per unit of time. To display this report, click the following field in the <i>Switch Rcvd Bytes Rate Trend</i> report:</p> <ul style="list-style-type: none"> ▪ Switch WWN

1.11.71 Switch Rcvd Kbytes

Overview

The Switch Rcvd Kbytes report shows a table and a horizontal bar graph indicating the total number of kilobytes received on the ports for each switch. The report displays minute-by-minute information for the past hour.

Storage Location

Reports/SAN Switch/Troubleshooting/Recent Past/

Record

Switch Summary (PI_SWS)

Table 1.159 Report Data for Switch Rcvd Kbytes

Fields	
Field Name	Description
Domain ID	Domain identifier for the switch (decimal value in the range 1-239). This number uniquely identifies each switch making up a fabric.
Model Name	Model name of the switch
Rcvd Kbytes	Total number of kilobytes received on the ports for each switch
Switch Name	Name of the switch
Switch WWN	WWN of the switch
Drilldown Reports (Report Level)	
Report Name	Description
Switch CRC Error Count	Displays a table and a horizontal bar graph indicating the total number of CRC errors detected on the ports for each switch.
Switch Xmitd Kbytes	Displays a table and a horizontal bar graph indicating the total number of kilobytes sent through the ports for each switch.
Drilldown Report (Field Level)	
Report Name	Description
Link Rcvd Kbytes	Provides a link between a graph indicating the total number of kilobytes received on the ports of each switch, and a graph indicating the number of kilobytes received on each port. To display this report, click the following field in the Switch Rcvd Kbytes report: <ul style="list-style-type: none">Switch WWN

1.11.72 Switch Rcvd Kbytes Status (Real-Time Report)

Overview

The Switch Rcvd Kbytes Status report shows the total number of kilobytes and frames received on the ports for each switch, in real time. The report displays a horizontal bar graph indicating the number of kilobytes received, as well as a table containing those values along with the number of frames received.

Storage Location

Reports/SAN Switch/Status Reporting/Real-Time/

Record

Switch Summary (PI_SWS)

Table 1.160 Report Data for Switch Rcvd Kbytes Status (Real-Time Report)

Fields	
Field Name	Description
Domain ID	Domain identifier for the switch (decimal value in the range 1-239). This number uniquely identifies each switch making up a fabric.
Model Name	Model name of the switch
Rcvd Frames	Total number of frames received on the ports for each switch
Rcvd Kbytes	Total number of kilobytes received on the ports for each switch
Switch Name	Name of the switch
Switch WWN	WWN of the switch
Drilldown Reports (Report Level)	
Report Name	Description
Switch Buffer Flow Status	Displays for each switch the total number of times that the port buffers became full, and the number of times the credit count in Buffer-To-Buffer flow control became 0. This report displays a horizontal bar graph indicating the number of times that the buffers became full, and a table containing those data values along with the number of times that the credit count in Buffer-to-Buffer flow control became 0.
Switch Rcvd Bytes Rate Status	Displays the total number of bytes and frames received on the ports for each switch per unit of time. This report displays a horizontal bar graph indicating the number of bytes received, as well as a table containing those data values along with the number of frames received.
Switch Xmitd Bytes Rate Status	Displays the total number of bytes and frames sent through the ports for each switch per unit of time. This report displays a horizontal bar graph indicating the number of bytes sent, as well as a table containing those data values and the number of frames sent.

Drilldown Reports (Report Level)	
Report Name	Description
Switch Xmitd Kbytes Status	Displays the total number of kilobytes and frames sent through the ports for each switch. This report displays a horizontal bar graph indicating the number of kilobytes sent, as well as a table containing those data values along with the number of frames sent.
Drilldown Report (Field Level)	
Report Name	Description
Link Rcvd Kbytes	Provides a link between a graph indicating the total number of kilobytes received on the ports of each switch, and a graph indicating the number of kilobytes received on each port. To display this report, click the following field in the Switch Rcvd Kbytes Status report: <ul style="list-style-type: none"> ▪ Switch WWN

1.11.73 Switch Rcvd Kbytes Status (Hourly Historical Report)

Overview

The Switch Rcvd Kbytes Status report shows the total number of kilobytes and frames received on the ports for each switch. The report displays a horizontal bar graph indicating the number of kilobytes received, as well as a table containing those values along with the number of frames received. The report displays information for the past 24 hours on an hourly basis.

Storage Location

Reports/SAN Switch/Status Reporting/Daily Trend/

Record

Switch Summary (PI_SWS)

Table 1.161 Report Data for Switch Rcvd Kbytes Status (Hourly Historical Report)

Fields	
Field Name	Description
Domain ID	Domain identifier for the switch (decimal value in the range 1-239). This number uniquely identifies each switch making up a fabric.
Model Name	Model name of the switch
Rcvd Frames	Total number of frames received on the ports for each switch
Rcvd Kbytes	Total number of kilobytes received on the ports for each switch
Switch Name	Name of the switch
Switch WWN	WWN of the switch
Drilldown Reports (Report Level)	
Report Name	Description
Switch Buffer Flow Status	Displays for each switch the total number of times that the port buffers became full and the number of times the credit count in Buffer-To-Buffer flow control became 0. This report displays a horizontal bar graph indicating the number of times that the buffers became full, and a table containing those data values along with the number of times that the credit count in Buffer-to-Buffer flow control became 0.
Switch Rcvd Bytes Rate Status	Displays the total number of bytes and frames received on the ports for each switch per unit of time. This report displays a horizontal bar graph indicating the number of bytes received, as well as a table containing those data values along with the number of frames received.
Switch Xmitd Bytes Rate Status	Displays the total number of bytes and frames sent through the ports for each switch per unit of time. This report displays a horizontal bar graph indicating the number of bytes sent, as well as a table containing those data values and the number of frames sent.

Drilldown Reports (Report Level)	
Report Name	Description
Switch Xmitd Kbytes Status	Displays the total number of kilobytes and frames sent through the ports for each switch. This report displays a horizontal bar graph indicating the number of kilobytes sent, as well as a table containing those data values along with the number of frames sent.
Drilldown Report (Field Level)	
Report Name	Description
Link Rcvd Kbytes	Provides a link between a graph indicating the total number of kilobytes received on the ports of each switch, and a graph indicating the number of kilobytes received on each port. To display this report, click the following field in the Switch Rcvd Kbytes Status report: <ul style="list-style-type: none"> ▪ Switch WWN

1.11.74 Switch Rcvd Kbytes Trend

Overview

The Switch Rcvd Kbytes Trend report shows the total number of kilobytes and frames received on the ports for each switch. The report displays a line graph of the number of kilobytes received, as well as a table containing those values along with the number of frames received. The report displays information for the past month on a daily basis.

Storage Location

Reports/SAN Switch/Monthly Trend/

Record

Switch Summary (PI_SWS)

Table 1.162 Report Data for Switch Rcvd Kbytes Trend

Fields	
Field Name	Description
Domain ID	Domain identifier for the switch (decimal value in the range 1-239). This number uniquely identifies each switch making up a fabric.
Model Name	Model name of the switch
Rcvd Frames	Total number of frames received on the ports for each switch
Rcvd Kbytes	Total number of kilobytes received on the ports for each switch
Switch Name	Name of the switch
Switch WWN	WWN of the switch
Drilldown Reports (Report Level)	
Report Name	Description
Switch Rcvd Bytes Rate Trend	Displays the total number of bytes and frames received on the ports for each switch per unit of time. This report displays a line graph indicating the number of bytes received, as well as a table containing those data values along with the number of frames received.
Switch Xmitd Bytes Rate Trend	Displays the total number of bytes and frames sent through the ports for each switch per unit of time. This report displays a line graph indicating the number of bytes sent, as well as a table containing those data values and the number of frames sent.
Switch Xmitd Kbytes Trend	Displays the total number of kilobytes and frames sent through the ports for each switch. This report displays a line graph indicating the number of kilobytes sent, as well as a table containing those data values along with the number of frames sent.

Drilldown Report (Field Level)	
Report Name	Description
Link Rcvd Kbytes	<p>Provides a link between a graph indicating the total number of kilobytes received on the ports of each switch, and a graph indicating the number of kilobytes received on each port. To display this report, click the following field in the Switch Rcvd Kbytes Trend report:</p> <ul style="list-style-type: none"> ▪ Switch WWN

1.11.75 Switch Xmitd Bytes Rate Status (Real-Time Report)

Overview

The Switch Xmitd Bytes Rate Status report shows the total number of bytes and frames sent through the ports for each switch per unit of time, in real time. The report displays a horizontal bar graph indicating the number of bytes sent, as well as a table containing those values along with the number of frames sent.

Storage Location

Reports/SAN Switch/Status Reporting/Real-Time/

Record

Switch Summary (PI_SWS)

Table 1.163 Report Data for Switch Xmitd Bytes Rate Status (Real-Time Report)

Fields	
Field Name	Description
Domain ID	Domain identifier for the switch (decimal value in the range 1-239). This number uniquely identifies each switch making up a fabric.
Model Name	Model name of the switch
Switch Name	Name of the switch
Switch WWN	WWN of the switch
Xmitd Bytes / sec	Total number of bytes sent through the ports for each switch per unit of time
Xmitd Frames / sec	Total number of frames sent through the ports for each switch per unit of time
Drilldown Reports (Report Level)	
Report Name	Description
Switch Buffer Flow Status	Displays for each switch the total number of times that the port buffers became full and the number of times the credit count in Buffer-To-Buffer flow control became 0. This report displays a horizontal bar graph indicating the number of times that the buffers became full, and a table containing those data values along with the number of times that the credit count in Buffer-to-Buffer flow control became 0.
Switch Rcvd Bytes Rate Status	Displays the total number of bytes and frames received on the ports for each switch per unit of time. This report displays a horizontal bar graph indicating the number of bytes received, as well as a table containing those data values along with the number of frames received.
Switch Rcvd Kbytes Status	Displays the total number of kilobytes and frames received on the ports for each switch. This report displays a horizontal bar graph indicating the number of kilobytes received, as well as a table containing those data values along with the number of frames received.

Drilldown Reports (Report Level)	
Report Name	Description
Switch Xmitd Kbytes Status	Displays the total number of kilobytes and frames sent through the ports for each switch. This report displays a horizontal bar graph indicating the number of kilobytes sent, as well as a table containing those data values along with the number of frames sent.
Drilldown Report (Field Level)	
Report Name	Description
Link Xmitd Bytes Rate	Provides a link between a graph indicating the total number of bytes sent through the ports for each switch per unit of time, and a graph indicating the number of bytes sent through each port per unit of time. To display this report, click the following field in the Switch Xmitd Bytes Rate Status report: <ul style="list-style-type: none"> ▪ Switch WWN

1.11.76 Switch Xmitd Bytes Rate Status (Hourly Historical Report)

Overview

The Switch Xmitd Bytes Rate Status report shows the total number of bytes and frames sent through the ports for each switch per unit of time. The report displays a horizontal bar graph indicating the number of bytes sent, as well as a table containing those values along with the number of frames sent. The report displays information for the past 24 hours on an hourly basis.

Storage Location

Reports/SAN Switch/Status Reporting/Daily Trend/

Record

Switch Summary (PI_SWS)

Table 1.164 Report Data for Switch Xmitd Bytes Rate Status (Hourly Historical Report)

Fields	
Field Name	Description
Domain ID	Domain identifier for the switch (decimal value in the range 1-239). This number uniquely identifies each switch making up a fabric.
Model Name	Model name of the switch
Switch Name	Name of the switch
Switch WWN	WWN of the switch
Xmitd Bytes / sec	Total number of bytes sent through the ports for each switch per unit of time
Xmitd Frames / sec	Total number of frames sent through the ports for each switch per unit of time
Drilldown Reports (Report Level)	
Report Name	Description
Switch Buffer Flow Status	Displays for each switch the total number of times that the port buffers became full and the number of times the credit count in Buffer-To-Buffer flow control became 0. This report displays a horizontal bar graph indicating the number of times that the buffers became full, and a table containing those data values along with the number of times that the credit count in Buffer-to-Buffer flow control became 0.
Switch Rcvd Bytes Rate Status	Displays the total number of bytes and frames received on the ports for each switch per unit of time. This report displays a horizontal bar graph indicating the number of bytes received, as well as a table containing those data values along with the number of frames received.

Drilldown Reports (Report Level)	
Report Name	Description
Switch Rcvd Kbytes Status	Displays the total number of kilobytes and frames received on the ports for each switch. This report displays a horizontal bar graph indicating the number of kilobytes received, as well as a table containing those data values along with the number of frames received.
Switch Xmitd Kbytes Status	Displays the total number of kilobytes and frames sent through the ports for each switch. This report displays a horizontal bar graph indicating the number of kilobytes sent, as well as a table containing those data values along with the number of frames sent.
Drilldown Report (Field Level)	
Report Name	Description
Link Xmitd Bytes Rate	Provides a link between a graph indicating the total number of bytes sent through the ports for each switch per unit of time, and a graph indicating the number of bytes sent through each port per unit of time. To display this report, click the following field in the Switch Xmitd Bytes Rate Status report: <ul style="list-style-type: none"> ▪ Switch WWN

1.11.77 Switch Xmitd Bytes Rate Trend

Overview

The Switch Xmitd Bytes Rate Trend report shows the total number of bytes and frames sent through the ports for each switch per unit of time. The report displays a line graph indicating the number of bytes sent, as well as a table containing those data values along with the number of frames sent. The report displays information for the past month on a daily basis.

Storage Location

Reports/SAN Switch/Monthly Trend/

Record

Switch Summary (PI_SWS)

Table 1.165 Report Data for Switch Xmitd Bytes Rate Trend

Fields	
Field Name	Description
Domain ID	Domain identifier for the switch (decimal value in the range 1-239). This number uniquely identifies each switch making up a fabric.
Model Name	Model name of the switch
Switch Name	Name of the switch
Switch WWN	WWN of the switch
Xmitd Bytes Rate	Total number of bytes sent through the ports for each switch per unit of time
Xmitd Frames / sec	Total number of frames sent through the ports for each switch per unit of time
Drilldown Reports (Report Level)	
Report Name	Description
Switch Rcvd Bytes Rate Trend	Displays the total number of bytes and frames received on the ports for each switch per unit of time. This report displays a line graph indicating the number of bytes received, as well as a table containing those data values along with the number of frames received.
Switch Rcvd Kbytes Trend	Displays the total number of kilobytes and frames received on the ports for each switch. This report displays a line graph indicating the number of kilobytes received, as well as a table containing those data values and the number of frames received.
Switch Xmitd Kbytes Trend	Displays the total number of kilobytes and frames sent through the ports for each switch. This report displays a line graph indicating the number of kilobytes sent, as well as a table containing those data values along with the number of frames sent.

Drilldown Report (Field Level)	
Report Name	Description
Link Xmitd Bytes Rate	<p>Displays a link between a graph indicating the total number of bytes sent through the ports of each switch per unit of time, and a graph indicating the number of bytes sent through each port per unit of time. To display this report, click the following field in the Switch Xmitd Bytes Rate Trend report:</p> <ul style="list-style-type: none"> ▪ Switch WWN

1.11.78 Switch Xmitd Kbytes

Overview

The Switch Xmitd Kbytes report shows a table and a horizontal bar graph indicating the total number of kilobytes sent through the ports for each switch. The report displays minute-by-minute information for the past hour.

Storage Location

Reports/SAN Switch/Troubleshooting/Recent Past/

Record

Switch Summary (PI_SWS)

Table 1.166 Report Data for Switch Xmitd Kbytes

Fields	
Field Name	Description
Domain ID	Domain identifier for the switch (decimal value in the range 1-239). This number uniquely identifies each switch making up a fabric.
Model Name	Model name of the switch
Switch Name	Name of the switch
Switch WWN	WWN of the switch
Xmitd Kbytes	Total number of kilobytes sent through the ports for each switch
Drilldown Reports (Report Level)	
Report Name	Description
Switch CRC Error Count	Displays a table and a horizontal bar graph indicating the total number of CRC errors detected on the ports for each switch.
Switch Rcvd Kbytes	Displays a table and a horizontal bar graph indicating for each switch the total number of kilobytes received by the ports.
Drilldown Report (Field Level)	
Report Name	Description
Link Xmitd Kbytes	Provides a link between a graph indicating the total number of kilobytes sent through the ports for each switch, and a graph indicating the number of kilobytes sent through each port. To display this report, click the following field in the Switch Xmitd Kbytes report: <ul style="list-style-type: none"> Switch WWN

1.11.79 Switch Xmitd Kbytes Status (Real-Time Report)

Overview

The Switch Xmitd Kbytes Status report shows the total number of kilobytes and frames sent through the ports for each switch, in real time. The report displays a horizontal bar graph indicating the number of kilobytes sent, as well as a table containing those data values along with the number of frames sent.

Storage Location

Reports/SAN Switch/Status Reporting/Real-Time/

Record

Switch Summary (PI_SWS)

Table 1.167 Report Data for Switch Xmitd Kbytes Status (Real-Time Report)

Fields	
Field Name	Description
Domain ID	Domain identifier for the switch (decimal value in the range 1-239). This number uniquely identifies each switch making up a fabric.
Model Name	Model name of the switch
Switch Name	Name of the switch
Switch WWN	WWN of the switch
Xmitd Frames	Total number of frames sent through the ports for each switch
Xmitd Kbytes	Total number of kilobytes sent through the ports for each switch
Drilldown Reports (Report Level)	
Report Name	Description
Switch Buffer Flow Status	Displays for each switch the total number of times that the port buffers became full and the number of times the credit count in Buffer-To-Buffer flow control became 0. This report displays a horizontal bar graph indicating the number of times that the buffers became full, and a table containing those data values along with the number of times that the credit count in Buffer-to-Buffer flow control became 0.
Switch Rcvd Bytes Rate Status	Displays the total number of bytes and frames received on the ports for each switch per unit of time. This report displays a horizontal bar graph indicating the number of bytes received, as well as a table containing those data values along with the number of frames received.
Switch Rcvd Kbytes Status	Displays the total number of kilobytes and frames received on the ports for each switch. This report displays a horizontal bar graph indicating the number of kilobytes received, as well as a table containing those data values along with the number of frames received.

Drilldown Reports (Report Level)	
Report Name	Description
Switch Xmitd Bytes Rate Status	Displays the total number of bytes and frames sent through the ports for each switch per unit of time. This report displays a horizontal bar graph indicating the number of bytes sent, as well as a table containing those data values along with the number of frames sent.
Drilldown Report (Field Level)	
Report Name	Description
Link Xmitd Kbytes	Provides a link between a graph indicating the total number of kilobytes sent through the ports for each switch, and a graph indicating the number of kilobytes sent through each port. To display this report, click the following field in the Switch Xmitd Kbytes Status report: <ul style="list-style-type: none"> ▪ Switch WWN

1.11.80 Switch Xmitd Kbytes Status (Hourly Historical Report)

Overview

The Switch Xmitd Kbytes Status report shows the total number of kilobytes and frames sent through the ports for each switch. The report displays a horizontal bar graph indicating the number of kilobytes sent, as well as a table containing those data values along with the number of frames sent. The report displays information for the past 24 hours on an hourly basis.

Storage Location

Reports/SAN Switch/Status Reporting/Daily Trend/

Record

Switch Summary (PI_SWS)

Table 1.168 Report Data for Switch Xmitd Kbytes Status (Hourly Historical Report)

Fields	
Field Name	Description
Domain ID	Domain identifier for the switch (decimal value in the range 1-239). This number uniquely identifies each switch making up a fabric.
Model Name	Model name of the switch
Switch Name	Name of the switch
Switch WWN	WWN of the switch
Xmitd Frames	Total number of frames sent through the ports for each switch
Xmitd Kbytes	Total number of kilobytes sent through the ports for each switch
Drilldown Reports (Report Level)	
Report Name	Description
Switch Buffer Flow Status	Displays for each switch the total number of times that the port buffers became full and the number of times the credit count in Buffer-to-Buffer flow control became 0. This report displays a horizontal bar graph indicating the number of times that the buffers became full, and a table containing those data values along with the number of times that the credit count in Buffer-to-Buffer flow control became 0.
Switch Rcvd Bytes Rate Status	Displays the total number of bytes and frames received on the ports for each switch per unit of time. This report displays a horizontal bar graph indicating the number of bytes received, as well as a table containing those data values along with the number of frames received.
Switch Rcvd Kbytes Status	Displays the total number of kilobytes and frames received on the ports for each switch. This report displays a horizontal bar graph indicating the number of kilobytes received, as well as a table containing those data values along with the number of frames received.

Drilldown Reports (Report Level)	
Report Name	Description
Switch Xmitd Bytes Rate Status	Displays the total number of bytes and frames sent through the ports for each switch per unit of time. This report displays a horizontal bar graph indicating the number of bytes sent, as well as a table containing those data values along with the number of frames sent.
Drilldown Report (Field Level)	
Report Name	Description
Link Xmitd Kbytes	Provides a link between a graph indicating the total number of kilobytes sent through the ports for each switch, and a graph indicating the number of kilobytes sent through each port. To display this report, click the following field in the Switch Xmitd Kbytes Status report: <ul style="list-style-type: none"> ▪ Switch WWN

1.11.81 Switch Xmitd Kbytes Trend

Overview

The Switch Xmitd Kbytes Trend report shows the total number of kilobytes and frames sent through the ports for each switch. The report displays a line graph indicating the number of kilobytes sent, as well as a table containing those data values along with the number of frames sent. The report displays information for the past month on a daily basis.

Storage Location

Reports/SAN Switch/Monthly Trend/

Record

Switch Summary (PI_SWS)

Table 1.169 Report Data for Switch Xmitd Kbytes Trend

Fields	
Field Name	Description
Domain ID	Domain identifier for the switch (decimal value in the range 1-239). This number uniquely identifies each switch making up a fabric.
Model Name	Model name of the switch
Switch Name	Name of the switch
Switch WWN	WWN of the switch
Xmitd Frames	Total number of frames sent through the ports for each switch
Xmitd Kbytes	Total number of kilobytes sent through the ports for each switch
Drilldown Reports (Report Level)	
Report Name	Description
Switch Rcvd Bytes Rate Trend	Displays the total number of bytes and frames received on the ports for each switch per unit of time. This report displays a line graph indicating the number of bytes received, as well as a table containing those data values along with the number of frames received.
Switch Rcvd Kbytes Trend	Displays the total number of kilobytes and frames received on the ports for each switch. This report displays a line graph indicating the number of kilobytes received, as well as a table containing those data values and the number of frames received.
Switch Xmitd Bytes Rate Trend	Displays the total number of bytes and frames sent through the ports for each switch per unit of time. This report displays a line graph indicating the number of bytes sent, as well as a table containing those data values along with the number of frames sent.

Drilldown Report (Field Level)	
Report Name	Description
Link Xmitd Kbytes	<p>Provides a link between a graph indicating the total number of kilobytes sent through the ports for each switch, and a graph indicating the number of kilobytes sent through each port. To display this report, click the following field in the Switch Xmitd Kbytes Trend report:</p> <ul style="list-style-type: none"> ▪ Switch WWN

1.11.82 Xmitd Kbytes - Top 10 Port

Overview

The Xmitd Kbytes - Top 10 Port report shows a table and a horizontal bar graph indicating performance information for the ten ports that have, at present, sent the highest number of kilobytes, in real time.

Storage Location

Reports/SAN Switch/Troubleshooting/Real-Time/

Record

Port Summary (PI_PTS)

Table 1.170 Report Data for Xmitd Kbytes - Top 10 Port

Fields	
Field Name	Description
Area ID	Area identifier in hexadecimal (<i>Example:</i> 0x1c). In an arbitrated loop configuration, the switches, hosts, and storage ports have the same area ID.
Port Module Number	Module number of the port
Port Number	Number assigned to the port
Port Type	Type of the port (<i>Example:</i> F port)
Port WWN	WWN of the port
Switch WWN	WWN of the switch
Xmitd Kbytes	Number of kilobytes sent by the port
Drilldown Reports (Report Level)	
Report Name	Description
CRC Error Count - Top 10 Port	Displays a table and a horizontal bar graph indicating performance information for the ten ports that currently have the highest number of detected CRC errors.
Encoding Disparity Count - Top 10 Port	Displays a table and a horizontal bar graph indicating performance information for the ten ports that currently have the highest number of detected encoding errors and disparity errors.
Loss of Signal Count - Top 10 Port	Displays a table and a horizontal bar graph indicating performance information for the ten ports that currently have the highest number of detections of optical signal losses.
Loss of Sync Count - Top 10 Port	Displays a table and a horizontal bar graph indicating performance information for the ten ports that currently have the highest number of detected sync losses.
Rcvd Kbytes - Top 10 Port	Displays a table and a horizontal bar graph indicating performance information for the ten ports that have, at present, received the highest number of kilobytes.

Drilldown Report (Field Level)	
Report Name	Description
Xmitd Kbytes - Top 10 Switch	<p>Displays a table and a horizontal bar graph indicating performance information for the ten switches that have, at present, sent the highest number of kilobytes in total through their ports. To display this report, click the following field in the Xmitd Kbytes - Top 10 Port report:</p> <ul style="list-style-type: none"> ▪ Switch WWN

1.11.83 Xmitd Kbytes - Top 10 Switch

Overview

The Xmitd Kbytes - Top 10 Switch report shows a table and a horizontal bar graph indicating performance information for the ten switches that currently have the highest number of kilobytes in total sent through their ports, in real time.

Storage Location

Reports/SAN Switch/Troubleshooting/Real-Time/

Record

Switch Summary (PI_SWS)

Table 1.171 Report Data for Xmitd Kbytes - Top 10 Switch

Fields	
Field Name	Description
Domain ID	Domain identifier for the switch (decimal value in the range 1-239). This number uniquely identifies each switch making up a fabric.
Model Name	Model name of the switch
Switch Name	Name of the switch
Switch WWN	WWN of the switch
Xmitd Kbytes	Total number of kilobytes sent by the ports for each switch
Drilldown Reports (Report Level)	
Report Name	Description
CRC Error Count - Top 10 Switch	Displays a table and a horizontal bar graph indicating performance information for the ten ports that currently have the highest number of CRC errors detected in total on their ports.
Encoding Disparity Count - Top 10 Switch	Displays a table and a horizontal bar graph indicating performance information for the ten switches that currently have the highest number of encoding errors and disparity errors detected in total on their ports.
Loss of Signal Count - Top 10 Switch	Displays a table and a horizontal bar graph indicating performance information for the ten switches that currently have the highest number of detections of optical signal losses on their ports.
Loss of Sync Count - Top 10 Switch	Displays a table and a horizontal bar graph indicating performance information for the ten switches that currently have the highest number of sync losses detected in total on their ports.
Rcvd Kbytes - Top 10 Switch	Displays a table and a horizontal bar graph indicating performance information for the ten switches that have, at present, received the highest number of kilobytes in total on their ports.

