Hewlett Packard
Enterprise

# XP7 SNMP Agent User Guide

**Abstract**

This document describes and provides instructions for using the SNMP Agent on an XP7 Storage (XP7) system. Complete information for performing specific tasks in Remote Web Console is contained in the XP7 Storage software user guides.

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# Contents

# Introduction

## SNMP Manager overview

SNMP Manager is installed in the network management station. It collects and manages information from SNMP agents installed in the managed devices on the network.

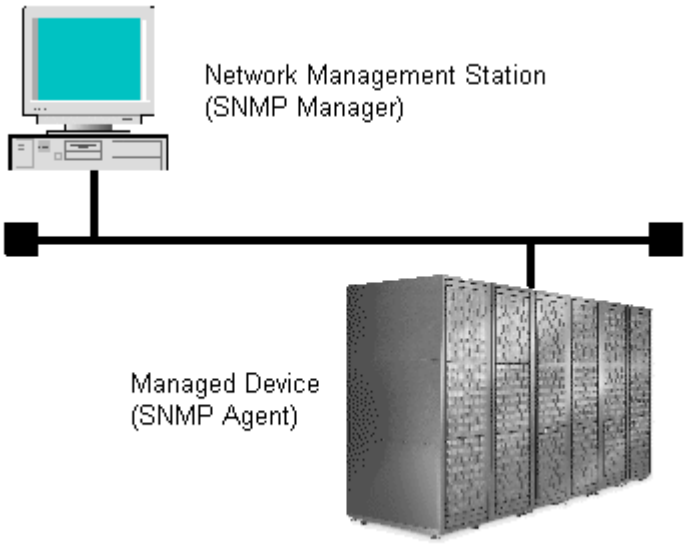
The SNMP Manager graphically displays information collected from two or more SNMP agents, accumulates the information in the database, and analyzes problems discovered while accumulating this information.

**NOTE:** SNMP versions v1, v2c, and v3 are supported.

### How SNMP works

Simple Network Management Protocol (SNMP) is an industry-standard protocol for managing and monitoring network devices, including disk devices, routers, and hubs. SNMP uses Simple Gateway Management Protocol (SGMP) to manage TCP/IP gateways.

The following figure shows an example SNMP environment.




An SNMP manager monitors the devices, which are referred to as managed nodes. Typically, an SNMP Manager polls the SNMP agents on a periodic basis. The manager receives the reports from the agents and determines whether the devices are operating normally. If an abnormal event occurs, an SNMP Agent can report the condition without a request from the manager, by using a trap message.

When an SNMP manager polls an agent, the following dialogue takes place:

- An SNMP Manager sends a request packet to an SNMP Agent, which requests data regarding the status of the managed node.
- The SNMP Agent sends a response packet back to the SNMP Manager.
- SNMP uses the TCP/IP User Datagram Protocol (UDP). If the SNMP Agent does not respond within a specified time period, the SNMP Manager re-sends the request packet. That time period is set by the system administrator, taking into account the network traffic and operation policy.
- If an SNMP Agent again does not respond to the resent packet, the SNMP Manager assumes that an error has occurred. Depending on the times set for polling and response, this dialogue can take several seconds.

If an SNMP Agent detects an abnormal event, it sends a trap to the SNMP Manager. However, if a trap is dropped in transmission, the SNMP Manager does not know that it was sent. For this reason, you should use both polling and traps to determine whether an abnormal event has occurred.

## Management Information Base overview

The standardized configuration and database of network management information is called a Management Information Base (MIB). A standard MIB is common to all SNMP interfaces. An extension MIB is defined by the particular managed device or protocol.

A MIB is a collection of standardized configuration and network management information that is contained in each device on the network. Each MIB contains a set of parameters called managed objects. Each managed object consists of a parameter name, one or more parameters, and a group of operations that can be executed with the object. The MIB defines the type of information that can be obtained from a managed device, and the device settings that can be controlled from a management system.

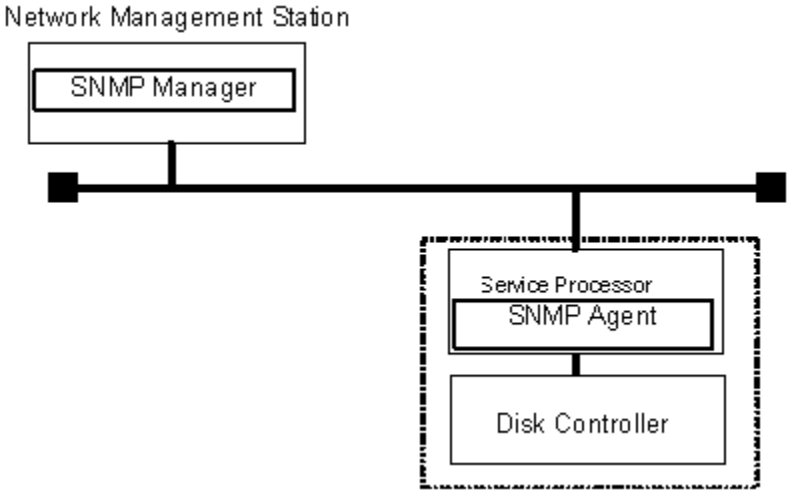
The MIB definition file, `VSPG1000MIB.txt`, is located in the `program\SNMP` folder of the software media kit.

# SNMP Agent configuration

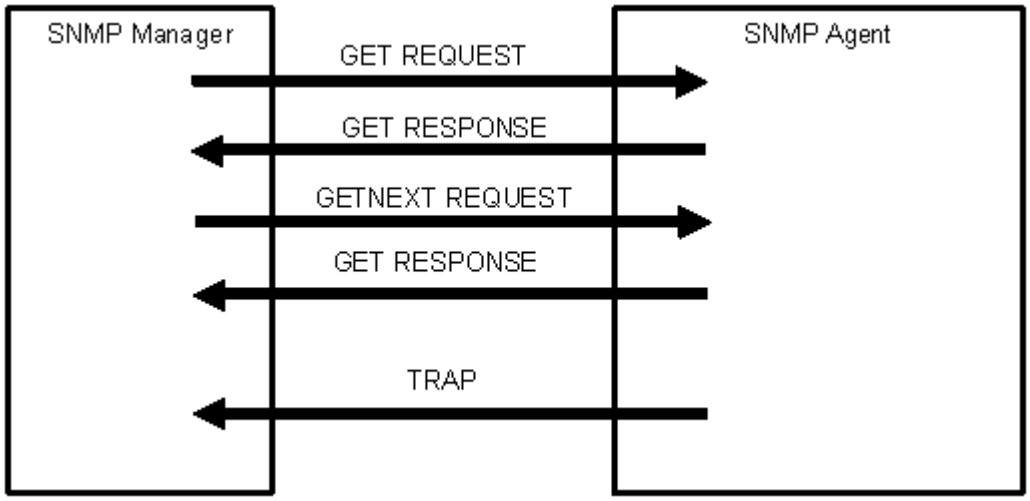
The SNMP Agent is installed on the service processor (SVP), which is the computer within the storage system that manages the storage system.

The storage system has an exclusive LAN for communications with the SVP and a separate LAN for SNMP. The configuration of each Network Management Station is determined by the type of SNMP manager.

The following figure illustrates the SNMP environment.




The following figure shows an example of SNMP operations using an SNMP manager.




# SNMP Agent overview

The SNMP Agent is mounted on a managed device (such as a hard disk) in the network. It collects error information, the usage condition, and other information about the device, and forwards the information to the SNMP Manager.

The SNMP Agent reports disk storage system failures to the manager using the SNMP trap function.

## SNMP traps

An SNMP Agent reports storage system errors to the SNMP Manager using the SNMP trap function.

When an error occurs, the SNMP Agent issues an SNMP trap to the SNMP Manager that includes the product number, nickname, reference code, and an identifier of the component.

The following table lists the types of events that trigger an SNMP Agent trap.

| Events | Description |
|---|---|
| Acute failure detected. | All operations in a storage system stopped. |
| Serious failure detected. | Operation in a component where a failure occurred stopped. |
| Moderate failure detected. | Partial failure. |
| Service failure detected. | Minor failure. |

An SNMP Agent logs the most recent 10,000 traps, so you can see the trap history of a particular device.

## SNMP Agent operations

Operations that an SNMP Agent can perform fall into the categories GET REQUEST, GETNEXT REQUEST, GETBULK REQUEST, and TRAP.

The following table describes the types of SNMP Agent operations.

| Operation | Description |
|---|---|
| GET REQUEST | Obtains a specific MIB object value.<br>GET REQUEST is the request from an SNMP Manager, and GET RESPONSE is the agent's response to that request. |
| GETNEXT REQUEST | Continuously finds a MIB object.<br>GETNEXT REQUEST is the request from an SNMP Manager, and GET RESPONSE is the agent's response to that request. |
| GETBULK REQUEST | Continuously finds specified MIB objects only.<br>GETBULK REQUEST is the request from an SNMP Manager, and GET RESPONSE is the agent's response to that request. |
| TRAP | Reports an event (failure) to an SNMP Manager.<br>TRAP occurs without a request from the SNMP Manager. |

## SNMP Agent reported errors

Several different types of errors can be reported when GET REQUEST, GETNEXT REQUEST, and GETBULK REQUEST operations are sent to an SNMP Agent.

The following table describes the errors that can be reported and suggests corrective action.

| Error | Description | Corrective action |
|---|---|---|
| noError (0) | Normal | N/A |
| noSuchName (2) | • There are no MIB objects that are required. (Not supported.)<br>• The GETNEXT REQUEST command that is specified for the following object identifier of the last supported MIB object is received. | Verify that the name of the requested object is correct. |
| | SET REQUEST is received. | SET REQUEST operation is not supported. |
| genErr (5) | Error occurred for other reasons. | Retry the operation. |

# Component status information from SNMP Manager

You can obtain the status information of certain storage system components from the SNMP Manager.

The following table lists the components for which the status can be obtained.

| Area | Component name |
|---|---|
| Storage System | Processors |
| | BUS |
| | Cache |

*Table Continued*

| Area | Component name |
|---|---|
| | Shared memory |
| | Power supplies |
| | Batteries |
| | Fans |
| | Others |
| Disk Unit | Power supplies |
| | Fans |
| | Environments |
| | Drives |

The following table lists the status of storage system components, as well as the trap report functions.

| Status | Description |
|---|---|
| Normal | Normal operation. |
| Acute failure detected | All operations in a storage system stopped. |
| Serious failure detected | Operation in a component where a failure occurred stopped. |
| Moderate failure detected | Partial failure. |
| Service failure detected | Minor failure. |

# Using SNMP

## Editing alert settings

This topic describes how to set the Edit Alert Settings.

**CAUTION:**
Be sure to document your storage system name before this process, because the settings will be cleared when the is replaced.

**Prerequisites**

You must have the Storage Administrator (Initial Configuration) role to perform this task.

For more information, see the *XP7 Remote Web Console User Guide*.

**Procedure**

1. Display the Remote Web Console main window.
2. From the **Settings** menu, select **Environmental Setting > Edit Alert Settings**.
3. For **Notification Alert**, select one of the following:
   - **All** (Sends alerts of all SIMs.)
   - **Host Report** (Sends alerts only of SIMs that report to hosts. Alert destinations are common to Syslog, SNMP, and Email.)
4. Select the **SNMP** tab.
5. For **Extension SNMP**, select **Enable** to enable that option.
6. In **System Group Information**, enter the **Storage System Name**, **Contact**, and **Location**.

   Changes made to information here are also reflected in the **Storage System** window in Remote Web Console.
7. Click **Finish**.
8. Enter a name for the task in the **Confirm** window, confirm the settings, and then click **Apply**.

## Managing SNMP trap notification

### Adding trap notification for SNMP v1 and SNMP v2c

This topic describes the procedure to add IP addresses and communities to trap notification for SNMP v1 and SNMP v2c.

**Prerequisites**

You must have the Storage Administrator (Initial Configuration) role to perform this task.

For more information, see the *XP7 Remote Web Console User Guide*

**Procedure**

1. Display the Remote Web Console main window.
2. From the **Settings** menu, select **Environmental Setting > Edit Alert Settings**.
3. Select the **SNMP** tab.
4. Under **SNMP Agent**, click **Enable**.
5. Under **SNMP Version**, select **v1** or **v2c**.
6. Under **Registered Sending Trap Settings**, click **Add**.

7. In the **Add Sending Trap Setting** window, under **Community**, enter a community name or select from the list of existing community names.

   You can enter up to 180 alphanumeric characters. The following special characters are not allowed: ", \, ;, :, ,, *, ?, <, >, |, /, ^, &, ', and %.

   Do not use a space either at the beginning or the end.
8. Under **Send Trap To**, perform one or more of the following steps:
   - To enter a new IP address, select **IPv4** or **IPv6**, and then enter the IP address.
   - To use an existing IP address, select from the list of existing IP addresses.
   - To add more than one IP address, click **Add IP Address** to add additional input fields.
   - To delete an IP address from **Send Trap To**, click the minus (-) button next to the IP address.

   **NOTE:** Any IP address that has all values set to zero (0) cannot be specified for IPv4 and IPv6. The IPv6 address is specified by entering eight hexadecimal numbers that are separated by colons (:) using a maximum of 4 digits from zero (0) to FFFF inclusive. The default form of the IPv6 address can be specified.
9. Click **OK**.
   The IP address and community you entered are added to the **Registered Sending Trap Settings** table.
10. Click **Finish**.
11. In the **Confirm** window, enter a name for the task, confirm the settings, and then click **Apply**.

## Adding trap notification for SNMP v3

This topic describes the procedure to add IP addresses and users to trap notification for SNMP v3.

### Prerequisites

You must have the Storage Administrator (Initial Configuration) role to perform this task.

For more information, see the *XP7 Remote Web Console User Guide*.

### Procedure

1. Display the Remote Web Console main window.
2. From the **Settings** menu, select **Environmental Setting > Edit Alert Settings**.
3. Select the **SNMP** tab.
4. Under **SNMP Agent**, click **Enable**.
5. Under **SNMP Version**, select **v3**.
6. Under **Registered Sending Trap Settings**, click **Add**.
7. In the **Add Sending Trap Setting** window, under **Send Trap To**, select **IPv4** or **IPv6**, and enter an IP address.

   **NOTE:** Any IP address that has all values set to zero (0) cannot be specified for IPv4 and IPv6. The IPv6 address is specified by entering eight hexadecimal numbers that are separated by colons (:) using a maximum of 4 digits from zero (0) to FFFF inclusive. The default form of the IPv6 address can be specified.
8. Under **User Name**, enter a user name.

