

SECTION 21

## Traps

The server administrator generates events that result in Simple Network Management Protocol (SNMP) traps or operating system event logs. This section describes the traps, also known as alerts, generated by the SNMP subagent of server administrator.

The server administrator generates events in response to changes in the status of sensors and other monitored parameters. When an event with predefined characteristics occurs on your system, the SNMP subagent sends information about the event, along with trap variables, to the management console.

Each status change event generates a unique identifier called the trap ID and an trap description that describes the event. The trap ID and message uniquely describe the severity and cause of the event, and provide other relevant information such as the location of the event and the monitored item's previous state.

“Server Administrator SNMP Traps,” found later in this section, lists all Server Administrator supported trap IDs in numerical order and includes each trap ID's corresponding description, severity level, and cause. Description text in brackets (for example, <State>) describes the event-specific information provided by the Server Administrator.

## Trap Variables

This section describes the variables that are sent to the management console to provide additional information about a trap or alert generated by some event on your system. The trap variables presented here apply to all server administrator traps. Trap variables are sent in the order listed and are reserved for use only in traps. When a varbind is created for a trap variable, a zero is appended to the object ID (OID) to create the OID for the varbind.

### System

<b>Variable Name</b>	alertSystem
<b>Object ID</b>	1.3.6.1.4.1.674.10892.1.5000.10.1
<b>Description</b>	Identifies the system generating the alert.
<b>Syntax</b>	DisplayString (SIZE (0..255))

## Table Index OID

<b>Variable Name</b>	alertTableIndexOID
<b>Object ID</b>	1.3.6.1.4.1.674.10892.1.5000.10.2
<b>Description</b>	Gives the object identifier for the index attribute in the table that contains the object causing the alert. Uniquely identifies the object causing the alert and can be used to correlate different alerts caused by the same object.
<b>Syntax</b>	OBJECT IDENTIFIER

## Message

<b>Variable Name</b>	alertMessage
<b>Object ID</b>	1.3.6.1.4.1.674.10892.1.5000.10.3
<b>Description</b>	Describes the alert.
<b>Syntax</b>	DisplayString (SIZE (0..1024))

## Current Status

<b>Variable Name</b>	alertCurrentStatus
<b>Object ID</b>	1.3.6.1.4.1.674.10892.1.5000.10.4
<b>Description</b>	Gives the current status of the object causing the alert.
<b>Syntax</b>	DellStatus

## Previous Status

<b>Variable Name</b>	alertPreviousStatus
<b>Object ID</b>	1.3.6.1.4.1.674.10892.1.5000.10.5
<b>Description</b>	Gives the previous status of the object causing the alert.
<b>Syntax</b>	DellStatus

## Data

<b>Variable Name</b>	alertData
<b>Object ID</b>	1.3.6.1.4.1.674.10892.1.5000.10.6
<b>Description</b>	Provides server administrator-defined data related to the alert.
<b>Syntax</b>	OCTET STRING (SIZE (0..1024))

## Understanding the Trap Description

Table 21-1 lists in alphabetical order each line item that may appear in the trap description.

**Table 21-1. Trap Description Reference**

Description Line Item	Explanation
<Additional power supply status information>	Specifies any additional power supply information pertaining to the event, for example:  Power supply input AC is off, Power supply POK (power OK) signal is not normal, Power supply is turned off
Chassis intrusion state: <Intrusion state>	Specifies the chassis intrusion state (open or closed), for example:  Chassis intrusion state: Open
Chassis location: <Name of chassis>	Specifies name of the system that generated the message, for example:  Chassis location: Main System Chassis
Current sensor value: <Reading>	Specifies the current sensor value in amps, for example:  Current sensor value: 7.853
Fan sensor value: <Reading>	Specifies the fan speed in revolutions per minute (RPMs), for example:  Fan sensor value: 2600
Log type: <Log type>	The log type information is provided, for example:  Log type: ESM
Memory device bank location: <Bank name in chassis>	Specifies the name of the memory bank in the system that generated the message, for example:  Memory device bank location: Bank_1

