MIDI-CI Profile for Note On Selection of Orchestral Articulation

Using MIDI 2.0 Protocol

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PREFACE

MIDI Association Document M2-123-UM
MIDI-CI Profile for Note On Selection of Orchestral Articulation

The MIDI-CI specification and the Common Rules for MIDI-CI Profiles define how Devices with similar applications or of a similar Device type can negotiate to use a common set of MIDI messages, called a MIDI-CI Profile, or simply a Profile.

Devices which implement a Profile have a high level of interoperability with each other. Profiles are a beneficial component in enabling intelligent auto-configuration.

A Profile is a defined set of rules for how a MIDI receiver Device implementing the Profile shall respond to a chosen set of MIDI messages, to achieve a particular purpose or to suit a particular application.

This Profile defines how articulation information is attached to notes. This is primarily achieved by defining the use of fields which are available in MIDI 2.0 Note On messages. Further details of articulation are defined using fields in MIDI 2.0 Note Off messages, one Registered Controller, and one Registered Per-Note Controller.

http://www.amei.or.jp

https://www.midi.org

Version History

Table 1 Version History

Publication Date	Version	Changes
2024-04-05	1.0	Initial release

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Figures

Tables

1.1 References

1.1.1 Normative References

[MA01] ***Complete MIDI 1.0 Detailed Specification***, Document Version 96.1, Third Edition, Association of Musical Electronics Industry, http://www.amei.or.jp/, and The MIDI Association, https://www.midi.org/

[MA02] ***M2-100-U MIDI 2.0 Specification Overview***, Version 1.1, Association of Musical Electronics Industry, http://www.amei.or.jp/, and The MIDI Association, https://www.midi.org/

[MA03] ***M2-101-UM MIDI Capability Inquiry (MIDI-CI)***, Version 1.2, Association of Musical Electronics Industry, http://www.amei.or.jp/, and The MIDI Association, https://www.midi.org/

[MA04] ***M2-102-U Common Rules for MIDI-CI Profiles***, Version 1.1, Association of Musical Electronics Industry, http://www.amei.or.jp/, and The MIDI Association, https://www.midi.org/

[MA05] ***M2-103-UM Common Rules for Property Exchange***, Version 1.1, Association of Musical Electronics Industry, http://www.amei.or.jp/, and The MIDI Association, https://www.midi.org/

[MA06] ***M2-104-UM Universal MIDI Packet (UMP) Format and MIDI 2.0 Protocol***, Version 1.1.2, Association of Musical Electronics Industry, http://www.amei.or.jp/, and The MIDI Association, https://www.midi.org/

[MA07] ***M2-113-UM Default Control Change Mapping Profile***, Version 1.0, Association of Musical Electronics Industry, http://www.amei.or.jp/, and The MIDI Association, https://www.midi.org/

1.1.2 Informative References

No Informative References

1.2 Terminology

1.2.1 Definitions

AMEI: Association of Musical Electronics Industry. Authority for MIDI Specifications in Japan.

Controller Message: Any MIDI Message from the following list:

MIDI 1.0 and MIDI 2.0 Protocol:

- Control Change
- Channel Pressure (Aftertouch)
- Poly Pressure (Key Aftertouch)
- Registered Controller (RPN)
- Assignable Controller (NRPN)
- Pitch Bend

MIDI 2.0 Protocol only:

- Per-note Registered Controller (including Relative versions)
- Per Note Assignable Controller (including Relative versions)
- Per Note Pitch Bend

Device: An entity, whether hardware or software, which can send and/or receive MIDI messages.

Group: A field in the UMP Format addressing some UMP Format MIDI messages (and some UMPs comprising any given MIDI message) to one of 16 Groups. See the M2-104-UM Universal MIDI Packet (UMP) Format and MIDI 2.0 Protocol specification ***[MA06]***.

Initiator: One of two MIDI-CI Devices with a bidirectional communication between them. Initiator has the management role of setting and negotiating parameters for interoperability between the two Devices. The primary goal of Initiator is usually (but not strictly required to be) configuring two Devices for subsequent communication from Initiator as MIDI transmitter to Responder as MIDI receiver. The role of Initiator and Responder may alternate between the two MIDI-CI Devices. Either MIDI-CI Device may initiate a MIDI Transaction (act as Initiator) at any time. Also see Responder.

MA: MIDI Association. Authority for MIDI specifications worldwide except Japan. See also MMA.

MIDI 1.0 Protocol: Version 1.0 of the MIDI Protocol as originally specified in ***[MA01]*** and extended by MA and AMEI with numerous additional MIDI message definitions and Recommended Practices. The native format for the MIDI 1.0 Protocol is a byte stream, but it has been adapted for many different transports. MIDI 1.0 messages can be carried in UMP packets. The UMP format for the MIDI 1.0 Protocol is defined in the M2-104-UM Universal MIDI Packet (UMP) Format and MIDI 2.0 Protocol specification ***[MA06]***.

MIDI 1.0 Specification: Complete MIDI 1.0 Detailed Specification, Document Version 96.1, Third Edition ***[MA01]***.

MIDI 2.0: The MIDI environment that encompasses all of MIDI 1.0, MIDI-CI, Universal MIDI Packet (UMP), MIDI 2.0 Protocol, MIDI 2.0 messages, and other extensions to MIDI as described in AMEI and MA specifications. See the MIDI 2.0 Specification Overview ***[MA02]***.

MIDI 2.0 Protocol: Version 2.0 of the MIDI Protocol. The native format for MIDI 2.0 Protocol messages is UMP as defined in M2-104-UM Universal MIDI Packet (UMP) Format and MIDI 2.0 Protocol specification ***[MA06]***.

MIDI-CI: MIDI Capability Inquiry ***[MA03]***, a specification published by The MIDI Association and AMEI.

MIDI-CI Device: A Device that has the ability to act as a Responder that replies to inquiries received from an Initiator. The ability to act as an Initiator is recommended but optional.

MIDI-CI Transaction: A Transaction using a set of MIDI-CI messages that includes an Inquiry sent by an Initiator and a reply to the Inquiry returned by the Responder. The Responder's reply to an Inquiry might be a single message that satisfies the Inquiry, a set of multiple messages that satisfy the Inquiry, or an error message.

MIDI Manufacturers Association: A California nonprofit 501(c)6 trade organization, and the legal entity name of the MIDI Association.

MMA: See MIDI Manufacturers Association.

Note Data Messages: MIDI messages which include a Note Number field. These include Note On/off, Poly Pressure, Per-Note Pitchbend, Registered Per-Note Controllers, Assignable Per-Note Controllers, and Per-Note Management Message.

Note On Orchestral Articulation Profile: MIDI-CI Profile for Note On Selection of Orchestral Articulation (this specification).

Profile: An MA/AMEI specification that includes a set of MIDI messages and defined responses to those messages. A Profile is controlled by MIDI-CI Profile Negotiation Transactions. A Profile may have a defined minimum set of mandatory messages and features, along with some optional or recommended messages and features. See the MIDI-CI specification ***[MA03]*** and the Common Rules for MIDI-CI Profiles ***[MA04]***.

Protocol: There are two defined MIDI Protocols: the MIDI 1.0 Protocol and the MIDI 2.0 Protocol, each with a data structure that defines the semantics for MIDI messages. See the M2-104-UM Universal MIDI Packet (UMP) Format and MIDI 2.0 Protocol specification ***[MA06]***.

Receiver: A MIDI Device which has a MIDI Transport connected to its MIDI In.

Responder: One of two MIDI-CI Devices with a bidirectional communication between them. The Responder is the Device that receives an Inquiry message from an Initiator Device as part of a MIDI-CI Transaction and acts based on negotiation messages managed by the Initiator Device. Also see Initiator.

Sender: A MIDI Device which transmits MIDI messages to a MIDI Transport which is connected to its MIDI Out or to its MIDI Thru port.

UMP: Universal MIDI Packet.

UMP Format: Data format for fields and messages in the Universal MIDI Packet.

UMP MIDI 1.0 Device: any Device that sends or receives MIDI 1.0 Protocol messages using the UMP Format. Such Devices may use UMP Message Types that extend the functionality beyond Non-UMP MIDI 1.0 Systems.

Universal MIDI Packet (UMP): The Universal MIDI Packet is a data container which defines the data format for all MIDI 1.0 Protocol messages and all MIDI 2.0 Protocol messages. UMP is intended to be universally applicable, i.e., technically suitable for use in any transport where MA/AMEI elects to officially support UMP. For detailed definition see M2-104-UM Universal MIDI Packet (UMP) Format and MIDI 2.0 Protocol specification ***[MA06]***.