Drilldown Report (Field Level)	
Report Name	Description
Xmitd Kbytes - Top 10 Port	<p>Displays a table and a horizontal bar graph indicating performance information for the ten ports that have, at present, sent the highest number of kilobytes in total. To display this report, click the following field in the Xmitd Kbytes - Top 10 Switch report:</p> <ul style="list-style-type: none"> ▪ Switch WWN

1.12 Agent for NAS Reports

Table 1.172 lists the reports that are defined in the solution set in alphabetical order:

Table 1.172 Agent for NAS Reports

Report Name	Displayed Information	Storage Location
Channel Node Configuration	The configuration information of a NAS system (real-time report).	Reports/NAS/Status Reporting/Real-Time/
Channel Node Configuration (Multi-Agent)	The configuration information of multiple NAS systems over the last 24 hours (historical report).	Reports/NAS/Status Reporting/Daily Trend/
Channel Node Platform Configuration	The platform configuration information of a NAS system (real-time report).	Reports/NAS/Status Reporting/Real-Time/
Channel Node Platform Configuration (Multi-Agent)	The platform configuration information of multiple NAS systems over the last 24 hours (historical report).	Reports/NAS/Status Reporting/Daily Trend/
CPU Status	The CPU usage rate of a NAS system (real-time report).	Reports/NAS/Status Reporting/Real-Time/
CPU Status (Multi-Agent)	The hourly CPU usage rate of multiple NAS systems over the last 24 hours (historical report).	Reports/NAS/Status Reporting/Daily Trend/
CPU Trend	The daily CPU usage rate of a specific NAS system over the last month (historical report).	Reports/NAS/Monthly Trend/
CPU Trend (Multi-Agent)	The daily CPU usage rate of multiple NAS systems over the last month (historical report).	Reports/NAS/Monthly Trend/
CPU Usage - Top 10 Processes	The 10 processes on a NAS system that are the highest in CPU usage rate (real-time report).	Reports/NAS/Troubleshooting/Real-Time/
CPU Usage Summary	The CPU usage rate of a specific NAS system for every minute in the last hour (historical report).	Reports/NAS/Troubleshooting/Recent Past/
Device Detail	Details of a selected local disk device on a NAS system (real-time report).	Reports/NAS/Status Reporting /Real-Time/Drilldown Only/
Device Detail Status	Performance information of the local disk device I/O for each logical unit on a NAS system over the last 24 hours (historical report).	Reports/NAS/Status Reporting/Daily Trend/
Device Usage Status	The local disk device I/O performance for each logical unit on a NAS system (real-time report).	Reports/NAS/Status Reporting/Real-Time/
Device Usage Summary	The local disk device usage on a	Reports/NAS/Status Reporting/Real-

	NAS system (real-time report).	Time/
Device Usage Summary (Multi-Agent)	The hourly local disk device usage of multiple NAS systems over the last 24 hours (historical report).	Reports/NAS/Status Reporting/Daily Trend/Advanced/
File System Configuration (historical report)	The file system and logical device's configuration information for a specific NAS system over the last 24 hours (historical report).	Reports/NAS/Status Reporting/Daily Trend/
File System Configuration (real-time report)	The file system and logical device configuration information for a NAS system (real-time report).	Reports/NAS/Status Reporting/Real-Time/
File System Configuration Detail	Details of the file system and logical device configuration for a selected device (real-time report).	Reports/NAS/Status Reporting/Real-Time/Drilldown Only/
Free Space Mbytes - Top 10 Local File Systems	The 10 local file systems on a NAS system that are the smallest in free space (real-time report).	Reports/NAS/Status Reporting/Real-Time/
I/O Overview	The I/O count of a specific NAS system for every minute in the last hour (historical report).	Reports/NAS/Troubleshooting/Recent Past/
IP Address Configuration (historical report)	The IP address configuration information for a specific NAS system over the last 24 hours (historical report).	Reports/NAS/Status Reporting/Daily Trend/
IP Address Configuration (real-time report)	The IP address configuration information of a NAS system (real-time report).	Reports/NAS/Status Reporting/Real-Time/
Local File System Detail	Details of a local file system selected on a NAS system (real-time report).	Reports/NAS/Troubleshooting/Real-Time/Drilldown Only/
Local File System Status	Performance information of a local file system on a NAS system over the last 24 hours (historical report).	Reports/NAS/Status Reporting/Daily Trend/
Network Overview	The network usage of a specific NAS system for every minute in the last hour (historical report).	Reports/NAS/Troubleshooting/Recent Past/
Network Status	The network usage of a NAS system (real-time report).	Reports/NAS/Status Reporting/Real-Time/
Network Status (Multi-Agent)	The hourly network usage of multiple NAS systems over the last 24 hours (historical report).	Reports/NAS/Status Reporting/Daily Trend/
Process Detail	Details of the real-time information on a selected process.	Reports/NAS/Troubleshooting/Real-Time/Drilldown Only/
Process Trend	The daily operation count of processes of a specific NAS system over the last month (historical report).	Reports/NAS/Monthly Trend/
Space Usage - Top 10	The 10 local file systems on a	Reports/NAS/Troubleshooting/Real-Time/

Local File Systems	NAS system that are the highest in usage rate (real-time report).	
System Overview (historical report)	The system operation status of a specific NAS system for every minute in the last hour (historical report).	Reports/NAS/Troubleshooting/Recent Past/
System Overview (real-time report)	The operation status of a NAS system (real-time report).	Reports/NAS/Troubleshooting/Real-Time/
System Utilization Status	The operation status of a NAS system (real-time report).	Reports/NAS/Status Reporting/Real-Time/
Workload Status	The system workload of a NAS system (real-time report).	Reports/NAS/Status Reporting/Real-Time/
Workload Status (Multi-Agent)	The hourly system workload of multiple NAS systems over the last 24 hours (historical report).	Reports/NAS/Status Reporting/Daily Trend/

1.12.1 Channel Node Configuration

Overview

The Channel Node Configuration report displays the configuration information of a NAS system in real time.

Storage Location

Reports/NAS/Status Reporting/Real-Time/

Record

Channel Node Configuration (PD_CHC)

Table 1.173 Report Data for Channel Node Configuration

Fields	
Field Name	Description
CHN Number	Channel node number.
Host Name	Name of the host where the NAS system to be monitored is installed.

1.12.2 Channel Node Configuration (Multi-Agent)

Overview

The Channel Node Configuration (Multi-Agent) report displays the configuration information of multiple NAS systems over the last 24 hours.

Storage Location

Reports/NAS/Status Reporting/Daily Trend/

Record

Channel Node Configuration (PD_CHC)

Table 1.174 Report Data for Channel Node Configuration (Multi-Agent)

Fields	
Field Name	Description
Agent Instance	Name of the instance where the Agent for NAS is running.
CHN Number	Channel node number.
Host Name	Name of the host where the NAS system to be monitored is installed.

1.12.3 Channel Node Platform Configuration

Overview

The Channel Node Platform Configuration report displays the platform configuration information of a NAS system in real time.

Storage Location

Reports/NAS/Status Reporting/Real-Time/

Record

Channel Node Platform Configuration (PD_CPC)

Table 1.175 Report Data for Channel Node Platform Configuration

Fields	
Field Name	Description
OS Name	OS name, for the NAS system being monitored.
OS Version	OS version, for the NAS system being monitored.
IP Address	IP address, for the NAS system being monitored, specified by <code>destination_address</code> when the Agent instance was created.

1.12.4 Channel Node Platform Configuration (Multi-Agent)

Overview

The Channel Node Platform Configuration (Multi-Agent) report displays the platform configuration information of multiple NAS systems over the last 24 hours.

Storage Location

Reports/NAS/Status Reporting/Daily Trend/

Record

Channel Node Platform Configuration (PD_CPC)

Table 1.176 Report Data for Channel Node Platform Configuration (Multi-Agent)

Fields	
Field Name	Description
Agent Instance	Name of the instance where the Agent for NAS is running.
IP Address	IP address, for the NAS system being monitored, specified by <code>destination_address</code> when the Agent instance was created.
OS Name	OS name, for the NAS system being monitored.
OS Version	OS version, for the NAS system being monitored.

1.12.5 CPU Status

Overview

The CPU Status report displays the CPU usage rate of a NAS system in real time.

Storage Location

Reports/NAS/Status Reporting/Real-Time/

Record

System Summary Overview (PI)

Table 1.177 Report Data for CPU Status

Fields	
Field Name	Description
1-Minute Run Queue Avg	Average number of processes that were waiting in execution queues and disk I/O queues in the past minute.
5-Minute Run Queue Avg	Average number of processes that were waiting in execution queues and disk I/O queues in the past 5 minutes.
15-Minute Run Queue Avg	Average number of processes that were waiting in execution queues and disk I/O queues in the past 15 minutes.
Context Switches	Number of context switches executed on the NAS system processor.
CPU %	Percentage of time that the NAS system processor was running.
Idle %	Percentage of time that the NAS system processor was idle.
Kernel CPU %	Percentage of time that the NAS system processor was running in kernel mode.
User CPU %	Percentage of time that the NAS system processor was running in user mode.

1.12.6 CPU Status (Multi-Agent)

Overview

The CPU Status (Multi-Agent) report displays the hourly CPU usage rate of multiple NAS systems over the last 24 hours.

Storage Location

Reports/NAS/Status Reporting/Daily Trend/

Record

System Summary Overview (PI)

Table 1.178 Report Data for CPU Status (Multi-Agent)

Fields	
Field Name	Description
1-Minute Run Queue Avg	Average number of processes that were waiting in execution queues and disk I/O queues in the past minute.
Agent Instance	Name of the instance where the Agent for NAS is running.
Context Switches	Average number of context switches executed on the NAS system processor.
CPU %	Average percentage of time that the NAS system processor was running.
Kernel CPU %	Average percentage of time that the NAS system processor was running in kernel mode.
User CPU %	Average percentage of time that the NAS system processor was running in user mode.
Drilldown Report (Field Level)	
Report Name	Description
CPU Status (Multi-Agent)	CPU Status (Multi-Agent) report that is summed minute-by-minute. To display this report, choose a time in the CPU Status (Multi-Agent) report.

1.12.7 CPU Trend

Overview

The CPU Trend report displays the daily CPU usage rate of a specific NAS system over the last month.

Storage Location

Reports/NAS/Monthly Trend/

Record

System Summary Overview (PI)

Table 1.179 Report Data for CPU Trend

Fields	
Field Name	Description
CPU %	Average percentage of time that the NAS system processor was running.
Kernel CPU %	Average percentage of time that the NAS system processor was running in kernel mode.
User CPU %	Average percentage of time that the NAS system processor was running in user mode.

1.12.8 CPU Trend (Multi-Agent)

Overview

The CPU Trend (Multi-Agent) report displays the daily CPU usage rate of multiple NAS systems over the last month.

Storage Location

Reports/NAS/Monthly Trend/

Record

System Summary Overview (PI)

Table 1.180 Report Data for CPU Trend (Multi-Agent)

Fields	
Field Name	Description
Agent Instance	Name of the instance where the Agent for NAS is running.
CPU %	Average percentage of time that the NAS system processor was running.
Drilldown Report (Field Level)	
Report Name	Description
CPU Trend	A summary of the CPU usage rate of a selected NAS system is displayed. To display this report, click the CPU % field.

1.12.9 CPU Usage - Top 10 Processes

Overview

The CPU Usage - Top 10 Processes report displays the 10 processes on a NAS system that are the highest in CPU usage rate, in real time.

Storage Location

Reports/NAS/Troubleshooting/Real-Time/

Record

Process Detail (PD)

Table 1.181 Report Data for CPU Usage - Top 10 Processes

Fields	
Field Name	Description
CPU %	Percentage of the CPU in use for the process.
PID	Process ID.
Program Name	Name of the program being executed.
Drilldown Report (Field Level)	
Report Name	Description
Process Detail	Details of the real-time information on a selected process are displayed in a list. To display this report, click the CPU % field.

1.12.10 CPU Usage Summary

Overview

The CPU Usage Summary report displays the CPU usage rate of a specific NAS system for every minute in the last hour.

Storage Location

Reports/NAS/Troubleshooting/Recent Past/

Record

System Summary Overview (PI)

Table 1.182 Report Data for CPU Usage Summary

Fields	
Field Name	Description
15-Minute Run Queue Avg	Average number of processes that were waiting in execution queues and disk I/O queues in 15 minutes.
Context Switches	Number of context switches executed on the NAS system processor.
CPU %	Percentage of time that the NAS system processor was running.
Idle %	Percentage of time that the NAS system processor was idle.
Interrupts	Number of interrupts that occurred on the NAS system.
Kernel CPU %	Percentage of time that the NAS system processor was running in kernel mode.
Run Queue	Number of processes waiting in the execution queue or disk I/O queue.
User CPU %	Percentage of time that the NAS system processor was running in user mode.

1.12.11 Device Detail

Overview

The Device Detail report displays details of a selected local disk device on a NAS system in real time. This is a drilldown report.

Storage Location

Reports/NAS/Status Reporting/Real-Time/Drilldown Only/

Record

Device Detail (PI_DEVD)

Table 1.183 Report Data for Device Detail

Fields	
Field Name	Description
Device Name	Local disk device name.
I/O Mbytes	Total transfer size (in megabytes) of block I/O operations for logical units.
Mbytes Xferd/sec	Average block I/O speed for logical units (megabytes per second).
Read Mbytes	Transfer size (in megabytes) of read operations for logical unit blocks.
Read Ops	Number of logical unit read operations.
Read Ops/sec	Frequency of logical unit read operations (count per second).
Total I/O Ops	Number of times I/O operations for logical units occurred.
Total I/O Ops/sec	Frequency of I/O operations for logical units (number of times per second).
Write Mbytes	Transfer size (in megabytes) of write operations for logical unit blocks.
Write Ops	Number of logical unit write operations.
Writes Ops/sec	Frequency of logical unit write operations (count per second).

1.12.12 Device Detail Status

Overview

The Device Detail Status report displays hourly information on the local disk device I/O performance for each logical unit on a NAS system over the last 24 hours.

Storage Location

Reports/NAS/Status Reporting/Daily Trend/

Record

Device Detail (PI_DEVD)

Table 1.184 Report Data for Device Detail Status

Fields	
Field Name	Description
Device Name	Local disk device name.
I/O Mbytes	Average total transfer size (in megabytes) of block I/O operations for logical units.
Mbytes Xferd/sec	Average block I/O speed for logical units (megabytes per second).
Read Mbytes	Average transfer size (in megabytes) of read operations for logical unit blocks.
Read Ops	Average number of logical unit read operations.
Read Ops/sec	Average frequency of logical unit read operations (count per second).
Total I/O Ops	Average number of times I/O operations for logical units occurred.
Total I/O Ops/sec	Average frequency of I/O operations for logical units (number of times per second).
Write Mbytes	Average transfer size (in megabytes) of write operations for logical unit blocks.
Write Ops	Average number of logical unit write operations.
Write Ops/sec	Average frequency of logical unit write operations (count per second).
Drilldown Report (Field Level)	
Report Name	Description
Device Detail Status	A version of the Device Detail Status report that is summed up on a minute basis. To display this report, click a time in the Device Detail Status report.

1.12.13 Device Usage Status

Overview

The Device Usage Status report displays the local disk device I/O performance for each logical unit on a NAS system in real time.

Storage Location

Reports/NAS/Status Reporting/Real-Time/

Record

Device Detail (PI_DEVD)

Table 1.185 Report Data for Device Usage Status

Fields	
Field Name	Description
Device Name	Local disk device name.
I/O Mbytes	Total transfer size (in megabytes) of block I/O operations for logical units.
Mbytes Xferd/sec	Average block I/O speed for logical units (megabytes per second).
Total I/O Ops/sec	Frequency of I/O operations for logical units (number of times per second).
Drilldown Report (Field Level)	
Report Name	Description
Device Detail	Details of a selected local disk device on a NAS system are displayed in real time. To display this report, click the Device Name field.

1.12.14 Device Usage Summary

Overview

The Device Usage Summary report displays the local disk device usage on a NAS system in real time.

Storage Location

Reports/NAS/Status Reporting/Real-Time/

Record

Device Summary (PI_DEVS)

Table 1.186 Report Data for Device Usage Summary

Fields	
Field Name	Description
Devices	Number of local disk devices.
I/O Mbytes	Total transfer size (in megabytes) of block I/O operations for logical units.
Mbytes Xferd/sec	Average block I/O speed for logical units (megabytes per second).
Read Mbytes	Transfer size (in megabytes) of read operations for logical unit blocks.
Read Ops %	The percentage of read operations in all I/O operations for logical units.
Total I/O Ops	Number of times I/O operations for logical units occurred.
Total I/O Ops/sec	Frequency of I/O operations for logical units (number of times per second).
Write Mbytes	Transfer size (in megabytes) of write operations for logical unit blocks.
Write Ops %	The percentage of write operations in all I/O operations for logical units.

1.12.15 Device Usage Summary (Multi-Agent)

Overview

The Device Usage Summary (Multi-Agent) report displays the hourly local disk device usage of multiple NAS systems over the last 24 hours.

Storage Location

Reports/NAS/Status Reporting/Daily Trend/Advanced/

Record

Device Summary (PI_DEVS)

Table 1.187 Report Data for Device Usage Summary (Multi-Agent)

Fields	
Field Name	Description
Agent Instance	Name of the instance where the Agent for NAS is running.
Devices	Number of local disk devices.
I/O Mbytes	Average total transfer size (in megabytes) of block I/O operations for logical units.
Mbytes Xferd/sec	Average block I/O speed for logical units (megabytes per second).
Read Mbytes	Average transfer size (in megabytes) of read operations for logical unit blocks.
Read Ops %	Average percentage of read operations in all I/O operations for logical units.
Total I/O Ops	Average number of times I/O operations for logical units occurred.
Total I/O Ops/sec	Average frequency of I/O operations for logical units (number of times per second).
Write Mbytes	Average transfer size (in megabytes) of write operations for logical unit blocks.
Write Ops %	Average percentage of write operations in all I/O operations for logical units.
Drilldown Report (Field Level)	
Report Name	Description
Device Usage Summary (Multi-Agent)	A version of the Device Usage Summary (Multi-Agent) report that is summed up on a minute basis. To display this report, click a time in the Device Usage Summary (Multi-Agent) report.

1.12.16 File System Configuration (Historical Report)

Overview

The File System Configuration report displays the file system and logical device's configuration information about a specific NAS system over the last 24 hours.

Storage Location

Reports/NAS/Status Reporting/Daily Trend/

Record

File System Configuration (PD_FSC)

Table 1.188 Report Data for File System Configuration (Historical Report)

Fields	
Field Name	Description
Device Name	Device special file name.
File System Name	Mount point of the file system.
LDEV Number	Logical device number.
LU Number	Logical unit number.
Port Number	Port number of the disk array device.
Product ID	Emulation type.
Product Name	Model name of the disk array device.
Serial Number	Serial number of the disk array device.
Vendor ID	Vendor name of the storage device.

1.12.17 File System Configuration (Real-Time Report)

Overview

The File System Configuration report displays the file system and logical device configuration information for a NAS system in real time.

Storage Location

Reports/NAS/Status Reporting/Real-Time/

Record

File System Configuration (PD_FSC)

Table 1.189 Report Data for File System Configuration (Real-Time Report)

Fields	
Field Name	Description
Device Name	Device special file name.
File System Name	Mount point of the file system.
LDEV Number	Logical device number.
LU Number	Logical unit number.
Port Number	Port number of the disk array device.
Serial Number	Serial number of the disk array device.
Drilldown Report (Field Level)	
Report Name	Description
File System Configuration Detail	Details of the file system and logical device configuration for a selected device are displayed in real time. To display this report, click the Device Name field.

1.12.18 File System Configuration Detail

Overview

The File System Configuration Detail report displays details of the file system and logical device configuration for a selected device in real time. This is a drilldown report.

Storage Location

Reports/NAS/Status Reporting/Real-Time/Drilldown Only/

Record

File System Configuration (PD_FSC)

Table 1.190 Report Data for File System Configuration Detail

Fields	
Field Name	Description
Device Name	Device special file name.
File System Name	Mount point of the file system.
LDEV Number	Logical device number.
LU Number	Logical unit number.
Port Number	Port number of the disk array device.
Product ID	Emulation type.
Product Name	Model name of the disk array device.
Serial Number	Serial number of the disk array device.
Vendor ID	Vendor name of the storage device.

1.12.19 Free Space Mbytes - Top 10 Local File Systems

Overview

The Free Space Mbytes - Top 10 Local File Systems report displays the 10 local file systems on a NAS system that are the smallest in free space, in real time.

Storage Location

Reports/NAS/Status Reporting/Real-Time/

Record

File System Detail - Local (PD_FSL)

Table 1.191 Report Data for Free Space Mbytes - Top 10 Local File Systems

Fields	
Field Name	Description
File System Name	Mount point of the file system.
Mbytes Free	Unused space in megabytes.
Mbytes in Use	Used space in megabytes.
Total Size Mbytes	File system size in megabytes.

1.12.20 I/O Overview

Overview

The I/O Overview report displays the I/O count of a specific NAS system for every minute in the last hour.

Storage Location

Reports/NAS/Troubleshooting/Recent Past/

Record

System Summary Overview (PI)

Table 1.192 Report Data for I/O Overview

Fields	
Field Name	Description
Block IO Ops	Number of block I/O operations that occurred.
Block Read Ops	Number of block read operations.
Block Write Ops	Number of block write operations.
Physical I/O Ops	Number of physical I/O operations that occurred.
Physical Read Ops	Number of physical read operations.
Physical Write Ops	Number of physical write operations.

1.12.21 IP Address Configuration (Historical Report)

Overview

The IP Address Configuration report displays the configuration information of an IP address of a specific NAS system over the last 24 hours.

Storage Location

Reports/NAS/Status Reporting/Daily Trend/

Record

IP Address Configuration (PD_IAC)

Table 1.193 Report Data for IP Address Configuration (Historical Report)

Fields	
Field Name	Description
IP Address	IP address for the NAS system.
Sub Net Mask	Subnet mask of the NAS system.

1.12.22 IP Address Configuration (Real-Time Report)

Overview

The IP Address Configuration report displays the IP address configuration information of a NAS system in real time.

Storage Location

Reports/NAS/Status Reporting/Real-Time/

Record

IP Address Configuration (PD_IAC)

Table 1.194 Report Data for IP Address Configuration (Real-Time Report)

Fields	
Field Name	Description
IP Address	IP address for the NAS system.
Sub Net Mask	Subnet mask of the NAS system.

1.12.23 Local File System Detail

Overview

The Local File System Detail report displays details of a selected local file system in real time. This is a drilldown report.

Storage Location

Reports/NAS/Troubleshooting/Real-Time/Drilldown Only/

Record

File System Detail - Local (PD_FSL)

Table 1.195 Report Data for Local File System Detail

Fields	
Field Name	Description
Block Size	File system block size (in bytes).
Blocks Free	Number of blocks unused.
Blocks in Use	Number of blocks used.
File System Name	Mount point of the file system.
Mbytes Free	Unused space in megabytes.
Mbytes in Use	Used space in megabytes.
Mbytes in Use %	Percentage of the space used.
Total Inodes	Number of i-nodes for the file system.
Total Inodes Free %	Percentage of the number of i-nodes unused.
Total Inodes in Use %	Percentage of the number of i-nodes used.
Total Size Blocks	Number of blocks of the file system.

1.12.24 Local File System Status

Overview

The Local File System Status report displays the performance information of a local file system on a NAS system over the last 24 hours.

Storage Location

Reports/NAS/Status Reporting/Daily Trend/

Record

File System Detail - Local (PD_FSL)

Table 1.196 Report Data for Local File System Status

Fields	
Field Name	Description
Blocks Free	Number of blocks unused.
Blocks in Use	Number of blocks used.
File System Name	Mount point of the file system.
Mbytes Free	Unused space in megabytes.
Mbytes in Use	Used space in megabytes.
Mbytes in Use %	Percentage of the space used.
Total Inodes	Number of i-nodes for the file system.
Total Inodes Free	Number of i-nodes unused.
Total Inodes Free %	Percentage of the number of i-nodes unused.
Total Inodes in Use	Number of i-nodes used.
Total Inodes in Use %	Percentage of the number of i-nodes used.
Total Size Blocks	Number of blocks of the file system.

1.12.25 Network Overview

Overview

The Network Overview report displays the network usage of a specific NAS system for every minute in the last hour.

Storage Location

Reports/NAS/Troubleshooting/Recent Past/

Record

System Summary Overview (PI)

Table 1.197 Report Data for Network Overview

Fields	
Field Name	Description
ICMP Pkts In	Number of ICMP packets received via the IPv4 protocol by the NAS system.
ICMP Pkts Out	Number of ICMP packets sent via the IPv4 protocol by the NAS system.
IP Pkts In	Number of IP packets received via the IPv4 protocol by the NAS system.
IP Pkts Out	Number of IP packets sent via the IPv4 protocol by the NAS system.
TCP Pkts In	Number of TCP packets received via the IPv4 protocol by the NAS system.
TCP Pkts Out	Number of TCP packets sent via the IPv4 protocol by the NAS system.
Total Pkts In	Total number of packets received via the IPv4 protocol by the NAS system.
Total Pkts Out	Total number of packets sent via the IPv4 protocol by the NAS system.
UDP Pkts In	Number of UDP packets received via the IPv4 protocol by the NAS system.
UDP Pkts Out	Number of UDP packets sent via the IPv4 protocol by the NAS system.

1.12.26 Network Status

Overview

The Network Status report displays the network usage of a NAS system in real time.

Storage Location

Reports/NAS/Status Reporting/Real-Time/

Record

System Summary Overview (PI)

Table 1.198 Report Data for Network Status

Fields	
Field Name	Description
ICMP Pkts In	Number of ICMP packets received via the IPv4 protocol by the NAS system.
ICMP Pkts Out	Number of ICMP packets sent via the IPv4 protocol by the NAS system.
IP Pkts In	Number of IP packets received via the IPv4 protocol by the NAS system.
IP Pkts Out	Number of IP packets sent via the IPv4 protocol by the NAS system.
TCP Pkts In	Number of TCP packets received via the IPv4 protocol by the NAS system.
TCP Pkts Out	Number of TCP packets sent via the IPv4 protocol by the NAS system.
UDP Pkts In	Number of UDP packets received via the IPv4 protocol by the NAS system.
UDP Pkts Out	Number of UDP packets sent via the IPv4 protocol by the NAS system.

1.12.27 Network Status (Multi-Agent)

Overview

The Network Status (Multi-Agent) report displays the hourly network usage of multiple NAS systems over the last 24 hours.

Storage Location

Reports/NAS/Status Reporting/Daily Trend/

Record

System Summary Overview (PI)

Table 1.199 Report Data for Network Status (Multi-Agent)

Fields	
Field Name	Description
Agent Instance	Name of the instance where the Agent for NAS is running.
ICMP Pkts In	Average number of IPv4-protocol-compliant ICMP packets received by the NAS system.
ICMP Pkts Out	Average number of IPv4-protocol-compliant ICMP packets sent by the NAS system.
IP Pkts In	Average number of IPv4-protocol-compliant IP packets received by the NAS system.
IP Pkts Out	Average number of IPv4-protocol-compliant IP packets sent by the NAS system.
Kernel CPU %	Average percentage of time that the NAS system processor was running in kernel mode.
TCP Pkts In	Average number of IPv4-protocol-compliant TCP packets received by the NAS system.
TCP Pkts Out	Average number of IPv4-protocol-compliant TCP packets sent by the NAS system.
UDP Pkts In	Average number of IPv4-protocol-compliant UDP packets received by the NAS system.
UDP Pkts Out	Average number of IPv4-protocol-compliant UDP packets sent by the NAS system.
Drilldown Report (Field Level)	
Report Name	Description
Network Status (Multi-Agent)	Network Status (Multi-Agent) report that is summed minute-by-minute. To display this report, choose a time in the Network Status (Multi-Agent) report.

1.12.28 Process Detail

Overview

The Process Detail report displays details of the real-time information on a selected process in a list. This is a drilldown report.

Storage Location

Reports/NAS/Troubleshooting/Real-Time/Drilldown Only/

Record

Process Detail (PD)

Table 1.200 Report Data for Process Detail

Fields	
Field Name	Description
CPU %	Percentage of the CPU in use for the process.
Elapsed Time	Time elapsed since the process started.
Major Faults	Number of physical page faults that occurred since the process started.
Minor Faults	Number of logical page faults that occurred since the process started.
PID	Process ID.
Priority	Priority of the process.
Program Name	Name of the program being executed.
Real Memory Kbytes	Real memory size used by the process (in kilobytes).
State	State of the process.
Total Process Kbytes	Size of the process (in kilobytes).

1.12.29 Process Trend

Overview

The Process Trend report displays the daily operation count of processes of a specific NAS system over the last month.

Storage Location

Reports/NAS/Monthly Trend/

Record

System Summary Overview (PI)

Field

Name: Processes

Description: Average number of processes executed per day on the NAS system over the last month.

1.12.30 Space Usage - Top 10 Local File Systems

Overview

The Space Usage - Top 10 Local File Systems report displays the 10 local file systems on a NAS system that are the highest in usage rate, in real time.

Storage Location

Reports/NAS/Troubleshooting/Real-Time/

Record

File System Detail - Local (PD_FSL)

Table 1.201 Report Data for Space Usage - Top 10 Local File Systems

Fields	
Field Name	Description
File System Name	Mount point of the file system.
Mbytes in Use %	Percentage of the space used.
Total Size Mbytes	Size of the file system (in megabytes).
Drilldown Report (Field Level)	
Report Name	Description
Local File System Detail	Detailed information on a selected local file system is displayed in real time. To display this report, click the Mbytes in Use % field.

1.12.31 System Overview (Historical Report)

Overview

The System Overview report displays the system operation status of a specific NAS system for every minute in the last hour.

Storage Location

Reports/NAS/Troubleshooting/Recent Past/

Record

System Summary Overview (PI)

Table 1.202 Report Data for System Overview (Historical Report)

Fields	
Field Name	Description
Block Read Ops	Number of block read operations that occurred.
CPU %	Percentage of time that the NAS system processor was running.
Total Pkts In	Total number of packets received via the IPv4 protocol by the NAS system.
Drilldown Reports (Field Level)	
Report Name	Description
CPU Usage Summary	Information regarding the CPU usage rate. To display this report, click the CPU % field.
I/O Overview	Information regarding the I/O count. To display this report, click the Block Read Ops field.
Network Overview	Information regarding network operation status. To display this report, click the Total Pkts In field.

