TRUSTED® COMPUTING GROUP

SPECIFICATION

TCG Component Class Registry

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1 Contents

1 SCOPE

This specification describes the TCG Component Class Registry that can be used to identify the type of a component when it is listed in a TCG Platform Certificate, version 1.1 or later [1].

1.1 Key Words

The key words “MUST,” “MUST NOT,” “REQUIRED,” “SHALL,” “SHALL NOT,” “SHOULD,” “SHOULD NOT,” “RECOMMENDED,” “MAY,” and “OPTIONAL” in this document normative statements are to be interpreted as described in RFC-2119, Key words for use in RFCs to Indicate Requirement Levels.

1.2 Statement Type

Please note a very important distinction between different sections of text throughout this document. There are two distinctive kinds of text: informative comment and normative statements. Because most of the text in this specification will be of the kind normative statements, the authors have informally defined it as the default and, as such, have specifically called out text of the kind informative comment. They have done this by flagging the beginning and end of each informative comment and highlighting its text in gray. This means that unless text is specifically marked as of the kind informative comment, it can be considered a kind of normative statement.

EXAMPLE: Start of informative comment

This is the first paragraph of 1–n paragraphs containing text of the kind *informative comment* ...

This is the second paragraph of text of the kind *informative comment* ...

This is the nth paragraph of text of the kind *informative comment* ...

To understand the TCG specification the user must read the specification. (This use of MUST does not require any action).

End of informative comment

2 Definitions

2.1 Platform Certificate `componentIdentifier` field

Start of informative comment

A Platform Certificate's **`componentIdentifier`** field is defined in [1]. Each **`componentIdentifier`** in a Platform Certificate represents an individual component in the platform. The **`componentIdentifier`** field is encoded as an ASN.1 SEQUENCE. The fields inside the sequence record data regarding the individual component.

This specification documents the **`componentClassValue`** values that are used when the **`tcg-registry-componentClass-tcg`** OID is used in the corresponding **`componentClassRegistry`** field.

This specification does not specify that a Platform Certificate issuer is required to use the registry specified in this specification. There are other registries than specified in this specification, such as the SMBIOS-based Component Class Registry [2] and the PCIe-based Component Class Registry [3].

End of informative comment

2.1.1 The `componentClassRegistry` field

Start of informative comment

This registry does not present guidance on populating a **`ComponentIdentifier SEQUENCE`**, except for the **`componentClass`** field, which is composed of the **`componentClassRegistry`** and **`componentClassValue`** fields.

The **`tcg-registry-componentClass-tcg`** OID is defined in [1] and reproduced below for the convenience of the Reader.

```
-- TCG specific OIDs
tcg OBJECT IDENTIFIER ::= {
    joint-iso-itu-t(2) international-organizations(23) tcg(133) }
tcg-registry OBJECT IDENTIFIER ::= {tcg 18}

-- TCG Registry OIDs
tcg-registry-componentClass OBJECT IDENTIFIER ::= {tcg-registry 3}
tcg-registry-componentClass-tcg OBJECT IDENTIFIER ::= {tcg-registry-componentClass 1}
```

End of informative comment

The **`OBJECT IDENTIFIER tcg-registry-componentClass-tcg`** SHALL be used in the **`componentClassRegistry`** field of a **`ComponentIdentifier SEQUENCE`** that uses the registry defined by this specification.

If the registry defined by this specification is identified via the **`componentClassRegistry`** field of a **`componentIdentifier`**, the values defined in this specification SHALL be used for the associated **`componentClassValue`**'s field.

2.2 Notation

Start of informative comment

This specification uses the "0x" prefix for hexadecimal notation. Any number without the prefix should be interpreted as decimal.

End of informative comment

2.2.1 Literal Value

Start of informative comment

This specification encodes numbers using big-endian encoding in the 4-byte **OCTET STRING componentClassValue** field. For example, the value 0x12345678 would be encoded as the array 0x12 0x34 0x56 0x78.

End of informative comment

When a cell from the column Component Class Value in Table 1 contains a value, that value SHALL be used, encoded as a four-byte **OCTET STRING** in the **componentClassValue**'s field, by a TCG Platform Certificate issuer that identifies a component using this specification.

