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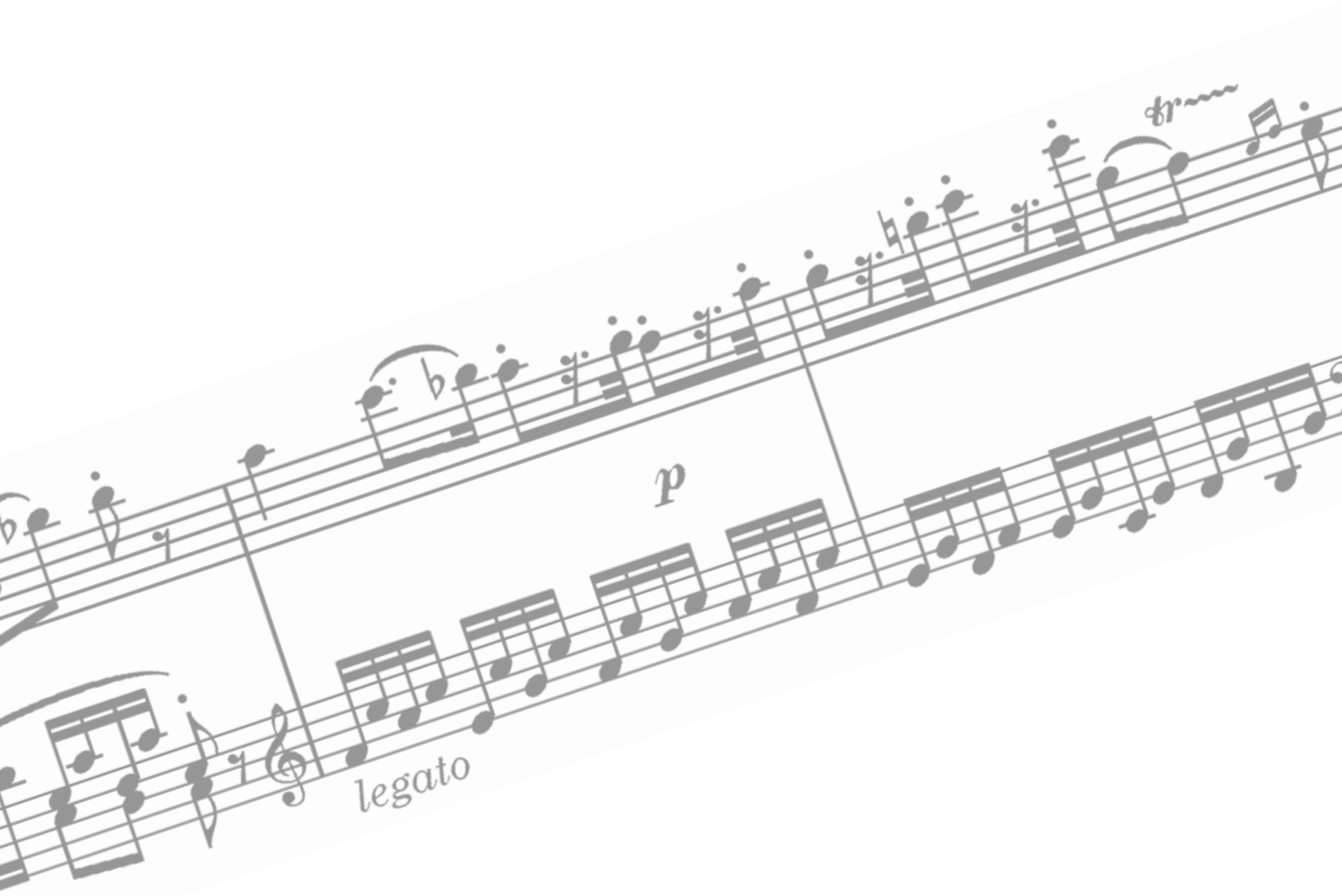


# SMuFL

## Standard Music Font Layout

Version 1.17 (2015-04-29)

## Acknowledgements

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# Version history

Version 0.1 (2013-01-31)

- Initial version.

Version 0.2 (2013-02-08)

- Added tick barline.
- Changed names of time signature, tuplet and figured bass digit glyphs to ensure that they are unique.
- Add upside-down and reversed G, F and C clefs for cancrizans and inverted canons.
- Added **Time signature +** and **Time signature fraction slash** glyphs.
- Added **Black diamond notehead**, **White diamond notehead**, **Half-filled diamond notehead**, **Black circled notehead**, **White circled notehead** glyphs.
- Added 256th and 512th note glyphs.
- All symbols shown on combining stems now also exist as separate symbols.
- Added reversed sharp, natural, double flat and inverted flat and double flat glyphs for cancrizans and inverted canons.
- Added trill wiggle segment, glissando wiggle segment and arpeggiato wiggle segment glyphs.
- Added string **Half-harmonic**, **Overpressure down bow** and **Overpressure up bow** glyphs.
- Added **Breath mark** glyph.
- Added angled beater pictograms for xylophone, timpani and yarn beaters.
- Added alternative glyph for **Half-open**, per Weinberg.
- Added **Scrape from rim to center** and **Scrape around rim** glyphs.
- Added **Start of stimme** glyph.
- Added colon for tuplet ratios.
- Added stem down versions of mensural notes, and signum congruentia and custos glyphs.
- Added three additional mensuration signs.
- Added Riemann Function theorys glyphs.

Version 0.3 (2013-03-11):

- Moved combining flags glyphs to accommodate glyphs for 256th note stem up, 256th note stem down, 512th note stem up and 512th note stem down.

Version 0.4 (2013-05-16):

- Added range for Arel-Ezgi-Uzdilek (AEU) accidentals for Turkish maqam music.
- Added equals sign and open time signature glyphs.

Version 0.5 (2013-07-08):

- Many existing code points have been changed, as a result of hundreds of new glyphs being added, plus a number of new ranges.
- Added long and very long system dividers for very large scores.
- Added heavy, double heavy and dotted barlines.
- Added square coda and small repeat signs for repeats within bars.
- Added recommended stylistic alternates for segno and coda for the appearance preferred by Japanese publishers.
- Added quindicesima bassa G clef and F clef, G clef combined with C clef, G clefs designed to be ligated with numbers below and above to show the transposition of an instrument, plus recommended ligatures for G and F clefs with numbers above and below; also added G, C and F clefs with arrows up and down, which may be used either as alternatives for octave clefs or to represent the extremes of register on an instrument, and semi-pitched percussion clefs, plus a bridge clef.
- Removed "tall" versions of 6- and 4-string tab clefs, and instead made them recommended stylistic alternates, together with versions that use letterforms with serifs.
- Added +, -, X (multiply), comma, parentheses glyphs for time signatures, plus basic fractions, and Penderecki-style open time signature.
- Added specific noteheads for double whole note and whole note to the noteheads range rather than relying on the glyphs in the pre-composed notes range.
- Added shaped noteheads for specific note values (double whole note, whole note, half note, and quarter note and shorter); also added large up- and down-pointing triangles for highest/lowest notes played by an instrument.
- Added large slashed circular noteheads as used by Stockhausen for notating gong/tam-tam hits.
- Added combining glyphs for note clusters of specific note values.
- Added noteheads with *solfège* and chromatic note names embedded within them, as seen in "EZ-Play" educational scores.
- Added specific range of noteheads for sacred harp shape note singing.
- Added pre-composed 1024th notes, tails and rest.
- Added range for typing simple beamed groups of notes in text-based applications, designed to be used in conjunction with pre-composed notes, and allowing beamed groups with rhythmic values between 8th notes and 64th notes, plus ties and triplets.

- Added combining stems for multiphonics, damp, sussurando, Saunders vibrato pulse accent.
- Added four- and five-stroke tremolos plus Wieniawski-style unmeasured tremolo glyphs.
- Added stylistic alternates for flags: straight flags; and shorter stem-up flags to avoid collisions with augmentation dots.
- Separated accidentals into several discrete ranges based around the various accidental systems, including 12-EDO, 24-EDO, the system of up- and down-pointing arrows favoured by Gould, Stein-Zimmermann (also known as Tartini-Couper), Sims (also known as Maneri-Sims, due to the adoption of Ezra Sims' accidentals by Joe Maneri of the Boston Microtonal Society), Ben Johnston, Marc Sabat and Wolfgang von Schweinitz's Extended Helmholtz-Ellis Just Intonation Pitch Notation.
- Added George Secor and Dave Keenan's Sagittal system of accidentals.
- Added accidentals used in Turkish folk music.
- Added Persian accidentals.
- Added staccatissimo wedge and stroke glyphs.
- Added very short and very long fermatas, plus short caesura.
- Added left and right halves of multirest H-bars and old-style quarter rest as seen in e.g. Novello editions.
- Added *ventiduesima* (three octaves, "22") glyphs to octaves range.
- Added precomposed glyphs for common dynamics and *niente* circle for hairpins.
- Added *schleifer* (long mordent) and Haydn ornament.
- Added additional brass techniques, including short, medium and long versions of lift, doit, lip fall, smooth fall, rough fall, plus jazz turn.
- Added range of glyphs for embouchure tightness, reed position, multiphonics, and stylistic alternates for double- and triple-tonguing with no slurs.
- Added further overpressure glyphs, plus *jété*, *fouetté*, Rebecca Saunders's "vibrato pulse" accent, thumb position and indeterminate bow direction to string techniques range.
- Added plectrum pictogram and combining damp glyph for note stems to plucked techniques range.
- Added arrows for breathing and intonation, plus combining *sussurando* glyph for note stems, to vocal techniques range.
- Added pedal pictograms, *sostenuto* pedal symbols, and half-pedal marks to keyboard techniques range.
- Added pictograms for metal rod and tuning key to harp techniques range.
- Added Smith Brindle's pictograms for tuned percussion instruments.
- Added pictogram for Indian table, plus stylistic alternate for tambourine as used by Stockhausen.

- Added pictogram for football rattle, plus Smith Brindle's pictogram for castanets as a stylistic alternate.
- Added pictogram for handbell, plus stylistic alternates for cow bell (from Berio) and sleigh bell (from Smith Brindle).
- Added pictogram for Chinese cymbal.
- Added pictogram for tam-tam with beater from Smith Brindle.
- Added pictogram for maracas, rainstick, plus stylistic alternate for maraca from Smith Brindle.
- Added pictogram for megaphone.
- Added soft and hard glockenspiel beaters, superball beaters, wound beaters with hard and soft cores, plus soft, medium and hard gum beaters.
- Added pluck lift to handbells range.
- Added "Theme" indicators to analytics range.
- Added minor (minus sign) glyph to chord symbols range.
- Added mensural proportion glyphs.
- Added combining raise and lower glyphs to figured bass range.
- Added repetition, angle brackets, and prefix + and ring glyphs to Function theorys range.
- Added new range for multi-segment lines, including moving all of the various "wiggle" glyphs (for trill, glissando, arpeggiando, vibrato, etc.) plus the 11 ornament strokes from the Unicode Musical Symbols range into this range, and adding further glyphs for variable speed trills, alternate arpeggiato ending glyphs, wavy lines, squaretooth and sawtooth lines, group glissando, circular motion, and variable speed and intensity of vibrato.
- Added new range of pictograms for electronic music, including microphone, loudspeaker, transport controls, volume level and MIDI controller level.
- Added new "do not copy" glyphs, eyeglasses and choral divide arrows glyphs to the miscellaneous symbols range.
- Adjusted the registration of many glyphs (e.g. noteheads, accidentals, time signatures, flags, rests) in Bravura in line with the interim guidelines for metrics and registration for SMuFL-compliant fonts intended for use with scoring applications.

Version 0.6 (2013-07-29):

- Added opening parenthesis and closing parenthesis for noteheads, circled slash notehead, heavy X and heavy X with hat noteheads, as used in Dante Agostini's drum method.
- Added muted slash noteheads.
- Added "si" note name noteheads for French solfège, and H sharp note name noteheads for German.
- Added combining rim shot stem.

- Added “sharp sharp” accidental for compatibility with MusicXML.
- Added extended Stein-Zimmermann accidentals with arrows.
- Added one-third-tone sharp and two-third-tones sharp accidentals as used by Xenakis.
- Significant revision to the ornaments range, including splitting into separate ranges (common ornaments, other baroque ornaments, combining strokes for trills/mordents, precomposed trills/mordents). A small number of glyphs from previous versions of SMuFL have been removed to make way for symbols drawn from Frederick Neumann’s authoritative book on baroque ornamentation.
- Added left hand pizzicato.
- Added recommended stylistic alternates for Bartok pizzicato above/below.
- Added recommended stylistic alternates for ‘Ped.’ and ‘Sost.’ that do not include terminal dots.
- Added choke cymbal glyph from Weinberg.
- Added open, half-open and closed wah/volume pedals, left- and right-hand tapping glyphs for guitar.
- Added new range for arrows and arrowheads, including moving the up/down/right/left arrows from the vocal techniques into this new range.