1.12.32 System Overview (Real-Time Report)

Overview

The System Overview report displays the operation status of a NAS system in real time.

Storage Location

Reports/NAS/Troubleshooting/Real-Time/

Record

System Summary Overview (PI)

Table 1.203 Report Data for System Overview (Real-Time Report)

Fields	
Field Name	Description
CPU %	Percentage of time that the NAS system processor was running.
Kernel CPU %	Percentage of time that the NAS system processor was running in kernel mode.
Physical I/O Ops	Number of physical I/O operations that occurred.
Run Queue	Number of processes waiting in the execution queue or disk I/O queue.
Total Pkts In	Total number of packets received via the IPv4 protocol by the NAS system.
User CPU %	Percentage of time that the NAS system processor was running in user mode.
Drilldown Report (Report Level)	
Report Name	Description
Space Usage - Top 10 Local File Systems	The 10 local file systems that are the highest in usage rate are displayed in real time.
Drilldown Report (Field Level)	
Report Name	Description
CPU Usage - Top 10 Processes	The 10 processes that are the highest in CPU usage rate are displayed in real time. To display this report, click the CPU % field.

1.12.33 System Utilization Status

Overview

The System Utilization Status report displays the operation status of a NAS system in real time.

Storage Location

Reports/NAS/Status Reporting/Real-Time/

Record

System Summary Overview (PI)

Table 1.204 Report Data for System Utilization Status

Fields	
Field Name	Description
15-Minute Run Queue Avg	Average number of processes that were waiting in execution queues and disk I/O queues in the past 15 minutes
Alloc Mem %	Percentage of actual used space to total real memory space on the NAS system.
Boot Time	NAS system's last boot time.
Context Switches/sec	Frequency of context switches executed on the NAS system processor (count per second).
CPU %	Percentage of time that the NAS system processor was running.
Interrupts/sec	Frequency of interrupt occurrences (count per second).
Physical I/O OPS	Number of physical I/O operations that occurred.
Processes	Number of processes within the NAS system
Total Pkts In	Total number of packets received via the IPv4 protocol by the NAS system.
Users	Number of users logged into the NAS system.

1.12.34 Workload Status

Overview

The Workload Status report displays the system workload of a NAS system in real time.

Storage Location

Reports/NAS/Status Reporting/Real-Time/

Record

System Summary Overview (PI)

Table 1.205 Report Data for Workload Status

Fields	
Field Name	Description
5-Minute Run Queue Avg	Average number of processes that were waiting in execution queues and disk I/O queues in the past 5 minutes
Context Switches/sec	Number of context switches executed on the NAS system processor per second.
CPU %	Percentage of time that the NAS system processor was running.
Processes	Number of processes within the NAS system
Users	Number of users logged into the NAS system.

1.12.35 Workload Status (Multi-Agent)

Overview

The Workload Status (Multi-Agent) report displays the hourly system workload of multiple NAS systems over the last 24 hours.

Storage Location

Reports/NAS/Status Reporting/Daily Trend/

Record

System Summary Overview (PI)

Table 1.206 Report Data for Workload Status (Multi-Agent)

Fields	
Field Name	Description
1-Minute Run Queue Avg	Average number of processes that were waiting in execution queues and disk I/O queues in the past minute.
Agent Instance	Name of the instance where the Agent for NAS is running.
Context Switches/sec	Number of context switches executed on the NAS system processor per second.
CPU %	Average percentage of time that the NAS system processor was running.
Processes	Average number of processes running on the NAS system.
Users	Average number of users who have logged in to the NAS system.
Drilldown Report (Field Level)	
Report Name	Description
Workload Status (Multi-Agent)	Workload Status (Multi-Agent) report that is summed minute-by-minute. To display this report, choose a time in the Workload Status (Multi-Agent) report.

Chapter 2 Working with Records

This chapter describes the contents of the records collected by the Agents. You can use Performance Reporter to view the records collected by the Agent, using predefined solution set reports or user-defined reports. For details about the solution set reports provided by each Agent, see Chapter 1.

- Data Model Version (see section 2.1)
- Format of Record Explanations (see section 2.2)
- List of Common Key Fields (see section 2.3)
- Field Values (see section 2.4)
- Fields Added at the Time Data Is Stored in the Store Database (see section 2.5)
- Notes on Collecting Records (see section 2.6)
- Agent for RAID Records (see section 2.7)
- Agent for SAN Switch Records (see section 2.8)
- Agent for NAS Records (see section 2.9)

2.1 Data Model Version

The definitions of the Agent's records and fields are collectively called a *data model*. There is a specific version number for each Agent and its data model, as listed in the following table.

Table 2.1 Version Numbers for Each Agent and Its Data Model

Agent Name	Agent Version	Data Model Version
Agent for RAID	5.5	7.0
Agent for SAN Switch	5.5	5.0
Agent for NAS	5.0	5.0

For details about the data model version that corresponds to the Agent whose product version is 5.1 or earlier, see the appendix in the *HiCommand Tuning Manager Agent Administration Guide*. For details about the data model, see the chapter in the *HiCommand Tuning Manager Agent Administration Guide* that provides an overview of the data handled by the Tuning Manager series programs.

2.2 Format of Record Explanations

This chapter describes the records for the Agents in alphabetical order. Each record explanation contains the following items. Explanations and items specific to each Agent are provided under the Agent name.

Note: The record explanations use abbreviations and generic names to represent the storage subsystems supported by the Agent for RAID. For details on the abbreviations used for the storage subsystems, see section 1.9.

Function

Provides an overview of the performance data that is stored in the record and includes important notes.

Default and Changeable Values

Consists of a table listing default values of the performance data collection conditions that are defined for the record, and indicating whether the user can change the values. You can use Performance Reporter's `jpcasrec output` command to output, to a file, the values of data collection conditions for each record. You can also use Performance Reporter's `jpcasrec update` command to change the value of data collection conditions. For details about the `jpcasrec output` and `jpcasrec update` commands, see the *HiCommand Tuning Manager Command Line Interface Guide*.

The *Default and Changeable Values* table for each record consists of the following items:

- Collection Interval

Indicates the performance data collection interval (in seconds). The default value is recommended. Specify one of the following if you wish to change the value:

- 0
- A value from 60 to 3,600 that is a multiple of 60, and is also a whole divisor of 3,600
- A value from 3,600 to 86,400 that is a multiple of 3,600, and is also a whole divisor of 86,400

If a value other than those described above is specified, performance data might not be stored properly. If 0 is set, performance data will not be collected.

- Collection Offset

Indicates the offset value (in seconds) used to shift the start time for collecting performance data for each record. If a number of records collect data at the same time, the load on the hardware and programs to be monitored may greatly increase. This offset value can be used to disperse the load caused by the collection. If you wish to change this value, specify a value from 0 to 32,767 (in seconds, and within the range specified in Collection Interval), considering the load caused by the collection processing.

- **Log**
Indicates whether to collect performance data to be stored in the Store database. Specify one of the following values:
 - **Yes**: Collect (however, if Collection Interval is set to 0, performance data is not collected)
 - **No**: Do not collect
- **LOGIF**
Indicates conditions for storing collected performance data in the Store database.

Key Fields

Indicates the field that works as a key to identify an instance of a multi-instance record, in *view-name (manager-name)* format. There are two types of key fields: those common to all records, and those unique to a record. *Key fields* indicates the key fields unique to a record. For details about key fields common to all records, see section 2.3.

Lifetime

Indicates the period during which consistency is guaranteed for the performance data that is collected in the record. For details about the lifetime, see the chapter that provides an overview of the data handled by the Tuning Manager series programs, in the *HiCommand Tuning Manager Agent Administration Guide*.

Record Size

Indicates the amount of performance data that can be collected and stored in a record at one time. In a multi-instance record, values are given for both the fixed part and variable part. In a record other than a multi-instance record, the value for the variable part is always 0. Estimate the Store database size by using these values. For details about how to calculate this size, see the *HiCommand Tuning Manager Agent Administration Guide*.

Fields

Provides a table that describes the fields of each record. The table contains the following items:

- **View Name (Manager Name)**
 - **View Name**
The field name displayed by Performance Reporter.
 - **Manager Name**
The field name used in the programs of the Tuning Manager series.

- Description

Explanation of the value stored in the field.
- Format

Data type of the field value, such as `char` or `float`. For details about data types, see section 2.4.1.
- Delta

If this item is `Yes`, you can switch the display of the real-time report from a differential value to a cumulative value. If this item is `No`, you cannot switch the value. For details about delta, see section 2.4.2.
- Supported Storage (Agent for RAID)

Indicates the storage models supported by the field.

 - Thunder 9200: Indicates that the Thunder 9200 is supported.
 - Thunder 9500V: Indicates that the following storage products are supported:
 - Thunder 9520V
 - Thunder 9530V
 - Thunder 9570V
 - Thunder 9580V
 - Thunder 9585V
 - TagmaStore AMS: Indicates that the following storage products are supported:
 - TagmaStore AMS200
 - TagmaStore AMS500
 - TagmaStore AMS1000
 - TagmaStore WMS100
 - Lightning 9900: Indicates that the following storage products are supported:
 - Lightning 9910
 - Lightning 9960
 - Lightning 9900V: Indicates that the following storage products are supported:
 - Lightning 9970V
 - Lightning 9980V
 - TagmaStore USP: Indicates that the following storage products are supported:
 - TagmaStore USP100
 - TagmaStore USP600
 - TagmaStore USP1100
 - TagmaStore NSC55

- Unsupported (Agent for SAN Switch)

Indicates the ports not supported by the field.

- -- (two hyphens): indicates that the field can be used with all ports that are supported by the Agent for SAN Switch
- Brocade: indicates a port that is not supported by a switch manufactured by Brocade
- McDATA: indicates a port that is not supported by a switch manufactured by McDATA

- Data Source

Source of the obtained value. If the field value is the result of a calculation based on the values of other fields, the formula used is shown in the Data Source column. For example, if the Data Source column of a field shows `READ_IO_COUNT/INTERVAL`, the value of `READ_IO_COUNT` field of this record is divided by the value of `INTERVAL` field (of the same record), and the resulting value is stored in this field.

“--” means that the method used to obtain the field value or the source of the value is not disclosed.

2.3 List of Common Key Fields

Table 2.2 lists key fields that are common to all records. For details about key fields specific to a particular record, see the description of each record.

Table 2.2 Common Key Fields

View Name (Manager Name)	Description
Agent Host (DEVICEID)	Names of the instance and host on which the Agent is running.
Agent Instance (PROD_INST)	Instance name of the Agent
Agent Type (PRODID)	Product ID of the Agent
Date (DATE)	Record creation date (GMT)
Date and Time (DATETIME)	Combination of the DATE and TIME fields
Drawer Type (DRAWER_TYPE)	Drawer type. Valid values are as follows: m: Minute H: Hour D: Day w: Week M: Month Y: Year
Record Type (INPUT_RECORD_TYPE)	A 4-byte identifier indicating the record type.
Time (TIME)	The time when the record was created (GMT)

2.4 Field Values

This section describes the values stored in the fields.

2.4.1 List of Data Types

Table 2.3 lists the data types for field values and the corresponding C and C++ data types. The values shown in the **Format** column of the each field table are those shown below in the **Field** column under **Data Type**.

Table 2.3 Data Types

Data Type		Bytes	Description
Field	C or C++		
char(<i>n</i>)	char()	1	Character data (0x20 to 0x7e)
double	double	8	Numeric value (1.7E±308 (15 digits))
float	float	4	Numeric value (3.4E±38 (7 digits))
long	long	4	Numeric value (-2,147,483,648 to 2,147,483,647)
short	short	2	Numeric value (-32,768 to 32,767)
string(<i>n</i>)	char[]	Number in parentheses	Character string with a length of <i>n</i> bytes (characters other than 7-bit ASCII characters cannot be stored). The last character is null.
time_t	unsigned long	4	Numeric value (0 to 4,294,967,295)
timeval	Structure	8	Numeric value (first 4 bytes are seconds, next 4 bytes are microseconds)
ulong	unsigned long	4	Numeric value (0 to 4,294,967,295)
utime	Structure	8	Numeric value (first 4 bytes are seconds, next 4 bytes are microseconds)
word	unsigned short	2	Numeric value (0 to 65,535)

2.4.2 Delta

Displaying the difference between the values of the previously collected data and currently collected data for the performance data of a field is called **delta**. The data source of the field is the information which is managed as cumulative values.

For example, suppose a field whose data source is a counter for I/O processing, where the counter value obtained during the first collection is 3 and the counter value obtained during the second collection is 7. The output value of this field at the second collection is 7 (the counter value at the second collection) if the delta attribute is not applied to the field or 4 (the difference between the first value and the second value) if the delta attribute is applied to the field.

Data displayed with Performance Reporter varies as indicated in Table 2.4 and Table 2.5.

Note: In the title of Table 2.4, “the Delta Value Is Set to Be Displayed” indicates that one of the following settings is made in Performance Reporter:

- The **Indicate delta value** checkbox is selected in the New Report > Indication Settings (Realtime) window.
- The **Indicate delta value** checkbox is selected in the Show Options window for a real-time report.
- TRUE is assigned to the `indicate-delta-value` attribute of `realtime-indication-settings`, in the parameter file passed in an argument to the `jpcrdef create` command.

The values listed in Table 2.4 will be subject to evaluation when operations are monitored using alarms.

Table 2.4 Values Displayed in Performance Reporter (For Real-Time Reports for Which the Delta Value Is Set to Be Displayed or Historical Reports)

Record Type	Delta	Data Source	Does the Data Source Include Fields for Which (Delta = Yes)?	Displayed Value or Value Evaluated by Alarm Monitoring
PI record type	Yes	Not available	Not applicable	Difference
		Available	No	Difference in the results calculated based on the value at the time of collection
			Yes	Results of calculation based on difference
	No	Not available	Not applicable	Value at the time of collection
		Available	No	Result of calculation based on the value at the time of collection
			Yes	Results of calculation based on difference
PD record	No	Not	Not applicable	Value at the time of collection

type		available		
		Available	No	Result of calculation based on the value at the time of collection
			Yes	

Note: In the title of “the Delta Value Is Not Set to Be Displayed” indicates that one of the following settings is made in Performance Reporter:

- The **Indicate delta value** checkbox is not selected in the New Report > Indication Settings(Realtime) window.
- The **Indicate delta value** checkbox is not selected in the Show Options window for a real-time report.
- FALSE is assigned to the `indicate-delta-value` attribute of `realtime-indication-settings`, in the parameter file passed in an argument to the `jpcrdef create` command.

Table 2.5 Values Displayed in Performance Reporter (For Real-Time Reports for Which the Delta Value Is Not Set to Be Displayed)

Record Type	Delta	Data Source	Does the Data Source Include Fields for Which (Delta = Yes)?	Displayed Value
PI record type	Yes	Not available	Not applicable	Value at the time of collection
		Available	No	Result of calculation based on the value at the time of collection
			Yes	
	No	Not available	Not applicable	Value at the time of collection
		Available	No	Result of calculation based on the value at the time of collection
			Yes	
PD record type	No	Not available	Not applicable	Value at the time of collection
		Available	No	Result of calculation based on the value at the time of collection
			Yes	

Please review the following points about the collection of performance data:

- At the time you use Performance Reporter's `jpcasrec update` command to set Collection Interval, performance data is not collected.
- Since historical data of the PI record type includes data (such as delta values) that requires differences from data obtained during the previous collection, data from two or more collections is required. This means that the time required to store historical data into the Store database (from the time the Agent service started or the time that Collection Interval is set by executing the `jpcasrec update` command) is, at a maximum, twice the time that is set in Collection Interval.

For example, if you start, at 6:32 PM, the Agent whose performance data collection interval is set to 300 seconds (5 minutes), the first data collection will start at 6:35 PM. However, the record to be stored in the Store database is not created at this time because the data required for calculating the difference does not exist. At the next data collection (that starts at 6:40 PM), historical data will be created based on the data collected at 6:35 PM and 6:40 PM, and stored in the Store database.

- Starting with the first collection, a real-time report displays data values. Note, however, that 0 is displayed as the first collected value in reports requiring previously collected data. The values displayed from the second and subsequent data collections vary depending on the report.

2.4.3 Value of the Interval field

The value of the Interval field varies depending on the report type collected by the Agent.

2.4.3.1 Agent for RAID and SAN Switch

- Real-time reports:

The value of the Interval is 0 for the first record. One of the following values set by Performance Reporter is applied to records collected at subsequent intervals:

- The value specified in **Initial value of Refresh interval** in the New Report > Indication Settings (Realtime) window.
- The value specified in the initial-value attribute of refresh-interval in the parameter file that is specified with the `jpcrdef create` command as an argument.

The following formula is used to determine the value:

Interval = RECORD_TIME - (RECORD_TIME for the previous collection)

- Historical reports:

The value of the Interval field is the same as the value specified in Collection Interval. The following formula is used to determine the value:

Interval = RECORD_TIME - (RECORD_TIME for the previous collection)

2.4.3.2 Agent for NAS

- Real-time reports

If delta values are defined to be displayed in Performance Reporter, the value of the Interval is 0 for the first record. One of the following values set by Performance Reporter is applied to records collected at subsequent intervals:

- The value specified in **Initial value** of **Refresh interval** in the New Report > Indication Settings (Realtime) window.
- The value specified in the initial-value attribute of refresh-interval in the parameter file that is specified with the `jpcrdef create` command as an argument.

The following formula is used to determine the value:

Interval = the-time-that-has-elapsed-since-NAS-system-startup-for-the-current-data-collection - the-time-that-has-elapsed-since-NAS-system-startup-for-the-previous-data-collection

If delta values are not defined to be displayed in Performance Reporter, the value of the interval is equal to the time that has elapsed since NAS system startup.

- Historical reports

The value of the Interval field is the same as the value specified in Collection Interval. The following formula is used to determine the value:

Interval = the-time-that-has-elapsed-since-NAS-system-startup-for-the-current-data-collection - the-time-that-has-elapsed-since-NAS-system-startup-for-the-previous-data-collection

2.5 Fields Added at the Time Data Is Stored in the Store Database

The following table lists the fields that are added at the time data is stored in the Store database. These fields are supported by all monitored targets of each Agent.

Table 2.6 Fields that are Added at the Time Data is Stored in the Store Database

View Name (Manager Name)	Description	Format	Delta
Agent Host (DEVICEID)	Names of the instance and host on which the Agent is running. The format is as follows: <i>instance-name{host-name}</i>	string(256)	No
Agent Instance (PROD_INST)	Instance name of the Agent	string(256)	No
Agent Type (PROPID)	Product ID of the Agent (1-byte identifier)	char	No
Date (DATE)	Record creation date (GMT) See <i>Note 1</i> and <i>Note 2</i>	char(3)	No
Date and Time (DATETIME)	Combination of the Date (DATE) and Time (TIME) fields See <i>Note 1</i>	char(6)	No
Drawer Type (DRAWER_TYPE)	For a record of the PI record type, the data summarization type	char	No
GMT Offset (GMT_ADJUST)	Difference (in seconds) between GMT and local time	long	No
Time (TIME)	Record creation time (GMT) See <i>Note 1</i> and <i>Note 2</i>	char(3)	No

Note 1: When the performance data is displayed in the Performance Reporter reports, the Date field is displayed in *YYYYMMDD* format, the Date and Time field is displayed in *YYYYMMDD hh:mm:ss* format, and the Time field is displayed in *hh.mm.ss* format.

Note 2: Records of the PI record type summarize data from a specified period of time. The value set in this field indicates the beginning of that period. The following table lists the values set for each record type.

Table 2.7 Values Set for Each PI Record Type

Type	Values Set for Each Record Type
Minute	The beginning (0 second) of the minute for which the record was created.
Hour	The beginning (0 minute and 0 second) of the hour for which the record was created.
Day	The beginning (0 hour, 0 minute, and 0 second, AM) of the day for which the record was created.
Week	The beginning (0 hour, 0 minute, and 0 second, AM on Monday) of the week for which the record was created.
Month	The beginning (0 hour, 0 minute, and 0 second, AM on the 1 st) of the month for which the record was created.
Year	The beginning (0 hour, 0 minute, and 0 second, AM on January 1 st) of the year for which the record was created.

2.6 Notes on Collecting Records

Notes on collecting records are as follows:

2.6.1 Agent for RAID

2.6.1.1 Restrictions Regarding Volumes and Ports for Mainframes

- Restrictions when monitoring volumes for mainframes

When a logical device has an emulation type for mainframes, some performance information cannot be obtained. The field values for the records listed in the following table are always 0 when monitoring volumes for mainframes.

Table 2.8 Records Whose Field Values Are Always 0 When Monitoring Volumes for Mainframes

Record Name (Record ID)	Field
Logical Device Summary (PI_LDS)	Random Total Xfer /sec (RANDOM_TOTAL_XFER_RATE)
	Read Mbytes (READ_MBYTES)
	Read Response Rate (READ_RESPONSE_RATE)
	Read Total Response (READ_TOTAL_RESPONSE)
	Read Xfer /sec (READ_XFER_RATE)
	Sequential Total Xfer /sec (SEQUENTIAL_TOTAL_XFER_RATE)
	Total Response Rate (TOTAL_RESPONSE_RATE)
	Write Mbytes (WRITE_MBYTES)
	Write Response Rate (WRITE_RESPONSE_RATE)
	Write Total Response (WRITE_TOTAL_RESPONSE)
RAID Group Summary (PI_RGS)	Random Total Xfer /sec (RANDOM_TOTAL_XFER_RATE)
	Read Mbytes (READ_MBYTES)
	Read Xfer /sec (READ_XFER_RATE)
	Sequential Total Xfer /sec (SEQUENTIAL_TOTAL_XFER_RATE)
	Write Mbytes (WRITE_MBYTES)
	Write Xfer /sec (WRITE_XFER_RATE)

- Restrictions when monitoring ports for mainframes

When a port is used for connecting to the mainframe, not all performance information can be obtained. The field values for the records listed in the following table are always 0 when monitoring ports for mainframes.

Table 2.9 Records Whose Field Values Are Always 0 When Monitoring Ports for Mainframes

Record Name (Record ID)	Field
Port Summary (PI_PTS)	Avg I/O /sec (AVG_IO_RATE)
	Avg Xfer /sec (AVG_XFER_RATE)
	Max I/O /sec (MAX_IO_RATE)
	Max Xfer /sec (MAX_XFER_RATE)
	Min I/O /sec (MIN_IO_RATE)
	Min Xfer /sec (MIN_XFER_RATE)

2.6.1.2 Notes When Using TrueCopy or ShadowImage

When TrueCopy or ShadowImage is being used, performance information that can be collected by the Agent for RAID is limited. The following lists the performance information that can be collected by the Agent for RAID, from among performance information related to the I/Os issued during data copying from the P-VOL to the S-VOL.

- Array group usage
- Cache memory usage
- Processor usage

2.6.1.3 Correspondence Between Microcode Versions for Storage Subsystems and Agent for RAID Functionality

Before running the Agent for RAID, check the microcode version of the storage subsystem. Depending on the microcode version, some Agent for RAID functions cannot be used.

The following table shows the Agent for RAID functions that can be used with each storage subsystem microcode version.

Table 2.10 Correspondence Between Microcode Versions for Storage Subsystems and the Agent for RAID Functionality

Storage	Microcode Version	Correspondence to Agent for RAID Functionality
<ul style="list-style-type: none"> ▪ Thunder 9200 	0559 or later	<p>This is the prerequisite operating version for the Agent for RAID 5.5.</p> <p>Agent for RAID 5.5 cannot be used for microcode versions earlier than 0559.</p>
<p>Thunder 9500V Series</p> <ul style="list-style-type: none"> ▪ Thunder 9520V ▪ Thunder 9530V ▪ Thunder 9570V ▪ Thunder 9580V ▪ Thunder 9585V 	<p>For Thunder 9530V or Thunder 9570V:</p> <p>0651 or later</p>	<p>This is the prerequisite operating version for the Agent for RAID 5.5 when Thunder 9530V/9570V is monitored.</p> <p>Agent for RAID 5.5 cannot be used for microcode versions earlier than 0651.</p>
	<p>For Thunder 9530V or Thunder 9570V:</p> <p>0653/E or later</p>	<p>The following field information can be obtained:</p> <ul style="list-style-type: none"> ▪ <code>PI_LDA</code> record <ul style="list-style-type: none"> - Read Mbytes (<code>READ_MBYTES</code>) - Read Xfer /sec (<code>READ_XFER_RATE</code>) - Write Mbytes (<code>WRITE_MBYTES</code>) - Write Xfer /sec (<code>WRITE_XFER_RATE</code>) ▪ <code>PI_LDS</code> record <ul style="list-style-type: none"> - Read Mbytes (<code>READ_MBYTES</code>) - Read Xfer /sec (<code>READ_XFER_RATE</code>) - Write Mbytes (<code>WRITE_MBYTES</code>) - Write Xfer /sec (<code>WRITE_XFER_RATE</code>) ▪ <code>PI_PTS</code> record <ul style="list-style-type: none"> - Avg I/O /sec (<code>AVG_IO_RATE</code>) - Avg Xfer /sec (<code>AVG_XFER_RATE</code>) - Max I/O /sec (<code>MAX_IO_RATE</code>) - Max Xfer /sec (<code>MAX_XFER_RATE</code>) - Min I/O /sec (<code>MIN_IO_RATE</code>) - Min Xfer /sec (<code>MIN_XFER_RATE</code>) ▪ <code>PD</code> record <ul style="list-style-type: none"> - Cache Memory Capacity (<code>CACHE_MEMORY_CAPACITY</code>) ▪ <code>PI</code> record <ul style="list-style-type: none"> - Cache Memory Capacity (<code>CACHE_MEMORY_CAPACITY</code>) - Cache Memory Usage (<code>CACHE_MEMORY_USAGE</code>) - Cache Write Pending Usage (<code>CACHE_WRITE_PENDING</code>) - Cache Write Pending Usage % (<code>CACHE_WRITE_PENDING_RATE</code>) - Max Cache Write Pending Usage % (<code>MAX_CACHE_WRITE_PENDING_RATE</code>)

Thunder 9500V Series <ul style="list-style-type: none"> ▪ Thunder 9520V ▪ Thunder 9530V ▪ Thunder 9570V ▪ Thunder 9580V ▪ Thunder 9585V 	For Thunder 9580V or Thunder 9585V: 1655 or later	This is the prerequisite operating version for the Agent for RAID 5.5 when Thunder 9580V/9585V is monitored. Agent for RAID 5.5 cannot be used for microcode versions earlier than 1655.
	<ul style="list-style-type: none"> ▪ For Thunder 9530V or Thunder 9570V: 0657 or later ▪ For Thunder 9580V or Thunder 9585V: 1657 or later 	The following field information can be obtained: <ul style="list-style-type: none"> ▪ <code>PI_RGS</code> record <ul style="list-style-type: none"> - Read Mbytes (<code>READ_MBYTES</code>) - Read Xfer /sec (<code>READ_XFER_RATE</code>) - Write Mbytes (<code>WRITE_MBYTES</code>) - Write Xfer /sec (<code>WRITE_XFER_RATE</code>) ▪ <code>PI_PRCS</code> record <ul style="list-style-type: none"> - Processor Busy % (<code>PROCESSOR_BUSY_RATE</code>) - Max Processor Busy % (<code>MAX_PROCESSOR_BUSY_RATE</code>)
		The following field information has been improved to include Amount of data loaded into cache from read-only disks : <ul style="list-style-type: none"> ▪ <code>PI</code> record <ul style="list-style-type: none"> - Cache Memory Usage (<code>CACHE_MEMORY_USAGE</code>)
	For Thunder 9520V: 0659/M or later	This is the prerequisite operating version for the Agent for RAID 5.5 when Thunder 9520V is monitored. Agent for RAID 5.5 cannot be used for microcode versions earlier than 0659/M.
	<ul style="list-style-type: none"> ▪ For Thunder 9530V or Thunder 9570V: 065A/V or later ▪ For Thunder 9580V or Thunder 9585V: 165A/V or later 	The impact on both operation and processing when access contention occurs between HiCommand Tuning Manager and HiCommand Device Manager is less severe.
	<ul style="list-style-type: none"> ▪ For Thunder 9530V and Thunder 9570V: 065B/D or later ▪ For Thunder 9580V and Thunder 9585V: 165B/D or later 	The timeout duration for communication between HiCommand Tuning Manager and HiCommand Device Manager has been increased. This reduces the probability of a timeout error, even in environments with slow LAN transfer speeds.

