DAISY Music Braille Project:

MusicXML Markup Guidance for Music Braille Conversion

## Grouped and annotated MusicXML tags for people marking-up files for effective music braille conversion

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# Introduction

This document is a reference resource for people who are marking up MusicXML files to create a better MusicXML file which will go well through music braille conversion tools. We highlight special cases where particular care is needed to ensure the underlying MusicXML is correct, and give a few examples to show what is needed.

Once you have received the print score and the MusicXML score, you will visually check the MusicXML file against the print score. Use the ‘Tips’ document to check the likely areas needing attention, and then correct anything you need to using one of the music notation tools, following the advice in the Tips document, and in this Markup Guidance document.

There are some instances where manual markup may be necessary, where for example, the music notation tool does not provide the necessary MusicXML output. These instances included in this document are: examples of composite time signatures; examples of dotted barlines and split measures; examples of metronome marks; and visual offset from current position.

The following MusicXML entities, elements and attributes are taken from the MusicXML specification. This is based on the alphabetical MusicXML 3.0 spreadsheet, containing Name, file (where we can find the detailed documentation and rules for marking up), MusicXML version of its first appearance, and a brief description. Elements added or modified in MusicXML 3.1 are added and applied with the appropriate version number and descriptions. The tags are grouped according to the module (mod) files for easy cross-reference.

People who want to correctly mark up MusicXML should refer to the following official sources:

1. MusicXML 3.1 specification Schema files: [https://github.com/w3c/MusicXML/releases/tag/v3.1](https://github.com/w3c/musicxml/releases/tag/v3.1)
2. MusicXML alphabetical list:
<https://www.musicxml.com/for-developers/alphabetical-index/>
3. MusicXML Tutorial:
[https://www.MusicXML.com/tutorial/](https://www.musicxml.com/tutorial/)
4. The most official and complete reference with lots of essential examples--the MusicXML 3.0 Documentation: [http://usermanuals.MusicXML.com/MusicXML/MusicXML.htm](http://usermanuals.musicxml.com/MusicXML/MusicXML.htm)
A good tutorial exists here, for every element and attribute, by module.
5. The 3.1 Version History page which can easily apply the 3.0 documentation to 3.1 features and improvements:
[https://www.MusicXML.com/for-developers/version-history](https://www.musicxml.com/for-developers/version-history)

# Notes

1. Both single and double quotation marks are valid for attribute values, but it's better to be consistent and use just one kind in one XML file.
2. Some examples here may look different from the MusicXML exported from music notation software. This is because notation software handles MusicXML differently, which results in different MusicXML output.
3. Some MusicXML tags are for visual appearance of the music, and some are for Midi playback controls, so they are not needed when converting into braille (unless we want to reproduce print scores or render better playback result). These are highlighted where relevant.
4. Comments about a particular tag, or example are all bounded by \*\* at the start and end of the comment.

# 0. General

In MusicXML 3.1, there's a "smufl" attribute applied to many elements, representing glyphs using smufl fonts like Bravura.

When there are no MusicXML equivalents for such symbols, smufl names are used, and we can simply take such names for definition of braille symbols. Information of SMUFL can be found at <http://www.smufl.org> where the specification and related glyph names can be found.

# 1. Attributes.mod

## A. General

name, file, type, version, description

**attributes**, attributes.mod, Element, 1.0, Musical information that typically changes at measure boundaries

**directive**, attributes.mod, Element, 1.0, Like directions, but at start of measure. Deprecated in Version 2.0; use directive attribute instead.

**divisions**, attributes.mod, Element, 1.0, How many divisions per quarter note for a duration

\*\*not necessary to touch if the xml file is not created from scratch by hand\*\*

**instruments**, attributes.mod, Element, 1.0, Number of instruments per part

**xml:lang**, attributes.mod, Attribute, 1.0, Language for directives

## B. Clef

name, file, type, version, description

**additional**, attributes.mod, Attribute, 2.0, "If ""yes"", indicates that this is an added clef (e.g. for cues), not a substitution"

**after-barline**, attributes.mod, Attribute, 3.0, "Does a clef at the start of a measure appear after the barline? Values: yes, no"

**clef, attributes**.mod, Element, 1.0, Clef

**clef-octave-change**, attributes.mod, Element, 1.0, Octave difference (e.g. -1 for treble clef used by tenor voice)

**line**, attributes.mod, Element, 1.0, Staff line numbered from bottom to top for clefs

\*\*the value is 1-5, for the placement of clef, e.g., <line>2</line>\*\*

**sign**, attributes.mod, Element, 1.0, "Clef sign. Values: G, F, C, percussion, TAB, none; jianpu added in 3.0"

**size**, attributes.mod, Attribute, 2.0, "Additional clef symbol size. Values: full, cue, large"

\*\*not needed for braille\*\*

## C. Key Signature

name, file, type, version, description

**cancel**, attributes.mod, Element, 1.0, Key signature cancellation

**cancel**, attributes.mod, Attribute, 2.0, Does key-octave refer to key signature cancellation? Values: yes, no.

**fifths**, attributes.mod, Element, 1.0, Number of flats or sharps in traditional key signature

\*\*positive numbers are sharps, negative are flats, 0 for no key or C major\*\*

**key**, attributes.mod, Element, 1.0, Key signature

**key-accidental**, attributes.mod, Element, 3.0, Accidental in non-traditional key signature. Values: same as for accidental

**key-alter**, attributes.mod, Element, 1.0, Amount of alteration in non-traditional key signature

**key-octave**, attributes.mod, Element, 2.0, Which octave does each element of a key signature appear?

**key-step**, attributes.mod, Element, 1.0, Altered tone in non-traditional key signature

**location**, attributes.mod, Attribute, 2.0, "Location of key signature cancellation relative to new key signature. Values: left, right; before-barline added in 3.0"

**mode**, attributes.mod, Element, 1.0, Mode for key signature

## D. Time Signature

name, file, type, version, description

**beats**, attributes.mod, Element, 1.0, Time signature numerator

**beat-type**, attributes.mod, Element, 1.0, Time signature denominator

**interchangeable**, attributes.mod, Element, 3.0, Second in a pair of dual time signatures

**senza-misura**, attributes.mod, Element, 1.0, Indicates no time signature; optional element content indicating symbol added in 3.0
\*\*for unmeasured music, the words ‘senza-misura ‘will not be shown in braille (but may be read out by a screenreader), the score will just show no time signatures.\*\*

**separator**, attributes.mod, Attribute, 3.0, "Arrangement between beats and beat-type values in a time signature. Values: none, horizontal, diagonal, vertical, adjacent"

\*\*not needed for braille\*\*

**symbol**, attributes.mod, Attribute, 1.0, "Time signature symbol. Values: common, cut, single-number, normal; note and dotted-note added in 3.0"

**time**, attributes.mod, Element, 1.0, Time signature

**time-relation**, attributes.mod, Element, 3.0, "Symbol that represents interchangeable aspect of dual time signatures. Values: parentheses, bracket, equals, slash, space, hyphen."

**time-separator**, attributes.mod, Entity, 3.0, Arrangement between beats and beat-type values in a time signature using the separator attribute

\*\*not needed for braille\*\*

**time-symbol**, attributes.mod, Entity, 3.0, Time signature display using the symbol attribute

\*\***Example for time, key and clef**:

 <attributes>

 <divisions>768</divisions>

 <key>

 <fifths>4</fifths>

 <mode>major</mode>

 </key>

 <time symbol='common'>

 <beats>4</beats>

 <beat-type>4</beat-type>

 </time>

 <clef>

 <sign>G</sign>

 <line>2</line>

 </clef>

 </attributes>

**Examples of composite time signatures:**

3+2+3/8:

 <time>

 <beats>3+2+3</beats>

 <beat-type>8</beat-type>

 </time>

**2/4 + 3/4:**

 <time>

 <beats>2</beats>

 <beat-type>4</beat-type>

 <beats>3</beats>

 <beat-type>4</beat-type>

 </time>

\*\*

## E. Staff related

name, file, type, version, description

**bottom-staff**, attributes.mod, Attribute, 2.0, Bottom staff for part-symbol element

\*\*not needed for braille\*\*

**line**, attributes.mod, Attribute, 1.0, Staff line numbered from bottom to top for staff-tuning

**number**, attributes.mod, Attribute, 1.0, Staff number for attributes. Added to key and time in 1.1; added to transpose in 3.0

**part-symbol**, attributes.mod, Element, 2.0, Symbol for a multi-staff part. Values: none, brace, line, bracket; square added in 3.0.
\*\*not needed for braille\*\*

**staff-details**, attributes.mod, Element, 1.0, Details for different types of staves

**staff-lines**, attributes.mod, Element, 1.0, Number of lines in this staff

\*\*not needed in braille. The pitches set in MusicXML will determine how braille will show the notes.\*\*

**staff-size**, attributes.mod, Element, 1.1, "Size of staff space, in percent of default scaling."

\*\*not needed for braille\*\*

**staff-tuning,** attributes.mod, Element, 1.0, Staff tuning for tablature

**staff-type**, attributes.mod, Element, 1.0, "Values: ossia, cue, editorial, regular, alternate"

\*\*not needed for braille, but can be used to determine whether we
should add text notes to show which kind of staff it is. E.g., if it's
an ossia staff, then we can insert a footnote to tell the readers.\*\*

**staves**, attributes.mod, Element, 1.0, Number of staves per part

**top-staff**, attributes.mod, Attribute, 2.0, Top staff for part-symbol element

\*\*not needed for braille\*\*

## F. Transposition

\*\*none needed for braille, only for midi playback\*\*

name, file, type, version, description

**chromatic**, attributes.mod, Element, 1.0, Chromatic steps for transposing written to sounding pitch

\*\*not needed for braille, only for midi playback\*\*

**diatonic**, attributes.mod, Element, 1.0, Diatonic steps for transposing written to sounding pitch

\*\*not needed for braille, only for midi playback\*\*

**double**, attributes.mod, Element, 1.0, Transposition involves doubling one octave down
\*\*not needed for braille, only for midi playback\*\*

**octave-change**, attributes.mod, Element, 1.0, Octaves for transposing written to sounding pitch

\*\*not needed for braille, only for midi playback\*\*

**transpose**, attributes.mod, Element, 1.0, Transposition from written to sounding pitch

\*\*not needed for braille, only for midi playback\*\*

## G. Other Notation Related

name, file, type, version, description

**capo**, attributes.mod, Element, 1.0, Capo fret for tablature

**except-voice**, attributes.mod, Element, 3.1, "specify a combination of slash notation"

**show-frets**, attributes.mod, Attribute, 1.0, "How to display tablature frets. Values: letters, numbers"

**slash**, attributes.mod, Element, 1.0, Slash notation

## H. Measure And Measure Repeats

name, file, type, version, description

**beat-repeat,** attributes.mod, Element, 1.0, Beat repeat mark

**measure-repeat**, attributes.mod, Element, 1.0, Single or multiple measure repeat mark

**measure-style**, attributes.mod, Element, 1.0, Special way to print

**multiple-rest**, attributes.mod, Element, 1.0, Multimeasure rest

**slash-dot**, attributes.mod, Element, 2.0, Definition of beat for beat-repeat and slash

**slashes**, attributes.mod, Attribute, 1.0, Number of slashes in repeat sign

**slash-type**, attributes.mod, Element, 2.0, Definition of beat for beat-repeat and slash. Values: same as type element

**type,** attributes.mod, Attribute, 1.0, "Measure style type. Values: start, stop"

**use-dots**, attributes.mod, Attribute, 1.0, Use dots with beat-repeat or slash

**use-stems**, attributes.mod, Attribute, 1.0, Use stems with slash notation

**use-symbols**, attributes.mod, Attribute, 1.0, Use 1-bar / 2-bar / 4-bar symbols for multimeasure rests

# 2. Barline.mod

## A. Barlines

name, file, type, version, description

**barline**, barline.mod, Element, 1.0, Barline information

**bar-style,** barline.mod, Element, 1.0, "Values: regular, dotted, dashed, heavy, light-light, light-heavy, heavy-light, heavy-heavy, none; tick and short added in 2.0"

**location**, barline.mod, Attribute, 1.0, "Barline location. Values: left, right, middle"

\*\***Example of dotted barlines and split measures**. In this example, the 4/4 measure is divided into 3 parts, with two implicit measures after the numbered (19) one. Dashed barlines are then inserted among these incomplete measures.

