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Tables

Foreword

The *Platform Level Data Model (PLDM) State Set Specification* (DSP0249) was prepared by the Platform Management Communications Infrastructure (PMCI) Working Group of DMTF.

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Introduction

This document describes a collection of state sets, each having a set of enumeration values. The purpose of a state set is to report the value of a discrete PLDM sensor; the value is one of the values of the state set's enumeration.

The *Platform Level Data Model (PLDM) Base Specification* (DSP0240) defines the common fields for PLDM messages. These common fields support the identification of payload type, message, PLDM type, and PLDM command and completion codes. The *Platform Level Data Model (PLDM) over MCTP Binding Specification* (DSP0241) defines how the platform level data models and platform functions are implemented using MCTP communications.

1 Scope

The *Platform Level Data Model (PLDM) State Set Specification* describes the various state sets that can be used with PLDM discrete sensors. Only the state sets that pertain to PLDM are included in this specification. To be considered a PLDM standard definition, a PLDM state set definition must be included in this specification.

2 Normative References

The following referenced documents are indispensable for the application of this document. For dated or versioned references, only the edition cited (including any corrigenda or DMTF update versions) applies. For references without a date or version, the latest published edition of the referenced document (including any corrigenda or DMTF update versions) applies.

DMTF DSP0240, *Platform Level Data Model (PLDM) Base Specification 1.0,*
https://www.dmtf.org/sites/default/files/standards/documents/DSP0240_1.0.pdf

DMTF DSP0241, *Platform Level Data Model (PLDM) over MCTP Binding Specification 1.0,*
https://www.dmtf.org/sites/default/files/standards/documents/DSP0241_1.0.pdf

DMTF DSP0245, *Platform Level Data Model (PLDM) IDs and Codes Specification 1.0,*
https://www.dmtf.org/sites/default/files/standards/documents/DSP0245_1.0.pdf

DMTF DSP0246, *Platform Level Data Model (PLDM) for SMBIOS Data Transfer Specification*,
https://www.dmtf.org/sites/default/files/standards/documents/DSP0246_1.0.pdf

DMTF DSP0247, *Platform Level Data Model (PLDM) for BIOS Control and Configuration Specification*,
https://www.dmtf.org/sites/default/files/standards/documents/DSP0247_1.0.pdf

DMTF DSP0248, *Platform Level Data Model (PLDM) for Platform Monitoring and Control Specification*,
https://www.dmtf.org/sites/default/files/standards/documents/DSP0248_1.2.pdf

2.1 Other References

DMTF DSP2054, *PLDM NIC Modeling*,
https://www.dmtf.org/sites/default/files/standards/documents/DSP2054_1.0.pdf

Hewlett-Packard, Intel, Microsoft, Phoenix, and Toshiba, *Advanced Configuration and Power Interface Specification v3.0*, ACPI, September 2, 2004

Intel, Hewlett-Packard, NEC, and Dell, *Intelligent Platform Management Interface Specification: Second Generation v2.0*, IPMI, 2004

3 Terms and Definitions

See DSP0240 for terms and definitions that are used across the PLDM specifications.

4 Symbols and Abbreviated Terms

See DSP0240 for symbols and abbreviated terms that are used across the PLDM specifications.

The following symbols and abbreviations are used in this document.

4.1
AC
Alternating Current

4.2
ACPI
Advanced Configuration and Power Interface

4.3
BIOS
Basic Input Output System

4.4
BIST
Built In Self Test

4.5
CMC
Corrected Machine Check

4.6
CPU
Central Processing Unit

4.7
CRC
Cyclical Redundancy Check

4.8
DC
Direct Current

4.9
ECC
Error Correcting Code

4.10
EFI
Extensible Firmware Interface

4.11
FRB
Fault Resilient Boot

4.12
I/O
Input / Output

4.13
I2C
Inter-Integrated Circuit

4.14
iBIST
Interconnect Built In Self Test

4.15
IERR
Internal (CPU) Error

4.16
INT
Interrupt

4.17
LED
Light Emitting Diode

4.18
LPC
Low Pin Count (Interface)

4.19
MCE
Machine Check Error

4.20
NMI
Non-Maskable Interrupt

4.21
OEM
Original Equipment Manufacturer

4.22
PCI
Peripheral Component Interface

4.23
PERR
Parity Error

4.24
PECI
Platform Environmental Control Interface

4.25
PS/2
Personal System 2 (Interface)

4.26
RAID
Redundant Array of Inexpensive Disks

4.27
ROM
Read Only Memory

4.28
RTC
Real Time Clock

4.29
SATA
Serial Advanced Technology Attachment (Interface)

4.30
SAS
Serial Attached SCSI (Small Computer System Interface)

4.31
SCSI
Small Computer System Interface

4.32
SMBus
System Management Bus

4.33
SMI
System Management Interrupt

4.34
SPI
Serial Peripheral Interface

4.35
TPM
Trusted Platform Module

4.36
USB
Universal Serial Bus

5 Conventions

See DSP0240 for conventions, notation, and data types that are used across the PLDM specifications.

6 PLDM State Set Definitions

A PLDM state set represents a set of values, one of which a discrete sensor may return. The state set definitions contain all possible conditions that the sensor can detect for a logical or physical entity. For PLDM, a discrete sensor may have only one value from a state set active at any point in time. State set IDs are defined as uint16 with values 0x8000 – 0xffff reserved for OEM state set IDs. The state set enumeration is defined as uint8 with values 0x00 – 0xff with 0x00 defined as unknown.

6.1 State Set Goals

One of the goals of the state set definitions is to minimize any entity-specific definitions of the state set. For example, state set ID 1 can be used with a monitored entity's discrete sensor that detects the specified types of health states. A temperature probe would use this state set to return the temperature range condition (such as Upper Non-Critical or Upper Fatal). A virtual disk (a virtual entity) could also have a discrete sensor that would return Normal, Non-Critical, Critical, or Fatal.

Note In the case of the virtual disk, the discrete sensor probably would not return the Upper or Lower states (states 5 through 10 in the state set).

Because monitored entities may have multiple characteristics, PLDM offers a method for discrete sensors to contain multiple state sets to the condition of the entity. The method of the "composite" state sensor associates multiple state sets to the monitored entity. For example, a composite state sensor that returns a value from state sets 1, 2, and 5 can be defined. The three state sets would represent the combination of conditions that the monitored entity would concurrently be experiencing. For more information about discrete sensors using composite state sets, see the *PLDM for Platform Monitoring and Control Specification* (DSP0248).

6.2 Unknown State Value

Common to all state sets, the value of 0 (Unknown) indicates that the discrete sensor is unable to detect the current value from the state set. For example, a discrete sensor using the "health state" set would return the value of 0 if the sensor was unable to determine the health.

6.3 PLDM State Sets Tables

The state set descriptions in Table 1 through Table 14 are divided into groups, based on the commonality of the state sets in the group. This grouping is done only for readability and to facilitate referencing.