<p>TagmaStore AMS/WMS Series</p> <ul style="list-style-type: none"> ▪ TagmaStore AMS200 ▪ TagmaStore AMS500 ▪ TagmaStore AMS1000 ▪ TagmaStore WMS100 	0710 or later	<p>This is the prerequisite operating version for the Agent for RAID 5.5 when TagmaStore AMS200 or TagmaStore AMS500 is monitored.</p> <p>Agent for RAID 5.5 cannot be used for microcode versions earlier than 0710.</p>
	0720/A or later	<p>This is the prerequisite operating version for the Agent for RAID 5.5 when TagmaStore WMS100 is monitored.</p> <p>Agent for RAID 5.5 cannot be used for microcode versions earlier than 0720/A.</p>
	0731/A or later	<p>This is the prerequisite operating version for the Agent for RAID 5.5 when TagmaStore AMS1000 is monitored.</p> <p>Agent for RAID 5.5 cannot be used for microcode versions earlier than 0731/A.</p>
<p>Lightning 9900 Series</p> <ul style="list-style-type: none"> ▪ Lightning 9960 ▪ Lightning 9910 	01-13 or later	<p>This is the prerequisite operating version for the Agent for RAID 5.5.</p> <p>Agent for RAID 5.5 cannot be used for microcode versions earlier than 01-13.</p>
	01-19-45 or later	<p>The following field information can be obtained:</p> <ul style="list-style-type: none"> ▪ PD_LDC record <ul style="list-style-type: none"> - Emulation Type (EMULATION_TYPE) - RAID Group Number (RAID_GROUP_NUMBER) - RAID Level (RAID_LEVEL) - RAID Type (RAID_TYPE) ▪ PD_LSEC record <ul style="list-style-type: none"> - Emulation Type (EMULATION_TYPE) - RAID Group Number (RAID_GROUP_NUMBER) - RAID Level (RAID_LEVEL) - RAID Type (RAID_TYPE) ▪ PD_RGC record <ul style="list-style-type: none"> - Interval (INTERVAL) - RAID Group Number (RAID_GROUP_NUMBER) - RAID Level (RAID_LEVEL) - RAID Type (RAID_TYPE) - Record Time (RECORD_TIME) - Record Type (INPUT_RECORD_TYPE)

<p>Lightning 9900 Series</p> <ul style="list-style-type: none"> ▪ Lightning 9960 ▪ Lightning 9910 	<p>01-19-45 or later</p>	<ul style="list-style-type: none"> ▪ PI_RGS record <ul style="list-style-type: none"> - Busy % (BUSY_RATE) - Interval (INTERVAL) - Max Busy % (MAX_BUSY_RATE) - RAID Group Number (RAID_GROUP_NUMBER) - Random Total I/O /sec (RANDOM_TOTAL_IO_RATE) - Random Total Xfer /sec (RANDOM_TOTAL_XFER_RATE) - Read Hit % (READ_HIT_RATE) - Read Hit I/O Count (READ_HIT_IO_COUNT) - Read I/O /sec (READ_IO_RATE) - Read I/O Count (READ_IO_COUNT) - Read Mbytes (READ_MBYTES) - Read Xfer /sec (READ_XFER_RATE) - Record Time (RECORD_TIME) - Record Type (INPUT_RECORD_TYPE) - Sequential Total I/O /sec (SEQUENTIAL_TOTAL_IO_RATE) - Sequential Total Xfer /sec (SEQUENTIAL_TOTAL_XFER_RATE) - Write I/O /sec (WRITE_IO_RATE) - Write I/O Count (WRITE_IO_COUNT) - Write Mbytes (WRITE_MBYTES) - Write Xfer /sec (WRITE_XFER_RATE) ▪ PD_PTC record <ul style="list-style-type: none"> - Port Role (PORT_ROLE)
		<p>Information on volumes for mainframes can be obtained.</p>
		<p>Information can be obtained on volumes not mapped to a port whose emulation type is set for open systems.</p>

<p>Lightning 9900V Series</p> <ul style="list-style-type: none"> ▪ Lightning 9970V ▪ Lightning 9980V 	<p>13-02 or later</p>	<p>This is the prerequisite operating version for the Agent for RAID 5.5.</p> <p>Agent for RAID 5.5 cannot be used for microcode versions earlier than 13-02.</p>
	<p>21-03 or later</p>	<p>The following field information can be obtained:</p> <ul style="list-style-type: none"> ▪ PD_IDC record <ul style="list-style-type: none"> - Emulation Type (EMULATION_TYPE) - LDEV Location (LDEV_LOCATION) - RAID Group Number (RAID_GROUP_NUMBER) - RAID Level (RAID_LEVEL) - RAID Type (RAID_TYPE) ▪ PD_ISEC record <ul style="list-style-type: none"> - Emulation Type (EMULATION_TYPE) - LDEV Location (LDEV_LOCATION) - RAID Group Number (RAID_GROUP_NUMBER) - RAID Level (RAID_LEVEL) - RAID Type (RAID_TYPE) ▪ PD_RGC record <ul style="list-style-type: none"> - Interval (INTERVAL) - RAID Group Number (RAID_GROUP_NUMBER) - RAID Level (RAID_LEVEL) - RAID Type (RAID_TYPE) - Record Time (RECORD_TIME) - Record Type (INPUT_RECORD_TYPE)

<p>Lightning 9900V Series</p> <ul style="list-style-type: none"> ▪ Lightning 9970V ▪ Lightning 9980V 	<p>21-03 or later</p>	<ul style="list-style-type: none"> ▪ PI_RGS record <ul style="list-style-type: none"> - Busy % (BUSY_RATE) - Interval (INTERVAL) - Max Busy % (MAX_BUSY_RATE) - RAID Group Number (RAID_GROUP_NUMBER) - Random Total I/O /sec (RANDOM_TOTAL_IO_RATE) - Random Total Xfer /sec (RANDOM_TOTAL_XFER_RATE) - Read Hit % (READ_HIT_RATE) - Read Hit I/O Count (READ_HIT_IO_COUNT) - Read I/O /sec (READ_IO_RATE) - Read I/O Count (READ_IO_COUNT) - Read Mbytes (READ_MBYTES) - Read Xfer /sec (READ_XFER_RATE) - Record Time (RECORD_TIME) - Record Type (INPUT_RECORD_TYPE) - Sequential Total I/O /sec (SEQUENTIAL_TOTAL_IO_RATE) - Sequential Total Xfer /sec (SEQUENTIAL_TOTAL_XFER_RATE) - Write I/O /sec (WRITE_IO_RATE) - Write I/O Count (WRITE_IO_COUNT) - Write Mbytes (WRITE_MBYTES) - Write Xfer /sec (WRITE_XFER_RATE)
		<p>Information on volumes for mainframes can be obtained.</p>
		<p>Information can be obtained on volumes not mapped to a port whose emulation type is set for open systems.</p>
	<p>21-08 or later</p>	<p>The following field information can be obtained:</p> <ul style="list-style-type: none"> ▪ PD_PTC record <ul style="list-style-type: none"> - Port Speed (PORT_SPEED) - Port Role (PORT_ROLE)
	<p>21-09-04 or later</p>	<p>The following field information can be obtained:</p> <ul style="list-style-type: none"> ▪ PI_IDS record <ul style="list-style-type: none"> - Read Response Rate (READ_RESPONSE_RATE) - Read Total Response (READ_TOTAL_RESPONSE) - Total Response Rate (TOTAL_RESPONSE_RATE) - Write Response Rate (WRITE_RESPONSE_RATE) - Write Total Response (WRITE_TOTAL_RESPONSE)

<p>Lightning 9900V Series</p> <ul style="list-style-type: none"> ▪ Lightning 9970V ▪ Lightning 9980V 	<p>21-12-01 or later</p>	<p>The obtained values for the following field information have been improved:</p> <ul style="list-style-type: none"> ▪ <code>PI_IDS</code> record <ul style="list-style-type: none"> - Read Response Rate (<code>READ_RESPONSE_RATE</code>) - Read Total Response (<code>READ_TOTAL_RESPONSE</code>) - Total Response Rate (<code>TOTAL_RESPONSE_RATE</code>) - Write Response Rate (<code>WRITE_RESPONSE_RATE</code>) - Write Total Response (<code>WRITE_TOTAL_RESPONSE</code>)
<p>TagmaStore USP</p> <ul style="list-style-type: none"> ▪ TagmaStore USP100 ▪ TagmaStore USP600 ▪ TagmaStore USP1100 ▪ TagmaStore NSC55 	<p>50-03-08 or later</p>	<p>The obtained values for the following field information have been improved:</p> <ul style="list-style-type: none"> ▪ <code>PI</code> record <ul style="list-style-type: none"> - Cache Memory Usage (<code>CACHE_MEMORY_USAGE</code>) - Cache Side File Usage (<code>CACHE_SIDE_FILE</code>) - Cache Side File Usage % (<code>CACHE_SIDE_FILE_RATE</code>) - Cache Write Pending Usage (<code>CACHE_WRITE_PENDING</code>) - Cache Write Pending Usage % (<code>CACHE_WRITE_PENDING_RATE</code>) - Max Cache Side File Usage % (<code>MAX_CACHE_SIDE_FILE_RATE</code>) - Max Cache Write Pending Usage % (<code>MAX_CACHE_WRITE_PENDING_RATE</code>)
	<p>50-03-13 or later</p>	<p>Information about processors whose processor type is <code>DKP</code> (Disk Processor) can be obtained for <code>PI_PRCS</code> records.</p>
	<p>50-03-50 or later</p>	<p>When the following field information is obtained, settings to collect statistical performance information on the monitored storage subsystem are not necessary:</p> <ul style="list-style-type: none"> ▪ <code>PI_RGS</code> record <ul style="list-style-type: none"> - Busy % (<code>BUSY_RATE</code>) - Max Busy % (<code>MAX_BUSY_RATE</code>)
	<p>50-05-57 or later, 50-06-21 or later, or 50-07-69 or later</p>	<p>These are the prerequisite operating versions for the Agent for RAID 5.5 when TagmaStore USP is monitored. When the microcode version for TagmaStore USP is earlier than 50-05-57, between 50-06-00 and 50-06-20 or between 50-07-00 and 50-07-68, delays will occur in the I/O response from a host that uses the same CHP as that used by the port for the Agent for RAID command device.</p>

2.6.1.4 Record Generation Result When Data Cannot Be Obtained

The following describes record creation results in cases where the data to be stored in a field cannot be obtained. If an error occurs during performance data collection or if a field that is not supported by the monitored system is included in the created record, the record creation results are as follows:

- Records are not created.

Records are not created when the Agent for RAID cannot:

- Acquire the performance data to be stored in a field defined as a key field.
- Acquire the performance data to be stored in a field containing performance information about the Agent for RAID.
- Generate a record within the time set for Collection Interval.

- Records are created containing blank fields.

Records containing a blank field are created if the Agent for RAID cannot obtain performance data to be stored in a character-type field that contains the Agent for RAID configuration information.

- Records are created containing fields with the value 0.

Records containing fields with the value 0 are created when the Agent for RAID cannot obtain performance data to be stored in a numeric-type field that contains the Agent for RAID configuration information.

2.6.2 Agent for SAN Switch

2.6.2.1 Relationship Between the Timing of Configuration Information Collection and Configuration Change

The Agent for SAN Switch collects performance information about a switch and switch port based on fabric configuration information.

The fabric configuration information is updated every hour. Therefore, after fabric configuration information is changed, the Agent for SAN Switch cannot recognize the changed configuration until it obtains new configuration information.

In this case, the Agent for SAN Switch does the following:

- When a switch is deleted from the fabric:
The Agent for SAN Switch outputs a message indicating that it failed to collect information required for record generation.
- When a switch is added to the fabric:
The Agent for SAN Switch does not collect performance information about the added switch until it collects new configuration information.

2.6.2.2 Record Generation Result When Data Cannot Be Obtained

The following describes record creation results in cases where the data to be stored in a field cannot be obtained. If an error occurs during performance data collection or if a field that is not supported by the monitored fabric is included in the created record, the record creation results are as follows:

- Records are not created.
Records are not created when the Agent for SAN Switch cannot:
 - Acquire the performance data to be stored in a field defined as a key field.
 - Acquire the performance data to be stored in a field containing performance information about the Agent for SAN Switch.
 - Acquire the cumulative performance data for switches that is larger than the previously collected data.
 - Generate a record within the time set for Collection Interval.

- Records are created containing blank fields.
Records containing a blank field are created when the Agent for SAN Switch cannot obtain performance data to be stored in a character-type field that contains the Agent for SAN Switch configuration information.
- Records are created containing fields with the value `-1`.
Records containing fields with the value `-1` are created when the Agent for SAN Switch cannot obtain performance data to be stored in a numeric-type field that contains the Agent for SAN Switch configuration information.
- Records are created containing fields with the value `Unknown`.
Records are created containing fields with the value `Unknown` when the Agent for SAN Switch:
 - Obtains performance data whose value is not within the defined range, for a field whose range of storable values is defined.
 - Fails to obtain performance data for a field whose range of storable values is defined.

2.6.3 Agent for NAS

2.6.3.1 Record Generation Result When Data Cannot Be Obtained

The following describes record creation results in cases where the data to be stored in a field cannot be obtained. If an error occurs during performance data collection or if a field that is not supported by the monitored system is included in the created record, the record creation results are as follows:

- Records are not created.
Records are not created when the Agent for NAS cannot:
 - Acquire the performance data to be stored in a field defined as a key field.
 - Generate a record within the time set for Collection Interval.
- Records are created containing fields with the value 0.

If the result of calculation performed by the Agent for NAS on a numeric field is negative, a record is created with the field set to a value of 0.

In this case, the following message is output to the common message log:

KAVF24154-W: A record was created with a field for which a value of 0 was set.

For fields that can be set to 0, "If the collected information is incorrect, set 0." is written in the field's description.

2.7 Agent for RAID Records

Table 2.11 lists the records that can be collected by the Agent for RAID and the information that is stored in each record.

Table 2.11 Agent for RAID Records

Record Name	Record ID	Information Stored in Record
CLPR Configuration	PD_CLPC	Performance data indicating configuration information for CLPR
CLPR Summary	PI_CLPS	Performance data indicating the operation status of the cache memory for each CLPR
External LDEV Configuration	PD_ELC	Performance data indicating configuration information for an externally connected LDEV (logical device).
Logical Device Aggregation	PI_LDA	Performance data indicating the values summarizing the execution status of read/write operations on the logical devices for each storage subsystem
Logical Device Configuration	PD_LDC	Performance data indicating the configuration information of the logical device
Logical Device Summary	PI_LDS	Performance data indicating the execution status of read/write operations on the logical device
LUSE Configuration	PD_LSEC	Performance data indicating configuration information for a logical device that is an LUSE.
Physical Device Summary	PI_PDS	This record cannot be used because it is reserved.
Port Configuration	PD_PTC	Performance data indicating the configuration information of the port of the disk array device
Port Summary	PI_PTS	Performance data indicating the read/write status of each port of the disk array device
Processor Summary	PI_PPCS	Performance data indicating the operation status of the processor mounted on the storage subsystem
RAID Group Configuration	PD_RGC	Performance data indicating configuration information for an array group.
RAID Group Summary	PI_RGS	Performance data indicating the execution status of read/write from/to an array group.
Storage Detail	PD	Performance data indicating detailed information about the storage subsystem
Storage Summary	PI	Performance data indicating the operation status of the storage subsystem

2.7.1 CLPR Configuration (PD_CLPC)

Function

The CLPR Configuration (PD_CLPC) record stores performance data indicating the CLPR configuration information. This is a multi-instance record.

Table 2.12 CLPR Configuration (PD_CLPC) Default and Changeable Values

Item	Default Value	Changeable?
Collection Interval	3600	No
Collection Offset	0	
Log	Yes	
LOGIF	(Blank)	

Key Fields

CLPR Number (CLPR_NUMBER)

Lifetime

From when the CLPR instance is defined to when it is deleted or its definition is changed.

Record Size

- Fixed part: 677 bytes
- Variable part: 84 bytes

Table 2.13 CLPR Configuration (PD_CLPC) Fields

CLPR Configuration (PD_CLPC)					
View Name (Manager Name)	Description	Format	Delta	Supported Storage	Data Source
Cache Memory Capacity (CACHE_MEMORY_CAPACITY)	Cache memory size assigned for this CLPR instance (MB)	ulong	No	TagmaStore AMS See <i>Note</i> 1, 2 TagmaStore USP	--
CLPR Name (CLPR_NAME)	CLPR name	string(20)	No	TagmaStore USP	--
CLPR Number (CLPR_NUMBER)	CLPR number	string(8)	No	TagmaStore AMS TagmaStore USP	--
Interval (INTERVAL)	Interval (in seconds) at which information is	ulong	No	TagmaStore AMS	--

	collected			TagmaStore USP	
Record Time (RECORD_TIME)	Record creation time (GMT)	time_t	No	TagmaStore AMS TagmaStore USP	--
Record Type (INPUT_RECORD_TYPE)	Record type identifier, which is always set to CLPC	string(8)	No	TagmaStore AMS TagmaStore USP	--
SLPR Name (SLPR_NAME)	Name of the SLPR to which this CLPR instance belongs	string(40)	No	TagmaStore USP	--
SLPR Number (SLPR_NUMBER)	Number for the SLPR to which this CLPR instance belongs	string(8)	No	TagmaStore USP	--

Notes:

- 1: Values can only be obtained when performance statistics are set to be collected on the storage subsystem to be monitored.
- 2: This value is the actual assigned cache memory size, and thus it differs from the value set in Storage Navigator Modular.

2.7.2 CLPR Summary (PI_CLPS)

Function

The CLPR Summary (PI_CLPS) record stores performance data indicating the operation status of the cache memory for each CLPR. This is a multi-instance record.

Table 2.14 CLPR Summary (PI_CLPS) Default and Changeable Values

Item	Default Value	Changeable?
Collection Interval	60	No
Collection Offset	0	
Log	Yes	
LOGIF	(Blank)	

Key Fields

CLPR Number (CLPR_NUMBER)

Lifetime

From when the CLPR instance is defined to when it is deleted or its definition is changed.

Record Size

- Fixed part: 677 bytes
- Variable part: 64 bytes

Table 2.15 CLPR Summary (PI_CLPS) Fields

CLPR Summary (PI_CLPS)					
View Name (Manager Name)	Description	Format	Delta	Supported Storage	Data Source
Cache Memory Capacity (CACHE_MEMORY_CAPACITY)	Cache memory size assigned for this CLPR instance (MB)	ulong	No	TagmaStore AMS See <i>Note</i> 1, 2 TagmaStore USP	--
Cache Side File Usage (CACHE_SIDE_FILE)	Of the cache memory assigned for this CLPR instance, the size of the cache memory used by Side File (MB)	ulong	No	TagmaStore USP	--

Cache Side File Usage % (CACHE_SIDE_FILE_RATE)	Of the cache memory assigned for this CLPR instance, the percentage of the cache memory used by Side File	float	No	TagmaStore USP	--
Cache Write Pending Usage (CACHE_WRITE_PENDING)	Of the cache memory assigned for this CLPR instance, the size of the cache memory used by the data waiting for a write operation (MB)	ulong	No	TagmaStore AMS See <i>Note</i> 1 TagmaStore USP	--
Cache Write Pending Usage % (CACHE_WRITE_PENDING_RATE)	Of the cache memory assigned for this CLPR instance, the percentage of the cache memory used by the data waiting for a write operation	float	No	TagmaStore AMS See <i>Note</i> 1 TagmaStore USP	--
CLPR_Number (CLPR_NUMBER)	CLPR number	string(8)	No	TagmaStore AMS TagmaStore USP	--
Interval (INTERVAL)	Interval (in seconds) at which information is collected	ulong	No	TagmaStore AMS TagmaStore USP	--
Max Cache Side File Usage % (MAX_CACHE_SIDE_FILE_RATE)	Of the cache memory assigned for this CLPR instance, the percentage used by Side File. <i>Note:</i> If the values of a lower unit (e.g., minutes) are summarized to a higher unit (e.g., hours), the maximum value is stored rather than the average value.	float	No	TagmaStore USP	--

Max Cache Write Pending Usage % (MAX_CACHE_WRITE_PENDING_RATE)	Of the cache memory assigned for this CLPR instance, the percentage used by the data waiting for a write operation. <i>Note:</i> If the values of a lower unit (e.g., minutes) are summarized to a higher unit (e.g., hours), the maximum value is stored rather than the average value.	float	No	TagmaStore AMS See <i>Note</i> 1 TagmaStore USP	--
Record Time (RECORD_TIME)	Record creation time (GMT)	time_t	No	TagmaStore AMS TagmaStore USP	--
Record Type (INPUT_RECORD_TYPE)	Record type identifier, which is always set to CLPS	string(8)	No	TagmaStore AMS TagmaStore USP	--

Notes:

- 1: Values can only be obtained when performance statistics are set to be collected on the storage subsystem to be monitored.
- 2: This value is the actual assigned cache memory size, and thus it differs from the value set in Storage Navigator Modular.

2.7.3 External LDEV Configuration (PD_ELC)

Function

The External LDEV Configuration (PD_ELC) record holds performance data indicating configuration information for an externally connected LDEV (logical device). This is a multi-instance record. Also, this data is not collected if there is no disk array that is mapped to an externally connected LDEV.

Table 2.16 External LDEV Configuration (PD_ELC) Default and Changeable Values

Item	Default Value	Changeable?
Collection Interval	3600	No
Collection Offset	0	
Log	Yes	
LOGIF	(Blank)	

Key Fields

LDEV Number (LDEV_NUMBER)

Lifetime

From when the externally connected LDEV is configured to when it is canceled.

Record Size

- Fixed part: 677 bytes
- Variable part: 261 bytes

Table 2.17 External LDEV Configuration (PD_ELC) Fields

External LDEV Configuration(PD_ELC)					
View Name (Manager Name)	Description	Format	Delta	Supported Storage	Data Source
DKC Name (DKC_NAME)	Product name of the externally connected disk array device	string(64)	No	TagmaStore USP See <i>Note 1</i>	--
External LDEV Number (EXTERNAL_LDEV_NUMBER)	Logical device number of the externally connected LDEV	string(16)	No	TagmaStore USP See <i>Note 1</i>	--
Interval (INTERVAL)	Interval (in seconds) at which information is collected	ulong	No	TagmaStore USP	--
LDEV Number (LDEV_NUMBER)	Logical device number	string(16)	No	TagmaStore USP	--

				See <i>Note 2</i>	
Product ID (PRODUCT_ID)	This field cannot be used because it is reserved.	--	--	--	--
Record Time (RECORD_TIME)	Record creation time (GMT)	time_t	No	TagmaStore USP	--
Record Type (INPUT_RECORD_TYPE)	Record type identifier, which is always set to ELC	string(8)	No	TagmaStore USP	--
Serial Number (SERIAL_NUMBER)	Serial number of the externally connected disk array	string(32)	No	TagmaStore USP See <i>Note 1</i>	--
Unit ID (UNIT_ID)	This field cannot be used because it is reserved.	--	--	--	--
Vendor ID (VENDOR_ID)	Vendor name of the externally connected disk array	string(64)	No	TagmaStore USP	--

Note 1: If any of the following disk array devices is mapped as an externally connected LDEV, the storage subsystem can be supported.

- Thunder 9200
- Thunder 9500V Series
- TagmaStore AMS/WMS Series
- Lightning 9900 Series
- Lightning 9900V Series
- TagmaStore USP

Note 2: No record is created for logical devices whose LDEV number is 40:00 or higher.

2.7.4 Logical Device Aggregation (PI_LDA)

Function

The Logical Device Aggregation (PI_LDA) record stores the performance data indicating the values summarizing the execution status of read/write operations on the logical devices for each storage subsystem.

Notes:

- If the Agent has started in SLPR restricted mode, it stores summarized results for the operation status of the monitored SLPR.
- The summarized results do not contain the operation statuses of the logical devices that are outside the data collection range, because of the settings specified for the Agent instance information.

Table 2.18 Logical Device Aggregation (PI_LDA) Default and Changeable Values

Item	Default	Changeable?
Collection Interval	300	No
Collection Offset	0	
Log	Yes	
LOGIF	(Blank)	

Key Fields

None

Lifetime

From when the instance is created to when it is deleted.

Record Size

- Fixed part: 921 bytes
- Variable part: 0 bytes

Table 2.19 Logical Device Aggregation (PI_LDA) Fields

Logical Device Aggregation (PI_LDA)					
View Name (Manager Name)	Description	Format	Delta	Supported Storage	Data Source
Interval (INTERVAL)	Interval in seconds during which the information is collected	ulong	No	Thunder 9200 Thunder 9500V TagmaStore AMS Lightning 9900 Lightning 9900V TagmaStore USP	--
LDEV Count (LDEV_COUNT)	Number of logical devices that can be used in the storage subsystem	ulong	No	Thunder 9200 Thunder 9500V TagmaStore AMS Lightning 9900 Lightning 9900V TagmaStore USP	--
Read Hit % (READ_HIT_RATE)	Cache hit rate of read operations	double	No	Thunder 9200 Thunder 9500V TagmaStore AMS See <i>Note 1</i> Lightning 9900 Lightning 9900V TagmaStore USP	$(\text{READ_HIT_I/O_COUNT} / \text{READ_IO_COUNT}) * 100$
Read Hit I/O Count (READ_HIT_IO_COUNT)	Number of times the cache is hit for read operations	double	Yes	Thunder 9200 Thunder 9500V TagmaStore AMS See <i>Note 1</i> Lightning 9900 Lightning 9900V TagmaStore USP	--

Read I/O /sec (READ_IO_RATE)	Frequency of read operations (number of times per second)	double	No	Thunder 9200 Thunder 9500V TagmaStore AMS See <i>Note 1</i> Lightning 9900 Lightning 9900V TagmaStore USP	READ_IO_CO UNT / INTERVAL
Read I/O Count (READ_IO_COUNT)	Number of read operations	double	Yes	Thunder 9200 Thunder 9500V TagmaStore AMS See <i>Note 1</i> Lightning 9900 Lightning 9900V TagmaStore USP	--
Read Mbytes (READ_MBYTES)	Read data transfer size (MB)	double	Yes	Thunder 9500V See <i>Note 1</i> TagmaStore AMS See <i>Note 1</i> Lightning 9900 See <i>Note 2</i> Lightning 9900V See <i>Note 2</i> TagmaStore USP See <i>Note 2</i>	--
Read Response Rate (READ_RESPONSE_RATE)	This field cannot be used because it is reserved.	--	--	--	--
Read Total Response (READ_TOTAL_RESPONSE)	This field cannot be used because it is reserved.	--	--	--	--
Read Xfer /sec (READ_XFER_RATE)	Read transfer speed (MB per second)	double	No	Thunder 9500V See <i>Note 1</i> TagmaStore AMS See <i>Note 1</i> Lightning 9900 See <i>Note 2</i> Lightning 9900V See <i>Note 2</i> TagmaStore USP See <i>Note 2</i>	READ_ MBYTES / INTERVAL
Record Time (RECORD_TIME)	GMT when the record is stored	time_t	No	Thunder 9200 Thunder 9500V TagmaStore AMS Lightning 9900	--

				Lightning 9900V TagmaStore USP	
Record Type (INPUT_RECORD_TYPE)	Record type identifier, which is always set to LDA	string (8)	No	Thunder 9200 Thunder 9500V TagmaStore AMS Lightning 9900 Lightning 9900V TagmaStore USP	--
Write Hit % (WRITE_HIT_RATE)	Cache hit rate of write operations	double	No	Thunder 9200 Thunder 9500V TagmaStore AMS See <i>Note 1</i>	$(\frac{WRITE_HIT_IO_COUNT}{WRITE_IO_COUNT}) * 100$
Write Hit I/O Count (WRITE_HIT_IO_COUNT)	Number of times the cache is hit for write operations	double	Yes	Thunder 9200 Thunder 9500V TagmaStore AMS See <i>Note 1</i>	--
Write I/O /sec (WRITE_IO_RATE)	Frequency of write operations (number of times per second)	double	No	Thunder 9200 Thunder 9500V TagmaStore AMS See <i>Note 1</i> Lightning 9900 Lightning 9900V TagmaStore USP	$\frac{WRITE_IO_COUNT}{INTERVAL}$
Write I/O Count (WRITE_IO_COUNT)	Number of write operations	double	Yes	Thunder 9200 Thunder 9500V TagmaStore AMS See <i>Note 1</i> Lightning 9900 Lightning 9900V TagmaStore USP	--
Write Mbytes (WRITE_MBYTES)	Write data transfer size (MB)	double	Yes	Thunder 9500V See <i>Note 1</i> TagmaStore AMS See <i>Note 1</i> Lightning 9900 See <i>Note 2</i> Lightning 9900V See <i>Note 2</i> TagmaStore USP See <i>Note 2</i>	--

Write Response Rate (WRITE_RESPONSE_RATE)	This field cannot be used because it is reserved.	--	--	--	--
Write Total Response (WRITE_TOTAL_RESPONSE)	This field cannot be used because it is reserved.	--	--	--	--
Write Xfer /sec (WRITE_XFER_RATE)	Write transfer speed (number of MB per second)	double	No	Thunder 9500V See <i>Note 1</i> TagmaStore AMS See <i>Note 1</i> Lightning 9900 See <i>Note 2</i> Lightning 9900V See <i>Note 2</i> TagmaStore USP See <i>Note 2</i>	WRITE_MBYTES / INTERVAL

Notes:

- 1: This value can be collected only when the settings specify that performance statistics of the monitored storage subsystem (either the Thunder 9500V or TagmaStore AMS/WMS series) are to be collected.
- 2: Performance information for the logical devices with the mainframe emulation type setting is not included in the field value.