 <measure number='18'>

 <note>

 <pitch>

 <step>C</step>

 <octave>4</octave>

 </pitch>

 <duration>384</duration>

 <voice>1</voice>

 <type>eighth</type>

 <stem>up</stem>

 <beam number='1'>begin</beam>

 <notations>

 <articulations>

 <accent/>

 </articulations>

 </notations>

 </note>

 <note>

 <pitch>

 <step>D</step>

 <octave>4</octave>

 </pitch>

 <duration>384</duration>

 <voice>1</voice>

 <type>eighth</type>

 <stem>up</stem>

 <beam number='1'>continue</beam>

 </note>

 <note>

 <pitch>

 <step>E</step>

 <octave>4</octave>

 </pitch>

 <duration>384</duration>

 <voice>1</voice>

 <type>eighth</type>

 <stem>up</stem>

 <beam number='1'>end</beam>

 </note>

 <barline location='right'>

 <bar-style>dashed</bar-style>

 </barline>

 </measure>

<!--=========================================================-->

 <measure number='X1' implicit='yes'>

 <note>

 <pitch>

 <step>F</step>

 <octave>4</octave>

 </pitch>

 <duration>384</duration>

 <voice>1</voice>

 <type>eighth</type>

 <stem>up</stem>

 <beam number='1'>begin</beam>

 <notations>

 <articulations>

 <accent/>

 </articulations>

 </notations>

 </note>

 <note>

 <pitch>

 <step>G</step>

 <octave>4</octave>

 </pitch>

 <duration>384</duration>

 <voice>1</voice>

 <type>eighth</type>

 <stem>up</stem>

 <beam number='1'>continue</beam>

 </note>

 <note>

 <pitch>

 <step>A</step>

 <octave>4</octave>

 </pitch>

 <duration>384</duration>

 <voice>1</voice>

 <type>eighth</type>

 <stem>up</stem>

 <beam number='1'>end</beam>

 </note>

 <barline location='right'>

 <bar-style>dashed</bar-style>

 </barline>

 </measure>

<!--=========================================================-->

 <measure number='X2' implicit='yes'>

 <note>

 <pitch>

 <step>B</step>

 <octave>4</octave>

 </pitch>

 <duration>384</duration>

 <voice>1</voice>

 <type>eighth</type>

 <stem>down</stem>

 <beam number='1'>begin</beam>

 <notations>

 <articulations>

 <accent/>

 </articulations>

 </notations>

 </note>

 <note>

 <pitch>

 <step>C</step>

 <octave>5</octave>

 </pitch>

 <duration>384</duration>

 <voice>1</voice>

 <type>eighth</type>

 <stem>down</stem>

 <beam number='1'>end</beam>

 </note>

 </measure>

\*\*

## B. Repeats

name, file, type, version, description

**coda**, barline.mod, Attribute, 2.0, Place to jump forwards from to coda with same value

**direction**, barline.mod, Attribute, 1.0, "Repeat direction. Values: backward, forward"

**divisions**, barline.mod, Attribute, 2.0, New divisions per quarter note for use with segno and coda

**ending**, barline.mod, Element, 1.0, Multiple endings (e.g. first and second)

**end-length**, barline.mod, Attribute, 1.1, Ending jog size in tenths

**number**, barline.mod, Attribute, 1.0, "What goes under ending line (e.g. ""1"", ""1, 2"")"

**repeat**, barline.mod, Element, 1.0, Repeat marks

**segno**, barline.mod, Attribute, 2.0, Place to jump backwards from dalsegno with same value

**text-x**, barline.mod, Attribute, 2.0, Offset for start of ending text relative to start of the ending line

\*\*not needed for braille\*\*

**text-y,** barline.mod, Attribute, 2.0, Offset for baseline of ending text relative to start of the ending line

\*\*not needed for braille\*\*

**times**, barline.mod, Attribute, 1.0, Number of times repeated section is played

**type**, barline.mod, Attribute, 1.0, "Ending type. Values: start, stop, discontinue"

**winged**, barline.mod, Attribute, 3.0, "Does repeat have winged extensions? Values: none, straight, curved, double-straight, double-curved"

# 3. Common.mod

## A. Dynamics

name, file, type, version, description

**dynamics**, common.mod, Element, 1.0, Dynamics marking

**f**, common.mod, Element, 1.0, f dynamic

**ff**, common.mod, Element, 1.0, ff dynamic

**fff**, common.mod, Element, 1.0, fff dynamic

**ffff**, common.mod, Element, 1.0, ffff dynamic

**fffff**, common.mod, Element, 1.0, fffff dynamic

**ffffff**, common.mod, Element, 1.0, ffffff dynamic

**fp**, common.mod, Element, 1.0, fp dynamic

**fz**, common.mod, Element, 1.0, fz dynamic

**mf**, common.mod, Element, 1.0, mf dynamic

**mp**, common.mod, Element, 1.0, mp dynamic

**n**, common.mod, Element, 3.1, n dynamic

**other-dynamics**, common.mod, Element, 1.0, Text dynamic

\*\* This is for uncommon dynamic texts, or even dynamic with other texts, such as "p dolce".\*\*

**p**, common.mod, Element, 1.0, p dynamic

**pf,** common.mod, Element, 3.1, pf dynamic

**pp**, common.mod, Element, 1.0, pp dynamic

**ppp**, common.mod, Element, 1.0, ppp dynamic

**pppp**, common.mod, Element, 1.0, pppp dynamic

**ppppp**, common.mod, Element, 1.0, ppppp dynamic

**pppppp**, common.mod, Element, 1.0, pppppp dynamic

**rf,** common.mod, Element, 1.0, rf dynamic

**rfz**, common.mod, Element, 1.0, rfz dynamic

**sf**, common.mod, Element, 1.0, sf dynamic

**sffz**, common.mod, Element, 1.0, sffz dynamic

**sfp**, common.mod, Element, 1.0, sfp dynamic

**sfpp**, common.mod, Element, 1.0, sfpp dynamic

**sfz**, common.mod, Element, 1.0, sfz dynamic

**sfzp**, common.mod, Element, 3.1, sfzp dynamic

## B. Fingering

name, file, type, version, description

**alternate**, common.mod, Attribute, 1.0, "Alternate fingering? Values: yes, no"

**fingering**, common.mod, Element, 1.0, "Fingering indication, typically 1, 2, 3, 4, 5"

**substitution**, common.mod, Attribute, 1.0, "Substitute fingering for middle of note? Values: yes, no"
\*\*FOR DEVELOPERS TOO: TODO: Notation software only locates fingerings as texts around notes,  without specific attachment information,  thus which finger for which note. So in a chord,  multiple fingers are placed altogether. If there are some notes without fingerings,  the braille output may be messed up. So should we move specific fingers under specific notes,  or create an "empty" value to fill in the gap for the software to skip these notes? \*\*

**Examples for such possible implementations:**

Description: The fingerings are applied to only the bottom and top notes of a chord, not the middle note.

 <note>

 <pitch>

 <step>D</step>

 <octave>5</octave>

 </pitch>

 <duration>768</duration>

 <voice>1</voice>

 <type>quarter</type>

 <stem>down</stem>

 <staff>1</staff>

 <notations>

 <technical>

 <fingering>5</fingering>

 <fingering>2</fingering>

 </technical>

 </notations>

 </note>

 <note>

 <chord/>

 <pitch>

 <step>F</step>

 <octave>5</octave>

 </pitch>

 <duration>768</duration>

 <voice>1</voice>

 <type>quarter</type>

 <stem>down</stem>

 <staff>1</staff>

 </note>

 <note>

 <chord/>

 <pitch>

 <step>G</step>

 <octave>5</octave>

 </pitch>

 <duration>768</duration>

 <voice>1</voice>

 <type>quarter</type>

 <stem>down</stem>

 <staff>1</staff>

 </note>

**Possible solution 1 -- move the other finger to appropriate note:**

 <note>

 <pitch>

 <step>D</step>

 <octave>5</octave>

 </pitch>

 <duration>768</duration>

 <voice>1</voice>

 <type>quarter</type>

 <stem>down</stem>

 <staff>1</staff>

 <notations>

 <technical>

 <fingering>2</fingering>

 </technical>

 </notations>

 </note>

 <note>

 <chord/>

 <pitch>

 <step>F</step>

 <octave>5</octave>

 </pitch>

 <duration>768</duration>

 <voice>1</voice>

 <type>quarter</type>

 <stem>down</stem>

 <staff>1</staff>

 </note>

 <note>

 <chord/>

 <pitch>

 <step>G</step>

 <octave>5</octave>

 </pitch>

 <duration>768</duration>

 <voice>1</voice>

 <type>quarter</type>

 <stem>down</stem>

 <staff>1</staff>

 <technical>

 <fingering>5</fingering>

 </technical>

 </note>

**Possible solution 2 -- provide an empty value to fill in the gap:**

 <note>

 <pitch>

 <step>D</step>

 <octave>5</octave>

 </pitch>

 <duration>768</duration>

 <voice>1</voice>

 <type>quarter</type>

 <stem>down</stem>

 <staff>1</staff>

 <notations>

 <technical>

 <fingering>5</fingering>

 <fingering> </fingering>

 <fingering>2</fingering>

 </technical>

 </notations>

 </note>

 <note>

 <chord/>

 <pitch>

 <step>F</step>

 <octave>5</octave>

 </pitch>

 <duration>768</duration>

 <voice>1</voice>

 <type>quarter</type>

 <stem>down</stem>

 <staff>1</staff>

 </note>

 <note>

 <chord/>

 <pitch>

 <step>G</step>

 <octave>5</octave>

 </pitch>

 <duration>768</duration>

 <voice>1</voice>

 <type>quarter</type>

 <stem>down</stem>

 <staff>1</staff>

 </note>

\*\*

## C. Other Notation Related

name, file, type, version, description

**beam-level,** common.mod, Entity, 1.0, "Distinguishes eighth to 1024th beams Values: 1, 2, 3, 4, 5, 6; 7 and 8 added in 3.0"

\*\*needed for braille if the score contains different presentations of groups of notes.\*\*

**coda**, common.mod, Element, 1.0, Coda sign

**editorial**, common.mod, Entity, 1.0, Footnote and level elements

**editorial-voice**, common.mod, Entity, 1.0, "Footnote, level, and voice elements"

**level,** common.mod, Element, 1.0, Indication of editorial level

**fermata**, common.mod, Element, 1.0, "Fermata symbol. Text values added in 2.0: normal, angled, square; double-angled, double-square, double-dot, half-curve, and curlew added in 3.1"

**fret**, common.mod, Element, 1.0, Fret for tablature / chord symbol: open string is 0

**parentheses**, common.mod, Attribute, 1.0, "Show level with parentheses? Values: yes, no"

**placement**, common.mod, Attribute, 1.0, "Placement relative to another symbol. Values: above, below"

**placement**, common.mod, Entity, 1.0, Collection of placement attributes

**segno**, common.mod, Element, 1.0, Segno sign

**staff**, common.mod, Element, 1.0, Staff assignment for multi-staff parts

**start-stop**, common.mod, Entity, 1.0, "Typically used for type attribute. Values: start, stop"

**start-stop-continue**, common.mod, Entity, 1.0, "Values: start, stop, continue"

**start-stop-single**, common.mod, Entity, 2.0, "For notations that can be multi- or single-note. Values: start, stop, single"

**string**, common.mod, Element, 1.0, String for tablature / chord symbol: highest string is 1

**tuning-alter**, common.mod, Element, 1.0, Pitch alteration for a staff line. In attributes.mod in 1.0.

**tuning-octave**, common.mod, Element, 1.0, Octave for a staff line. In attributes.mod in 1.0.

**tuning-step**, common.mod, Element, 1.0, Pitch step for a staff line. In attributes.mod in 1.0.

**two-note-turn**, common.mod, Attribute, 1.0, "Size of turn at end of trill. Values: whole, half, none"

**type**, common.mod, Attribute, 1.0, "Fermata type. Values: upright, inverted"

**voice**, common.mod, Element, 1.0, Distinguish musical voice

## D. Text Related

name, file, type, version, description

**accidental-text**, common.mod, Element, 2.0, Formatted accidental used by part-name-display and similar elements. Values: same as for accidental