   You can enter up to 32 alphanumeric characters. The following special characters are not allowed: ", \, ;, :, ,, *, ?, <, >, |, /, ^, &, and %.

   Do not use a space either at the beginning or the end.
9. Under **Authentication**, select whether to **Enable** or **Disable** authentication.

   If you select **Enable**, complete the following steps:

a. For **Protocol**, select an authentication type.
b. For **Password**, enter a password.

10. Under **Encryption**, select whether to **Enable** or **Disable** encryption.

    **NOTE:** If you select **Disable** for **Authentication**, **Encryption** is automatically disabled.

    If you select **Enable**, complete the following steps:

    a. For **Protocol**, select an encryption type.
    b. For **Key**, enter a key.
    c. For **Re-enter Key**, enter the same key for confirmation.

11. Click **OK**.
    The IP address and user you entered are added to the **Registered Sending Trap Settings** table.
12. Click **Finish**.
13. In the **Confirm** window, enter a name for the task, confirm the settings, and then click **Apply**.

# Changing trap notification for SNMP v1 and SNMP v2c

This topic describes the procedure to change the IP addresses and communities for trap notification for SNMP v1 and SNMP v2c.

### Prerequisites

You must have the Storage Administrator (Initial Configuration) role to perform this task.

For more information, see the *XP7 Remote Web Console User Guide*.

### Procedure

1. Display the Remote Web Console main window.
2. From the **Settings** menu, select **Environmental Setting > Edit Alert Settings**.
3. Select the **SNMP** tab.
4. Under **SNMP Agent**, click **Enable**.
5. Under **SNMP Version**, select **v1** or **v2c**.
6. Under **Registered Sending Trap Settings**, select the trap setting you want to change, and then click **Change**.
   The **Change Sending Trap Setting** window opens.
7. If you want to change the **Community**, select the **Community** check box, and then enter a community name or select from the list of existing community names.

   You can enter up to 180 alphanumeric characters. The following special characters are not allowed: **"**, \, **;**, **:**, **,**, *, ?, <, >, |, /, ^, &, **'**, and %.

   Do not use a space either at the beginning or the end.
8. If you want to make changes under **Send Trap to**, select the **Send Trap to** check box, and then perform one or more of the following steps:
   - To enter a new IP address, select **IPv4** or **IPv6**, and then enter the IP address.
   - To use an existing IP address, select from the list of existing IP addresses.
   - To add more than one IP address, click **Add IP Address** to add additional input fields.
   - To delete an IP address from **Send Trap To**, click the minus (-) button next to the IP address.

   **NOTE:** Any IP address that has all values set to zero (0) cannot be specified for IPv4 and IPv6. The IPv6 address is specified by entering eight hexadecimal numbers that are separated by colons (:) using a maximum of 4 digits from zero (0) to FFFF inclusive. The default form of the IPv6 address can be specified.

9. Click **OK**.

The IP address and community you entered are changed in the **Registered Sending Trap Settings** table.

10. Click **Finish**.
11. In the **Confirm** window, enter a name for the task, confirm the settings, and then click **Apply**.

## Changing trap notification for SNMP v3

This topic describes the procedure to change the IP addresses and users for SNMP v3 trap notification.

### Prerequisites

You must have the Storage Administrator (Initial Configuration) role to perform this task.

For more information, see the *XP7 Remote Web Console User Guide*.

### Procedure

1. Display the Remote Web Console main window.
2. From the **Settings** menu, select **Environmental Setting > Edit Alert Settings**.
3. Select the **SNMP** tab.
4. Under **SNMP Agent**, click **Enable**.
5. Under **SNMP Version**, select **v3**.
6. Under **Registered Sending Trap Settings**, select the trap setting you want to change, and then click **Change**.
   The **Change Sending Trap Setting** window opens.
7. If you want to make changes under **Send Trap to**, select the **Send Trap to** check box, select **IPv4** or **IPv6**, and then enter an IP address.

   **NOTE:** Any IP address that has all values set to zero (0) cannot be specified for IPv4 and IPv6. The IPv6 address is specified by entering 8 hexadecimal numbers that are separated by colons (:) using a maximum of 4 digits from zero (0) to FFFF inclusive. The default form of the IPv6 address can be specified.

8. If you want to change the **User Name**, select the **User Name** check box, and then enter a user name.

   You can enter up to 32 alphanumeric characters. The following special characters are not allowed: `"`, `\`, `;`, `:`, `,`, `*`, `?`, `<`, `>`, `|`, `/`, `^`, `&`, and `%`.

   Do not use a space either at the beginning or the end.
9. If you want to make changes under **Authentication**, select the **Authentication** check box, and then select whether to **Enable** or **Disable** authentication.

   If you select **Enable**, perform the following steps:

   a. To change the **Protocol**, select the **Protocol** check box, and then select an authentication type.
   b. To change the **Password**, select the **Password** check box, and then enter a password.
10. If you want to make changes under **Encryption**, select the **Encryption** check box, and then select whether to **Enable** or **Disable** encryption.

    **NOTE:** If you select **Disable** for **Authentication**, **Encryption** is automatically disabled.

    If you select **Enable**, perform the following steps:

    a. To change the **Protocol**, select the **Protocol** check box, and then select an encryption type.
    b. To change the **Key**, select the **Key** check box, enter a key, and then enter the key again under **Re-enter Key** for confirmation.
11. Click **OK**.
    The IP address and user you entered are changed in the **Registered Sending Trap Settings** table.

12. Click **Finish**.
13. In the **Confirm** window, enter a name for the task, confirm the settings, and then click **Apply**.

## Deleting SNMP trap notification

This topic describes the procedure to delete IP addresses and communities or users from SNMP trap notification.

### Prerequisites

You must have the Storage Administrator (Initial Configuration) role to perform this task.

For more information, see the *XP7 Remote Web Console User Guide*.

### Procedure

1. Display the Remote Web Console main window.
2. From the **Settings** menu, select **Environmental Setting > Edit Alert Settings**.
3. Select the **SNMP** tab.
4. Under **SNMP Agent**, click **Enable**.
5. Under **SNMP Version**, select your SNMP version.
6. Under **Registered Sending Trap Settings**, select one or more specific combinations of IP address and community or user, and then click **Delete**.
7. Click **Finish**.
8. In the **Confirm** window, enter a name for the task, confirm the settings, and then click **Apply**.

# Managing SNMP request authentication

## Adding request authentication for SNMP v1 and SNMP v2c

This topic describes how to add IP addresses and communities for request authentication for SNMP v1 and SNMP v2c.

### Prerequisites

You must have the Storage Administrator (Initial Configuration) role to perform this task.

For more information, see the *XP7 Remote Web Console User Guide*.

### Procedure

1. Display the Remote Web Console main window.
2. From the **Settings** menu, select **Environmental Setting > Edit Alert Settings**.
3. Select the **SNMP** tab.
4. Under **SNMP Agent**, click **Enable**.
5. Under **SNMP Version**, select **v1** or **v2c**.
6. Under **Registered Request Authentication Settings**, click **Add**.
7. In the **Add Request Authentication Setting** window, under **Community**, enter a community name or select from the list of existing community names.

   You can enter up to 180 alphanumeric characters. The following special characters are not allowed: **"**, \, **;**, **:**, **,**, *, ?, <, >, |, /, ^, &, **'**, and %.

   Do not use a space either at the beginning or the end.
8. Under **Request Permitted**, complete one of the following steps:

- If you want to allow REQUEST operations from all managers, select the **All** check box.
- If you want to allow REQUEST operations only from specified managers, perform one or more of the following steps:

  - To enter a new IP address, select **IPv4** or **IPv6**, and then enter the IP address.

  - To use an existing IP address, select from the list of existing IP addresses.

  - To add more than one IP address, click **Add IP Address** to add additional input fields.

  - To delete an IP address from **Send Trap To**, click the minus (-) button next to the IP address.

  **NOTE:** Any IP address that has all values set to zero (0) cannot be specified for IPv4 and IPv6. The IPv6 address is specified by entering eight hexadecimal numbers that are separated by colons (:) using a maximum of 4 digits from zero (0) to FFFF inclusive. The default form of the IPv6 address can be specified.

9. Click **OK**
   The community and IP address that you entered are added to the **Registered Request Authentication Settings** table.
10. Click **Finish**.
11. In the **Confirm** window, enter a name for the task, confirm the settings, and then click **Apply**.

## Adding request authentication for SNMP v3

This topic describes how to add users for SNMP v3 request authentication.

### Prerequisites

You must have the Storage Administrator (Initial Configuration) role to perform this task.

For more information, see the *XP7 Remote Web Console User Guide*.

### Procedure

1. Display the Remote Web Console main window.
2. From the **Settings** menu, select **Environmental Setting > Edit Alert Settings**.
3. Select the **SNMP** tab.
4. Under **SNMP Agent**, click **Enable**.
5. Under **SNMP Version**, select **v3**.
6. Under **Registered Request Authentication Settings**, click **Add**.
7. In the **Add Request Authentication Setting** window, under **User Name**, enter a user name.
   You can enter up to 32 alphanumeric characters. The following special characters are not allowed: `"`, `\`, `;`, `:`, `,`, `*`, `?`, `<`, `>`, `|`, `/`, `^`, `&`, and `%`.

   Do not use a space either at the beginning or the end.
8. Under **Authentication**, select whether to **Enable** or **Disable** authentication.
   If you select **Enable**, complete the following steps:

   a. For **Protocol**, select an authentication type.
   b. For **Password**, enter a password.
9. Under **Encryption**, select whether to **Enable** or **Disable** encryption.

   **NOTE:** If you select **Disable** for **Authentication**, **Encryption** is automatically disabled.

   If you select **Enable**, complete the following steps:

a. For **Protocol**, select an encryption type.
b. For **Key**, enter a key.
c. For **Re-enter Key**, enter the same key for confirmation.

10. Click **OK**.
    The user you entered is added to the **Registered Request Authentication Settings** table.
11. Click **Finish**.
12. In the **Confirm** window, enter a name for the task, confirm the settings, and then click **Apply**.

## Changing request authentication for SNMP v1 and SNMP v2c

This topic describes how to change IP addresses and communities for request authentication for SNMP v1 and SNMP v2c.

### Prerequisites

You must have the Storage Administrator (Initial Configuration) role to perform this task.

For more information, see the *XP7 Remote Web Console User Guide*.

### Procedure

1. Display the Remote Web Console main window.
2. From the **Settings** menu, select **Environmental Setting > Edit Alert Settings**.
3. Select the **SNMP** tab.
4. Under **SNMP Agent**, click **Enable**.
5. Under **SNMP Version**, select **v1** or **v2c**.
6. Under **Registered Request Authentication Settings**, select the authentication setting you want to change, and then click **Change**.
   The **Change Request Authentication Setting** window opens.
7. If you want to make changes under **Community**, select the **Community** check box, and then enter a community name or select from the list of existing community names.

   You can enter up to 180 alphanumeric characters. The following special characters are not allowed: **"**, \, **;**, **:**, **,**, *, ?, <, >, |, /, ^, &, **'**, and %.

   Do not use a space either at the beginning or the end.
8. If you want to make changes under **Request Permitted**, select the **Request Permitted** check box, and then complete one of the following steps:

   - If you want to allow REQUEST operations from all managers, select the **All** check box.
   - If you want to allow REQUEST operations only from specified managers, perform one or more of the following steps:

     - To enter a new IP address, select **IPv4** or **IPv6**, and then enter the IP address.
     - To use an existing IP address, select from the list of existing IP addresses.
     - To add more than one IP address, click **Add IP Address** to add additional input fields.
     - To delete an IP address from **Send Trap To**, click the minus (-) button next to the IP address.

     **NOTE:** Any IP address that has all values set to zero (0) cannot be specified for IPv4 and IPv6. The IPv6 address is specified by entering 8 hexadecimal numbers that are separated by colons (:) using a maximum of 4 digits from zero (0) to FFFF inclusive. The default form of the IPv6 address can be specified.

9. Click **OK**.
   The community and IP address that you entered are changed in the **Registered Request Authentication Settings** table.

10. Click **Finish**.
11. In the **Confirm** window, enter a name for the task, confirm the settings, and then click **Apply**.

## Changing request authentication for SNMP v3

This topic describes how to change users and authentication settings for SNMP v3 request authentication.

### Prerequisites

You must have the Storage Administrator (Initial Configuration) role to perform this task.

For more information, see the *XP7 Remote Web Console User Guide*.

### Procedure

1. Display the Remote Web Console main window.
2. From the **Settings** menu, select **Environmental Setting > Edit Alert Settings**.
3. Select the **SNMP** tab.
4. Under **SNMP Agent**, click **Enable**.
5. Under **SNMP Version**, select **v3**.
6. Under **Registered Request Authentication Settings**, click **Change**.
   The **Change Request Authentication Setting** window opens.
7. If you want to change the **User Name**, select the **User Name** check box, and then enter a user name.

   You can enter up to 32 alphanumeric characters. The following special characters are not allowed: `"`, `\`, `;`, `:`, `,`, `*`, `?`, `<`, `>`, `|`, `/`, `^`, `&`, and `%`.

   Do not use a space either at the beginning or the end.
8. If you want to make changes under **Authentication**, select the **Authentication** check box, and then select whether to **Enable** or **Disable** authentication.

   If you select **Enable**, perform the following steps:

   a. To change the **Protocol**, select the **Protocol** check box, and then select an authentication type.
   b. To change the **Password**, select the **Password** check box, and then enter a password.
9. If you want to make changes under **Encryption**, select the **Encryption** check box, and then select whether to **Enable** or **Disable** encryption.

   **NOTE:** If you select **Disable** for **Authentication**, **Encryption** is automatically disabled.

   If you select **Enable**, perform the following steps:

   a. To change the **Protocol**, select the **Protocol** check box, and then select an encryption type.
   b. To change the **Key**, select the **Key** check box, enter a key, and then enter the key again under **Re-enter Key** for confirmation.
10. Click **OK**.
    The user you entered is added to the **Registered Request Authentication Settings** table.
11. Click **Finish**.
12. In the **Confirm** window, enter a name for the task, confirm the settings, and then click **Apply**.

## Deleting SNMP request authentication

This topic describes how to delete IP addresses and communities or users from request authentication.

### Prerequisites

You must have the Storage Administrator (Initial Configuration) role to perform this task.

For more information, see the *XP7 Remote Web Console User Guide*.