**Table 21-1. Trap Description Reference (continued)**

<b>Description Line Item</b>	<b>Explanation</b>
Memory device location: <Device name in chassis>	Specifies the location of the memory module in the chassis, for example:  Memory device location: DIMM_A
Number of devices required for full redundancy: <Number>	Specifies the number of power supply or cooling devices required to achieve full redundancy, for example:  Number of devices required for full redundancy: 4
Pre-failure state was: <State>	Specifies the status of the previous memory message, for example:  Pre-failure state was: Failed
Pre-failure sensor error count value: <Count>	Specifies the memory sensor error count value, for example:  Pre-failure sensor error count value:5
Previous redundancy state was: <State>	Specifies the status of the previous redundancy message, for example:  Previous redundancy state was: Lost
Previous state was: <State>	Specifies the previous state of the system, for example:  Previous state was: OK (Normal)
Redundancy unit: <Redundancy location in chassis>	Specifies the location of the redundant power supply or cooling unit in the chassis, for example:  Redundancy unit: Fan Enclosure
Sensor location: <Location in chassis>	Specifies the location of the sensor in the specified chassis, for example:  Sensor location: CPU1
Temperature sensor value: <Reading>	Specifies the temperature in degrees Celsius, for example:  Temperature sensor value (in degrees Celsius): 30
Voltage sensor value: <Reading>	Specifies the voltage sensor value in volts, for example:  Voltage sensor value: 1.693

## Understanding Trap Severity

Traps often contain information about values recorded by probes or sensors. Probes and sensors monitor critical components for values such as amperage, voltage, and temperature. When an event occurs on your system, the server administrator sends information about one of the following event types to the system management console:

- **Information** — An event that describes the successful operation of a unit, such as a power supply turning on or a sensor reading returning to normal.
- **Warning** — An event that is not necessarily significant, but may indicate a possible future problem, such as crossing a warning threshold.
- **Error** — A significant event that indicates actual or immanent loss of data or loss of function, such as crossing a failure threshold or a hardware failure.

## Server Administrator SNMP Traps

This section describes the traps that are generated by the SNMP subagent of server administrator. All of the traps documented in this section belong to the MIB enterprise identified by OID 1.3.6.1.4.1.674.10892.1 and are sent with all of the trap variables documented in the section, “Trap Variables.” The trap variables are sent in the order in which they are listed. The messages in the **Description** fields below show the format of the message that is sent in the **alertMessage** varbind. If a message in a **Description** field has multiple lines, the message contains newline (0Ah) characters that are part of the value in the **alertMessage** varbind.

### Miscellaneous Traps

Miscellaneous traps inform you that certain alert systems are up and working.

**Table 21-2. Miscellaneous Traps**

<b>Trap ID</b>	<b>Description</b>	<b>Severity</b>	<b>Cause</b>
<b>System Up</b>			
1001	Server Administrator startup is complete.	Information	Server Administrator completed its initialization.
<b>Thermal Shutdown</b>			
1004	Thermal shutdown protection has been initiated	Error	This message is generated when a system is configured for thermal shutdown due to an error event. If a temperature sensor reading exceeds the error threshold for which the system is configured, the operating system shuts down and the system powers off. This event may also be initiated on certain systems when a fan enclosure is removed from the system for an extended period of time.

### **Temperature Probe Traps**

Temperature probes help protect critical components by alerting the systems management console when temperatures become too high inside a chassis. The temperature probe traps use additional variables: sensor location, chassis location, previous state, and temperature sensor value reported in degrees Celsius.

