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| [Universal Serial Bus](http://www.usb.org/) |

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| [SuperSpeed USBSuperSpeed USB](http://www.usb.org/developers/ssusb)[Hi-Speed USBOriginal USB](http://www.usb.org/home/) |

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| 窗体顶端    窗体底端  [**Home**](http://www.usb.org/)  [**About USB-IF**](http://www.usb.org/about)  [**Channel**](http://www.usb.org/channel)  [**Press**](http://www.usb.org/press)  [**Developers**](http://www.usb.org/developers)  [**Members**](http://www.usb.org/members_landing)  [**Products**](http://www.usb.org/kcompliance/view) | |
| [SuperSpeed USB](http://www.usb.org/developers/ssusb/) [USB Power Delivery](http://www.usb.org/developers/powerdelivery/) [USB Type-C™](http://www.usb.org/developers/usbtypec/) [Hi-Speed USB](http://www.usb.org/developers/usb20/) [USB On-The-Go and Embedded Host](http://www.usb.org/developers/onthego/) [Tools](http://www.usb.org/developers/tools/) [USB-IF eStore](http://www.usb.org/developers/estoreinfo/) [Documents](http://www.usb.org/developers/docs/) [USB-IF Compliance Program](http://www.usb.org/developers/compliance/) [USB FAQ](http://www.usb.org/developers/usbfaq/) [Events](http://www.usb.org/developers/events/) [Join USB-IF, Inc.](http://www.usb.org/members_landing#howtojoin) [Resources](http://www.usb.org/developers/resources/) [ExpressCard](http://www.usb.org/developers/expresscard/) | [Home](http://www.usb.org/) > [Developers](http://www.usb.org/developers/) > **Defined 1.0 Class Codes** USB Class CodesJune 15, 2016 USB defines class code information that is used to identify a device’s functionality and to nominally load a device driver based on that functionality. The information is contained in three bytes with the names Base Class, SubClass, and Protocol. (Note that ‘Base Class’ is used in this description to identify the first byte of the Class Code triple. That terminology is not used in the USB Specification). There are two places on a device where class code information can be placed.One place is in the Device Descriptor, and the other is in Interface Descriptors. Some defined class codes are allowed to be used only in a Device Descriptor, others can be used in both Device and Interface Descriptors, and some can only be used in Interface Descriptors. The table below shows the currently defined set of Base Class values, what the generic usage is, and where that Base Class can be used (either Device or Interface Descriptors or both).     |  |  |  | | --- | --- | --- | | **Base Class** | **Descriptor Usage** | **Description** | | 00h | Device | [Use class information in the Interface Descriptors](http://www.usb.org/developers/defined_class/#BaseClass00h) | | 01h | Interface | [Audio](http://www.usb.org/developers/defined_class/#BaseClass01h) | | 02h | Both | [Communications and CDC Control](http://www.usb.org/developers/defined_class/#BaseClass02h) | | 03h | Interface | [HID (Human Interface Device)](http://www.usb.org/developers/defined_class/#BaseClass03h) | | 05h | Interface | [Physical](http://www.usb.org/developers/defined_class/#BaseClass05h) | | 06h | Interface | [Image](http://www.usb.org/developers/defined_class/#BaseClass06h) | | 07h | Interface | [Printer](http://www.usb.org/developers/defined_class/#BaseClass07h) | | 08h | Interface | [Mass Storage](http://www.usb.org/developers/defined_class/#BaseClass08h) | | 09h | Device | [Hub](http://www.usb.org/developers/defined_class/#BaseClass09h) | | 0Ah | Interface | [CDC-Data](http://www.usb.org/developers/defined_class/#BaseClass0Ah) | | 0Bh | Interface | [Smart Card](http://www.usb.org/developers/defined_class/#BaseClass0Bh) | | 0Dh | Interface | [Content Security](http://www.usb.org/developers/defined_class/#BaseClass0Dh) | | 0Eh | Interface | [Video](http://www.usb.org/developers/defined_class/#BaseClass0Eh) | | 0Fh | Interface | [Personal Healthcare](http://www.usb.org/developers/defined_class/#BaseClass0Fh) | | 10h | Interface | [Audio/Video Devices](http://www.usb.org/developers/defined_class/#BaseClass10h) | | 11h | Device | [Billboard Device Class](http://www.usb.org/developers/defined_class/#BaseClass11h) | | 12h | Interface | [USB Type-C Bridge Class](http://www.usb.org/developers/defined_class/#BaseClass12h) | | DCh | Both | [Diagnostic Device](http://www.usb.org/developers/defined_class/#BaseClassDCh) | | E0h | Interface | [Wireless Controller](http://www.usb.org/developers/defined_class/#BaseClassE0h) | | EFh | Both | [Miscellaneous](http://www.usb.org/developers/defined_class/#BaseClassEFh) | | FEh | Interface | [Application Specific](http://www.usb.org/developers/defined_class/#BaseClassFEh) | | FFh | Both | [Vendor Specific](http://www.usb.org/developers/defined_class/#BaseClassFFh) |  Base Class 00h (Device) This base class is defined to be used in Device Descriptors to indicate that class information should be determined from the Interface Descriptors in the device. There is one class code definition in this base class.  