1.2.2 Reserved Words and Specification Conformance

In this document, the following words are used solely to distinguish what is required to conform to this specification, what is recommended but not required for conformance, and what is permitted but not required for conformance:

Table 2 Words Relating to Specification Conformance

Word	Reserved For	Relation to Specification Conformance
shall	Statements of requirement	**Mandatory** A conformant implementation conforms to all 'shall' statements.
should	Statements of recommendation	**Recommended but not mandatory** An implementation that does not conform to some or all 'should' statements is still conformant, providing all 'shall' statements are conformed to.
may	Statements of permission	**Optional** An implementation that does not conform to some or all 'may' statements is still conformant, providing that all 'shall' statements are conformed to.

By contrast, in this document, the following words are never used for specification conformance statements; they are used solely for descriptive and explanatory purposes:

Table 3 Words Not Relating to Specification Conformance

Word	Reserved For	Relation to Specification Conformance
must	Statements of unavoidability	Describes an action to be taken that, while not required (or at least not directly required) by this specification, is unavoidable. Not used for statements of conformance requirement (see 'shall' above).
will	Statements of fact	Describes a condition that as a question of fact is necessarily going to be true, or an action that as a question of fact is necessarily going to occur, but not as a requirement (or at least not as a direct requirement) of this specification. Not used for statements of conformance requirements (see 'shall' above).
can	Statements of capability	Describes a condition or action that a system element is capable of possessing or taking. Not used for statements of conformance permission (see 'may' above).
might	Statements of possibility	Describes a condition or action that a system element is capable of electing to possess or take. Not used for statements of conformance permission (see 'may' above).

2 Introduction

2.1 Executive Summary

There are many orchestral sample libraries in the market, and they are essential for film scoring, game audio, studio, and live MIDI applications. These orchestral libraries have many kinds of articulations.

For example, a string library might have a different set of samples for every articulation including marcato, staccato, pizzicato, etc.

However, there is no industry standard method-the method for selecting these different articulations has been different for each developer. Many developers use notes at the lower end of the MIDI note range for "key switching", but the actual keys used are different between different developers. Some developers use CC messages to switch between articulations, but again there is no industry wide consistency. Some plugin formats now have the ability for per note selection of articulations, but again the method for inputting that data is different for different applications.

It is the goal of the MIDI-CI Profile for Note On Selection of Orchestral Articulation to provide a consistent way to encode articulation information directly in the MIDI 2.0 Note On message, using the Attribute Type and Attribute Data fields.

In arriving at this Profile, a study was made of orchestral instrument families, choir, big band instruments, guitar, keyboard instruments, and various non-western instruments to evaluate the degree to which they share common performance attributes and sound production techniques. Notation symbols and performance indications were also considered to determine, for example, how successfully a violin note marked with a trill might result in a musically meaningful or analogous articulation when the part is copied to an instrument as far afield as timpani—all without the composer having to re-articulate the timpani part, at least initially.

The Profile provides a comprehensive yet concise system of articulation mapping that includes a wide palette of articulation types and supports articulation equivalence across eight instrument categories.

The Profile was designed to offer articulation equivalence — a system of articulation mapping that allows a passage articulated for one instrument to be copied to another track and played back with an equivalent or analogous articulation, regardless of the target instrument type.

When implemented by sample library developers, the Profile will greatly aid composers in highly significant ways.

First, it will simplify the process of substituting or layering sounds from the same or different sample libraries; Second, it will allow composers to quickly audition and orchestrate unison passages by copying an articulated part to other tracks and hear them to play back with equivalent or analogous articulations.

2.2 Goals

This Profile specification addresses the following goals to benefit MIDI product designers and define mechanisms which benefit of MIDI users. The specification addresses the following goals:

1. Defines standardized mechanisms, commonly usable by all MIDI Devices and sound libraries, for Notes to be tagged with the most common types of musical articulations.
2. Swappable Libraries/Devices – This allows a musician to enter articulations for individual notes using one sound library or MIDI device and then later switch to a different sound library or MIDI device. In making that switch, the articulations remain musically useful.

   For example, a musician may create articulations for a violin sound from one library and then easily hear those notes with the same articulations on a violin from a separate sound library.
3. Swappable Instrument Types – This allows a musician to enter articulations for individual notes for one instrument type and then later switch to a different instrument type. In making that switch, the articulations remain musically useful.

For example, a musician may create articulations for a violin sound and then easily hear those notes with the same articulations on a clarinet.

4. Atomic Message – Note Articulations are defined as an integral property of a MIDI 2.0 Note On message. Then if a sequence of Notes is edited in a sequencer or DAW application, the articulation remains fixed and attached to the Note, whether moved in time or transposition.
5. Autoconfiguration – The MIDI-CI Profile mechanisms allow Devices to discover whether these Profile mechanisms are supported by a MIDI Device, helping users to configure and use devices which conform to the Profile.

2.3 Design Overview

This Profile defines how articulation information is attached to notes. This is primarily achieved defining the use of fields which are available in MIDI 2.0 Note On messages. Further details of articulation are defined using fields in MIDI 2.0 Note Off messages and one Registered Per-Note Controller, and one Registered Per-Note Controller .

2.4 Scope

This specification focuses on articulation tags which are in a Note On message. The main intention for this specification to select specific sounds sampled with the requested articulation, while this can also be applied to technologies beyond sample selection.

This specification does not cover all aspects of musical articulations. Articulation properties which are not fully addressed by this Profile include properties such as dynamics, multi-note gestures, legato and portamento, modulation, and tuning. These other properties require mechanism that go beyond a single note. These other properties of articulation may be addressed by complimentary or alternate MIDI specifications in the future.

Although some of the main targets of the Profile are music production applications such as film scoring and game audio, it can certainly be used in live performance as well. Keyboards and MIDI controllers could have buttons or use algorithmic means to select different articulation during a live performance.

Finally, although the Profile requires the expanded features of MIDI 2.0 Attribute Types, it is easy to imagine how developers could take their currently available means for selecting articulations, such as key switches or Control Change messages, and map their translation to MIDI 2.0 Note On messages or inversely take MIDI 2.0 Note On messages and map them back to key switches or Control Change messages.

3 MIDI-CI Profile for Note On Selection of Orchestral Articulation

3.1 Single Channel Profile

The MIDI-CI Profile for Note On Selection of Orchestral Articulation is a Single Channel Profile.

3.2 Profile Id

The 5 byte ID of the The MIDI-CI Profile for Note On Selection of Orchestral Articulation is as shown in Table 4:

Table 4 Profile ID for MIDI-CI Transactions

5 bytes	Profile ID	
	Byte 1	0x7E (Standard Defined Profile)
	Byte 2	0x21 (Note On Orchestral Articulation Profile Bank)
	Byte 3	0x01 (Note On Orchestral Articulation Profile Number)
	Byte 4	0x01 Note On Orchestral Articulation Profile Version)
	Byte 5	0x01 (Note On Orchestral Articulation Level)

3.2.1 Version

Set to 0x01 = Version 1.0 of the MIDI-CI Profile for Note On Selection of Orchestral Articulation

3.2.2 Level

Set to 0x01 = Level 1

0x2-0x7F = Reserved

4 Note On With Articulation

4.1 Note On Message Format

The MIDI-CI Profile for Note On Selection of Orchestral Articulation defines fields in a MIDI 2. Protocol Note On message as follows.

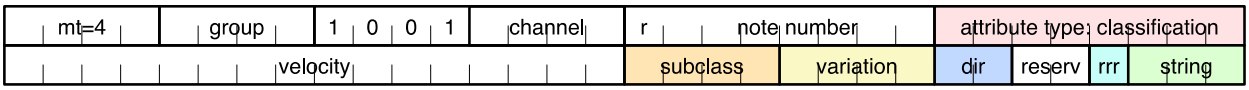

Figure 1 Note On with Orchestral Articulation Message Format

Attribute Type – Classifications of Articulations

Declares the intended Classification of the articulation using Attribute Type values 0x10 to 0x1F. See Section *5.1* for more details.

Attribute Type field values 0x10-0x1F should be presented as Attribute Classifications 1 to 16 when presented to users.

Subclass

Declares the intended Subclass of the articulation within the selected Classification. (See Section *5.2*)

Subclass field values 0x0-0xF should be presented as Articulation Subclasses 1 to 16 when presented to users.

Variation

Each Subclass supports up to 16 Variations. This allows a library to have multiple sounds that fit into this Subclass.

Variation field values 0x0-0xF should be presented as Articulation Subclass Variations 1 to 16 when presented to users.

The Normal/Primary articulation type in Classification 0x10 is spread across 2 Subclasses to allow up to 32 Variations.