**Procedure**

1. Display the Remote Web Console main window.
2. From the **Settings** menu, select **Environmental Setting > Edit Alert Settings**.
3. Select the **SNMP** tab.
4. Under **SNMP Agent**, click **Enable**.
5. Under **SNMP Version**, select your SNMP version.
6. Under **Registered Request Authentication Settings**, select one or more specific combinations of IP address and community or user, and then click **Delete**.
7. Click **Finish**.
8. In the **Confirm** window, enter a name for the task, confirm the settings, and then click **Apply**.

# Testing the SNMP trap report

This topic describes the procedure to test the SNMP trap report.

**Prerequisites**

You must have the Storage Administrator (Initial Configuration) role to perform this task.

For more information, see the *XP7 Remote Web Console User Guide*.

**Procedure**

1. Display the Remote Web Console main window.
2. From the **Settings** menu, select **Environmental Setting > Edit Alert Settings**.
3. Select the **SNMP** tab.
4. Click **Send Test SNMP Trap**.
   Reports the test SNMP trap to the IP address registered in the storage system. Reports the events registered in the storage system instead of the events that are set on the **SNMP** tab. If you want to test the events set on the **SNMP** tab, click **Finish** and apply to the storage system, and then report the test SNMP trap.
5. Verify whether the SNMP trap report (reference code 7fffff) is received by the SNMP manager registered in the community.

# SNMP supported MIBs

## SNMP Agent failure report trap contents

A standard extension trap protocol data unit (PDU) includes the product number of the device that experienced the failure, the device nickname, and a failure reference code. A failure report trap contains additional information about the failure, such as the area, date, and time of the failure.

If you obtain the information with the `GetRequest` command, access the MIB by using the product number of the device as an index.

The following table shows the failure report trap.

| Name | Object identifier | Type | Description |
|---|---|---|---|
| eventTrapSerialNumber | .1.3.6.1.4.1.116.5.11.4.2.1 | INTEGER | The product number of the device that experienced the failure. |
| eventTrapNickname | .1.3.6.1.4.1.116.5.11.4.2.2 | DisplayString | The device nickname. |
| eventTrapREFCODE | .1.3.6.1.4.1.116.5.11.4.2.3 | DisplayString | The failure reference code. |
| eventTrapPartsID | .1.3.6.1.4.1.116.5.11.4.2.4 | OBJECT IDENTIFIER | The area where the failure occurred.* |
| eventTrapDate | .1.3.6.1.4.1.116.5.11.4.2.5 | DisplayString | Failure occurrence date. |
| eventTrapTime | .1.3.6.1.4.1.116.5.11.4.2.6 | DisplayString | Failure occurrence time. |
| eventTrapDescription | .1.3.6.1.4.1.116.5.11.4.2.7 | DisplayString | Detailed information of a failure. |

*The object identifier for a failure in a storage system processor would be .1.3.6.1.4.1.116.5.11.4.1.1.6.1.2.

## SNMP Agent extension trap types

SNMP Agent extension trap types are set according to the severity. The character strings following "RaidEventUser" indicate their severity.

The following table describes the SNMP Agent extension trap types.

| Specific Trap Code | Trap | Description |
|---|---|---|
| 1 | RaidEventUserAcute | All operations in a storage system stopped. |
| 2 | RaidEventUserSerious | Operation in a component where a failure occurred stopped. |
| 3 | RaidEventUserModerate | Partial failure. |
| 4 | RaidEventUserService | Minor failure. |

# Standard MIB specifications

## MIBs supported by SNMP Agent

SNMP Agent supports a limited number of MIBs. If you send a GET request for an object (MIB) that is not supported, you will receive `NoSuchName` as a GET RESPONSE.

The following table lists MIBs and indicates whether they are supported.

| MIB | | Supported? |
|---|---|---|
| Standard MIB: MIB-II | system group | Yes |
| | interface group | No |
| | at group | No |
| | ip group | No |
| | icmp group | No |
| | tcp group | No |
| | udp group | No |
| | egp group | No |
| | snmp group | No |
| Extension MIB | | Yes |

## SNMP Agent MIB access mode

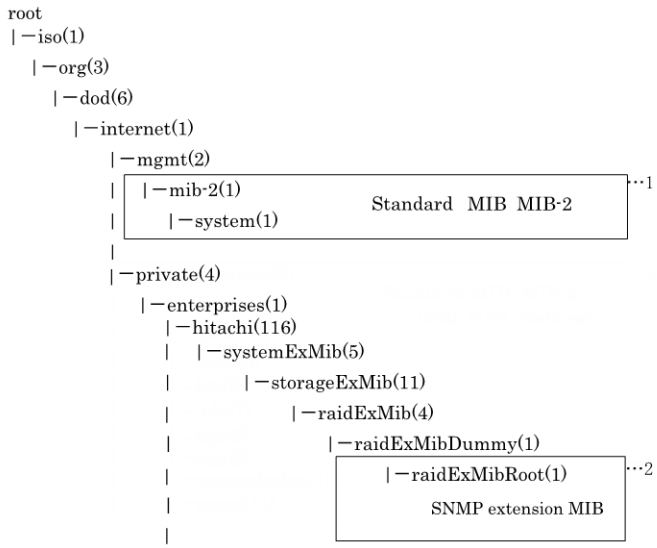
The access mode for MIB in all communities is read only. If you send a GET request for a SET REQUEST operation, you will receive `NoSuchName` as a RESPONSE.

## Example object identifier system

The following figure shows an example object system supported by SNMP Agent.

Execute `snmpwalk` as follows to obtain all MIB objects:

1. Specify object identifier 1.3.6.1.2.1 to obtain the information shown in 1.
2. Specify object identifier 1.3.6.1.4.1.116 to obtain the information shown in 2.




**Related reference**

**Extension MIB configuration** on page 22

## MIB mounting specifications supported by SNMP Agent

SNMP Agent supports two MIB mounting specifications.

The supported MIB mounting specifications are as follows:

- mgmt OBJECT IDENTIFIER ::= {iso(1) org(3) dod(6) internet(1) 2 }
- mib-2 OBJECT IDENTIFIER ::= {mgmt 1}

An SNMP Agent mounts only system groups in mib-2, as shown in the following table.

| Name | Description | Mounted value |
|---|---|---|
| sysObjectID {system 2} | This is the product identification number. | Fixed value. See **Object identifier system**.<br>1.3.6.1.4.1.116.3.11.4.1.1 |
| sysUpTime {system 3} | An accumulated time from an SNMP agent. | Unit: 100 ms |
| sysContact {system 4} | A manager who manages an agent or a contact address. | Maximum 180 characters in an ASCII characters string. Input by a user from an SNMP setting window.* |
| sysName {system 5} | The name of an agent manager | Maximum 180 characters in an ASCII characters string. Input by a user from an SNMP setting window.* |
| sysLocation {system 6} | An agent setup location. | Maximum 180 characters in an ASCII characters string. Input by a user from an SNMP setting window.* |

*Table Continued*

| Name | Description | Mounted value |
|---|---|---|
| sysService {system 7} | Value indicating a service. | Fixed value 76 (decimal) |
| *The following symbols cannot be used: \ , / : ; * ? " < > \| & % ^ | | |

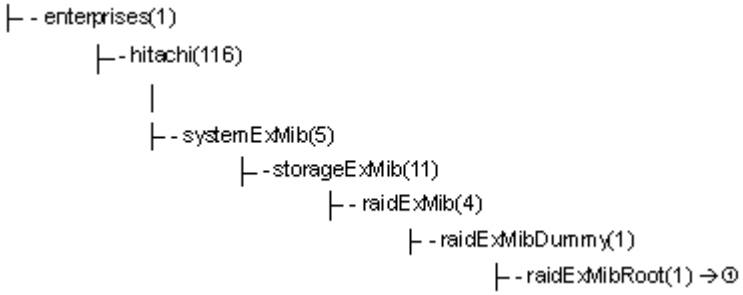
# Extension MIB specifications

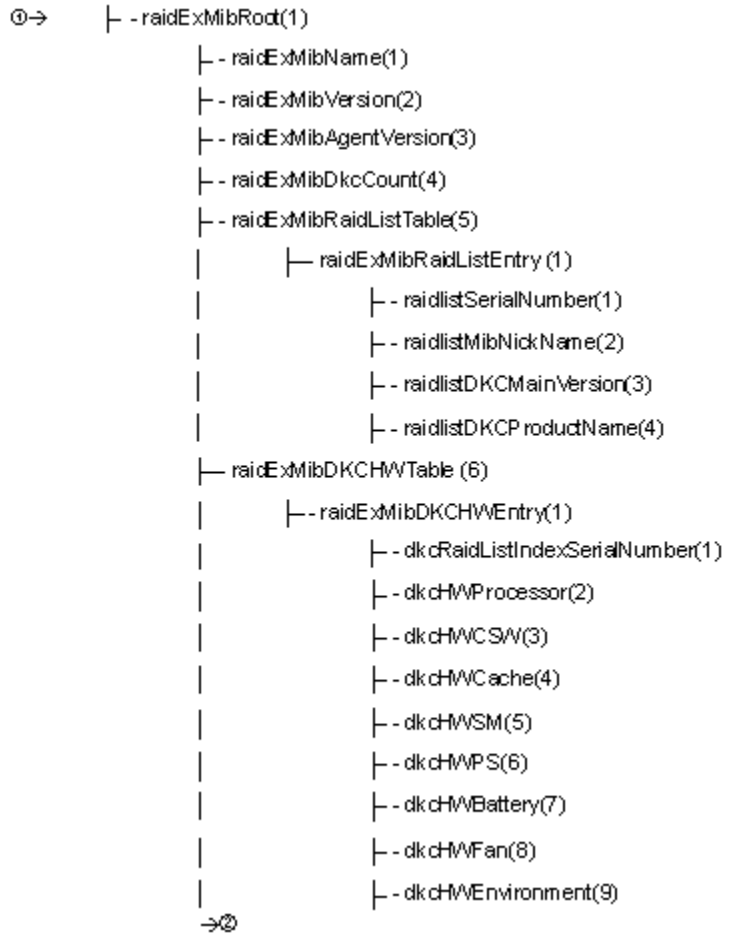
## Extension MIB configuration

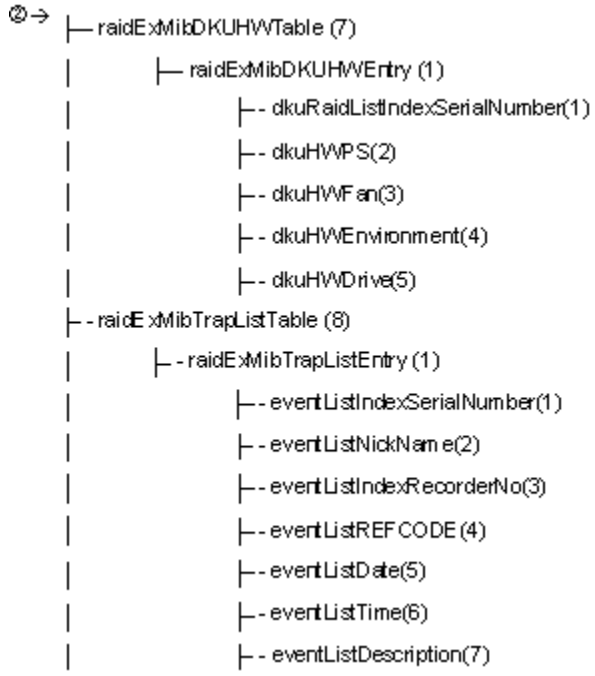
The following shows the extension MIB object system for the storage system.

```
raidExMibRoot(1)
 ├─raidExMibName(1)          SVP product name
 ├─raidExMibVersion(2)       SVP Micro-program version
 ├─raidExMibAgentVersion(3)  Extension MIB internal version
 ├─raidExMibDkcCount(4)      Number of DKC under the control of SVP
 ├─raidExMibRaidListTable(5) List of DKC under the control of SVP
 ├─raidExMibDKCHWTable(6)    Disk control device information
 ├─raidExMibDKUHWTable(7)    Disk device information
 ├─raidExMibTrapListTable(8) Error information list
```

The following figures show an example extension MIB configuration.




①→
- raidExMibRoot(1)
- raidExMibName(1)
- raidExMibVersion(2)
- raidExMibAgentVersion(3)
- raidExMibDkcCount(4)
- raidExMibRaidListTable(5)
raidExMibRaidListEntry (1)
- raidlistSerialNumber(1)
- raidlistMibNickName(2)
- raidlistDKCMainVersion(3)
- raidlistDKCProductName(4)
raidExMibDKCHWTable (6)
- raidExMibDKCHWEntry(1)
- dkcRaidListIndexSerialNumber(1)
- dkcHWProcessor(2)
- dkcHWCSW(3)
- dkcHWCache(4)
- dkcHWSM(5)
- dkcHWPS(6)
- dkcHWBattery(7)
- dkcHWFan(8)
- dkcHWEnvironment(9)
→②


②→
raidExMibDKUHWTable (7)
raidExMibDKUHWEntry (1)
- dkuRaidListIndexSerialNumber(1)
- dkuHWPS(2)
- dkuHWFan(3)
- dkuHWEnvironment(4)
- dkuHWDrive(5)
- raidExMibTrapListTable (8)
- raidExMibTrapListEntry (1)
- eventListIndexSerialNumber(1)
- eventListNickName(2)
- eventListIndexRecorderNo(3)
- eventListREFCODE(4)
- eventListDate(5)
- eventListTime(6)
- eventListDescription(7)

## raidExMibName

`raidExMibName` indicates the SVP product name.

```
raidExMibName          OBJECT-TYPE
SYNTAX                 DisplayString
ACCESS                 read-only
STATUS                 mandatory
DESCRIPTION            "SVP product name."
::={ raidExMibRoot 1 }
```

## raidExMibVersion

`raidExMibVersion` indicates the micro-program version.

```
raidExMibVersion       OBJECT-TYPE
SYNTAX                 DisplayString
ACCESS                 read-only
STATUS                 mandatory
DESCRIPTION            "SVP Micro-program version."
::= { raidExMibRoot 2 }
```

## raidExMibAgentVersion

`raidExMibAgentVersion` indicates the internal version of the extension MIB.

```
raidExMibAgentVersion OBJECT-TYPE
SYNTAX            DisplayString
ACCESS            read-only
STATUS            mandatory
DESCRIPTION       "Extension agent version."
::= { raidExMibRoot 3 }
```

## raidExMibDkcCount

`raidExMibDkcCount` suggests the number of a storage system under the control of the SVP.

```
raidExMibDkcCount      OBJECT TYPE
SYNTAX                 INTEGER
ACCESS                 read-only
STATUS                 mandatory
DESCRIPTION            "Number of DKC which is registered
                  on the SVP"
::={ raidExMibRoot 4}
```