All other values are reserved.    This value is also used in Interface Descriptors to indicate a null class code triple.     |  |  |  |  | | --- | --- | --- | --- | | **Base Class** | **SubClass** | **Protocol** | **Meaning** | | 00h | 00h | 00h | Use class code info from Interface Descriptors |     Base Class 01h (Audio) This base class is defined for Audio capable devices that conform to the Audio Device Class Specification found on the USB-IF website. That specification defines the usable set of SubClass and Protocol values. Values outside of that defined spec are reserved. These class codes may only be used in Interface Descriptors.     |  |  |  |  | | --- | --- | --- | --- | | **Base Class** | **SubClass** | **Protocol** | **Meaning** | | 01h | xxh | xxh | Audio device |      Base Class 02h (Communications and CDC Control)   This base class is defined for devices that conform to the Communications Device Class Specification found on the USB-IF website. That specification defines the usable set of SubClass and Protocol values. Values outside of that defined spec are reserved.  Note that the Communication Device Class spec requires some class code values (triples) to be used in Device Descriptors and some to be used in Interface Descriptors.     |  |  |  |  | | --- | --- | --- | --- | | **Base Class** | **SubClass** | **Protocol** | **Meaning** | | 02h | xxh | xxh | Communication device class |    Base Class 03h (HID – Human Interface Device) This base class is defined for devices that conform to the HID Device Class Specification found on the USB-IF website. That specification defines the usable set of SubClass and Protocol values.   Values outside of that defined spec are reserved. These class codes can only be used in Interface Descriptors.     |  |  |  |  | | --- | --- | --- | --- | | **Base Class** | **SubClass** | **Protocol** | **Meaning** | | 03h | xxh | xxh | HID device class |    Base Class 05h (Physical) This base class is defined for devices that conform to the Physical Device Class Specification found on the USB-IF website. That specification defines the usable set of SubClass and Protocol values.  Values outside of that defined spec are reserved. These class codes can only be used in Interface Descriptors.     |  |  |  |  | | --- | --- | --- | --- | | **Base Class** | **SubClass** | **Protocol** | **Meaning** | | 05h | xxh | xxh | Physical device class |      Base Class 06h (Still Imaging) This base class is defined for devices that conform to the Imaging Device Class Specification found on the USB-IF website. That specification defines the usable set of SubClass and Protocol values.   Values outside of that defined spec are reserved.     |  |  |  |  | | --- | --- | --- | --- | | **Base Class** | **SubClass** | **Protocol** | **Meaning** | | 06h | 01h | 01h | Still Imaging device |      Base Class 07h (Printer) This base class is defined for devices that conform to the Printer Device Class Specification found on the USB-IF website.  That specification defines the usable set of SubClass and Protocol values.  Values outside of that defined spec are reserved.  These class codes can only be used in Interface Descriptors.     |  |  |  |  | | --- | --- | --- | --- | | **Base Class** | **SubClass** | **Protocol** | **Meaning** | | 07h | xxh | xxh | Printer device |      Base Class 08h (Mass Storage) This base class is defined for devices that conform to the Mass Storage Device Class Specification found on the USB-IF website. That specification defines the usable set of SubClass and Protocol values. Values outside of that defined spec are reserved. These class codes can only be used in Interface Descriptors.     |  |  |  |  | | --- | --- | --- | --- | | **Base Class** | **SubClass** | **Protocol** | **Meaning** | | 08h | xxh | xxh | Mass Storage device |      Base Class 09h (Hub) This base class is defined for devices that are USB hubs and conform to the definition in the USB specification.  