**display-text,** common.mod, Element, 2.0, Portion of formatted text used by part-name-display and similar elements

**font**, common.mod, Entity, 1.0, Collection of font attributes

**font-family**, common.mod, Attribute, 1.0, "Font family, like CSS. Generic styles are music, serif, sans-serif."

**font-size**, common.mod, Attribute, 1.0, "Font size, like CSS - either number or CSS size"
\*\*not needed for braille\*\*

**font-style**, common.mod, Attribute, 1.0, "Font style, like CSS. Values: normal, italic"

\*\*not needed for braille\*\*

**font-weight**, common.mod, Attribute, 1.0, "Font weight, like CSS. Values: normal, bold"

\*\*not needed for braille\*\*

**footnote**, common.mod, Element, 1.0, Editorial footnote text

**ipa**, common.mod, Element, 3.0, International Phonetic Alphabet sounds for vocal music

**isolat1**, common.mod, Entity, 1.0, Character entities for ISO Latin-1

**isolat2**, common.mod, Entity, 1.0, Character entities for ISO Latin-2

**justify**, common.mod, Attribute, 1.0, "Justification. Values: left, center, right. In direction.mod in 1.0."

**justify**, common.mod, Entity, 1.1, Collection of justification attributes

**part-abbreviation-display**, common.mod, Element, 2.0, Formatted version of part-abbreviation

**part-name-display**, common.mod, Element, 2.0, Formatted version of part-name

**underline**, common.mod, Attribute, 2.0, "Number of text underlines. Values: 0, 1, 2, 3"

**wavy-line,** common.mod, Element, 1.0, Wavy line symbol

**xml:lang**, common.mod, Attribute, 1.0, "Language for words, credit-words, and other text elements"

## E. Miscellaneous

\*\*The majority of these are about layout or midi playback, and most are not needed for braille, apart from those marked with comments.\*\*

name, file, type, version, description

**accelerate**, common.mod, Attribute, 1.0, "Accelerate playback at end? Values: yes, no"

**actual-notes**, common.mod, Element, 1.0, How many notes played in given time

**beats**, common.mod, Attribute, 1.0, How many added beats in the trill / bend

**bend-sound**, common.mod, Entity, 1.0, Collection of bend playback attributes

**bezier,** common.mod, Entity, 1.0, Collection of Bezier curve attributes

**bezier-offset,** common.mod, Attribute, 1.0, Bezier point: horizontal in divisions; deprecated in 3.1

**bezier-offset2**, common.mod, Attribute, 1.0, Outgoing Bezier point for continue type: horizontal in divisions; deprecated in 3.1

**bezier-x,** common.mod, Attribute, 1.0, Bezier point: horizontal in tenths

**bezier-x2**, common.mod, Attribute, 1.0, Outgoing Bezier point for continue type: horizontal in tenths

**bezier-y**, common.mod, Attribute, 1.0, Bezier point: vertical in tenths

**bezier-y2**, common.mod, Attribute, 1.0, Outgoing Bezier point for continue type: vertical in tenths

**bracket,** common.mod, Attribute, 1.0, "Show level with brackets? Values: yes, no"

**color**, common.mod, Attribute, 1.1, Color. Values: hexadecimal RGB triple or ARGB tuple in sRGB color space.

**color,** common.mod, Entity, 1.1, Collection of color attributes

**dashed-formatting**, common.mod, Entity, 3.0, "Length of dashes and spaces in a dashed line, in tenths"

**dash-length**, common.mod, Attribute, 3.0, "Length of dashes in a dashed line, in tenths"

**default-x**, common.mod, Attribute, 1.0, Change origin of default horizontal position

**default-y**, common.mod, Attribute, 1.0, Change origin of default vertical position

**dir**, common.mod, Attribute, 2.0, "Text directionality, similar to W3C Internationalization Tag Set. Values: ltr, rtl, lro, rlo"

**directive**, common.mod, Attribute, 2.0, "If yes, use directive-style default-x position, aligned with start of time signature"

**directive**, common.mod, Entity, 2.0, Collection of directive attributes

**document-attributes**, common.mod, Entity, 2.0, Collection of attributes for MusicXML document elements

**elevation**, common.mod, Element, 2.0, "3D elevation from -180 to 180; 0 is level, 90 directly above, -90 directly below"

**enclosure**, common.mod, Attribute, 1.1, "Enclosure for non-rehearsal mark text. Values: rectangle, oval, none; enclosure-shape entity values added in 3.0"

**enclosure-shape**, common.mod, Entity, 3.0, "Text enclosures using the enclosure attribute. Values: rectangle, square, oval, circle, bracket, triangle, diamond, none; ; pentagon, hexagon, heptagon, octagon, nonagon, and decagon are added in 3.1"

**first-beat**, common.mod, Attribute, 1.0, Percentage of direction for starting a bend

**halign**, common.mod, Attribute, 1.1, "Horizontal alignment. Values: left, center, right"

**halign**, common.mod, Entity, 1.1, Collection of horizontal alignment attributes

**id**, common.mod, Attribute, 1.0, "IDREF to score-instrument for midi-instrument element; added to midi-device and play elements in 3.0; added to accidental-mark, articulations, arpeggiate, barline, beam, clef, coda, credit, credit-image, credit-words, dynamics, fermata, figured-bass, glissando, key, lyric, measure, measure-non-arpeggiate, notations, note, ornaments, other-notation, slide, slur, style, segno, technical, tied, time, , transpose and tuplet elements in 3.1"

**last-beat**, common.mod, Attribute, 1.0, "Percentage of trill where last beat falls, or percentage of direction for ending a bend"

**layout-tenths**, common.mod, Entity, 1.1, "Positioning unit in tenths of interline space, used for elements."

**left-right**, common.mod, Entity, 2.0, "Does one element appear to the left or right of another element? Values: left, right"

**letter-spacing**, common.mod, Attribute, 2.0, Text spacing. Values: normal or a number representing ems to add

**letter-spacing**, common.mod, Entity, 2.0, Collection of text spacing attributes

**level-display**, common.mod, Entity, 1.1, "Collection of parentheses, bracket, and size attributes"

**line-height**, common.mod, Attribute, 2.0, Text leading. Values: normal or a number representing percent of font height to add

**line-height**, common.mod, Entity, 2.0, Collection of text leading attributes

**line-shape**, common.mod, Attribute, 1.0, "Values: straight, curved"

**line-shape**, common.mod, Entity, 1.0, Collection of line shape attributes

**line-through**, common.mod, Attribute, 2.0, "Number of text strike-through lines. Values: 0, 1, 2, 3"

**line-type**, common.mod, Attribute, 1.0, "Values: solid, dashed, dotted, wavy"

**line-type**, common.mod, Entity, 1.0, Collection of line type attributes

**midi-bank**, common.mod, Element, 1.0, "MIDI bank from 1 to 16, 384"

**midi-channel**, common.mod, Element, 1.0, MIDI channel from 1 to 16

**midi-instrument**, common.mod, Element, 1.0, Specify MIDI instrument for score-instrument or sound

**midi-name**, common.mod, Element, 1.0, MIDI ProgramName meta event

**midi-program**, common.mod, Element, 1.0, MIDI program number from 1 to 128

**midi-unpitched**, common.mod, Element, 1.0, "For unpitched instruments, MIDI note number from 1 to 128"

**mute**, common.mod, Element, 3.0, "Muting for different instruments. Values: on, off, straight, cup, harmon-no-stem, harmon-stem, bucket, plunger, hat, solotone, practice, stop-mute, stop-hand, echo, palm"

**normal-dot**, common.mod, Element, 1.0, Augmentation dot for normal-type value

**normal-notes**, common.mod, Element, 1.0, How many notes usually occupy this time

**normal-type**, common.mod, Element, 1.0, Type of note for normal-notes value

**number**, common.mod, Attribute, 1.0, A number-level value for the wavy-line element

\*\*this will be used to level lines, tuplets, hairpins etc.\*\*

**number-level**, common.mod, Entity, 1.0, "Distinguishes 6 concurrent objects. Values: 1, 2, 3, 4, 5, 6"

**number-of-lines**, common.mod, Entity, 2.0, "Number of lines in text decoration. Values: 0, 1, 2, 3"

**orientation**, common.mod, Attribute, 1.0, "Slur / ties overhand vs. underhand. Values: over, under"

**orientation**, common.mod, Entity, 1.0, Collection of orientation attributes

**other-play**, common.mod, Element, 3.0, Playback technique not yet specified in the MusicXML format

**overline**, common.mod, Attribute, 2.0, "Number of text overlines. Values: 0, 1, 2, 3"

**pan**, common.mod, Element, 2.0, "Horizontal pan from -180 to 180; 0 is straight ahead, -90 hard left, 90 hard right"

**play**, common.mod, Element, 3.0, Playback techniques

**position**, common.mod, Entity, 1.0, Collection of positioning attributes

**print-dot**, common.mod, Attribute, 1.0, "Should an augmentation dot be printed? Values: yes, no"

**print-lyric**, common.mod, Attribute, 1.1, "Should a lyric be printed? Values: yes, no"

**print-object**, common.mod, Attribute, 1.0, "Should an object be printed? Values: yes, no"

\*\*this "print" tag will determine whether braille should have the following contents. If the staff-details print-object is set to no, for example, anything in the following measures should not be brailled, unless the value is set to yes. The same applies to other musical or text objects.\*\*

**print-object**, common.mod, Entity, 1.1, Collection of print object attributes

**printout,** common.mod, Entity, 1.0, Collection of print / no print attributes

**print-spacing**, common.mod, Attribute, 1.0, "Should spacing be left? Values: yes, no"

**print-spacing**, common.mod, Entity, 1.1, Collection of print spacing attributes

**print-style**, common.mod, Entity, 1.1, "Collection of position, font, and color entitites"

**reference**, common.mod, Attribute, 1.1, "Display-only editorial information? Values: yes, no"

**relative-x**, common.mod, Attribute, 1.0, Change horizontal position relative to default

**relative-y**, common.mod, Attribute, 1.0, Change vertical position relative to default

**rotation**, common.mod, Attribute, 2.0, Rotate text around halign/valign point. Values: numbers from -180 to 180

**second-beat**, common.mod, Attribute, 1.0, Percentage ot trill where second beat falls

**semi-pitched**, common.mod, Element, 3.0, "Categories of indefinite pitch for percussion. Values: high, medium-high, medium, medium-low, low, very-low"

**size**, common.mod, Attribute, 1.0, "Show level with size? Values: full, cue, large"

**space-length**, common.mod, Attribute, 3.0, "Length of spaces in a dashed line, in tenths"

**start-note**, common.mod, Attribute, 1.0, "Starting note for playback. Values: upper, main, below"

**symbol-size**, common.mod, Entity, 1.0, "Symbol size, such as for notes. Values: full, cue; large added in 1.1; grace-cue added in 3.1."