**Table 21-3. Temperature Probe Traps**

<b>Trap ID</b>	<b>Description</b>	<b>Severity</b>	<b>Cause</b>
<b>Temperature Probe Normal</b>			
1052	<p>Temperature sensor returned to a normal value</p> <p>Sensor location: &lt;Location in chassis&gt;</p> <p>Chassis location: &lt;Name of chassis&gt;</p> <p>Previous state was: &lt;State&gt;</p> <p>Temperature sensor value (in degrees Celsius): &lt;Reading&gt;</p>	Information	A temperature sensor on the backplane board, system board, or drive carrier in the specified system returned to a valid range after crossing a failure threshold. The sensor location, chassis location, previous state, and temperature sensor value are provided.
<b>Temperature Probe Warning</b>			
1053	<p>Temperature sensor detected a warning value</p> <p>Sensor location: &lt;Location in chassis&gt;</p> <p>Chassis location: &lt;Name of chassis&gt;</p> <p>Previous state was: &lt;State&gt;</p> <p>Temperature sensor value (in degrees Celsius): &lt;Reading&gt;</p>	Warning	A temperature sensor on the backplane board, system board, or drive carrier in the specified system exceeded its warning threshold. The sensor location, chassis location, previous state, and temperature sensor value are provided.
<b>Temperature Probe Failure</b>			
1054	<p>Temperature sensor detected a failure value</p> <p>Sensor location: &lt;Location in chassis&gt;</p> <p>Chassis location: &lt;Name of chassis&gt;</p> <p>Previous state was: &lt;State&gt;</p> <p>Temperature sensor value (in degrees Celsius): &lt;Reading&gt;</p>	Error	A temperature sensor on the backplane board, system board, or drive carrier in the specified system exceeded its failure threshold. The sensor location, chassis location, previous state, and temperature sensor value are provided.

**Table 21-3. Temperature Probe Traps (continued)**

Trap ID	Description	Severity	Cause
<b>Temperature Probe Nonrecoverable</b>			
1055	Temperature sensor detected a non-recoverable value Sensor location: <Location in chassis> Chassis location: <Name of chassis> Previous state was: <State> Temperature sensor value (in degrees Celsius): <Reading>	Error	A temperature sensor on the backplane board, system board, or drive carrier in the specified system detected an error from which it cannot recover. The sensor location, chassis location, previous state, and temperature sensor value are provided.

### Cooling Device Traps

Cooling device traps monitor how well a fan is functioning.

**Table 21-4. Cooling Device Traps**

Trap ID	Description	Severity	Cause
<b>Cooling Device Normal</b>			
1102	Fan sensor returned to a normal value Sensor location: <Location in chassis> Chassis location: <Name of chassis> Previous state was: <State> Fan sensor value: <Reading>	Information	A fan sensor reading on the specified system returned to a valid range after crossing a warning threshold. The sensor location, chassis location, previous state, and fan sensor value are provided.

**Table 21-4. Cooling Device Traps (*continued*)**

<b>Trap ID</b>	<b>Description</b>	<b>Severity</b>	<b>Cause</b>
<b>Cooling Device Warning</b>			
1103	Fan sensor detected a warning value Sensor location: <Location in chassis> Chassis location: <Name of chassis> Previous state was: <State> Fan sensor value: <Reading>	Warning	A fan sensor reading in the specified system exceeded a warning threshold. The sensor location, chassis location, previous state, and fan sensor value are provided.
<b>Cooling Device Failure</b>			
1104	Fan sensor detected a failure value Sensor location: <Location in chassis> Chassis location: <Name of chassis> Previous state was: <State> Fan sensor value: <Reading>	Error	A fan sensor in the specified system detected the failure of one or more fans. The sensor location, chassis location, previous state, and fan sensor value are provided.
<b>Cooling Device Nonrecoverable</b>			
1105	Fan sensor detected a non-recoverable value Sensor location: <Location in chassis> Chassis location: <Name of chassis> Previous state was: <State> Fan sensor value: <Reading>	Error	A fan sensor detected an error from which it cannot recover. The sensor location, chassis location, previous state, and fan sensor value are provided.

## Voltage Probe Traps

Voltage probes monitor the number of volts across critical components.