## raidExMibRaidListTable

`raidExMibRaidListTable` indicates the storage system under the control of the SVP.

```
raidExMibRaidListTable   OBJECT TYPE
```

```
SYNTAX              SEQUENCE OF raidExMibRaidListEntry
ACCESS               not-accessible
STATUS              mandatory
DESCRIPTION            "List of DKC which is registered
                  on the SVP."
::={ raidExMibRoot 5}

raidExMibRaidListEntry   OBJECT TYPE
SYNTAX              RaidExMibRaidListEntry
ACCESS               not-accessible
STATUS              mandatory
DESCRIPTION            "Entry of DKC list."
INDEX              { raidlistSerialNumber }
::={ raidExMibRaidListTable 1}
```

The following table lists the information displayed for each storage system

| Name | Type | Description | Mounted value | Attribute |
|---|---|---|---|---|
| raidlistSerialNumber<br>::=RaidExMibRaidListEntry(1) | INTEGER | Storage system product number (index). | 1 - 99,999 | read-only |
| raidlistMibNickName<br>::=RaidExMibRaidListEntry(2) | DisplayString | Storage system nickname. | (Max. 18 characters) | read-only |
| raidlistDKCMainVersion<br>::=RaidExMibRaidListEntry(3) | DisplayString | Microcode version. | Max. 10 characters | read-only |
| raidlistDKCProductName<br>::=RaidExMibRaidListEntry(4) | DisplayString | Storage system product type. | 7 characters* | read-only |
| *XP7 will be used as storage system product type raidlistDKCProductName. | | | | |

## raidExMibDKCHWTable

`raidExMibDKCHWTable` indicates the status of the storage system components.

```
raidExMibDKCHWTable  OBJECT TYPE
SYNTAX              SEQUENCE OF RaidExMibDKCHWEntry
ACCESS               not-accessible
STATUS              mandatory
DESCRIPTION            "Error information of the DKC."
::={ raidExMibRoot 6}

raidExMibDKCHWEntry  OBJECT TYPE
SYNTAX              RaidExMibDKCHWEntry
ACCESS               not-accessible
STATUS              mandatory
DESCRIPTION            "Entry of DKC information."
INDEX              {dkcRaidListIndexSerialNumber}
::={ raidExMibDKCHWTable 1}
```

The following table lists the information displayed for each storage system component.

| Name | Type | Description | MIB value | Attribute |
|---|---|---|---|---|
| dkcRaidListIndexSerialNumber ::=raidExMibDKCHWEntry(1) | INTEGER | Storage system product number (index). | 1 - 99,999 | read-only |
| dkcHWProcessor ::=raidExMibDKCHWEntry(2) | INTEGER | Status of processor. | See Note | read-only |
| dkcHWCSW ::=raidExMibDKCHWEntry(3) | INTEGER | Status of internal star. | See Note | read-only |
| dkcHWCache ::=raidExMibDKCHWEntry(4) | INTEGER | Status of cache. | See Note | read-only |
| dkcHWSM ::=raidExMibDKCHWEntry(5) | INTEGER | Status of shared memory. | See Note | read-only |
| dkcHWPS ::=raidExMibDKCHWEntry(6) | INTEGER | Status of power supply. | See Note | read-only |
| dkcHWBattery ::=raidExMibDKCHWEntry(7) | INTEGER | Status of battery. | See Note | read-only |
| dkcHWFan ::=raidExMibDKCHWEntry(8) | INTEGER | Status of fan. | See Note | read-only |
| dkcHWEnvironment ::=raidExMibDKCHWEntry(9) | INTEGER | Information of an operational environment. | See Note | read-only |

**Note:**

The status of each component is a single digit which shows the following:

1: Normal.

2: Acute failure detected.

3: Serious failure detected.

4: Moderate failure detected.

5: Service failure detected.

## raidExMibDKUHWTable

`raidExMibDKUHWTable` indicates the status of the storage system components.

```
raidExMibDKUHWTable  OBJECT TYPE
SYNTAX              SEQUENCE OF RaidExMibDKUHWEntry
ACCESS               not-accessible
STATUS              mandatory
DESCRIPTION         "Error information of the DKU."
::={ raidExMibRoot 7}
```

```
raidExMibDKUHWEntry  OBJECT TYPE
SYNTAX              RaidExMibDKUHWEntry
ACCESS               not-accessible
STATUS              mandatory
DESCRIPTION          "Entry of DKU information."
INDEX               { dkuRaidListIndexSerialNumber }
::={ raidExMibDKUHWTable 1}
```

The following table lists the information displayed for each disk device component.

| Name | Type | Description | MIB value | Attribute |
|---|---|---|---|---|
| dkuRaidListIndexSerialNumber<br>::=raidExMibDKUHWEntry(1) | INTEGER | Storage system product number (index). | 1 - 99,999 | read-only |
| dkuHWPS<br>::=raidExMibDKUHWEntry(2) | INTEGER | Status of power supply. | See Note | read-only |
| dkuHWFan<br>::=raidExMibDKUHWEntry(3) | INTEGER | Status of fan. | See Note | read-only |
| dkuHWEnvironment<br>::=raidExMibDKUHWEntry(4) | INTEGER | Status of environment monitor. | See Note | read-only |
| dkuHWDrive<br>::=raidExMibDKUHWEntry(5) | INTEGER | Status of drive. | See Note | read-only |

**Note:**

The status of each component is a single digit which shows the following:

1: Normal.

2: Acute failure detected.

3: Serious failure detected.

4: Moderate failure detected.

5: Service failure detected.

## raidExMibTrapListTable

**raidExMibTrapListTable** shows the history of the failure traps.

```
raidExMibTrapListTable  OBJECT TYPE
SYNTAX              SEQUENCE OF RaidExMibTrapListEntry
ACCESS               not-accessible
STATUS              mandatory
DESCRIPTION          "Trap list table."
::={ raidExMibRoot 8 }

raidExMibTrapListEntry  OBJECT TYPE
SYNTAX              RaidExMibTrapListEntry
ACCESS               non-accessible
```

```
STATUS              mandatory
DESCRIPTION             "Trap list table index."
INDEX               { eventListIndexSerialNumber ,
                    eventListIndexRecordNo }
::={ raidExMibTrapListTable 1 }
```

The following table lists the information displayed for each failure.

| Name | Type | Description | MIB value | Attribute |
|---|---|---|---|---|
| eventListIndexSerialNumber ::=raidExMibTrapListEntry(1) | INTEGER | Storage system product number (index). | 1 - 99,999 | read-only |
| eventListNickname ::=raidExMibTrapListEntry (2) | DisplayString | Storage system nickname. | 18 characters maximum | read-only |
| eventListIndexRecordNo :: =raidExMibTrapListEntry (3) | Counter | Number of records. | 1-256 | read-only |
| eventListREFCODE ::=raidExMibTrapListEntry (4) | DisplayString | Reference code (index). | 6 characters | read-only |
| eventListData ::=raidExMibTrapListEntry (5) | DisplayString | Date when the failure occurred. | *yyyy/mm/dd* (10 characters) | read-only |
| eventListTime ::=raidExMibTrapListEntry (6) | DisplayString | Time when the failure occurred. | *hh:mm:ss* (8 characters) | read-only |
| eventListDescription ::=raidExMibTrapListEntry (7) | DisplayString | Detailed information about the failure. | 256 characters maximum | read-only |

# SNMP failure trap reference

## SNMP failure trap reference codes

The following table lists and describes the SNMP failure trap reference codes.

For details on alert levels, see the *XP7 Remote Web Console User Guide*.

| Trap reference code | | | Description | Section | Alert level | Host report[1] |
|---|---|---|---|---|---|---|
| **SIM 22** | **SIM 23** | **SIM 13** | | | | |
| 18 | 00 | 00 | AuditLog lost | DKC environment | MODERATE | Yes |
| 18 | 01 | 00 | AuditLog Access Impossible | Drive | MODERATE | Yes |
| 21 | 20 | *xx* | Channel port blocking | Processor | MODERATE | Yes |
| 21 | 80 | *xx* | Logical path(s) on the remote copy connections was logically blocked (Due to an error condition) | Processor | MODERATE | Yes[2] |
| 21 | 81 | *xx* | RIO PATH AUTOMATICALLY RECOVERED | Processor | SERVICE | Yes |
| 21 | 90 | *xx* | AL_PA VALUE CONFLICT | Processor | SERVICE | No |
| 21 | 93 | *xx* | LINK FAILURE | Processor | SERIOUS | Yes |
| 21 | 94 | *xx* | LINK FAILURE2 | Processor | SERIOUS | Yes |
| 21 | a3 | *xx* | HTP blocking | Processor | MODERATE | Yes |
| 21 | a4 | *xx* | Fiber Cable Failure | Processor | SERVICE | No |
| 21 | a6 | *xx* | Optical signal output failure | Processor | MODERATE | No |
| 21 | a7 | *xx* | LED status change failure | Processor | MODERATE | No |
| 21 | a8 | *xx* | SFP wrong type | Processor | MODERATE | No |
| 21 | a9 | *xx* | IP address conflict detection | Processor | SERVICE | No |
| 21 | aa | *xx* | SFP TxFault | Processor | MODERATE | No |
| 21 | b*x* | *xx* | HTP hard error | Processor | MODERATE | Yes |
| 21 | d0 | *xx* | External storage system connection path blocking | Processor | MODERATE | Yes |

*Table Continued*

| Trap reference code | | | Description | Section | Alert level | Host report[1] |
|---|---|---|---|---|---|---|
| SIM 22 | SIM 23 | SIM 13 | | | | |
| 21 | d1 | *xx* | External storage system connection path restore | Processor | SERVICE | No |
| 21 | d2 | *xx* | Threshold over by external storage system connection path response time-out | Processor | SERVICE | Yes |
| 21 | d4 | *xx* | Blocking the Data Migration path | Processor | MODERATE | No |
| 21 | d5 | *xx* | Data Migration Path Recovery | Processor | SERVICE | No |
| 30 | 70 | *xx* | CHK1A THRESHOLD OVER | Processor | SERVICE | No |
| 30 | 71 | *xx* | CHK1B THRESHOLD OVER | Processor | SERVICE | No |
| 30 | 72 | *xx* | CHK3 THRESHOLD OVER | Processor | SERVICE | No |
| 30 | 73 | *xx* | PROCESSOR BLOCKING | Processor | MODERATE | Yes |
| 30 | 75 | *xx* | FM ERROR | Processor | MODERATE | Yes |
| 30 | 76 | *xx* | Incorrect SUM value of FM | Processor | SERVICE | No |
| 30 | 77 | *xx* | PROCESSOR MEMORY TEMPORARY ERROR | Processor | SERVICE | No |
| 30 | 80 | *xx* | WCHK1 dump | Processor | MODERATE | No |
| 30 | a1 | 00 | DKC Blockade | Processor | ACUTE | Yes |
| 32 | *xx* | *xx* | CHA/DKA - CM Logical path blockade | Cache | MODERATE | No |
| 33 | *xx* | *xx* | CHA/DKA - MP Logical path blockade | Cache | MODERATE | No |
| 34 | *xx* | *xx* | MP - CM Logical path blockade | Cache | MODERATE | No |
| 35 | *xx* | *xx* | MP - MP Logical path blockade | Cache | MODERATE | No |
| 38 | 8f | 00 | P/S OFF IMPOSSIBLE | PS(DKC) | MODERATE | No |
| 38 | 9f | 00 | P/S OFF IMPOSSIBLE(DEVICE RESERVED) | PS(DKC) | MODERATE | No |
| 38 | c1 | *x*0 | MPB temperature abnormality | Processor | MODERATE | No |
| 39 | 90 | *xx* | Undefined Package is mounted | Processor | MODERATE | No |

*Table Continued*

| Trap reference code | | | Description | Section | Alert level | Host report[1] |
|---|---|---|---|---|---|---|
| SIM 22 | SIM 23 | SIM 13 | | | | |
| 39 | 91 | *xx* | V-R OR SERIAL NUMBER IS INCONSISTENT | Processor | MODERATE | No |
| 39 | 92 | *x*0 | MPB temperature abnormality warning | Processor | MODERATE | No |
| 39 | 93 | *xx* | REPLACE FAILED | Processor | MODERATE | No |
| 39 | 9d | *x*0 | MP injustice dc voltage control | Processor | MODERATE | No |
| 39 | 9e | *x*0 | INJUSTICE ce MODE | Processor | MODERATE | No |
| 39 | 9f | *x*0 | Injustice CEDT0 | Processor | MODERATE | No |
| 39 | b0 | *xx* | SMA SLAVE ERROR | Processor | SERVICE | No |
| 39 | b2 | 00 | CPU frequency setting failure | Processor | SERVICE | No |
| 3a | 0*x* | *xx* | LDEV Blockade (Effect of microcode error) | Processor | MODERATE | Yes |
| 3c | 95 | 00 | CHA/DKA Type disagreement | Processor | MODERATE | No |
| 3c | c0 | *xx* | CHA patrol check error | Processor | SERVICE | No |
| 3c | c1 | *xx* | CHA Memory Correctable error | Processor | SERVICE | No |
| 3c | cd | *xx* | CHA Injustice dc voltage control | Processor | MODERATE | No |
| 3c | ce | *xx* | CHA temperature abnormality | Processor | MODERATE | No |
| 3d | c0 | *xx* | DKA patrol check error | Processor | SERVICE | No |
| 3d | c1 | *xx* | DKA Memory Correctable error | Processor | SERVICE | No |
| 3d | cd | *xx* | DKA Injustice dc voltage control | Processor | MODERATE | No |
| 3d | ce | *xx* | DKA temperature abnormality | Processor | MODERATE | No |
| 41 | 00 | *xx* | Format complete | Drive | SERVICE | No |
| 41 | 01 | 00 | Quick Format finish | Drive | SERVICE | No |
| 43 | 4*x* | *xx* | DRIVE MEDIA ERROR[6] | Drive | SERVICE | No |
| 43 | b*x* | *xx* | Drive blockade (media)(with redundancy)[6] | Drive | SERIOUS | Yes |