Version 0.7 (2013-11-27):

- Introduced canonical names for every recommended glyph, which are intended to be immutable. Code points, on the other hand, may change as required to accommodate insertions or deletions of glyphs.
- New **Notes for implementers** section with expanded guidelines for glyph registration, with changes for precomposed stems and stem decorations (which should now be centered around x=0) and flags (which should be positioned vertically relative to the end of a stem of normal length at y=0).
- Added specification for JSON metadata files for SMuFL and for SMuFL-compliant fonts, developed in conjunction with Joe Berkovitz.
- Significantly expanded the repertoire of glyphs for Medieval and Renaissance notation, with new ranges for clefs, accidentals and ligatures, plus considerable reworking of the notes and prolations ranges, expansion of the repertoire of glyphs for plainchant notation (with new ranges for staves, divisions, clefs and articulations, and a wider range of neumes).
- Added range for Daseian notation, as found in the ninth century treatises *Musica enchiriadis* and *Scolica enchiriadis*.
- Added new range of control characters for adjusting the staff position of staff-relative glyphs, intended for fonts designed for text-based applications.
- Added narrow and wide staff line glyphs, intended for fonts designed for text-based applications.

- Added C clef *ottava bassa*, and recommended stylistic alternate for G clef *ottava bassa* with parentheses around the 8.
- Added control characters for time signature digits to allow digits to be stacked vertically, intended for fonts designed for text-based applications.
- Added square double whole note (breve) notehead.
- Added new combining harp string noise for stem glyph, and corresponding precomposed stem glyph.
- Added four further quarter-tone accidental symbols to "other microtonal accidentals" group.
- Added some percussion playing technique symbols from Dante Agostini's method books.
- Added a *golpe* (tap the pick guard) glyph from Claude Worm's flamenco guitar method book.
- Added short and long fermata glyphs as used by Henze.
- Added combining glyphs for accordion couplers, allowing the creation of any coupler diagram not explicitly encoded.
- Added "pf" dynamic.

Version 0.8 (2014-02-03):

- Based on community feedback, added clarification that code points for glyphs may change until SMuFL reaches version 1.0, after which point existing code points will become immutable.
- Glyphs in SMuFL encoded in the primary range of U+E000–U+F3FF are no longer considered "mandatory", but rather they are "recommended": in order to be considered SMuFL-compliant, a font need not implement every recommended glyph, just as a text font need not implement every Unicode code point in order to be considered Unicode-compliant. Fonts need only implement those glyphs that are appropriate for their intended use at the correct SMuFL code points in order to be considered SMuFL-compliant.
- Changed guidelines for metrics of text-like glyphs (e.g. dynamics, D.C./D.S. markings in repeats) in fonts intended for use in scoring applications, such that it is recommended that the x-height of such glyphs is around 1 staff space (0.25 em).
- Added Ivan Wyschnegradsky's system of 72-EDO accidentals.
- Added Bosanquet's comma up/down.
- Dispersed the glyphs formerly in the Sagittal-compatible accidentals range to other ranges, and revised the canonical glyph names for Sagittal accidentals that describe specific ratios in order to make those ratios clearer.
- Added slashed sharp/flat accidentals used by John Tavener in his Byzantine-inspired choral works.
- Added left/right parentheses for accidentals.

- Added new ranges for Renaissance lute tablature, covering French/English, Italian/Spanish and German conventions.
- Added new ranges for fingering charts for flute, oboe, clarinet, bassoon, saxophone and recorder, as used in educational materials such as instructional or method books.
- Added Britten's curlew sign for a pause of an indeterminate length.
- Added push/pull signs for accordion.
- Added separate noteheads for white mensural notation.
- Added inverted signum congruentiae.
- Added combined tenuto-accent articulation.
- Added quasi-random wiggly lines (**wiggleRandom1**, **wiggleRandom2**, **wiggleRandom3**, **wiggleRandom4**) to multi-segment lines range.
- Added flipped and large versions of constant circular motion (**wiggleCircularConstantFlipped**, **wiggleCircularConstantLarge**, **wiggleCircularConstantFlippedLarge**) to multi-segment lines range.
- Added combining top/middle/bottom segments for black and white rectangular note clusters.
- Added 2, 3, 4 and 6-dot divisi indicators for measured tremolos (**tremoloDivisiDots2**, **tremoloDivisiDots3**, etc.) to tremolos range.
- Added clavichord bebung glyphs for 2, 3, and 4 finger movements (**keyboardBebung2DotsAbove**, **keyboardBebung3DotsBelow**, etc.) to the keyboard techniques range.
- Added double-height parentheses and brackets (**csymParensLeftTall**, **csymParensRightTall**, **csymBracketLeftTall**, **csymBracketRightTall**) to the chord symbols range.
- Added recommendation for stylistic alternates for time signature digits 0–9 suitable for use as large time signatures shown above/between staves (**timeSig0Large** through **timeSig9Large**).
- Added *sfzp* (sforzato-piano) dynamic and ligature.
- Added Penderecki's quarter-flat and Busotti's three-quarter sharp accidentals.
- Added six further accordion coupler diagrams for right-hand three-rank accordions, and accordion ricochet glyphs.

Version 0.85 (2014-03-09):

- Updated glyph registration guidelines for articulations, such that articulations above the note should be positioned sitting on the baseline, and articulations below the note should be positioned hanging from the baseline.
- Quite a few changes to canonical glyph names, especially for accidentals, with the aim of making the names clarify the actual interval represented by each accidental (where that is unambiguous) in terms of fractions of a tone.
- Added whole and half rests with leger lines, i.e. as if displayed outside the staff.

- Added clef for diatonic accordion.
- Added recommended stylistic alternates for C and F clef forms used in 18th century French music, and for an F clef form used in 19th century music across Europe.
- Added recommended ligature for G clef with ligated 8 above.
- Added half-brackets for keyboard notation to show notes that should be played by the other hand.
- Moved staff divide arrows from the **Miscellaneous symbols** range to the (now renamed) **Staff brackets and dividers** range.
- Moved the percussion swish arrow from the **Miscellaneous symbols** range to the **Percussion playing techniques pictograms** range.
- Moved all the glyphs from the **Quartertone accidentals (24-EDO)** range to the (now renamed) **Other accidentals** range, eliminating the former range and moving the latter to the very end of all of the ranges of accidentals.
- Further revisions to the plainchant ranges, including adding reversed *virga*, smaller version of *punctum inclinatum*, moving the *punctum mora* to the plainchant articulations range, and eliminating the precomposed *podatus* and *clivis* glyphs in favour of individual components that provide the means to construct these easily for any interval. Also added *strophicus*, *strophicus auctus*, *punctum inclinatum auctum* to the single-note forms range.
- Added new range for Kievian square notation, as used for liturgical chant in the Russian Orthodox Church.
- Added new glyphs for tabling one handbell and tabling a pair of handbells.
- Added alternative pedal heel glyph and pedal heel or toe glyph to **Keyboard techniques** range.
- Added recommended stylistic alternates for braces designed for use across different sizes of gaps, designed to be scaled uniformly rather than simply stretched vertically.
- Added many new electronic music pictograms, including speaker configurations, more transport controls, additional hardware devices, and so on.
- Added guitar fade in, fade out and swell glyphs.
- Added the glyphs used in the Corpus Monodicum project to the **Medieval and Renaissance plainchant in CMN** range.
- Added notes on the currently-defined classes in the JSON metadata file to the **Notes for implementers** section.

Version 0.9 (2014-04-17):

- Expanded the specification of font-specific metadata to include new structures to describe stylistic alternates, stylistic sets and ligatures present in fonts for applications that cannot access advanced font features.
- Defined new values for the "glyphs" structure in font-specific metadata to describe cut-outs from the four corners of a glyph's bounding box, in order to allow better kerning or interlocking of glyphs in some circumstances, e.g. when stacking accidentals; also renamed this structure to "glyphsWithAnchors" to clarify its purpose.
- Defined specification for new **ranges.json** file, which provides information about the ranges of glyphs described in this specification in a machine-readable fashion.
- Added initial glyph registration and font metrics guidelines for fonts intended for use in text-based applications.
- Added new range for Kodály solfège hand signs.
- Added new range for Peter Hayes George's Simplified Music Notation.
- Added narrow and wide versions of the sine wave, square wave and sawtooth wavy lines in the **Multi-segment lines** range.
- Added wide versions of the black and white diamond noteheads, as used in some handbells music.
- Added turned (i.e. inverted) versions of up bow and down bow marks.
- Added *oriscus liquescens* to the **Medieval and Renaissance plainchant single-note forms** range, and moved *punctum auctum inclinatum* and *punctum auctum diminutum* to this range.
- Added *strophicus liquescens* (for intervals of a second up to a fifth) to the **Medieval and Renaissance plainchant multiple-note forms** range.
- Added oblique ligature forms for mensural notes describing intervals of a second up to a fifth for black, void, black and void, and white noteheads to a new **Medieval and Renaissance oblique forms** range.
- Added single glyph for right and left repeat barlines to the **Repeats** range, and a recommended stylistic alternate using thick-thick rather than thin-thick-thin barlines.
- Added reversed versions of brackets to denote play with right/left hand in the **Keyboard techniques** range, to allow the demarcation of the end of a passage to be played with the other hand.
- Added more recommended stylistic alternates for display on smaller staff sizes: time signature digits; G, C and F clef; black, half, whole and double whole noteheads; standard articulations; dynamics letter forms.
- Added recommended ligatures for standard noteheads and accidentals in parentheses.
- Added open arrowheads and arrows.

- Added Kievan half note on space, and Kievan beam.
- Added new percussion pictograms from the books by Sevsay and Peinkofer/Tannigel, plus new combining glyphs for stems showing the "crush" rudiment, "dead" notes, and to instruct the performer to turn the instrument.
- Added five further mensural proportion signs, from Apel's book.
- Added 12 new pre-composed trills and mordents, based on Bach's ornamentation chart and ornaments found in the Emmentaler font.
- Added **restHBarMiddle** glyph, for text-based applications to construct H-bar multirests of variable width.
- Added **noteheadWholeFilled** and **noteheadHalfFilled**, for modern transcriptions of coloration in Medieval and Renaissance music.
- Consolidated breath marks into a single range, and added a new upbow-like breath mark (as used in music from Russia).
- Added range of glyphs for lyrics, including three lengths of elision undertie, and baseline hyphen (as used in music from Russia).
- Added a wider slash notehead, for whole note (semibreve) duration.
- Added more shape note noteheads to support the 7-shape conventions of Joseph Funk and William Walker.
- Added maxima rest, and double whole (breve) rest with leger lines above and below.
- Added curved caesura.
- Added separate glyphs for the 'e', 'd' and dot in keyboard pedal marks, plus a curved hyphen to be used along with the 'P' to show start/end pedal in some editions.
- Added new mensural C clef, plus variations of the Petrucci C clef for different staff positions.
- Added different custos for different staff positions.
- Added stylistic alternates for the Medieval and Renaissance "soft b" flat accidental.
- Added dedicated glyphs for C, G, and F clef changes, plus new combining clef change character to produce other clef change glyphs by way of glyph substitution.
- Added one- and two-third tones sharp and flat accidentals as used by Brian Ferneyhough.
- Added "just air" open diamond notehead as used by Brian Ferneyhough.
- Added white and wide white diamond noteheads.
- Added a range of glyphs for denoting accel./rit. beam lines above the staff.
- Added normal, wide and narrow leger line glyphs.

Version 0.99 (2014-06-02):

- Modified the specification of the **glyphsWithBBoxes** structure in the font-specific JSON metadata such that the glyph's name is the primary key, rather than the value of a **name** key, which makes it easier to consume this data.
- Added an optional **description** key to the **sets** structure in the font-specific JSON metadata, to contain a human-readable description of a stylistic set.
- Added a new fourth value to the **type** key for the **sets** structure, for large time signature digits intended for drawing outside the staff.
- Added specification of new **graceNoteSlashSW**, **graceNoteSlashNE**, **graceNoteSlashNW** and **graceNoteSlashSE** anchor points for the **glyphsWithAnchors** structure to help with the correct positioning of slashes on stem up and stem down flags of unbeamed grace notes.
- Added specification of new **repeatOffset** anchor point for the **glyphsWithAnchors** structure to help with the correct registration of tessellating glyphs.
- Added clarifications in the glyph registration guidelines for fonts intended for use in scoring applications that parentheses glyphs may have negative side bearings to improve default kerning of these glyphs with the symbols they are intended to bracket; likewise, tessellating glyphs (such as the wiggle that follows the *tr* symbol) may have negative side bearings to produce correct tessellation when set in a single run of text.
- Added **8** and **15** digits scaled correctly for positioning on G and F clefs.
- Added recommended stylistic alternates for common time, cut time and **+** intended for use as large time signatures printed above the staff.
- Added a set of noteheads enclosed in large circles, used by some drummers.
- Added an ornate X notehead contained within an ellipse.
- Added Couperin's *pincé* and *tremblement appuyé* ornaments.
- Redesigned the thumb position string technique glyph to more closely resemble a zero digit, and added a turned version.
- Added a zero-width rectangle intended to enclose single percussion beaters inside a box.
- Added strum direction arrows for guitar, and a stylistic alternate for the golpe glyph as used by Antonis Vounelakos.
- Added an additional raised 7 digit for figured bass.
- Added left- and right-pointing arrows for use in metric modulations.
- Added recommended ligatures for combining Johnston accidentals with standard sharp and flat accidentals.
- Removed the ranges of glyphs for wind instrument fingering charts.