2.7.5 Logical Device Configuration (PD_LDC)

Function

The Logical Device Configuration (PD_LDC) record stores the performance data indicating the configuration information of the logical device. This is a multi-instance record.

Note: If the Agent has started in SLPR restricted mode, it collects only the information on logical devices that belong to the monitored SLPR.

Table 2.20 Logical Device Configuration (PD_LDC) Default and Changeable Values

Item	Default	Changeable?
Collection Interval	3600	No
Collection Offset	0	
Log	Yes	
LOGIF	(Blank)	

Key Fields

LDEV Number (LDEV_NUMBER)

Lifetime

From when the logical device is configured to when it is canceled.

Record Size

- Fixed part: 677 bytes
- Variable part: 384 bytes

Table 2.21 Logical Device Configuration (PD_LDC) Fields

Logical Device Configuration (PD_LDC)					
View Name (Manager Name)	Description	Format	Delta	Supported Storage	Data Source
CLPR Number (CLPR_NUMBER)	Number for the CLPR to which the logical device has been assigned	string(8)	No	TagmaStore AMS TagmaStore USP	--
Emulation Type (EMULATION_TYPE)	Emulation type of the logical device	string(64)	No	Lightning 9900 Lightning 9900V TagmaStore USP	--

Interval (INTERVAL)	Interval in seconds during which the information is collected	ulong	No	Thunder 9200 Thunder 9500V TagmaStore AMS Lightning 9900 Lightning 9900V TagmaStore USP	--
LDEV Attribute (LDEV_ATTRIBUTE)	This field cannot be used because it is reserved.	--	--	--	--
LDEV Location (LDEV_LOCATION)	Whether the logical device is an externally connected LDEV <ul style="list-style-type: none"> ▪ Internal ▪ External 	string(16)	No	Thunder 9200 Thunder 9500V TagmaStore AMS Lightning 9900 Lightning 9900V TagmaStore USP	--
LDEV Name (LDEV_NAME)	This field cannot be used because it is reserved.	--	--	--	--
LDEV Number (LDEV_NUMBER)	Logical device number	string(16)	No	Thunder 9200 Thunder 9500V TagmaStore AMS Lightning 9900 Lightning 9900V TagmaStore USP See <i>Note 4</i>	--
LDEV Status (LDEV_STATUS)	This field cannot be used because it is reserved.	--	--	--	--
LU Property (LU_PROPERTY)	This field cannot be used because it is reserved.	--	--	--	--
LUSE Volume (LUSE_VOLUME)	<ul style="list-style-type: none"> ▪ Information indicating whether the logical device is a component of LUSE. See <i>Note 1</i> ▪ LUSE 	string(16)	No	Thunder 9200 Thunder 9500V TagmaStore AMS Lightning 9900 Lightning 9900V TagmaStore USP	--
PDEV Number (PDEV_NUMBER)	This field cannot be used because it is reserved.	--	--	--	--

RAID Group Number (RAID_GROUP_NUMBER)	Array group number of the logical device	string(64)	No	Thunder 9200 Thunder 9500V TagmaStore AMS Lightning 9900 Lightning 9900V See <i>Note 2</i> TagmaStore USP See <i>Note 2</i> and <i>Note 3</i>	--
RAID Level (RAID_LEVEL)	RAID level of logical device	unsigned char	No	Thunder 9200 Thunder 9500V TagmaStore AMS Lightning 9900 Lightning 9900V See <i>Note 2</i> TagmaStore USP See <i>Note 2</i> and <i>Note 3</i>	--
RAID Type (RAID_TYPE)	Combination of the RAID level and HDU of the logical device <i>Example:</i> RAID5 (3D+1P)	string(32)	No	Thunder 9200 Thunder 9500V TagmaStore AMS Lightning 9900 Lightning 9900V See <i>Note 2</i> TagmaStore USP See <i>Note 2</i> and <i>Note 3</i>	--
Record Time (RECORD_TIME)	GMT when the record is stored	time_t	No	Thunder 9200 Thunder 9500V TagmaStore AMS Lightning 9900 Lightning 9900V TagmaStore USP	--
Record Type (INPUT_RECORD_TYPE)	Record type identifier, which is always set to LDC	string(8)	No	Thunder 9200 Thunder 9500V TagmaStore AMS Lightning 9900 Lightning 9900V TagmaStore USP	--

Replication Attribute (REPLICATION_ATTRIBUTE)	This field cannot be used because it is reserved.	--	--	--	--
SLPR Number (SLPR_NUMBER)	Number for the SLPR to which the logical device belongs	string(8)	No	TagmaStore USP	--

Notes:

- 1: If the logical device is a component of an LUSE, this field only stores the record for the first logical device (for TagmaStore USP, Lightning 9900V Series or Lightning 9900 Series) or the main logical unit (for TagmaStore AMS/WMS Series, Thunder 9500V Series or Thunder 9200) of the LUSE. You can use the PD_LSEC record to acquire configuration information for other logical devices included in the LUSE. **Note:** If the LUSE consists of externally connected logical devices and no LU path is set for the LUSE, the LUSE is not recognized as a LUSE and records are created for individual logical devices. In this case, the PD_LSEC record is not created for individual logical devices.
- 2: This is not supported when the logical device is an externally connected LDEV.
- 3: This is not supported when the logical device is a V-VOL for QuickShadow/COW Snapshot.
- 4: No record is created for logical devices whose LDEV number is 40:00 or higher.

2.7.6 Logical Device Summary (PI_LDS)

Function

The Logical Device Summary (PI_LDS) record stores the performance data indicating the execution status of read/write operations on the logical device. This is a multi-instance record.

Note: If the Agent has started in SLPR restricted mode, it collects only the information on logical devices that belong to the monitored SLPR.

Table 2.22 Logical Device Summary (PI_LDS) Default and Changeable Values

Item	Default	Changeable?
Collection Interval	300	No
Collection Offset	0	
Log	Yes	
LOGIF	(Blank)	

Key Fields

LDEV Number (LDEV_NUMBER)

Lifetime

From when the logical device is configured to when it is canceled.

Record Size

- Fixed part: 677 bytes
- Variable part: 268 bytes

Table 2.23 Logical Device Summary (PI_LDS) Fields

Logical Device Summary (PI_LDS)					
View Name (Manager Name)	Description	Format	Delta	Supported Storage	Data Source
Interval (INTERVAL)	Interval in seconds during which the information is collected	ulong	No	Thunder 9200 Thunder 9500V TagmaStore AMS Lightning 9900 Lightning 9900V TagmaStore USP	--

LDEV Number (LDEV_NUMBER)	Logical device number See <i>Note 1</i>	string(16)	No	Thunder 9200 Thunder 9500V TagmaStore AMS Lightning 9900 Lightning 9900V TagmaStore USP See <i>Note 4</i>	--
Random Total I/O /sec (RANDOM_TOTAL_IO_RATE)	Frequency of random operations (times per second)	float	No	Lightning 9900 Lightning 9900V TagmaStore USP	--
Random Total Xfer /sec (RANDOM_TOTAL_XFER_RATE)	Transfer rate of random operations (megabytes per second)	float	No	Lightning 9900 See <i>Note 3</i> Lightning 9900V See <i>Note 3</i> TagmaStore USP See <i>Note 3</i>	--
Read Hit % (READ_HIT_RATE)	Cache hit rate of read operations See <i>Note 1</i>	float	No	Thunder 9200 Thunder 9500V TagmaStore AMS See <i>Note 2</i> Lightning 9900 Lightning 9900V TagmaStore USP	$\frac{\text{READ_HIT_IO_COUNT}}{\text{READ_IO_COUNT}} * 100$
Read Hit I/O Count (READ_HIT_IO_COUNT)	Number of times the cache is hit for read operations See <i>Note 1</i>	ulong	Yes	Thunder 9200 Thunder 9500V TagmaStore AMS See <i>Note 2</i> Lightning 9900 Lightning 9900V TagmaStore USP	--
Read I/O /sec (READ_IO_RATE)	Frequency of read operations (number of times per second) See <i>Note 1</i>	float	No	Thunder 9200 Thunder 9500V TagmaStore AMS See <i>Note 2</i> Lightning 9900 Lightning 9900V TagmaStore USP	$\frac{\text{READ_IO_COUNT}}{\text{INTERVAL}}$
Read I/O Count (READ_IO_COUNT)	Number of read operations See <i>Note 1</i>	ulong	Yes	Thunder 9200 Thunder 9500V TagmaStore AMS	--

				See <i>Note 2</i> Lightning 9900 Lightning 9900V TagmaStore USP	
Read Mbytes (READ_MBYTES)	Read data transfer size (MB) See <i>Note 1</i>	ulong	Yes	Thunder 9500V See <i>Note 2</i> TagmaStore AMS See <i>Note 2</i> Lightning 9900 See <i>Note 3</i> Lightning 9900V See <i>Note 3</i> TagmaStore USP See <i>Note 3</i>	--
Read Response Rate (READ_RESPONSE_RATE)	Average processing time for each read operation request (in micro seconds) See <i>Note 1</i>	float	No	Lightning 9900V See <i>Note 3</i> TagmaStore USP See <i>Note 3</i>	--
Read Total Response (READ_TOTAL_RESPONSE)	Total processing time for read operation requests (in micro seconds) See <i>Note 1</i>	double	Yes	Lightning 9900V See <i>Note 3</i> TagmaStore USP See <i>Note 3</i>	--
Read Xfer /sec (READ_XFER_RATE)	Read data transfer rate (MB per second) See <i>Note 1</i>	float	No	Thunder 9500V See <i>Note 2</i> TagmaStore AMS See <i>Note 2</i> Lightning 9900 See <i>Note 3</i> Lightning 9900V See <i>Note 3</i> TagmaStore USP See <i>Note 3</i>	READ_MBYTES / INTERVAL
Record Time (RECORD_TIME)	GMT when the record is stored	time_t	No	Thunder 9200 Thunder 9500V TagmaStore AMS Lightning 9900 Lightning 9900V TagmaStore USP	--
Record Type (INPUT_RECORD_TYPE)	Record type identifier, which is always set to LDS	string(8)	No	Thunder 9200 Thunder 9500V TagmaStore AMS Lightning 9900 Lightning 9900V	--

				TagmaStore USP	
Sequential Total I/O /sec (SEQUENTIAL_TOTAL_IO_RATE)	Frequency of sequential operations (times per second)	float	No	Lightning 9900 Lightning 9900V TagmaStore USP	--
Sequential Total Xfer /sec (SEQUENTIAL_TOTAL_XFER_RATE)	Transfer rate of sequential operations (megabytes per second)	float	No	Lightning 9900 See <i>Note 3</i> Lightning 9900V See <i>Note 3</i> TagmaStore USP See <i>Note 3</i>	--
Total Response Rate (TOTAL_RESPONSE_RATE)	Average processing time for each read/write operation request (in micro seconds) See <i>Note 1</i>	float	No	Lightning 9900V See <i>Note 3</i> TagmaStore USP See <i>Note 3</i>	--
Write Hit % (WRITE_HIT_RATE)	Cache hit rate of write operations See <i>Note 1</i>	float	No	Thunder 9200 Thunder 9500V TagmaStore AMS See <i>Note 2</i>	$(\text{WRITE_HIT_IO_COUNT} / \text{WRITE_IO_COUNT})^* \times 100$
Write Hit I/O Count (WRITE_HIT_IO_COUNT)	Number of times the cache is hit for write operations See <i>Note 1</i>	ulong	Yes	Thunder 9200 Thunder 9500V TagmaStore AMS See <i>Note 2</i>	--
Write I/O /sec (WRITE_IO_RATE)	Frequency of write operations (number of times per second) See <i>Note 1</i>	float	No	Thunder 9200 Thunder 9500V TagmaStore AMS See <i>Note 2</i> Lightning 9900 Lightning 9900V TagmaStore USP	$\text{WRITE_IO_COUNT} / \text{INTERVAL}$
Write I/O Count (WRITE_IO_COUNT)	Number of write operations See <i>Note 1</i>	ulong	Yes	Thunder 9200 Thunder 9500V TagmaStore AMS See <i>Note 2</i> Lightning 9900 Lightning 9900V TagmaStore USP	--
Write Mbytes (WRITE_MBYTES)	Write data transfer size (MB) See <i>Note 1</i>	ulong	Yes	Thunder 9500V See <i>Note 2</i> TagmaStore AMS	--

				See <i>Note 2</i> Lightning 9900 See <i>Note 3</i> Lightning 9900V See <i>Note 3</i> TagmaStore USP See <i>Note 3</i>	
Write Response Rate (WRITE_RESPONSE_RATE)	Average processing time for each write operation request (in micro seconds) See <i>Note 1</i>	float	No	Lightning 9900V See <i>Note 3</i> TagmaStore USP See <i>Note 3</i>	--
Write Total Response (WRITE_TOTAL_RESPONSE)	Total processing time for write operation requests (in micro seconds) See <i>Note 1</i>	double	Yes	Lightning 9900V See <i>Note 3</i> TagmaStore USP See <i>Note 3</i>	--
Write Xfer /sec (WRITE_XFER_RATE)	Write transfer speed (MB per second) See <i>Note 1</i>	float	No	Thunder 9500V See <i>Note 2</i> TagmaStore AMS See <i>Note 2</i> Lightning 9900 See <i>Note 3</i> Lightning 9900V See <i>Note 3</i> TagmaStore USP See <i>Note 3</i>	WRITE_MBYTES / INTERVAL

Notes:

- 1: If the logical device is a component of LUSE, LDEV_NUMBER indicates the following value:
 - For TagmaStore USP, Lightning 9900V series or Lightning 9900 series
Logical device number of the first logical device within the group of the logical devices that make up the LUSE
 - For TagmaStore AMS/WMS series, Thunder 9500V series or Thunder 9200
Logical device number of the main logical unit

Each performance information field contains statistics on read or write operations performed on the entire logical device group that makes up the LUSE. No record is created for individual logical devices included in the LUSE. **Note:** If that, if the LUSE consists of externally connected logical devices and no LU path is set for the LUSE, the LUSE is not recognized as a LUSE and records are created for individual logical devices.

- 2: This value can be collected only when the settings specify that performance statistics of the monitored storage (either the Thunder 9500V or TagmaStore AMS/WMS series) subsystem are to be collected.
- 3: For logical devices with the mainframe emulation type setting, the field value will be 0.
- 4: No record is created for logical devices whose LDEV number is 40:00 or higher.

2.7.7 LUSE Configuration (PD_LSEC)

Function

The LUSE Configuration (PD_LSEC) record holds performance data indicating configuration information for logical devices that make up the LUSE. This is a multi-instance record. This record is not collected if the LUSE consists of externally connected logical devices and no LU path is set for the LUSE. Also, this record is not collected if no LUSE is included in the disk array.

Note: If the Agent has started in SLPR restricted mode, it collects only the information on logical devices that belong to the monitored SLPR.

Table 2.24 LUSE Configuration (PD_LSEC) Default and Changeable Values

Item	Default value	Changeable?
Collection Interval	3600	No
Collection Offset	0	
Log	Yes	
LOGIF	(Blank)	

Key Fields

LDEV Number (LDEV_NUMBER)

Lifetime

From when the LUSE is configured to when it is canceled.

Record Size

- Fixed part: 677 bytes
- Variable part: 384 bytes

Table 2.25 LUSE Configuration (PD_LSEC) Fields

LUSE Configuration(PD_LSEC)					
View Name (Manager Name)	Description	Format	Delta	Supported Storage	Data Source
CLPR Number (CLPR_NUMBER)	Number for the CLPR to which the logical device has been assigned	string(8)	No	TagmaStore AMS TagmaStore USP	--
Emulation Type (EMULATION_TYPE)	Emulation type of the logical device	string(64)	No	Lightning 9900 Lightning 9900V TagmaStore USP	--

Interval (INTERVAL)	Interval (in seconds) at which information is collected	ulong	No	Thunder 9200 Thunder 9500V TagmaStore AMS Lightning 9900 Lightning 9900V TagmaStore USP	--
LDEV Attribute (LDEV_ATTRIBUTE)	This field cannot be used because it is reserved.	--	--	--	--
LDEV Location (LDEV_LOCATION)	Whether the logical device is an externally connected LDEV. Internal External	string(16)	No	Thunder 9200 Thunder 9500V TagmaStore AMS Lightning 9900 Lightning 9900V TagmaStore USP	--
LDEV Name (LDEV_NAME)	This field cannot be used because it is reserved.	--	--	--	--
LDEV Number (LDEV_NUMBER)	Logical device number	string(16)	No	Thunder 9200 Thunder 9500V TagmaStore AMS Lightning 9900 Lightning 9900V TagmaStore USP	--
LDEV Status (LDEV_STATUS)	This field cannot be used because it is reserved.	--	--	--	--
LU Property (LU_PROPERTY)	This field cannot be used because it is reserved.	--	--	--	--
Main LDEV Number (MAIN_LDEV_NUMBER)	Representative logical device number of the LUSE that includes the logical device. (For TagmaStore AMS/WMS series, Thunder 9500V series or Thunder 9200, this indicates the logical device number of the main logical unit. For TagmaStore USP, Lightning 9900V series or Lightning 9900 series, this indicates the logical	string(16)	No	Thunder 9200 Thunder 9500V TagmaStore AMS Lightning 9900 Lightning 9900V TagmaStore USP	--

	device number of the first logical device.)				
PDEV Number (PDEV_NUMBER)	This field cannot be used because it is reserved.	--	--	--	--
RAID Group Number (RAID_GROUP_NUMBER)	Array group number of logical device	string(64)	No	Thunder 9200 Thunder 9500V TagmaStore AMS Lightning 9900 Lightning 9900V See <i>Note 1</i> TagmaStore USP See <i>Note 1</i> and <i>Note 2</i>	--
RAID Level (RAID_LEVEL)	RAID level of logical device	unsigned char	No	Thunder 9200 Thunder 9500V TagmaStore AMS Lightning 9900 Lightning 9900V See <i>Note 1</i> TagmaStore USP See <i>Note 1</i> and <i>Note 2</i>	--
RAID Type (RAID_TYPE)	Combination of the RAID level and HDU of the logical device. <i>Example:</i> RAID5 (3D+1P)	string(32)	No	Thunder 9200 Thunder 9500V TagmaStore AMS Lightning 9900 Lightning 9900V See <i>Note 1</i> TagmaStore USP See <i>Note 1</i> and <i>Note 2</i>	--
Record Time (RECORD_TIME)	Record creation time (GMT)	time_t	No	Thunder 9200 Thunder 9500V TagmaStore AMS Lightning 9900 Lightning 9900V TagmaStore USP	--
Record Type (INPUT_RECORD_TYPE)	Record type identifier, which is always set to LSEC	string(8)	No	Thunder 9200 Thunder 9500V TagmaStore AMS Lightning 9900 Lightning 9900V TagmaStore	--

				USP	
Replication Attribute (REPLICATION_ATTRIBUTE)	This field cannot be used because it is reserved.	--	--	--	--
SLPR Number (SLPR_NUMBER)	Number for the SLPR to which the logical device belongs	string(8)	No	TagmaStore USP	--

Notes:

- 1: This storage subsystem is not supported if the logical devices are externally connected.
- 2: This is not supported when the logical device is a V-VOL for QuickShadow/COW Snapshot.

2.7.8 Port Configuration (PD_PTC)

Function

The Port Configuration (PD_PTC) record stores the performance data indicating the configuration information of the port of the disk array device. This is a multi-instance record.

Note: If the Agent has started in SLPR restricted mode, it collects only the information on ports that belong to the monitored SLPR.

Table 2.26 Port Configuration (PD_PTC) Default and Changeable Values

Item	Default	Changeable?
Collection Interval	3600	No
Collection Offset	0	
Log	Yes	
LOGIF	(Blank)	

Key Fields

Port Number (PORT_NUMBER)

Lifetime

From when the port is configured to when it is canceled.

Record Size

- Fixed part: 677 bytes
- Variable part: 151 bytes

Table 2.27 Port Configuration (PD_PTC) Fields

Port Configuration (PD_PTC)					
View Name (Manager Name)	Description	Format	Delta	Supported Storage	Data Source
AL-PA (AL_PA)	This field cannot be used because it is reserved.	--	--	--	--
Interval (INTERVAL)	Interval in seconds during which the information is collected	ulong	No	Thunder 9200 Thunder 9500V TagmaStore AMS Lightning 9900 Lightning	--

				9900V TagmaStore USP	
Port Name (PORT_NAME)	Name of the port on the disk array device	string(64)	No	Thunder 9200 Thunder 9500V TagmaStore AMS Lightning 9900 Lightning 9900V TagmaStore USP	--
Port Number (PORT_NUMBER)	Number for the port on the disk array device	string(8)	No	Thunder 9200 Thunder 9500V TagmaStore AMS Lightning 9900 Lightning 9900V TagmaStore USP	--
Port Role (PORT_ROLE)	Role of the port on the disk array device Example: <ul style="list-style-type: none"> ▪ Target ▪ Initiator ▪ RCU Target ▪ External 	string(16)	No	Lightning 9900 Lightning 9900V TagmaStore USP	--
Port Speed (PORT_SPEED)	Set value for port speed of the disk array device	string(8)	No	Thunder 9200 Thunder 9500V TagmaStore AMS See <i>Note</i> Lightning 9900V See <i>Note</i> TagmaStore USP See <i>Note</i>	--
Port Status (PORT_STATUS)	This field cannot be used because it is reserved.	--	--	--	--

Port Type (PORT_TYPE)	Type of port on the disk array device	string(8)	No	Thunder 9200 Thunder 9500V TagmaStore AMS Lightning 9900 Lightning 9900V TagmaStore USP	--
Port WWN (PORT_WWN)	WWN of the port on the disk array device	string(32)	No	Thunder 9200 See <i>Note</i> Thunder 9500V TagmaStore AMS See <i>Note</i> Lightning 9900 See <i>Note</i> Lightning 9900V See <i>Note</i> TagmaStore USP See <i>Note</i>	--
Record Time (RECORD_TIME)	GMT when the record is stored.	time_t	No	Thunder 9200 Thunder 9500V TagmaStore AMS Lightning 9900 Lightning 9900V TagmaStore USP	--
Record Type (INPUT_RECORD_TYPE)	Record type identifier, which is always set to PTC	string(8)	No	Thunder 9200 Thunder 9500V TagmaStore AMS Lightning 9900 Lightning 9900V TagmaStore USP	--
SLPR Number (SLPR_NUMBER)	Number for the SLPR to which the port of the disk array device belongs	string(8)	No	TagmaStore USP	--

Note: This field is supported only when the type of port on the disk array device is FIBRE.

2.7.9 Port Summary (PI_PTS)

Function

The Port Summary (PI_PTS) record stores the performance data indicating the read/write status of each port of the disk array device. This is a multi-instance record.

Note: If the Agent has started in SLPR restricted mode, it collects only the information on ports that belong to the monitored SLPR.

Table 2.28 Port Summary (PI_PTS) Default and Changeable Values

Item	Default	Changeable?
Collection Interval	60	No See <i>Note</i>
Collection Offset	0	No
Log	Yes	
LOGIF	(Blank)	

Note: This can be changed when the monitored storage belongs to the TagmaStore AMS/WMS series or Thunder 9500V Series or Thunder 9200.

Key Fields

Port Number (PORT_NUMBER)

Lifetime

From when the port is configured to when it is canceled.

Record Size

- Fixed part: 677 bytes
- Variable part: 252 bytes

Table 2.29 Port Summary (PI_PTS) Fields

Port Summary (PI_PTS)					
View Name (Manager Name)	Description	Format	Delta	Supported Storage	Data Source
Avg I/O /sec (AVG_IO_RATE)	Average frequency of read/write operations for the disk array device port (number of times per second)	float	No	Thunder 9500V See <i>Note 1</i> TagmaStore AMS See <i>Note 1</i> and <i>Note 3</i> Lightning 9900 See <i>Note 2</i> Lightning 9900V See <i>Note 2</i> TagmaStore USP See <i>Note 2</i>	--
Avg Xfer /sec (AVG_XFER_RATE)	Average read/write transfer speed for the disk array device port (MB per second)	float	No	Thunder 9500V See <i>Note 1</i> TagmaStore AMS See <i>Note 1</i> and <i>Note 3</i> Lightning 9900 See <i>Note 2</i> Lightning 9900V See <i>Note 2</i> TagmaStore USP See <i>Note 2</i>	--
Interval (INTERVAL)	Interval in seconds during which the information is collected.	ulong	No	Thunder 9200 Thunder 9500V TagmaStore AMS Lightning 9900 Lightning 9900V TagmaStore USP	--
Max I/O /sec (MAX_IO_RATE)	Maximum frequency of read/write operations for the disk array device port (number of times per second)	float	No	Thunder 9500V See <i>Note 1</i> TagmaStore AMS See <i>Note 1</i> and <i>Note 3</i> Lightning 9900 See <i>Note 2</i> Lightning 9900V See <i>Note 2</i> TagmaStore USP See <i>Note 2</i>	--
Max Xfer /sec (MAX_XFER_RATE)	Maximum read/write transfer speed for the disk array device port (MB per second)	float	No	Thunder 9500V See <i>Note 1</i> TagmaStore AMS See <i>Note 1</i> and <i>Note 3</i> Lightning 9900	--

				See <i>Note 2</i> Lightning 9900V See <i>Note 2</i> TagmaStore USP See <i>Note 2</i>	
Min I/O /sec (MIN_IO_RATE)	Minimum frequency of read/write operations for the disk array device port (number of times per second)	float	No	Thunder 9500V See <i>Note 1</i> TagmaStore AMS See <i>Note 1</i> and <i>Note 3</i> Lightning 9900 See <i>Note 2</i> Lightning 9900V See <i>Note 2</i> TagmaStore USP See <i>Note 2</i>	--
Min Xfer /sec (MIN_XFER_RATE)	Minimum read/write transfer speed for the disk array device port (MB per second)	float	No	Thunder 9500V See <i>Note 1</i> TagmaStore AMS See <i>Note 1</i> and <i>Note 3</i> Lightning 9900 See <i>Note 2</i> Lightning 9900V See <i>Note 2</i> TagmaStore USP See <i>Note 2</i>	--
Port Name (PORT_NAME)	Name of the port on the disk array device	string(64)	No	Thunder 9200 Thunder 9500V TagmaStore AMS Lightning 9900 Lightning 9900V TagmaStore USP	--
Port Number (PORT_NUMBER)	Number for the port on the disk array device	string(8)	No	Thunder 9200 Thunder 9500V TagmaStore AMS Lightning 9900 Lightning 9900V TagmaStore USP	--
Read I/O /sec (READ_IO_RATE)	This field cannot be used because it is reserved.	--	--	--	--
Read I/O Count (READ_IO_COUNT)	This field cannot be used because it is reserved.	--	--	--	--
Read Mbytes (READ_MBYTES)	This field cannot be used because it is reserved.	--	--	--	--
Read Response Rate	This field cannot be used because it is	--	--	--	--

(READ_RESPONSE_RATE)	reserved.				
Read Total Response (READ_TOTAL_RESPONSE)	This field cannot be used because it is reserved.	--	--	--	--
Read Xfer /sec (READ_XFER_RATE)	This field cannot be used because it is reserved.	--	--	--	--
Record Time (RECORD_TIME)	GMT when the record is stored	time_t	No	Thunder 9200 Thunder 9500V TagmaStore AMS Lightning 9900 Lightning 9900V TagmaStore USP	--
Record Type (INPUT_RECORD_TYPE)	Record type identifier, which is always set to PTS	string(8)	No	Thunder 9200 Thunder 9500V TagmaStore AMS Lightning 9900 Lightning 9900V TagmaStore USP	--
Total I/O Count (TOTAL_IO_COUNT)	This field cannot be used because it is reserved.	--	--	--	--
Total Mbytes (TOTAL_MBYTES)	This field cannot be used because it is reserved.	--	--	--	--
Write I/O /sec (WRITE_IO_RATE)	This field cannot be used because it is reserved.	--	--	--	--
Write I/O Count (WRITE_IO_COUNT)	This field cannot be used because it is reserved.	--	--	--	--
Write Mbytes (WRITE_MBYTES)	This field cannot be used because it is reserved.	--	--	--	--
Write Response Rate (WRITE_RESPONSE_RATE)	This field cannot be used because it is reserved.	--	--	--	--
Write Total Response (WRITE_TOTAL_RESPONSE)	This field cannot be used because it is reserved.	--	--	--	--
Write Xfer /sec (WRITE_XFER_RATE)	This field cannot be used because it is reserved.	--	--	--	--

Notes:

- 1: This value can be collected only when the settings specify that performance statistics of the monitored storage subsystem are to be collected.
- 2: If the port type is ESCON or FICON, this field is not supported.
- 3: If the port type is NAS, this field is not supported.