Direction

A Note may optionally declare a direction of bowing or plucking stroke, or which hand plays a strike.

Table 5 Note On Direction

Direction	Description
0x0	Determined by the receiver or automatic
0x1	Down stroke, right hand pizzicato, or right-hand strike
0x2	Up stroke, left hand pizzicato, or left-hand strike
0x3	Reserved

Reset Round Robin

If the Receiver is using a “round robin” mechanism to provide a different sound for each successive note, this Note On shall be played with the first sound in the round robin and restart the progress through the available round robin sounds.

String Assignment

The String Assignment field is used to indicate a specific string on a stringed instrument. For non-stringed instruments, values 0x1 to 0x7 may be used to indicate alternate fingering or any other variation.

Table 6 Note On String Assignment

String Assignment	Description
0x0	No string assignment (Receiver may determine)
0x1	First string, highest pitched (usually E on guitar, E on violin)
0x2	Second string (usually B on guitar, A on violin)
0x3	Third string (usually G on guitar, D on violin)
0x4	Fourth string (usually D on guitar, G on violin)
0x5	Fifth string (usually A on guitar, usually G drone on 5 String Banjo)
0x6	Sixth string (usually E on guitar)
0x7	Other String

Note: This String Assignment field is most suited for notes played on a single Channel. Some MIDI devices, such as a MIDI Guitar might use separate Channel per string. This field might not be used by such multi-Channel Devices.

4.2 Receiver Response to Note On

When a Device which conforms to the MIDI-CI Profile for Note On Selection of Orchestral Articulation receives a MIDI 2.0 Note On Message with Attribute Type set to 0x10 through 0x1F, the Device shall play a note with a the best available sound properties to suit the requested Classification and Subclass of note articulation and the other fields in the Note On.

If the Device does not have a sound specifically designed for the Classification and Subclass of a received Note On, the Device shall substitute another sound according to the rules in Section ***6.1***, Fallback Mechanism.

5 Note On Classifications and Subclasses

Tagging notes with Classifications and Subtypes of articulation is the key mechanism in this Profile.

Classifications and Subtypes are defined in Name only. A sound designer and/or device designer may freely decide what sound they will provide to best suit each of the named Classifications and Subtypes.

All text in the "Notes, Alternatives" columns found in ***Table 8*** through ***Table 15*** are descriptive hints only and are not normative definitions.

5.1 Classifications – Set by Attribute Type

A Note does not inherit an articulation from prior Notes. Therefore, while the Profile is active, a Sender should send Note On Orchestral Articulation Attribute data in every note. In many cases the Sender is a DAW, so the DAW should put Attribute data in every note sent. If a Sender does not have any articulation data for a Note, then the Sender may send the note with Attribute Type = 0x00.

If a Receiver receives a Note On with any Attribute Type other than 0x10-1F, then the Receiver shall decide which articulation to use.

Table 7 Classifications set by Attribute Type Value

Classification Number	Attribute Type	Classification of Articulation
N/A	0x00	No Attribute Data.
1	0x10	Core Sounds - Sustains and Strikes
2	0x11	Staccatos and Shorts
3	0x12	Same Note Trills/Repeats
4	0x13	Intervallic Trills
5	0x14	Additional Colors - Sustained
6	0x15	Pitch and Dynamic Gestures
7	0x16	Scales, Runs, and Arpeggios
8	0x17	Effects and Noises
9-10	0x18-0x19	Reserved – shall not be used
11-16	0x1A-0x1F	Custom, Library Specific, or Device Specific Sounds (See Section ***5.2.10***)

Each Classification supports up to 16 Subclasses described in Section ***5.2***.

5.2 Subclasses and Articulations Within Each Classification

The following sections outline all of the defined Subclasses in each Classification. The Subclass value declares the type of Articulation.

5.2.1 Subclasses/Articulations in Classification 0x10: Core Sounds – Sustains and Strikes

This Attribute Type is used to select core sounds or the default performance sound, both sustains and strikes. Sounds which continue for the whole time that a performer plays a note should be assigned to this Classification as sustains.

Naturally short percussion sounds should be assigned to Attribute Type 0x10 as strikes. Longer percussion sounds, orchestra chimes or cymbals which are allowed to fully ring out should also be assigned to Attribute Type 0x10.

However, If a Device or library includes intentionally stopped or choked (shortened or dampened) performances of those instruments, those should be assigned instead to Attribute Type 0x11, Staccatos and Shorts.

To enable the fallback mechanism defined in Section ***6.1***, a Device or library which conforms to the Note On Orchestral Articulation Profile shall provide a suitable note in Classification 0x10, Subclass 0x0, Variation 0x0 for every instrument that is part of the sound set.

Table 8 Subclasses/Articulations in 0x10 Core Sounds – Sustains and Strikes

Sub Class	Articulation	Notes, Alternatives
0x0	Normal Sustains & Strikes (PART 1)*	Default Playing style of the instrument, whether a sustain or a strike. Vibrato style: the traditional style (either vib or non-vib) for the selected instrument or genre of the library. When changing instrument types, vibrato may or may not be present, depending on the nature of the instrument and the choices of the sound designer.
0x1	Normal Sustains & Strikes - (PART 2)*	
0x2	Legato and Legato Slurred	
0x3	Molto Legato	A loose/lyrical style of playing ("Montovani"). Perhaps "schmaltzy." It skirts the difference between legato and glissando.
0x4	Glissando	This is intended to represent the articulation that many sample library developers call "portamento" for strings (legato bowing).
0x5	Detaché	
0x6	Marcato	For all manner of accented-attack, sustained notes which maintain a relatively loud volume (timbre) post-attack.
0x7	Martelé	Specific to Strings. Same as above, but for string instruments this represents a distinctly different attack character.
0x8	Senza Vibrato	Specifically no vibrato (senza vibrato, non-vibrato, n.v.): If the primary/featured sounds assigned to Subclasses 0x0 or 0x1 were performed with vibrato, then assign non-vibrato alternatives to this Subclass. Non-vibrato variants of other Sub Classes of Attribute Type 0x10 can be assigned to 0x8 as needed.**
0x9	Con Vibrato	Specifically with vibrato: If the primary/featured sounds assigned to Subclasses 0x0 or 0x1 were performed

		without vibrato, then assign vibrato alternatives to this Subclass. Vibrato variants of other Sub Classes of Attribute Type 0x10 can be assigned to 0x8 as needed.***
0xA	Synchronized Vibrato	A classic big band effect
0xB	reserved	
0xC	reserved	
0xD	reserved	
0xE	reserved	
0xF	reserved	

**Note: Space allocated for Normal Sustains & Strikes above is doubled (uses 2 Subclasses) to provide up to 32 variations of each sound. Devices or libraries should fill all 16 Variations in Subclass 0x0 before using Subclass 0x1*

***Example: If Trumpet assigned to 0x0 – 0x1 is played with vibrato (as the normal sound), then non-vibrato variants are assigned to 0x8.*

****Example: If Trumpet assigned to 0x0 – 0x1 is played without vibrato (as the normal sound), then vibrato variants are assigned to 0x8.*

5.2.2 Subclasses/Articulations in Classification 0x11: Staccatos and Shorts

This Classification is intended to accommodate intentionally shortened sounds, such as staccato or instrument sounds that a performer has deliberately dampened.

For example, dampened or shortened timpani or orchestra chimes should in Classification x11, while normally played sounds of those instruments should be in Classification 0x10.

Table 9 Subclasses/Articulations in 0x11 Staccatos and Shorts

Sub Class	Articulation	Notes, Alternatives
0x0	Normal Staccato Off String	Strings: Off the String. Other Instruments: "Normal Staccato".
0x1	Normal Staccato On String	Strings: On the String. Other Instruments: "Normal Staccato".
0x2	Slurred Staccato	Single bow staccato
0x3	Accented Staccato	
0x4	Staccatissimo	Staccatissimo, dampened or otherwise shortened or shorter than "normal staccato".
0x5	Spiccato	Specific to Strings. Other instruments: same as Staccatissimo.
0x6	Sautillé	
0x7	Martellato	Shortened Marcato or Accented
0x8	Long Staccato	Also Mezzo Staccato or Louré
0x9	Portato	Strings: Portato. Brass: Light tonguing
0xA	Pizzicato	
0xB	Bartok Pizzicato	Harsh, Hard, Noisy Notes. Strings: Use for Bartok/Snap Pizz., Jazz Pizz. Woodwinds: Short, Overblown Attacks (chiffs). Plucked: Variations of short, hard-attack sounds on Guitar, Koto, Erhu, Harp (fingernails), etc.
0xC	Col Legno Battuto	Strings: strike with the wood, back side of the bow. Also Geschlagen
0xD	Col Legno Gestrichen	Strings: strike with the wood, back side of the bow, turned slightly so some of the hairs also strike the string.
0xE	String Hand Tap	Pitched
0xF	Jete	

5.2.3 Subclasses/Articulations in Classification 0x12 Same Note Trills/Repeats

This Classification includes sounds of performance techniques using rapid repeats on a constant pitch.