3 Component Class Value

Start of informative comment

The Component Class Value column of Table 1 specifies the content of the **componentClassValue** field of **componentIdentifier**. The **componentClassValue** field is encoded as 4-byte **OCTET STRING**.

The component class values are categorized by component type. The component's descriptions are either defined by TCG or based on external documents such as the SMBIOS specification [4], RFC6933 [5] or RFC8348 [6]; the origin of the description is stated in the Source column of Table 1.

The **componentClassValue** is defined as a 4-byte **OCTET STRING** where the two most significant bytes are the component category, and the two least significant bytes are the component sub-category. The **componentClassValue** originates from the Platform Certificate issuer. They are intended to provide a human-readable description of the type of a component that is being referenced.

A Platform Certificate issuer is not required to use the sub-category for a component. For example, a CPU can be listed as a CPU, or a General Processor.

End of informative comment

This registry SHALL be the source of the **componentClassValue** field for each **componentIdentifier** structure in a TCG Platform Certificate whose **componentClassRegistry** field is the **OBJECT IDENTIFIER tcg-registry-componentClass-tcg**.

Table 1: Component Class Value for the TCG Component Class Registry (normative)

Component Class Value	Mnemonic Name	Definition	Source
Uncategorized Components			
0x0000xxxx		The two most significant bytes of the **componentClassValue** for uncategorized components	TCG Defined
0x00000000	General Component	A class is known but the type is not further described	RFC6933 IANAPhysicalClass, value 1.
Microprocessor Components			
0x0001xxxx		The two most significant bytes of the **componentClassValue** for microprocessor components	TCG Defined
0x00010000	General Processor	A component that is a processor whose type is not further described	TCG Defined
0x00010002	CPU	A Central Processing Unit	RFC6933 IANAPhysicalClass, value 12.
0x00010004	DSP Processor	A Digital Signal Processing unit	SMBIOS Processor Type (Table 22), value 0x05.
0x00010005	Video Processor	A video signal processing unit	SMBIOS Processor Type (Table 22), value 0x06.

Component Class Value	Mnemonic Name	Definition	Source
0x00010006	GPU	A Graphics Processing Unit that parallelizes operations for graphics, compute, and artificial intelligence	TCG Defined
0x00010007	DPU	A Data Processing Unit that accelerates data-centric computation	TCG Defined
0x00010008	Embedded processor	A processor used as an embedded controller	TCG Defined
0x00010009	SoC	A System-on-a-Chip processor that is composed of multiple components	TCG Defined
Container Components			
0x0002xxxx		The two most significant bytes of the **componentClassValue** for container components	TCG Defined
0x00020000	General Container	A component that is a container whose type is not further described	TCG Defined
0x00020002	Desktop	A desktop computer chassis	TCG Defined
0x00020008	Laptop	A clamshell personal computer form factor	TCG Defined
0x00020009	Notebook	Analogous to a laptop form factor	TCG Defined
0x0002000C	All in One	A monitor with integrated computer form factor	TCG Defined
0x00020010	Main Server Chassis	A chassis for rack mounted servers	TCG Defined
0x00020012	Sub Chassis	A chassis contained within another chassis	TCG Defined
0x00020015	RAID Chassis	An enclosure for hard disk drives	TCG Defined
0x00020016	Rack Mount Chassis	An enclosure for server hardware units	TCG Defined
0x00020018	Multi-system chassis	A chassis enclosure that hosts multiple computer systems	TCG Defined
0x0002001B	Blade	A chassis housing modular server blades	TCG Defined
0x0002001C	Blade Enclosure	A container housing multiple blade servers	TCG Defined
0x0002001D	Tablet	A single, thin, flat, mobile computing device chassis	TCG Defined
0x0002001E	Convertible	A chassis containing a device that can be either a laptop or tablet	TCG Defined
0x00020020	IoT	A container housing an Internet-of-Things device	TCG Defined
0x00020023	Stick PC	A computing device that fits into a USB thumb drive-sized container	TCG Defined
IC Board Components			
0x0003xxxx		The two most significant bytes of the **componentClassValue** for IC board components	TCG Defined
0x00030000	General IC Board	A component that is an IC board whose type is not further described	TCG Defined
0x00030002	Daughter board	A board that extends the circuitry of another board	TCG Defined
0x00030003	Motherboard (includes processor, memory, and I/O)	A board containing the principal components of a computer or other device	TCG Defined