**tenths**, common.mod, Entity, 1.0, "Positioning unit in tenths of interline space, used for attributes."

**text-decoration**, common.mod, Entity, 2.0, Collection of text decoration attributes

**text-direction**, common.mod, Entity, 2.0, "Collection of text direction attributes, similar to W3C Internationalization Tag Set"

**text-formatting**, common.mod, Entity, 2.0, Common formatting attributes for text elements

**text-rotation**, common.mod, Entity, 2.0, Collection of text rotation attributes

**top-bottom**, common.mod, Entity, 1.0, "For vertical shapes. Values: top, bottom"

**trill-sound**, common.mod, Entity, 1.0, Collection of trill playback attributes

**trill-step**, common.mod, Attribute, 1.0, "Size of trill playback step. Values: whole, half, unison"

**type**, common.mod, Attribute, 3.0, Playback technique type for other-play element

**up-down**, common.mod, Entity, 1.0, "For arrow direction. Values: up, down"

**valign**, common.mod, Attribute, 1.1, Vertical alignment for text or images

**valign**, common.mod, Entity, 1.1, "Vertical alignment for text. Values: top, middle, bottom, baseline"

**valign-image**, common.mod, Entity, 2.0, "Vertical alignment for images. Values: top, middle, bottom"

**version**, common.mod, Attribute, 1.1, MusicXML format version. Added to opus element in 2.0.

**volume**, common.mod, Element, 2.0, MIDI channel volume as percentage of maximum. Values: 0 to 100

**xml:space**, common.mod, Attribute, 3.0, Whitespace handling for formatted text

**yes-no**, common.mod, Entity, 1.0, "For boolean-like attributes. Values: yes, no"

**yes-no-number**, common.mod, Entity, 2.0, "For attributes that can be boolean or numeric. Values: yes, no, and numbers"

\*\*yes and no are common values so they are needed at any time.\*\*

**yyyy-mm-dd**, common.mod, Entity, 1.0, Calendar dates in ISO 8601 format

# 4. Container.mod

\*\*none needed for braille, but they provide directions to files contained in a zipped MusicXML file (.mxl)\*\*

name, file, type, version, description

**container**, container.dtd, Element, 2.0, Document element for MusicXML container file

**full-path**, container.dtd, Attribute, 2.0, Path relative to root folder of the zip file

**media-type**, container.dtd, Attribute, 2.0, Type of different top-level root files

**rootfile**, container.dtd, Element, 2.0, Top-level file in a MusicXML container

**rootfiles**, container.dtd, Element, 2.0, Starting points for representations of MusicXML score

# 5. Direction.mod

## A. Metronome And Tempo

name, file, type, version, description

**beat-unit**, direction.mod, Element, 1.0, Metronome beat unit; same values as type element

**beat-unit-dot**, direction.mod, Element, 1.0, Metronome beat unit augmentation dot

**metronome**, direction.mod, Element, 1.0, Standard metronome marks

**metronome-beam**, direction.mod, Element, 2.0, Beaming of notes displayed in metric relationship

**metronome-dot**, direction.mod, Element, 2.0, Dot displayed in metric relationship

**metronome-note**, direction.mod, Element, 2.0, Note displayed in metric relationship

**metronome-relation**, direction.mod, Element, 2.0, Relationship symbol between two sets of metronome-note elements. Values: equals

**metronome-tuplet**, direction.mod, Element, 2.0, Tuplet displayed in metric relationship

**metronome-type**, direction.mod, Element, 2.0, Type of note displayed in metric relationship. Values: same as type element

**parentheses**, direction.mod, Attribute, 1.0, "Is metronome mark parenthesized? Values: yes, no"

**per-minute**, direction.mod, Element, 1.0, Metronome beats per minute

**tempo**, direction.mod, Attribute, 1.0, Tempo in quarter notes per minute

**type**, direction.mod, Attribute, 2.0, "Metronome tuplet type. Values: start, stop"

**\*\*Examples of metronome marks:**

**quarter = 120:**

<metronome>

 <beat-unit>quarter</beat-unit>

 <per-minute>120</per-minute>

</metronome>

**Dotted quarter = ca. 120-126:**

<metronome>

 <beat-unit>quarter</beat-unit>

 <beat-unit-dot />

 <per-minute>ca. 120-126</per-minute>

</metronome>

**quarter = quarter (used in time modulation):**

<metronome>

 <beat-unit>quarter</beat-unit>

 <beat-unit>quarter</beat-unit>

</metronome>

**Two eighths equals a triplet with a quarter and an eighth (swing music):**

 <metronome>

 <metronome-note>

 <metronome-type>eighth</metronome-type>

 <metronome-beam number="1">begin</metronome-beam>

 </metronome-note>

 <metronome-note>

 <metronome-type>eighth</metronome-type>

 <metronome-beam number="1">end</metronome-beam>

 </metronome-note>

 <metronome-relation>equals</metronome-relation>

 <metronome-note>

 <metronome-type>quarter</metronome-type>

 <metronome-tuplet bracket="yes" show-number="actual" type="start">

 <actual-notes>3</actual-notes>

 <normal-notes>2</normal-notes>

 <normal-type>eighth</normal-type>

 </metronome-tuplet>

 </metronome-note>

 <metronome-note>

 <metronome-type>eighth</metronome-type>

 <metronome-tuplet type="stop">

 <actual-notes>3</actual-notes>

 <normal-notes>2</normal-notes>

 <normal-type>eighth</normal-type>

 </metronome-tuplet>

 </metronome-note>

 </metronome>

**Three quarters as a triplet equals two quarters:**

 <metronome>

 <metronome-note>

 <metronome-type>quarter</metronome-type>

 <metronome-tuplet bracket="yes" show-number="actual" type="start">

 <actual-notes>3</actual-notes>

 <normal-notes>2</normal-notes>

 <normal-type>quarter</normal-type>

 </metronome-tuplet>

 </metronome-note>

 <metronome-note>

 <metronome-type>quarter</metronome-type>

 </metronome-note>

 <metronome-note>

 <metronome-type>quarter</metronome-type>

 <metronome-tuplet type="stop">

 <actual-notes>3</actual-notes>

 <normal-notes>2</normal-notes>

 <normal-type>quarter</normal-type>

 </metronome-tuplet>

 </metronome-note>

 <metronome-relation>equals</metronome-relation>

 <metronome-note>

 <metronome-type>quarter</metronome-type>

 </metronome-note>

 <metronome-note>

 <metronome-type>quarter</metronome-type>

 </metronome-note>

 </metronome>

\*\*

## B. Others

FOR DEVELOPERS and VALIDATION/TOOLS: \*\*the rest are all about texts, lines and symbols, so are not broken into sub-sections. Some have no braille signs invented, but we should reserve all of them for future use.\*\*

name, file, type, version, description

**accord**, direction.mod, Element, 1.1, Individual string tuning for scordatura

**accordion-high**, direction.mod, Element, 2.0, Is high section of accordion registration present?

**accordion-low,** direction.mod, Element, 2.0, Is low section of accordion registration present?

**accordion-middle**, direction.mod, Element, 2.0, "Is middle section of accordion registration present? Values: 1, 2, 3"

**accordion-registration**, direction.mod, Element, 2.0, Accordion registration symbol

**barre**, direction.mod, Element, 1.1, Indicate barre chords in a frame

**bass**, direction.mod, Element, 1.0, Altered bass as in pop music (as opposed to using inversions)

**bass-alter**, direction.mod, Element, 1.0, Pitch alteration for bass

**bass-step**, direction.mod, Element, 1.0, Pitch step for bass

**beater**, direction.mod, Element, 3.0, "Pictograms for beaters that do not distinguish materials. Values: bow, chime hammer, coin, finger, fingernail, fist, guiro scraper, hammer, hand, jazz stick, knitting needle, metal hammer, snare stick, spoon mallet, triangle beater, triangle beater plain, wire brush"

\*\*use these values, and the braille conversion tool will just take these words - we just need the text value\*\*

**blank-page**, direction.mod, Attribute, 2.0, Number of blank pages to insert before current measure

**bracket**, direction.mod, Element, 1.0, "Flexible line and bracket definition, often combined with words"

**bracket**, direction.mod, Attribute, 2.0, "Tuplet bracket displayed in metric relationship? Values: yes, no"

**bracket-degrees**, direction.mod, Attribute, 1.1, All harmony degrees should be in a bracket

**coda**, direction.mod, Attribute, 1.0, Place to jump forwards from tocoda with same value

**dacapo**, direction.mod, Attribute, 1.0, Go back to beginning of movement. Value: yes

**dalsegno**, direction.mod, Attribute, 1.0, Jump backwards to segno with same value

**damp**, direction.mod, Element, 1.0, Harp damping

**damp-all**, direction.mod, Element, 1.0, Harp damping for all strings

**damper-pedal**, direction.mod, Attribute, 1.0, "Damper pedal control. Values: yes, no. Yes is depressed, no is released. Numeric values added in 2.0."

**dashes**, direction.mod, Element, 1.0, "Dashed line, often used with cresc., dim., and other words"

**degree**, direction.mod, Element, 1.0, "Add, alter, or subtract individual notes from a harmony"

**degree-alter**, direction.mod, Element, 1.0, "Alteration for degree, relative to dominant if adding: 1 for sharp, -1 for flat, etc."

**degree-type**, direction.mod, Element, 1.0, "Type of degree aleration. Values: add, alter, subtract"

**degree-value**, direction.mod, Element, 1.0, "Degree of chord being affected: 1 for root, 3 for third, etc."

**direction**, direction.mod, Element, 1.0, Musical indication not tied to a particular note

**direction-type**, direction.mod, Element, 1.0, Type of direction; may be combined

**division**s, direction.mod, Attribute, 1.0, New divisions per quarter note for use with segno and coda

**dynamics**, direction.mod, Attribute, 1.0, Dynamics or MIDI velocity in percentage of default forte value (90 for MIDI)

**effect,** direction.mod, Element, 3.0, "Pictograms for sound effect percussion instruments. Values: anvil, auto horn, bird whistle, cannon, duck call, gun shot, klaxon horn, lions roar, police whistle, siren, slide whistle, thunder sheet, wind machine, wind whistle"

\*\*use these values, and the braille conversion tool will just take these words - we just need the text value\*\*

**elevation**, direction.mod, Attribute, 1.0, 3D elevation. Deprecated in 2.0; use elevation element instead.

**enclosure**, direction.mod, Attribute, 1.1, "Enclosure for rehearsal mark. Values: square, circle, none; enclosure-shape entity values added in 3.0"

\*\*not needed for braille\*\*

**end-length**, direction.mod, Attribute, 1.0, Bracket jog size in tenths
\*\*not needed for braille\*\*

**eyeglasses**, direction.mod, Element, 1.0, Eyeglasses mark

**feature**, direction.mod, Element, 1.0, Feature of this grouping

**fine**, direction.mod, Attribute, 1.0, "Final note or rest value: duration if numeric, or ""yes' if no duration change"

**first-fret**, direction.mod, Element, 1.0, Fret shown in top space of frame

**forward-repeat**, direction.mod, Attribute, 1.0, Forward repeat sign is implied. Value: yes

**frame**, direction.mod, Element, 1.0, Chord frame or fretboard diagram

**frame-frets**, direction.mod, Element, 1.0, Size of frame in horizontal spaces

**frame-note**, direction.mod, Element, 1.0, Note to include in frame

**frame-strings**, direction.mod, Element, 1.0, Size of frame in vertical lines

**function**, direction.mod, Element, 1.0, "Harmony function (e.g. I, V)"

**glass**, direction.mod, Element, 3.0, Pictrograms for glass percussion instruments. Value: wind chimes

\*\*use these values, and the braille conversion tool will just take these words - we just need the text value\*\*

**grouping**, direction.mod, Element, 1.0, Grouping for musical analysis

**harmony**, direction.mod, Element, 1.0, "Harmony data, used for chord symbols or analysis"

**harmony-chord**, direction.mod, Entity, 1.0, Harmony chord information; may be stacked in a single harmony element

**harp-pedals**, direction.mod, Element, 1.1, Harp pedal diagram

**\*\*Example of a harp pedal diagram**:

 <direction>

 <direction-type>

 <harp-pedals font-family='OpusText' default-y='-77' relative-x='-57'>

 <pedal-tuning>

 <pedal-step>D</pedal-step>

 <pedal-alter>0</pedal-alter>

 </pedal-tuning>

 <pedal-tuning>

 <pedal-step>C</pedal-step>

 <pedal-alter>0</pedal-alter>

 </pedal-tuning>

 <pedal-tuning>

 <pedal-step>B</pedal-step>

 <pedal-alter>-1</pedal-alter>

 </pedal-tuning>

 <pedal-tuning>

 <pedal-step>E</pedal-step>

 <pedal-alter>-1</pedal-alter>

 </pedal-tuning>

 <pedal-tuning>

 <pedal-step>F</pedal-step>

 <pedal-alter>1</pedal-alter>

 </pedal-tuning>

 <pedal-tuning>

 <pedal-step>G</pedal-step>

 <pedal-alter>0</pedal-alter>

 </pedal-tuning>

 <pedal-tuning>

 <pedal-step>A</pedal-step>

 <pedal-alter>0</pedal-alter>

 </pedal-tuning>

 </harp-pedals>

 </direction-type>

 <staff>1</staff>

 </direction>

\*\*

**height**, direction.mod, Attribute, 1.1, Frame height in tenths

\*\*not needed for braille\*\*

**image**, direction.mod, Element, 2.0, Graphical image to be included in score

\*\*FOR DEVELOPERS: needed for associating specific pictures to specific braille symbol.\*\*

**inversion**, direction.mod, Element, 1.0, "Inversion for harmony: 0 for root position, 1 for first inversion, etc."

**kind,** direction.mod, Element, 1.0, Type of chord. Many values from triads through 13ths.

**line**, direction.mod, Attribute, 1.0, "Use line instead of Ped / \* signs? Values: yes, no"

**line-end**, direction.mod, Attribute, 1.0, "Bracket jog up, down, neither, or arrow? Values: up, down, both, arrow, none"