Table 10 0x12 Same Note Trills/Repeats

Sub Class	Articulation	Notes, Alternatives
0x0	Tremolo / Flutter tongue	Intended for effects notated with a tremolo symbol, or for non-sustaining instruments performing a rapidly repeated note of the same pitch. Strings: Normal Tremolo. Winds & Brass: Flutter Tongue. Percussion & Mallets: Single Note Rolls. Harp: Bisbigliando. Mandolin, Hammered Dulcimer, etc.: Plucked Repeats.
0x1	Growl / Razz	Brass: Growl Effects. Woodwind Growl Effects, as distinct from flutter tongue (see flutter tongue above). Strings: Sul Ponticello Fast Tremolo. Vocals: lip buzzing effects.
0x2	Other Coloristic Tremolo	Strings: Con Sordino Tremolo or other coloristic or contemporary tremolo effects. Brass/Winds: Other kinds of contemporary "buzz" effects.
0x3	One Note Trills	One note "Timbral Trills", generally accomplished by alternating fingerings on the same note (specific to winds & brass). Strings: Same pitch on 2 strings.
0x4	2 Repeats	Strings: Ricochet/Bounce, or rhythmic 8ths or 16ths (etc.), down/up-bow gestures. Winds: Double-Tongue, Percussion: Grace/Flam. Choir/Vocals: e.g. Swingle Singers style staccato vocalizations, "Dah-dah", etc.
0x5	3 Repeats	e.g., Ricochet, Triple Tongue, drags or ruffs, repeating or non-repeating triplet figures.
0x6	4 Repeats	e.g., Ricochet, Quadruple Tongue, drags or ruffs, repeating or non-repeating 16th note figures.
0x7	5 Repeats	
0x8	6 Repeats	
0x9	Faster Repeats	
0xA	reserved	
0xB	reserved	
0xC	reserved	
0xD	reserved	
0xE	reserved	
0xF	reserved	

5.2.4 Subclasses/Articulations in Classification 0x13 Intervallic Trills

This Classification includes sounds that repeatedly alternate between 2 pitches. Classical trills in SubClasses 0x0 and 0x2 start on the root note. Baroque trills in SubClasses 0x1 and 0x3 start on the auxiliary note above the root note. The wider intervals indicated for SubClasses 0x4-0xD are referred to as "tremolos" and may start on the root note or the auxiliary note above the root.

Table 11 0x13 Intervallic Trills

Sub Class	Articulation	Notes, Alternatives
0x0	Half Step (Classical)	
0x1	Half Step (Baroque)	
0x2	Whole Step (Classical)	
0x3	Whole Step (Baroque)	
0x4	Minor 3rd	
0x5	Major 3rd	
0x6	Perfect 4th	
0x7	Tritone	
0x8	Perfect 5th	
0x9	Minor 6th	
0xA	Major 6th	
0xB	Minor 7th	
0xC	Major 7th	
0xD	Octave	
0xE	reserved	
0xF	reserved	

5.2.5 Subclasses/Articulations in Classification 0x14 Additional Colors – Sustained

This Classification is intended to accommodate alternate instrumental colors and other timbral variations of sustained notes.

Table 12 0x14 Additional Colors – Sustained

Sub Class	Articulation	Notes, Alternatives
0x0	Harmonics – Natural	
0x1	Harmonics – Artificial	
0x2	Col Legno Tratto	Strings: bowed with the wood side of the bow, sustained.
0x3	Flautando	Strings: Twist the bow so that only half the bow hairs touch the strings, used with Sul Tasto.
0x4	Polyphony: multiple octaves	
0x5	Polyphony: intervals, chords, etc.	
0x6	Cuivré	
0x7	Lontano	
0x8	Singing into Instrument	
0x9	reserved	
0xA	reserved	
0xB	reserved	
0xC	reserved	
0xD	reserved	
0xE	reserved	
0xF	reserved	

5.2.6 Subclasses/Articulations in Classification 0x15 Pitch and Dynamic Gestures

This Classification contains sounds with stylistic change of pitch or prerecorded change of dynamics.

Table 13 0x15 Pitch and Dynamic Gestures

Sub Class	Articulation	Notes, Alternatives
0x0	Pitch Fall End – Pitch of Note Number. Then falls at end of note. See also Section ***7.2***.	Run or gliss down from the starting note: Brass/Big Band Horn Falls, String Slides, Timpani Pedal Effects, Trombone Slides, Harmonic Glisses, Choir FX, etc.
0x1	Pitch Fall Start – pitch starts high falling into Pitch of Note Number	Run or gliss down to the note. Brass/Big Band Horn Falls, String Slides, Timpani Pedal Effects, Trombone Slides, Harmonic Glisses, Choir FX, etc.
0x2	Pitch Rise End – Pitch of Note Number then rises at the end note See also Section ***7.2***.	Run or gliss up from the starting note: Big Band Doits, Pop/Jazz Horn Rises, String Slides, Timpani Pedal Effects, Trombone Slides, Harmonic Glisses, French Horn Rips, Brass/Big Band Rips, Choir FX, etc.
0x3	Pitch Rise Start – pitch starts low raising into Pitch of Note Number	Run or gliss up to the note. Pop/Jazz Horn Rises, String Slides, Timpani Pedal Effects, Trombone Slides, Harmonic Glisses, French Horn Rips, Brass/Big Band Rips, Choir FX, etc.
0x4	Blue Note Down- Starts at MIDI pitch, bends down and then back to pitch	
0x5	Blue Note Up- Starts at MIDI pitch, bends up and then back to pitch	
0x6	Grace Notes “Classical” (Starts Below)	Grace (Leading) Notes (Classical) where the grace note starts below the target pitch. Also Guitar Hammer Ons, Koto Bends, etc.
0x7	Grace Notes “Baroque” (Starts Above)	Grace (Leading) Notes (Baroque) where the grace note starts above the target pitch. Also Guitar Pull Offs, Koto Bends, etc.
0x8	Shakes	SHAKES (Brass/Horns). Timpani: Comical Pedal Effects. Choir: Intervallic Leaps. Strings: Contemporary or other Special FX. Electric Guitar: Whammy Bar FX
0x9	Crescendo	
0xA	Decrescendo	
0xB	Cresc -> Decresc	
0xC	Decresc -> Cresc	
0xD	Sfz Crescendo	
0xE	reserved	
0xF	reserved	

5.2.7 Subclasses/Articulations in Classification 0x16 Scales, Runs, and Arpeggios

This Classification contains sounds used to perform fast runs ("playable runs") and to trigger pre-recorded scales, runs, and arpeggios.

Table 14 0x16 Scales, Runs, and Arpeggios

Sub Class	Articulation	Notes, Alternatives
0x0	Playable Runs	
0x1	Playable Tremolos	
0x2	Playable Glissando	
0x3	Scales/Runs Major	
0x4	Scales/Runs Minor	
0x5	Scales/Runs Dominant 7th	
0x6	Scales/Runs diminished (whole/half) or Other 1	
0x7	Scales/Runs diminished (half/whole) or Other 2	
0x8	Whole Tone Scale 1 (includes C)	
0x9	Whole Tone Scale 2 (incudes C#)	
0xA	Pentatonic Scale (maj)	
0xB	Pentatonic Scale (min)	
0xC	Lydian	
0xD	Lydian b7	
0xE	Chromatic	
0xF	Other Scales and Runs	

Note: The ending note of these gestures is not required to sustain.

5.2.8 Subclasses/Articulations in Classification 0x17 Effects and Noises

This Classification contains sounds which are the result of unconventional performance techniques, background noise inherent to musical instruments, unpitched sounds, or atypical sounds.