Version 1.0 (2014-06-16):

- Now that SMuFL has reached 1.0, the code points and glyph names for all current glyphs will not change in future revisions.
- Added specification for new splitStemUpSE, splitStemUpSW, splitStemDownNW and splitStemDownNE anchors in font-specific metadata to define stem connection points for altered unisons.
- Added punctum deminutum (chantPunctumDeminutum) glyph to **Medieval and Renaissance plainchant single-note forms** range.

Version 1.12 (2015-01-07):

- Added specification of new noteheadOrigin anchor points for the glyphsWithAnchors structure to help with the correct alignment of noteheads that have left-hand side bearings with those that do not.
- Added specification of new opticalCenter anchor points for the glyphsWithAnchors structure to help with the correct balancing of glyphs that should be centered on noteheads and stems (e.g. dynamics)
- Added new **Time signatures supplement** range, with square brackets for the whole time signature and numerator only, the slash separator sometimes used for interchangeable time signatures, and new timeSig2Cut glyph, used by Bach and other composers of that period as an alternative to the normal cut common (*alla breve*) symbol.
- Added new **Octaves supplement** range, with *loco* text (octaveLoco). Revised the existing **Octaves** range, correcting the recommended appearance of the *ottava bassa*, *quindicesima bassa*, and *ventiduesima bassa* glyphs, and adding new glyphs for commonly-used but incorrect abbreviations for these glyphs.
- Added missing stem down noteheads for smnSharp and smnSharpWhite in the **Simplified Music Notation** range.
- Added Salzedo's symbols for ascending and descending Aeolian chords to the **Harp techniques** range.
- Added short, medium, and long smooth lifts to the **Brass techniques** range.
- Added *Hauptrhythmus* and *Choralmelodie*, as used by Alban Berg, to the **Analytics** range.

Version 1.17 (2015-04-29):

- Added specification of new optionalGlyphs structure for font-specific metadata to provide information about non-core glyphs included in fonts.
- Added specification of the name of the glyph for which the glyph in a stylistic set is an alternate to the sets structure in font-specific metadata.
- Added new implementation notes concerning noteWholeEmpty, noteHalfEmpty, and noteBlackEmpty in the **Note name noteheads** range.

- Added new **Metronome marks** range, with stem up and stem down notes intended to be proportioned for setting in line with characters from a regular text font; specifically, it is recommended that stems are shortened by 0.75 spaces from their default length.
- Clarified role of **Individual notes** range, which is that notes in this range are intended for drawing on a stave, and as such should have the default stem length (3.5 spaces minimum).
- Added baseline and superscript italic *a*, *b*, *m*, and *v* characters to the **Octaves supplement** range, to allow the creation of arbitrary octave line markers beyond those included in the **Octaves** range.
- Added marcato-tenuto above/below composites to the **Articulation** range.
- Added alternative "raised 6" character to the **Figured bass** range.

# Contents


About SMuFL ..... 19
Notes for implementers ..... 25
Staff brackets and dividers (U+E000–U+E00F) ..... 50
Staves (U+E010–U+E02F) ..... 52
Barlines (U+E030–U+E03F) ..... 54
Repeats (U+E040–U+E04F) ..... 55
Clefs (U+E050–U+E07F) ..... 57
Time signatures (U+E080–U+E09F) ..... 65
Noteheads (U+E0A0–U+E0FF) ..... 71
Slash noteheads (U+E100–U+E10F) ..... 78
Round and square noteheads (U+E110–U+E11F) ..... 79
Note clusters (U+E120–U+E14F) ..... 80
Note name noteheads (U+E150–U+E1AF) ..... 83
Shape note noteheads (U+E1B0–U+E1CF) ..... 89
Individual notes (U+E1D0–U+E1EF) ..... 93
Beamed groups of notes (U+E1F0–U+E20F) ..... 95
Stems (U+E210–U+E21F) ..... 97
Tremolos (U+E220–U+E23F) ..... 99
Flags (U+E240–U+E25F) ..... 101
Standard accidentals (12-EDO) (U+E260–U+E26F) ..... 105
Gould arrow quartertone accidentals (24-EDO) (U+E270–U+E27F) ..... 107
Stein-Zimmermann accidentals (24-EDO) (U+E280–U+E28F) ..... 108
Extended Stein-Zimmermann accidentals (U+E290–U+E29F) ..... 109
Sims accidentals (72-EDO) (U+E2A0–U+E2AF) ..... 111
Johnston accidentals (just intonation) (U+E2B0–U+E2BF) ..... 112
Extended Helmholtz-Ellis accidentals (just intonation) (U+E2C0–U+E2FF) ..... 114
Spartan Sagittal single-shaft accidentals (U+E300–U+E30F) ..... 118
Spartan Sagittal multi-shaft accidentals (U+E310–U+E33F) ..... 120
Athenian Sagittal extension (medium precision) accidentals (U+E340–U+E36F) ..... 123
Trojan Sagittal extension (12-EDO relative) accidentals (U+E370–U+E38F) ..... 126
Promethean Sagittal extension (high precision) single-shaft accidentals (U+E390–U+E3AF) ..... 128
Promethean Sagittal extension (high precision) multi-shaft accidentals (U+E3B0–U+E3EF) ..... 130
Herculean Sagittal extension (very high precision) accidental diacritics (U+E3F0–U+E3FF) ..... 134
Olympian Sagittal extension (extreme precision) accidental diacritics (U+E400–U+E40F) ..... 135
Magrathean Sagittal extension (insane precision) accidental diacritics (U+E410–U+E41F) ..... 136
Wyschnegradsky accidentals (72-EDO) (U+E420–U+E43F) ..... 137
Arel-Ezgi-Uzdilek (AEU) accidentals (U+E440–U+E44F) ..... 139
Turkish folk music accidentals (U+E450–U+E45F) ..... 140

Persian accidentals (U+E460–U+E46F) ..... 141
Other accidentals (U+E470–U+E49F) ..... 142
Articulation (U+E4A0–U+E4BF) ..... 144
Holds and pauses (U+E4C0–U+E4DF) ..... 147
Rests (U+E4E0–U+E4FF) ..... 149
Bar repeats (U+E500–U+E50F) ..... 151
Octaves (U+E510–U+E51F) ..... 152
Dynamics (U+E520–U+E54F) ..... 154
Lyrics (U+E550–U+E55F) ..... 157
Common ornaments (U+E560–U+E56F) ..... 158
Other baroque ornaments (U+E570–U+E58F) ..... 160
Combining strokes for trills and mordents (U+E590–U+E5AF) ..... 162
Precomposed trills and mordents (U+E5B0–U+E5CF) ..... 165
Brass techniques (U+E5D0–U+E5EF) ..... 169
Wind techniques (U+E5F0–U+E60F) ..... 171
String techniques (U+E610–U+E62F) ..... 173
Plucked techniques (U+E630–U+E63F) ..... 175
Vocal techniques (U+E640–U+E64F) ..... 176
Keyboard techniques (U+E650–U+E67F) ..... 177
Harp techniques (U+E680–U+E69F) ..... 179
Tuned mallet percussion pictograms (U+E6A0–U+E6BF) ..... 181
Chimes pictograms (U+E6C0–U+E6CF) ..... 183
Drums pictograms (U+E6D0–U+E6EF) ..... 184
Wooden struck or scraped percussion pictograms (U+E6F0–U+E6FF) ..... 186
Metallic struck percussion pictograms (U+E700–U+E70F) ..... 188
Bells pictograms (U+E710–U+E71F) ..... 189
Cymbals pictograms (U+E720–U+E72F) ..... 190
Gongs pictograms (U+E730–U+E73F) ..... 191
Shakers or rattles pictograms (U+E740–U+E74F) ..... 192
Whistles and aerophones pictograms (U+E750–U+E75F) ..... 193
Miscellaneous percussion instrument pictograms (U+E760–U+E76F) ..... 194
Beaters pictograms (U+E770–U+E7EF) ..... 195
Percussion playing technique pictograms (U+E7F0–U+E80F) ..... 202
Handbells (U+E810–U+E82F) ..... 204
Guitar (U+E830–U+E84F) ..... 205
Chord diagrams (U+E850–U+E85F) ..... 207
Analytics (U+E860–U+E86F) ..... 208
Chord symbols (U+E870–U+E87F) ..... 209
Tuplets (U+E880–U+E88F) ..... 210
Conductor symbols (U+E890–U+E89F) ..... 211

Accordion (U+E8A0–U+E8DF) ..... 212
Beams and slurs (U+E8E0–U+E8EF) ..... 216
Medieval and Renaissance staves (U+E8F0–U+E8FF) ..... 217
Medieval and Renaissance clefs (U+E900–U+E90F) ..... 218
Medieval and Renaissance prolations (U+E910–U+E92F) ..... 219
Medieval and Renaissance noteheads and stems (U+E930–U+E94F) ..... 221
Medieval and Renaissance individual notes (U+E950–U+E96F) ..... 227
Medieval and Renaissance oblique forms (U+E970–U+E98F) ..... 229
Medieval and Renaissance plainchant single-note forms (U+E990–U+E9AF) ..... 231
Medieval and Renaissance plainchant multiple-note forms (U+E9B0–U+E9CF) ..... 233
Medieval and Renaissance plainchant articulations (U+E9D0–U+E9DF) ..... 237
Medieval and Renaissance accidentals (U+E9E0–U+E9EF) ..... 238
Medieval and Renaissance rests (U+E9F0–U+E9FF) ..... 239
Medieval and Renaissance miscellany (U+EA00–U+EA1F) ..... 240
Medieval and Renaissance symbols in CMN (U+EA20–U+EA2F) ..... 242
Daseian notation (U+EA30–U+EA4F) ..... 243
Figured bass (U+EA50–U+EA6F) ..... 244
Function theory symbols (U+EA70–U+EA9F) ..... 246
Multi-segment lines (U+EAA0–U+EB0F) ..... 249
Electronic music pictograms (U+EB10–U+EB5F) ..... 256
Arrows and arrowheads (U+EB60–U+EB8F) ..... 260
Combining staff positions (U+EB90–U+EB9F) ..... 263
Renaissance lute tablature (U+EBA0–U+EBBF) ..... 264
French and English Renaissance lute tablature (U+EBC0–U+EBDF) ..... 266
Italian and Spanish Renaissance lute tablature (U+EBE0–U+EBFF) ..... 269
German Renaissance lute tablature (U+EC00–U+EC2F) ..... 271
Kievan square notation (U+EC30–U+EC3F) ..... 274
Kodály hand signs (U+EC40–U+EC4F) ..... 276
Simplified Music Notation (U+EC50–U+EC5F) ..... 277
Miscellaneous symbols (U+EC60–U+EC7F) ..... 278
Time signatures supplement (U+EC80–U+EC8F) ..... 279
Octaves supplement (U+EC90–U+EC9F) ..... 280
Metronome marks (U+ECA0–U+ECBF) ..... 281

# About SMuFL

## A brief history of music fonts

Computer software has been displaying musical symbols of various kinds since the 1960s, but the first font for musical symbols did not arrive until 1985, when Cleo Huggins designed Sonata for Adobe.[1]

Sonata mapped the musical symbols onto keys on the standard QWERTY keyboard, using some simple mnemonics (the treble G clef, for example, was mapped onto the **&** key, and the sharp sign onto **#**). Most music fonts developed since then, including Steve Peha's Petrucci (the first music font for Finale, dating from 1988[2]) and Jonathan Finn's Opus (the first music font for Sibelius, dating from 1993), have followed Sonata's layout.

However, since Sonata includes fewer than 200 glyphs, and even conventional music notation[3] requires many more symbols than that, individual vendors have devised their own mappings for glyphs beyond Sonata's initial set.

By 2013, for example, the Opus font family that is still Sibelius's default font set contains no fewer than 18 fonts with more than 600 glyphs between them.

In 1998, Perry Roland of the University of Virginia drafted a proposal for a new range of musical symbols to be incorporated into the Unicode Standard[4]. This range of 220 characters was duly accepted into the Unicode Standard, and those symbols are found at code points U+1D100–U+1D1FF[5]. However, its repertoire of 220 symbols does not extend dramatically beyond the scope of the original 1985 version of Sonata, though it does add some symbols for mensural and Gregorian notation.