Table 1 – General State Sets

Set ID	PLDM State Set Enumeration List	PLDM State Set Description Enumeration Description
1	**Health State**	**Represents the current health of the entity.**
	1 – Normal	The entity is at a normal state of health.
	2 – Non-Critical	The entity is not at a normal state of health, but is still operational.
	3 – Critical	The entity is at a critical state of health. The entity may have suffered permanent damage, and may not be functional.
	4 – Fatal	The entity is at a fatal state of health.
	5 – Upper Non-Critical	The entity's health is non-critical. The sensor is indicating that the entity is in the upper non-critical state.
	6 – Lower Non-Critical	The entity's health is non-critical. The sensor is indicating that the entity is in the lower non-critical state.
	7 – Upper Critical	The entity's health is critical. The sensor is indicating that the entity is in the upper critical state.
	8 – Lower Critical	The entity's health is critical. The sensor is indicating that the entity is in the lower critical state.
	9 – Upper Fatal	The entity's health is fatal. The sensor is indicating that the entity is in the upper fatal state.
	10 – Lower Fatal	The entity's health is fatal. The sensor is indicating that the entity is in the lower fatal state.
2	**Availability**	**The operational state of the entity.**

Set ID	PLDM State Set Enumeration List	PLDM State Set Description Enumeration Description
	1 – Enabled	The entity is in an enabled state.
	2 – Disabled	The entity is in a disabled state.
	3 – Shutdown	The entity has been shut down.
	4 – Offline	The entity is in an offline test.
	5 – In Test	The entity is in a test mode.
	6 – Deferred	The entity has been deferred to function.
	7 – Quiescent	The entity is quiescent to function.
	8 – Rebooting	The entity is currently rebooting.
	9 – Resetting	The entity is resetting.
	10 – Failed	The entity is in a failed state.
	11 – Not Installed	The entity is not installed.
	12 – Power Save Mode	The entity is in a power save mode.
	13 – Paused	The entity is paused.
	14 – Shutting Down	The entity is shutting down.
	15 – Starting	The entity is starting or initializing.
	16 – Not Responding	The entity has stopped responding.
3	**Predictive Condition**	**The sense of whether the entity will experience an error condition in the future.**
	1 – Normal	The entity is not indicating a predictive error condition.
	2 – Predictive Failure	The entity is showing the characteristics of experiencing a failure in the future.
4	**Redundancy Status**	**For a group of entities that together provide redundancy, represents the condition of the group.**
	1 – Fully Redundant	All entities in the redundancy group are functioning correctly.
	2 – Redundancy Degraded	One or more entities in the redundancy group are unable to contribute to the redundancy. However, sufficient entities remain such that one or more additional entities would need to lose their ability to contribute for redundancy to be lost.
	3 – Redundancy Lost	No redundancy exists in the redundancy group. There may or may not be sufficient resources to continue with full operation using the remaining entities.
5	**Health/Redundancy Trend**	**Represents whether the health (or redundancy) state has improved or is getting worse since the last value of health (or redundancy). For example, if Health State was Lower Non-Critical and is now Lower Critical, the trend is Degrading; if redundancy was Redundancy Lost and is now Redundancy Degraded, the trend is Improving.**
	1 – Unchanged	The health/redundancy state of the entity is not changing.
	2 – Improving	The health/redundancy state of the entity has improved from the last health/redundancy state.
	3 – Degrading	The health/redundancy state of the entity has degraded from the last health/redundancy state.
6	**Group Resource Level**	**Represents the resource level of the group of entities. Applies for a group of entities that provide redundancy as a group.**
	1 – Sufficient Resources	The group has a sufficient number of entities to provide the level of service that the group is designed to provide.
	2 – Excess Resources	The group has more than the minimum number of entities to provide the level of service that the group is designed to provide.

Set ID	PLDM State Set Enumeration List	PLDM State Set Description Enumeration Description
	3 – Insufficient Resources	The group does not have a sufficient number of entities to provide the level of service that the group is designed to provide.
7	**Redundancy Entity Role**	**Represents the role of the individual entity in a redundant group.**
	1 – Is Hot Spare	This entity is reserved and on stand-by in the event of an error in a redundancy group. It is a passive member of a redundancy group.
	2 – In Redundancy Group	This entity is a member of a redundancy group. It may be active or passive.
	3 – In (non-redundant) Group	The entity is a member of a group in which the service load is shared among the members of the group, but there is no fault-tolerant redundancy in the group.
8	**Operational Status**	**The operational status of the entity.**
	1 – Normal	The entity is functioning with expected performance or capacity.
	2 – Degraded	The entity is functioning with reduced performance or capacity.
	3 – Completed	The entity has completed its function.
	4 – Migrating	The operation is being moved between entities.
	5 – Emigrating	The operation is being moved to a different entity.
	6 – Immigrating	The operation is being moved to this entity from a different entity.
9	**Operational Stress Status**	**The stress status of the monitored entity.**
	1 – Normal	The entity is functioning with expected performance or capacity.
	2 – Stressed	The entity is functioning near the bounds of its acceptable performance or capacity.
10	**Operational Fault Status**	**The fault status of the monitored entity.**
	1 – Normal	No fault is present.
	2 – Error	A fault that causes an entity to deviate from its expected behavior is present.
	3 – Non-Recoverable Error	A fault that prohibits an entity from continuing to run is present.
11	**Operational Running Status**	**The running status of the monitored entity.**
	1 – Starting	The entity is beginning to run.
	2 – Stopping	The entity is ceasing to run.
	3 – Stopped	The entity is no longer running.
	4 – In Service	The entity is available for use.
	5 – Aborted	The entity has prematurely ended.
	6 – Dormant	The entity is inactive.
12	**Operational Connection Status**	**Indicates whether the entity has the connectivity necessary to function.**
	1 – Normal	Communication is established with the entity.
	2 – No Contact	Communication could not be established with the entity.
	3 – Lost Communication	The ability to communicate with the entity has stopped.
13	**Presence**	**Indicates whether the entity is present in the system.**
	1 – Present	The entity is successfully detected.
	2 – Not Present	The entity is not detected.
14	**Performance**	**The performance of any type of entity.**
	1 – Normal	The entity is operating at a full functional level at full speed.

Set ID	PLDM State Set Enumeration List	PLDM State Set Description Enumeration Description
	2 – Throttled	The entity is operating at a full functional level at reduced speed.
	3 – Degraded	The entity is operating at a degraded functional level.
15	**Configuration State**	**For any entity that can be dynamically configured and have a configuration state.**
	1 – Valid Configuration	The entity is configured with valid configuration settings.
	2 – Invalid Configuration	The entity is configured with invalid configuration settings.
	3 – Not Configured	The entity is detected to not be configured.
	4 – Missing Configuration	The entity is missing its configuration settings.
16	**Changed Configuration**	**For any entity that may have its configuration settings changed.**
	1 – Normal	Configuration change is not detected.
	2 – Configuration Change Detected	A configuration change in the entity is detected.
17	**Identify State**	**For entities that have an identify function, such as LEDs.**
	1 – Identify State Unasserted	The entity's identify function is not asserted.
	2 – Identify State Asserted	The entity's identify function is asserted.
18	**Version**	**Version change status.**
	1 – Normal	No version change is detected. If this is used by PLDM state set sensor, a manual re-arm would set this sensor back to the Normal state.
	2 – Version Change Detected – Compatible	A firmware or hardware version change of the entity is detected. No compatibility conflicts are detected.
	3 – Version Change Detected – Incompatible	A firmware or hardware version change of the entity is detected. The new version is incompatible with other entities.
	4 – Version Change Pending	A firmware or hardware version change request of the entity is detected. The changed version is in pending state, waiting for the user action.
19	**Alarm State**	**The current activity of an alarm device.**
	1 – Off	The alarm is not active.
	2 – Steady On	The alarm has been activated with the "steady on" setting.
	3 – Alternating On	The alarm has been activated with the "alternating on" setting.
20	**Device Initialization**	**The state of device initialization.**
	1 – Normal	The device is initialized.
	2 – Initialization in Progress	The device is in the process of initializing.
	3 – Initialization Hung	The initialization process stopped responding.
	4 – Initialization Failed	The initialization process failed.
21	**Thermal Trip**	**Thermal Trip condition.**
	1 – Normal	A Thermal Trip is not presently detected.
	2 – Thermal Trip	The entity automatically shut itself down due to an internal over-temperature condition.