Table 15 0x17 Effects and Noises

Sub Class	Articulation	Notes, Alternatives
0x0	Assorted noises, Air Sound, or effects – Sustained	Orchestral: e.g. specialty effects libraries of sustained sounds such as “white tones”, contemporary coloristic effects, clusters, bowed percussion, etc.
0x1	Behind the Bridge – Sustained	
0x2	Random Pizz – Sustained	Pizzicati in random pitches, no set tempo, over period of time. Looped.
0x3	Harmonic Glissando	
0x4	Random Glissando	
0x5	Air sound, Chiffs/Squeak/Lip-Pizz – Short	
0x6	Mechanical sounds – Sustained	
0x7	Mechanical sounds – Short	Woodwind: Key open/closing sounds, Brass: valve noise, etc.
0x8	Finger Glide	
0x9	Fret Buzz/Noise	
0xA	Thump	Deep pitched noise, Piano: Sustain pedal, etc.
0xB	Knock	Knuckles on body of instrument, etc.
0xC	Slap	Open hand slap on body of instrument, etc.
0xD	Pop	Woodwinds: note caused by key/finger slap over hole, Brass: mouthpiece pops, etc.
0xE	Tap	Finger tap on body of instrument, etc.
0xF	Click	Short bright noise

5.2.9 Attribute Type 0x18-19: Reserved

Reserved for future articulations to be defined by MIDI Association and AMEI.

Shall not be used for custom sounds. Use Attribute Type 0x1A-1F: Custom, Manufacturer/Device Specific Sounds instead. See Section ***5.2.10***.

5.2.10 Attribute Type 0x1A-1F: Custom, Library Specific, or Device Specific Sounds

Many orchestral sound libraries include unique sounds that do not fall into the standard Classifications. A Receiver may use Attribute Types 0x1A through to 0x1F for those sounds. Manufacturer may put any desired indexing into the Subclass field.

When using custom, library specific, or device specific sounds, the Variation, Direction, Reset Round Robin, and String fields remain valid and shall not be used for any other function.

6 Mechanisms using Classes and Subclasses

6.1 Fallback Mechanism

A Receiver might not include a sound for a particular Classification, Subclass, and Variation. In this case, the Receiver shall play a substitute sound according to the following rules:

- If a Receiver does not have a specific sound for any declared Variation, then it shall fall back to using a Variation within the same Subclass within the same Classification.
- If a Receiver does not have a specific sound for any declared Subclass, then it shall fall back to using a sound for the Subclass 0x00 within the same Classification.
- If a Receiver does not have a specific sound for any declared Subclass and does not have a sound for Subclass 0x00 for within the same Classification, then it shall fall back to using a sound for Classification 0x01 with Subclass 0x00.

A Sender may discover which sounds are available in a Receiver using the MIDI-CI Profile Details Inquiry mechanism. See Section ***9***.

6.2 Interchange

Sound designers and device developers should consider the following goals for interchange of different sounds.

6.2.1 Interchange of Libraries

This Profile allows musicians to enter articulations for individual notes using one sound library or MIDI device and then later switch to a different sound library or MIDI device. In making that switch, the articulations remain musically useful.

> *For example, a musician may create articulations for a violin sound from one library and then easily hear those notes with the same articulations on a violin from a separate sound library.*

6.2.2 Interchange of Instrument Types

This Profile allows a musician to enter articulations for individual notes for one instrument type and then later switch to a different instrument type. In making that switch, the articulations remain musically useful.

> *For example, a musician may create articulations for a violin sound and then easily hear those notes with the same articulations on a clarinet.*

7 Note Off Message

7.1 Note Off Message Format

The MIDI-CI Profile for Note On Selection of Orchestral Articulation defines the following fields in a MIDI 2.0 Protocol Note Off message when Attribute Type = 0x10:

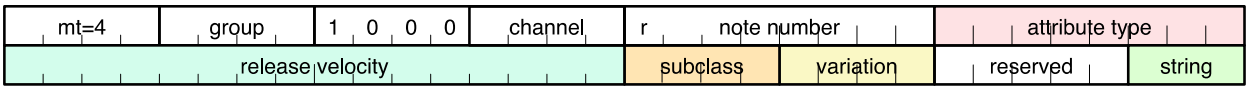

Figure 2 Note Off with Orchestral Articulation Message Format

Note Off Attribute Type

Devices conforming to the MIDI-CI Profile for Note On Selection of Orchestral Articulation may use the following values for Attribute Type:

Table 16 Note Off Attribute Type

Attribute Type	Classification of Articulation
0x00	No Attribute Data. Note ending characteristics are determined by the Receiver.
0x01	Manufacturer Specific Attribute Data
0x10	Note ending characteristics of the Note On Orchestral Articulation Profile, as set by fields in the Attribute Data area of the Note Off message.

Note Off Subclass

Declares the intended Subclass of the articulation when Attribute Type = 0x10.

Table 17 Note Off Subclasses

Subclass	Description
0x0	No Note Off Sample
0x1	Soft Ending
0x2	Hard Ending
0x3	Pitch Rise (such as a “doit”) Also see Sections ***7.2*** and ***5.2.6***.
0x4	Pitch Fall Also see Sections ***7.2*** and ***5.2.6***.
0x5-F	Reserved

A Receiver may ignore the Subclass field in a Note Off message if it does not support selection of sounds based on Note Off Subclass.

Note Off Variation

Each Subclass supports up to 16 Variations. This allows a library to have multiple sounds that fit into this Subclass. A Receiver may ignore the Variation field in a Note Off message if it does not support selection of sounds based on Note Off Subclass.

Note Off Release Velocity – Release Time

If a Receiver declares in a Reply to Profile Details Inquiry message (See Section *9*) that it supports Note Off Release Velocity, then the envelope release time of the Note in the Receiver shall be determined by the value of the Release Velocity field, ranging from 0x0000 to 0xFFFF:

0x0000 = Longest Release Time of the Receiver

0x8000 = Default Release Time (the natural release time of the chosen sound)

0xFFFF = Shortest Release Time (immediate release)

If a Sender does not support sending a variable release time in a Note Off message, then the Sender shall set the value of Release Velocity to 0x8000 in all Note Off messages.

String Assignment

The String Assignment field is used to indicate a specific string on a stringed instrument. This field in a Note Off might be useful when two notes of the same Note Number are played on 2 strings of an instrument. The Note Off can declare which of the 2 notes is intended to process the Note Off.

Table 18 Note Off String Assignment

String Assignment	Description
0x0	No string assignment (Receiver may determine)
0x1	First string, highest pitched (usually E on guitar, E on violin)
0x2	Second string (usually B on guitar, A on violin)
0x3	Third string (usually G on guitar, D on violin)
0x4	Fourth string (usually D on guitar, G on violin)
0x5	Fifth string (usually A on guitar, usually G drone on 5 String Banjo)
0x6	Sixth string (usually E on guitar)
0x7	Other String

7.2 Note Off Versus a Sound Ending Declared in a Note On

Some Receivers might not use any Note-Off data to control any aspect of articulation. A Receiver may recognize articulation data in a Note On to determine the way the sound of a note comes to an end.

Examples:

- *A Staccato note might stop sounding before a Note Off is received.*
- *How the end of one note transitions to a following Note may be declared by Note On articulations such as Legato.*
- *A Note On message might declare a Pitch Fall End or a Pitch Rise End in the Note On. See Section* **5.2.6**.

8 Controllers

The Note On Orchestral Articulation Profile defines three optional Controllers.

8.1 Mute Related Controllers

Two Registered Controllers are used to set the use of mutes for orchestral instruments:

- Registered Controller for Orchestral Mute Type selection (see Section ***8.1.1***)
- Registered Controller for Orchestral Mute Amount (see Section ***8.1.2***)

8.1.1 Orchestral Mute Type: Registered Controller 0x20/0x22

Orchestral Mute Type uses 32 ranges of the Registered Controller value to set the type of mute in use.

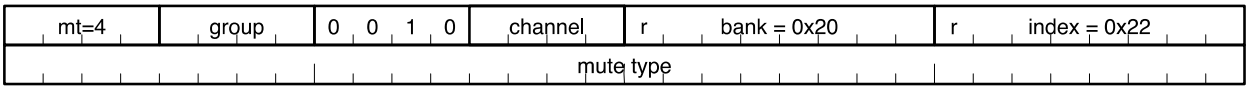

Figure 3 Orchestral Mute Type Registered Controller Message Format

Mute Type

The total value range is divided into 32 subranges for an enumerated list, easily selected by a knob or slider. All values within a subrange have the same meaning. Default value = 0x00000000 (No Mute)