To date the only commercially available music font that uses the Unicode mapping is Adobe Sonata Std, and its repertoire is incomplete.

## How SMuFL is organized

The aim of the Standard Music Font Layout (SMuFL) is to provide the basis for music font mapping for the age of Unicode and OpenType fonts.

SMuFL uses the standard Private Use Area in the Basic Multilingual Plane (starting at code point U+E000), and currently includes just over 2400 recommended characters, plus several hundred further optional but recommended glyphs, primarily ligatures (i.e. two or more symbols drawn as a single glyph) and stylistic alternates (i.e. a

[1] See http://www.identifont.com/show?12A
[2] See http://blog.finalemusic.com/post/2010/02/18/Meet-Steve-Peha-creator-of-Petrucci-Finales-first-music-font.aspx
[3] A term coined by Donald Byrd, Senior Scientist and Adjunct Associate Professor of Informatics at Indiana University.
[4] The original proposal (http://www.lib.virginia.edu/artsandmedia/dmmc/Music/UnicodeMusic/) is no longer available, but an archived version can be found at http://archive.is/PzkaT
[5] See http://www.unicode.org/charts/PDF/U1D100.pdf

different appearance for the same character with equivalent meaning). SMuFL is a superset of the Unicode Musical Symbols range, and it is recommended that common characters are included both at code points in SMuFL and in the Unicode Musical Symbols range. In the tables of glyphs in this document, where glyphs are shared between SMuFL and the Unicode Musical Symbols range, the Unicode Musical Symbols code point is shown following the SMuFL code point.

The groupings of characters within SMuFL are based on the groupings defined by Perry Roland in the Unicode Musical Symbols range, but with finer granularity. There are currently 108 groups of characters, proceeding roughly in order from least to most idiomatic, i.e. specific to particular instruments, types of music, or historical periods. The grouping has no significance other than acting as an attempt to provide an overview of the included characters.

Room for future expansion has generally been left in each group, so code points are not contiguous. The code point of each character in SMuFL 1.0 is intended to be immutable, and likewise every character has a canonical name, also intended to be immutable.

## Recommended characters and optional glyphs

One of the aims of SMuFL is to make it as simple as possible for developers both of fonts and of scoring software to implement support for a wide range of musical symbols. Although modern font technologies such as OpenType enable a great deal of sophistication in automatic substitution features[6], applications that wish to use SMuFL-compliant fonts are not obliged to support advanced OpenType features.

The basic requirements for the use of SMuFL-compliant fonts are the ability to access glyphs by their Unicode code point, to measure glyphs, and to scale them (e.g. by drawing the font at different point sizes). If applications are able to access OpenType features such as stylistic sets and ligatures, then additional functionality may be enabled.

However, all glyphs that can be accessed via OpenType features are also accessible via an explicit code point. For example, a stylistic alternate for the sharp accidental designed to have a clearer appearance when reproduced at a small size can be accessed as a stylistic alternate for **accidentalSharp**, but also by way of its explicit code point, which will be in the range U+F400–U+F8FF.

Because optional glyphs for ligatures, stylistic alternates, etc. are not required, and different font developers may choose to provide different sets (e.g. several different appearances of tab clefs, or different sets of glyphs whose designs are optimized for drawing at different optical sizes), SMuFL does not make any specific recommendations for how these glyphs should be assigned explicit code points,

[6] See http://www.adobe.com/devnet/opentype/afdko/topic_feature_file_syntax.html

except that they must be within the range U+F400–U+F8FF, which is reserved for this purpose and for any other private use required by font or application developers.

In summary, recommended characters are encoded from U+E000, with a nominal upper limit of U+F3FF (a total of 5120 possible characters), while optional glyphs (ligatures, stylistic alternates, etc.) are encoded from U+F400, with a nominal upper limit of U+F8FF (a total of 1280 possible glyphs).

In order for a font to be considered SMuFL-compliant, it should implement as many of the recommended characters as are appropriate for the intended use of the font, at the specified code points. Fonts need not implement every recommended character, and need not implement any optional glyphs, in order to be considered SMuFL-compliant.

## Implementations

The reference font for SMuFL is Bravura, an OpenType font released under the SIL Open Font License that can be downloaded from the SMuFL web site at http://www.smufl.org/fonts. The example glyphs in this document are all taken from Bravura.

Other SMuFL-compliant fonts are available under a variety of licenses. A list of such fonts can be found at http://www.smufl.org/fonts.

Support for SMuFL-compliant fonts has been implemented by a variety of applications. A list of applications that support SMuFL can be found at http://www.smufl.org/software.

## Sources for symbols

In addition to surveying the music fonts supplied with existing major scoring applications, the following texts were consulted as sources for musical symbols:

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- Apel, Willi. *The Notation of Polyphonic Music 900–1600, Fourth Edition*. Cambridge, MA, USA: The Medieval Academy of America, 1953.
- Bach, J.S. (ed. Palmer, Willard). *J.S. Bach: Inventions and Sinfonias, 2nd Edition*. Van Nuys, CA, USA: Alfred Publishing Co., 1991.
- Balestrieri, Donald. *Registers of the Standard Stradella Keyboard Accordion*. USA: Accord Magazine, 1979.[7]
- Davis, Roger E. *The Organists' Manual*. New York: W. W. Norton, 1985.
- Doty, David B. *The Just Intonation Primer*. San Francisco, USA: The Just Intonation Network, 1993.

[7] See http://www.accordions.com/articles/stradella.aspx

- Draugsvoll, Geir & Højsgaard, Erik (translated Borregaard, Andreas). *Handbook on Accordion Notation*. Copenhagen: The Royal Danish Academy of Music in Copenhagen, 2001.[8]
- Drobner, Mieczysław. *Instrumentoznawstwo i akustyka* (Musical Instruments and Acoustics). Cracow: PWM Edition, 1960 (7th Edition, 2008).
- Gould, Elaine. *Behind Bars*. London: Faber Music, 2011.
- Inglefield, Ruth & Neill, Lou Anne. *Writing for the Pedal Harp: Standardized Manual for Composers and Harpists*. University of California Press, 1985.
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- Peinkofer, Karl & Tannigel, Fritz: *Handbuch des Schlagzeugs. Praxis und Technik.* Mainz: Schott, 1981.
- Poulton, Diana. *A Tutor for the Renaissance Lute*. London, UK: Schott, 1991.
- Read, Gardner. *Twentieth-Century Microtonal Notation*. USA: Praeger, 1990.
- Roland, Perry. *Proposal for Encoding Western Music Symbols in ISO/IEC 10646*. Virginia: University of Virginia, 1998.
- Sabat, Marc. *The Extended Helmholtz-Ellis JI Pitch Notation.* Plainsound Music Edition, 2005.
- Salzedo, Carlos. *Modern Study of the Harp*. London: G. Schirmer, 1921.
- Secor, George & Keenan, David. *Sagittal – A Microtonal Notation System*. Xenharmonikôn, An Informal Journal of Experimental Music, Volume 18, 2006. www.sagittal.org, 2004.
- Sevsay, Ertugrul: *Handbuch der Instrumentationspraxis.* Kassel: Bärenreiter, 2005
- Simmons, Nikita. *A Primer of Kievian Square-Note (Quadratic or Synodal) Notation*. www.synaxis.info, 2004.
- Smith Brindle, Reginald. *Contemporary Percussion*. New York: Oxford University Press, 1991.


[8] See http://www.rednoteensemble.com/Calls_for_Scores_files/Handbook%20on%20Accordion%20Notation.pdf

- Stiller, Andrew. *Handbook of Instrumentation*. Philadelphia: Kallisti Music Press, 1994.
- Stone, Kurt. *Music Notation in the Twentieth Century: A Practical Guidebook*. New York: W.W. Norton, 1980.
- Vounelakos, Antonis. *Die Konzepte der Flamenco-Gitarrentranskription*. Vienna: Universität Wien, 2009.
- Weinberg, Norman. *Guide to Standardized Drumset Notation*. Lawton: Percussive Arts Society, Inc., 1998.
- "Ornaments", Grove Music Online, ed. L. Macy (accessed January 24 2013)
- *AGEHR Handbell and Handchime Notation Booklet, 8th ed.* Dayton: Lorenz, 2010.[9]


## Other contributors


Grateful thanks are also extended to the following, all of whom have contributed their time and expertise to identifying further sources of glyphs for inclusion in SMuFL: Mark Adler, Stephen Begley, Michael Scott Cuthbert, Ben Finn, Maurizio Gavioli, Michael Good, Mark Johnson, Dave Keenan, Phil Knights, Matthew Maslanka, Jean-Christoph Michel, Alexander Plötz, Grzegorz Rolek, Ahmed Tahar, Emil Wojtacki, Notengrafik Berlin.

Thanks also to Joe Berkovitz for his contribution towards the guidelines for font metrics and glyph registration for fonts intended for use with scoring applications, and the initial design of the font metadata JSON files.


## Missing symbols?

If you know of any commonly used symbols that are not included in SMuFL, please post your suggestions to the **smufl-discuss** mailing list (see www.smufl.org/discuss).

## License



[9] A summary of the main notations prescribed in this book can be found at http://www.handbellworld.com/music/HandbellNotation.cfm

# Notes for implementers

This section provides guidelines and recommendations for metrics, glyph registration and font metadata, and is intended for font designers who want to design SMuFL-compliant fonts, and for software developers who want to build applications that can consume SMuFL-compliant fonts.

## Metadata for SMuFL glyphs and ranges

To aid software developers in implementing SMuFL-compliant fonts, three support files in JSON format are available. For more information about the JSON format, see www.json.org.

**glyphnames.json** maps code points to canonical glyph names, which by convention use lower camel case, a convenient format for most programming languages. Here is an excerpt of this file:

```
{
    ...
    "barlineDashed": {
        "alternateCodepoint": "U+1D104",
        "codepoint": "U+E036",
        "description": "Dashed barline"
    },
    "barlineDotted": {
        "codepoint": "U+E037"
        "description": "Dotted barline"
    },
    "barlineDouble": {
        "alternateCodepoint": "U+1D101",
        "codepoint": "U+E031"
        "description": "Double barline"
    },
    "barlineFinal": {
        "alternateCodepoint": "U+1D102",
        "codepoint": "U+E032"
        "description": "Final barline"
    },
    "barlineHeavy": {
        "codepoint": "U+E034"
        "description": "Heavy barline"
    },
    ...
}
```

The file is keyed using the glyph names, with the SMuFL code point provided as the value for the "codepoint" key, and the Unicode Musical Symbols range code point (if

applicable) provided as the value for the "alternateCodepoint" key. The "description" key contains the glyph's description, as it appears in this specification.

**classes.json** groups glyphs together into classes, so that software developers can handle similar glyphs (e.g. noteheads, clefs, flags, etc.) in a similar fashion. Here is an excerpt of this file:

```
{
    "clefs": [
          "gClef",
          "gClef15mb",
          "gClef8vb",
          "gClef8va",
          "gClef15ma",
          "gClef8vbOld",
          "gClef8vbCclef",
          ...
    ],
    "noteheads": [
          "noteheadDoubleWhole",
          "noteheadWhole",
          "noteheadHalf",
          "noteheadBlack",
          "noteheadNull",
          ...
    ],
    "flags": [
          "flag8thUp",
          "flag8thDown",
          "flag16thUp",
          "flag16thDown",
          "flag32ndUp",
          "flag32ndDown",
          ...
    ],
    ...
}
```

Glyphs are listed within their classes using the names specified in **glyphnames.json**. Not all glyphs are contained within classes, and the same glyph can appear in multiple classes.