**location,** direction.mod, Attribute, 2.0, "Location of first-fret text. Values: left, right"

**measure-numbering**, direction.mod, Element, 2.0, "How measure numbers are displayed on this part. Values: none, measure, system"

**member-of**, direction.mod, Attribute, 1.0, Indicate hierarchy within grouping

**membrane,** direction.mod, Element, 3.0, "Pictograms for membrane percussion instruments. Value: bass drum, bass drum on side, bongos, conga drum, goblet drum, military drum, snare drum, snare drum snares off, tambourine, tenor drum, timbales, tomtom"

\*\*use these values, and the braille conversion tool will just take these words - we just need the text value\*\*

**metal**, direction.mod, Element, 3.0, "Pictograms for metal percussion instruments. Values: almglocken, bell, bell plate, brake drum, Chinese cymbal, cowbell, crash cymbals, crotale, cymbal tongs, domed gong, finger cymbals, flexatone, gong, hi-hat, high-hat cymbals, handbell, sistrum, sizzle cymbal, sleigh bells, suspended cymbal, tam tam, triangle, Vietnamese hat"

\*\*use these values, and the braille conversion tool will just take these words - we just need the text value\*\*

**new-page**, direction.mod, Attribute, 1.0, "Force a page break? Values: yes, no"

**new-system**, direction.mod, Attribute, 1.0, "Force a system break? Values: yes, no"

**niente**, direction.mod, Attribute, 3.0, "Circle at point of the wedge? Values: yes, no"

**number**, direction.mod, Attribute, 1.0, "Used in many elements, usually as a number-level entity"

**octave-shift**, direction.mod, Element, 1.0, Octave shift up or down from sounding pitch positions

**offset**, direction.mod, Element, 1.0, "Visual offset from current position, in divisions"

\*\*needed to determine the musical position of the object, for example, it appears at the 2nd beat of a whole note.\*\*

**other-direction**, direction.mod, Element, 1.0, Other direction not yet specified in the MusicXML format
\*\*use these values, and the braille conversion tool will just take these words - we just need the text value\*\*

**other-percussion**, direction.mod, Element, 3.0, Percussion pictogram not yet specified in the MusicXML format
\*\* FOR DEVELOPERS: take these values and put in braille as words\*\*

**page-number**, direction.mod, Attribute, 1.1, Sets the number of a new page

**pan**, direction.mod, Attribute, 1.0, Horizontal pan. Deprecated in 2.0; use pan element instead.

\*\*just for midi playback\*\*

**parentheses-degrees**, direction.mod, Attribute, 1.1, All harmony degrees should be in parentheses

**pedal**, direction.mod, Element, 1.0, Piano pedal marks

**pedal-alter**, direction.mod, Element, 1.1, Pitch alteration for harp pedal tuning

**pedal-step**, direction.mod, Element, 1.1, Pitch step for harp pedal tuning

**pedal-tuning**, direction.mod, Element, 1.1, Harp pedal tuning for pedal diagram

**percussion**, direction.mod, Element, 3.0, Percussion pictogram symbols

\*\* FOR DEVELOPERS: take these values and put in braille as words\*\*

**per-minute**, direction.mod, Element, 1.0, "Per minute value, either number or text including numbers"

**pitched**, direction.mod, Element, 3.0, "Pictograms for pitched percussion instruments. Values: chimes, glockenspiel, mallet, marimba, tubular chimes, vibraphone, xylophone"

\*\* FOR DEVELOPERS: take these values and put in braille as words\*\*

**pizzicato,** direction.mod, Attribute, 1.0, "Within sound element, start pizzicato for all notes. Values: yes, no"

\*\*just for midi playback\*\*

**plus-minus**, direction.mod, Attribute, 2.0, "Use plus and minus instead of flat and sharp for harmony degree alteration. Values: yes, no"

**principal-voice,** direction.mod, Element, 3.0, Principal and secondary voices

\*\*this is for music by Neo-Viennese School composers\*\*

**print,** direction.mod, Element, 1.0, Print suggestions

**print-frame,** direction.mod, Attribute, 1.0, "Print frame for harmony? Values: yes, no"

**rehearsal,** direction.mod, Element, 1.0, Rehearsal mark

**root**, direction.mod, Element, 1.0, "Root of harmony in terms of pitch, not function"

**root-alter**, direction.mod, Element, 1.0, Pitch alteration for root

**root-step**, direction.mod, Element, 1.0, Pitch step for root

**scordatura**, direction.mod, Element, 1.1, Scordatura string tuning

**segno**, direction.mod, Attribute, 1.0, Place to jump backwards from dalsegno with same value

**show-number,** direction.mod, Attribute, 2.0, "Tuplet number(s) displayed in metric relationship? Values: actual, both, none"

**sign**, direction.mod, Attribute, 3.0, "Ped and \* signs are used for pedal? Values: yes, no"

**size**, direction.mod, Attribute, 1.0, "Octave shift size: 8 for one octave, 15 for two octaves"

**soft-pedal,** direction.mod, Attribute, 1.0, "Soft pedal control. Values: yes, no. Yes is depressed, no is released. Numeric values added in 2.0."

**sostenuto-pedal**, direction.mod, Attribute, 1.0, "Sostenuto pedal control. Values: yes, no. Yes is depressed, no is released. Numeric values added in 2.0."

**sound**, direction.mod, Attribute, 2.0, "Does offset affect playback as well as display? Values: yes, no"

**sound**, direction.mod, Element, 1.0, Playback suggestions

\*\*just for midi playback\*\*

**source**, direction.mod, Attribute, 2.0, URL for image file to be included in score direction

\*\*point to the picture file\*\*

**spread**, direction.mod, Attribute, 1.0, Wedge spread in tenths

\*\*not needed for braille\*\*

**stack-degrees**, direction.mod, Attribute, 1.1, Stack harmony degree elements above each other

**staff-spacing**, direction.mod, Attribute, 1.0, "Spacing between part staves, in tenths; deprecated in 1.1"

\*\*not needed for braille\*\*

**stick**, direction.mod, Element, 3.0, Pictograms where the material in the stick is included

\*\*use these values, and the braille conversion tool will just take these words - we just need the text value\*\*

**stick-location**, direction.mod, Element, 3.0, "Pictograms for location of sticks on cymbals and other instruments. Values: center, rim, cymbal bell, cymbal edge"

\*\*use these values, and the braille conversion tool will just take these words - we just need the text value\*\*

**stick-material,** direction.mod, Element, 3.0, "Material for stick pictograms. Values: soft, medium, hard, shaded, x"

\*\*use these values, and the braille conversion tool will just take these words - we just need the text value\*\*

**stick-type**, direction.mod, Element, 3.0, "Type of stick for material-specific pictograms. Values: bass drum, double bass drum, timpani, xylophone, yarn"

\*\*use these values, and the braille conversion tool will just take these words - we just need the text value\*\*

**string,** direction.mod, Attribute, 1.1, String in scordatura accord element: highest string is 1

**string-mute**, direction.mod, Element, 3.0, String mute on / string mute off symbols

**symbol**, direction.mod, Attribute, 3.0, "Symbol to use to specify a degree. Values: major, minor, augmented, diminished, half-diminished"

**symbol**, direction.mod, Attribute, 3.0, "Symbol for principal voice. Values: Hauptstimme, Nebenstimme, plain, none"

\*\*for Neo-Viennese School works\*\*

**symbol,** direction.mod, Attribute, 3.1, "specifies a musical symbol using a canonical SMuFL glyph name. It is used when an occasional musical symbol is interspersed into text."

\*\*take its smufl values, and create appropriate braille equivalents.\*\*

**text,** direction.mod, Attribute, 1.1, How harmony kind should be displayed if not using symbols

**text**, direction.mod, Attribute, 2.0, How other parts of harmony elements should be displayed if not using symbols

**time-only,** direction.mod, Attribute, 1.0, Which time in repeated section to apply the sound element

\*\*just for midi playback\*\*

**timpani,** direction.mod, Element, 3.0, Timpani pictogram

\*\*use these values, and the braille conversion tool will just take these words - we just need the text value\*\*

**tocoda**, direction.mod, Attribute, 1.0, Jump forwards to coda with same value

**type**, direction.mod, Attribute, 1.0, "Wedge type. Values: crescendo, diminuendo, stop"

**type,** direction.mod, Attribute, 1.0, "Pedal type. Values: start, stop; change added in 1.1"

**type,** direction.mod, Attribute, 1.0, "Used in many elements, usually as start-stop, start-stop-continue, or start-stop-single entity"

**type**, direction.mod, Attribute, 1.0, "Octave shift type. Values: up, down, stop"

**type**, direction.mod, Attribute, 3.0, "String mute type. Values: on, off"

**type**, direction.mod, Attribute, 1.0, "Harmony type. Values: explicit, implied, alternate"

**type,** direction.mod, Attribute, 2.0, "Image MIME type. Typical values: application/postscript, image/gif, image/jpeg, image/png, image/tiff"

**unplayed**, direction.mod, Attribute, 3.0, What to display above an unplayed string in a frame

**use-symbols**, direction.mod, Attribute, 1.1, Use harmony symbols rather than letters and numbers

**wedge**, direction.mod, Element, 1.0, Crescendo / diminuendo wedges

**width**, direction.mod, Attribute, 1.1, Frame width in tenths

\*\*not needed for braille\*\*

**wood,** direction.mod, Element, 3.0, "Pictograms for wood percussion instruments. Values: board clapper, cabasa, castanets, claves, guiro, log drum, maraca, maracas, ratchet, sandpaper blocks, slit drum, temple block, vibraslap, wood block"

\*\* FOR DEVELOPERS: take these values and put in braille as words\*\*

**word**s, direction.mod, Element, 1.0, Text direction

\*\*FOR DEVELOPERS: TODO: this is the most ambiguous concept. Any texts can be enclosed in this field. So we should determine whether the words are for single staff or the complete system. Should we invent the attributes "staff" and "global" for it, in order to place the texts in their correct positions in braille? Moreover, if we can invent more attributes telling whether the text is above or below the system (the usual <direction> tag only states whether it's above or below a note or staff), the placement may be more logical. MNX already has the <global> section to place many instructional words, so we can have them put more precise location information in the specification, not visual X Y values, just general position instructions along with the numbered values used by notation softwares.\*\*

**xml:lang**, direction.mod, Attribute, 1.1, Language for rehearsal marks

# 6. Identity.mod

\*\*Most of these are not needed in braille, except "creator" where composer, lyricist and arranger are located for the "type" value, thus "creator type='composer'"\*\*

name, file, type, version, description

**attribute**, identity.mod, Attribute, 2.0, Which attribute of an element is supported or not
\*\*not needed for braille\*\*

**creator**, identity.mod, Element, 1.0, "Creator, similar to Dublin Core. "

\*\*composer, lyricist and arranger are located for the "type" value, thus "creator type='composer'"\*\*