292 **Table 2 – Communication State Sets (Sensor Returns Unknown State if Heartbeat Is Disabled)**

Set ID	PLDM State Set Enumeration List	PLDM State Set Description Enumeration Description
32	**Heartbeat**	**Heartbeat state.**
	1 – Heartbeat present	Periodic messages or signal transitions that are used to verify the availability of communication with a particular node are detected.
	2 – Heartbeat lost	Periodic messages or signal transitions that are used to verify the availability of communication with a particular node are not detected.
33	**Link State**	**For any entity that has a data link to another entity.**
	1 – Connected	The link is in the connected state.
	2 – Disconnected	The link is in the disconnected state.

293 **Table 3 – General Sensor State Sets**

Set ID	PLDM State Set Enumeration List	PLDM State Set Description Enumeration Description
64	**Smoke State**	**Indicates whether smoke is detected.**
	1 – Normal	The sensor is not detecting abnormal levels of smoke.
	2 – Smoke	The sensor detected abnormal levels of smoke.
65	**Humidity State**	**Indicates whether humidity is detected.**
	1 – Normal	The sensor is not detecting abnormal levels of humidity.
	2 – Humid	The sensor detected abnormal levels of humidity.
66	**Door State**	**Indicates the state of the physical door.**
	1 – Open	The sensor detects that the door is open.
	2 – Closed	The sensor detects that the door is closed.
67	**Switch State**	**Indicates the state of an on/off switch. This could represent NMI, power switch, or any switch present on the system.**
	1 – Pressed/On	The switch is in the on state.
	2 – Released/Off	The switch is in the off state.
68	**Device File**	**Returns discrete status of a Device File**
	1 – File has Not Changed	No change is recorded to this file since the last status check
	2 - File is Updated	The file has been updated since the last status check which could be append, truncated or modified.
	3 – File is at Maximum Size	The file is at maximum size.
	4 - File Data has Wrapped	The file data has reached the file maximum size and has wrapped to the beginning of the file.
	5 – File Data has Truncated	The file data has reached the file maximum size and the file is truncated and overflow data is discarded.

294 **Table 4 – Security-Related State Sets and Their Enumeration Values**

Set ID	PLDM State Set Enumeration List	PLDM State Set Description Enumeration Description
96	**Lock State**	**For an entity that can have a lock state.**
	1 – Locked	The entity is in a locked state.

Set ID	PLDM State Set Enumeration List	PLDM State Set Description Enumeration Description
	2 – Unlocked	The entity is not in a locked state.
	3 – Locked Out	The entity is in a state in which the lock (physical or logical) cannot be unlocked in a normal manner. It is likely that elevated privileges are necessary to unlock the entity.
97	**Physical Security**	**Security status related to physical hardware.**
	1 – Normal	No abnormal physical security conditions are detected at this time.
	2 – Hardware Intrusion	A door, lock, or other mechanism protecting the internal system hardware from being accessed is detected as being in an insecure state.
	3 – Tampering	Physical tampering of the monitored entity is detected.
98	**Dock Authorization**	**Security status related to docking.**
	1 – Normal	No unauthorized docking or undocking activity is detected.
	2 – Unauthorized Dock	The monitored entity is docked with a receiver in an unauthorized manner, or an unauthorized entity is docked with the monitored entity.
	3 – Unauthorized Undock	The monitored entity is undocked in an unauthorized manner, or an entity that was docked with the monitored entity is undocked in an unauthorized manner.
99	**Hardware Security**	**States that should be associated with a "Security Hardware" type of entity, or a TPM.**
	1 – Hardware Security Verified	Security hardware that is associated with maintaining security for the monitored entity is detected as being functional.
	2 – Hardware Security Unverified	Security hardware that is associated with maintaining security for the monitored entity failed one or more checks verifying that it is functional and complete.
100	**Physical Communication Connection**	**Security status related to physical connection to an entity.**
	1 – Normal	No physical connection issues are detected at this time.
	2 – Physical Disconnect from Network	A physical disconnection from the communication medium is detected. This may be due to the physical removal of the system.
101	**Communication Leash Status**	**The status of the communication leash, which is the communications link between this entity and a remote network entity.**
	1 – Leash Connected	Special periodic messages or transmissions that indicate physical connection to an expected network or communication medium are detected.
	2 – Leash Disconnected	Special periodic messages or transmissions that indicate physical connection to an expected network or communication medium are lost.
102	**Foreign Network Detection Status**	**Status of a connection to an unexpected or unauthorized network or medium.**
	1 – Normal	The entity is not detected as being connected to an unrecognized or unauthorized network or communication medium.
	2 – Foreign Network Detected	The entity is connected to an unrecognized or unauthorized network or communication medium.
103	**Password-Protected Access Security**	**Security status related to the access of the monitored entity.**
	1 – No Password Violations Detected	No password violations are detected.

Set ID	PLDM State Set Enumeration List	PLDM State Set Description Enumeration Description
	2 – Password Violation Attempted	A password violation attempt is detected.
104	**Security Access – Privilege Level**	**Indicates what privilege (if any) has been used for logging onto the entity.**
	1 – No Privilege Level Access Detected	No privilege level is detected.
	2 – Read-only Privilege	The entity is a target of a logon using read-only privilege.
	3 – Full Control Privilege	The entity is a target of a logon using full control privilege.
105	**PLDM Session Audit**	**PLDM session audit status.**
	1 – Session Activated	A PLDM session is activated with a PLDM terminus associated with the state sensor.
	2 – Session Deactivated	A PLDM session is deactivated with a PLDM terminus associated with the state sensor.
106	**Supply Voltage Glitch Detection sensor**	**Supply Voltage signal Glitch Detection sensor**
	1 – Supply Voltage Glitch Detection sensor is not active	Supply Voltage Glitch detection sensor is disabled; no glitch can be detected. Activating this sensor may optionally be done via an effector, if such is available.
	2 – Supply Voltage Glitch Detection sensor Activated	Supply Voltage Glitch detection sensor is enabled; no glitch was detected. A sticky state—once Supply Voltage Glitch Detection is enabled, it can only be disabled by device-level reset.
	3 – Supply Voltage Glitch Detected	Supply Voltage Glitch Detected. A sticky state—once Supply Voltage Glitch is detected, it can only be cleared by device-level reset.
107	**Clock Glitch Detection sensor**	**Clock signal Glitch Detection sensor**
	1 – Clock Glitch Detection sensor is not active	Clock Glitch detection sensor is disabled; no glitch can be detected. Activating this sensor may optionally be done via an effector, if such is available.
	2 – Clock Glitch Detection sensor Activated	Clock Glitch detection sensor is enabled; no glitch was detected. A sticky state—once Clock Glitch Detection is enabled, it can only be disabled by device-level reset.
	3 – Clock Glitch Detected	Clock Glitch Detected. A sticky state—once Clock Glitch is detected, it can only be cleared by device-level reset.
108	**Signal Glitch Detection sensor**	**Signal Glitch Detection sensor**
	1 – Signal Glitch Detection sensor is not active	Signal Glitch Detection sensor is disabled; no glitch can be detected. Activating this sensor may optionally be done via an effector, if such is available.
	2 – Signal Glitch Detection sensor Activated	Signal Glitch Detection sensor is enabled; no glitch was detected. A sticky state—once Signal Glitch Detection is enabled, it can only be disabled by device-level reset.
	3 – Signal Glitch Detected	Signal Glitch Detected. A sticky state—once Signal Glitch is detected, it can only be cleared by device-level reset.
109	**Temperature Glitch Detection sensor**	**Temperature Glitch Detection sensor**
	1 – Temperature Glitch Detection sensor is not active	Temperature Glitch Detection sensor is disabled; no glitch can be detected. Activating this sensor may optionally be done via an effector, if such is available.