*Table Continued*

| Trap reference code | | | Description | Section | Alert level | Host report[1] |
|---|---|---|---|---|---|---|
| SIM 22 | SIM 23 | SIM 13 | | | | |
| 43 | c*x* | *xx* | Drive blockade (media)(without redundancy)[6] | Drive | SERIOUS | Yes |
| 45 | 1*x* | *xx* | CORRECTION COPY START[6] | Drive | SERVICE | Yes |
| 45 | 2*x* | *xx* | CORRECTION COPY NORMAL END[6] | Drive | SERVICE | Yes |
| 45 | 3*x* | *xx* | CORRECTION COPY ABNORMAL END[6] | Drive | SERIOUS | Yes |
| 45 | 4*x* | *xx* | CORRECTION COPY DISCONTINUED[6] | Drive | SERVICE | No |
| 45 | 5*x* | *xx* | Correction copy warning end(With blockade LDEV or some error)[6] | Drive | SERVICE | Yes |
| 46 | 1*x* | *xx* | DYNAMIC SPARING(DRIVE COPY)START[6] | Drive | SERVICE | Yes |
| 46 | 2*x* | *xx* | DYNAMIC SPARING(DRIVE COPY)NORMAL END[6] | Drive | SERVICE | Yes |
| 46 | 3*x* | *xx* | DYNAMIC SPARING(DRIVE COPY)ABNORMAL END[6] | Drive | MODERATE | Yes |
| 46 | 4*x* | *xx* | DYNAMIC SPARING(DRIVE COPY)DISCONTINUED[6] | Drive | SERVICE | No |
| 46 | 5*x* | *xx* | Dynamic sparing warning end(With blockade LDEV or some error)(Drive copy)[6] | Drive | SERVICE | Yes |
| 47 | d*x* | *xx* | BC MF Copy abnormal end | Failure with paired volumes | MODERATE | Yes |
| 47 | e5 | 00 | All FlashCopy Option abnormal end by SM volatile | Failure with paired volumes | MODERATE | Yes |
| 47 | e7 | 00 | Forcible suspend by SM volatile (BC MF/BC) | Failure with paired volumes | MODERATE | Yes |
| 47 | ec | 00 | Fast Snap ABNORMAL END BY SM VOLATILE | Failure with paired volumes | MODERATE | Yes |

*Table Continued*

| Trap reference code | | | Description | Section | Alert level | Host report[1] |
|---|---|---|---|---|---|---|
| SIM 22 | SIM 23 | SIM 13 | | | | |
| 47 | f*x* | *xx* | Auto LUN Abnormal End | Auto LUN | MODERATE | No[3] |
| 48 | 21 | *xx* | PRE STAGING ABNORMAL END | Cache Residency | SERVICE | No[3] |
| 49 | 10 | *xx* | CACHE WRITE PENDING RATIO IS OVER 65% | Cache | SERVICE | No |
| 4a | 10 | 00 | OEM drive Microcode exchange start | Drive | SERVICE | No |
| 4a | 20 | 00 | OEM drive Microcode exchange normal end | Drive | SERVICE | No |
| 4a | 30 | 00 | OEM drive Microcode exchange abnormal end | Drive | MODERATE | No |
| 4a | 40 | 00 | OEM drive Microcode exchange discontinued | Drive | SERVICE | No |
| 4a | 80 | *xx* | Expander Micro Exchange failed | Processor | MODERATE | No |
| 4b | 2*x* | *xx* | Compatible FlashCopy ABNORMAL END | Failure with paired volumes | MODERATE | Yes |
| 4b | 3*x* | *xx* | Fast Snap ABNORMAL END | Failure with paired volumes | MODERATE | Yes |
| 4b | 4*x* | *xx* | FlashCopy Hierarchical memory access error | Failure with paired volumes | MODERATE | Yes |
| 4c | 10 | *xx* | PDEV Erase Start | Drive | SERVICE | No |
| 4c | 20 | *xx* | PDEV Erase Normal End | Drive | SERVICE | No |
| 4c | 30 | *xx* | PDEV Erase Abnormal End | Drive | SERVICE | No |
| 4c | 4*x* | *xx* | Flash module drive initialization failed[6] | Drive | MODERATE | Yes |
| 4d | 1*x* | *xx* | Differential area blocking | Drive | SERIOUS | Yes |
| 50 | 1*x* | *xx* | DRIVE TEMPORARY ERROR | Drive | SERVICE | No |
| 50 | 2*x* | *xx* | DRIVE MEDIA ERROR[6] | Drive | SERVICE | No |

*Table Continued*

| Trap reference code | | | Description | Section | Alert level | Host report[1] |
|---|---|---|---|---|---|---|
| SIM 22 | SIM 23 | SIM 13 | | | | |
| 50 | 5*x* | *xx* | Flash module drive internal battery error (ORM)[6] | Drive | SERVICE | No |
| 50 | 8*x* | *xx* | Flash module drive internal battery error[6] | Drive | MODERATE | No |
| 50 | b*x* | *xx* | Flash drive End of life[6] | Drive | SERVICE | Yes |
| 50 | c*x* | *xx* | Flash module drive End of life[6] | Drive | SERVICE | Yes |
| 50 | d*x* | *xx* | Flash module drive battery warning[6] | Drive | SERVICE | No |
| 50 | e*x* | *xx* | Flash module drive battery capacity shortage[6] | Drive | MODERATE | No |
| 50 | f0 | 00 | Flash module drive micro-program version warning | Drive | MODERATE | No |
| 60 | 1*x* | *xx* | Pool utilization threshold excess | Fast Snap pool | MODERATE | Yes |
| 60 | 2*x* | *xx* | Pool blocking | Fast Snap pool | MODERATE | Yes |
| 60 | 30 | 00 | SM Space Warning | SM | MODERATE | Yes[4] |
| 60 | 4*x* | *xx* | Exceeded Threshold of actual pool use rate | Fast Snap pool | MODERATE | Yes |
| 60 | 5*x* | *xx* | Actual pool use rate reaches upper limit | Fast Snap pool | MODERATE | Yes |
| 60 | 6*x* | *xx* | Exceeded Fixed outage Threshold of pool use rate | Fast Snap pool | MODERATE | Yes |
| 61 | 00 | *xx* | BACKUP/RESTORE SM INFORMATION FAILED | SM | MODERATE | No |
| 62 | 0*x* | *xx* | The THP POOL Warning Threshold was exceeded. | Thin Provisioning pool | MODERATE | Yes |
| 62 | 2*x* | *xx* | The THP POOL FULL | Thin Provisioning pool | MODERATE | Yes |
| 62 | 3*x* | *xx* | The THP POOL error is detected (XXX : Pool ID) | Thin Provisioning pool | MODERATE | Yes |

*Table Continued*

| Trap reference code | | | Description | Section | Alert level | Host report[1] |
|---|---|---|---|---|---|---|
| SIM 22 | SIM 23 | SIM 13 | | | | |
| 62 | 40 | 00 | SM(THP/FS) AREA DEPLETION | Thin Provisioning pool | MODERATE | Yes |
| 62 | 50 | 00 | THP pool threshold continues to be exceeded | Thin Provisioning pool | MODERATE | Yes |
| 62 | 6*x* | *xx* | The THP POOL Depletion threshold was exceeded | Thin Provisioning pool | MODERATE | Yes |
| 62 | 7*x* | *xx* | The THP POOL LDEV blockade | Thin Provisioning pool | MODERATE | Yes |
| 62 | 80 | 00 | THP Protect attribute setting of Data Ret | Thin Provisioning pool | SERVICE | Yes |
| 62 | 9*x* | *xx* | Exceeded Warning Threshold of THP pool use rate | Thin Provisioning pool | MODERATE | Yes |
| 62 | a*x* | *xx* | Actual THP pool use rate reaches upper limit | Thin Provisioning pool | MODERATE | Yes |
| 62 | b0 | 00 | Threshold of THP pool use rate remains exceeded | Thin Provisioning pool | MODERATE | Yes |
| 62 | c*x* | *xx* | Exceeded Depletion Threshold of THP pool use rate | Thin Provisioning pool | MODERATE | Yes |
| 62 | d*x* | *xx* | Exceeded Fixed outage Threshold of THPpool use rate | Thin Provisioning pool | MODERATE | Yes |
| 64 | 1*x* | *xx* | Tier relocation is not completed | Smart Tiers pool | SERVICE | Yes |
| 66 | 00 | *xx* | LDEV Blockade (Effect of Encryption key lost) | SM | MODERATE | No |
| 66 | 01 | 00 | No free encryption key | Encryption key | MODERATE | Yes |

*Table Continued*

| Trap reference code | | | Description | Section | Alert level | Host report[1] |
|---|---|---|---|---|---|---|
| SIM 22 | SIM 23 | SIM 13 | | | | |
| 66 | 02 | 00 | Remaining free encryption key warning | Encryption key | SERVICE | Yes |
| 66 | 10 | 00 | Acquisition failure of the outside encryption key | Encryption key | MODERATE | Yes |
| 67 | 00 | 00 | Warning for depletion of cache management devices | Fast Snap | MODERATE | Yes |
| 68 | 00 | *xx* | Compression Deduplication abnormality detect | DKC environment | MODERATE | Yes |
| 70 | *xx* | 00 | Logical inconsistency | SVP failure | MODERATE | No |
| 71 | *xx* | 00 | Heap error | SVP failure | MODERATE | No |
| 72 | *xx* | 00 | File error | SVP failure | MODERATE | No |
| 73 | *xx* | 00 | LAN error | SVP failure | MODERATE | No |
| 74 | *xx* | *xx* | SSVP error | SVP failure | MODERATE | Yes |
| 75 | *xx* | 00 | Windows error | SVP failure | MODERATE | No |
| 76 | 00 | 00 | CUDG3 detected error | SVP failure | MODERATE | No |
| 76 | 04 | 00 | CUDG3 detected error | SVP failure | MODERATE | No |
| 76 | 10 | 00 | LCDG3 detected error | SVP failure | MODERATE | No |
| 79 | 00 | *xx* | BOOT detected error | SM | MODERATE | No |
| 7a | 00 | 00 | NORMAL END | SVP failure | SERVICE | No |
| 7a | 01 | 00 | ABNORMAL END(SVP) | SVP failure | SERVICE | No |
| 7a | 02 | 00 | ABNORMAL END(MP) | SVP failure | SERVICE | No |
| 7a | 03 | *xx* | VERSION CHK ERROR | SVP failure | SERVICE | No |
| 7a | 04 | *xx* | Sum check error | SVP failure | SERVICE | No |
| 7a | 05 | *xx* | HTP patch error | SVP failure | SERVICE | No |
| 7a | 10 | 00 | WARNING(CONFIGURATION INCONSISTENCY) | SVP failure | SERVICE | No |
| 7a | 11 | 00 | WARNING(S-SVP BUSY) | SVP failure | SERVICE | No |
| 7a | 12 | *xx* | Warning (HTP busy) | SVP failure | SERVICE | No |

*Table Continued*

| Trap reference code | | | Description | Section | Alert level | Host report[1] |
|---|---|---|---|---|---|---|
| SIM 22 | SIM 23 | SIM 13 | | | | |
| 7a | 20 | 00 | INTERNET DOWNLOAD ERROR | SVP failure | SERVICE | No |
| 7a | 23 | 00 | Discontinuation by the user | SVP failure | SERVICE | No |
| 7b | 00 | 03 | ISDN Router failure | SVP failure | MODERATE | Yes |
| 7c | 00 | 00 | SVP reboot stop (FD Inserted) | SVP failure | MODERATE | No |
| 7c | 01 | 0*x* | BATTERY LIFE IS OVER | Battery | SERVICE | No |
| 7c | 02 | 00 | Audit Log failure of Host instruction configuration change | SVP failure | MODERATE | No |
| 7c | 03 | 00 | Audit Log FTP Transfer failed | SVP failure | MODERATE | Yes |
| 7c | 04 | 00 | Dump Tool failed | SVP failure | SERVICE | Yes |
| 7c | 05 | 00 | Invalid SIM data detection | SVP failure | SERVICE | No |
| 7c | 07 | 00 | Memory allocation failure | SVP failure | MODERATE | No |
| 7c | 08 | 00 | Dump collection starts | SVP failure | SERVICE | No |
| 7c | 09 | 00 | Dump collection ends normally | SVP failure | SERVICE | No |
| 7c | 0a | 00 | Dump collection ends abnormally | SVP failure | SERVICE | No |
| 7c | 0b | 00 | Cancellation of the dump collection completed | SVP failure | SERVICE | No |
| 7e | 12 | *xx* | MP Operating Ratio Error | Monitor | MODERATE | Yes |
| 7e | 20 | *xx* | Loss Of Signal Count(Fibre) Excess | Monitor | MODERATE | No |
| 7e | 21 | *xx* | Bad Received Character Count(Fibre) Excess | Monitor | MODERATE | No |
| 7e | 22 | *xx* | Loss Of Synchronization Count(Fibre) Excess | Monitor | MODERATE | No |
| 7e | 23 | *xx* | Link Failure Count(Fibre) Excess | Monitor | MODERATE | No |
| 7e | 24 | *xx* | Received EOFa Count(Fibre) Excess | Monitor | MODERATE | No |
| 7e | 25 | *xx* | Discarded Frame Count(Fibre) Excess | Monitor | MODERATE | No |
| 7e | 26 | *xx* | Bad CRC Count(Fibre) Excess | Monitor | MODERATE | No |
| 7e | 27 | *xx* | Protocol Error Count(Fibre) Excess | Monitor | MODERATE | No |
| 7e | 28 | *xx* | Expired Frame Count (Fibre) Excess | Monitor | MODERATE | No |

*Table Continued*

| Trap reference code | | | Description | Section | Alert level | Host report[1] |
|---|---|---|---|---|---|---|
| SIM 22 | SIM 23 | SIM 13 | | | | |
| 7e | 29 | *xx* | HTP/FNP Multiplicity Excess | Monitor | MODERATE | No |
| 7e | 2c | *xx* | HTP/FNP Read Data Transfer Ratio Error | Monitor | MODERATE | No |
| 7e | 2d | *xx* | HTP/FNP Write Data Transfer Ratio Error | Monitor | MODERATE | No |
| 7e | 2e | *xx* | HTP/FNP Operating Ratio Error | Monitor | MODERATE | No |
| 7e | 30 | 00 | Read Hit Ratio Excess | Monitor | MODERATE | No |
| 7e | 40 | *xx* | Link Failure Count(FCoE) Excess | MONITORING INFORMATION | MODERATE | No |
| 7e | 41 | *xx* | Virtual Link Failure Count(FCoE) Excess | MONITORING INFORMATION | MODERATE | No |
| 7e | 43 | *xx* | Symbol Error Count(FCoE) Excess | MONITORING INFORMATION | MODERATE | No |
| 7e | 45 | *xx* | FCS Error Count(FCoE) Excess | MONITORING INFORMATION | MODERATE | No |
| 7e | a*x* | *xx* | Cache Use Ratio Error | Monitor | MODERATE | No |
| 7e | b*x* | *xx* | Cache Write Pending Ratio Error | Monitor | MODERATE | No |
| 7e | c*x* | *xx* | Cache MCU Side File Use Ratio Error | Monitor | MODERATE | No |
| 7f | f1 | 00 | Cnt Ac-S MF/Cnt Ac-S | SVP failure | SERVICE | No |
| 7f | f1 | 02 | BC MF/BC | SVP failure | SERVICE | No |
| 7f | f1 | 03 | Cnt Ac-J MF/Cnt Ac-J | SVP failure | SERVICE | No |
| 7f | f1 | 04 | FS | SVP failure | SERVICE | No |
| 7f | f1 | 05 | FlashCopy | SVP failure | SERVICE | No |