**element**, identity.mod, Attribute, 1.0, Element that has explicit indication of support or no support

\*\*not needed for braille\*\*

**encoder**, identity.mod, Element, 1.0, Who did the encoding

\*\*not needed for braille\*\*

**encoding**, identity.mod, Element, 1.0, Information about this MusicXML encoding

\*\*not needed for braille\*\*

**encoding-date**, identity.mod, Element, 1.0, "When the encoding was done, as yyyy-mm-dd date"

\*\*not needed for braille\*\*

**encoding-description**, identity.mod, Element, 1.0, Description of encoding

\*\*not needed for braille\*\*

**identification**, identity.mod, Element, 1.0, Basic score metadata

\*\*not needed for braille\*\*

**miscellaneous**, identity.mod, Element, 1.0, Collection of metadata not yet specified in the MusicXML format

\*\*not needed for braille\*\*

**miscellaneous-field**, identity.mod, Element, 1.0, Individual metadata field

\*\*not needed for braille\*\*

**name**, identity.mod, Attribute, 1.0, Name of metadata field

\*\*not needed for braille\*\*

**relation**, identity.mod, Element, 2.0, Related resource for the music that is encoded. similar to Dublin Core

\*\*not needed for braille\*\*

**rights**, identity.mod, Element, 1.0, "Rights, similar to Dublin Core, including copyright and other notices"

\*\*not needed for braille\*\*

**software**, identity.mod, Element, 1.0, Software used for encoding

\*\*not needed for braille\*\*

**source**, identity.mod, Element, 1.0, "Source for music that is encoded, similar to Dublin Core"

\*\*not needed for braille\*\*

**supports**, identity.mod, Element, 1.0, "Are certain MusicXML elements supported in this encoding? (e.g. stem, beam)"

\*\*not needed for braille\*\*

**type**, identity.mod, Attribute, 1.0, "Creator type. Standard values added in 2.0: composer, lyricist, arranger"

\*\*not needed for braille\*\*

**type,** identity.mod, Attribute, 1.0, "Rights type. Standard values added in 2.0: music, words, arrangement"

\*\*not needed for braille\*\*

**type**, identity.mod, Attribute, 2.0, "Relation type. Standard values: music, words, arrangement"

\*\*not needed for braille\*\*

**value**, identity.mod, Attribute, 2.0, Which value of an element or attribute is supported or not

\*\*not needed for braille\*\*

# 7. Layout.mod

\*\*none needed for braille\*\*

name, file, type, version, description

**appearance**, layout.mod, Element, 2.0, General graphical settings for music's final form appearance

\*\*not needed for braille\*\*

**bottom-margin**, layout.mod, Element, 1.1, Bottom margin in tenths

\*\*not needed for braille\*\*

**distance**, layout.mod, Element, 3.0, "Standard distance between notation elements, in tenths"

\*\*not needed for braille\*\*

**glyph**, layout.mod, Element, 3.1, represents what SMuFL glyph should be used for different variations of symbols that are semantically identical

FOR DEVELOPERS: \*\*may need in braille, we will see its application in the future notation software to determine this.\*\*

**left-divider,** layout.mod, Element, 3.0, System separator mark on the left side of the page

\*\*not needed for braille\*\*

**left-margin**, layout.mod, Element, 1.1, Left margin in tenths

\*\*not needed for braille\*\*

**line-width**, layout.mod, Element, 2.0, Width of a line type in tenths

\*\*not needed for braille\*\*

**measure-distance**, layout.mod, Element, 1.1, "Horizontal distance from previous measure, as for coda"

\*\*not needed for braille\*\*

**measure-layout**, layout.mod, Element, 1.1, Measure layout including distance

\*\*not needed for braille\*\*

**millimeters**, layout.mod, Element, 1.1, Number of millimeters in scaling ratio

\*\*not needed for braille\*\*

**note-size**, layout.mod, Element, 2.0, "Percentage of regular note size to use for cue, grace, or large notes"

\*\*not needed for braille\*\*

**number,** layout.mod, Attribute, 1.1, Staff number for staff-layout.

\*\*not needed for braille\*\*

**other-appearance**, layout.mod, Element, 2.0, Other appearance not yet specified in the MusicXML format

\*\*not needed for braille\*\*

**page-height**, layout.mod, Element, 1.1, Page height in tenths

\*\*not needed for braille\*\*

**page-layout**, layout.mod, Element, 1.1, "Page layout including height, width, and margins"

\*\*not needed for braille\*\*

**page-margins**, layout.mod, Element, 1.1, Page margins

\*\*not needed for braille\*\*

**page-width,** layout.mod, Element, 1.1, Page width in tenths

\*\*not needed for braille\*\*

**right-divider**, layout.mod, Element, 3.0, System separator mark on the right side of the page

\*\*not needed for braille\*\*

**right-margin**, layout.mod, Element, 1.1, Right margin in tenths

\*\*not needed for braille\*\*

**scaling**, layout.mod, Element, 1.1, Specify how many millimeters are equal to how many tenths

\*\*not needed for braille\*\*

**staff-distance**, layout.mod, Element, 1.1, Staff distance within a system

\*\*not needed for braille\*\*

**staff-layout**, layout.mod, Element, 1.1, Staff distances for this part

\*\*not needed for braille\*\*

**system-distance**, layout.mod, Element, 1.1, Vertical distance from previous system

\*\*not needed for braille\*\*

**system-dividers**, layout.mod, Element, 3.0, System separator marks on left and right sides of the page

\*\*not needed for braille\*\*

**system-layout**, layout.mod, Element, 1.1, Left and right margins plus vertical distance

\*\*not needed for braille\*\*

**system-margins**, layout.mod, Element, 1.1, "System margins relative to page margins, in tenths"

\*\*not needed for braille\*\*

**tenths**, layout.mod, Element, 1.1, Number of tenths in scaling ratio
\*\* not needed in braille \*\*

**top-margin**, layout.mod, Element, 1.1, Top margin in tenths

\*\*not needed for braille\*\*

**top-system-distance**, layout.mod, Element, 1.1, Vertical distance from top page margin

\*\*not needed for braille\*\*

**type**, layout.mod, Attribute, 1.1, "Page numbers where layout applies. Values: odd, even, both"
\*\*not needed for braille\*\*

**type**, layout.mod, Attribute, 2.0, "Line width type. Values: beam, bracket, dashes, enclosure, ending, extend, heavy barline, leger, light barline, octave shift, pedal, slur middle, slur tip, staff, stem, tie middle, tie tip, tuplet bracket, wedge"

\*\*not needed for braille\*\*

**type**, layout.mod, Attribute, 2.0, "Note size type. Values: cue, grace, large"

\*\*not needed for braille\*\*

**type**, layout.mod, Attribute, 3.0, "Distance type. Values: hyphen, beam"

\*\*not needed for braille\*\*

# 8. Link.mod

\*\*None needed in braille, unless we want to make bookmarks or link to other things\*\*

**name**, file, type, version, description

\*\*not needed for braille\*\*

**bookmark**, link.mod, Element, 1.0, Well-defined target for incoming XLink

\*\*not needed for braille\*\*

**element**, link.mod, Attribute, 2.0, Descendant of next sibling element to use for bookmark or link

\*\*not needed for braille\*\*

**id**, link.mod, Attribute, 1.0, Unique ID for bookmark

\*\*not needed for braille\*\*

**link**, link.mod, Element, 1.0, Outgoing XLink

\*\*not needed for braille\*\*

**link-attributes**, link.mod, Entity, 1.0, Collection of XLink attributes supported in MusicXML files

\*\*not needed for braille\*\*

**name**, link.mod, Attribute, 1.0, Name of bookmark or link

\*\*not needed for braille\*\*

**position**, link.mod, Attribute, 2.0, Position of descendant element for link or bookmark; first position is 1. Values: numbers

\*\*not needed for braille\*\*

**xlink.ns**, link.mod, Entity, 1.0, XLink namespace

\*\*not needed for braille\*\*

**xlink:actuate**, link.mod, Attribute, 1.0, "XLink 1.0 actuate. Values: onRequest, onLoad, other, none"

\*\*not needed for braille\*\*

**xlink:href,** link.mod, Attribute, 1.0, XLink 1.0 href

\*\*not needed for braille\*\*

**xlink:role**, link.mod, Attribute, 1.0, XLink 1.0 role

\*\*not needed for braille\*\*

**xlink:show**, link.mod, Attribute, 1.0, "XLink 1.0 show. Values: new, replace, embed, other, none"
\*\*not needed for braille\*\*

**xlink:title,** link.mod, Attribute, 1.0, XLink 1.0 title

\*\*not needed for braille\*\*

**xlink:type**, link.mod, Attribute, 1.0, XLink 1.0 type. Value: simple

\*\*not needed for braille\*\*

**xmlns:xlink**, link.mod, Attribute, 1.0, XLink 1.0 namespace. Value: %xlink.ns;

\*\*not needed for braille\*\*

# 9. Note.mod

## A. General list

name, file, type, version, description

**accent**, note.mod, Element, 1.0, Horizontal accent

**accidental**, note.mod, Element, 1.0, "Notated accidental. Values: sharp, natural, flat, double-sharp, sharp-sharp, flat-flat, natural-sharp, natural-flat, quarter-flat, quarter-sharp, three-quarters-flat, three-quarters-sharp; sharp-down, sharp-up, natural-down, natural-up, flat-down, flat-up, triple-sharp, triple-flat, slash-quarter-sharp, slash-sharp, slash-flat, double-slash-flat, sharp-1, sharp-2, sharp-3, sharp-5, flat-1, flat-2, flat-3, flat-4, sori, and koron added in 3.0; double-sharp-down, double-sharp-up, flat-flat-down, flat-flat-up, arrow-down, arrow-up, and other are added in 3.1"

**accidental-mark**, note.mod, Element, 1.0, "Accidental mark modifying a notation or ornament, such as turns or trills. Values: same as for accidental. bracket, parentheses, and size attributes have been added to 3.1"

**alter**, note.mod, Element, 1.0, Chromatic alteration in semitones. May use decimal values for microtones.

**approach**, note.mod, Attribute, 3.0, "How the beginning of a compound ornament looks relative to the main part. Values: above, below"

**arpeggiate**, note.mod, Element, 1.0, Part of arpeggiated chord

\*\*FOR DEVELOPERS TODO: The arpeggio lines only apply to one staff in notation softwares, and are dragged to another staff to create connect-staff arpeggios. This is indicated by the length value of the lines, but we can't judge whether it's a connect-staff arpeggio. So should we add an attribute to say it's a connect-staff arpeggio, so that the braille transcription can add correct symbols to appropriate chords/voices? The other way to do is to manually add arpeggio lines to the other hand, but we still need an attribute to indicate they are connected.\*\*

**arrow**, note.mod, Element, 3.0, Arrow used for a musical technical indication

**arrow-direction**, note.mod, Element, 3.0, "Direction for straight arrow. Values: left, up, right, down, northwest, northeast, southeast, southwest, left right, up down, northwest southeast, northeast southwest, other"

**arrow-style**, note.mod, Element, 3.0, "Arrow visual style. Values: single, double, filled, hollow, paired, combined, other"

**arrowhead**, note.mod, Element, 3.1, represents arrowheads without an arrow stem

**articulations**, note.mod, Element, 1.0, Articulations and accents

**artificial,** note.mod, Element, 1.0, Artificial harmonic

**attack**, note.mod, Attribute, 1.0, "Offset from starting time for playback, in divisions"

\*\*just for midi playback\*\*

**backup**, note.mod, Element, 1.0, Move backward to coordinate multiple voices in one part

**base-pitch**, note.mod, Element, 1.0, "Base pitch for harmonic, not what sounds"

**beam**, note.mod, Element, 1.0, "Beam type. Values: begin, continue, end, forward hook, backward hook."

**bend**, note.mod, Element, 1.0, "String bends, as in guitar and tab notation"

**bend-alter**, note.mod, Element, 1.0, Number of semitones in bend; decimal values for microtones

**bracket**, note.mod, Attribute, 1.0, "Tuplet bracket displayed? Values: yes, no"

**brass-bend**, note.mod, Element, 3.1, represents the u-shaped bend symbol used in brass notation

**breath-mark**, note.mod, Element, 1.0, "Breath mark. Values: comma, tick, empty string. Text values added in 3.0; salzedo and upbow are added in 3.1"

**caesura**, note.mod, Element, 1.0, "Caesura or railroad tracks; use new caesura-value type with values of normal, thick, short, curved, and single. An empty string value is included for compatibility with MusicXML 3.0"

**cautionary**, note.mod, Attribute, 1.0, "Cautionary accidental? Values: yes, no"

**chord**, note.mod, Element, 1.0, Indicates note is an additional chord tone with preceding note

**circular-arrow**, note.mod, Element, 3.0, "Circular arrow direction. Values: clockwise, anticlockwise"

**cue**, note.mod, Element, 1.0, "Indicates a cue note, written but not played"

**delayed-inverted-turn,** note.mod, Element, 3.0, Inverted turn towards end of a note

**delayed-turn**, note.mod, Element, 1.0, Turn towards end of a note

**departure**, note.mod, Attribute, 3.0, "How the ending of a compound ornament looks relative to the main part. Values: above, below"

**detached-legato**, note.mod, Element, 1.0, Detached legato

**direction**, note.mod, Attribute, 1.0, Direction of arpeggiation

**display-octave**, note.mod, Element, 1.0, "What octave would this be if pitched? (If percussion clef, treat as if treble clef)"

**display-step**, note.mod, Element, 1.0, "What step would this be if pitched? (If percussion clef, treat as if treble clef)"