**Table 21-5. Voltage Probe Traps**

Trap ID	Description	Severity	Cause
<b>Voltage Probe Normal</b>			
1152	Voltage sensor returned to a normal value Sensor location: <Location in chassis> Chassis location: <Name of chassis> Previous state was: <State> Voltage sensor value: <Reading>	Information	A voltage sensor in the specified system returned to a valid range after crossing a failure threshold. The sensor location, chassis location, previous state, and voltage sensor value are provided.
<b>Voltage Probe Warning</b>			
1153	Voltage sensor detected a warning value Sensor location: <Location in chassis> Chassis location: <Name of chassis> Previous state was: <State> Voltage sensor value: <Reading>	Warning	A voltage sensor in the specified system exceeded its warning threshold. The sensor location, chassis location, previous state, and voltage sensor value are provided.

**Table 21-5. Voltage Probe Traps (continued)**

Trap ID	Description	Severity	Cause
<b>Voltage Probe Failure</b>			
1154	Voltage sensor detected a failure value Sensor location: <Location in chassis> Chassis location: <Name of chassis> Previous state was: <State> Voltage sensor value: <Reading>	Error	A voltage sensor in the specified system exceeded its failure threshold. The sensor location, chassis location, previous state, and voltage sensor value are provided.
<b>Voltage Probe Nonrecoverable</b>			
1155	Voltage sensor detected a non-recoverable value Sensor location: <Location in chassis> Chassis location: <Name of chassis> Previous state was: <State> Voltage sensor value: <Reading>	Error	A voltage sensor in the specified system detected an error from which it cannot recover. The sensor location, chassis location, previous state, and voltage sensor value are provided.

## Amperage Probe Traps

Amperage probes measure amount of current (in amperes) that is traversing critical components.

**Table 21-6. Amperage Probe Traps**

Trap ID	Description	Severity	Cause
<b>Amperage Probe Normal</b>			
1202	Current sensor returned to a normal value Sensor location: <Location in chassis> Chassis location: <Name of chassis> Previous state was: <State> Current sensor value: <Reading>	Information	A current sensor on the power supply for the specified system returned to a valid range after crossing a failure threshold. The sensor location, chassis location, previous state, and current sensor value are provided.
<b>Amperage Probe Warning</b>			
1203	Current sensor detected a warning value Sensor location: <Location in chassis> Chassis location: <Name of chassis> Previous state was: <State> Current sensor value: <Reading>	Warning	A current sensor on the power supply for the specified system exceeded its warning threshold. The sensor location, chassis location, previous state, and current sensor value are provided.

**Table 21-6. Amperage Probe Traps (continued)**

<b>Trap ID</b>	<b>Description</b>	<b>Severity</b>	<b>Cause</b>
<b>Amperage Probe Failure</b>			
1204	<p>Current sensor detected a failure value</p> <p>Sensor location: &lt;Location in chassis&gt;</p> <p>Chassis location: &lt;Name of chassis&gt;</p> <p>Previous state was: &lt;State&gt;</p> <p>Current sensor value: &lt;Reading&gt;</p>	Error	A current sensor on the power supply for the specified system exceeded its failure threshold. The sensor location, chassis location, previous state, and current sensor value are provided.
<b>Amperage Probe Nonrecoverable</b>			
1205	<p>Current sensor detected a non-recoverable value</p> <p>Sensor location: &lt;Location in chassis&gt;</p> <p>Chassis location: &lt;Name of chassis&gt;</p> <p>Previous state was: &lt;State&gt;</p> <p>Current sensor value: &lt;Reading&gt;</p>	Error	A current sensor in the specified system detected an error from which it cannot recover. The sensor location, chassis location, previous state, and current sensor value are provided.

## Chassis Intrusion Traps

Chassis intrusion traps are a security measure. Chassis intrusion means that someone is opening the cover to a system's chassis. Alerts are sent to prevent unauthorized removal of parts from a chassis.