*Table Continued*

| Trap reference code | | | Description | Section | Alert level | Host report[1] |
|---|---|---|---|---|---|---|
| SIM 22 | SIM 23 | SIM 13 | | | | |
| 7f | f1 | 06 | Auto LUN | SVP failure | SERVICE | No |
| 7f | f2 | *xx* | STANDBY SVP FAIL | SVP failure | MODERATE | No |
| 7f | f3 | *xx* | SVP FAIL OVER | SVP failure | MODERATE | No |
| 7f | f7 | *xx* | The term of validity is over | License key | MODERATE | Yes |
| 7f | f8 | *xx* | The capacity of validity is over | License key | MODERATE | Yes |
| 7f | f9 | *xx* | The PP is invalid by assumption PP invalidity | License key | MODERATE | Yes |
| 7f | fa | 0*x* | Synchronization time failure | SVP failure | SERVICE | Yes |
| ac | 52 | *xx* | HDU power off(CL1) | PS(DKU) | MODERATE | Yes |
| ac | 53 | *xx* | HDU power off(CL2) | PS(DKU) | MODERATE | Yes |
| ac | 54 | *xx* | HDU power recovered(CL1) | PS(DKU) | SERVICE | No |
| ac | 55 | *xx* | HDU power recovered(CL2) | PS(DKU) | SERVICE | No |
| ac | 60 | 00 | DKC was set to power error mode | PS(DKC) | MODERATE | No |
| ac | 61 | 00 | DKC was released from power error mode | PS(DKC) | SERVICE | No |
| ac | 62 | 00 | When DKC was set to power error mode, Urgent Destaging start succeeded | PS(DKC) | SERVICE | No |
| ac | 63 | 00 | When DKC was set to power error mode, Urgent Destaging start failed. | PS(DKC) | MODERATE | No |
| ac | 80 | 0*x* | Server failure | DKC environment | SERIOUS | No |
| ac | 90 | 00 | DB Validation error | Drive | SERIOUS | No[3] |
| af | 14 | *x*0 | MPB overcurrent detection warning | Environmental error | MODERATE | No |
| af | 50 | *xx* | DKUPS error | PS(DKU) | MODERATE | No |
| af | 60 | *xx* | DKUPS AC input error | PS(DKU) | MODERATE | Yes |
| af | 70 | 00 | HDU External temperature warning | Environmental error | MODERATE | Yes |

*Table Continued*

| Trap reference code | | | Description | Section | Alert level | Host report[1] |
|---|---|---|---|---|---|---|
| SIM 22 | SIM 23 | SIM 13 | | | | |
| af | 71 | 00 | HDU External temperature Alarm | Environmental error | MODERATE | Yes |
| af | 80 | *xx* | SSW error | DKC environment | MODERATE | No |
| af | d1 | *xx* | Battery charge EMPTY | Battery | MODERATE | No |
| af | d4 | *xx* | CM Backup mounting warning | Cache | MODERATE | No |
| af | f0 | *xx* | SSW data disagreement | DKC environment | MODERATE | No |
| bf | 10 | 1*x* | External temperature alarm | Environmental error | MODERATE | Yes |
| bf | 11 | 1*x* | External high temperature warning | Environmental error | MODERATE | Yes |
| bf | 12 | 1*x* | External low temperature warning | Environmental error | MODERATE | Yes |
| bf | 13 | 1*x* | Internal temperature alarm | Environmental error | MODERATE | Yes |
| bf | 14 | 1*x* | Internal temperature warning_2 | Environmental error | MODERATE | Yes |
| bf | 15 | 1*x* | Internal temperature warning_1 | Environmental error | MODERATE | Yes |
| bf | 16 | 1*x* | External high temperature warning (40 degrees C) | Environmental error | MODERATE | Yes |
| bf | 22 | *xx* | SSVP voltage warning (PS_SUB) | PS(DKC) | MODERATE | Yes |
| bf | 23 | *xx* | SSVP voltage warning (SVP supply) | PS(DKC) | MODERATE | Yes |
| bf | 4*x* | 1*x* | DKCPS warning | PS(DKC) | MODERATE | Yes |
| bf | 6*x* | 1*x* | DKCPS input voltage abnormality | PS(DKC) | MODERATE | Yes |
| bf | 7*x* | 1*x* | DKCFAN warning | Fan(DKC) | MODERATE | Yes |
| bf | 85 | a3 | JP remains | Environment | MODERATE | Yes |
| bf | 86 | a3 | JP remains | Environment | MODERATE | Yes |

*Table Continued*

| Trap reference code | | | Description | Section | Alert level | Host report[1] |
|---|---|---|---|---|---|---|
| SIM 22 | SIM 23 | SIM 13 | | | | |
| bf | 9*x* | a*x* | Communication Error between SSVP and MN | DKC environment | MODERATE | No |
| bf | a0 | a*x* | Logic PS voltage alarm disagreement | PS(DKC) | MODERATE | No |
| bf | a2 | a*x* | External temperature disagreement | DKC environment | MODERATE | No |
| bf | a3 | a*x* | Internal temperature alarm disagreement | DKC environment | MODERATE | No |
| bf | a4 | a*x* | Internal temperature warning disagreement | DKC environment | MODERATE | No |
| bf | a5 | a*x* | PSOFFREQ I/F disagreement | DKC environment | MODERATE | No |
| bf | a6 | a*x* | PSOFFOK I/F disagreement | DKC environment | MODERATE | No |
| bf | a7 | a*x* | SYSON I/F disagreement | DKC environment | MODERATE | No |
| bf | a8 | a*x* | DKCPS I/F disagreement | DKC environment | MODERATE | No |
| bf | a9 | a*x* | DKCPS I/F disagreement | DKC environment | MODERATE | No |
| bf | aa | a0 | DKCPS I/F disagreement | DKC environment | MODERATE | No |
| bf | aa | a4 | DKCPS I/F disagreement | DKC environment | MODERATE | No |
| bf | ab | a0 | DKCPS I/F disagreement | DKC environment | MODERATE | No |
| bf | ab | a4 | DKCPS I/F disagreement | DKC environment | MODERATE | No |
| bf | ac | a0 | Communication Error between MN and MN | Environment | MODERATE | No |
| bf | ac | a1 | Communication Error between MN and MN | Environment | MODERATE | No |
| bf | ac | a4 | Communication Error between MN and MN | Environment | MODERATE | No |

*Table Continued*

| Trap reference code | | | Description | Section | Alert level | Host report[1] |
|---|---|---|---|---|---|---|
| SIM 22 | SIM 23 | SIM 13 | | | | |
| bf | ac | a5 | Communication Error between MN and MN | Environment | MODERATE | No |
| bf | ad | a3 | Cable connection error | Environment | MODERATE | No |
| bf | ad | a4 | Cable connection error | Environment | MODERATE | No |
| bf | ae | a1 | Cable connection error | Environment | MODERATE | No |
| bf | af | a0 | PCTL/PNL abnormally | Environment | MODERATE | No |
| bf | af | a4 | PCTL/PNL abnormally | Environment | MODERATE | No |
| bf | b*x* | a*x* | PCTL/PNL abnormally | DKC environment | MODERATE | No |
| bf | c0 | 10 | DKC ALARM LED light on | DKC environment | SERIOUS | Yes |
| bf | e3 | a2 | Duplex SVP Setup fail | SVP failure | MODERATE | Yes |
| bf | e4 | 00 | SVP FAN0 error | SVP failure | MODERATE | No |
| bf | e4 | 01 | SVP FAN1 error | SVP failure | MODERATE | No |
| bf | e4 | 02 | SVP FAN2 error | SVP failure | MODERATE | No |
| bf | e4 | 06 | EXTENDER Hardware error | SVP failure | MODERATE | No |
| bf | e4 | 07 | USB interface error | SVP failure | MODERATE | No |
| bf | e4 | 08 | SVP receiving voltage error (CL1) | SVP failure | MODERATE | No |
| bf | e4 | 09 | SVP receiving voltage error (CL2) | SVP failure | MODERATE | No |
| cf | 10 | *xx* | SAS CTL blocking | Processor | MODERATE | Yes |
| cf | 11 | *xx* | SAS Port (WideLink) is partially blocked | Processor | SERVICE | No |
| cf | 12 | *xx* | SAS PORT blocked | Processor | MODERATE | Yes |
| cf | 13 | *xx* | SAS-CTL Error detection | Processor | SERIOUS | Yes |
| cf | 6*x* | *xx* | Logical DMA blocking | Processor | MODERATE | Yes |
| cf | 80 | *xx* | DRR TEMPORARY ERROR | Processor | SERVICE | No |
| cf | 81 | *xx* | DMA temporary error | Processor | SERVICE | No |

*Table Continued*

| Trap reference code | | | Description | Section | Alert level | Host report[1] |
|---|---|---|---|---|---|---|
| SIM 22 | SIM 23 | SIM 13 | | | | |
| cf | 82 | *xx* | DRR BLOCKING | Processor | MODERATE | Yes |
| cf | 83 | *xx* | DMA blocking | Processor | MODERATE | Yes |
| cf | 88 | *xx* | LR blocking | Processor | MODERATE | Yes |
| cf | 89 | *xx* | All DMA blocking | Processor | MODERATE | Yes |
| cf | b*x* | *xx* | MFDMA blocking | Processor | MODERATE | Yes |
| cf | d*x* | *xx* | Logical DRR blocking | Processor | MODERATE | No |
| d0 | 0*x* | *xx* | Cnt Ac-S MF/Cnt Ac-S started the initial copy or out of sync for this volume | Failure with paired volumes | SERVICE | Yes |
| d0 | 1*x* | *xx* | Cnt Ac-S MF/Cnt Ac-S completed the initial copy for this volume | Failure with paired volumes | SERVICE | Yes |
| d0 | 2*x* | *xx* | Cnt Ac-S MF/Cnt Ac-S for this volume was deleted(Operation from an SVP/Web Console or a host processor) | Failure with paired volumes | SERVICE | Yes |
| d0 | 6*x* | *xx* | Cnt Ac-S MF completed the Create pair(No copy suspend) | Failure with paired volumes | SERVICE | Yes |
| d1 | 0*x* | *xx* | Remote Copy pair status change (MCU Command) (From Simplex to Duplex Pending) | Failure with paired volumes | SERVICE | Yes |
| d1 | 1*x* | *xx* | Remote Copy pair status change (MCU Command) (From Simplex to Duplex) | Failure with paired volumes | SERVICE | Yes |
| d1 | 2*x* | *xx* | Remote Copy pair status change (MCU Command) (From Duplex Pending to Duplex) | Failure with paired volumes | SERVICE | Yes |
| d1 | 3*x* | *xx* | Remote Copy pair status change (MCU Command) (From Duplex Pending to Suspend) | Failure with paired volumes | SERVICE | Yes |
| d1 | 4*x* | *xx* | Remote Copy pair status change (MCU Command) (From Duplex to Suspend) | Failure with paired volumes | SERVICE | Yes |

*Table Continued*

| Trap reference code | | | Description | Section | Alert level | Host report[1] |
|---|---|---|---|---|---|---|
| SIM 22 | SIM 23 | SIM 13 | | | | |
| d1 | 5*x* | *xx* | Remote Copy pair status change (MCU Command) (From Duplex to Simplex) | Failure with paired volumes | SERVICE | Yes |
| d1 | 6*x* | *xx* | Remote Copy pair status change (MCU Command) (From Duplex Pending to Simplex) | Failure with paired volumes | SERVICE | Yes |
| d1 | 7*x* | *xx* | Remote Copy pair status change (MCU Command) (From Suspend to Simplex) | Failure with paired volumes | SERVICE | Yes |
| d1 | 8*x* | *xx* | Remote Copy pair status change (MCU Command) (From Suspend to Duplex Pending) | Failure with paired volumes | SERVICE | Yes |
| d1 | 9*x* | *xx* | Remote Copy pair status change (MCU Command) (From Duplex Pending to Suspend(continue)) | Failure with paired volumes | SERVICE | Yes |
| d1 | a*x* | *xx* | Remote Copy pair status change (MCU Command) (From Duplex Pending to Suspend(complete)) | Failure with paired volumes | SERVICE | Yes |
| d1 | b*x* | *xx* | Remote Copy pair status change (MCU Command) (From Suspend (continue) to Suspend) | Failure with paired volumes | SERVICE | Yes |
| d4 | 0*x* | *xx* | Cnt Ac-S MF/Cnt Ac-S for this volume was suspended (Due to an unrecoverable failure on the remote copy connections) | Failure with paired volumes | SERIOUS | Yes |
| d4 | 1*x* | *xx* | Cnt Ac-S MF/Cnt Ac-S for this volume was suspended (Due to an unrecoverable failure on the P-VOL or the remote copy connections) | Failure with paired volumes | SERIOUS | Yes |
| d4 | 2*x* | *xx* | Cnt Ac-S MF/Cnt Ac-S for this volume was suspended (Due to an unrecoverable failure on the S-VOL) | Failure with paired volumes | SERIOUS | Yes |
| d4 | 3*x* | *xx* | Cnt Ac-S MF for this volume was suspended (Caused by DFW to the S-VOL was prohibited) | Failure with paired volumes | SERIOUS | Yes |