Set ID	PLDM State Set Enumeration List	PLDM State Set Description Enumeration Description
	2 – Temperature Glitch Detection sensor Activated	Temperature Glitch Detection sensor is enabled; no glitch was detected. A sticky state—once Temperature Glitch Detection is enabled, it can only be disabled by device-level reset.
	3 – Temperature Glitch Detected	Temperature Glitch Detected. A sticky state—once Temperature Glitch is detected, it can only be cleared by device-level reset.

295 **Table 5 – Software-Related State Sets**

Set ID	PLDM State set Enumeration List	PLDM State Set Description Enumeration Description
129	**Software Termination Status**	**Status related to firmware of the operating system.**
	1 – Normal	Software termination is not detected.
	2 – Software Termination Detected	Software termination is detected.
	3 – Critical Stop during Load/Initialization	The software entity failed during loading or initialization.
	4 – Run-time Critical Stop	The software entity incurred a run-time failure.
	5 – Graceful Shutdown Requested	The software entity has been requested to shut down gracefully.
	6 – Graceful Restart Requested	The software entity has been requested to restart gracefully.
	7 – Graceful Shutdown	The software entity has been shut down gracefully.
	8 – Termination Request Failed	The request to terminate the execution of the software entity failed.

296 **Table 6 – Redundant Storage Media (RAID) State Sets**

Set ID	PLDM State Set Enumeration List	PLDM State Set Description Enumeration Description
160	**Storage Media Activity**	**Represents the current activity of storage media that is part of a redundancy group.**
	1 – Normal	The entity is not showing any array configuration or maintenance activity.
	2 – Parity Check in Progress	A parity check is in progress on the storage entity.
	3 – Rebuilding/Remapping	A rebuild or remap operation is in progress on the storage entity.
	4 – Rebuild/Remap Aborted	A rebuild or remap operation has been aborted on the storage entity.
	5 – Prepare for Removal	The storage entity has been prepared for removal.

297 **Table 7 – Boot-Related State Sets**

Set ID	PLDM State Set Enumeration List	PLDM State Set Description Enumeration Description
192	**Boot/Restart Cause**	**Represents the stimulus that booted the entity.**
	1 – Powered Up	A start of the system is initiated by changing the entity's state from powered off to powered on.
	2 – Hard Reset	A restart of the system is accomplished by activating the entity's reset circuitry.

Set ID	PLDM State Set Enumeration List	PLDM State Set Description Enumeration Description
	3 – Warm Reset	A restart of the system is performed by software that does not involve powering the system off or activating the entity's reset circuitry.
	4 – Manual Hard Reset	A restart is initiated by the user activation of a mechanical device (for example, pressing a button) and bypasses runtime software.
	5 – Manual Warm Reset	A restart is initiated by the user activation of a mechanical device (for example, pressing a button) and does not involve powering the entity off or activating the system's reset circuitry.
	6 – System Restart	A restart of the entity is initiated by entity hardware components and accomplished by activating the system's reset circuitry.
	7 – Watchdog Timeout	A restart of the entity is initiated in response to a detected system hang condition.
193	**Boot/Restart Request**	**Indicates status of a request to restart the system in order to boot from a different source.**
	1 – Normal	No boot/restart request is detected.
	2 – Boot/Restart Requested	A boot/restart request is detected.
194	**Entity Boot Status**	**Indicates whether the entity was used as the boot device.**
	1 – Normal	This entity was not used as a boot device.
	2 – Boot Initiation from This Entity Was Detected	This entity was used as a boot device.
195	**Boot Error Status**	**System boot error status.**
	1 – Normal	No boot error is detected.
	2 – No Bootable Media	The device selected for the boot source could not be accessed, or the media in that device does not contain a boot sector.
	3 – Invalid Boot Sector	The boot sector does not contain valid data for booting.
	4 – Timeout for Boot Selection	A timeout occurred while accessing the boot sector from the selected boot source (possible boot from default instead).
	5 – Remote Media Server Not Found	The server that provides the bootstrap program could not be located or a communication error occurred with the remote media server.
196	**Boot Progress**	**System firmware or software booting status.**
	1 – Boot Not Active	Boot-up of the firmware or software is not active. It may be already functional.
	2 – Boot Completed	The boot process of the firmware or software has completed.
	3 – Memory Initialization	The boot process is currently initializing the memory.
	4 – Hard-Disk Initialization	The boot process is currently initializing the hard disk.
	5 – Secondary Processor(s) Initialization	The boot process is currently initializing the secondary processors.
	6 – User Authentication	The boot process is processing the user authentication.
	7 – User-Initiated System Setup	System firmware or BIOS has entered the user system firmware or BIOS configuration setup.
	8 – USB Resource Configuration	System firmware or BIOS is currently configuring the USB resource.
	9 – PCI Resource Configuration	System firmware or BIOS is configuring the PCI resources.
	10 – Option ROM Initialization	The option ROM is being initialized.
	11 – Video Initialization	The video controller is being initialized.
	12 – Cache Initialization	The cache memory is being initialized.

Set ID	PLDM State Set Enumeration List	PLDM State Set Description Enumeration Description
	13 – SM Bus Initialization	The system firmware or BIOS is initializing the SM Bus.
	14 – Keyboard Controller Initialization	The system firmware or BIOS is initializing the keyboard controller.
	15 – Embedded Controller/Management Controller Initialization	The system firmware or BIOS is initializing the embedded management controller.
	16 – Docking Station Attachment	The main system unit is attaching to the docking station.
	17 – Enabling Docking Station	The system firmware or BIOS is enabling the docking station.
	18 – Docking Station Ejection	The main system unit is ejected from the docking station.
	19 – Disabling Docking Station	The system firmware or BIOS is disabling the docking station.
	20 – Calling Operating System Wake-Up Vector	The system firmware or BIOS is starting the operating system.
	21 – Starting Operating System Boot Process (for example, calling INT 19h)	The system firmware or BIOS is booting the operating system.
	22 – Baseboard or Motherboard Initialization	The BIOS is initializing the motherboard.
	23 – Floppy Initialization	The BIOS is initializing the floppy drive.
	24 – Keyboard Test	The BIOS is testing the keyboard.
	25 – Pointing Device Test	The BIOS is testing the pointing device.
	26 – Primary Processor Initialization	The BIOS is initializing the primary processor.
197	**System Firmware Hang**	**Indicates if system firmware (BIOS) has been suspended.**
	1 – Normal	No system firmware hang is detected.
	2 – System Firmware Hang Detected	The system firmware's execution has suspended.
198	**POST Errors**	**Errors detected in the system firmware (BIOS) power on self test.**
	1 – No POST Error Detected	A system firmware error is not detected.
	2 – No System Memory Is Physically Installed in the System.	The system firmware determined that no system memory is physically installed in the system.
	3 – No Usable System Memory, All Installed Memory Has Experienced an Unrecoverable Failure	The system firmware determined that no usable system memory is available.
	4 – Unrecoverable Hard-Disk Device Failure	The system firmware detected that a hard-disk device has failed and is likely unusable for booting the operating system.
	5 – Unrecoverable System-Board Failure	The system firmware detected an unrecoverable error in the main system board or board set. This error may prevent the system from further operation.
	6 – Unrecoverable Diskette Subsystem Failure	The system firmware detected a failure in the diskette subsystem.
	7 – Unrecoverable Hard-Disk Controller Failure	The system firmware detected that a hard-disk controller has failed and is likely unusable for booting the operating system.
	8 – Unrecoverable PS/2 or USB Keyboard Failure	The system firmware detected a failure in the keyboard.