2.7.10 Processor Summary (PI_PRCS)

Function

The Processor Summary (PI_PRCS) record stores performance data indicating the operation status of the on-board processor of the storage subsystem. This is a multi-instance record.

Note: If the Agent has started in SLPR restricted mode, it does not collect the record.

Table 2.30 Processor Summary (PI_PRCS) Default and Changeable Values

Item	Default	Changeable?
Collection Interval	60	No See <i>Note</i>
Collection Offset	0	No
Log	Yes	
LOGIF	(Blank)	

Note: This can be changed when the monitored storage belongs to the TagmaStore AMS/WMS series or Thunder 9500V Series.

Key Fields

Adaptor ID (ADAPTOR_ID), Processor ID (PROCESSOR_ID)

Lifetime

From when the instance is created to when it is deleted.

Record Size

- Fixed part: 677 bytes
- Variable part: 64 bytes

Table 2.31 Processor Summary (PI_PRCs) Fields

Processor Summary (PI_PRCs)					
View Name (Manager Name)	Description	Format	Delta	Supported Storage	Data Source
Adaptor ID (ADAPTOR_ID)	Character string that identifies the instance of the disk controller or the channel adaptor	string(16)	No	Lightning 9900 Lightning 9900V TagmaStore USP	--
Interval (INTERVAL)	Interval (in seconds) at which information is collected	ulong	No	Thunder 9200 Thunder 9500V TagmaStore AMS Lightning 9900 Lightning 9900V TagmaStore USP	--
Processor Busy % (PROCESSOR_BUSY_RATE)	Usage rate of the processor	ulong	No	Thunder 9500V See <i>Note</i> TagmaStore AMS See <i>Note</i> Lightning 9900 Lightning 9900V TagmaStore USP	--
Processor ID (PROCESSOR_ID)	Character string that identifies the processor instance	string(16)	No	Thunder 9500V TagmaStore AMS Lightning 9900 Lightning 9900V TagmaStore USP	--
Processor Type (PROCESSOR_TYPE)	Character string that indicates the instance type of the processor instance	string(8)	No	Lightning 9900 Lightning 9900V TagmaStore USP	--
Max Processor Busy % (MAX_PROCESSOR_BUSY_RATE)	Usage rate of the processor. <i>Note:</i> If the values of a lower unit (e.g., minutes) are summarized to a higher unit (e.g., hours), the maximum value is stored rather than the average value.	ulong	No	Thunder 9500V See <i>Note</i> TagmaStore AMS See <i>Note</i> Lightning 9900 Lightning 9900V TagmaStore USP	--

Record Time (RECORD_TIME)	Record creation time (GMT)	time_t	No	Thunder 9200 Thunder 9500V TagmaStore AMS Lightning 9900 Lightning 9900V TagmaStore USP	--
Record Type (INPUT_RECORD_TYPE)	Record type identifier, which is always set to PRCS	string(8)	No	Thunder 9200 Thunder 9500V TagmaStore AMS Lightning 9900 Lightning 9900V TagmaStore USP	--

Note: This value can be collected only when the settings specify that performance statistics of the monitored storage subsystem are to be collected.

2.7.11 RAID Group Configuration (PD_RGC)

Function

The RAID Group Configuration (PD_RGC) record holds performance data indicating configuration information for an array group. This is a multi-instance record.

Note: If the Agent has started in SLPR restricted mode, it collects only the information on array groups that belong to the monitored SLPR.

Table 2.32 RAID Group Configuration (PD_RGC) Default and Changeable Values

Item	Default value	Changeable?
Collection Interval	3600	No
Collection Offset	0	
Log	Yes	
LOGIF	(Blank)	

Key Fields

RAID Group Number (RAID_GROUP_NUMBER)

Lifetime

From when the array group is configured to when it is canceled.

Record Size

- Fixed part: 677 bytes
- Variable part: 117 bytes

Table 2.33 RAID Group Configuration (PD_RGC) Fields

RAID Group Configuration(PD_RGC)					
View Name (Manager Name)	Description	Format	Delta	Supported Storage	Data Source
CLPR Number (CLPR_NUMBER)	Number for the CLPR to which the array group has been assigned	string(8)	No	TagmaStore USP	--
Interval (INTERVAL)	Interval (in seconds) at which information is collected	ulong	No	Thunder 9200 Thunder 9500V TagmaStore AMS Lightning 9900 Lightning 9900V TagmaStore USP	--

RAID Group Number (RAID_GROUP_NUMBER)	Array group number	string(64)	No	Thunder 9200 Thunder 9500V TagmaStore AMS Lightning 9900 Lightning 9900V TagmaStore USP	--
RAID Level (RAID_LEVEL)	RAID level of the array group	unsigned char	No	Thunder 9200 Thunder 9500V TagmaStore AMS Lightning 9900 Lightning 9900V TagmaStore USP	--
RAID Type (RAID_TYPE)	Combination of the RAID level and HDU of the array group <i>Example:</i> RAID5 (3D+1P)	string(32)	No	Thunder 9200 Thunder 9500V TagmaStore AMS Lightning 9900 Lightning 9900V TagmaStore USP	--
Record Time (RECORD_TIME)	Record creation time (GMT)	time_t	No	Thunder 9200 Thunder 9500V TagmaStore AMS Lightning 9900 Lightning 9900V TagmaStore USP	--
Record Type (INPUT_RECORD_TYPE)	Record type identifier, which is always set to RGC	string(8)	No	Thunder 9200 Thunder 9500V TagmaStore AMS Lightning 9900 Lightning 9900V TagmaStore USP	--
SLPR Number (SLPR_NUMBER)	Number for the SLPR to which the array group belongs	string(8)	No	TagmaStore USP	--

2.7.12 RAID Group Summary (PI_RGS)

Function

The RAID Group Summary (PI_RGS) record holds performance data indicating the execution status of read or write operations on an array group. This is a multi-instance record.

Note: If the Agent has started in SLPR restricted mode, it collects only the information on array groups that belong to the monitored SLPR.

Table 2.34 RAID Group Summary (PI_RGS) Default and Changeable Values

Item	Default	Changeable?
Collection Interval	300	No
Collection Offset	0	
Log	Yes	
LOGIF	(Blank)	

Key Fields

RAID Group Number (RAID_GROUP_NUMBER)

Lifetime

From when the array group is configured to when it is canceled.

Record Size

- Fixed part: 677 bytes
- Variable part: 368 bytes

Table 2.35 RAID Group Summary (PI_RGS) Fields

RAID Group Summary (PI_RGS)					
View Name (Manager Name)	Description	Format	Delta	Supported Storage	Data Source
Busy % (BUSY_RATE)	Usage rate of the array group.	float	No	Lightning 9900 See <i>Note 1</i> Lightning 9900V See <i>Note 1</i> TagmaStore USP See <i>Note 1</i>	--

RAID Group Summary (PI_RGS)					
View Name (Manager Name)	Description	Format	Delta	Supported Storage	Data Source
Interval (INTERVAL)	Interval in seconds during which the information is collected	ulong	No	Thunder 9200 Thunder 9500V TagmaStore AMS Lightning 9900 Lightning 9900V TagmaStore USP	--
Max Busy % (MAX_BUSY_RATE)	Usage rate of the array group. Note: If the values of a lower unit (e.g., minutes) are summarized to a higher unit (e.g., hours), the maximum value is stored rather than the average value.	float	No	Lightning 9900 See Note 1 Lightning 9900V See Note 1 TagmaStore USP See Note 1	--
RAID Group Number (RAID_GROUP_NUMBER)	Array group number	string(64)	No	Thunder 9200 Thunder 9500V TagmaStore AMS Lightning 9900 Lightning 9900V TagmaStore USP	--
Random Total I/O /sec (RANDOM_TOTAL_IO_RATE)	Frequency of random operations (times per second)	float	No	Lightning 9900 Lightning 9900V TagmaStore USP	--
Random Total Xfer /sec (RANDOM_TOTAL_XFER_RATE)	Transfer rate of random operations (megabytes per second)	float	No	Lightning 9900 See Note 1 and Note 2 Lightning 9900V See Note 1 and Note 2 TagmaStore USP See Note 1 and Note 2	--
Read Hit % (READ_HIT_RATE)	Cache hit ratio of read operations	double	No	Thunder 9200 Thunder 9500V TagmaStore AMS See Note 1 Lightning 9900 Lightning 9900V TagmaStore USP	$(\text{READ_HIT_IO_COUNT} / \text{READ_IO_COUNT}) * 100$

RAID Group Summary (PI_RGS)					
View Name (Manager Name)	Description	Format	Delta	Supported Storage	Data Source
Read Hit I/O Count (READ_HIT_IO_COUNT)	Number of times the cache is hit in read operations	double	Yes	Thunder 9200 Thunder 9500V TagmaStore AMS See <i>Note 1</i> Lightning 9900 Lightning 9900V TagmaStore USP	--
Read I/O /sec (READ_IO_RATE)	Frequency of read operations (number of times per second)	double	No	Thunder 9200 Thunder 9500V TagmaStore AMS See <i>Note 1</i> Lightning 9900 Lightning 9900V TagmaStore USP	READ_IO_COUNT / INTERVAL
Read I/O Count (READ_IO_COUNT)	Number of read operations	double	Yes	Thunder 9200 Thunder 9500V TagmaStore AMS See <i>Note 1</i> Lightning 9900 Lightning 9900V TagmaStore USP	--
Read Mbytes (READ_MBYTES)	Transfer size of read data (MB)	double	Yes	Thunder 9500V See <i>Note 1</i> TagmaStore AMS See <i>Note 1</i> Lightning 9900 See <i>Note 2</i> Lightning 9900V See <i>Note 2</i> TagmaStore USP See <i>Note 2</i>	--
Read Response Rate (READ_AVG_RESPONSE)	This field cannot be used because it is reserved.	--	--	--	--
Read Total Response (READ_TOTAL_RESPONSE)	This field cannot be used because it is reserved.	--	--	--	--

RAID Group Summary (PI_RGS)					
View Name (Manager Name)	Description	Format	Delta	Supported Storage	Data Source
Read Xfer /sec (READ_XFER_RATE)	Read data transfer rate (MB per second)	double	No	Thunder 9500V See <i>Note 1</i> TagmaStore AMS See <i>Note 1</i> Lightning 9900 See <i>Note 2</i> Lightning 9900V See <i>Note 2</i> TagmaStore USP See <i>Note 2</i>	READ_MBYTES/INTERVAL
Record Time (RECORD_TIME)	GMT when the record is stored	time_t	No	Thunder 9200 Thunder 9500V TagmaStore AMS Lightning 9900 Lightning 9900V TagmaStore USP	--
Record Type (INPUT_RECORD_TYPE)	Record type identifier, which is always set to RGS	string(8)	No	Thunder 9200 Thunder 9500V TagmaStore AMS Lightning 9900 Lightning 9900V TagmaStore USP	--
Sequential Total I/O /sec (SEQUENTIAL_TOTAL_IO_RATE)	Frequency of sequential operations (times per second)	float	No	Lightning 9900 Lightning 9900V TagmaStore USP	--
Sequential Total Xfer /sec (SEQUENTIAL_TOTAL_XFER_RATE)	Transfer rate of sequential operations (megabytes per second)	float	No	Lightning 9900 See <i>Note 1</i> and <i>Note 2</i> Lightning 9900V See <i>Note 1</i> and <i>Note 2</i> TagmaStore USP See <i>Note 1</i> and <i>Note 2</i>	--
Write Hit % (WRITE_HIT_RATE)	Cache hit ratio of write operations	double	No	Thunder 9200 Thunder 9500V TagmaStore AMS See <i>Note 1</i>	(WRITE_HIT_IO_COUNT/WRITE_IO_COUNT)*100
Write Hit I/O Count (WRITE_HIT_IO_COUNT)	Number of times the cache is hit for write operations	double	Yes	Thunder 9200 Thunder 9500V TagmaStore AMS See <i>Note 1</i>	--

RAID Group Summary (PI_RGS)					
View Name (Manager Name)	Description	Format	Delta	Supported Storage	Data Source
Write I/O /sec (WRITE_IO_RATE)	Frequency of write operations (number of times per second)	double	No	Thunder 9200 Thunder 9500V TagmaStore AMS See <i>Note 1</i> Lightning 9900 Lightning 9900V TagmaStore USP	WRITE_IO_COUNT/ INTERVAL
Write I/O Count (WRITE_IO_COUNT)	Number of write operations	double	Yes	Thunder 9200 Thunder 9500V TagmaStore AMS See <i>Note 1</i> Lightning 9900 Lightning 9900V TagmaStore USP	--
Write Mbytes (WRITE_MBYTES)	Write data transfer size (MB)	double	Yes	Thunder 9500V See <i>Note 1</i> TagmaStore AMS See <i>Note 1</i> Lightning 9900 See <i>Note 2</i> Lightning 9900V See <i>Note 2</i> TagmaStore USP See <i>Note 2</i>	--
Write Response Rate (WRITE_AVG_RESPONSE)	This field cannot be used because it is reserved.	--	--	--	--
Write Total Response (WRITE_TOTAL_RESPONSE)	This field cannot be used because it is reserved.	--	--	--	--
Write Xfer /sec (WRITE_XFER_RATE)	Write data transfer rate (MB per second)	double	No	Thunder 9500V See <i>Note 1</i> TagmaStore AMS See <i>Note 1</i> Lightning 9900 See <i>Note 2</i> Lightning 9900V See <i>Note 2</i> TagmaStore USP See <i>Note 2</i>	WRITE_MBYTES/ INTERVAL

Notes:

- 1: This value can be collected only when the settings specify that performance statistics of the monitored storage subsystem are to be collected.
- 2: For array groups that include a logical device with the mainframe emulation type setting, the field value will be 0.

2.7.13 Storage Detail (PD)

Function

The Storage Detail (PD) record stores the performance data indicating the detailed information of the storage subsystem.

Note: If the Agent has started in SLPR restricted mode, it stores only the information on resource instances that belong to the monitored SLPR.

Table 2.36 Storage Detail (PD) Default and Changeable Values

Item	Default	Changeable?
Collection Interval	3600	No
Collection Offset	0	
Log	Yes	
LOGIF	(Blank)	

Key Fields

None

Lifetime

From when the instance is created to when it is deleted.

Record Size

- Fixed part: 859 bytes
- Variable part: 0 bytes

Table 2.37 Storage Detail (PD) Fields

Storage Detail (PD)					
View Name (Manager Name)	Description	Format	Delta	Supported Storage	Data Source
Cache Memory Capacity (CACHE_MEMORY_CAPACITY)	Cache memory size for the disk array (Of the mounted memory, the size of the memory assigned for I/O cache (MB))	ulong	No	Thunder 9500V See Note 1 TagmaStore AMS See Note 1 Lightning 9900 Lightning 9900V TagmaStore USP	--
Cache Memory Installed Size (CACHE_MEMORY_INSTALLED_SIZE)	Cache memory size installed in the disk array device (MB)	ulong	No	Thunder 9200 Thunder 9500V TagmaStore AMS	--

DKC Name (DKC_NAME)	Product name of the disk array device	string(64)	No	Thunder 9200 Thunder 9500V See <i>Note 2</i> TagmaStore AMS Lightning 9900 Lightning 9900V TagmaStore USP	--
DKC Serial Number (DKC_SERIAL_NUMBER)	Serial number of the disk array device	string(32)	No	Thunder 9200 Thunder 9500V TagmaStore AMS Lightning 9900 Lightning 9900V TagmaStore USP	--
DKC Status (DKC_STATUS)	This field cannot be used because it is reserved.	--	--	--	--
Interval (INTERVAL)	Interval in seconds during which the information is collected	ulong	No	Thunder 9200 Thunder 9500V TagmaStore AMS Lightning 9900 Lightning 9900V TagmaStore USP	--
Monitored SLPR Number (MONITORED_SLPR_NUMBER)	Number for the SLPR to be monitored. <i>Note:</i> When the SLPR number is 0, all the SLPRs and the shared resources are to be monitored.	string(8)	No	TagmaStore USP	--
Record Time (RECORD_TIME)	GMT when the record is stored	time_t	No	Thunder 9200 Thunder 9500V TagmaStore AMS Lightning 9900 Lightning 9900V TagmaStore USP	--
Record Type (INPUT_RECORD_TYPE)	Record type identifier, which is always set to PD	string(8)	No	Thunder 9200 Thunder 9500V TagmaStore AMS Lightning 9900 Lightning 9900V TagmaStore USP	--
Unit ID (UNIT_ID)	This field cannot be used because it is reserved.	--	--	--	--
Vendor ID (VENDOR_ID)	Vendor name of the disk array device	string(64)	No	Thunder 9200 Thunder 9500V	--

				TagmaStore AMS Lightning 9900 Lightning 9900V TagmaStore USP	
--	--	--	--	---	--

Note 1: This value can be collected only when the settings specify that performance statistics of the monitored storage subsystem are to be collected.

Note 2: If the monitored storage subsystem is a Thunder 9585V, the value for the DKC Name field is "Thunder 9580V".

2.7.14 Storage Summary (PI)

Function

The Storage Summary (PI) record stores the performance data indicating the operation status of the storage subsystem.

Note: If the Agent has started in SLPR restricted mode, it stores summarized results for the operation status of the monitored SLPR.

Table 2.38 Storage Summary (PI) Default and Changeable Values

Item	Default	Changeable?
Collection Interval	60	No See <i>Note</i>
Collection Offset	0	No
Log	Yes	
LOGIF	(Blank)	

Note: This can be changed when the monitored storage belongs to the TagmaStore AMS/WMS series or Thunder 9500V Series or Thunder 9200.

Key Fields

None

Lifetime

From when the instance is created to when it is deleted.

Record Size

- Fixed part: 745 bytes
- Variable part: 0 bytes

Table 2.39 Storage Summary (PI) Fields

Storage Summary (PI)					
View Name (Manager Name)	Description	Format	Delta	Supported Storage	Data Source
Cache Memory Capacity (CACHE_MEMORY_CAPACITY)	Cache memory capacity of the disk array device (Of the mounted memory, the size of the memory assigned for the I/O cache (MB)) For TagmaStore AMS/WMS series, the size of the memory assigned for free space is not included.	ulong	No	Thunder 9500V See <i>Note 1</i> TagmaStore AMS See <i>Note 1</i> Lightning 9900 Lightning 9900V TagmaStore USP	--
Cache Memory Usage (CACHE_MEMORY_USAGE)	Cache memory usage of the disk array device (MB)	ulong	No	Thunder 9500V See <i>Note 1</i> TagmaStore AMS See <i>Note 1</i> Lightning 9900 Lightning 9900V TagmaStore USP See <i>Note 2</i>	--
Cache Side File Usage (CACHE_SIDE_FILE)	Of the cache memory, the cache memory size used by Side File (MB)	ulong	No	Lightning 9900 Lightning 9900V TagmaStore USP	--
Cache Side File Usage % (CACHE_SIDE_FILE_RATE)	Of the cache memory, the percentage of the cache memory used by Side File	float	No	Lightning 9900 Lightning 9900V TagmaStore USP	--
Cache Write Pending Usage (CACHE_WRITE_PENDING)	Of the cache memory, the cache memory size used by the data waiting for a write operation (MB)	ulong	No	Thunder 9500V See <i>Note 1</i> TagmaStore AMS See <i>Note 1</i> Lightning 9900 Lightning 9900V TagmaStore USP	--

Storage Summary (PI)					
View Name (Manager Name)	Description	Format	Delta	Supported Storage	Data Source
Cache Write Pending Usage % (CACHE_WRITE_PENDING_RATE)	Of the cache memory, the percentage of the cache memory used by the data waiting for a write operation	float	No	Thunder 9500V See <i>Note 1</i> TagmaStore AMS See <i>Note 1</i> Lightning 9900 Lightning 9900V TagmaStore USP	--
Interval (INTERVAL)	Interval in seconds during which the information is collected	ulong	No	Thunder 9200 Thunder 9500V TagmaStore AMS Lightning 9900 Lightning 9900V TagmaStore USP	--
LDEV Count (LDEV_COUNT)	This field cannot be used because it is reserved.	--	--	--	--
Max Cache Side File Usage % (MAX_CACHE_SIDE_FILE_RATE)	Of the cache memory, the percentage used by Side File. <i>Note:</i> If the values of a lower unit (e.g., minutes) are summarized to a higher unit (e.g., hours), the maximum value is stored rather than the average value.	float	No	Lightning 9900 Lightning 9900V TagmaStore USP	--
Max Cache Write Pending Usage % (MAX_CACHE_WRITE_PENDING_RATE)	Of the cache memory, the percentage used by the data waiting for a write operation. <i>Note:</i> If the values of a lower unit (e.g., minutes) are summarized to a higher unit (e.g., hours), the maximum value is stored rather than the average value.	float	No	Thunder 9500V See <i>Note 1</i> TagmaStore AMS See <i>Note 1</i> Lightning 9900 Lightning 9900V TagmaStore USP	--
Port Count (PORT_COUNT)	This field cannot be used because it is reserved.	--	--	--	--
Record Time (RECORD_TIME)	GMT when the record is stored	time_t	No	Thunder 9200 Thunder 9500V TagmaStore AMS Lightning 9900 Lightning 9900V TagmaStore USP	--

Storage Summary (PI)					
View Name (Manager Name)	Description	Format	Delta	Supported Storage	Data Source
Record Type (INPUT_RECORD_TYPE)	Record type identifier, which is always set to PI	string(8)	No	Thunder 9200 Thunder 9500V TagmaStore AMS Lightning 9900 Lightning 9900V TagmaStore USP	--

Note 1: This value can be collected only when the settings specify that performance statistics of the monitored storage subsystem are to be collected.

Note 2: This value can be collected only when no CLPRs that belong to the monitored storage subsystem have been created.

2.8 Agent for SAN Switch Records

Table 2.40 lists the records that can be collected by the Agent for SAN Switch and the information that is stored in each record.

Table 2.40 Agent for SAN Switch Records

Record name	Record ID	Information stored in record
Connected Port Detail	PD_CPTD	Information about a connection target port for the switch or device
Device Detail	PD_DEVD	Information about a device, such as a host or storage, and node configuration information
Port Detail	PD_PTD	Port configuration information for the switch or device
Port Error Summary	PI_PTES	Port performance error and status information for the switch
Port Summary	PI_PTS	Port performance information for the switch
Switch Detail	PD	Information about a switch in the switch configuration that constitutes a fabric
Switch Error Summary	PI_SWES	Switch performance error and status information
Switch Summary	PI_SWS	Switch performance information
System Summary	PI	Information such as the number of switches comprising the fabric, and the number of devices connected to the fabric.

2.8.1 Connected Port Detail (PD_CPTD)

Function

The Connected Port Detail (PD_CPTD) record stores performance data that indicates a connection target port for the switch or device. However, when the fabric consists of Brocade and McDATA switches, information is not collected about ports connected to a switch from a vendor not specified in Switch Vendor when the instance environment was set up. This is a multi-instance record.

Table 2.41 Connected Port Detail (PD_CPTD) Default and Changeable Values

Item	Default Value	Changeable?
Collection Interval	3600	Yes
Collection Offset	0	
Log	Yes	
LOGIF	(Blank)	

Key Fields

Conn Port WWN (CONNECTED_PORT_WWN) and Port WWN (PORT_WWN)

Lifetime

None

Record Size

- Fixed part: 681 bytes
- Variable part: 40 bytes

Table 2.42 Connected Port Detail (PD_CPTD) Fields

Connected Port Detail (PD_CPTD)					
View Name (Manager Name)	Description	Format	Delta	Unsupported	Data Source
Conn Port WWN (CONNECTED_PORT_WWN)	WWN of the connection-target port (<i>Example:</i> 1000006462121911)	string(20)	No	--	--
Interval (INTERVAL)	Interval in seconds for storing the record	ulong	No	--	--
Port WWN (PORT_WWN)	WWN of the port (<i>Example:</i> 10000064621219E3)	string(20)	No	--	--

Record Time (RECORD_TIME)	Interval ending date and time (GMT)	time_t	No	--	--
Record Type (INPUT_RECORD_TYPE)	Record type identifier (always CPTD)	char(8)	No	--	--

2.8.2 Device Detail (PD_DEVD)

Function

The Device Detail (PD_DEVD) record stores performance data about a device, such as a host or storage, and node configuration information. However, when the fabric consists of Brocade and McDATA switches, information is not collected about devices, such as hosts or storage that are connected to a switch from a vendor not specified in Switch Vendor when the instance environment was set up. Node configuration information is also not collected. This is a multi-instance record.

Table 2.43 Device Detail (PD_DEVD) Default and Changeable Values

Item	Default Value	Changeable?
Collection Interval	3600	Yes
Collection Offset	0	
Log	Yes	
LOGIF	(Blank)	

Key Fields

Node WWN (NODE_WWN)

Lifetime

None

Record Size

- Fixed part: 681 bytes
- Variable part: 164 bytes

Table 2.44 Device Detail (PD_DEVD) Fields

Device Detail (PD_DEVD)					
View Name (Manager Name)	Description	Format	Delta	Unsupported	Data Source
Device Name (DEVICE_NAME)	Device name (<i>Example:</i> SEAGATE ST336704FC 0003) The following parts of the Standard Inquiry format obtained using the SCSI inquiry command are displayed: <ul style="list-style-type: none"> ▪ Vendor Identification ▪ Product Identification 	string(64)	No	McDATA: All nodes	--
Device Type (DEVICE_TYPE)	Device type: <ul style="list-style-type: none"> ▪ Host ▪ Storage If any other value is obtained or the data cannot be collected, the value is Unknown.	string(16)	No	McDATA: All nodes	--
Interval (INTERVAL)	Interval in seconds for storing the record	ulong	No	--	--
Node Name (NODE_NAME)	Node name (<i>Example:</i> Node A)	string(64)	No	--	--
Node WWN (NODE_WWN)	WWN of the node (<i>Example:</i> 1000064621219D8) For a host, WWN of the HBA For storage, WWN of the controller	string(20)	No	--	--
Record Time (RECORD_TIME)	Interval ending date and time (GMT)	time_t	No	--	--
Record Type (INPUT_RECORD_TYPE)	Record type identifier (always DEVD)	char(8)	No	--	--

2.8.3 Port Detail (PD_PTD)

Function

The Port Detail (PD_PTD) record stores performance data about port configuration information for the switch or device. However, when the fabric consists of Brocade and McDATA switches, port configuration information is not collected about devices connected to a switch from a vendor not specified in `Switch Vendor` when the instance environment was set up. This is a multi-instance record.