**Table 21-7. Chassis Intrusion Traps**

Trap ID	Description	Severity	Cause
<b>Chassis Intrusion Normal</b>			
1252	Chassis intrusion returned to normal Sensor location: <Location in chassis> Chassis location: <Name of chassis> Previous state was: <State> Chassis intrusion state: <Intrusion state>	Information	A chassis intrusion sensor in the specified system detected that a cover was opened while the system was operating but has since been replaced. The sensor location, chassis location, previous state, and chassis intrusion state are provided.
<b>Chassis Intrusion Detected</b>			
1254	Chassis intrusion detected Sensor location: <Location in chassis> Chassis location: <Name of chassis> Previous state was: <State> Chassis intrusion state: <Intrusion state>	Error	A chassis intrusion sensor in the specified system detected that the system cover was opened while the system was operating. The sensor location, chassis location, previous state, and chassis intrusion state are provided.

## Redundancy Unit Traps

Redundancy means that a system chassis has more than one of certain critical components. Fans and power supplies, for example, are so important for preventing damage or disruption of a computer system that a chassis may have “extra” fans or power supplies installed. Redundancy allows a second or *nth* fan to keep the chassis components at a safe temperature when the primary fan has failed. Redundancy is normal when the intended number of critical components are operating. Redundancy is degraded when a component fails but others are still operating. Redundancy is lost when the number of components functioning falls below the redundancy threshold.

**Table 21-8. Redundancy Unit Traps**

Trap ID	Description	Severity	Cause
<b>Redundancy Normal</b>			
1304	Redundancy regained Redundancy unit: <Redundancy location in chassis> Chassis location: <Name of chassis> Previous redundancy state was: <State> Number of devices required for full redundancy: <Number>	Information	A redundancy sensor in the specified system detected that a “lost” redundancy device has been reconnected or replaced; full redundancy is in effect. The redundancy unit location, chassis location, previous redundancy state, and the number of devices required for full redundancy are provided.
<b>Redundancy Degraded</b>			
1305	Redundancy degraded Redundancy unit: <Redundancy location in chassis> Chassis location: <Name of chassis> Previous redundancy state was: <State> Number of devices required for full redundancy: <Number>	Warning	A redundancy sensor in the specified system detected that one of the components of the redundancy unit has failed but the unit is still redundant. The redundancy unit location, chassis location, previous redundancy state, and the number of devices required for full redundancy are provided.

**Table 21-8. Redundancy Unit Traps (continued)**

<b>Trap ID</b>	<b>Description</b>	<b>Severity</b>	<b>Cause</b>
<b>Redundancy Lost</b>			
1306	Redundancy lost Redundancy unit: <Redundancy location in chassis> Chassis location: <Name of chassis> Previous redundancy state was: <State> Number of devices required for full redundancy: <Number>	Warning or Error (depending on the number of units that are functional)	A redundancy sensor in the specified system detected that one of the components in the redundant unit has been disconnected, has failed, or is not present. The redundancy unit location, chassis location, previous redundancy state, and the number of devices required for full redundancy are provided.

## Power Supply Traps


Power supply traps provide status and warning information for power supplies present in a particular chassis.

**Table 21-9. Power Supply Traps**

Trap ID	Description	Severity	Cause
<b>Power Supply Normal</b>			
1352	Power supply returned to normal Sensor location: <Location in chassis> Chassis location: <Name of chassis> Previous state was: <State> <Additional power supply status information>	Information	A power supply has been reconnected or replaced. The sensor location, chassis location, previous state, and additional information about the power supply event are provided.
<b>Power Supply Failure</b>			
1354	Power supply detected a failure Sensor location: <Location in chassis> Chassis location: <Name of chassis> Previous state was: <State> <Additional power supply status information>	Error	A power supply has been disconnected or has failed. The sensor location, chassis location, previous state, and additional information about the power supply event are provided.

## Memory Device Traps

Memory device messages provide status and warning information for memory modules present in a particular system. Memory devices determine health status by counting the number of ECC memory corrections.