Set ID	PLDM State Set Enumeration List	PLDM State Set Description Enumeration Description
	9 – Removable Boot Media Not Found	The system firmware detected that a removable media device that was designated as a boot source does not have any media installed.
	10 – Unrecoverable Video Controller Failure	The system firmware detected a failure with a video controller. (The controller is likely unusable for driving the display device for a user interface for system firmware configuration.) This error is typically related to the display controller that drives a primary display device that would be used to locally display a user interface for system firmware configuration and as the primary local display used by the operating system.
	11 – No Video Device Detected	The system firmware has not been able to detect the presence of a video output device (computer display or computer monitor). This error is typically related to the primary display device that would be used to locally display a user interface for system firmware configuration and as the primary local display used by the operating system.
	12 – Firmware (BIOS) ROM Corruption Detected	The system firmware detected that its own firmware image is corrupted.
	13 – CPU Voltage Mismatch (processors that share same supply have mismatched voltage requirements)	The system firmware detected that processors that share the same supply have mismatched voltage requirements, and is therefore preventing running further.
	14 – CPU Speed Matching Failure	The system firmware detected that the processors are operating with a combination of speeds that is not supported by the platform.
	15 – FRB1/BIST Failure	A processor BIST (built-in self test) failure is detected.
199	**Embedded processor OS States**	**Embedded processor operating system states**
	0 - Reset/Boot-ROM	The device has just been powered on or reset, and it's initializing basic hardware and loading the first firmware mutable FW components.
	1 – FW Boot stage 1	First Mutable Code is running.
	2 – FW Boot stage 2	The device has progressed further in the boot process, executing additional instructions to load pre-OS SW.
	3 – Pre-OS	The device is transitioning into the Pre-OS stage such as Unified Extensible Firmware Interface (UEFI) environment.
	4 - OS Booting	The operating system (OS) is being loaded and initialized on the device.
	5 - OS running	The operating system has successfully started and is now running normal operations.
	6 – OS Quiesced	The processor OS has entered a low-power standby mode or is placed into quiesce state, conserving energy while remaining operational. Device can be safely powered off in this state.
	7 - FW update in progress	The device’s firmware is being updated with new image
	8 - OS Crash Dump in progress	The operating system is in the process of capturing diagnostic information about an OS crash or error that has occurred.
	9 - OS Crash Dump completed	The operating system has concluded recording a crash dump. Device can be safely powered off in this state.
	10 - FW Fault in progress	The device's firmware is collecting diagnostic data related to a FW fault or error in its operation.
	11 - FW Fault completed	The firmware has finished collecting diagnostic data about a fault. Device can be safely powered off in this state.

298 **Table 8 – Monitored System-Related State Sets**

Set ID	PLDM State Set Enumeration List	PLDM State Set Description Enumeration Description
225	**Log Fill Status**	**State of the log.**
	1 – Normal	Logging is enabled. The log is not empty.
	2 – Reset/Cleared	Logging is enabled. A reset or clear signal has emptied the log.
	3 – Almost Full	Logging is enabled. The log has limited capacity for future entries.
	4 – Full	Logging is enabled. The log is full; no future entries can be added.
226	**Log Filter Status**	**Log filtering.**
	1 – Unfiltered	Logging is enabled. All entries are logged.
	2 – Filtered	Logging is enabled, but some entries have been filtered.
227	**Log Timestamp Change**	**State of the log timestamp.**
	1 – Normal	A log timestamp change is not detected.
	2 – Timestamp Clock Sync	A log timestamp has been changed.
228	**Interrupt Requested**	**Interrupt requested by entity.**
	1 – Normal	No interrupt is requested.
	2 – Interrupt Requested	Interrupt is requested by entity.
229	**Interrupt Received**	**Interrupt received by entity.**
	1 – Normal	No interrupt is received.
	2 – Interrupt Received	Interrupt is received by the entity.
230	**Diagnostic Interrupt Requested**	**Diagnostic interrupt requested by entity.**
	1 – Normal	No diagnostic interrupt is requested.
	2 – Diagnostic Interrupt Requested	Diagnostic interrupt is requested by the entity. (This is equivalent to a front-panel NMI on some systems.)
231	**Diagnostic Interrupt Received**	**Diagnostic interrupt received by entity.**
	1 – Normal	No diagnostic interrupt is received.
	2 – Diagnostic Interrupt Received	Diagnostic interrupt is received by the entity. (This is equivalent to a front-panel NMI on some systems.)
232	**I/O Channel Check NMI Requested**	**I/O Channel Check NMI requested by entity.**
	1 – Normal	No I/O Channel Check NMI is requested.
	2 – I/O Channel Check NMI Requested	I/O Channel Check NMI is requested by the entity.
233	**I/O Channel Check NMI Received**	**Diagnostic interrupt received by entity.**
	1 – Normal	No I/O Channel Check NMI is received.
	2 – I/O Channel Check NMI Received	I/O Channel Check NMI is received by the entity.
234	**Fatal NMI Requested**	**Fatal NMI requested by entity.**
	1 – Normal	No Fatal NMI is requested.
	2 – Fatal NMI Requested	Fatal NMI is requested by the entity.