The classes defined at present are as follows:

| *Class name* | *Description* |
|---|---|
| accidentals | Contains all glyphs in all accidentals ranges. |
| accidentals24EDOArrows<br>accidentals53EDOTurkish<br>accidentals72EDOWyschnegradsky<br>accidentalsAEU<br>accidentalsHelmholtzEllis<br>accidentalsJohnston<br>accidentalsPersian<br>accidentalsSagittalAthenian<br>accidentalsSagittalDiacritics<br>accidentalsSagittalMixed<br>accidentalsSagittalPromethean<br>accidentalsSagittalPure<br>accidentalsSagittalTrojan<br>accidentalsSims<br>accidentalsStandard<br>accidentalsSteinZimmermann | These classes contain useful subsets of accidentals, each class essentially providing all of the accidentals glyphs required for a given convention or system. |
| articulations | Contains all articulations, regardless of whether they are intended to be positioned above or below the note/staff. |
| articulationsAbove<br>articulationsBelow | Contains only those articulations that are positioned either above or below the note/staff, as appropriate. |
| combiningStaffPositions | Contains glyphs that are available in ligatures with the **Combining staff position** glyphs, in fonts intended for use in text-based applications. (N.B. not implemented in the current Bravura font, which is intended for scoring applications.) |
| clefs | Contains all clefs, regardless of the position on the staff at which they are typically positioned. |
| clefsC | Contains all C clefs. |
| clefsF | Contains all F clefs. |
| clefsG | Contains all G clefs. |
| dynamics | Contains the glyphs in the **Dynamics** range, which should be scaled differently to other glyphs in fonts designed for use in text-based applications. |
| forTextBasedApplications | Contains glyphs that scoring applications can generally ignore, i.e. these are useful for text-based applications (or for runs of normal text in scoring applications). This contains glyphs like the **Beamed groups of notes** range, pre-composed stems, pre-composed staff lines, etc. |
| multiGlyphForms | Contains all glyphs that are designed to be used in combination to produce larger forms, e.g. ornaments, wiggly lines, etc. |
| noteheads | Contains all glyphs in all noteheads ranges. |

| *Class name* | *Description* |
|---|---|
| noteheadSetCircled<br>noteheadSetCircleX<br>noteheadSetDefault<br>noteheadSetDiamond<br>noteheadSetDiamondOld<br>noteheadSetHeavyX<br>noteheadSetLargeArrowDown<br>noteheadSetLargeArrowUp<br>noteheadSetNamesPitch<br>noteheadSetNamesSolfege<br>noteheadSetPlus<br>noteheadSetRoundLarge<br>noteheadSetRoundSmall<br>noteheadSetSacredHarp<br>noteheadSetSlashed1<br>noteheadSetSlashed2<br>noteheadSetSlashHorizontalEnds<br>noteheadSetSlashVerticalEnds<br>noteheadSetSquare<br>noteheadSetTriangleDown<br>noteheadSetTriangleLeft<br>noteheadSetTriangleRight<br>noteheadSetTriangleUp<br>noteheadSetWithX<br>noteheadSetX<br>parenthesesNotehead | These classes contain useful subsets of noteheads, each class providing a set of noteheads, e.g. the notehead to be used for quarter notes and shorter, for half notes, for whole notes, etc., for different conventions. |
| octaves | Contains all glyphs relating to octave lines. |
| ornaments | Contains all pre-composed ornament glyphs, excluding the component parts in the **Combining strokes for trills and mordents** range. |
| pauses | Contains all fermatas/caesuras, regardless of whether they are intended to be positioned above or below the note/staff. |
| pausesAbove<br>pausesBelow | Contains only those fermatas that are positioned either above or below the note/staff, as appropriate. |
| rests | Contains all rests glyphs. |
| stemDecorations | Contains glyphs that are designed to be positioned on stems. This is a useful class, because the individual glyphs that are intended to be drawn on stems are dotted around various ranges. |
| wigglesArpeggiato<br>wigglesArpeggiatoDown<br>wigglesArpeggiatoUp<br>wigglesCircularMotion<br>wigglesQuasiRandom<br>wigglesTrill<br>wigglesVibrato<br>wigglesVibratoVariable | These classes contain useful subsets of the **Multi-segment lines** range. |

**ranges.json** provides information about the way glyphs are presented in discrete ranges in this specification. Here is an excerpt of this file:

```
{
    ...
    "analytics": {
        "description": "Analytics",
        "glyphs": [
            "analyticsHauptstimme",
            "analyticsNebenstimme",
            "analyticsStartStimme",
            "analyticsEndStimme",
            "analyticsTheme",
            "analyticsThemeRetrograde",
            "analyticsThemeRetrogradeInversion",
            "analyticsThemeInversion",
            "analyticsTheme1",
            "analyticsInversion1"
        ],
        "range_end": "U+E86F",
        "range_start": "U+E860"
    }
    ...
}
```

This file uses a unique identifier for each range as the primary key, and within each structure the “description” specifies the human-readable range name (as it appears in this specification), “glyphs” is an array listing the canonical names of the glyphs contained within the range, and the “range_start” and “range_end” key/value pairs specify the first and last code point allocated to this range respectively.

The current versions of **glyphnames.json**, **classes.json** and **ranges.json** are available for download at www.smufl.org/download.

It is further recommended that SMuFL-compliant fonts also contain font-specific metadata JSON files, which are described below.

## Designing for scoring applications and text-based applications

In addition to providing a standard approach to how musical symbols should be assigned to Unicode code points, SMuFL also aims to provide two sets of guidelines for the metrics and glyph registration, addressing the two most common use cases for fonts that contain musical symbols, i.e. use within dedicated scoring applications, and use within text-based applications (such as a word processors, desktop publishers, web pages, etc.).

Since it is helpful for scoring applications that all symbols in a font be scaled relative to each other as if drawn on a staff of a particular size, and conversely it is helpful for musical symbols to be drawn in-line with text to be scaled relative to the letterforms with which the musical symbols are paired, in general a single font cannot address

these two use cases: the required metrics and relative scaling of glyphs are incompatible[10].

Therefore, it is recommended that font developers make clear whether a given font is intended for use by scoring applications or by text-based applications by appending "Text" to the name of the font intended for text-based applications; for example, "Bravura" is intended for use by scoring applications, and "Bravura Text" is intended for use by text-based applications (or indeed for mixing musical symbols with free text within a scoring application).

## Metrics and glyph registration for scoring applications

The following guidelines are provided for fonts intended for use in scoring applications:

- Dividing the em in four provides an analogue for a five-line staff: if a font uses 1000 upm (design units per em), as is conventional for a PostScript font, one staff space is equal to 250 design units; if a font uses 2048 upm, as is conventional for a TrueType font, one staff space is equal to 512 design units.
- The origin (bottom left corner of the em square, i.e. x = 0 and y = 0 in font design space) therefore represents the middle of the bottom staff line of a nominal five-line staff, and y = 1 em represents the middle of the top staff line of that same five-line staff.
- All glyphs should be drawn at a scale consistent with the key measurement that one staff space = 0.25 em.
- Unless otherwise stated, all glyphs shall be horizontally registered so that their leftmost point coincides with x = 0.
- Unless otherwise stated, all glyphs shall have zero-width side bearings, i.e. no blank space to the left or right of the glyph.
- Glyphs that apply to a staff as a whole (e.g. barlines) shall be registered such that the font baseline lies at the nominal vertical position of the bottom line of a five-line staff. If the glyph is specific to a staff other than a regular five-line staff, then for registration purposes that staff's vertical center shall be exactly aligned with the vertical center of a five-line staff.

[10] The main problem concerns line spacing: because most applications determine the line spacing required for a font based on a sum of the ascender, descender and line gap values in the font (for which different applications on different operating systems use different combinations of the three places this can be defined, once the **hhea** table and twice in the **OS/2** table), it is impractical to provide a font where all glyphs are scaled correctly relatively to one another in such a way that all musical symbols can be drawn at a single scale factor that complements text fonts at the same point size. Many applications clip glyphs that exceed the calculated line spacing, so in order to have a single font in which e.g. a G clef is drawn without clipping and an eighth note is drawn at a corresponding scale factor (such that the clef is around twice as tall as the note), the line spacing would have to be so tall that it would greatly distort the line spacing of the text. For more information about this issue, see http://typophile.com/node/13081. Bravura, for what it's worth, uses very large line spacing (1.75 times its em square), such that 99% of glyphs are drawn without clipping in text-based applications, at the expense of making it practical to use the font mixed in-line with text.

- Glyphs for movable notations that apply to some vertical staff position (e.g. noteheads, accidentals) shall be registered such that the font baseline lies exactly at that position. For example, a typical notehead or accidental glyph is registered such that it is vertically centered on the baseline.
- Clefs should be positioned such that the pitch the clef refers to is on the baseline (e.g. the F clef is placed such that the upper dot is above and the lower dot below the baseline). If a clef does not refer specifically to a pitch, its y=0 should coincide with the center staff line on a five-line staff, or the visual center for staves with more or fewer than five lines (e.g. tablature staves).
- Noteheads should be positioned as if on the bottom line of the staff (except for complete clusters representing intervals of a second or third, which should be positioned as if in the bottom space of the staff).
- Pre-composed stems should be positioned as if they are pointing upwards and attached to a notehead on the bottom line of the staff. The center of the stem should be at x=0.
- Combining glyphs that are designed to be superimposed on stems (stem decorations) should be registered such that the point that should sit in the center of the stem (i.e. typically the visual center of the symbol) should be at x=0 and y=0.
- Accidentals should be positioned as if they apply to a notehead on the bottom line of the staff.
- Articulations to be positioned above a note or chord should be positioned such that they sit on the baseline (y=0), while articulations to be positioned below a note or chord should be positioned such that they hang from the baseline.
- Pre-composed notes should be positioned as if on the bottom line of the staff.
- Flags are positioned such that y=0 corresponds to the end of a stem of normal length, and such that x=0 corresponds to the left-hand side of the stem.
- Rests are relative to an imaginary staff position, typographically speaking (usually the center line of a five-line staff in which the rest assumes its default position). The font baseline should represent this staff position, with the exception of the whole note (semibreve) rest, which should hang from the font baseline.
- Bracket ends are positioned such that the point at which they connect to the top or bottom of a vertical bracket is at y=0.
- Letters for dynamics (and for D.C./D.S. in the repeats range) should be scaled such that the caps height is around 0.5 em, and the x-height is around 0.25 em.
- Digits for time signatures should be scaled such that each digit is two staff spaces tall, i.e. 0.5 em, and vertically centered on the baseline. Although some glyphs in

the time signatures range (such as the large + sign, common and cut time glyphs, etc.) apply to the whole staff, these should likewise be vertically centered on the baseline.

- Parentheses (for accidentals, time signatures, figured bass, etc.) should have negative side bearings, in order to achieve good default kerning when set in a single run with the glyphs they are intended to bracket.
- Tessellating glyphs (such as wavy lines, or the component parts of complex trills and mordents) should have negative side bearings, in order to achieve correct tessellation when set in a single run.

Many of these guidelines are based on the conventions established by Adobe's Sonata font and carried through by most other fonts designed for use in scoring applications, for the sake of making it as easy as possible for font and application developers to transition their existing fonts and software to supporting SMuFL-compliant fonts.

## Metadata for SMuFL-compliant fonts

To help software developers integrate SMuFL-compliant fonts, it is recommended that font designers provide a font-specific metadata file, in JSON format, in the distribution package for their fonts.

The metadata file allows the designer to provide information that cannot easily (or in some cases at all) be encoded within or retrieved from the font software itself, including recommendations for how to draw the elements of music notation not provided directly by the font itself (such as staff lines, barlines, hairpins, etc.) in a manner complementary to the design of the font, and important glyph-specific metrics, such as the precise coordinates at which a stem should connect to a notehead.

Glyph names may be supplied either using their Unicode code point or their canonical glyph name (as defined in the **glyphnames.json** file – see above). Measurements are specified in staff spaces, using floating point numbers to any desired level of precision.

The following key/value pairs are mandatory:

| *Key name* | *Description* |
|---|---|
| "fontName" | The name of the font to which the metadata applies |
| "fontVersion" | The version number of the font to which the metadata applies |

All other key/value pairs are optional.