Table 19 Mute Type Value Ranges

Subrange Values	Mute Type
0x00000000 – 0x07FFFFFF	No Mute
0x08000000 – 0x0FFFFFFF	Straight mute (brass) or Standard mute (strings and others)
0x10000000 – 0x17FFFFFF	Practice mute
0x18000000 – 0x1FFFFFFF	Cup Mute
0x20000000 – 0x27FFFFFF	Wah-wah/Harmon Mute, stem in
0x28000000 – 0x2FFFFFFF	Wah-wah/Harmon, stem extended
0x30000000 – 0x37FFFFFF	Wah-wah/Harmon, stem removed
0x38000000 – 0x3FFFFFFF	Plunger Mute
0x40000000 – 0x47FFFFFF	Bucket Mute
0x48000000 – 0x4FFFFFFF	Mica Mute
0x50000000 – 0x57FFFFFF	Solotone Mute
0x58000000 – 0x5FFFFFFF	Whispa/Whisper Mute
0x60000000 – 0x67FFFFFF	Hat
0x68000000 – 0x6FFFFFFF	Hand
0x70000000 – 0x77FFFFFF	Stopped (Transposing Mute)
0x78000000 – 0x7FFFFFFF	Into the Stand

0x80000000 – 0xCFFFFFFF	Reserved (10 of 32 subranges)
0xD0000000 – 0xD7FFFFFF	Manufacturer Specific Mute 1
0xD8000000 – 0xDFFFFFFF	Manufacturer Specific Mute 2
0xE0000000 – 0xE7FFFFFF	Manufacturer Specific Mute 3
0xE8000000 – 0xEFFFFFFF	Manufacturer Specific Mute 4
0xF0000000 – 0xF7FFFFFF	Manufacturer Specific Mute 5
0xF8000000 – 0xFFFFFFFF	Manufacturer Specific Mute 6

If a Receiver which conforms to the Note On Orchestral Articulation Profile receives a Registered Controller to select Orchestral Mute Type, it shall set its state for the Orchestral Mute Amount to 0xFFFFFFFF. Subsequent Orchestral Mute Amount messages received may change this value (See Section 8.1.2).

If a Receiver which conforms to the Note On Orchestral Articulation Profile receives a Registered Controller to select Orchestral Mute Type which it does not support for the chosen Articulation, the Receiver may decide its response, playing whatever it thinks most closely matches the desired sound. For example, the Receiver may substitute another Mute Type for the same Articulation, or may play the chosen Articulation without any mute.

8.1.2 Orchestral Mute Amount: Registered Controller 0x20/0x23

Orchestral Mute Amount uses the Registered Controller value to set the amount of Mute from 0x00000000 fully open/off to 0xFFFFFFFF fully closed/muted/dampened. Default value is 0xFFFFFFFF.

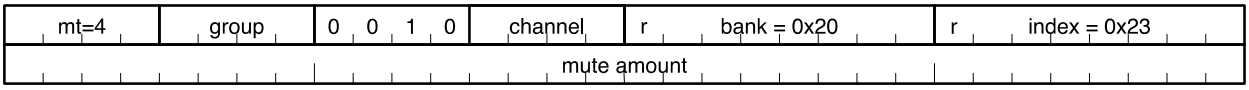

Figure 4 Orchestral Mute Amount Registered Controller Message Format

Mutes which have a single position of use should use the value 0xFFFFFFFF fully closed/muted/dampened.

> *Example: A trumpet player may insert or remove a straight mute. This is generally done between musical sections and the player does not actively move the mute in and out while playing a note.*

Mutes which have some controllable element with a variable are controlled by the full range of values of the Registered Controller for Orchestral Mute Amount.

> *Example: A trumpet player may change the position of a plunger held in front of the trumpet bell while playing notes, moving the plunger mute in positions between fully open (no muting) to fully closed (maximum muting).*

8.2 Playing Position: Registered Per-Note Controller 0x0C

Some instruments have a variety of playing positions or locations where the musician may choose on the playing surface. Playing Position uses the Registered Per-Note Controller value to set the playing position of a Note.

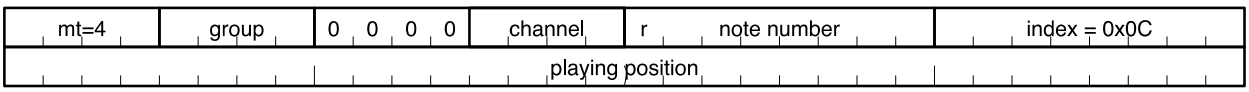

Figure 5 Playing Position Registered Per-Note Controller Message Format

The Default value of 0x80000000 represents the normal playing position. Values from minimum to maximum declare a position within a defined range:

Table 20 Applying the Playing Position Per-Note Registered Controller

Value	Applied to Bowed/Plucked	Applied to Drums & Cymbals
0x00000000	At the Bridge	At the Center
0x80000000 (Default)	Normal Playing Position	Normal Playing Position
0xFFFFFFFF	At the Nut	At the Rim

Each instrument has its own normal playing position which is set by a value of 0x80000000.The Default value is in the middle of the value range to represent the normal playing position but is not necessarily the middle of the physical position on the instrument. See ***Figure 6*** for an example of violin bowing position.

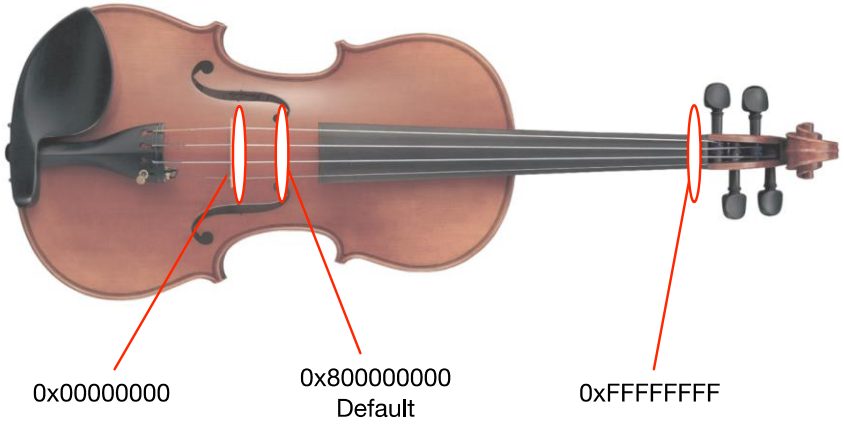

Figure 6 Playing Position on a Violin

For example, Sul Ponticello might typically be in the range of 0x00000000 to 0x10000000.

9 Discovering Sounds Included and Optional Features Supported: Profile Details Inquiry

The MIDI-CI Profile Details Inquiry mechanism may be used to discover implementation details of a Receiver which conforms to the Note On Orchestral Articulation Profile. Discoverable features include:

- Which optional features of the Profile are supported.
- Which articulation sounds are available and how many variations are available for each sound.

See MIDI Capability Inquiry (MIDI-CI) ***[MA03]***, and the Common Rules for Profiles ***[MA04]*** for more details of how to use the Profile Details Inquiry.

9.1 Discovering Core Features and Specified Sounds

9.1.1 Initiator Sends a MIDI-CI Profile Details Inquiry Message

A MIDI-CI Initiator may ask a Responder for a report of the optional features and sounds supported by the Responder. This inquiry is made using a Profile Details Inquiry message with the Inquiry Target set to 0x01 (Profile Optional Features Supported).

9.1.2 Responder Sends a MIDI-CI Reply to Profile Details Inquiry Message

When a Responder which is a Receiver receives a Profile Details Inquiry message with the Inquiry Target set to 0x01, the Responder should send back a Reply to Profile Details Inquiry message.

The Inquiry Target Data field in the Reply to Profile Details Inquiry message has a Target Data payload of 130 bytes to declare details of the Receiver's implementation of the Profile. The first two bytes are a bitmap of optional features, and the remaining bytes declare the number of variations available (from 0 to 16) for each Subclass in every Classification.

Table 21 Optional Features Supported Bytes 1-2

Size	Bitmap Data	Feature or Message Supported	Description
2 bytes	D0	RC 0x20/0x22	Supports Orchestral Mute Type Registered Controller
	D1	RC 0x20/0x23	Supports Orchestral Mute Amount Registered Controller
	D2	RPNC 0x0C	Supports Playing Position Registered Per-Note Controller
	D3	Note Off Velocity	Supports Note Off Velocity to control Release Time
	D4	Discovery of Manufacturer Specific Sounds	Supports a Profile Details Inquiry to discover which Subclasses in Classifications 0x1A to 0x1F contain sounds. See Section 9.2
	D5-D13	Reserved	

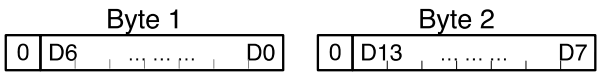

Figure 7 Bitmap Format

Each bit represents whether the feature is supported or not.