Set ID	PLDM State Set Enumeration List	PLDM State Set Description Enumeration Description
235	**Fatal NMI Received**	**Fatal NMI received by entity.**
	1 – Normal	No Fatal NMI is received.
	2 – Fatal NMI Received	Fatal NMI is received by the entity.
236	**Software NMI Requested**	**Software NMI requested by entity.**
	1 – Normal	No Software NMI is requested.
	2 – Software NMI Request	Software NMI is requested by the entity.
237	**Software NMI Received**	**Software NMI received.**
	1 – Normal	No Software NMI is received.
	2 – Software NMI Received	Software generated NMI is received by the entity.
238	**SMI Requested**	**SMI requested. (Note: interpretation depends on the SMI direction)**
	1 – Normal	No SMI is requested.
	2 – SMI Requested	System Management Interrupt is requested by the entity.
238	**SMI Received**	**SMI received. (Note: interpretation depends on the SMI direction)**
	1 – Normal	No SMI is received.
	2 – SMI Received	System Management Interrupt is received by the entity.
239	**PCI PERR Requested**	**PCI PERR requested.**
	1 – Normal	No PCI Parity Error is requested.
	2 – PCI PERR Requested	PCI Parity Error is requested by the entity.
240	**PCI PERR Received**	**PCI PERR received.**
	1 – Normal	No PCI Parity Error is received.
	2 – PCI PERR Received	PCI Parity Error is received by the entity.
241	**PCI SERR Requested**	**PCI SERR requested.**
	1 – Normal	No PCI SERR is requested.
	2 – PCI SERR Requested	PCI System Error is requested by the entity.
242	**PCI SERR Received**	**PCI SERR received.**
	1 – Normal	No PCH SERR is received.
	2 – PCI SERR Received	PCI System Error is received by the entity.
243	**Bus Error Status**	**Error Status related to busses**
	1 – Normal	No bus error is detected.
	2 – Bus Correctable Error	Bus transaction with correctable error occurred.
	3 – Bus Uncorrectable Error	Bus transaction with uncorrectable error occurred.
	4 – Bus Fatal Error	Bus transaction with fatal error occurred.
	5 – Bus Degraded	Bus is operating in a degraded state.
	6 – Bus timeout	A bus transaction timeout occurred.
244	**Watchdog Status**	**Conditions related to the watchdog timer.**
	1 – Normal	No watchdog event is detected.
	2 – Timer Expired	The watchdog timer expired.
	3 – Pre-expire interrupt	Watchdog pre-timeout interrupt occurred.

299 **Table 9 – Power-Related State Sets**

Set ID	PLDM State Set Enumeration List	PLDM State Set Description Enumeration Description
256	**Power Supply State**	**Conditions related to power units or power supplies.**
	1 – Normal	No adverse conditions are detected with the power supply entity.
	2 – Power Input Lost	The power supply entity lost power from the source.
	3 – Power Input out-of-range	The power supplied to the power supply entity is out of range.
	4 – Power down/off	The power supply entity is in a power down state.
	5 – Power Cycle	The power supply entity is in a power cycle state.
	6 – Soft Power Control Failure	The power supply entity has encountered a soft power control failure.
	7 – Voltage Input out of Range	The power source voltage for the power supply entity is out of range.
	8 – Current Input out of Range	The power source current for the power supply entity is out of range.
	9 – Power Out Failed/Lost	The power output of the power supply entity is absent.
	10 – Thermal Trip	The power supply has experienced a thermal trip.
257	**Device Power State**	**ACPI device power state.**
	1 – D0	The ACPI Device Power State is D0: Fully-On.
	2 – D1	The ACPI Device Power State is D1.Intermediate Power State 1
	3 – D2	The ACPI Device Power State is D2.Intermediate Power State 2
	4 – D3	The ACPI Device Power State is D3: Off.
258	**ACPI Power State**	**ACPI power state of the system**
	1 – S0	The ACPI Global State is G0/S0: Working.
	2 – S1	The ACPI Global State is S1: Sleeping State.
	3 – S2	The ACPI Global State is S2: Sleeping State.
	4 – S3	The ACPI Global State is S3: Sleeping State.
	5 – S4	The ACPI Global State is S4: Sleeping State.
	6 – S5	The ACPI Global State is S5: Soft Off State.
	7 – G3	The ACPI Global State is G3: Mechanical Off.
259	**Backup Power Source**	**Indicates what backup power source is available if primary power is gone.**
	1 – No Backup Power Source	No backup power source is available.
	2 – UPS Detected	A backup power source is available.
260	**System Power State**	**Power states of the system or an entity in the system.**
	1 – On	System Power is On.
	2 – Hibernate (off-soft)	System Power is in Hibernate mode.
	3 – Sleep – Light	System Power is in light sleep mode.
	4 – Sleep – Deep	System Power is in deep sleep mode.
	5 – Power Cycle Soft	System Power is cycling to soft off mode.
	6 – Power Cycle Hard	System Power is cycling to hard off mode.
	7 – Power Cycle Off-Soft Graceful	System Power is forcing soft off mode.
	8 – Power Cycle Off-Hard Graceful	System Power is forcing hard off mode.
	9 – Off-Soft Graceful	System Power is in soft off mode.
	10 – Off-Hard Graceful	System Power is in hard off mode.

Set ID	PLDM State Set Enumeration List	PLDM State Set Description Enumeration Description
	11 – Master Bus Reset	System is reaching ACPI state S5 followed by ACPI state S0 in the case of the system master bus reset.
	12 – Master Bus Reset (Graceful)	System is reaching ACPI state S5 followed by ACPI state S0 in the case of the system master bus reset in a somehow graceful manner.
	13 – Diagnostic Interrupt (NMI)	System is reaching ACPI state S5 followed by ACPI state S0, in the case of a non-maskable interrupt.
261	**Battery Activity**	**Current maintenance activity for a battery-like device.**
	1 – No Activity	No activity is detected on the battery.
	2 – Reconditioning	The battery is being reconditioned.
	3 – Charging under Load	The battery is being charged, but with a load.
	4 – Charging	The battery is being charged.
	5 – Discharging	The battery is being discharged.
262	**Battery State**	**Power capacity condition of a battery-like device.**
	1 – Fully Charged	The battery is fully charged.
	2 – Partially Charged	The battery is less than fully charged but within normal charge level.
	3 – Low	The battery charge level is low.
	4 – Near Critically Low	The battery charge level is near critical low.
	5 – Depleted	The battery has been depleted.

300 **Table 10 – Processor-Related State Sets**

Set ID	PLDM State Set Enumeration List	PLDM State Set Description Enumeration Description
288	**Processor Power State**	**ACPI power state of a processor.**
	1 – C0	CPU is in ACPI C-State 0.
	2 – C1	CPU is in ACPI C-State 1.
	3 – C2	CPU is in ACPI C-State 2.
	4 – C3	CPU is in ACPI C-State 3.
289	**Power-Performance State**	**ACPI power performance state of a processor.**
	1 – P0	CPU is in ACPI P-State 0.
	2 – P1	CPU is in ACPI P-State 1.
	3 – P2	CPU is in ACPI P-State 2.
	4 – P3	CPU is in ACPI P-State 3.
	5 – P4	CPU is in ACPI P-State 4.
	6 – P5	CPU is in ACPI P-State 5.
	7 – P6	CPU is in ACPI P-State 6.
	8 – P7	CPU is in ACPI P-State 7.
	9 – P8	CPU is in ACPI P-State 8.
	10 – P9	CPU is in ACPI P-State 9.
	11 – P10	CPU is in ACPI P-State 10.
	12 – P11	CPU is in ACPI P-State 11.
	13 – P12	CPU is in ACPI P-State 12.
	14 – P13	CPU is in ACPI P-State 13.