### *engravingDefaults*

The "engravingDefaults" structure contains key/value pairs defining recommended defaults for line widths etc., as follows, with all measurements expressed in staff spaces:

| *Key name* | *Description* |
|---|---|
| "staffLineThickness" | The thickness of each staff line |
| "stemThickness" | The thickness of a stem |
| "beamThickness" | The thickness of a beam |
| "beamSpacing" | The distance between the inner edge of the primary and outer edge of subsequent secondary beams |
| "legerLineThickness" | The thickness of a leger line (normally somewhat thicker than a staff line) |
| "legerLineExtension" | The amount by which a leger line should extend either side of a notehead |
| "slurEndpointThickness" | The thickness of the end of a slur |
| "slurMidpointThickness" | The thickness of the mid-point of a slur (i.e. its thickest point) |
| "tieEndpointThickness" | The thickness of the end of a tie |
| "tieMidpointThickness" | The thickness of the mid-point of a tie |
| "thinBarlineThickness" | The thickness of a thin barline, e.g. a normal barline, or each of the lines of a double barline |
| "thickBarlineThickness" | The thickness of a thick barline, e.g. in a final barline or a repeat barline |
| "dashedBarlineThickness" | The thickness of a dashed barline |
| "dashedBarlineDashLength" | The length of the dashes to be used in a dashed barline |
| "dashedBarlineGapLength" | The length of the gap between dashes in a dashed barline |
| "barlineSeparation" | The default distance between multiple barlines when locked together, e.g. between two thin barlines making a double barline, or a thin and a thick barline making a final barline, measured from the right-hand edge of the left barline to the left-hand edge of the right barline. |
| "repeatBarlineDotSeparation" | The default horizontal distance between the dots and the inner barline of a repeat barline, measured from the edge of the dots to the edge of the barline. |
| "bracketThickness" | The thickness of the vertical line of a bracket grouping staves together |
| "subBracketThickness" | The thickness of the vertical line of a sub-bracket grouping staves belonging to the same instrument together |
| "hairpinThickness" | The thickness of a *crescendo/diminuendo* hairpin |
| "octaveLineThickness" | The thickness of the dashed line used for an octave line |
| "pedalLineThickness" | The thickness of the line used for piano pedaling |
| "repeatEndingLineThickness" | The thickness of the brackets drawn to indicate repeat endings |
| "arrowShaftThickness" | The thickness of the line used for the shaft of an arrow |
| "lyricLineThickness" | The thickness of the lyric extension line to indicate a melisma in vocal music |

| *Key name* | *Description* |
|---|---|
| "textEnclosureThickness" | The thickness of a box drawn around text instructions (e.g. rehearsal marks) |
| "tupletBracketThickness" | The thickness of the brackets drawn either side of tuplet numbers |

Below is a dummy "engravingDefaults" structure, with some of the values filled in:

```
{
    ...
    "engravingDefaults": {
          "staffLineThickness": 0.1,
          "stemThickness": 0.1,
          "beamThickness": 0.5,
          "beamSpacing": 0.25,
          "legerLineThickness": 0.2,
          "legerLineExtension": 0.2,
          ...
    },
    ...
}
```

### *glyphsWithAnchors*

The "glyphsWithAnchors" structure contains a structure for each glyph for which metadata is supplied, with the canonical glyph name or its Unicode code point as the key. Each glyph may define any of the following key/value pairs:

| *Key name* | *Description* |
|---|---|
| "splitStemUpSE" | The exact position at which the bottom right-hand (south-east) corner of an angled upward-pointing stem connecting the right-hand side of a notehead to a vertical stem to its left should start, relative to the glyph origin, expressed as Cartesian coordinates in staff spaces. |
| "splitStemUpSW" | The exact position at which the bottom left-hand (south-west) corner of an angled upward-pointing stem connecting the left-hand side of a notehead to a vertical stem to its right should start, relative to the glyph origin, expressed as Cartesian coordinates in staff spaces. |
| "splitStemDownNE" | The exact position at which the top right-hand (north-east) corner of an angled downward-pointing stem connecting the right-hand side of a notehead to a vertical stem to its left should start, relative to the glyph origin, expressed as Cartesian coordinates in staff spaces. |
| "splitStemDownNW" | The exact position at which the top left-hand (north-west) corner of an angled downward-pointing stem connecting the left-hand side of a notehead to a vertical stem to its right should start, relative to the glyph origin, expressed as Cartesian coordinates in staff spaces. |
| "stemUpSE" | The exact position at which the bottom right-hand (south-east) corner of an upward-pointing stem rectangle should start, relative to the glyph origin, expressed as Cartesian coordinates in staff spaces. |

| *Key name* | *Description* |
|---|---|
| "stemDownNW" | The exact position at which the top left-hand (north-west) corner of a downward-pointing stem rectangle should start, relative to the glyph origin, expressed as Cartesian coordinates in staff spaces. |
| "stemUpNW" | The amount by which an up-stem should be lengthened from its nominal unmodified length in order to ensure a good connection with a flag, in spaces.[11] |
| "stemDownSW" | The amount by which a down-stem should be lengthened from its nominal unmodified length in order to ensure a good connection with a flag, in spaces. |
| "nominalWidth" | The width in staff spaces of a given glyph that should be used for e.g. positioning leger lines correctly.[12] |
| "numeralTop" | The position in staff spaces that should be used to position numerals relative to clefs with ligated numbers where those numbers hang from the bottom of the clef, corresponding horizontally to the center of the numeral's bounding box. |
| "numeralBottom" | The position in staff spaces that should be used to position numerals relative to clefs with ligatured numbers where those numbers sit on the baseline or at the north-east corner of the G clef, corresponding horizontally to the center of the numeral's bounding box. |
| "cutOutNE" | The Cartesian coordinates in staff spaces of the bottom left corner of a nominal rectangle that intersects the top right corner of the glyph's bounding box. This rectangle, together with those in the other four corners of the glyph's bounding box, can be cut out to produce a more detailed bounding box (of abutting rectangles), useful for kerning or interlocking symbols such as accidentals. |
| "cutOutSE" | The Cartesian coordinates in staff spaces of the top left corner of a nominal rectangle that intersects the bottom right corner of the glyph's bounding box. |
| "cutOutSW" | The Cartesian coordinates in staff spaces of the top right corner of a nominal rectangle that intersects the bottom left corner of the glyph's bounding box. |
| "cutOutNW" | The Cartesian coordinates in staff spaces of the bottom right corner of a nominal rectangle that intersects the top left corner of the glyph's bounding box. |

[11] It is typical for noteheads and flags to be drawn using font glyphs, while stems themselves are drawn using primitive lines or rectangles. Flag glyphs in SMuFL-compliant fonts are registered such that y=0 represents the end of a stem drawn at its normal length, i.e. typically 3.5 staff spaces, so for simple drawing, any flag can be drawn at the same position relative to the stem and give the correct visual stem length. Modern drawing APIs typically provide sub-pixel RGB anti-aliasing for font glyphs, but may only provide grayscale anti-aliasing for primitive shapes. If the stem is drawn at its normal length with a flag glyph continuing beyond the end of the stem, there may be a poor visual appearance resulting from the primitive stem using standard anti-aliasing and the flag glyph using sub-pixel anti-aliasing. Therefore, it is recommended to extend the stem by the additional height of the flag such that the primitive stem stops at the end (or just short of the end) of the flag. Because the amount by which the stem should be extended is highly dependent on the design of the flag in a particular font, this value should be specified for each flag glyph in the metadata JSON file.

[12] Certain fonts, for example those that mimic music calligraphy, may include glyphs that are asymmetric by design, and where a simple calculation of the glyph's bounding box will not provide the correct result for registering that glyph with other primitives. For example, a whole rest may be slightly oblique if mimicking a chisel nib pen, and for precise registration it may be necessary to specify its width independent of the glyph's actual bounding box.

| *Key name* | *Description* |
|---|---|
| "graceNoteSlashSW" | The Cartesian coordinates in staff spaces of the position at which the glyph **graceNoteSlashStemUp** should be positioned relative to the stem-up flag of an unbeamed grace note; alternatively, the bottom left corner of a diagonal line drawn instead of using the above glyph. |
| "graceNoteSlashNE" | The Cartesian coordinates in staff spaces of the top right corner of a diagonal line drawn instead of using the glyph **graceNoteSlashStemUp** for a stem-up flag of an unbeamed grace note. |
| "graceNoteSlashNW" | The Cartesian coordinates in staff spaces of the position at which the glyph **graceNoteSlashStemDown** should be positioned relative to the stem-down flag of an unbeamed grace note; alternatively, the top left corner of a diagonal line drawn instead of using the above glyph. |
| "graceNoteSlashSE" | The Cartesian coordinates in staff spaces of the bottom right corner of a diagonal line drawn instead of using the glyph **graceNoteSlashStemDown** for a stem-down flag of an unbeamed grace note. |
| "repeatOffset" | The Cartesian coordinates in staff spaces of the horizontal position at which a glyph repeats, i.e. the position at which the same glyph or another of the same group should be positioned to ensure correct tessellation. This is used for e.g. multi-segment lines and the component glyphs that make up trills and mordents. |
| "noteheadOrigin" | The Cartesian coordinates in staff spaces of the left-hand edge of a notehead with a non-zero left-hand side bearing (e.g. a double whole, or breve, notehead with two vertical lines at each side), to assist in the correct horizontal alignment of these noteheads with other noteheads with zero-width left-side bearings. |
| "opticalCenter" | The Cartesian coordinates in staff spaces of the optical center of the glyph, to assist in the correct horizontal alignment of the glyph relative to a notehead or stem. Currently recommended for use with glyphs in the **Dynamics** range. |

Below is an excerpt of a dummy font metadata file for the Bravura font, with some of the "glyphsWithAnchors" structure filled in:

```
{
    ...
    "glyphsWithAnchors": {
          "noteheadBlack": {
                "stemDownNW": [
                      0.0,
                      -0.184
                ],
                "stemUpSE": [
                      1.328,
                      0.184
                ]
        },
```

```
        ...
    },
    ...
}
```

### *glyphsWithAlternates*

The "glyphsWithAlternates" structure contains a list of the glyphs in the font for which stylistic alternates are provided, together with their name and code point. Applications that cannot access advanced font features like OpenType stylistic alternates can instead determine the presence of an alternate for a given glyph, and its code point, using this data.

Below is an excerpt from a dummy font metadata file for Bravura, with a section of the "glyphsWithAlternates" structure filled in:

```
{
    ...
    "glyphsWithAlternates": {
        "flag8thUp": {
            "alternates": [
                {
                    "codepoint": "U+F410",
                    "name": "flag8thUpStraight",
                },
                {
                    "codepoint": "U+F411",
                    "name": "flag8thUpShort"
                }
            ]
        },
        "gClef": {
            "alternates": [
                {
                    "codepoint": "U+F470",
                    "name": "gClefSmall"
                }
            ]
        },
        ...
}
```

For each recommended glyph for which one or more alternates is provided, the "alternates" structure provides an array containing the name and code point of each alternate. Font designers are encouraged to use a consistent naming scheme for alternates.

### *glyphBBoxes*

The optional "glyphBBoxes" structure contains information about the actual bounding box for each glyph.[13] The glyph bounding box is defined as the smallest rectangle that encloses every part of the glyph's path, and is described as a pair of coordinates for the bottom-left (or southwest) and top-right (or northeast) corners of the rectangle, expressed staff spaces to any required degree of precision, relative to the glyph origin.

Below is an excerpt from a dummy font metadata file for Bravura, with a section of the "glyphBBoxes" structure filled in:

```
{
    ...
    "glyphBBoxes":
        {
        "brace": {
            "bBoxNE": [
                0.328,
                3.988
            ],
            "bBoxSW": [
                0.008,
                0.0
            ]
        },
        "braceFlat": {
            "bBoxNE": [
                0.36,
                4.084
            ],
            "bBoxSW": [
                0.0,
                0.004
            ]
        },
        ...
    }
}
```

For each glyph, the "glyphBBoxes" structure provides the glyph's name and the coordinates of the opposite corners of the bounding rectangle (keys bBoxSW and bBoxNE).

[13] This data is provided primarily for MakeMusic Finale (www.finalemusic.com), which requires bounding box data for certain graphical and spacing calculations performed by the software. This information is stored in a per-font data file called a Font Annotation (FAN) file, and can be edited directly within Finale in the Font Annotation dialog. Font designers who choose to provide this information for SMuFL-compliant fonts can save end users the steps of creating Font Annotation files in Finale, as future versions of Finale may be able to consume this metadata directly and automatically produce the required Font Annotation file.

### *ligatures*

The "ligatures" structure contains a list of ligatures defined in the font. Applications that cannot access advanced font features like OpenType ligatures can instead determine the presence of a ligature that joins together a number of recommended glyphs, and its code point, using this data.

Below is an excerpt from a dummy font metadata file for Bravura, with a section of the "ligatures" structure filled in:

```
{
    ...
    "ligatures": {
        "accidentalDoubleFlatParens": {
            "codepoint": "U+F530",
            "componentGlyphs": [
                "accidentalParensLeft",
                "accidentalDoubleFlat",
                "accidentalParensRight"
            ]
        },
    ...
}
```

The structure uses the name of the ligature as its key, and the values include its code point, and its component glyphs. The component glyphs should be listed in an array called "componentGlyphs", in the same order as they are listed in e.g. the liga OpenType table.

### *sets*

The "sets" structure contains a list of stylistic sets defined in the font. Applications that cannot access advanced font features like OpenType stylistic sets can instead determine the presence of sets in a font, the purpose of each set, and the name and code point of each glyph in each set, using this data.

The purpose of each set is specified by the "type" key, which can have any of the following values:

| *Value* | *Description* |
|---|---|
| "opticalVariantsSmall" | Glyphs designed for use on smaller staff sizes. |
| "flagsShort" | Alternate shorter flags for notes with augmentation dots. |
| "flagsStraight" | Alternate flags that are straight rather than curved. |
| "timeSigsLarge" | Alternate time signature digits for use outside the staff. |
| "noteheadsLarge" | Alternate oversized noteheads. |

The current list of values for "type" are based on the sets present in Bravura. If you are a font designer and wish to add other sets to your own font, please propose a new

value and description for the "type" key to the SMuFL community so that it can be discussed and subsequently added to the above list in a future revision.

