CHAPTER 20
Traps

The server administrator generates events that result in Simple Network Management Protocol (SNMP) traps or operating system event logs. This chapter 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 chapter, 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

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

Table Index OID

Variable Name	`alertTableIndexOID`
Object ID	1.3.6.1.4.1.674.10892.1.5000.10.2
Description	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.
Syntax	OBJECT IDENTIFIER

Message

Variable Name	`alertMessage`
Object ID	1.3.6.1.4.1.674.10892.1.5000.10.3
Description	Describes the alert.
Syntax	DisplayString (SIZE (0..1024))

Current Status

Variable Name	`alertCurrentStatus`
Object ID	1.3.6.1.4.1.674.10892.1.5000.10.4
Description	Gives the current status of the object causing the alert.
Syntax	DellStatus

Previous Status

Variable Name	`alertPreviousStatus`
Object ID	1.3.6.1.4.1.674.10892.1.5000.10.5
Description	Gives the previous status of the object causing the alert.
Syntax	DellStatus

Data

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

Understanding the Trap Description

Table 20-1 lists in alphabetical order each line item that may appear in the trap description.

Table 20-1. 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`

Table 20-1. Trap Description Reference *(continued)*

Description Line Item	Explanation
`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`
`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.

Trap ID	Description	Severity	Cause
System Up			
1001	`Server Administrator startup is complete.`	Information	Server Administrator completed its initialization.
Thermal Shutdown			

Trap ID	Description	Severity	Cause
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.

Trap ID	Description	Severity	Cause
Temperature Probe Normal			
1052	`Temperature sensor returned to a normal value Sensor location: <Location in chassis> Chassis location: <Name of chassis> Previous state was: <State> Temperature sensor value (in degrees Celsius): <Reading>`	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.
Temperature Probe Warning			
1053	`Temperature sensor detected a warning value Sensor location: <Location in chassis> Chassis location: <Name of chassis> Previous state was: <State> Temperature sensor value (in degrees Celsius): <Reading>`	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.
Temperature Probe Failure			
1054	`Temperature sensor detected a failure 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 exceeded its failure threshold. The sensor location, chassis location, previous state, and temperature sensor value are provided.
Temperature Probe Nonrecoverable			
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.

Trap ID	Description	Severity	Cause
Cooling Device Normal			

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.

Cooling Device Warning			

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.

Cooling Device Failure			

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.

Cooling Device Nonrecoverable			

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.

Trap ID	Description	Severity	Cause
Voltage Probe Normal			

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.

Voltage Probe Warning			

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.

Voltage Probe Failure			

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.

Voltage Probe Nonrecoverable			

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.

Trap ID	Description	Severity	Cause
Amperage Probe Normal			

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.

Amperage Probe Warning			

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.

Amperage Probe Failure			

1204	`Current sensor detected a failure value`
	`Sensor location: <Location in chassis>`
	`Chassis location: <Name of chassis>`
	`Previous state was: <State>`
	`Current sensor value: <Reading>`
		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.

Amperage Probe Nonrecoverable			

1205	`Current sensor detected a non-recoverable value`
	`Sensor location: <Location in chassis>`
	`Chassis location: <Name of chassis>`
	`Previous state was: <State>`
	`Current sensor value: <Reading>`
		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.

Trap ID	Description	Severity	Cause
Chassis Intrusion Normal			

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.

Chassis Intrusion Detected			

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.

Trap ID	Description	Severity	Cause
Redundancy Normal			

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.

Redundancy Degraded			

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.

Redundancy Lost			

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.

Trap ID	Description	Severity	Cause
Power Supply Normal			

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.

Power Supply Failure			

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 chassis. Memory device pre-failure sensors monitor memory modules by counting the number of ECC memory corrections. Memory device prefailure sensor values are returned according to the following memory error correction thresholds: 0-1 ECC memory corrections return a value of `normal`; 2-9 corrections return a value of `warning`; 10-19 corrections return a value of `failure`; 20 or more corrections returns a value of `non-recoverable`.

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 memory error correction threshold. The system continues to function, but system maintenance should be performed as described below.

Event ID	Description	Severity	Cause
Memory Device Warning			
1403	`Memory device ECC Correctable error count crossed a warning threshold Memory device location: <Device name in chassis> Memory device bank location: <Bank name in chassis> Chassis location: <Name of chassis> Pre-failure sensor error count value: <Count>`	Warning	A memory device prefailure sensor for the specified system exceeded its warning threshold. The memory device location, memory device bank location, chassis location, previous state, and the prefailure sensor error count value are provided.
Memory Device Failure			
1404	`Memory device ECC Correctable error count sensor crossed a failure threshold Memory device location: <Device name in chassis> Memory device bank location: <Bank name in chassis> Chassis location: <Name of chassis> Pre-failure sensor error count value: <Count>`	Error	A memory device prefailure sensor exceeded the memory error threshold specified as `failure`. The system continues to function normally, but the memory module identified in the message should be replaced during the system's next scheduled maintenance. The memory device location, memory device bank location, chassis location, previous state, and the prefailure sensor error count value are provided.

Event ID	Description	Severity	Cause
Memory Device Nonrecoverable			

1405	`Memory device ECC correctable error count crossed a non-recoverable threshold`
	`Memory device location: <Device name in chassis>`
	`Memory device bank location: <Bank name in chassis>`
	`Chassis location: <Name of chassis>`
	`Pre-failure sensor error count value: <Count>`
		Error	A memory device prefailure sensor in the specified system exceeded the memory error threshold specified as `non-recoverable`. The system continues to function, but system maintenance should be scheduled to replace the memory module identified in the message. The memory device location, memory device bank location, chassis location, previous state, and the prefailure sensor error count value 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.

Trap ID	Description	Severity	Cause
Fan Enclosure Insertion			
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.
Fan Enclosure Removal			
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.
Fan Enclosure Extended Removal			
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.

Trap ID	Description	Severity	Cause
AC Power Cord No Power Nonredundant			
1501	`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 **nonredundant**. The sensor location and chassis location information are provided.
AC Power Cord Normal			
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.
AC Power Cord Failure			
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.