**doit,** note.mod, Element, 1.0, Indeterminate slide up from pitch

**dot**, note.mod, Element, 1.0, Dot of prolongation / augmentation dot

**double-tongue**, note.mod, Element, 1.0, Double tongue

**down-bow**, note.mod, Element, 1.0, Down bow

**duratio**n, note.mod, Element, 1.0, "Intended nominal (not performance-specific) duration, in divisions"

**dynamics**, note.mod, Attribute, 1.0, MIDI Note On velocity as percentage of default MIDI forte volume of 90

**editorial,** note.mod, Attribute, 1.0, "Editorial accidental? Values: yes, no"

**elision**, note.mod, Element, 1.0, Elision symbol for multiple syllables on single note. Text values added in 2.0.

**end-dynamics**, note.mod, Attribute, 1.0, MIDI Note Off velocity as percentage of default MIDI forte volume of 90

**end-line**, note.mod, Element, 1.0, End of line for karaoke-style applications

**end-paragraph**, note.mod, Element, 1.0, End of paragraph for karaoke-style applications

**extend,** note.mod, Element, 1.0, Word extension

**falloff**, note.mod, Element, 1.0, Indeterminate slide down from pitch

**fan**, note.mod, Attribute, 1.1, "Fanned beams. Values: accel, rit, none"

**figure**, note.mod, Element, 1.0, Figured bass figure

**figured-bass**, note.mod, Element, 1.0, Figured bass

**figure-number**, note.mod, Element, 1.0, Figured bass number

**filled,** note.mod, Attribute, 1.0, "Notehead filled? Values: yes, no."

**fingernails**, note.mod, Element, 1.0, Fingernails for harp notation

**flip**, note.mod, Element, 3.1, represents the flip symbol used in brass notation

**forward**, note.mod, Element, 1.0, "Move forward to coordinate multiple voices in one part, as in invisible rest"

**full-note,** note.mod, Entity, 1.0, Common note elements between cue/grace and regular notes

**glissando**, note.mod, Element, 1.0, "Rapidly moving from one pitch to another, sounding discrete half steps"

**golpe**, note.mod, Element, 3.1, represents the golpe symbol that is used for tapping the pick guard in guitar music

**grace**, note.mod, Element, 1.0, Indicates a grace note

**half-muted**, note.mod, Element, 3.1, represents the half-muted symbol which looks like a circle with a plus sign inside

**hammer-on**, note.mod, Element, 1.0, Hammer on (slur up the fretboard)

**hand**, note.mod, Attribute, 3.1, attribute for the tap element

**handbell,** note.mod, Element, 3.0, "Techniques used in handbell and handchime music. Values: damp, echo, gyro, hand martellato, mallet lift, mallet table, martellato, martellato lift, muted martellato, pluck lift, swing; belltree added in 3.1"

**harmon-mute**, note.mod, Element, 3.1, represents the symbols used for harmon mutes in brass notation.

**harmonic**, note.mod, Element, 1.0, Natural and artificial harmonics

**haydn**, note.mod, Element, 3.1, "represents the Haydn ornament, defined in SMuFL as ornamentHaydn"

**heel**, note.mod, Element, 1.0, Heel indication for organ pedals

**hole**, note.mod, Element, 3.0, Symbols used for woodwind/brass fingerings and other notations

**hole-closed**, note.mod, Element, 3.0, "Is the hole closed, open, or half-open? Values: yes, no, half"

**hole-shape**, note.mod, Element, 3.0, Shape of the hole symbol; circle by default

**hole-type**, note.mod, Element, 3.0, What the hole symbol represents in terms of instrument fingering or other techniques

**humming**, note.mod, Element, 1.0, Humming

**id,** note.mod, Attribute, 1.0, IDREF to score-instrument for instrument element

\*\*just for midi playback\*\*

**instrument**, note.mod, Element, 1.0, Which score-instrument to use for this note
\*\*just for midi playback\*\*

**inverted-mordent,** note.mod, Element, 1.0, Inverted mordent

**inverted-turn**, note.mod, Element, 2.0, Inverted turn

**inverted-vertical-turn**, note.mod, Element, 3.1, represents the turn symbol shape arranged vertically going from upper left to lower right

**laughing**, note.mod, Element, 1.0, Laughing

**location**, note.mod, Attribute, 3.0, "Which portion of hole is filled in when hole-closed is half? Values: right, bottom, left, top"

**long**, note.mod, Attribute, 1.0, "Longer mordent appearance? Values: yes, no."

**lyric**, note.mod, Element, 1.0, Text underlay for lyrics

**make-time**, note.mod, Attribute, 1.0, Divisions to add in order to make time for grace note playback

\*\*just for midi playback\*\*

**measure**, note.mod, Attribute, 3.0, "Complete measure rest? Values: yes, no"

**mordent**, note.mod, Element, 1.0, Mordent

**name**, note.mod, Attribute, 1.0, Type of lyric

**natural**, note.mod, Element, 1.0, Natural harmonic

**non-arpeggiate**, note.mod, Element, 1.0, Note is at top or bottom of a bracket indicating not to arpeggiate

**notations,** note.mod, Element, 1.0, Musical notations for a note

**note**, note.mod, Element, 1.0, Individual note or rest

**notehead,** note.mod, Element, 1.0, "Notehead. Values: slash, triangle, diamond, square, cross, x, circle-x, normal, none; inverted triangle, arrow down, arrow up, slashed, back slashed, do, re, mi, fa, so, la, and ti values added in 1.1; cluster added in 2.0; fa up, circle dot, left triangle, and rectangle added in 3.0; circled and other are added in 3.1"

**notehead-text**, note.mod, Element, 3.0, Text displayed inside a notehead. Not needed for TAB or jianpu clefs.

**number**, note.mod, Attribute, 1.0, "Used in many elements, usually as a number-level entity"

**octave,** note.mod, Element, 1.0, Octave number: Values: 0 through 9. Octave 4 is octave started by middle C.

**open**, note.mod, Element, 3.1, "represents the open symbol, which looks like a circle"

**open-string**, note.mod, Element, 1.0, Open string

**ornaments**, note.mod, Element, 1.0, Collection of ornaments for a note

**other-articulation**, note.mod, Element, 1.0, Other articulation not yet specified in the MusicXML format

**other-notation**, note.mod, Element, 1.0, Notation not yet specified in the MusicXML format

**other-ornament**, note.mod, Element, 1.0, Ornament not yet specified in the MusicXML format

**other-technical,** note.mod, Element, 1.0, Technical indication not yet specified in the MusicXML format

**parentheses**, note.mod, Attribute, 1.0, "Notehead or figured bass in parentheses? Values: yes, no"

**pitch**, note.mod, Element, 1.0, "Pitch data: combination of step, alteration, and octave"

**pizzicato**, note.mod, Attribute, 1.0, "Is this single note pizzicato? Values: yes, no"

**plop**, note.mod, Element, 1.0, Indeterminate slide down to pitch

**pluck,** note.mod, Element, 1.1, "Plucking fingering on a fretted instrument. Text values added in 2.0. Typical values: p, i, m, a"

**pre-bend**, note.mod, Element, 1.0, Negative bend-alter indicates a pre-bend

**prefix**, note.mod, Element, 1.0, Figured bass prefix

**pull-off,** note.mod, Element, 1.0, Pull off (slur down the fretboard)

**release**, note.mod, Attribute, 1.0, "Offset from stopping time for playback, in divisions"

\*\*just for midi playback\*\*

**release**, note.mod, Element, 1.0, Negative bend-alter indicates a release

**repeater**, note.mod, Attribute, 1.0, "Tremolo beams? Values: yes, no; deprecated in 3.0"

**rest**, note.mod, Element, 1.0, Rest or silence

**schleifer**, note.mod, Element, 1.0, German name to avoid conflict with slide element

**scoop**, note.mod, Element, 1.0, Indeterminate slide up to pitch

**shake**, note.mod, Element, 1.0, Shake

**show-number,** note.mod, Attribute, 1.0, "Tuplet number(s) displayed? Values: actual, both, none"

**show-type**, note.mod, Attribute, 1.0, "Tuplet type(s) displayed? Values: actual, both, none."

**size**, note.mod, Attribute, 1.0, "Note size. Values: full, cue; large added in 1.1"

\*\*not needed for braille\*\*

**slash**, note.mod, Attribute, 1.0, "Grace note slashed? Values: yes, no"

**slash**, note.mod, Attribute, 3.0, "Turn slashed by a vertical line? Values: yes, no"

**slide**, note.mod, Element, 1.0, Rapidly moving from one pitch to another continuously

**slur**, note.mod, Element, 1.0, "Note is at beginning, end, or inflection point of slur"

**smear**, note.mod, Element, 3.1, represents the tilde-shaped smear symbol used in brass notation

**snap-pizzicato**, note.mod, Element, 1.0, Snap pizzicato

**soft-accent**, note.mod, Element, 3.1, indicates a soft accent that is not as heavy as a normal accent. It is often notated as <>

**sounding-pitch**, note.mod, Element, 1.0, Sounding pitch for harmonic

**spiccato**, note.mod, Element, 1.0, Spiccato / stroke articulation

**staccatissimo**, note.mod, Element, 1.0, Staccatissimo

**staccato**, note.mod, Element, 1.0, Staccato

steal-time-following, note.mod, Attribute, 1.0, Percentage of time to steal from following note for grace note playback

**steal-time-previous**, note.mod, Attribute, 1.0, Percentage of time to steal from previous note for grace note playback

**stem**, note.mod, Element, 1.0, "Stem direction. Values: down, up, none, double."

**step**, note.mod, Element, 1.0, "Diatonic pitch step. Values: A, B, C, D, E, F, G"

**stopped**, note.mod, Element, 1.0, Stopped

**stress**, note.mod, Element, 2.0, Stress articulation

**strong-accent**, note.mod, Element, 1.0, Vertical accent

**substitution**, note.mod, Attribute, 1.1, "Substitute heel or toe in middle of note? Values: yes, no"

**suffix**, note.mod, Element, 1.0, Figured bass suffix

**syllabic**, note.mod, Element, 1.0, "Syllable type for hyphenation. Values: single, begin, end, middle"

**tap**, note.mod, Element, 1.0, Tap on fretboard

**technical**, note.mod, Element, 1.0, Performance indications for individual instruments

**tenuto**, note.mod, Element, 1.0, Tenuto

**text**, note.mod, Element, 1.0, Lyric text

**thumb-position**, note.mod, Element, 1.0, Thumb position

**tie**, note.mod, Element, 1.0, Note is part of a tie for performance purposes

**tied**, note.mod, Element, 1.0, Note appears graphically as part of a tie

**time-modification**, note.mod, Element, 1.0, Time modification for tuplets and other durational changes

**time-only**, note.mod, Attribute, 1.0, Which time to play a note or tie in a repeated section. Added to tie element in 3.0.