*Table Continued*

| Trap reference code | | | Description | Section | Alert level | Host report[1] |
|---|---|---|---|---|---|---|
| SIM 22 | SIM 23 | SIM 13 | | | | |
| d4 | 4*x* | *xx* | Cnt Ac-S MF/Cnt Ac-S for this volume was suspended (Due to an internal error condition detected by the RCU) | Failure with paired volumes | SERIOUS | Yes |
| d4 | 5*x* | *xx* | Cnt Ac-S MF/Cnt Ac-S for this volume was suspended (Caused by Delete pair operation was issued to the S-VOL) | Failure with paired volumes | SERIOUS | Yes |
| d4 | 6*x* | *xx* | The S-VOL has suspended. (Due to an unrecoverable failure on the remote copy connections) | Failure with paired volumes | SERIOUS | Yes |
| d4 | 7*x* | *xx* | The S-VOL has suspended (Due to an unrecoverable failure on the S-VOL) | Failure with paired volumes | SERIOUS | Yes |
| d4 | f*x* | *xx* | Status of the P-VOL was not consistent with the S-VOL | Failure with paired volumes | SERIOUS | Yes |
| d5 | 7*x* | *xx* | Command device operation execution of command device in state of ONLINE | Drive | SERVICE | No |
| d8 | 0*x* | *xx* | A volume to be used by the Cnt Ac-J MF/Cnt Ac-J was defined | Failure with paired volumes | SERVICE | Yes[5] |
| d8 | 1*x* | *xx* | The volume being used by the Cnt Ac-J MF/Cnt Ac-J began a copying | Failure with paired volumes | SERVICE | Yes[5] |
| d8 | 2*x* | *xx* | The volume being used by the Cnt Ac-J MF/Cnt Ac-J completed a copying | Failure with paired volumes | SERVICE | Yes[5] |
| d8 | 3*x* | *xx* | The volume being used by the Cnt Ac-J MF/Cnt Ac-J received a request for suspension | Failure with paired volumes | SERVICE | Yes[5] |
| d8 | 4*x* | *xx* | The volume being used by the Cnt Ac-J MF/Cnt Ac-J completed a suspension transaction | Failure with paired volumes | SERVICE | Yes[5] |
| d8 | 5*x* | *xx* | The volume being used by the Cnt Ac-J MF/Cnt Ac-J received a request for deletion | Failure with paired volumes | SERVICE | Yes[5] |

*Table Continued*

| Trap reference code | | | Description | Section | Alert level | Host report[1] |
|---|---|---|---|---|---|---|
| SIM 22 | SIM 23 | SIM 13 | | | | |
| d8 | 6*x* | *xx* | The volume being used by the Cnt Ac-J MF/Cnt Ac-J completed the deletion | Failure with paired volumes | SERVICE | Yes[5] |
| d8 | 7*x* | *xx* | The volume being used by the Cnt Ac-J MF/Cnt Ac-J was defined (placed in the PSUS status immediately) | Failure with paired volumes | SERVICE | Yes[5] |
| d8 | 8*x* | *xx* | A Delta volume to be used by the Cnt Ac-J MF/Cnt Ac-J was defined | Failure with paired volumes | SERVICE | Yes[5] |
| d8 | 9*x* | *xx* | A Delta volume to be used by the Cnt Ac-J MF/Cnt Ac-J was redefined | Failure with paired volumes | SERVICE | Yes[5] |
| d9 | 0*x* | *xx* | A change to an S-VOL was received from the MCU (From Simplex to Duplex Pending) | Failure with paired volumes | SERVICE | Yes[5] |
| d9 | 1*x* | *xx* | A change to an S-VOL was received from the MCU (From Simplex to Duplex) | Failure with paired volumes | SERVICE | Yes[5] |
| d9 | 2*x* | *xx* | A change to an S-VOL was received from the MCU (From Duplex Pending to Duplex) | Failure with paired volumes | SERVICE | Yes[5] |
| d9 | 3*x* | *xx* | A change to an S-VOL was received from the MCU (From Duplex Pending to Suspend) | Failure with paired volumes | SERVICE | Yes[5] |
| d9 | 4*x* | *xx* | A change to an S-VOL was received from the MCU (From Duplex to Suspend) | Failure with paired volumes | SERVICE | Yes[5] |
| d9 | 5*x* | *xx* | A change to an S-VOL was received from the MCU (From Duplex to Simplex) | Failure with paired volumes | SERVICE | Yes[5] |
| d9 | 6*x* | *xx* | A change to an S-VOL was received from the MCU (From Duplex Pending to Simplex) | Failure with paired volumes | SERVICE | Yes[5] |
| d9 | 7*x* | *xx* | A change to an S-VOL was received from the MCU (From Suspend to Simplex) | Failure with paired volumes | SERVICE | Yes[5] |

*Table Continued*

| Trap reference code | | | Description | Section | Alert level | Host report[1] |
|---|---|---|---|---|---|---|
| SIM 22 | SIM 23 | SIM 13 | | | | |
| d9 | 8*x* | *xx* | A change to an S-VOL was received from the MCU (From Suspend to Duplex Pending) | Failure with paired volumes | SERVICE | Yes[5] |
| d9 | 9*x* | *xx* | A change to an S-VOL was received from the MCU (HOLD -> PAIR) | Failure with paired volumes | SERVICE | Yes[5] |
| d9 | a*x* | *xx* | A change to an S-VOL was received from the MCU (HOLD -> COPY) | Failure with paired volumes | SERVICE | Yes[5] |
| d9 | b*x* | *xx* | A change to an S-VOL was received from the MCU (HOLD -> SMPL) | Failure with paired volumes | SERVICE | Yes[5] |
| d9 | c*x* | *xx* | A change to an S-VOL was received from the MCU (From Simplex to Suspend) | Failure with paired volumes | SERVICE | Yes[5] |
| d9 | d*x* | *xx* | A change to an S-VOL was received from the MCU (SMPL -> HOLD) | Failure with paired volumes | SERVICE | Yes[5] |
| d9 | e*x* | *xx* | A change to an S-VOL was received from the MCU (PSUx(Suspend) -> HOLD) | Failure with paired volumes | SERVICE | Yes[5] |
| d9 | f*x* | *xx* | A change to an S-VOL was received from the MCU (From Duplex to Duplex Pending) | Failure with paired volumes | SERVICE | Yes[5] |
| da | 0*x* | *xx* | A change to an S-VOL was received from the RCU (A request for suspension was received.) | Failure with paired volumes | SERVICE | No |
| da | 1*x* | *xx* | A change to an S-VOL was received from the RCU (A suspension transaction was completed.) | Failure with paired volumes | SERVICE | No |
| da | 2*x* | *xx* | A change to an S-VOL was received from the RCU (An instruction to delete a pair was received in the Suspend status.) | Failure with paired volumes | SERVICE | No |
| da | 3*x* | *xx* | A change to an S-VOL was received from the RCU (An instruction to delete a pair was received in the Duplex Pending status.) | Failure with paired volumes | SERVICE | No |

*Table Continued*

| Trap reference code | | | Description | Section | Alert level | Host report[1] |
|---|---|---|---|---|---|---|
| SIM 22 | SIM 23 | SIM 13 | | | | |
| da | 4*x* | *xx* | A change to an S-VOL was received from the RCU (An instruction to delete a pair was received in the Duplex status.) | Failure with paired volumes | SERVICE | No |
| da | 5*x* | *xx* | A change to an S-VOL was received from the RCU (A pair deletion was completed.) | Failure with paired volumes | SERVICE | No |
| da | 6*x* | *xx* | A change to an S-VOL was received from the RCU (An instruction to delete a pair was received in the Hold status.) | Failure with paired volumes | SERVICE | No |
| dc | 0*x* | *xx* | PAIR SUSPEND(RIO PATH CLOSE) | Failure with paired volumes | SERIOUS | Yes[5] |
| dc | 1*x* | *xx* | PAIR SUSPEND(MVOL ERROR) | Failure with paired volumes | SERIOUS | Yes[5] |
| dc | 2*x* | *xx* | PAIR SUSPEND(RVOL ERROR) | Failure with paired volumes | SERIOUS | Yes[5] |
| dc | 4*x* | *xx* | PAIR SUSPEND(SUSPEND REPORT) | Failure with paired volumes | SERIOUS | Yes[5] |
| dc | 5*x* | *xx* | PAIR SUSPEND(SIMPLEX REPORT) | Failure with paired volumes | SERIOUS | Yes[5] |
| dc | 6*x* | *xx* | PAIR SUSPEND(COMMUNICATION ERROR AT RCU) | Failure with paired volumes | SERIOUS | Yes[5] |
| dc | 7*x* | *xx* | PAIR SUSPEND(ERROR DETECTED AT RCU) | Failure with paired volumes | SERIOUS | Yes[5] |
| dc | 8*x* | *xx* | A volume being used by an S-VOL was suspended (PS OFF on the MCU side was detected) | Failure with paired volumes | SERVICE | No |
| dc | 9*x* | *xx* | ERASE FAIL | Failure with paired volumes | SERIOUS | Yes[5] |

*Table Continued*

| Trap reference code | | | Description | Section | Alert level | Host report[1] |
|---|---|---|---|---|---|---|
| SIM 22 | SIM 23 | SIM 13 | | | | |
| dc | a*x* | *xx* | Pair suspend (Spread by error of another Affiliate) | Failure with paired volumes | SERIOUS | Yes[5] |
| dc | e0 | *xx* | Cnt Ac-J MF/Cnt Ac-J M-JNL Meta overflow warning | Failure with paired volumes | MODERATE | No |
| dc | e1 | *xx* | Cnt Ac-J MF/Cnt Ac-J M-JNL Data overflow warning | Failure with paired volumes | MODERATE | No |
| dc | e2 | *xx* | Cnt Ac-J MF/Cnt Ac-J R-JNL Meta overflow warning | Failure with paired volumes | MODERATE | No |
| dc | e3 | *xx* | Cnt Ac-J MF/Cnt Ac-J R-JNL Data overflow warning | Failure with paired volumes | MODERATE | No |
| dc | f0 | *xx* | The Cnt Ac-J MF/Cnt Ac-J Read JNL was interrupted for one minute (A failure on the MCU side was detected) | Failure with paired volumes | MODERATE | No |
| dc | f1 | *xx* | The Cnt Ac-J MF/Cnt Ac-J Read JNL was interrupted for five minutes (A failure on the MCU side was detected) | Failure with paired volumes | SERIOUS | No |
| dc | f2 | *xx* | The Cnt Ac-J MF/Cnt Ac-J Read JNL was interrupted for one minute (A failure on the RCU side was detected) | Failure with paired volumes | MODERATE | No |
| dc | f3 | *xx* | The Cnt Ac-J MF/Cnt Ac-J Read JNL was interrupted for five minutes (A failure on the RCU side was detected) | Failure with paired volumes | SERIOUS | No |
| dc | f4 | *xx* | Cnt Ac-J MFxCnt Ac-J MF/Cnt Ac-JxCnt Ac-J M-JNL Meta full Warning | Failure with paired volumes | MODERATE | No |
| dc | f5 | *xx* | Cnt Ac-J MFxCnt Ac-J MF/Cnt Ac-JxCnt Ac-J M-JNL Data full Warning | Failure with paired volumes | MODERATE | No |

*Table Continued*

| Trap reference code | | | Description | Section | Alert level | Host report[1] |
|---|---|---|---|---|---|---|
| SIM 22 | SIM 23 | SIM 13 | | | | |
| dd | 0*x* | *xx* | HA for this volume was suspended (Due to an unrecoverable failure on the remote copy connections) | Failure with paired volumes | SERIOUS | Yes |
| dd | 1*x* | *xx* | HA for this volume was suspended (Due to a failure on the volume) | Failure with paired volumes | SERIOUS | Yes |
| dd | 2*x* | *xx* | HA for this volume was suspended (Due to an internal error condition detected) | Failure with paired volumes | SERIOUS | Yes |
| dd | 3*x* | *xx* | Status of the P-VOL was not consistent with the S-VOL | Failure with paired volumes | SERIOUS | Yes |
| de | e0 | *xx* | Quorum Disk Restore | Drive | SERVICE | Yes |
| de | f0 | *xx* | Quorum Disk Blocked | Drive | SERIOUS | Yes |
| df | 6*x* | *xx* | Drive port temporary error (Drive path: Boundary 0)[6] | Drive | SERVICE | No |
| df | 7*x* | *xx* | Drive port temporary error (Drive path: Boundary 1)[6] | Drive | SERVICE | No |
| df | 8*x* | *xx* | DRIVE PORT BLOCKADE(PATH 0)[6] | Drive | MODERATE | Yes |
| df | 9*x* | *xx* | DRIVE PORT BLOCKADE(PATH 1)[6] | Drive | MODERATE | Yes |
| df | a*x* | *xx* | LDEV blockade(Drive path: Boundary 0/Effect of Drive port blockade)[6] | Drive | SERIOUS | Yes |
| df | b*x* | *xx* | LDEV blockade(Drive path: Boundary 1/Effect of Drive port blockade)[6] | Drive | SERIOUS | Yes |
| df | c*x* | *xx* | Drive Link Rate Abnormality (Path 0)[6] | Drive | SERVICE | Yes |
| df | d*x* | *xx* | Drive Link Rate Abnormality (Path 1)[6] | Drive | SERVICE | Yes |
| df | f*x* | *xx* | Response late Drive[6] | Drive | SERVICE | No |
| ef | 0*x* | *xx* | Drive blockade (drive)(with redundancy)[6] | Drive | SERIOUS | Yes |
| ef | 1*x* | *xx* | Drive blockade (drive) (without redundancy)[6] | Drive | SERIOUS | Yes |

*Table Continued*

| Trap reference code | | | Description | Section | Alert level | Host report[1] |
|---|---|---|---|---|---|---|
| SIM 22 | SIM 23 | SIM 13 | | | | |
| ef | 2*x* | *xx* | DRIVE BLOCKADE(EFFECT OF DRIVE COPY NORMAL END)[6] | Drive | SERVICE | Yes |
| ef | 4*x* | *xx* | PINNED SLOT | Drive | MODERATE | No |
| ef | 5*x* | *xx* | Abnormal end of Write processing in External storage system | Drive | MODERATE | No |
| ef | 9*x* | *xx* | LDEV blockade (Effect of drive blockade)[6] | Drive | SERIOUS | Yes |
| ef | a*x* | *xx* | DRIVE TEMPORARY ERROR[6] | Drive | SERVICE | No |
| ef | c*x* | *xx* | Correction access occurred[6] | Drive | SERIOUS | Yes |
| ef | d0 | 00 | External storage system connection device blockade | Drive | SERIOUS | Yes |
| ef | d4 | 00 | Blocking the Data Migration source device | Drive | MODERATE | No |
| ef | fe | *xx* | UNIT CONNECTION ERROR | DKC environment | MODERATE | Yes |
| ef | ff | 0*x* | DRIVE CLOSE(DKU TYPE UNMATCH) | Drive | SERIOUS | No |
| fe | 00 | 00 | Cache battery is being charged | Cache | SERIOUS | Yes |
| fe | 01 | 0*x* | End of Cache Write Through | Cache | SERVICE | No |
| fe | 02 | 0*x* | Start of Cache Write Through | Cache | MODERATE | Yes |
| fe | 03 | 0*x* | Cache SSD mounting capacity shortage | Cache | SERIOUS | No |
| ff | 4*x* | *xx* | PINNED SLOT | Cache | MODERATE | No |
| ff | 5*x* | *xx* | Abnormal end of Read processing in External storage system | Drive | MODERATE | No |
| ff | 9c | 0*x* | MPA warning | Cache | MODERATE | No |
| ff | c2 | *xx* | CACHE MODULE GROUP BLOCKADE PROCESSING END | Cache | SERVICE | Yes |
| ff | c3 | 0*x* | CACHE PACKAGE BLOCKADE PROCESSING END | Cache | SERVICE | Yes |