Below is an excerpt from a dummy font metadata file for Bravura, with a section of the "sets" structure filled in:

```
{
    ...
    "sets": {
        "ss01": {
            "type": "opticalVariantsSmall",
            "description": "Smaller optical size for small staves",
            "glyphs": [
                {
                    "codepoint": "U+F428",
                    "name": "accidentalFlatSmall",
                    "alternateFor": "accidentalFlat"
                },
                {
                    "codepoint": "U+F429",
                    "name": "accidentalNaturalSmall",
                    "alternateFor": "accidentalNatural"
                },
                {
                    "codepoint": "U+F42A",
                    "name": "accidentalSharpSmall",
                    "alternateFor": "accidentalSharp"
                },
                      ...
            ],
        },
        "ss02": {
            "type": "FlagsShort",
            "description": "Short flags (to avoid augmentation dots)",
            "glyphs": [
                {
                    "codepoint": "U+F411",
                    "name": "flag8thUpShort",
                    "alternateFor": "flag8thUp"
                },
                {
                    "codepoint": "U+F414",
                    "name": "flag16thUpShort",
                    "alternateFor": "flag16thUp"
                },
                      ...
            ],
        },
        ...
    }
    ...
```

```
}
```

The structure uses the name of the set as its key, and the values include the code point and name of the alternate glyph, together with the name of the character for which this is an alternate ("alternateFor").

### *optionalGlyphs*

The "optionalGlyphs" structure contains a list of all the optional glyphs (those in the range of code points U+F400–U+FFFF) contained within the font. Applications that cannot use advanced OpenType features can use this structure to identify the presence of stylistic alternates (though the "glyphsWithAlternates" and "sets" structures also specify the original glyphs for each alternate by name).

However, a font designer may choose to include some characters in his font that are neither recommended characters in the core SMuFL ranges nor alternates for any of those characters, i.e. completely private to the particular font. This structure provides a direct way for a consuming application to identify the name, code point, and optional class (or classes) for each optional glyph in the font.

Below is an excerpt from a dummy font metadata file for Bravura, with a section of the "optionalGlyphs" structure filled in:

```
{
    ...
    "optionalGlyphs": {
        "accdnPushAlt": {
            "classes": [],
            "codepoint": "U+F45B"
        },
        "accidentalDoubleFlatJoinedStems": {
            "classes": [
                "accidentals",
                "accidentalsSagittalMixed",
                "accidentalsStandard",
                "combiningStaffPositions"
            ],
            "codepoint": "U+F4A1"
        },
        "accidentalDoubleFlatParens": {
            "codepoint": "U+F566"
        },
        ...
    },
    ...
}
```

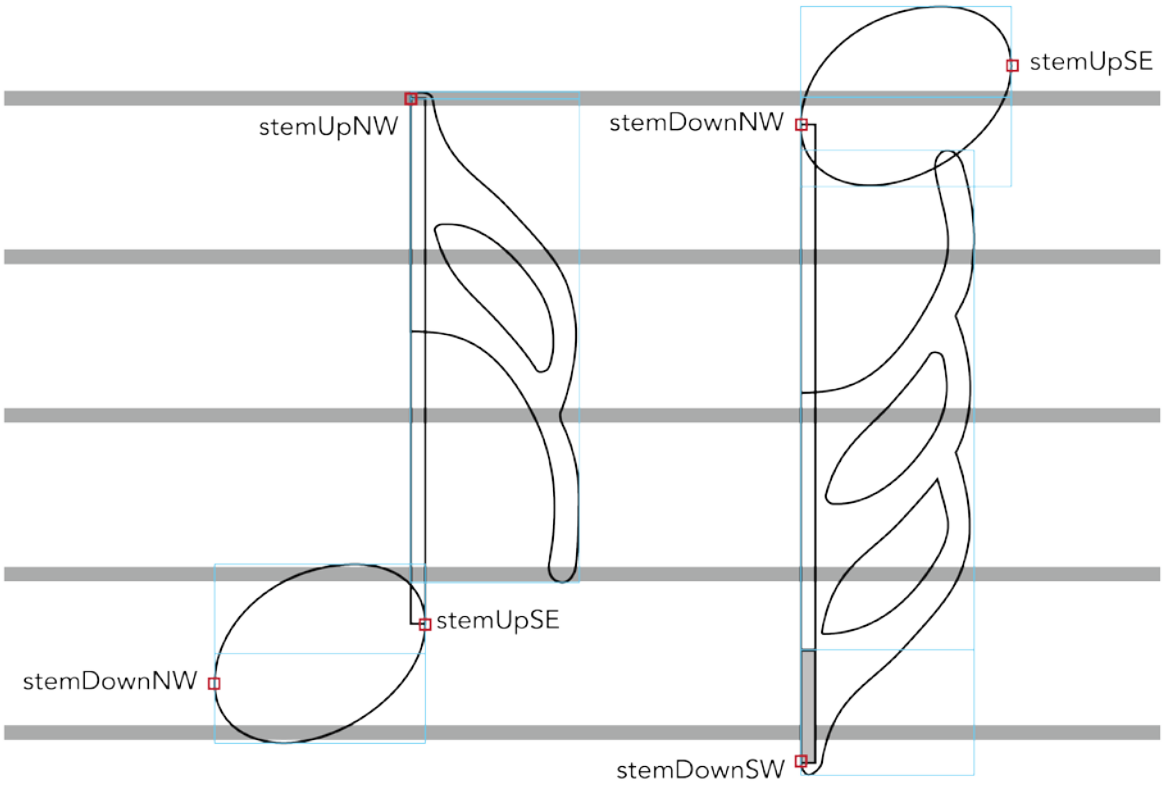
The structure uses the name of each optional glyph as the key, and the values include the code point and an optional list of classes to which the glyph belongs. (The class

names should be taken from the **classes.json** SMuFL metadata file where possible, though font designers can define new classes as required.)

## Example of glyph registration for notes with flags

The figure below shows how font-specific metadata may be used in conjunction with the conventions of glyph registration to construct two notes: an up-stem 16th note (semiquaver), and a down-stem 32nd (demisemiquaver).

- The horizontal grey lines denote staff lines, for scale.
- The light blue boxes show glyph bounding boxes, with the left-hand side of the box corresponding to x=0, while the horizontal lines bisecting the blue boxes show the origin for each glyph, i.e. y=0.
- The red boxes show the locations of the glyph attachment points, as specified in the font metadata JSON file.
- The shaded area on the down-stem note shows the amount by which a stem of standard length (i.e. the unfilled portion of the stem) should be extended in order to ensure good on-screen appearance at all zoom levels.




Note that the **stemUpSE** attachment point corresponds to the bottom right-hand (or south-east) corner of the stem, while **stemDownNW** corresponds to the top left-hand (or north-west) corner of the stem. Likewise, for correct alignment, the flag glyphs

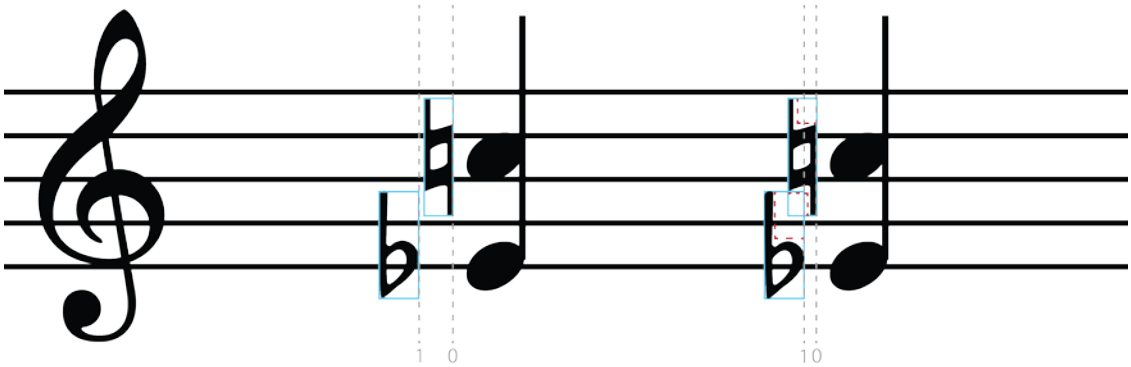
must always be aligned precisely to the left-hand side of the stem, with the glyph origin positioned vertically at the end of the normal stem length.

## Bounding box cut-outs

The four points **cutOutNE**, **cutOutSE**, **cutOutSW** and **cutOutNW** describe rectangular cut-outs from the four corners of a glyph's rectangular bounding box. The bounding box is the box with the smallest area that encloses every part of the path of a glyph.

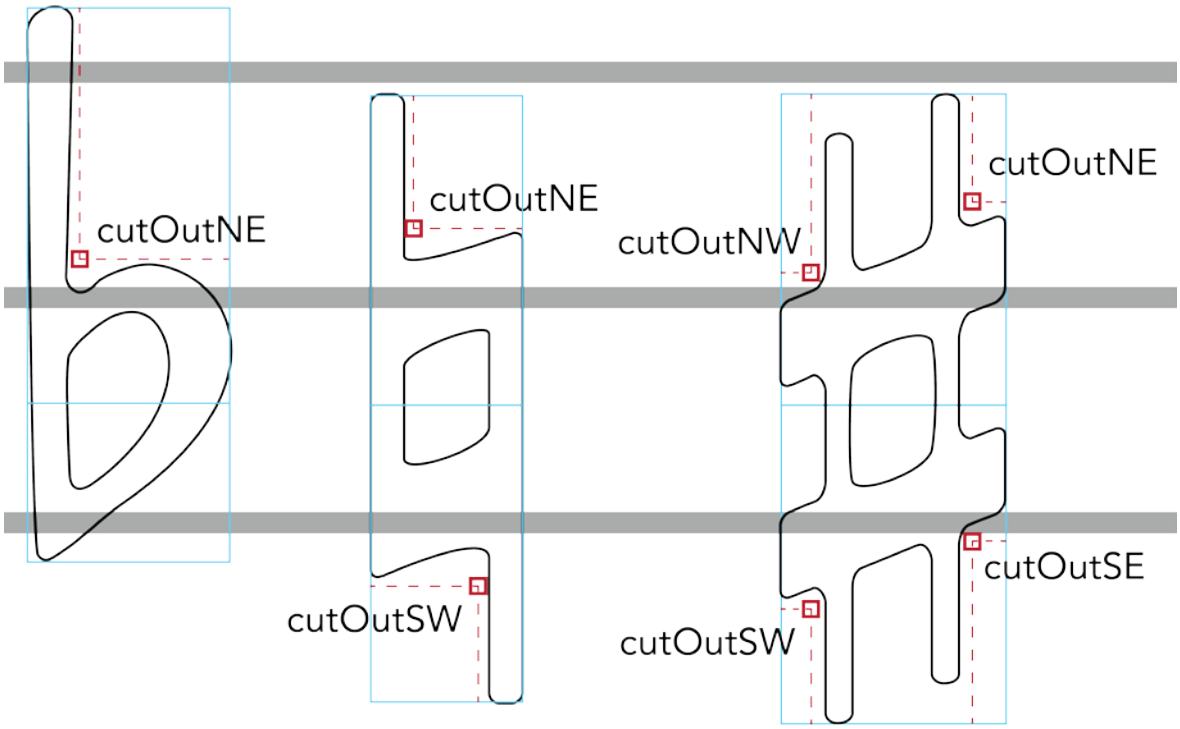
Because a glyph may not occupy every part of its bounding box, it can be useful to have an extra level of detail about the shape of the glyph, but at a coarser level than directly examining the path of the glyph to determine which areas of the bounding box are occupied and which are empty.

For example, when stacking accidentals to the left of a chord, accidentals are arranged into columns, where accidentals belonging to notes separated by a wide interval (normally a seventh or more) are aligned in the same column, i.e. at the same horizontal position. Successive columns of accidentals are laid out from right to left to the left of a chord, and depending on the accidentals that are present, it may be possible to interlock or kern those columns. The figure below shows a simple example:




In the first chord above, the two columns of accidentals (numbered 0 and 1) are positioned almost as close as the bounding boxes of the accidentals (shown in light blue) in each column will allow. In the second chord, column 1 is allowed to interlock with column 0 because the cut-outs in the bounding boxes of the two accidentals (shown as dashed red lines) are removed: the bounding boxes of the accidentals can overlap, provided it is only the cut-outs that overlap.

Font designers can specify four cut-outs to the bounding box, one in each corner, as illustrated in the figure below:




Each cut-out is specified as a pair of X,Y coordinates (in spaces), describing the innermost corner of a nominal rectangle that intersects the bounding box. For example, **cutOutNE** specifies the bottom left corner of a rectangle that intersects the top right corner of the bounding box of the glyph. The positions of each of the other corners of the cut-out rectangle are calculated using the bounding box of the glyph.

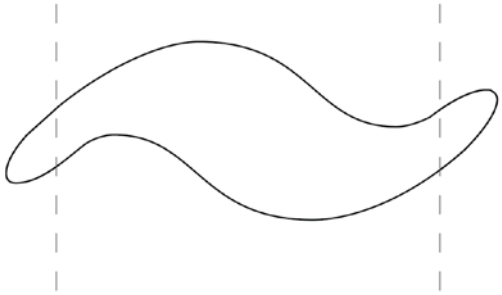
## Repeat offsets

The **repeatOffset** point is defined for glyphs that are designed to tessellate, such as the wiggly line that follows the *tr* symbol, or any of the glyphs in the **Multi-segment lines** range.