**toe**, note.mod, Element, 1.0, Toe indication for organ pedals

**touching-pitch**, note.mod, Element, 1.0, Pitch where string is touched for artificial harmonic

**tremolo**, note.mod, Element, 1.1, Single- or double-note tremolo ornament. Double-note added in 2.0; unmeasured added in 3.1

**trill-mark**, note.mod, Element, 1.0, Trill mark

**triple-tongue,** note.mod, Element, 1.0, Triple tongue

**tuplet**, note.mod, Element, 1.0, Note is at beginning or end of a tuplet

**tuplet-actual**, note.mod, Element, 1.0, Indicates notes actually played

**tuplet-dot,** note.mod, Element, 1.0, Augmentation dot for tuplet-type value

**tuplet-normal**, note.mod, Element, 1.0, Indicates notes usually occupying this time

**tuplet-number**, note.mod, Element, 1.0, Number of tuplet notes

**tuplet-type**, note.mod, Element, 1.0, Type of tuplet notes

**turn**, note.mod, Element, 1.0, Turn

**type**, note.mod, Element, 1.0, "Values: 256th, 128th, 64th, 32nd, 16th, eighth, quarter, half, whole, breve, long; 1024th, 512th, and maxima added in 3.0"

**type**, note.mod, Attribute, 1.0, "Used in many elements, usually as start-stop, start-stop-continue, or start-stop-single entity"

**type**, note.mod, Attribute, 1.0, "Strong accent direction. Values: up, down"

**type**, note.mod, Attribute, 1.0, "Non-arpeggiate type. Values: top, bottom"

**type**, note.mod, Attribute, 3.1, let-ring value of the tied element

**type**, note.mod, Attribute, 3.1, "caesura-value type with values of normal, thick, short, curved, and single. An empty string value is included for compatibility with MusicXML 3.0"

**unpitched**, note.mod, Element, 1.0, Musical notes notated on the staff but lacking definite pitch

**unstress**, note.mod, Element, 2.0, Unstress articulation

**up-bow**, note.mod, Element, 1.0, Up bow

**vertical-turn**, note.mod, Element, 3.0, Turn with shape arranged vertically from upper left to lower right

**with-bar,** note.mod, Element, 1.0, Bend is done at bridge with whammy or vibrato bar

**xml:lang**, note.mod, Attribute, 1.0, Language for lyric text

## B. Elements and Attributes under "notations"

\*\*All necessary for braille\*\*

**tied | slur | tuplet | glissando | slide | ornaments | technical | articulations | dynamics | fermata | arpeggiate | non-arpeggiate | accidental-mark | other-notation**

### B1. Elements and Attributes under "articulations"

\*\*All necessary for braille\*\*

**accent | strong-accent | staccato | tenuto | detached-legato | staccatissimo | spiccato | scoop | plop | doit | falloff | breath-mark | caesura | stress | unstress | soft-accent | other-articulation**

### B2. Elements and Attributes under "ornaments"

\*\*All necessary for braille\*\*

**trill-mark | turn | delayed-turn | inverted-turn | delayed-inverted-turn | vertical-turn | inverted-vertical-turn | shake | wavy-line | mordent | inverted-mordent | schleifer | tremolo | haydn | other-ornament**

\*\*FOR DEVELOPERS: TO DO: The " accidental-mark" is put with any of the above elements, to show corresponding accidentals along the ornament symbols. It's a pity that we can't find the way to indicate whether an accidental is put above or below a turn or inverted turn, only visual positioning values are given. So, should we invent the above and below attributes to tell its direction?\*\*

**\*\*Example of usual trills with ornaments, which are ok:**

 <note>

 <pitch>

 <step>C</step>

 <octave>5</octave>

 </pitch>

 <duration>768</duration>

 <voice>1</voice>

 <type>quarter</type>

 <stem>down</stem>

 <notations>

 <accidental-mark default-y='36' relative-x='5'>flat</accidental-mark>

 <ornaments>

 <trill-mark default-y='14'/>

 <wavy-line type='start' number='1'/>

 </ornaments>

 </notations>

 </note>

 <note>

 <pitch>

 <step>C</step>

 <octave>5</octave>

 </pitch>

 <duration>768</duration>

 <voice>1</voice>

 <type>quarter</type>

 <stem>down</stem>

 <notations>

 <accidental-mark default-y='35' relative-x='6'>flat</accidental-mark>

 <ornaments>

 <wavy-line type='stop' number='1'/>

 <turn default-y='15' relative-x='-1'/>

 </ornaments>

 </notations>

 </note>

**Example of turns with accidentals.** The sharp of the first turn needs an attribute to show whether it's for the lower or upper auxiliary note. In this example, only the lower one can be logically sharpened. The second turn has two accidentals, and we can safely put the first below and the second above.

 <note>

 <pitch>

 <step>D</step>

 <octave>5</octave>

 </pitch>

 <duration>768</duration>

 <voice>1</voice>

 <type>quarter</type>

 <stem>down</stem>

 <notations>

 <accidental-mark default-y='19' relative-x='2'>sharp</accidental-mark>

 <ornaments>

 <turn default-y='44' relative-x='-3'/>

 </ornaments>

 </notations>

 </note>

 <note>

 <pitch>

 <step>D</step>

 <octave>5</octave>

 </pitch>

 <duration>768</duration>

 <voice>1</voice>

 <type>quarter</type>

 <stem>down</stem>

 <notations>

 <accidental-mark default-y='22' relative-x='3'>sharp</accidental-mark>

 <accidental-mark default-y='67' relative-x='4'>flat</accidental-mark>

 <ornaments>

 <turn default-y='46' relative-x='-3'/>

 </ornaments>

 </notations>

 </note>

\*\*

### B3. Elements and Attributes under "technical"

**up-bow | down-bow | harmonic | open-string | thumb-position | fingering | pluck | double-tongue | triple-tongue | stopped | snap-pizzicato | fret | string | hammer-on | pull-off | bend | tap | heel | toe | fingernails | hole | arrow | handbell | brass-bend | flip | smear | open | half-muted | harmon-mute | golpe | other-technical**

\*\*Note: Fingering is under the "common.mod", so please refer to that section.\*\*

### B4. Elements and Attributes under "harmonic"

**natural | artificial | base-pitch | touching-pitch | sounding-pitch**

# 10. Opus.dtd

\*\*none needed for braille\*\*

name, file, type, version, description

**new-page**, opus.dtd, Attribute, 2.0, "Is first page of this score different than last page of previous score? Values: yes, no"

\*\*not needed for braille\*\*

**opus**, opus.dtd, Element, 1.0, Document element for opus DTD
\*\*not needed for braille\*\*

**opus-link**, opus.dtd, Element, 1.0, Link to another opus document

\*\*not needed for braille\*\*

**score**, opus.dtd, Element, 1.0, Link to a score within the opus

\*\*not needed for braille\*\*

**title**, opus.dtd, Element, 1.0, Title of this opus

\*\*not needed for braille\*\*

# 11. Score.mod

name, file, type, version, description

**credit**, score.mod, Element, 1.1, Credit that appears on first page of a score

**credit-image**, score.mod, Element, 2.0, Graphical image to be included in credit

**credit-symbol,** score.mod, Element, 3.1, "specifies a musical symbol using a canonical SMuFL glyph name. It is used when an occasional musical symbol is interspersed into text."

**credit-type**, score.mod, Element, 3.0, "Purpose behind a credit. Standard values: page number, title, subtitle, composer, arranger, lyricist, rights"

**credit-words**, score.mod, Element, 1.1, "Text portion of a credit, including formatting"

\*\*use these values, and the braille conversion tool will just take these words - we just need the text value\*\*

**defaults**, score.mod, Element, 1.1, "Collect score-wide defaults, including layout and fonts"

\*\*not needed for braille\*\*

**ensemble**, score.mod, Element, 2.0, Performance is intended for a section. Optional numeric value indicates size of section.

\*\*just for midi playback\*\*

**group**, score.mod, Element, 1.0, "Indicate purposes for part, e.g. score, parts, sound, data"

**group-abbreviation**, score.mod, Element, 1.0, Abbreviated version of group name

**group-abbreviation-display**, score.mod, Element, 2.0, Formatted version of group-abbreviation

**group-barline**, score.mod, Element, 1.0, "Common barline for group? Values: yes, no, Mensurstrich"

**group-name**, score.mod, Element, 1.0, Full name of group

**group-name-display**, score.mod, Element, 2.0, Formatted version of group-name

**group-symbol,** score.mod, Element, 1.0, "How group is indicated in score. Values: none, brace, line, bracket; square added in 3.0"

**group-time**, score.mod, Element, 2.0, Displayed time signature should stretch across all parts and staves in group

**id,** score.mod, Attribute, 1.0, Unique ID for score-part or score-instrument

**id,** score.mod, Attribute, 1.0, IDREF to score-part for part element

**implicit**, score.mod, Attribute, 1.0, "Show measure number never appear here? Values: yes, no"

**instrument-abbreviation**, score.mod, Element, 1.0, Abbreviated version of instrument name

\*\*just for midi playback\*\*

**instrument-name**, score.mod, Element, 1.0, Full name of instrument

\*\*just for midi playback\*\*

**instrument-sound**, score.mod, Element, 3.0, Default timbre for playback; the standard sounds listed in sounds.xml may be used

\*\*just for midi playback\*\*

**lyric-font**, score.mod, Element, 1.1, Lyric font

**lyric-language**, score.mod, Element, 1.1, Lyric language for a verse/section/chorus

**measure**, score.mod, Element, 1.0, "Higher level element in timewise, lower level in partwise. The text attribute is added in 3.1"

**midi-device**, score.mod, Element, 1.0, MIDI DeviceName meta event

\*\*just for midi playback\*\*

**movement-number**, score.mod, Element, 1.0, Number of this movement

**movement-title**, score.mod, Element, 1.0, Title of this movement

**music-data**, score.mod, Entity, 1.0, Basic musical data in a MusicXML score

**music-font**, score.mod, Element, 1.1, Music font

**name**, score.mod, Attribute, 1.1, Lyric type for lyric font or language

**non-controlling**, score.mod, Attribute, 1.0, "Does this measure not synchronize with measures in other parts: Values: yes, no"

**number**, score.mod, Attribute, 1.1, Lyric number for font or language

**opus**, score.mod, Element, 1.0, Link to a parent opus document

**page**, score.mod, Attribute, 2.0, Page number where credit should appear. First page is 1 and does not take page-number attributes into account

**part,** score.mod, Element, 1.0, "Higher level element in partwise, lower level in timewise"

**part-abbreviation**, score.mod, Element, 1.0, Abbreviated version of musical part name

**part-group**, score.mod, Element, 1.0, Grouping of parts in a score

**part-list**, score.mod, Element, 1.0, List of all the different musical parts in this movement

**part-name**, score.mod, Element, 1.0, Full name of the musical part

**port**, score.mod, Attribute, 1.0, Unofficial MIDI 1.0 port / cable number from 1 to 16

\*\*just for midi playback\*\*

**score-header**, score.mod, Entity, 1.0, Basic score metadata plus the part-list

**score-instrument**, score.mod, Element, 1.0, How instruments are contained within parts

**score-part**, score.mod, Element, 1.0, How a part is contained in the score

**score-partwise,** score.mod, Element, 1.0, Document element for partwise.dtd

**score-timewise**, score.mod, Element, 1.0, Document element for timewise.dtd

**solo**, score.mod, Element, 2.0, Performance is intended by a solo instument

\*\*just for midi playback\*\*

**source**, score.mod, Attribute, 2.0, URL for image file to be included in score credit

**type**, score.mod, Attribute, 1.0, "Part-group type. Values: start, stop"

**type**, score.mod, Attribute, 2.0, "Credit image MIME type. Typical values: application/postscript, image/gif, image/jpeg, image/png, image/tiff"

**virtual-instrument**, score.mod, Element, 3.0, Specific virtual instrument used for an instrument sound

\*\*just for midi playback\*\*

**virtual-library**, score.mod, Element, 3.0, Virtual instrument library name

\*\*just for midi playback\*\*

**virtual-name**, score.mod, Element, 3.0, Library-specific name for virtual instrument

\*\*just for midi playback\*\*

**width**, score.mod, Attribute, 1.1, Measure width in tenths

\*\*not needed for braille\*\*

**word-font**, score.mod, Element, 1.1, Font for words and other non-lyric text

**work**, score.mod, Element, 1.0, Information regarding the overall work

**work-number**, score.mod, Element, 1.0, Number of work

**work-title**, score.mod, Element, 1.0, Title of work

**xml:lang**, score.mod, Attribute, 1.1, Default lyric language

# 12. Sounds.dtd

\*\*none needed for braille, only for midi playback\*\*

name, file, type, version, description

**any**, sounds.dtd, Element, 3.0, "Mapping of any instrument sound, solo or ensemble, between its MusicXML ID and an application or library ID"

\*\*not needed for braille , only for midi playback\*\*

**ensemble**, sounds.dtd, Element, 3.0, Mapping of ensemble instrument sound between its MusicXML ID and an application or library ID

\*\*not needed for braille , only for midi playback\*\*

**id**, sounds.dtd, Attribute, 3.0, Unique ID for sound

\*\*not needed for braille , only for midi playback\*\*

**number**, sounds.dtd, Attribute, 3.0, Size of ensemble

\*\*not needed for braille , only for midi playback\*\*

**primary**, sounds.dtd, Attribute, 3.0, Primary choice when multiple mappings exist between MusicXML and application/library sound IDs

\*\*not needed for braille , only for midi playback\*\*

**solo**, sounds.dtd, Element, 3.0, Mapping of solo instrument sound between its MusicXML ID and an application or library ID

\*\*not needed for braille , only for midi playback\*\*

**sound**, sounds.dtd, Element, 3.0, MusicXML standard sound

\*\*not needed for braille , only for midi playback\*\*

**sounds**, sounds.dtd, Element, 3.0, Document element for MusicXML instrument sounds

\*\*not needed for braille , only for midi playback\*\*