Component Class Value	Mnemonic Name	Definition	Source
0x00030004	Riser Card	A board that plugs into the system board and provides additional slots	TCG Defined
Module Components			
0x0004xxxx		The two most significant bytes of the **componentClassValue** for module components	TCG Defined
0x00040000	General Module	A component that is a module whose type is not further described	TCG Defined
0x00040009	TPM	A discrete Trusted Platform Module	TCG Defined
Controller Components			
0x0005xxxx		The two most significant bytes of the **componentClassValue** for controller components	TCG Defined
0x00050000	General Controller	A component that is a controller whose type is not further described	TCG Defined
0x00050002	Video Controller	A controller that manages output image generation	SMBIOS Onboard Device Type (Table 56), value 0x03.
0x00050003	SCSI Controller	A controller that manages SCSI communications	SMBIOS Onboard Device Type (Table 56), value 0x04.
0x00050004	Ethernet Controller	A controller that manages Ethernet communications	SMBIOS Onboard Device Type (Table 56), value 0x05.
0x00050006	Audio/Sound Controller	A controller that manages sound output from a device	SMBIOS Onboard Device Type (Table 56), value 0x07.
0x00050008	SATA Controller	Serial ATA controller	SMBIOS Onboard Device Type (Table 56), value 0x09.
0x00050009	SAS Controller	Serial Attached SCSI controller	SMBIOS Onboard Device Type (Table 56), value 0x0A.
0x0005000B	RAID Controller	A controller of hard disk drives	TCG Defined
0x0005000D	USB Controller	A Universal Serial Bus port controller	TCG Defined
0x0005000E	Multi-function Storage Controller	A controller that provides some combination of SATA, SAS, NVMe, RAID, etc.	TCG Defined
0x0005000F	Multi-function Network Controller	A controller that provides some combination of Ethernet, Infiniband, etc.	TCG Defined
0x00050010	Smart IO Controller	A controller that provides both networking and storage on the same card	TCG Defined
0x00050012	BMC	A Baseboard Management Controller	TCG Defined
0x00050013	DMA Controller	A DMA controller	TCG Defined
Memory Components			

Component Class Value	Mnemonic Name	Definition	Source
0x0006xxxx		The two most significant bytes of the **componentClassValue** for memory components	TCG Defined
0x00060000	General Memory	A component that is a memory whose type is not further described	TCG Defined
0x00060003	BMC (DEPRECATED)	A Baseboard Management Controller	TCG Defined
0x00060004	DRAM Memory	Dynamic Random-Access Memory component	SMBIOS Memory Device Type (Table 78), value 0x03.
0x0006000A	FLASH Memory	Solid state non-volatile memory component	SMBIOS Memory Device Type (Table 78), value 0x09.
0x00060010	SDRAM Memory	Synchronous DRAM component	SMBIOS Memory Device Type (Table 78), value 0x0F.
0x0006001B	NVRAM Memory	Non-Volatile RAM component	TCG Defined
0x0006001C	3D Xpoint Memory	A memory technology with stackable data access arrays	TCG Defined
0x0006001D	DDR5 Memory	Double Data Rate RAM component (successor to DDR4)	SMBIOS Memory Device Type (Table 78), value 0x22.
0x0006001E	LPDDR5 Memory	Low Power DDR memory component (successor to LPDDR4)	SMBIOS Memory Device Type (Table 78), value 0x23.
Storage Components			
0x0007xxxx		The two most significant bytes of the **componentClassValue** for storage components	TCG Defined
0x00070000	General Storage Device	A component that is a storage device whose type is not further described	TCG Defined
0x00070002	Storage Drive	A component with data storage capability as its main functionality	RFC8348 Identity storage-drive
0x00070003	SSD Drive	A Solid-State Drive	TCG Defined
0x00070004	M.2 Drive	An M2 SSD drive	TCG Defined
0x00070005	HDD Drive	A Hard Disk Drive	TCG Defined
0x00070006	NVMe	A NVMe subsystem	TCG Defined
Media Drive Components			
0x0008xxxx		The two most significant bytes of the **componentClassValue** for media drive components	TCG Defined
0x00080000	General Media Drive	A component that is a media drive whose type is not further described	TCG Defined
0x00080003	Tape Drive	A data storage device based on magnetic tapes	TCG Defined
0x00080006	DVD Drive	A Digital Versatile Disk drive	TCG Defined
0x00080007	BR Drive	A Blu-Ray drive	TCG Defined