That specification defines the complete triples as shown below.  All other values are reserved.  These class codes can only be used in Device Descriptors.     |  |  |  |  | | --- | --- | --- | --- | | **Base Class** | **SubClass** | **Protocol** | **Meaning** | | 09h | 00h | 00h | Full speed Hub | | 01h | Hi-speed hub with single TT | | 02h | Hi-speed hub with multiple TTs |      Base Class 0Ah (CDC-Data) This base class is defined for devices that conform to the Communications Device Class Specification found on the USB-IF website. That specification defines the usable set of SubClass and Protocol values.Values outside of that defined spec are reserved. These class codes can only be used in Interface Descriptors.     |  |  |  |  | | --- | --- | --- | --- | | **Base Class** | **SubClass** | **Protocol** | **Meaning** | | 0Ah | xxh | xxh | CDC data device |      Base Class 0Bh (Smart Card) This base class is defined for devices that conform to the Smart Card Device Class Specification found on the USB-IF website. That specification defines the usable set of SubClass and Protocol values.Values outside of that defined spec are reserved. These class codes can only be used in Interface Descriptors.     |  |  |  |  | | --- | --- | --- | --- | | **Base Class** | **SubClass** | **Protocol** | **Meaning** | | 0Bh | xxh | xxh | Smart Card device |      Base Class 0Dh (Content Security) This base class is defined for devices that conform to the Content Security Device Class Specification found on the USB-IF website. That specification defines the usable set of SubClass and Protocol values. Values outside of that defined spec are reserved. These class codes can only be used in Interface Descriptors.     |  |  |  |  | | --- | --- | --- | --- | | **Base Class** | **SubClass** | **Protocol** | **Meaning** | | 0Dh | 00h | 00h | Content Security device |      Base Class 0Eh (Video) This base class is defined for devices that conform to the Video Device Class Specification found on the USB-IF website. That specification defines the usable set of SubClass and Protocol values. Values outside of that defined spec are reserved. These class codes can only be used in Interface Descriptors.     |  |  |  |  | | --- | --- | --- | --- | | **Base Class** | **SubClass** | **Protocol** | **Meaning** | | 0Eh | xxh | xxh | Video device |      Base Class 0Fh (Personal Healthcare) This base class is defined for devices that conform to the Personal Healthcare Device Class Specification found on the USB-IF website. That specification defines the usable set of SubClass and Protocol values. Values outside of that defined spec are reserved. These class codes should only be used in Interface Descriptors.     |  |  |  |  | | --- | --- | --- | --- | | **Base Class** | **SubClass** | **Protocol** | **Meaning** | | 0Fh | xxh | xxh | Personal Healthcare device |      Base Class 10h (Audio/Video Devices) The USB Audio/Video (AV) Device Class Definition describes the methods used to communicate with devices or functions embedded in composite devices that are used to manipulate audio, video, voice, and all image- and sound-related functionality. That specification defines the usable set of SubClass and Protocol values. Values outside of that defined spec are reserved. These class codes can only be used in Interface Descriptors.     |  |  |  |  | | --- | --- | --- | --- | | **Base Class** | **SubClass** | **Protocol** | **Meaning** | | 10h | 01h    02h    03h | 00h | Audio/Video Device – AVControl Interface | | 00h | Audio/Video Device – AVData Video Streaming Interface | | 00h | Audio/Video Device – AVData Audio Streaming Interface |       **Base Class 11h (Billboard Device)**  This base class is defined for devices that conform to the Billboard Device Class Specification found on the USB-IF website. That specification defines the usable set of SubClass and Protocol values. Values outside of that defined spec are reserved. These class codes can only be used in Device Descriptors.     |  |  |  |  | | --- | --- | --- | --- | | **Base Class** | **SubClass** | **Protocol** | **Meaning** | | 11h | 00h | 00h | Billboard Device |   **Base Class 12h (USB Type-C Bridge Device)**  This base class is defined for devices that conform to the USB Type-C Bridge Device Class Specification found on the USB-IF website. That specification defines the usable set of SubClass and Protocol values. Values outside of that defined spec are reserved. These class codes can only be used in Interface Descriptors.     |  |  |  |  | | --- | --- | --- | --- | | **Base Class** | **SubClass** | **Protocol** | **Meaning** | | 12h | 00h | 00h | USB Type-C Bridge Device |      Base Class DCh (Diagnostic Device) This base class is defined for devices that diagnostic devices. This class code can be used in Device or Interface Descriptors.  Trace is a form of debugging where processor or system activity is made externally visible in real-time or stored and later retrieved for viewing by an applications developer, applications program, or, external equipment specializing observing system activity.  Design for Debug or Test (Dfx). This refers to a logic block that provides debug or test support (E.g. via Test Access Port (TAP)).  DvC:  Debug Capability on the USB device (Device Capability)     |  |  |  |  | | --- | --- | --- | --- | | **Base Class** | **SubClass** | **Protocol** | **Meaning** | | DCh | 01h | 01h | USB2 Compliance Device. Definition for this device can be found at <http://www.intel.com/technology/usb/spec.htm> | | 02h | 00h | Debug Target vendor defined. Please see <http://www.intel.com/content/www/us/en/io/universal-serial-bus/extensible-host-controler-interface-usb-xhci.html> for more info. | | 01h | GNU Remote Debug Command Set. Please see <http://www.intel.com/content/www/us/en/io/universal-serial-bus/extensible-host-controler-interface-usb-xhci.html> for more info. | | 03h | 00h | Undefined | | 01h | Vendor defined Trace protocol on DbC. | | 04h | 00h | Undefined | | 01h | Vendor defined Dfx protocol on DbC. | | 05h | 00h | Vendor defined Trace protocol over General Purpose (GP) endpoint on DvC. | | 01h | GNU Protocol protocol over General Purpose (GP) endpoint on DvC.  <http://www.gnu.org/software/gdb/> | | 06h | 00h | Undefined | | 01h | Vendor defined Dfx protocol on DvC. | | 07h | 00h | Undefined | | 01h | Vendor defined Trace protocol on DvC. | | 08h | 00h | Undefined |      Base Class E0h (Wireless Controller) This base class is defined for devices that are Wireless controllers. Values not shown in the table below are reserved. These class codes are to be used in Interface Descriptors, with the exception of the Bluetooth class code which can also be used in a Device Descriptor.   |  |  |  |  | | --- | --- | --- | --- | | Base Class | SubClass | Protocol | Meaning | | E0h | 01h | 01h | Bluetooth Programming Interface.  Get specific information from [www.bluetooth.com](http://www.bluetooth.com/). | | 02h | UWB Radio Control Interface.  Definition for this is found in the Wireless USB Specification in Chapter 8. | | 03h | Remote NDIS.  Information can be found at: <http://www.microsoft.com/windowsmobile/mobileoperators/default.mspx> | | 04h | Bluetooth AMP Controller. Get specific information from [www.bluetooth.com](http://www.bluetooth.com/). | | 2h | 01h | Host Wire Adapter Control/Data interface.  Definition can be found in the Wireless USB Specification in Chapter 8. | | 02h | Device Wire Adapter Control/Data interface.  Definition can be found in the Wireless USB Specification in Chapter 8. | | 03h | Device Wire Adapter Isochronous interface.  Definition can be found in the Wireless USB Specification in Chapter 8. |    Base Class EFh (Miscellaneous) This base class is defined for miscellaneous device definitions. Values not shown in the table below are reserved.  The use of these class codes (Device or Interface descriptor) are specifically annotated in each entry below.   |  |  |  |  |  | | --- | --- | --- | --- | --- | | **Base Class** | **SubClass** | **Protocol** | **Meaning** | | | EFh | 01h | 01h | Active Sync device. This class code can be used in either Device or Interface Descriptors. Contact Microsoft for more information on this class. | | | 02h | Palm Sync. This class code can be used in either Device or Interface Descriptors. | | | 02h | 01h | Interface Association Descriptor. The usage of this class code triple is defined in the Interface Association Descriptor ECN that is provided on [www.usb.org](http://www.usb.org/) . This class code may only be used in Device Descriptors. | | | 02h | Wire Adapter Multifunction Peripheral programming interface. Definition can be found in the Wireless USB Specification in Chapter 8. This class code may only be used in Device Descriptors | | | 03h | 01h | Cable Based Association Framework. This is defined in the Association Model addendum to the Wireless USB specification. This class code may only be used in Interface Descriptors. | | | 04h | 01h | RNDIS over Ethernet.  