Table 2.45 Port Detail (PD_PTD) Default and Changeable Values

Item	Default value	Changeable?
Collection Interval	3600	Yes
Collection Offset	0	
Log	Yes	
LOGIF	(Blank)	

Key Fields

Port WWN (`PORT_WWN`)

Lifetime

None

Record Size

- Fixed part: 681 bytes
- Variable part: 143 bytes

Table 2.46 Port Detail (PD_PTD) Fields

Port Detail (PD_PTD)					
View Name (Manager Name)	Description	Format	Delta	Unsupported	Data Source
Address ID (<code>ADDRESS_ID</code>)	Address identifier (in hexadecimal) (<i>Example:</i> 0x0E010A). The first byte is the Domain ID, the second byte is the Area ID, and the last byte is the Port ID.	string(10)	No	McDATA: Port of the switch	--
Area ID (<code>AREA_ID</code>)	Area identifier (in hexadecimal) (<i>Example:</i> 0x1C). In the arbitrated loop configuration, the ports of the switch, host, and storage have the same Area ID.	string(6)	No	McDATA: Port of the switch	--
GBIC Type	The type of Gigabit Interface	string(20)	No	Brocade: Port	--

(GBIC_TYPE)	Converter (GBIC): Short Wave Long Wave Copper Extended Long Wave If any other value is obtained or the data cannot be collected, the value is Unknown.			of the node McDATA: All ports	
Interval (INTERVAL)	Interval in seconds for storing the record	ulong	No	--	--
Parent Type (PARENT_TYPE)	Type of object to which the port belongs (<i>Example:</i> Switch or Node)	string(8)	No	--	--
Parent WWN (PARENT_WWN)	WWN of the object to which the port belongs For a switch port: WWN of the switch For a node port: WWN of the node	string(20)	No	--	--
Port ID (PORT_ID)	Port identifier (in hexadecimal) (<i>Example:</i> 0x00). With the arbitrated loop configuration, AL_PA is the Port ID.	string(6)	No	McDATA: Port of the switch	--
Port Module Number (PORT_MODULE_NUMBER)	Port module number. For Brocade: If the data cannot be obtained or the port belongs to the node, the value is -1. For McDATA: If the port belongs to the switch, the value is 0. If the port belongs to the node, the value is -1.	short	No	Brocade: Port of the node McDATA: All ports	--
Port Name (PORT_NAME)	Port name. Information only for the node port (<i>Example:</i> CL1-A)	string(32)	No	Brocade: Port of the switch McDATA: Port of the switch	--
Port Number (PORT_NUMBER)	Port number. If the data cannot be obtained, the value is -1.	short	No	--	--
Port Speed (PORT_SPEED)	Signal transmission speed of the port: <ul style="list-style-type: none"> ▪ 1G (Speed has been adjusted to 1 Gbps by Auto Negotiate or fixed at 1 Gbps.) ▪ 2G (Speed has been adjusted to 2 Gbps by Auto Negotiate or fixed at 2 Gbps.) ▪ 4G (Speed has been adjusted to 4 Gbps by Auto Negotiate or 	string(8)	No	Brocade: Port of the node McDATA: Port of the node	--

	<p>fixed at 4 Gbps.)</p> <ul style="list-style-type: none"> 10G (Speed has been fixed at 10 Gbps.) Auto (Speed has been switched by Auto Negotiate.) <p>If any other value is obtained or the data cannot be collected, the value is <code>Unknown</code>.</p>				
Port Type (<code>PORT_TYPE</code>)	<p>Port type:</p> <ul style="list-style-type: none"> B port (a port of the bridge device connected to the E port of the switch) E port (a port connecting switch to switch) F port (a port of the switch connected one-to-one to the port of the device) FL port (a port of the switch comprising the Arbitrated Loop) G port (a port for which the switch or device is not connected) N port (a port of the device connected one-to-one to the port of the switch) NL port (a port of the device comprising the Arbitrated Loop) <p>If any other value is obtained or the data cannot be collected, the value is <code>Unknown</code>.</p>	<code>string(8)</code>	No	--	--
Port WWN (<code>PORT_WWN</code>)	<p>WWN of the port (<i>Example:</i> 10000064621219E3)</p>	<code>string(20)</code>	No	--	--
Record Time (<code>RECORD_TIME</code>)	<p>Interval ending date and time (GMT)</p>	<code>time_t</code>	No	--	--
Record Type (<code>INPUT_RECORD_TYPE</code>)	<p>Record type identifier (always <code>PTD</code>)</p>	<code>char(8)</code>	No	--	--

<p>Service Class (SERVICE_CLASS)</p>	<p>Service class.</p> <p>The following shows the correspondence between the displayed number and service class:</p> <p>1: Service_F (used for communication between switches)</p> <p>2: Service_1 (a connection-oriented service, with frame confirmation response, for which frame's End-To-End flow control is performed.)</p> <p>4: Service_2 (a connectionless service, with frame confirmation response, for which frame's End-To-End flow control and Buffer-To-Buffer flow control are performed.)</p> <p>8: Service_3 (a connectionless service, without frame confirmation response, for which frame's Buffer-To-Buffer flow control is performed.)</p> <p>16: Unknown</p> <p>(when data other than 1, 2, 4 or 8 is collected or the data cannot be collected.)</p> <p>When multiple service classes can be used, the value is the sum of the service classes being used. For example, when Service_F and Service_1 can be used: 3.</p>	<p>unsigned char</p>	<p>No</p>	<p>McDATA: All ports</p>	<p>--</p>
--	--	----------------------	-----------	--------------------------	-----------

2.8.4 Port Error Summary (PI_PTES)

Function

The Port Error Summary (PI_PTES) record stores performance data about port performance errors for the switch. This information concerns only a port for the switch; it does not include information about port performance for the host or storage. However, when the fabric consists of Brocade and McDATA switches, performance error information is not collected about ports for a switch from a vendor not specified in Switch Vendor when the instance environment was set up. This is a multi-instance record.

Table 2.47 Port Error Summary (PI_PTES) Default and Changeable Values

Item	Default Value	Changeable?
Collection Interval	60	Yes
Collection Offset	0	
Log	Yes	
LOGIF	(Blank)	

Key Fields

Port WWN (`PORT_WWN`)

Lifetime

None

Record Size

- Fixed part: 681 bytes
- Variable part: 218 bytes

Table 2.48 Port Error Summary (PI_PTES) Fields

Port Error Summary (PI_PTES)					
View Name (Manager Name)	Description	Format	Delta	Unsupported	Data Source
Address Errors Count (<code>ADDRESS_ERRORS_COUNT</code>)	The number of address identifier errors detected on the port.	double	Yes	--	--
Area ID (<code>AREA_ID</code>)	Area identifier (in hexadecimal) (<i>Example:</i> 0x1c). In the arbitrated loop configuration, the ports of the switch, host, and storage have the same Area ID.	string(6)	No	McDATA: Port of the switch	--
CRC Error Count	The number of CRC	double	Yes	--	--

(CRC_ERROR_COUNT)	errors detected on the port.				
Delimiter Errors Count (DELIMITER_ERRORS_COUNT)	The number of delimiter errors detected on the port.	double	Yes	--	--
Encoding Disparity Count (ENCODING_DISPARITY_COUNT)	The number of encoding errors and the number of disparity errors detected on the port.	double	Yes	--	--
Interval (INTERVAL)	Interval in seconds for storing the record	ulong	No	--	--
Invalid Ordered Set Count (INVALID_ORDERED_SET_COUNT)	The number of times an invalid ordered set was received on the port.	double	Yes	--	--
Invalid Xmitd Words Count (INVALID_TRANSMIT_WORDS_COUNT)	The number of times an invalid word was detected on the port.	double	Yes	--	--
Link Failures Count (LINK_FAILURES_COUNT)	The number of times a link failure was detected on the port.	double	Yes	--	--
Loss of Signal Count (LOSS_OF_SIGNAL_COUNT)	The number of times a lost optical signal was detected on the port.	double	Yes	--	--
Loss of Sync Count (LOSS_OF_SYNC_COUNT)	The number of times a Sync Loss was detected on the port.	double	Yes	--	--
Port Mode (PORT_MODE)	Operation mode of the port: <ul style="list-style-type: none"> ▪ Offline ▪ Online If any other value is obtained or the data cannot be collected, the value is Unknown.	string(16)	No	--	--
Port Module Number (PORT_MODULE_NUMBER)	Port module number. For Brocade: If the data cannot be obtained, the value is -1. For McDATA: Fixed to 0	short	No	McDATA: Port of the switch	--
Port Number (PORT_NUMBER)	Port number. If the data cannot be obtained, the value as -1.	short	No	--	--
Port Ops Status (PORT_OPERATION_STATUS)	Port operation status: <ul style="list-style-type: none"> ▪ Faulty ▪ Ok 	string(16)	No	--	--

	<ul style="list-style-type: none"> Warning If any other value is obtained or the data cannot be collected, the value is Unknown. 				
Port Type (PORT_TYPE)	<p>Port type:</p> <ul style="list-style-type: none"> B port (a port of the bridge device connected to the E port of the switch) E port (a port connecting switch to switch) F port (a port of the switch connected one-to-one to the port of the device) FL port (a port of the switch comprising the Arbitrated Loop) G port (a port for which the switch or device is not connected) N port (a port of the device connected one-to-one to the port of the switch) NL port (a port of the device comprising the Arbitrated Loop) If any other value is obtained or the data cannot be collected, the value is Unknown. 	string(8)	No	--	--
Port WWN (PORT_WWN)	WWN of the port (<i>Example:</i> 10000064621219E3)	string(20)	No	--	--
Prim Seq Proto Error Count (PRIM_SEQ_PROTO_ERROR_COUNT)	The number of times a primitive sequence protocol error was detected on the port.	double	Yes	--	--
Rcvd Link Reset (RECEIVED_LINK_RESET)	The number of times a link reset protocol was received on the port.	double	Yes	--	--
Rcvd Offline Sequence (RECEIVED_OFFLINE_SEQUENCE)	The number of times an offline sequence was received on the port.	double	Yes	--	--
Record Time (RECORD_TIME)	Interval ending date and time (GMT)	time_t	No	--	--

Record Type (INPUT_RECORD_TYPE)	Record type identifier (always PTES)	char (8)	No	--	--
Switch WWN (SWITCH_WWN)	WWN of the switch (<i>Example:</i> 10000060691216D8)	string (20)	No	--	--
Too Long Frames Count (TOO_LONG_FRAMES_COUNT)	The number of times an overly long frame was received on the port.	double	Yes	--	--
Too Short Frames Count (TOO_SHORT_FRAMES_COUNT)	The number of times an overly short frame was received on the port.	double	Yes	--	--
Xmitd Link Reset (TRANSMITTED_LINK_RESET)	The number of times a link reset protocol was sent on the port.	double	Yes	--	--
Xmitd Offline Sequence (TRANSMITTED_OFFLINE_SEQ UENCE)	The number of times an offline sequence was sent on the port.	double	Yes	--	--

2.8.5 Port Summary (PI_PTS)

Function

The Port Summary (PI_PTS) record stores performance data about performance of a port for the switch. This information concerns only a port for the switch; it does not include information about port performance for the host or storage. However, when the fabric consists of Brocade and McDATA switches, performance information is not collected about ports for a switch from a vendor not specified in Switch Vendor when the instance environment was set up. This is a multi-instance record.

Table 2.49 Port Summary (PI_PTS) Default and Changeable Values

Item	Default Value	Changeable?
Collection Interval	60	Yes
Collection Offset	0	
Log	Yes	
LOGIF	(Blank)	

Key Fields

Port WWN (PORT_WWN)

Lifetime

None

Record Size

- Fixed part: 681 bytes
- Variable part: 378 bytes

Table 2.50 Port Summary (PI_PTS) Fields

Port Summary (PI_PTS)					
View Name (Manager Name)	Description	Format	Delta	Unsupported	Data Source
Area ID (AREA_ID)	Area identifier (in hexadecimal) (<i>Example:</i> 0x1C). In the arbitrated loop configuration, the ports of the switch, host, and storage have the same Area ID.	string (6)	No	McDATA: Port of the switch	--
Buffer Credit Zero State Count (BUFFER_CREDIT_ZERO_STATE_COUNT)	The number of times the credit count for Buffer-To-Buffer flow control of the port was 0.	double	Yes	--	--
Input Buffers Full Count (INPUT_BUFFERS_FULL_COUNT)	The number of times the port buffer became full.	double	Yes	--	--

T)					
Interval (INTERVAL)	Interval in seconds for storing the record	ulong	No	--	--
Port Module Number (PORT_MODULE_NUMBER)	Port module number. For Brocade: If the data cannot be obtained, the value is -1. For McDATA: Fixed to 0	short	No	McDATA: Port of the switch	--
Port Number (PORT_NUMBER)	Port number. If the data cannot be obtained, the value is -1.	short	No	--	--
Port Type (PORT_TYPE)	Port type: <ul style="list-style-type: none"> ▪ B port (a port of the bridge device connected to the E port of the switch) ▪ E port (a port connecting switch to switch) ▪ F port (a port of the switch connected one-to-one to the port of the device) ▪ FL port (a port of the switch comprising the Arbitrated Loop) ▪ G port (a port for which the switch or device is not connected) ▪ N port (a port of the device connected one-to-one to the port of the switch) ▪ NL port (a port of the device comprising the Arbitrated Loop) ▪ If any other value is obtained or the data cannot be collected, the value is Unknown. 	string (8)	No	--	--
Port WWN (PORT_WWN)	WWN of the port (<i>Example:</i> 10000064621219E3)	string (20)	No	--	--
Rcvd Bytes / sec (RECEIVED_BYTES_RATE)	The number of bytes received per second by the port.	double	No	--	--
Rcvd Frames (RECEIVED_FRAMES)	The number of frames received by the port.	double	Yes	--	--
Rcvd Frames / sec (RECEIVED_FRAMES_RATE)	Number of frames received per second by the port.	double	No	--	RECEIVED_FRAMES / INTERVAL
Rcvd Kbytes	The number of kilobytes	double	Yes	--	--

(RECEIVED_KBYTES)	received by the port.				
Rcvd Multicast Frames (RECEIVED_MULTICAST_FRAMES)	The number of multicast frames received by the port.	double	Yes	--	--
Record Time (RECORD_TIME)	Interval ending date and time (GMT)	time_t	No	--	--
Record Type (INPUT_RECORD_TYPE)	Record type identifier (always PTS)	char(8)	No	--	--
Switch WWN (SWITCH_WWN)	WWN of the switch <i>(Example: 10000060691216D8)</i>	string (20)	No	--	--
Xmitd Bytes / sec (TRANSMITTED_BYTES_RATE)	The number of bytes sent per second by the port.	double	No	--	--
Xmitd Frames (TRANSMITTED_FRAMES)	The number of frames sent by the port.	double	Yes	--	--
Xmitd Frames / sec (TRANSMITTED_FRAMES_RATE)	Number of frames sent per second by the port.	double	No	--	TRANSMITTED_FRAMES / INTERVAL
Xmitd Kbytes (TRANSMITTED_KBYTES)	The number of kilobytes sent by the port.	double	Yes	--	--
Xmitd Multicast Frames (TRANSMITTED_MULTICAST_FRAMES)	The number of multicast frames sent by the port.	double	Yes	--	--

2.8.6 Switch Detail (PD)

Function

The Switch Detail (PD) record stores performance data about a switch in the switch configuration that constitutes a fabric. However, when the fabric consists of Brocade and McDATA switches, configuration information is not collected about switches from a vendor not specified in Switch Vendor when the instance environment was set up. This is a multi-instance record.

Table 2.51 Switch Detail (PD) Default and Changeable Values

Item	Default Value	Changeable?
Collection Interval	3600	Yes
Collection Offset	0	
Log	Yes	
LOGIF	(Blank)	

Key Fields

Switch WWN (SWITCH_WWN)

Lifetime

None

Record Size

- Fixed part: 733 bytes
- Variable part: 202 bytes

Table 2.52 Switch Detail (PD) Fields

Switch Detail (PD)					
View Name (Manager Name)	Description	Format	Delta	Unsupported	Data Source
Domain ID (DOMAIN_ID)	The domain identifier of the switch, displayed as a decimal number from 1 to 239. Switches on the same domain have the same Domain ID. When the data obtained is out of the range from 1 to 239 or when data cannot be obtained, the value stored is -1.	short	No	--	--
Fabric Name (FABRIC_NAME)	Fabric name	string(32)	No	--	--

Firmware Version (FIRMWARE_VERSION)	Firmware version of the switch (<i>Example:</i> Brocade Version 2.6)	string(64)	No	--	--
Interval (INTERVAL)	Interval in seconds for storing the record	ulong	No	--	--
Model Name (MODEL_NAME)	Model name of the switch: For the Brocade switch: <i>Example:</i> SilkWorm 48000 If data for unsupported switches is obtained or data cannot be collected, the value is Unknown. For the McDATA switch: <i>Example:</i> Sphereon 4500	string(32)	No	--	--
Port Count (PORT_COUNT)	Number of ports that belong to the switch	short	No	--	--
Port Module Count (PORT_MODULE_COUNT)	Number of port modules that belong to the switch. For the McDATA switch, the value is fixed to 1.	short	No	--	--
Principal Switch WWN (PRINCIPAL_SWITCH_WWN)	WWN of the principal switch (<i>Example:</i> 10000060691216D8). The principal switch has the domain address manager facilities. If multiple fabrics are being monitored, the first detected WWN of the principal switch is stored.	string(20)	No	--	--
Record Time (RECORD_TIME)	Interval ending date and time (GMT)	time_t	No	--	--
Record Type (INPUT_RECORD_TYPE)	Record type identifier (always PD)	char(8)	No	--	--
Switch Name (SWITCH_NAME)	Switch name (<i>Example:</i> Switch A)	string(32)	No	--	--
Switch Role (SWITCH_ROLE)	Role of the switch: <ul style="list-style-type: none"> ▪ Principal: Primary switch ▪ Subordinate: Enabled, but not the primary switch ▪ If any other value is obtained or the data cannot be collected, the value is Unknown. 	string(16)	No	--	--
Switch WWN (SWITCH_WWN)	WWN of the switch (<i>Example:</i> 10000060691216D8)	string(20)	No	--	--
Vendor Name	Vendor name of the switch	string(32)	No	--	--

(VENDOR_NAME)	(<i>Example:</i> Brocade Communications, INC))				
---------------	---	---	--	--	--	--

2.8.7 Switch Error Summary (PI_SWES)

Function

The Switch Error Summary (PI_SWES) record stores performance data about switch performance errors and status. It provides switch performance information by totaling performance errors at a switch's ports. However, when the fabric consists of Brocade and McDATA switches, performance error information is not collected about a switch from a vendor not specified in Switch Vendor when the instance environment was set up. This is a multi-instance record.

Table 2.53 Switch Error Summary (PI_SWES) Default and Changeable Values

Item	Default value	Changeable?
Collection Interval	60	Yes
Collection Offset	0	
Log	Yes	
LOGIF	(Blank)	

Key Fields

Switch WWN (SWITCH_WWN)

Lifetime

None

Record Size

- Fixed part: 681 bytes
- Variable part: 150 bytes

Table 2.54 Switch Error Summary (PI_SWES) Fields

Switch Error Summary (PI_SWES)					
View Name (Manager Name)	Description	Format	Delta	Unsupported	Data Source
CRC Error Count (CRC_ERROR_COUNT)	Sum of the number of times a CRC error was detected at each port for the switch	double	No	--	--

Domain ID (DOMAIN_ID)	Domain identifier of the switch. The domain identifier is a numeric value from 1 to 239. All switches that belong to the same domain have the same Domain ID. If the obtained data is outside the range from 1 to 239 or the data cannot be obtained, then the value is -1.	short	No	--	--
Encoding Disparity Count (ENCODING_DISPARITY_COUNT)	The total number of encoding errors and disparity errors, for each switch, that were detected on each port.	double	No	--	--
Interval (INTERVAL)	Interval in seconds for storing the record	ulong	No	--	--
Loss of Signal Count (LOSS_OF_SIGNAL_COUNT)	The total number of times, for each switch, that a lost optical signal was detected on each port	double	No	--	--
Loss of Sync Count (LOSS_OF_SYNC_COUNT)	The total number of times, for each switch, that a Sync Loss was detected on each port	double	No	--	--
Model Name (MODEL_NAME)	Model name of the switch: For the Brocade switch: <i>Example:</i> SilkWorm 48000 If data for unsupported switches is obtained or data cannot be collected, the value is Unknown. For the McDATA switch: <i>Example:</i> Sphereon 4500	string(32)	No	--	--
Record Time (RECORD_TIME)	Interval ending date and time (GMT)	time_t	No	--	--
Record Type (INPUT_RECORD_TYPE)	Record type identifier (always SWES)	char(8)	No	--	--
Switch Mode (SWITCH_MODE)	Operation mode of the switch: <ul style="list-style-type: none"> ▪ Offline ▪ Online ▪ If any other value is obtained or the data cannot be collected, the value is Unknown. 	string(16)	No	--	--
Switch Name (SWITCH_NAME)	Switch name (<i>Example:</i> Switch A)	string(32)	No	--	--

Switch Ops Status (SWITCH_OPERATION_STATUS)	Operating status of the switch: <ul style="list-style-type: none"> ▪ Faulty ▪ Ok ▪ Warning ▪ If any other value is obtained or the data cannot be collected, the value is Unknown. 	string(16)	No	--	--
Switch WWN (SWITCH_WWN)	WWN of the switch (<i>Example:</i> 10000060691216D8)	string(20)	No	--	--

2.8.8 Switch Summary (PI_SWS)

Function

The Switch Summary (PI_SWS) record stores performance data about switch performance. It provides the switch performance information by averaging and adding the performance of the switch's ports. However, when the fabric consists of Brocade and McDATA switches, performance information is not collected about a switch from a vendor not specified in Switch Vendor when the instance environment was set up. This is a multi-instance record.

Table 2.55 Switch Summary (PI_SWS) Default and Changeable Values

Item	Default Value	Changeable?
Collection Interval	60	Yes
Collection Offset	0	
Log	Yes	
LOGIF	(Blank)	

Key Fields

Switch WWN (SWITCH_WWN)

Lifetime

None

Record Size

- Fixed part: 681 bytes
- Variable part: 390 bytes

Table 2.56 Switch Summary (PI_SWS) Fields

Switch Summary (PI_SWS)					
View Name (Manager Name)	Description	Format	Delta	Unsupported	Data Source
Buffer Credit Zero State Count (BUFFER_CREDIT_ZERO_STATE_COUNT)	The total number of times, for each switch, that the credit count for Buffer-To-Buffer flow control for each port was 0	double	No	--	--

Domain ID (DOMAIN_ID)	Domain identifier of the switch. The domain identifier is a numeric value from 1 to 239. All switches that belong to the same domain have the same Domain ID. If the obtained data is outside the range from 1 to 239 or the data cannot be obtained, then the value is -1.	short	No	--	--
Input Buffers Full Count (INPUT_BUFFERS_FULL_COUNT)	The total number of times, for each switch, that the buffer for each port became full	double	No	--	--
Interval (INTERVAL)	Interval in seconds for storing the record	ulong	No	--	--
Model Name (MODEL_NAME)	Model name of the switch: For the Brocade switch: <i>Example:</i> SilkWorm 48000 If data for unsupported switches is obtained or data cannot be collected, the value is Unknown. For the McDATA switch: <i>Example:</i> Sphereon 4500	string (32)	No	--	--
Rcvd Bytes / sec (RECEIVED_BYTES_RATE)	The total number of bytes, for each switch, received per second by each port	double	No	--	--
Rcvd Frames (RECEIVED_FRAMES)	The total number of frames, for each switch, received by each port	double	No	--	--
Rcvd Frames / sec (RECEIVED_FRAMES_RATE)	The total number of frames, for each switch, received per second by each port	double	No	--	RECEIVED_FRAMES / INTERVAL
Rcvd Kbytes (RECEIVED_KBYTES)	The total number of kilobytes, for each switch, received by each port	double	No	--	--
Record Time (RECORD_TIME)	Interval ending date and time (GMT)	time_t	No	--	--
Record Type (INPUT_RECORD_TYPE)	Record type identifier (always SWS)	char (8)	No	--	--
Switch Name (SWITCH_NAME)	Switch name (<i>Example:</i> Switch A)	string (32)	No	--	--
Switch WWN (SWITCH_WWN)	WWN of the switch (<i>Example:</i> 1000060691216D8)	string (20)	No	--	--
Xmitd Bytes / sec (TRANSMITTED_BYTES_RATE)	The total number of bytes, for each switch, sent per second	double	No	--	--

(TE)	by each port				
Xmitd Frames (TRANSMITTED_FRAMES)	The total number of frames, for each switch, sent by each port	double	No	--	--
Xmitd Frames / sec (TRANSMITTED_FRAMES_RATE)	The total number of frames, for each switch, sent per second by each port	double	No	--	TRANSMITTED_FRAMES / INTERVAL
Xmitd Kbytes (TRANSMITTED_KBYTES)	The total number of kilobytes, for each switch, sent by each port	double	No	--	--

2.8.9 System Summary (PI)

Function

The System Summary (PI) record stores performance data about such information as the number of switches comprising the fabric, and the number of devices connected to the fabric. However, when the fabric consists of Brocade and McDATA switches, information is not collected about the number of devices connected to a switch from a vendor not specified in Switch Vendor when the instance environment was set up.

Table 2.57 System Summary (PI) Default and Changeable Values

Item	Default Value	Changeable?
Collection Interval	60	Yes
Collection Offset	0	
Log	Yes	
LOGIF	(Blank)	

Key Fields

None

Lifetime

None

Record Size

- Fixed part: 691 bytes
- Variable part: None

Table 2.58 System Summary (PI) Fields

System Summary (PI)					
View Name (Manager Name)	Description	Format	Delta	Unsupported	Data Source
Device Count (DEVICE_COUNT)	The number of devices connected to the fabric	short	No	--	--
Interval (INTERVAL)	Interval in seconds for storing the record	ulong	No	--	--
Node Count (NODE_COUNT)	The number of nodes connected to the fabric	short	No	--	--

Port Count (PORT_COUNT)	The sum total of the following: <ul style="list-style-type: none"> ▪ The number of ports for switches that exist in the fabric ▪ The number of ports for the hosts and storage connected to the fabric 	short	No	--	--
Port Module Count (PORT_MODULE_COUNT)	Number of port modules in the fabric	short	No	--	--
Record Time (RECORD_TIME)	Interval ending date and time (GMT)	time_t	No	--	--
Record Type (INPUT_RECORD_TYPE)	Record type identifier (always PI)	char(8)	No	--	--
Switch Count (SWITCH_COUNT)	Number of switches in the fabric	short	No	--	--

2.9 Agent for NAS Records

Table 2.59 lists the records that can be collected by the Agent for NAS and the information that is stored in each record.

Table 2.59 Agent for NAS Records

Record name	Record ID	Information stored in record
Channel Node Configuration	PD_CHC	NAS system configuration information
Channel Node Platform Configuration	PD_CPC	NAS system platform configuration information
Device Detail	PI_DEVD	Performance data that describes the use of local disk devices on the NAS system in set intervals of time
Device Summary	PI_DEVS	Summary of performance data that describes the use of all local disk devices that are defined as logical units on the NAS system at set intervals of time
File System Configuration	PD_FSC	File system and logical device mapping configuration information
File System Detail - Local	PD_FSL	Performance data that indicates the space of the local file system on the NAS system at a particular point in time
IP Address Configuration	PD_IAC	IP address configuration information for the NAS system
Process Detail	PD	Performance data that indicates the status of processes running on the NAS system at a particular point in time
System Summary Overview	PI	Performance data that describes the entire NAS system in set intervals of time

2.9.1 Channel Node Configuration (PD_CHC)

Function

The Channel Node Configuration (PD_CHC) record stores NAS system configuration information.

Table 2.60 Channel Node Configuration (PD_CHC) Default and Changeable Values

Item	Default Value	Changeable?
Collection Interval	3600	Yes
Collection Offset	0	
Log	Yes	
LOGIF	(Blank)	

Key Fields

None

Lifetime

From when the NAS system configuration is established to when it is modified.

Record Size

- Fixed part: 937 bytes
- Variable part: 0 bytes

Table 2.61 Channel Node Configuration (PD_CHC) Fields

Channel Node Configuration (PD_CHC)				
View Name (Manager Name)	Description	Format	Delta	Data Source
CHN Number (CHN_NUMBER)	NAS system channel node number	ulong	No	--
Host Name (HOST_NAME)	NAS system host name	string(256)	No	--
Record Time (RECORD_TIME)	GMT when the record is stored	time_t	No	--
Record Type (INPUT_RECORD_TYPE)	Record type identifier, which is always set to CHC	string(8)	No	--

2.9.2 Channel Node Platform Configuration (PD_CPC)

Function

The Channel Node Platform Configuration (PD_CPC) record stores NAS system platform configuration information.

Table 2.62 Channel Node Platform Configuration (PD_CPC) Default and Changeable Values

Item	Default Value	Changeable?
Collection Interval	3600	Yes
Collection Offset	0	
Log	Yes	
LOGIF	(Blank)	

Key Fields

None

Lifetime

From when the NAS system platform configuration is established to when it is modified.

Record Size

- Fixed part: 1,081bytes
- Variable part: 0 bytes

Table 2.63 Channel Node Platform Configuration (PD_CPC) Fields

Channel Node Platform Configuration (PD_CPC)				
View Name (Manager Name)	Description	Format	Delta	Data Source
Host Name (HOST_NAME)	NAS system host name	string(256)	No	--
IP Address (IP_ADDRESS)	NAS system IP address specified by <code>destination_address</code> when the Agent for NAS instance was created.	string(20)	No	--
OS Name (OS_NAME)	NAS system OS name	string(64)	No	--
OS Version (OS_VERSION)	NAS system OS version	string(64)	No	--
Record Time (RECORD_TIME)	GMT when the record is stored	time_t	No	--
Record Type (INPUT_RECORD_TYPE)	Record type identifier, which is always set to CPC	string(8)	No	--

2.9.3 Device Detail (PI_DEVD)

Function

The Device Detail (PI_DEVD) record holds performance data regarding the use of a local disk device on the NAS system over a specified time unit period. Data is stored for each logical unit. Each time performance data is collected, one Device Detail (PI_DEVD) record is created for each local disk device that is defined as a logical unit. This record is a multi-instance record. This record is not created at the first information collection event after the Agent for NAS has been started or after the NAS system has been started.