Table 22 Optional Features Supported Bytes 3-130

Size	Description
16 bytes	Declaration of Classification 0x10: Core Sounds – Sustains and Strikes
16 bytes	Declaration of Classification 0x11: Staccatos and Shorts
16 bytes	Declaration of Classification 0x12: Same Note Trills/Repeats/Tremolo
16 bytes	Declaration of Classification 0x13: Intervallic Trills/Tremolo
16 bytes	Declaration of Classification 0x14: Additional Colors - Sustained
16 bytes	Declaration of Classification 0x15: Pitch and Dynamic Gestures
16 bytes	Declaration of Classification 0x16: Scales, Runs, and Arpeggios
16 bytes	Declaration of Classification 0x17: Effects and Noises

Each set of 16 Bytes for each Declaration of Classification declares the number of variations available in a Receiver for each Subclass in that Classification. If a Receiver does not have any sounds for any Subclass, then it shall declare 0 variations. See ***Table 23***.

Note: If Classifications 0x18 and 0x19, which are currently reserved, are defined in the future, then this data set might be expanded accordingly.

Table 23 The 16 Bytes in Every Declaration of Classification

Byte	Description
1	Number of Variations for Subclass 0x0, Values 0 - 16
2	Number of Variations for Subclass 0x1, Values 0 - 16
3	Number of Variations for Subclass 0x2, Values 0 - 16
4	Number of Variations for Subclass 0x3, Values 0 - 16
5	Number of Variations for Subclass 0x4, Values 0 - 16
6	Number of Variations for Subclass 0x5, Values 0 - 16
7	Number of Variations for Subclass 0x6, Values 0 - 16
8	Number of Variations for Subclass 0x7, Values 0 - 16
9	Number of Variations for Subclass 0x8, Values 0 - 16
10	Number of Variations for Subclass 0x9, Values 0 - 16
11	Number of Variations for Subclass 0xA, Values 0 - 16

12	Number of Variations for Subclass 0xB, Values 0 - 16
13	Number of Variations for Subclass 0xC, Values 0 - 16
14	Number of Variations for Subclass 0xD, Values 0 - 16
15	Number of Variations for Subclass 0xE, Values 0 - 16
16	Number of Variations for Subclass 0xF, Values 0 - 16

9.2 Discovering Manufacturer Specific Sounds

If a Receiver declares in a Reply to Profile Details Inquiry message that it supports Discovery of Manufacturer Specific Sounds as shown in ***Table 21*** Optional Features Supported Bytes 1-2 (Receiver sets bit D4 high), then an additional MIDI-CI Profile Details Inquiry mechanism may be used to discover which sounds the Receiver contains in Classifications 0x1A-0x1F, Custom, Manufacturer/Device Specific Sounds.

9.2.1 Initiator Sends a MIDI-CI Profile Details Inquiry Message

A MIDI-CI Initiator may ask a Responder for a report of the Manufacturer Specific Sounds supported by the Responder. This inquiry is made using a Profile Details Inquiry message with the Inquiry Target set to 0x40 (Profile Specific – Discover Manufacturer Specific Sounds).

9.2.2 Responder Sends a MIDI-CI Reply to Profile Details Inquiry Message

When a Responder which is a Receiver receives a Profile Details Inquiry message with the Inquiry Target set to 0x40, the Responder should send back a Reply to Profile Details Inquiry message.

The Inquiry Target Data field in the Reply to Profile Details Inquiry message has a Target Data set of 96 bytes to declare the number of variations available (from 0 to 16) for each Subclass in Classifications 0x1A - 0x1F.

Table 24 Optional Features Supported Bytes 1-96

Size	Description
16 bytes	Declaration of Classification 0x1A
16 bytes	Declaration of Classification 0x1B
16 bytes	Declaration of Classification 0x1C
16 bytes	Declaration of Classification 0x1D
16 bytes	Declaration of Classification 0x1E
16 bytes	Declaration of Classification 0x1F

Each set of 16 Bytes for each Declaration of Classification declares the number of variations available in a Receiver for each Subclass in that Classification. If a Receiver does not have any sounds for any Subclass, then it shall declare 0 variations. See ***Table 25***.

Table 25 The 16 Bytes in Every Declaration of Classification

Byte	Description
1	Number of Variations for Subclass 0x0, Values 0 - 16
2	Number of Variations for Subclass 0x1, Values 0 - 16
3	Number of Variations for Subclass 0x2, Values 0 - 16
4	Number of Variations for Subclass 0x3, Values 0 - 16
5	Number of Variations for Subclass 0x4, Values 0 - 16
6	Number of Variations for Subclass 0x5, Values 0 - 16
7	Number of Variations for Subclass 0x6, Values 0 - 16
8	Number of Variations for Subclass 0x7, Values 0 - 16
9	Number of Variations for Subclass 0x8, Values 0 - 16
10	Number of Variations for Subclass 0x9, Values 0 - 16
11	Number of Variations for Subclass 0xA, Values 0 - 16
12	Number of Variations for Subclass 0xB, Values 0 - 16
13	Number of Variations for Subclass 0xC, Values 0 - 16
14	Number of Variations for Subclass 0xD, Values 0 - 16
15	Number of Variations for Subclass 0xE, Values 0 - 16
16	Number of Variations for Subclass 0xF, Values 0 - 16

10 Relationship to Other Profiles

Devices which have the MIDI-CI Profile for Note On Selection of Orchestral Articulation enabled, should also support and enable the Default Control Change Mapping Profile ***[MA07]***.

Appendix A : Application to Instrument Types

This appendix provides suggested implementations and application of articulations. Nothing described in this appendix is mandatory and should not be considered as specification rules.

The tables of articulations in this Appendix are presented in the following format:

Sub Class	Articulation	Str	Ww	Brs	NoP	TuP	Gui	Hrp	Kbd	Chr
0x0	Normal Sustains & Strikes - Primary/Default, (PART 1st)	•	•	•	•	•	•	•	•	•
0x1	Normal Sustains & Strikes - Primary/Default, (PART 2st)	•	•	•	•	•	•	•	•	•
0x2	Legato and Legato Slurred	•	•	•			•			•
0x3	Molto Legato	•	•	•			•			•
0x4	Glissando	•	•	•			•			•
0x5	Detaché	•								
0x6	Marcato and Accented	•	•	•	•	•	•	•	•	•
0x7	Martelé	•								
0x8	Senza Vibrato	•	•	•		•	•		•	•
0x9	Con Vibrato	•	•	•			•		•	•
0xA	Synchronized Vibrato		•	•						
0xB	*reserved*									
0xC	*reserved*									
0xD	*reserved*									
0xE	*reserved*									
0xF	*reserved*									

Figure 8 Articulation Table Explanation

Subclass Value and Type of Articulation.

Musical Instrument Type (See ***Table 26***)

Applicability of the Articulation to Each Musical Instrument Type (see ***Table 27***)

Table 26 Musical Instrument Type

Str	Strings
Ww	Woodwinds
Brs	Brass
NoP	Non-Pitched Percussion
TuP	Tuned Percussion
Gui	Guitar / Plucked
Hrp	Harp
Kbd	Keyboard / Organ
Chr	Choir / Vocals

Table 27 Applicability to Musical Instrument Type

•	Normally associated with this instrument type.
•	Not typically associated with this instrument type, but may have relevant application.
	Unanticipated usage for this instrument type, but assignment is not restricted.
	Reserved. Do not use.

A.1 Attribute Type 0x10: Subclass = Core Sounds – Sustains and Strikes

Table 28 Applying 0x10 Core Sounds – Sustains and Strikes

Sub Class	Articulation	Str	Ww	Brs	NoP	TuP	Gui	Hrp	Kbd	Chr
0x0	Normal Sustains & Strikes - Primary/Default, (PART 1)*	•	•	•	•	•	•	•	•	•
0x1	Normal Sustains & Strikes - Primary/Default, (PART 2)*	•	•	•	•	•	•	•	•	•
0x2	Legato and Legato Slurred	•	•	•			•			•
0x3	Molto Legato	•	•	•			•			•
0x4	Glissando	•	•	•			•			•
0x5	Detaché	•								
0x6	Marcato and Accented	•	•	•	•	•	•	•	•	•
0x7	Martelé	•								
0x8	Senza Vibrato	•	•	•		•	•		•	•
0x9	Con Vibrato	•	•	•			•		•	•
0xA	Synchronized Vibrato		•	•						
0xB	reserved									
0xC	reserved									
0xD	reserved									
0xE	reserved									
0xF	reserved									

**Note: Space allocated for Normal Sustains & Strikes above is doubled here (uses 2 Subclasses) to provide up to 32 variations of each.*