*Table Continued*

| Trap reference code | | | Description | Section | Alert level | Host report[1] |
|---|---|---|---|---|---|---|
| SIM 22 | SIM 23 | SIM 13 | | | | |
| ff | cc | 0*x* | CM/CMA patrol check error | Cache | SERVICE | No |
| ff | cd | 0*x* | Area is volatilized | Cache | SERVICE | No |
| ff | ce | 0*x* | Package is volatilized | Cache | SERVICE | No |
| ff | cf | *xx* | Package is volatilized | Cache | SERVICE | No |
| ff | de | *xx* | WDCP loss of duplicated information | SM | SERVICE | No |
| ff | e2 | 0*x* | SM area blocking | SM | SERIOUS | Yes |
| ff | e4 | 0*x* | REPLACE FAILED | Cache | SERIOUS | No |
| ff | e6 | 00 | CONFIGURATION INFORMATION COMPARE ERROR | SM | ACUTE | No |
| ff | e7 | 00 | Rebooted with volatilization after an instantaneous down | SM | SERIOUS | Yes |
| ff | e8 | 00 | Definition/Installation mismatch | SM | ACUTE | No |
| ff | ea | 0*x* | RECOVERY OF AREA BLOCKED TEMPORARILY WAS COMPLETED | SM | SERVICE | Yes |
| ff | ee | 0*x* | AREA TEMPORARY BLOCKING | SM | SERVICE | Yes |
| ff | ef | 00 | Rebooted without volatilization after an instantaneous down | SM | SERVICE | No |
| ff | f0 | *xx* | DIMM Correctable error | Cache | SERVICE | No |
| ff | f1 | *xx* | Cache temporary error | Cache | SERVICE | Yes |
| ff | f2 | *xx* | Module group blocking | Cache | MODERATE | Yes |
| ff | f3 | 0*x* | PACKAGE BLOCKING | Cache | MODERATE | Yes |
| ff | f4 | 00 | AREA BLOCKING | Cache | SERIOUS | Yes |
| ff | f4 | 01 | AREA BLOCKING | Cache | SERIOUS | Yes |
| ff | f5 | 0*x* | Both areas failed | Cache | MODERATE | No |
| ff | f6 | *xx* | CM Injustice dc voltage control | Cache | MODERATE | No |
| ff | f8 | 0*x* | CMA Memory Correctable error | Cache | SERVICE | No |
| ff | f9 | 0*x* | REPLACE FAILED | Cache | SERVICE | No |

*Table Continued*

| Trap reference code | | | Description | Section | Alert level | Host report[1] |
|---|---|---|---|---|---|---|
| SIM 22 | SIM 23 | SIM 13 | | | | |
| ff | fa | *xx* | Battery warning | Battery | MODERATE | No |
| ff | fb | *xx* | CMBK warning | Cache | MODERATE | No |
| ff | fc | *xx* | CM Temperature abnormality warning | Cache | MODERATE | No |
| ff | fd | *xx* | Module group failure detection outside of config | Cache | SERVICE | No |
| ff | fe | *xx* | Warning for forcible volatile mode | Cache | MODERATE | No |

Legend:

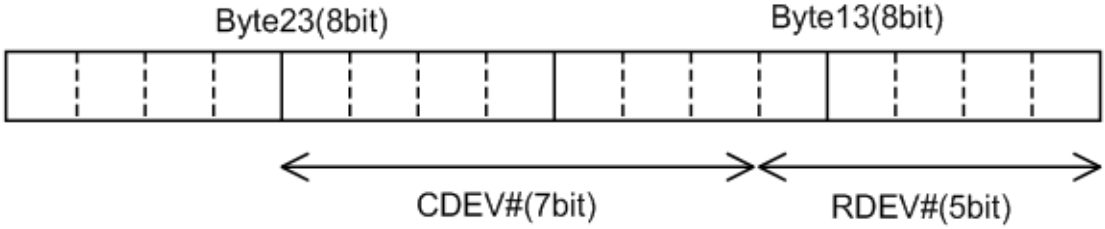
- YesThis SIM performs the host report.
- NoThis SIM does not perform the host report.
- *x*A hexadecimal number between 0 and f.

1. If you select **All** for **Notification Alert** in the **Edit Alert Settings** window, the SNMP agent reports all SIMs. If you select **Host Report**, the SNMP agent reports only SIMs that perform the host report.
2. If the DKC emulation type is I-2105 or I-2107, SIMs are reported to the host only if SOM 308 is enabled. However, SOM 308 is disabled by default.
3. This SIM is not reported to the host, but the SNMP agent reports the SIM when **Host Report** is selected for **Notification Alert** in the **Edit Alert Settings** window.
4. The SNMP agent does not report this SIM when **Host Report** is selected for **Notification Alert** in the **Edit Alert Settings** window, because the SIM is reported to the host, but not to the SVP.
5. SIMs are not reported to the host by default. To enable reporting of service SIMs, see the *XP7 Continuous Access Journal for Mainframe Systems User Guide*.
6. *xxx*: CDEV#/RDEV#. For details, see **Converting CDEV and RDEV numbers to box and drive numbers** on page 53.

# Converting CDEV and RDEV numbers to box and drive numbers

To identify the location of an error, convert the CDEV and RDEV numbers to box and drive numbers.

CDEV and RDEV numbers are output as hexadecimal numbers in the following format:




### Base drive box number

The base drive box number is a three-digit octal number that is mapped to a specific two-digit hexadecimal CDEV number. The following table lists drive box numbers based on the first and second digits of the CDEV numbers.

| Second digit of CDEV | First digit of CDEV | | | | | |
|---|---|---|---|---|---|---|
| | 0_ | 1_ | 2_ | 3_ | 4_ | 5_ |
| _0 | 000 | 020 | 040 | 100 | 120 | 140 |
| _1 | 002 | 022 | 042 | 102 | 122 | 142 |
| _2 | 004 | 024 | 044 | 104 | 124 | 144 |
| _3 | 006 | 026 | 046 | 106 | 126 | 146 |
| _4 | 001 | 021 | 041 | 101 | 121 | 141 |
| _5 | 003 | 023 | 043 | 103 | 123 | 143 |
| _6 | 005 | 025 | 045 | 105 | 125 | 145 |
| _7 | 007 | 027 | 047 | 107 | 127 | 147 |
| _8 | 010 | 030 | 050 | 110 | 130 | 150 |
| _9 | 012 | 032 | 052 | 112 | 132 | 152 |
| _A | 014 | 034 | 054 | 114 | 134 | 154 |
| _B | 016 | 036 | 056 | 116 | 136 | 156 |
| _C | 011 | 031 | 051 | 111 | 131 | 151 |
| _D | 013 | 033 | 053 | 113 | 133 | 153 |
| _E | 015 | 035 | 055 | 115 | 135 | 155 |
| _F | 017 | 037 | 057 | 117 | 137 | 157 |

For example:

- CDEV 42 corresponds to drive box 124.
- CDEV 5F corresponds to drive box 157.

### Base drive number

The base drive number is the RDEV number converted from hexadecimal to a two-digit decimal number. For example:

- RDEV 0C corresponds to drive 12.
- RDEV 22 corresponds to drive 16.

### Examples of exact box and drive numbers

The format for a specific drive in a specific drive box is:

- Drive box number`HDU-<mapped-CDEV-number>`
- Drive number`HDD<mapped-CDEV-number>-<converted-RDEV-number>`

The following table provides examples of CDEV and RDEV numbers and their corresponding drive box and drive numbers.

| CDEV#/RDEV# | Drive box number | Drive number |
|---|---|---|
| 04/02 | HDU-001 | HDD001-02 |
| 3F/0A | HDU-117 | HDD117-10 |
| 45/15 | HDU-123 | HDD123-21 |

# Troubleshooting

## Getting help

If you have difficulty with any of the procedures included in this document, or if a procedure does not provide the answer or results you expect, please contact HPE technical support.

## Solving SNMP problems

This topic describes some problems that can occur with SNMP. You should install a secondary SVP. Otherwise, traps could be reported to an IP address that is not specified in SNMP settings.

The following problems can occur:

| | |
|---|---|
| **SNMP security function** | If the SNMP security function is working, and a command is executed from an IP address that is not entered, you will get a "no reply" return, and a certification error is received for a trap. |
| **SNMP cold trap function** | • Depending on your network environment, you might not receive SNMP agent cold traps when the SVP is rebooted.<br>• The SNMP agent might report Link up/Link down Trap when the SVP reboots.<br>• A number of Link up/Link down Traps may be reported when the SVP OS is Windows 7. |
| **Abnormal response to SNMP command** | If an error occurs in the SVP, traps might not be sent. |
| **Problems inputting MIB definition files** | If you cannot input two or more MIB definition files because of the specifications of the SNMP manager software, use the MIB definition files for your storage system. Error reports include storage system nicknames, which can be used to identify each storage system. |

# Websites

## Websites

### General websites

| | |
|---|---|
| **Hewlett Packard Enterprise Information Library** | **www.hpe.com/info/EIL** |
| **Single Point of Connectivity Knowledge (SPOCK) Storage compatibility matrix** | **www.hpe.com/storage/spock** |
| **Storage white papers and analyst reports** | **www.hpe.com/storage/whitepapers** |

For additional websites, see **Support and other resources** on page 57.

# Support and other resources

## Accessing Hewlett Packard Enterprise Support

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

  **http://www.hpe.com/assistance**
- To access documentation and support services, go to the Hewlett Packard Enterprise Support Center website:

  **http://www.hpe.com/support/hpesc**

**Information to collect**

- Technical support registration number (if applicable)
- Product name, model or version, and serial number
- Operating system name and version
- Firmware version
- Error messages
- Product-specific reports and logs
- Add-on products or components
- Third-party products or components

## Accessing updates

- Some software products provide a mechanism for accessing software updates through the product interface. Review your product documentation to identify the recommended software update method.
- To download product updates, go to either of the following:
  - Hewlett Packard Enterprise Support Center **Get connected with updates** page:

    **http://www.hpe.com/support/e-updates**
  - Software Depot website:

    **http://www.hpe.com/support/softwaredepot**
- To view and update your entitlements, and to link your contracts and warranties with your profile, go to the Hewlett Packard Enterprise Support Center **More Information on Access to Support Materials** page:

  **http://www.hpe.com/support/AccessToSupportMaterials**

  **NOTE:**

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

## Websites

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

*Table Continued*

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

# Customer self repair

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

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

**http://www.hpe.com/support/selfrepair**

# Remote support

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

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

**http://www.hpe.com/info/insightremotesupport/docs**

# Documentation feedback

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

# Warranty and regulatory information

For important safety, environmental, and regulatory information, see Safety and Compliance Information for Server, Storage, Power, Networking, and Rack Products, available at **www.hpe.com/support/Safety-Compliance-EnterpriseProducts**.

## Warranty information

**HPE ProLiant and x86 Servers and Options**

**www.hpe.com/support/ProLiantServers-Warranties**

**HPE Enterprise Servers**

**www.hpe.com/support/EnterpriseServers-Warranties**

**HPE Storage Products**

**www.hpe.com/support/Storage-Warranties**

**HPE Networking Products**

**www.hpe.com/support/Networking-Warranties**

## Regulatory information

**Belarus Kazakhstan Russia marking**

EAC

Manufacturer and Local Representative Information

**Manufacturer Information:**

- Hewlett Packard Enterprise Company, 3000 Hanover Street, Palo Alto, CA 94304 U.S.

**Local representative information Russian:**

- **Russia:**

  ООО «Хьюлетт Паккард Энтерпрайз», Российская Федерация, 125171, г. Москва, Ленинградское шоссе, 16А, стр.3, Телефон/факс: +7 495 797 35 00

- **Belarus:**

  ИООО «Хьюлетт-Паккард Бел», Республика Беларусь, 220030, г. Минск, ул. Интернациональная, 36-1, Телефон/факс: +375 17 392 28 18

- **Kazakhstan:**

  ТОО «Хьюлетт-Паккард (К)», Республика Казахстан, 050040, г. Алматы, Бостандыкский район, проспект Аль-Фараби, 77/7, Телефон/факс: + 7 727 355 35 50

**Local representative information Kazakh:**

- **Russia:**

ЖШС "Хьюлетт Паккард Энтерпрайз" Ресей Федерациясы, 125171,
Мәскеу, Ленинград тас жолы, 16А блок 3, Телефон/факс: +7 495 797 35 00

- **Belarus:**

  «HEWLETT-PACKARD Bel» ЖШС, Беларусь Республикасы, 220030, Минск қ.,
  Интернациональная көшесі, 36/1, Телефон/факс: +375 17 392 28 18

- **Kazakhstan:**

  ЖШС «Хьюлетт-Паккард (К)», Қазақстан Республикасы, 050040, Алматы к.,
  Бостандық ауданы, Әл-Фараби даңғ ылы, 77/7, Телефон/факс: +7 727 355 35 50

**Manufacturing date:**

The manufacturing date is defined by the serial number.

CCSYWWZZZZ (serial number format for this product)

Valid date formats include:

- YWW, where Y indicates the year counting from within each new decade, with 2000 as the starting point; for example, 238: 2 for 2002 and 38 for the week of September 9. In addition, 2010 is indicated by 0, 2011 by 1, 2012 by 2, 2013 by 3, and so forth.
- YYWW, where YY indicates the year, using a base year of 2000; for example, 0238: 02 for 2002 and 38 for the week of September 9.

### Turkey RoHS material content declaration

Türkiye Cumhuriyeti: EEE Yönetmeliğine Uygundur

### Ukraine RoHS material content declaration

Обладнання відповідає вимогам Технічного регламенту щодо обмеження використання деяких небезпечних речовин в електричному та електронному обладнанні, затвердженого постановою Кабінету Міністрів України від 3 грудня 2008 № 1057