Table 2.64 Device Detail (PI_DEVD) Default and Changeable Values

Item	Default Value	Changeable?
Collection Interval	60	Yes
Collection Offset	0	
Log	Yes	
LOGIF	(Blank)	

Key Fields

Device Name (DEVICE_NAME)

Lifetime

None

Record Size

- Fixed part: 677 bytes
- Variable part: 580 bytes

Table 2.65 Device Detail (PI_DEVD) Fields

Device Detail (PI_DEVD)				
View Name (Manager Name)	Description	Format	Delta	Data Source
Device Name (DEVICE_NAME)	Local disk device name	string(128)	No	--
Host Name (HOST_NAME)	NAS system host name	string(256)	No	--
I/O Mbytes (TOTAL_IO_MBYTES)	Total transfer size (in megabytes) of block I/O operations for logical units. If the collected information is incorrect, set 0.	float	Yes	TOTAL_READ_MBYTES + TOTAL_WRITE_MBYTES
Interval (INTERVAL)	Length (in seconds) of the interval at which the Device Detail (PI_DEVD) record is stored. If the collected information is incorrect, set 0.	ulong	Yes	--
Mbytes Xferd/sec (MBYTES_TRANSFERRED_PER_SECOND)	Average block I/O speed for logical units (megabytes per second).	float	No	TOTAL_IO_MBYTES / INTERVAL
Read Mbytes (TOTAL_READ_MBYTES)	Transfer size (in megabytes) of read operations for logical unit blocks. If the collected information is incorrect, set 0.	float	Yes	--
Read Ops (READ_OPS)	Number of times logical unit read operations were performed. If the collected information is incorrect, set 0.	ulong	Yes	--
Read Ops % (READ_OPS_PERCENT)	The percentage of read operations to all I/O operations for logical units.	float	No	(READ_OPS / TOTAL_IO_OPS) * 100
Read Ops/sec (READ_OPS_PER_SECOND)	Frequency of read operations for logical units (number of times per second)	float	No	READ_OPS / INTERVAL
Record Time (RECORD_TIME)	GMT when the record is stored	time_t	No	--
Record Type (INPUT_RECORD_TYPE)	Record type, which is always set to DEVD	char(8)	No	--
Total I/O Ops (TOTAL_IO_OPS)	Number of times I/O operations for logical units occurred. If the collected information is incorrect, set 0.	ulong	Yes	--
Total I/O Ops/sec (TOTAL_IO_OPS_PER_SECOND)	Frequency of I/O operations for logical units (number of times per second).	float	No	TOTAL_IO_OPS / INTERVAL

Write Mbytes (TOTAL_WRITE_MBYTES)	Transfer size (in megabytes) of write operations for logical unit blocks. If the collected information is incorrect, set 0.	float	Yes	--
Write Ops (WRITE_OPS)	Number of times write operations for logical units occurred. If the collected information is incorrect, set 0.	ulong	Yes	--
Write Ops % (WRITE_OPS_PERCENT)	The percentage of write operations to all I/O operations for logical units	float	No	$(WRITE_OPS / TOTAL_IO_OPS) * 100$
Write Ops/sec (WRITE_OPS_PER_SECOND)	Frequency of write operations for logical units (number of times per second)	float	No	$WRITE_OPS / INTERVAL$

2.9.4 Device Summary (PI_DEVS)

Function

The Device Summary (PI_DEVS) record holds a summary of performance data regarding the use of all local disk devices that are defined as logical units on the NAS system, over a period of a certain unit of time. This record is not created at the first information collection event after the Agent for NAS has been started or after the NAS system has been started.

Table 2.66 Device Summary (PI_DEVS) Default and Changeable Values

Item	Default Value	Changeable?
Collection Interval	60	Yes
Collection Offset	0	
Log	No	
LOGIF	(Blank)	

Key Fields

None

Lifetime

None

Record Size

- Fixed part: 1,173 bytes
- Variable part: 0 bytes

Table 2.67 Device Summary (PI_DEVS) Fields

Device Summary (PI_DEVS)				
View Name (Manager Name)	Description	Format	Delta	Data Source
Devices (DEVICE_COUNT)	Number of local disk devices	ulong	No	--
Host Name (HOST_NAME)	NAS system host name	string(256)	No	--
I/O Mbytes (TOTAL_IO_MBYTES)	Total transfer size (in megabytes) of block I/O operations for logical units. If the collected information is incorrect, set 0.	double	Yes	TOTAL_READ_MBYTES + TOTAL_WRITE_MBYTES
Interval (INTERVAL)	Length (in seconds) of the interval at which the Device Summary (PI_DEVS) record is stored. If the collected information is incorrect, set 0.	ulong	Yes	--

Mbytes Xferd/sec (MBYTES_TRANSFERRED_PER_SECOND)	Average block I/O speed for logical units (megabytes per second).	double	No	TOTAL_IO_MBYTES / INTERVAL
Read Mbytes (TOTAL_READ_MBYTES)	Transfer size (in megabytes) of read operations for logical unit blocks. If the collected information is incorrect, set 0.	double	Yes	--
Read Ops (READ_OPS)	Number of times a logical unit read operation was performed. If the collected information is incorrect, set 0.	double	Yes	--
Read Ops % (READ_OPS_PERCENT)	The percentage of read operations to all I/O operations for logical units.	float	No	(READ_OPS / TOTAL_IO_OPS) * 100
Read Ops/sec (READ_OPS_PER_SECOND)	Frequency of read operations for logical units (number of times per second)	double	No	READ_OPS / INTERVAL
Record Time (RECORD_TIME)	GMT when the record was created.	time_t	No	--
Record Type (INPUT_RECORD_TYPE)	Record type, which is always set to DEVS.	char(8)	No	--
Total I/O Ops (TOTAL_IO_OPS)	Number of times I/O operations for logical units occurred. If the collected information is incorrect, set 0.	double	Yes	--
Total I/O Ops/sec (TOTAL_IO_OPS_PER_SECOND)	Frequency of I/O operations for logical units (number of times per second)	double	No	TOTAL_IO_OPS / INTERVAL
Write Mbytes (TOTAL_WRITE_MBYTES)	Transfer size (in megabytes) of write operations for logical unit blocks. If the collected information is incorrect, set 0.	double	Yes	--
Write Ops (WRITE_OPS)	Number of times write operations for logical units occurred. If the collected information is incorrect, set 0.	double	Yes	--
Write Ops % (WRITE_OPS_PERCENT)	The percentage of write operations to all I/O operations for logical units	float	No	(WRITE_OPS / TOTAL_IO_OPS) * 100
Write Ops/sec (WRITE_OPS_PER_SECOND)	Frequency of write operations for logical units (number of times per second).	double	No	WRITE_OPS / INTERVAL

2.9.5 File System Configuration (PD_FSC)

Function

The File System Configuration (PD_FSC) record holds file-system-to-logical-device mapping configuration information. One File System Configuration (PD_FSC) record is created for each logical device. This record is a multi-instance record.

Table 2.68 File System Configuration (PD_FSC) Default and Changeable Values

Item	Default Value	Changeable?
Collection Interval	3600	Yes
Collection Offset	0	
Log	Yes	
LOGIF	(Blank)	

Key Fields

Device Name (DEVICE_NAME), File System Name (FILE_SYSTEM_NAME), LDEV Number (LDEV_NUMBER), Port Number (PORT_NUMBER), Serial Number (SERIAL_NUMBER), Unit ID (UNIT_ID), Vendor ID (VENDOR_ID)

Lifetime

From when the file-system-to-logical-device mapping configuration is established to when it is modified.

Record Size

- Fixed part: 677 bytes
- Variable part: 1,779 bytes

Table 2.69 File System Configuration (PD_FSC) Fields

File System Configuration (PD_FSC)				
View Name (Manager Name)	Description	Format	Delta	Data Source
Device Name (DEVICE_NAME)	Device special file name	string(128)	No	--
File System Name (FILE_SYSTEM_NAME)	Mount point of the file system	string(102 4)	No	--
Host Name (HOST_NAME)	NAS system host name	string(256)	No	--

LDEV Number (LDEV_NUMBER)	Logical device number (of the disk array device) (hexadecimal). The format is as follows: <CU-number (2 characters)> : <LDEVID (2 characters)> Example: 01:0F	string(16)	No	--
LU Number (LU_NUMBER)	Logical unit number (of the Host) (decimal number).	word	No	--
Port Number (PORT_NUMBER)	Port number (of the disk array unit) Example: CL1-A;0	string(64)	No	--
Product ID (PRODUCT_ID)	Emulation type. Example: OPEN-9	string(64)	No	--
Product Name (PRODUCT_NAME)	Product name of the disk array device.	string(64)	No	--
RAID ID (RAID_ID)	Character strings that represents the model of the disk array unit.	string(64)	No	--
Record Time (RECORD_TIME)	GMT when the record is stored	time_t	No	--
Record Type (INPUT_RECORD_TYPE)	Record type identifier, which is always set to FSC	string(8)	No	--
Serial Number (SERIAL_NUMBER)	Serial number of the disk array unit. Device ID (decimal, with no preceding zeros)	string(32)	No	--
Unit ID (UNIT_ID)	Unit identifier Example: 0x08	unsigned char	No	--
Vendor ID (VENDOR_ID)	Vendor name.	string(64)	No	--

2.9.6 File System Detail - Local (PD_FSL)

Function

The File System Detail - Local (PD_FSL) record stores performance data that indicates the status of the local file system capacity of the NAS system at a particular point in time. One record is created for each local file system. This record is a multi-instance record.

Note: In certain file systems, there are times when values cannot be collected. For example, the remote file system may be handled as a local file system if the remote host name cannot be acquired.

Table 2.70 File System Detail - Local (PD_FSL) Default and Changeable Values

Item	Default Value	Changeable?
Collection Interval	3600	Yes
Collection Offset	0	
Log	Yes	
LOGIF	(Blank)	

Key Fields

File System Name (FILE_SYSTEM_NAME)

Lifetime

From when the local file system is mounted on the NAS system to when it is unmounted.

Record Size

- Fixed part: 677 bytes
- Variable part: 1,484 bytes

Table 2.71 File System Detail - Local (PD_FSL) Fields

File System Detail - Local (PD_FSL)				
View Name (Manager Name)	Description	Format	Delta	Data Source
Block Size (BLOCKSIZE)	Block size of the local file system (in bytes). Fixed to 512.	ulong	No	--
Blocks Free (TOTAL_BLOCKS_FREE)	Number of blocks not in use in the local file system	ulong	No	--
Blocks in Use (TOTAL_BLOCKS_IN_USE)	Number of blocks in use in the local file system	ulong	No	--
Device Name (DEVICE_NAME)	Name of the device for which a file system is created.	string(128)	No	--
File System Name (FILE_SYSTEM_NAME)	Mount point of the file system	string(1024)	No	--
File System Type (FILE_SYSTEM_TYPE)	File system type. <i>Example:</i> UFS, HFS	string(20)	No	--
Host Name (HOST_NAME)	NAS system host name	string(256)	No	--
Mbytes Free (TOTAL_MBYTES_FREE)	Number of megabytes not in use in the local file system	ulong	No	TOTAL_SIZE_IN_MBYTES - TOTAL_MBYTES_IN_USE
Mbytes Free % (TOTAL_MBYTES_FREE_PERCENT)	Percentage of megabytes not in use in the local file system	float	No	(TOTAL_MBYTES_FREE / TOTAL_SIZE_IN_MBYTES) * 100
Mbytes in Use (TOTAL_MBYTES_IN_USE)	Number of megabytes in use in the local file system	ulong	No	--
Mbytes in Use % (TOTAL_MBYTES_IN_USE_PERCENT)	Percentage of megabytes in use in the local file system	float	No	(TOTAL_MBYTES_IN_USE / TOTAL_SIZE_IN_MBYTES) * 100
Record Time (RECORD_TIME)	GMT when the record is stored	time_t	No	--
Record Type (INPUT_RECORD_TYPE)	Record type, which is always set to FSL	char(8)	No	--
Total Inodes (TOTAL_NUMBER_OF_INODES)	Number of i-nodes in the file local system	ulong	No	--
Total Inodes Free (TOTAL_INODES_FREE)	Number of i-nodes not in use in the local file system	ulong	No	TOTAL_NUMBER_OF_INODES - TOTAL_INODES_IN_USE

Total Inodes Free % (TOTAL_INODES_FREE_PERCENT)	Percentage of i-nodes not in use in the local file system	float	No	$(\text{TOTAL_INODES_FREE} / \text{TOTAL_NUMBER_OF_INODES}) * 100$
Total Inodes in Use (TOTAL_INODES_IN_USE)	Number of i-nodes in use in the local file system	ulong	No	--
Total Inodes in Use % (TOTAL_INODES_IN_USE_PERCENT)	Percentage of i-nodes in use in the local file system	float	No	$(\text{TOTAL_INODES_IN_USE} / \text{TOTAL_NUMBER_OF_INODES}) * 100$
Total Size Blocks (TOTAL_SIZE_IN_BLOCKS)	Number of blocks in the file system	ulong	No	--
Total Size Mbytes (TOTAL_SIZE_IN_MBYTES)	Number of megabytes in the file system	ulong	No	--

2.9.7 IP Address Configuration (PD_IAC)

Function

The IP Address Configuration (PD_IAC) record stores IP address configuration information for the NAS system. This record is a multi-instance record.

Table 2.72 IP Address Configuration (PD_IAC) Default and Changeable Values

Item	Default Value	Changeable?
Collection Interval	3600	Yes
Collection Offset	0	
Log	Yes	
LOGIF	(Blank)	

Key Fields

IP Address (IP_ADDRESS)

Lifetime

From when the NAS system IP address configuration is established to when it is modified.

Record Size

- Fixed part: 677 bytes
- Variable part: 296 bytes

Table 2.73 IP Address Configuration (PD_IAC) Fields

IP Address Configuration (PD_IAC)				
View Name (Manager Name)	Description	Format	Delta	Data Source
Host Name (HOST_NAME)	NAS system host name	string(256)	No	--
IP Address (IP_ADDRESS)	IP address for the NAS system	string(20)	No	--
Record Time (RECORD_TIME)	GMT when the record is stored	time_t	No	--
Record Type (INPUT_RECORD_TYPE)	Record type identifier, which is always set to IAC	string(8)	No	--
Sub Net Mask (SUB_NET_MASK)	Subnet mask for the NAS system	string(20)	No	--

2.9.8 Process Detail (PD)

Function

The Process Detail (PD) record stores performance data on the processes running on the NAS system at a particular point in time. However, if the process ends between the point in time when the performance data was collected and the following collection, the performance data for that process will not be collected.

One Process Detail (PD) record is created for each process running on the system. This record is a multi-instance record.

Table 2.74 Process Detail (PD) Default and Changeable Values

Item	Default Value	Changeable?
Collection Interval	60	Yes
Collection Offset	0	
Log	No	
LOGIF	(Blank)	

Key Fields

PID (PID)

Lifetime

From when the NAS system process starts to when it terminates.

Record Size

- Fixed part: 677 bytes
- Variable part: 797 bytes

Table 2.75 Process Detail (PD) Fields

Process Detail (PD)				
View Name (Manager Name)	Description	Format	Delta	Data Source
Argument List (ARGUMENT_LIST)	Process argument.	string(120)	No	--
CPU % (CPU_PERCENT_USED)	Percentage of the CPU in use for the process	float	No	--
Elapsed Time (ELAPSED_TIME)	Time elapsed since the process was started	ulong	No	--
Group ID (GROUP_ID)	Group ID of the process being executed	long	No	--
Group Name (GROUP_NAME)	Group name of the process being executed.	string(36)	No	--
Host Name (HOST_NAME)	NAS system host name	string(256)	No	--
Major Faults (MAJOR_FAULTS)	Number of times a physical page fault occurred since the process started.	ulong	No	--
Minor Faults (MINOR_FAULTS)	Number of times a logical page fault occurred since the process started.	ulong	No	--
Niceness (NICENESS)	Process nice value.	long	No	--
Parent PID (PARENT_PID)	Parent process ID	long	No	--
Parent Process List (PARENT_PROCESS_LIST)	List of parent processes.	string(128)	No	--
PID (PID)	Process ID	long	No	--
Priority (PRIORITY)	Process priority order	long	No	--
Process Group ID (PROCESS_GROUP_ID)	Process group ID	long	No	--
Program Name (PROGRAM_NAME)	Name of the program being executed.	string(32)	No	--
Program PID (PROGRAM_PID)	Name of the program being executed and the process ID.	string(43)	No	PROGRAM_NAME + / + PID
Real Memory Kbytes (REAL_MEMORY_KBYTES)	The actual memory size (in kilobytes) of the process in use	ulong	No	--
Real User ID (REAL_USER_ID)	Actual process user ID	long	No	--

Real User Name (REAL_USER_NAME)	Actual process user name.	string(36)	No	--
Record Time (RECORD_TIME)	GMT when the record is stored	time_t	No	--
Record Type (INPUT_RECORD_TYPE)	Record type, which is always set to PD	char(8)	No	--
Start Time (START_TIME)	Time at which the process starts	time_t	No	--
State (STATE)	Process status.	string(10)	No	--
Terminal Name (TERMINAL_NAME)	Name of the terminal on which process is being executed.	string(40)	No	--
Total Process Kbytes (TOTAL_PROCESS_KBYTES)	Process size (in kilobytes). This value is the sum of the process data size and the stack segment size.	ulong	No	--
User ID (USER_ID)	User ID of the person executing the process	long	No	--
User Name (USER_NAME)	User name of the person executing the process.	string(36)	No	--

2.9.9 System Summary Overview (PI)

Function

The System Summary Overview (PI) record stores performance data that uses a predetermined amount of time as a unit and applies to the entire NAS system. This record is not created at the first information collection event after the Agent for NAS has been started or after the NAS system has been started.

Note: The NAS system manages, in units of days, information collected by the `sar` command. Creation of that information starts after a fixed period from 00:00. If the Agent for NAS starts collecting PI record information when the information collected by the `sar` command has not been created, collection fails, and then the KAVF24139-W and KAVF24140-W error messages are output to the common message log.

Table 2.76 System Summary Overview (PI) Default and Changeable Values

Item	Default Value	Changeable?
Collection Interval	60	Yes
Collection Offset	0	
Log	Yes	
LOGIF	(Blank)	

Key Fields

None

Lifetime

None

Record Size

- Fixed part: 1,621 bytes
- Variable part: 0 bytes

Table 2.77 System Summary Overview (PI) Fields

System Summary Overview (PI)				
View Name (Manager Name)	Description	Format	Delta	Data Source
1-Minute Run Queue Avg (ONE_MINUTE_RUN_QUEUE_AVG)	Average number of processes that were waiting in execution queues and disk I/O queues in the past minute	float	No	--
5-Minute Run Queue Avg (FIVE_MINUTE_RUN_QUEUE_AVG)	Average number of processes that were waiting in execution queues and disk I/O queues in the past 5 minutes	float	No	--

15-Minute Run Queue Avg (FIFTEEN_MINUTE_RUN_QUEUE_AVG)	Average number of processes that were waiting in execution queues and disk I/O queues in the past 15 minutes	float	No	--
Active CPUs (NUMBER_OF_ACTIVE_CPUS)	Number of processors	ulong	No	--
Alloc Mem % (ALLOCATED_MEMORY_PERCENT)	Percentage of actual memory in use to the actual memory mounted on the NAS system (in megabytes)	float	No	(ALLOCATED_MEMORY_MBYTES / TOTAL_MEMORY_MBYTES) * 100
Alloc Mem Mbytes (ALLOCATED_MEMORY_MBYTES)	Number of megabytes of actual memory in use in the actual memory mounted on the NAS system	float	No	TOTAL_MEMORY_MBYTES - FREE_MEMORY_MBYTES
Block I/O Ops (BLOCKIO_IO_OPS)	Number of times a block I/O operation was performed. If the collected information is incorrect, set 0.	ulong	Yes	BLOCKIO_READ_OPS + BLOCKIO_WRITE_OPS
Block Read Ops (BLOCKIO_READ_OPS)	Number of times a block read operation was performed. If the collected information is incorrect, set 0.	ulong	Yes	--
Block Read Ops/sec (BLOCKIO_READ_OPS_PER_SECOND)	Frequency of block read operations (number of times per second).	float	No	BLOCKIO_READ_OPS_NAS / INTERVAL
Block Write Ops (BLOCKIO_WRITE_OPS)	Number of times a block write operation was performed. If the collected information is incorrect, set 0.	ulong	Yes	--
Block Write Ops/sec (BLOCKIO_WRITE_OPS_PER_SECOND)	Frequency of block write operations (number of times per second).	float	No	BLOCKIO_WRITE_OPS / INTERVAL
Boot Time (CURRENT_SYSTEM_BOOT_TIME)	Time of the last boot of the NAS system	time_t	No	--
Context Switches (CONTEXT_SWITCHES)	Number of times a context switch was executed. If the collected information is incorrect, set 0.	ulong	Yes	--

Context Switches/sec (CONTEXT_SWITCHES_PER_SECOND)	Frequency of the context switch executions (number of times per second).	float	No	CONTEXT_SWITCHES / INTERVAL
CPU % (KERNELMODE_USERMODE_PERCENT)	CPU usage	float	No	$(TOTAL_KERNELMODE_TIME + TOTAL_USERMODE_TIME) / (TOTAL_KERNELMODE_TIME + TOTAL_USERMODE_TIME + TOTAL_IDLE_TIME) * 100$
Free Memory % (FREE_MEMORY_PERCENT)	Percentage of actual memory not in use to the actual memory mounted on the NAS system.	float	No	$(FREE_MEMORY_MBYTES / TOTAL_MEMORY_MBYTES) * 100$
Free Memory Mbytes (FREE_MEMORY_MBYTES)	Number of megabytes of actual memory not in use in the actual memory mounted on the NAS system	float	No	--
Host Name (HOST_NAME)	NAS system host name	string(256)	No	--
ICMP Pkts In (ICMP_PACKETS_IN)	Number of ICMP packets received via the IPv4 protocol. If the collected information is incorrect, set 0.	ulong	Yes	--
ICMP Pkts Out (ICMP_PACKETS_OUT)	Number of ICMP packets sent via the IPv4 protocol. If the collected information is incorrect, set 0.	ulong	Yes	--
Idle % (IDLE_TIME_PERCENT)	Percentage of the CPU idle time.	float	No	$TOTAL_IDLE_TIME / (TOTAL_IDLE_TIME + TOTAL_USERMODE_TIME + TOTAL_KERNELMODE_TIME) * 100$
Interrupts (INTERRUPTS)	Number of times an interrupt occurred. If the collected information is incorrect, set 0.	ulong	Yes	--
Interrupts/sec (INTERRUPTS_PER_SECOND)	Frequency of interrupts (number of times per second).	float	No	INTERRUPTS / INTERVAL
Interval (INTERVAL)	Length (in seconds) of the interval at which the System Summary Overview (PI) record is stored. If the collected information is incorrect, set 0.	ulong	Yes	--
IP Pkts In (IP_PACKETS_IN)	Number of IP packets received via the IPv4 protocol. If the collected information is	ulong	Yes	--

	incorrect, set 0.			
IP Pkts Out (IP_PACKETS_OUT)	Number of IP packets sent via the IPv4 protocol. If the collected information is incorrect, set 0.	ulong	Yes	--
Kernel CPU % (KERNELMODE_PERCENT)	Percentage of the period in which the CPU was running in kernel mode.	float	No	$\frac{\text{TOTAL_KERNELMODE_TIME}}{(\text{TOTAL_IDLE_TIME} + \text{TOTAL_USERMODE_TIME} + \text{TOTAL_KERNELMODE_TIME})} * 100$
Physical I/O Ops (PHYSICAL_IO_OPS)	Number of times a physical I/O operation was performed. If the collected information is incorrect, set 0.	ulong	Yes	PHYSICAL_READ_OPS + PHYSICAL_WRITE_OPS
Physical Read Ops (PHYSICAL_READ_OPS)	Number of times a physical read operation was performed. If the collected information is incorrect, set 0.	ulong	Yes	--
Physical Write Ops (PHYSICAL_WRITE_OPS)	Number of times a physical write operation was performed. If the collected information is incorrect, set 0.	ulong	Yes	--
Processes (CURRENT_PROCESS_COUNT)	Number of processes within the system	ulong	No	--
Record Time (RECORD_TIME)	GMT when the record is stored	time_t	No	--
Record Type (INPUT_RECORD_TYPE)	Record type, which is always set to PI	char(8)	No	--
Run Queue (PROCESSES_IN_RUN_QUEUE)	Number of processes waiting in the execution queue or disk I/O queue.	float	No	--
System Up Time (CURRENT_BOOT_SYSTEM_UP_TIME)	Amount of time since the last boot of the NAS system	string(20)	No	--
TCP Pkts In (TCP_PACKETS_IN)	Number of TCP packets received via the IPv4 protocol. If the collected information is incorrect, set 0.	ulong	Yes	--
TCP Pkts Out (TCP_PACKETS_OUT)	Number of TCP packets sent via the IPv4 protocol. If the collected information is incorrect, set 0.	ulong	Yes	--
Total Idle Time (TOTAL_IDLE_TIME)	Period of time in which the CPU was idle. If the collected information is incorrect, set 0.	utime	Yes	--

Total Kernel-mode Time (TOTAL_KERNELMODE_TIME)	Period of time in which the CPU was running in kernel mode. If the collected information is incorrect, set 0.	utime	Yes	--
Total Physical Memory Mbytes (TOTAL_MEMORY_MBYTES)	Number of megabytes in actual memory	float	No	--
Total Pkts (TOTAL_PACKETS)	Total number of packets sent or received via the IPv4 protocol. If the collected information is incorrect, set 0.	ulong	Yes	TOTAL_PACKETS_IN + TOTAL_PACKETS_OUT
Total Pkts In (TOTAL_PACKETS_IN)	Number of packets received via the IPv4 protocol. If the collected information is incorrect, set 0.	ulong	Yes	IP_PACKETS_IN
Total Pkts Out (TOTAL_PACKETS_OUT)	Number of packets sent via the IPv4 protocol. If the collected information is incorrect, set 0.	ulong	Yes	IP_PACKETS_OUT
Total User-mode Time (TOTAL_USERMODE_TIME)	Period of time in which the CPU was running in user mode. If the collected information is incorrect, set 0.	utime	Yes	--
UDP Pkts In (UDP_PACKETS_IN)	Number of UDP packets received via the IPv4 protocol. If the collected information is incorrect, set 0.	ulong	Yes	--
UDP Pkts Out (UDP_PACKETS_OUT)	Number of UDP packets sent via the IPv4 protocol. If the collected information is incorrect, set 0.	ulong	Yes	--
User CPU % (USERMODE_PERCENT)	Percentage of the period in which the CPU was running in user mode.	float	No	TOTAL_USERMODE_TIME / (TOTAL_IDLE_TIME + TOTAL_USERMODE_TIME + TOTAL_KERNELMODE_TIME) * 100
Users (CURRENT_USER_COUNT)	Actual number of users since the previous data was collected	ulong	No	--

Acronyms and Abbreviations

ASCII	American Standard Code for Information Interchange
CHP	Channel Processor
CLPR	Cache Logical Partition
COW Snapshot	Copy-on-write SnapShot
CPU	Central Processing Unit
CRC	Cyclic Redundancy Check
DDL	Data Definition Language
DKC	disk controller
GBIC	Gigabit Interface Converter
GUI	Graphical User Interface
HBA	Host Bus Adapter
HDU	Hard Disk Unit
HTM	HiCommand Tuning Manager
I/O	Input/Output
ICMP	Internet Control Message Protocol
ID	identifier, identification
IP	Internet Protocol
IPv4	Internet Protocol Version 4
LAN	Local Area Network
LDEV	Logical Device Unit
LU	Logical Unit
LUSE	Logical Unit Size Expansion
MB	megabyte
NAS	Network Attached Storage
OS	Operating System
P-VOL	Primary Volume
RAID	redundant array of inexpensive disks
RCU	Remote Control Unit

S-VOL	Secondary Volume
SAN	Storage Area Network
SCSI	Small Computer System Interface
SLPR	Storage Logical Partition
SNMP	Simple Network Management Protocol
TCP	transmission control protocol
UDP	User Datagram Protocol
WWN	World Wide Name