 **NOTE:** A value of `failure` or `non-recoverable` does not indicate a system failure or loss of data, but rather that the specified system exceeded the specified ECC correction threshold. Although the system continues to function, you should perform system maintenance as described in Table 21-10.

**Table 21-10. Memory Device Messages**

Trap ID	Description	Severity	Cause
1403	Memory device status is <status>  Memory device location: <location in chassis>	Warning	A memory device correction rate exceeded an acceptable value. The memory device status and location are provided.
1404	Memory device status is <status>  Memory device location: <location in chassis>	Error	A memory device correction rate exceeded an acceptable value, a memory spare bank was activated, or a multi-bit ECC error occurred. The system continues to function normally (except for a multi-bit error). Replace the memory module identified in the message during the system's next scheduled maintenance. The memory device status and location are provided.

## Fan Enclosure Traps

Some systems are equipped with a protective enclosure for fans. Fan enclosure traps monitor enclosures for whether foreign objects are present and for how long a fan enclosure is absent from a chassis.

**Table 21-11. Fan Enclosure Traps**

Trap ID	Description	Severity	Cause
<b>Fan Enclosure Insertion</b>			
1452	Fan enclosure inserted into system Sensor location: <Location in chassis> Chassis location: <Name of chassis>	Information	A fan enclosure has been inserted into the specified system. The sensor location and chassis location are provided.
<b>Fan Enclosure Removal</b>			
1453	Fan enclosure removed from system Sensor location: <Location in chassis> Chassis location: <Name of chassis>	Warning	A fan enclosure has been removed from the specified system. The sensor location and chassis location are provided.
<b>Fan Enclosure Extended Removal</b>			
1454	Fan enclosure removed from system for an extended amount of time Sensor location: <Location in chassis> Chassis location: <Name of chassis>	Error	A fan enclosure has been removed from the specified system for a user-definable length of time. The sensor location and chassis location are provided.

## AC Power Cord Traps

The AC power cord sensor monitors the presence of AC power for an AC power cord. AC power cord traps provide status and warning information for power cords that are part of an AC power switch, if your system supports AC switching.

**Table 21-12. AC Power Cord Traps**

Trap ID	Description	Severity	Cause
<b>AC Power Cord No Power Nonredundant</b>			
1501	AC power cord is not being monitored  Sensor location: <Location in chassis>  Chassis location: <Name of chassis>	Information	The AC power cord status is not being monitored. This occurs when a system's expected AC power configuration is set to <b>nonredundant</b> . The sensor location and chassis location information are provided.
<b>AC Power Cord Normal</b>			
1502	AC power has been restored  Sensor location: <Location in chassis>  Chassis location: <Name of chassis>	Information	An AC power cord that did not have AC power has had the power restored. The sensor location and chassis location information are provided.
<b>AC Power Cord Failure</b>			
1504	AC power has been lost  Sensor location: <Location in chassis>  Chassis location: <Name of chassis>	Error	An AC power cord has lost its power. The sensor location and chassis location information are provided.

## Hardware Log Traps

Hardware logs provide hardware status messages to systems management software. On certain systems, the hardware log is implemented as a circular queue. When the log becomes full, the oldest status messages are overwritten when new status messages are logged. On some systems, the log is not circular. On these systems, when the log becomes full, subsequent hardware status messages are lost. Hardware log sensor messages provide status and warning information about the noncircular logs that may fill up, resulting in lost status messages.

**Table 21-13. Hardware Log Traps**

Trap ID	Description	Severity	Cause
<b>Hardware Log Normal</b>			
1552	Log size is no longer near or at capacity	Information	The hardware log on the specified system is no longer near or at its capacity, usually as the result of clearing the log. The log type information is provided.
<b>Hardware Log Warning</b>			
1553	Log size is near or at capacity	Warning	The size of a hardware log on the specified system is near or at the capacity of the hardware log. The log type information is provided.