Component Class Value	Mnemonic Name	Definition	Source
Network Adapter Components			
0x0009xxxx		The two most significant bytes of the **componentClassValue** for network adapter components	TCG Defined
0x00090000	General Network Adapter	A component that is a network adapter whose type is not further described	TCG Defined
0x00090002	Ethernet Adapter	An Ethernet LAN adapter	TCG Defined
0x00090003	Wi-Fi Adapter	A Wi-Fi network adapter	TCG Defined
0x00090004	Bluetooth Adapter	A Bluetooth adapter	TCG Defined
0x00090006	ZigBee Adapter	A ZigBee adapter	TCG Defined
0x00090007	3G Cellular Adapter	A 3G cellular network adapter	TCG Defined
0x00090008	4G Cellular Adapter	A 4G cellular network adapter	TCG Defined
0x00090009	5G Cellular Adapter	A 5G cellular network adapter	TCG Defined
0x0009000A	Network Switch	A packet switching network adapter	SMBIOS Board Type (Table 15), value 0x04.
0x0009000B	Network Router	A traffic directing network adapter	TCG Defined
Energy Object Components			
0x000Axxxx		The two most significant bytes of the **componentClassValue** for energy object components	TCG Defined
0x000A0000	General Energy Object	A component that is an energy object whose type is not further described	TCG Defined
0x000A0002	Power Supply	A power supplying component.	RFC6933 IANAPhysicalClass, value 6.
0x000A0003	Battery	A component that is some sort of battery	RFC6933 IANAPhysicalClass, value 14.
Cooling Components			
0x000Dxxxx		The two most significant bytes of the **componentClassValue** for cooling components	TCG Defined
0x000D0000	General Cooling Device	A component that is a cooling device whose type is not further described	TCG Defined
0x000D0004	Chassis Fan	A cooling fan attached to a device chassis	TCG Defined
0x000D0005	Socket Fan	A CPU fan	TCG Defined
Input Components			
0x000Exxxx		The two most significant bytes of the **componentClassValue** for input components	TCG Defined
0x000E0000	General Input Device	A component that is an input device whose type is not further described	TCG Defined

Component Class Value	Mnemonic Name	Definition	Source
Firmware Components			
0x0013xxxx		The two most significant bytes of the **`componentClassValue`** for firmware components	TCG Defined
0x00130000	General Firmware	A component that is firmware whose type is not further described	TCG Defined
0x00130003	System firmware	A platform firmware, such as the Unified Extensible Firmware Interface (UEFI)	TCG Defined
0x00130004	Drive firmware	A storage device firmware	TCG Defined
0x00130005	Bootloader	Software that starts the boot process	TCG Defined
0x00130006	SMM	A System Management Module software stack	SMBIOS Board Type (Table 15), value 0x05.
0x00130007	NIC firmware	Network Interface Card firmware	TCG Defined

4 References

[1] TCG Platform Certificate Profile Version 1.1 Revision 19 or later.
https://trustedcomputinggroup.org/resource/tcg-platform-certificate-profile/

[2] SMBIOS-based Component Class Registry Version 1.0 Revision 01 or later.
https://trustedcomputinggroup.org/resource/smbios-based-component-class-registry/

[3] PCIe-based Component Class Registry Version 1.0 Revision 18 or later.
https://trustedcomputinggroup.org/resource/pcie-based-component-class-registry/

[4] System Management BIOS (SMBIOS) Reference Specification. SMBIOS Working Group, DMTF.
https://www.dmtf.org/dsp/DSP0134

[5] RFC 6933: Entity MIB (Version 4). IETF. https://datatracker.ietf.org/doc/html/rfc6933

[6] RFC 8348: A YANG Data Model for Hardware Management. IETF. https://datatracker.ietf.org/doc/html/rfc8348