Set ID	PLDM State Set Enumeration List	PLDM State Set Description Enumeration Description
	15 – P14	CPU is in ACPI P-State 14.
	16 – P15	CPU is in ACPI P-State 15.
	17 – P16	CPU is in ACPI P-State 16.
290	**Processor Error Status**	**Error conditions related to processor hardware.**
	1 – Normal	A fatal internal processor error is not presently detected.
	2 – IERR	A fatal internal processor error is detected. This error is related to a halt of the processor.
291	**BIST Failure Status**	**BIST Failure detection.**
	1 – Normal	A BIST (built-in self test) failure is not detected.
	2 – BIST Failure	A BIST failure (built-in self test) is detected.
292	**iBIST Failure Status**	**Interconnect BIST Failure detection.**
	1 – Normal	An iBIST failure is not detected.
	2 – iBIST Failure	An iBIST failure is detected.
293	**Processor Hang in POST**	**Processor hang in system firmware (BIOS) power on self test.**
	1 – Normal	A POST hang that is being attributed to a processor hang is not detected. (This was referred to as FRB2 in IPMI.)
	2 – FRB2/Hang in POST	A hang in POST or system firmware initialization is detected that is being attributed to a processor hang.
294	**Processor Startup Failure**	**Processor fails to start system firmware (BIOS) power on self test.**
	1 – Normal	A processor startup failure is not detected. (This was referred to as FRB3 in IPMI.)
	2 – FRB3/Processor Failure	The processor has been powered up or reset and has failed to start POST or system firmware initialization.
295	**Uncorrectable CPU Error**	**Uncorrectable processor CPU error.**
	1 – Normal	An uncorrectable CPU error is not detected.
	2 – Uncorrectable CPU Error	An uncorrectable error is detected.
296	**Machine Check Error**	**Indicates presence of Machine Check Error (MCE).**
	1 – MCE Not Detected	A Machine Check Error (MCE) is not detected.
	2 – MCE Detected	A Machine Check Error (MCE) occurred. This is a type of critical error that is detected by processor hardware that may be related to internal storage or state machine corruption or external errors that affect the ability of the hardware to continue processing the intended instruction flow. The error is typically associated with the generation of a corresponding software interrupt called a *machine check exception*. Depending on the error, it may or may not be able to be corrected by additional actions by software that handles the machine check exception.
297	**Corrected Machine Check**	**Indicates the correction of Machine Check Error.**
	1 – Normal	A Corrected Machine Check (CMC) error is not detected.
	2 – Corrected MCE Detected	A Machine Check Error has been detected and corrected. This is an error that is detected by processor hardware that may be related to internal storage or state machine corruption or external errors that would affect the ability of the hardware to continue processing the intended instruction flow, but that has been automatically corrected by the hardware.

301 **Table 11 – Memory-Related State Sets**

Set ID	PLDM State Set Enumeration List	PLDM State Set Description Enumeration Description
320	**Cache Status**	**Conditions related to cache memory.**
	1 – Normal	The cache appears to be operating normally.
	2 – Dirty upon Power On	The cache memory has been powered up with data still resident in its memory.
321	**Memory Error Status**	**Error conditions related to memory devices.**
	1 – Normal	Memory is operating normally. No error conditions are detected.
	2 – Bad Read	A bad read (limit exceeded) event occurred in memory.
	3 – Parity Error	A parity error (limit exceeded) is detected in memory.
	4 – Single-Bit Error	A single-bit error (limit exceeded) is detected in memory.
	5 – Double-Bit Error	A double-bit error (limit exceeded) is detected in memory.
	6 – Multi-Bit Error	A multi-bit error (limit exceeded) is detected in memory.
	7 – Nibble Error	A nibble error (limit exceeded) is detected.
	8 – Checksum Error	A checksum error (limit exceeded) is detected.
	9 – CRC Error	A CRC error (limit exceeded) is detected.
322	**Redundant Memory Activity Status**	**Activities related to memory participating in a redundant memory group.**
	1 – Normal	No maintenance or configuration operation is currently detected on the memory entity.
	2 – Scrub	A scrub operation is active on the memory entity.
	3 – Remap	A remapping operation is active on the memory entity.

302 NOTE: Some memories have thresholds of events so that an error condition occurs only when the number of occurrences of an
303 event (such as a parity error) exceeds a defined threshold.

304 **Table 12 – Storage Device State Sets**

Set ID	PLDM State Set Enumeration List	PLDM State Set Description Enumeration Description
330	**Error Detection Status**	**Error conditions related to devices that can perform error checks.**
	1 – Normal	Device is operating normally. No error conditions are detected.
	2 – Correctable ECC	ECC circuits detected bit errors that could be corrected by the ECC logic.
	3 – Uncorrectable ECC	ECC circuits detected bit errors that could not be corrected.
	4 – Parity Error	A parity error is detected.
	5 – Checksum Error	A checksum error is detected.
	6 – CRC Error	A CRC error is detected.
331	**Stuck Bit Status**	**State of stuck bits.**
	1 – Normal	Memory is operating normally. No error conditions are detected.
	2 – Stuck Bit	A stuck-at bit is detected.
332	**Scrub Status**	**State of scrub process.**
	1 – Normal	Device is operating normally. No error conditions are detected. Previous scrub status is unknown.
	2 – Completed Successfully	Scrub completed with no errors.
	3 – Scrub in Process	Scrub is initiated but not yet complete.
	4 – Scrub Failed	Scrub is completed; unable to purge errors.

305 **Table 13 – Slot/Module State Sets**

Set ID	PLDM State Set Enumeration List	PLDM State Set Description Enumeration Description
352	**Slot Occupancy**	**Any slot-like entity, such as a drive slot or PCI slot.**
	1 – Empty	The slot is not currently occupied.
	2 – Occupied	The slot is occupied.
353	**Slot State**	**State of the slot entity.**
	1 – Not Ready for Install/Removal	The slot is not electrically/mechanically ready to install or remove a device.
	2 – Ready for Device Installation	The slot is unoccupied and is electrically/mechanically ready to accept a device.
	3 – Ready for Device Removal	The slot is occupied and is electrically/mechanically ready for device removal.

306 **Table 14 – OEM State Sets**

Set ID	PLDM State Set Enumeration List	PLDM State Set Description Enumeration Description
32768–65535	**OEM State Sets**	**OEM reserved state sets.**
	All other state set values reserved	

307 # 7 PLDM Entity ID Codes

308 A PLDM Entity ID code represents an entity that can be associated to a PLDM state set.

309 For usage examples and further description, see the *PLDM for Platform Monitoring and Control*
310 *Specification* (DSP0248).

311 ## 7.1 PLDM Entity ID Code Tables

312 The entity ID code descriptions in Table 15 are divided into groups, based on commonality of the codes in
313 the group. This grouping is done only for readability and to facilitate referencing. The IPMI fields are
314 referenced to aid implementers transitioning from IPMI to PLDM designs.