A.2 Attribute Type 0x11: Classification = Staccatos and Shorts

Table 29 Applying 0x11 Staccatos and Shorts

Sub Class	Articulation	Str	Ww	Brs	NoP	TuP	Gui	Hrp	Kbd	Chr
0x0	Normal Staccato Off String	•	•	•	•	•	•	•	•	•
0x1	Normal Staccato On String	•								
0x2	Slurred Staccato (single bow staccato)	•								
0x3	Accented Staccato	•	•	•	•	•	•	•	•	•
0x4	Staccatissimo	•	•	•	•	•	•	•		•
0x5	Spiccato	•	•	•	•	•	•	•		•
0x6	Sautillé	•								
0x7	Martellato	•								
0x8	Long Staccato or Mezzo Staccato or Louré	•	•	•	•		•	•		•
0x9	Portato	•	•	•						•
0xA	Pizzicato	•								
0xB	Bartok Pizzicato (or Harsh, Hard, Noisy Notes)	•	•	•	•	•	•	•	•	•
0xC	Col Legno Battuto and Geschlagen	•								
0xD	Col Legno Gestrichen	•								
0xE	String Hand Tap	•			•	•	•	•		•
0xF	Jete	•								

A.3 Attribute Type 0x12: Classification = Same Note Trills/Repeats

Table 30 Applying 0x12 Same Note Trills/Repeats

Sub Class	Articulation	Str	Ww	Brs	NoP	TuP	Gui	Hrp	Kbd	Chr
0x0	Tremolo / Flutter tongue	•	•	•	•	•	•	•	•	•
0x1	Growl / Razz	•	•	•	•	•	•	•	•	•
0x2	Other Coloristic Tremolo	•	•	•	•	•	•	•	•	•
0x3	One Note Trills	•	•	•				•		
0x4	2 Repeats	•	•	•	•	•	•	•		•
0x5	3 Repeats	•	•	•	•	•	•	•		•
0x6	4 Repeats	•	•	•	•	•	•	•		•
0x7	5 Repeats	•	•	•	•	•	•	•		•
0x8	6 Repeats	•	•	•	•	•	•	•		•
0x9	Faster Repeats	•	•	•	•	•	•	•		•
0xA	reserved									
0xB	reserved									
0xC	reserved									
0xD	reserved									
0xE	reserved									
0xF	reserved									

A.4 Attribute Type 0x13: Classification = Intervallic Trills

Table 31 Applying 0x13 Intervallic Trills

Sub Class	Articulation	Str	Ww	Brs	NoP	TuP	Gui	Hrp	Kbd	Chr
0x0	Half Step (Classical)	•	•	•	•	•	•			•
0x1	Half Step (Baroque)	•	•	•	•	•	•			•
0x2	Whole Step (Classical)	•	•	•	•	•	•			•
0x3	Whole Step (Baroque)	•	•	•	•	•	•			•
0x4	Minor 3rd	•	•	•	•	•	•	•		•
0x5	Major 3rd	•	•	•	•	•	•	•		•
0x6	Perfect 4	•	•	•	•	•	•	•		•
0x7	Tritone	•	•	•	•	•	•	•		•
0x8	Perfect 5	•	•	•	•	•	•	•		•
0x9	Minor 6	•	•	•	•	•	•	•		•
0xA	Major 6	•	•	•	•	•	•	•		•
0xB	Minor 7	•	•	•	•	•	•	•		•
0xC	Major 7	•	•	•	•	•	•	•		•
0xD	Octave	•	•	•	•	•	•	•		•
0xE	reserved									
0xF	reserved									

A.5 Attribute Type 0x14: Classification = Additional Colors - Sustained

Table 32 Applying 0x14 Additional Colors - Sustained

Sub Class	Articulation	Str	Ww	Brs	NoP	TuP	Gui	Hrp	Kbd	Chr
0x0	Harmonics - Natural	•	•	•		•	•	•		•
0x1	Harmonics - Artificial	•	•	•		•	•	•		•
0x2	Col Legno Tratto	•								
0x3	Flautando	•					•	•		
0x4	Polyphony: multiple octaves	•	•	•	•	•	•	•	•	•
0x5	Polyphony: intervals, chords, etc.	•	•	•	•	•	•	•	•	•
0x6	Cuivré	•	•	•						•
0x7	Singing into Instrument		•	•						
0x8	reserved									
0x9	reserved									
0xA	reserved									
0xB	reserved									
0xC	reserved									
0xD	reserved									
0xE	reserved									
0xF	reserved									

A.6 Attribute Type 0x15: Classification = Pitch and Dynamic Gestures

Table 33 Applying 0x15 Pitch and Dynamic Gestures

Sub Class	Articulation	Str	Ww	Brs	NoP	TuP	Gui	Hrp	Kbd	Chr
0x0	Pitch Fall End - Pitch of Note Number. Then falls at end of note	•	•	•	•	•	•			•
0x1	Pitch Fall Start - pitch starts high falling into Pitch of Note Number	•	•	•	•	•	•			•
0x2	Pitch Rise End - Pitch of Note Number then rises at the end note (doit and others)	•	•	•	•	•	•			•
0x3	Pitch Rise Start - pitch starts low raising into Pitch of Note Number (scoop, strings portamento, Trumpet and French Horn Rips and others)	•	•	•	•	•	•			•
0x4	Blue Note Down- Starts at MIDI pitch, bends down and then back to pitch	•	•	•		•	•			•
0x5	Blue Note Up- Starts at MIDI pitch, bends up and then back to pitch	•	•	•		•	•			•
0x6	Grace Notes "Classical" (Starts Below)	•	•	•		•	•			•
0x7	Grace Notes "Baroque" (Starts Above)	•	•	•		•	•			•
0x8	Shakes	*	*	*	•	*	*			*
0x9	Crescendo	•	•	•	•	•				•
0xA	Decrescendo	•	•	•	•	•				•
0xB	Cres -> Decresc	•	•	•	•	•				•
0xC	Decresc -> Cresc	•	•	•	•	•				•
0xD	Sfz Crescendo	•	•	•	•	•				•
0xE	reserved									
0xF	reserved									

A.7 Attribute Type 0x16: Classification = Scales, Runs, and Arpeggios

Table 34 Applying 0x16 Scales, Runs, and Arpeggios

Sub Class	Articulation	Str	Ww	Brs	NoP	TuP	Gui	Hrp	Kbd	Chr
0x0	Playable Runs	•	•	•				•		
0x1	Playable Tremolos	•	•	•				•		
0x2	Playable Glissando	•	•	•						
0x3	Scales/Runs Major	•	•	•		•	•	•		•
0x4	Scales/Runs Minor	•	•	•		•	•	•		•
0x5	Scales/Runs Dominant 7th	•	•	•		•	•	•		•
0x6	Scales/Runs diminished (whole/half) or Other 1	•	•	•		•	•	•		•
0x7	Scales/Runs diminished (half/whole) or Other 2	•	•	•		•	•	•		•
0x8	Whole Tone Scale 1 (includes C)	•	•	•		•	•	•		•
0x9	Whole Tone Scale 2 (incudes C#)	•	•	•		•	•	•		•
0xA	Pentatonic Scale (maj)	•	•	•		•	•	•		•
0xB	Pentatonic Scale (min)	•	•	•		•	•	•		•
0xC	Lydian	•	•	•		•	•	•		•
0xD	Lydian b7	•	•	•		•	•	•		•
0xE	Chromatic	•	•	•		•	•	•		•
0xF	Other Scales and Runs	•	•	•		•	•	•		•

A.8 Attribute Type 0x17: Classification = Effects and Noises

Table 35 Applying 0x17 Effects and Noises

Sub Class	Articulation	Str	Ww	Brs	NoP	TuP	Gui	Hrp	Kbd	Chr
0x0	Assorted noises, Air Sound, or effects - Sustained	•	•	•	•	•	•	•	•	•
0x1	Behind the Bridge - Sustained	•	•	•	•	•	•	•	•	•
0x2	Random Pizz - Sustained	•	•	•	•	•	•	•	•	•
0x3	Harmonic Glissando	•	•	•	•	•	•	•	•	•
0x4	Random Glissando	•	•	•	•	•	•	•	•	•
0x5	Air sound, Chiffs/Squeak/Lip-Pizz - Short	•	•	•	•	•	•	•	•	•
0x6	Mechanical sounds - Sustained	•	•	•	•	•	•	•	•	•
0x7	Mechanical sounds - Short	•	•	•	•	•	•	•	•	•
0x8	Finger Glide						•			
0x9	Fret Buzz/Noise						•			
0xA	Thump	•	•	•	•	•	•	•	•	
0xB	Knock	•	•	•	•	•	•	•		
0xC	Slap	•	•	•	•	•	•	•		
0xD	Pop	•	•	•	•	•	•			•
0xE	Tap	•	•	•	•	•	•			
0xF	Click	•	•	•	•	•	•		•	•

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