Connecting a host to the Internet via Ethernet mobile device. The device appears to the host as an Ethernet gateway device.  This class code may only be used in Interface Descriptors. | | | 02h | RNDIS over WiFi.  Connecting a host to the Internet via WiFi enabled mobile device. The device represents itself to the host as an 802.11 compliant network device.  This class code may only be used in Interface Descriptors. | | | 03h | RNDIS over WiMAX  Connecting a host to the Internet via WiMAX enabled mobile device. The device is represented to the host as an 802.16 network device.  This class code may only be used in Interface Descriptors. | | | 04h | RNDIS over WWAN  Connecting a host to the Internet via a device using mobile broadband, i.e. WWAN (GSM/CDMA).  This class code may only be used in Interface Descriptors. | | | 05h | RNDIS for Raw IPv4  Connecting a host to the Internet using raw IPv4 via non-Ethernet mobile device. Devices that provide raw IPv4, not in an Ethernet packet, may use this form to in lieu of other stock types.  This class code may only be used in Interface Descriptors. | | | 06h | RNDIS for Raw IPv6  Connecting a host to the Internet using raw IPv6 via non-Ethernet mobile device. Devices that provide raw IPv6, not in an Ethernet packet, may use this form to in lieu of other stock types.  This class code may only be used in Interface Descriptors. | | | 07h | RNDIS for GPRS  Connecting a host to the Internet over GPRS mobile device using the device’s cellular radio | | | 05h | 00h | USB3 Vision Control Interface | Machine Vision Device conforming to the USB3 Vision specification. This standard covers cameras and other related devices that are typically used in machine vision, industrial, and embedded applications.  Reference: <http://visiononline.org/>  This class code may only be used in Interface Descriptors. | | 01h | USB3 Vision Event Interface | | 02h | USB3 Vision Streaming Interface | | 06h | 01h | STEP. Stream Transport Efficient Protocol for content protection. | | | 02h | STEP RAW. Stream Transport Efficient Protocol for Raw content protection. | | | 07h | 01h | Command Interface in IAD | The DVB Common Interface (DVB-CI) specification describes a system whereby a removable CI Conditional Access Module (CICAM), given the appropriate usage rights, unscrambles protected pay-TV content and routes it over the same interface back to a TV receiver for display. An interface association for a DVB-CI function will contain a DVB-CI Command Interface for command, control, and status information, it may contain a DVB-CI Media Interface for audiovisual data streams, and it may also contain a CDC EEM interface to provide bridged networking to the CICAM.  Reference: https://www.dvb.org/standards/dvb-ci-plus | | 01h | Command Interface in Interface Descriptor | | 02h | Media Interface in Interface Descriptor |      Base Class FEh (Application Specific) This base class is defined for devices that conform to several class specifications found on the USB-IF website.  That specification defines the usable set of SubClass and Protocol values.  Values outside of that defined spec are reserved.  These class codes can only be used in Interface Descriptors.     |  |  |  |  | | --- | --- | --- | --- | | **Base Class** | **SubClass** | **Protocol** | **Meaning** | | FEh | 01h | 01h | Device Firmware Upgrade.  Device class definition provided on [www.usb.org](http://www.usb.org/) . | | 02h | 00h | IRDA Bridge device.  Device class definition provided on [www.usb.org](http://www.usb.org/) . | | 03h | 00h | USB Test and Measurement Device.  Definition provided in the USB Test and Measurement Class spec found on [www.usb.org](http://www.usb.org/) . | | 01h | USB Test and Measurement Device conforming to the USBTMC USB488 Subclass Specification found on www.usb.org. |      Base Class FFh (Vendor Specific) This base class is defined for vendors to use as they please.  These class codes can be used in both Device and Interface Descriptors.     |  |  |  |  | | --- | --- | --- | --- | | **Base Class** | **SubClass** | **Protocol** | **Meaning** | | FFh | xxh | xxh | Vendor specific | |

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