315 **Table 15 – Entity ID Codes**

Code	IPMI	Entity
0	0x00	Unspecified
1	0x01	Other
Miscellaneous Entities		
2		Network
3	0x25	Group – This is a logical entity for use with Entity Association records. It is provided to allow an Entity-association record to define a grouping of entities when there is no appropriate pre-defined entity for the container entity. This Entity should not be used as a physical entity.
4	0x26	Remote (Out of Band) Management Communication Device
Miscellaneous Entities (continued)		

Code	IPMI	Entity
5	0x27	External Environment – This Entity ID can be used to identify the environment outside the system chassis. For example, a system may have a temperature sensor that monitors the temperature “outside the box.” Such a temperature sensor can be associated with an External Environment entity. This value is typically used as a single instance physical entity. However, the Entity Instance value can be used to denote a difference in regions of the external environment. For example, the region around the front of a chassis may be considered to be different from the region around the back, in which case it would be reasonable to have two different instances of the External Environment entity.
6	0x2F	Communication Channel – This Entity ID enables associating sensors with communication channels. For example, a Redundancy sensor could be used to report redundancy status for a channel that is composed of multiple physical links. By convention, the Entity Instance corresponds to the channel number.
7		PLDM Terminus
8		Platform Event Log
9		Device File
10		Device File Directory
11		Memory Rank
Human Interface Entities		
15		Keypad
16		Switch
17		Pushbutton
18		Display
19		Indicator
Software/Firmware Entities		
30	0x21	System Management Software
31	0x22	System Firmware (for example, BIOS/EFI)
32	0x23	Operating System
33		Virtual Machine Manager
34		OS Loader
35		Device Driver
36	0x2E	Management Controller Firmware (represents firmware or software running on a management controller)
Chassis/Enclosure Entities		
45	0x17	System chassis (main enclosure)
46	0x18	Sub-chassis
47	0x1A	Disk Drive Bay
48	0x1B	Peripheral Bay
49	0x1C	Device Bay
50		Door
51		Access Panel
52		Cover
Board/Card/Module Entities		
60		Board

Code	IPMI	Entity
61		Card
62		Module
Board/Card/Module Entities (continued)		
63	0x06	System management module
64	0x07	System board (main system board, may also be a processor board or internal expansion board)
65	0x08	Memory board (board holding memory devices)
66		Memory module
67	0x09	Processor module (holds processors; use this designation when processors are not mounted on system board)
68	0x0B	Add-in card
69	0x0C	Chassis front panel board (control panel)
70	0x0D	Back panel board
71	0x15	Power management/power distribution board
72	0x0E	Power system board
73	0x0F	Drive backplane
74	0x10	System internal expansion board (contains expansion slots)
75	0x11	Other system board (part of a multi-board set that together forms the “main board” for the system)
76	0x16	Chassis back panel board
77	0x29	Processing blade (a blade module that contains processor, memory, and I/O connections that enable it to operate as a processing entity)
78	0x2A	Connectivity switch (a blade module that provides the fabric or network connection for one or more processing blades or modules)
79	0x2B	Processor/memory module (processor and memory together on a module)
80	0x2C	I/O module (a module that contains the main elements of an I/O interface)
81	0x2D	Processor/ I/O module (a combination processor and I/O module)
Cooling Entities		
90		Cooling device
91		Cooling subsystem
92	0x1E	Cooling unit/domain – Can be used as a pre-defined logical entity for grouping fans or other cooling devices or sensors that are associated in monitoring a particular logical cooling domain.
93		Fan
94		Peltier Cooling Device
95		Liquid Cooling Device
96		Liquid Cooling subsystem
Storage Device Entities		
105		Other storage device
106		Floppy Drive
107		Fixed Disk / Hard Drive

Code	IPMI	Entity
108		CD Drive
109		CD/DVD Drive
Storage Device Entities (continued)		
110		Other Silicon Storage Device (for example, FLASH memory)
111		Solid State Drive
Power Entities		
120		Power supply
121	0x28	Battery
122		Super capacitor
123		Power converter
124		DC-DC converter
125		AC mains power supply
126		DC mains power supply
127		Voltage regulator (with optional voltage/current monitors)
128		Multi-rail Voltage regulator
129		Multi-rail Voltage regulator channel
Chip Entities		
135	0x03	Processor
136		Chipset component
137		Management controller
138		Peripheral controller
139		SEEPROM
140		NVRAM chip
141		FLASH Memory chip
142		Memory chip (for single-chip only; use memory module for pre-packed memory devices that are used with standardized connectors, such as DIMMs, SD cards, and so on)
143		Memory controller
144		Network controller
145		I/O controller
146		South bridge
147	0x35	Real Time Clock (RTC)
148		FPGA/CPLD configurable logic device
149		Accelerator
150		TPM
151		Subprocessor/Processor-Core
152		GPU
153		DPU
Bus Entities		
160		Other Bus

Code	IPMI	Entity
161	0x24	System Bus
162		I^2C Bus
163		SMBus Bus
164		SPI Bus
165	0x30	PCI Bus
166	0x31	PCI Express™ Bus including CXL
167		PECI Bus
168		LPC Bus
169		USB Bus
170		FireWire Bus
171	0x32	SCSI Bus (parallel)
172	0x33	SATA/SAS Bus
173	0x34	Processor/front-side Bus
174		Inter-processor Bus
175		Inter-Accelerator link
Connectors/Cables		
185		Connector
186		Slot
187	0x1F	Cable (electrical or optical)
188		Interconnect
189		Plug
190		Socket
Network interface connectors		
200		RJ45
201		XFP
202		SFP (SFF-8079)
203		SFP10 (SFF-8083)
205		SFP16 (SFF-8081)
206		SFP28 (SFF-8402)
207		SFP+ (SFF-8432)
208		SFPDD
209		CSFP
210		QSFP (INF-8438i)
211		QSFP28 (SFF-8665)
212		QSFP+ (SFF-8436)
213		QSFPDD (INF-8628)
214		OSFP
215		DSFP

Code	IPMI	Entity
216-299		Reserved
Network ports connection types		
300		Ethernet
301		InfiniBand
302		Fibre Channel
303		Omnipath
304-399		Reserved for future use
400		Vendor-Specific interconnect
OEM/Vendor-Defined Entities		
8192-16383	0x90-0xAF	Chassis-specific entities. These IDs are system specific and can be assigned by the chassis provider.
16384-24575	0xB0-0xCF	Board-set specific entities. These IDs are system specific and can be assigned by the board-set provider.
24576-32767	0xD0-0xFF	OEM System Integrator defined. These IDs are system specific and can be assigned by the system integrator, or OEM.
		All other values are reserved.

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8 PLDM Effecter Semantic ID Codes

A PLDM Effecter Semantic ID code represents a PLDM-defined or OEM Effecter semantic.

For usage examples and further description, see the *PLDM for Platform Monitoring and Control Specification* (DSP0248).

8.1 PLDM Effecter Semantic ID Code Table

The PLDM Effecter Semantic ID code descriptions in Table 16 are divided into DMTF defined PLDM Effecter Semantic ID and OEM Effecter Semantic ID ranges. At present no PLDM Effecter Semantic IDs have been defined.

Table 16 – Effecter Semantic ID Codes

ID #	Range Name	Description
0	Unspecified	Used when an Effecter Semantic ID is not being provided
1-32767	PLDM Effecter Semantic IDs	Range reserved for Effecter Semantic IDs that are defined by DMTF PLDM specifications.
32768-65535	OEM Effecter Semantic IDs	Range reserved for OEM (vendor-defined) Effecter Semantic IDs.

ANNEX A
(informative)

Change Log

Version	Date	Description
1.0.0	2009-03-16	DMTF Standard
1.1.0	2020-01-16	Added enumerations for Network interface connectors, Network ports connection types and configurable logic device Added references to external documents Formatting changes
1.2.0	2023-12-11	Added Device File state and Device Files directory state (Entity ID codes) Added vendor-specific port type (400) Added CXL to Bus entities Added Firmware file version change pending state (state ID 18) Added a few chip entities Added DSFP network interface connector Added DPU as type 153 Added single and multi-rail voltage regulators as types 127, 128 Added Embedded processor OS state as state-set 199 Re-ordered type 68 (File States) and aligned capitalization with
1.3.0	2024-08-29	Added glitch detection security state sensors for temperature, signal, clock and supply voltage.