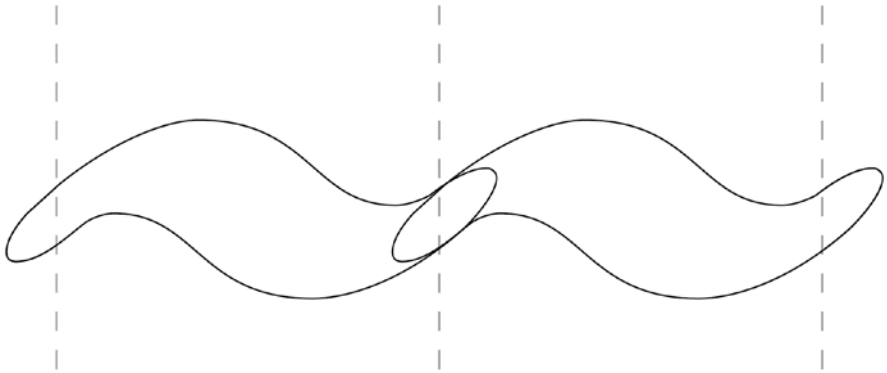
These glyphs are registered such that they may have negative side bearings on either or both the left- and right-hand sides. When entered in a run of text, the advance width produces the correct tessellation. However, in some situations it may not be possible to use a run of text to draw such a line, or the API in use may not provide easy access to the advance width of a glyph (e.g. when using the HTML **canvas** element).

In these situations, correct tessellation can be achieved by positioning the origin of subsequent glyphs in a tessellating line at the horizontal position defined by the **repeatOffset** point for a given glyph.

Here, for example, is an illustration of the glyph **wiggleTrill**:

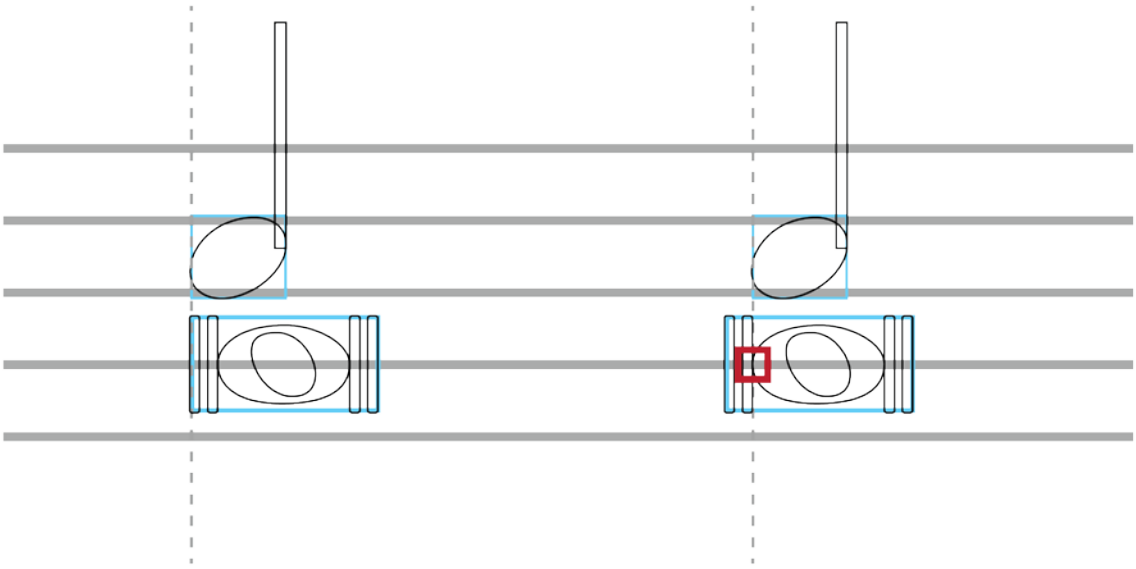


The vertical dashed lines show the left- and right-hand side bearings for this glyph. The **repeatOffset** anchor's coordinates are at the x position of the right-hand side bearing and y = 0. Positioning another **trillWiggle** glyph at the position of the **repeatOffset** anchor produces correct tessellation, like this:



## Aligning noteheads horizontally

The **noteheadOrigin** point is defined for noteheads with non-zero left-hand side bearings, such as the double whole (breve) notehead that has two vertical lines at either side of the oval notehead itself, as illustrated in the figure below:



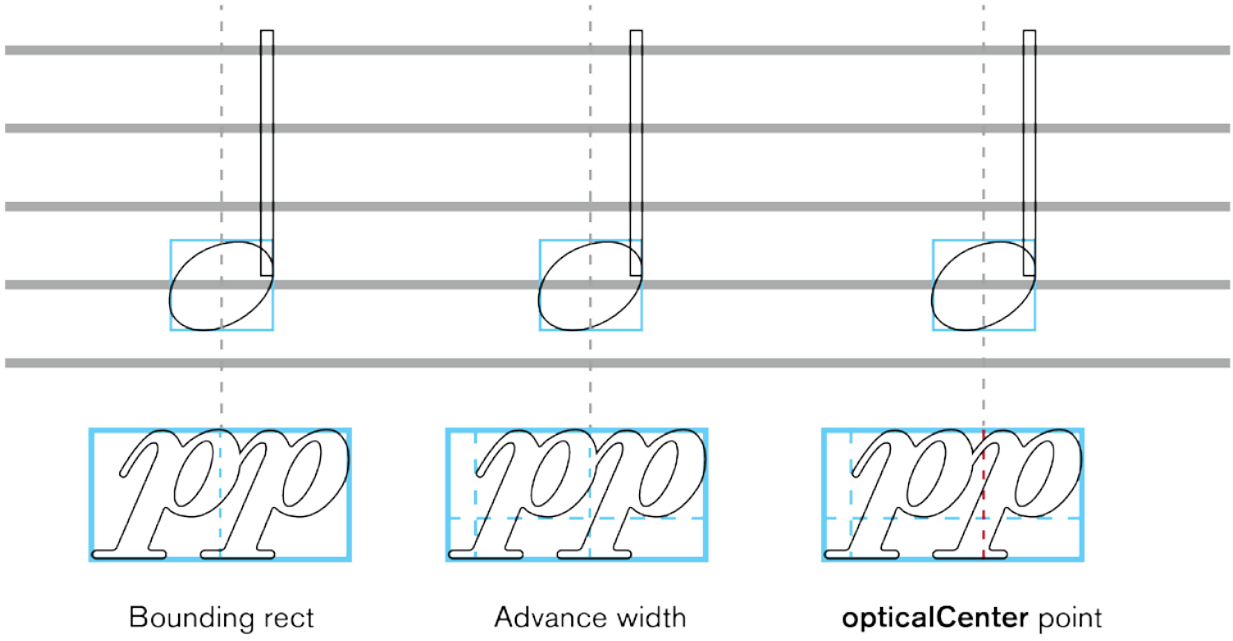
- The horizontal grey lines denote staff lines, for scale.

- The light blue boxes show glyph bounding boxes, with the left-hand side of the box corresponding to x=0.
- The vertical dashed grey lines denote the left-hand edge of the rhythmic position, i.e. the position against which the notehead is aligned.
- The red box shows the location of the **noteheadOrigin** point, as specified in the font metadata JSON file.

The left-hand example shows the alignment that will be produced simply by positioning notehead glyphs using the left-hand edges of their bounding boxes. The right-hand example shows the superior alignment that can be produced by offsetting the double whole (breve) note leftwards by the distance between x=0 and the **noteheadOrigin** point.

## Aligning dynamics with noteheads and stems

The **opticalCenter** point is defined for glyphs that are normally centered on a notehead or stem, such as dynamics. There are a number of possible approaches to centering a dynamic, which are illustrated in the figure below:




- The horizontal grey lines denote staff lines, for scale.
- The light blue boxes show glyph bounding boxes.
- The intersecting vertical and horizontal dashed light blue lines show the glyph origin relative to its bounding box.
- The vertical dashed grey lines denote the center of the notehead, the point against which the dynamics should be aligned.

- The vertical dashed red line shows the position of the **opticalCenter** point, as specified in the font metadata JSON file.

The figure shows that centering the dynamic by determining the bounding rectangle and using half its width is least satisfactory, while using half the advance width is an acceptable default in the absence of a specific optical center position determined by the font designer.

The **opticalCenter** point can be set by the font designer to provide a very specific balancing point, relative to e.g. the bowl of the italic 𝒑 or the curve at the top of the italic 𝒇.

## Metrics and glyph registration for text-based applications

The following guidelines are provided for fonts intended for use in text-based applications, such as word processors, desktop publishers and other text editors.

Upper case letters in a text font do not typically occupy the whole height of the em square: instead, they typically occupy around 75–80% of the height of the em square, with the key metrics for ascender and caps height both falling within this range. In order for the line spacing of a font containing music characters to be equivalent to that of a text font, its key metrics must match, i.e. the ascender, caps height and descender must be very similar. Glyphs with unusually large ascenders and descenders (such as notes of short duration with multiple flags) should not be scaled individually in order to fit within the ascender height, as they will not then fit with the other glyphs at the same point size; however, the behavior of glyphs that extend beyond the font's ascender and descender metrics is highly variable between different applications.

Leading on from the premise that a SMuFL-compliant font for text-based applications should use metrics compatible with regular text fonts, specific guidelines are as follows:

- Dividing 80% of the height of the em in four provides an analogue for a five-line staff. If a font uses 1000 upm (design units per em), as is conventional for a PostScript font, the height of a five-line staff is 800 design units, or 0.8 em; therefore, one staff space height is 200 design units, or 0.2 em. If a font uses 2048 upm, as is conventional for a TrueType font, the height of a five-line staff is 1640 design units, and one staff space is 410 design units.
- The origin (bottom left corner of the em square, i.e. x = 0 and y = 0 in font design space) therefore represents the middle of the bottom staff line of a nominal five-line staff, and y = 0.8 em represents the middle of the top staff line of that same five-line staff.
- Unless otherwise stated, all glyphs should be drawn at a scale consistent with the key measurement that one staff space = 0.2 em.

- Unless otherwise stated, all glyphs shall be horizontally registered so that their leftmost point coincides with x = 0.
- Unless otherwise stated, all glyphs shall have zero-width side bearings, i.e. no blank space to the left or right of the glyph.
- Staff line and leger line glyphs should have an advance width of zero, so that other glyphs can be drawn on top of them easily.
- Time signature digits should also have an advance width of zero, so that they can be positioned above each other (using the **timeSigCombNumerator** and **timeSigCombDenominator** ligatures).
- Clefs should be positioned such that they are aligned with the five-line staff glyphs (e.g. **staff5lines**) at their most usual staff position: G clefs (in the class **clefsG**) should be positioned such that the bottom loop is aligned with the bottom staff line (0.2 em higher than the position in a SMuFL-compliant font for a scoring application); F clefs (in the class **clefsF**) should be positioned such that the second-highest staff line passes between the two dots (0.6 em higher than in a font for a scoring application); and C clefs (in the class **clefsC**) should be positioned such that the middle staff line passes through the middle of the clef (0.4 em higher than in a font for a scoring application).[14]
- Glyphs that can appear at different staff positions, e.g. noteheads, notes, accidentals, etc. (in class **combiningStaffPositions**), should be positioned such that they are centered around the middle staff line of the five-line staff glyphs (i.e. centered vertically around y = 0.4 em).
- To enable the positioning of glyphs at different staff positions, fonts should support the combination of combining staff position control characters and glyphs in the class **combiningStaffPositions** using a glyph substitution feature such as OpenType ligatures. This allows the end user to position e.g. a black notehead on the second-highest staff line by using a ligature of **staffPosRaise2** and **noteheadBlack**.
- Letters for dynamics and numbers for octave lines should be scaled such that the x-height is around 0.5 em, consistent with other typical text fonts.
- Ornaments symbols should be scaled such that e.g. the  symbol is around 0.5 em in height (e.g. a scale factor of 150% compared to fonts intended for use in scoring applications).

[14] The recommended default placement for C clefs is on the middle staff line, i.e. as an alto clef. Positioning the C clef such that it is centered around the second-highest staff line, i.e. as a tenor clef, can be achieved using the combining staff position control characters, if the font implements ligatures or other glyph substitution features.

- Keyboard pedal marks should be scaled such that e.g. the 𝒫𝑒𝒹. symbol is around 0.75 em in height (e.g. a scale factor of 130% compared to fonts intended for use in scoring applications).
- Percussion pictograms should be scaled such that they are around 0.75 em in height.
- Figured bass digits should be scaled such that e.g. 𝟓 is around 0.5 em in height (e.g. a scale factor of 185% compared to fonts intended for use in scoring applications).
- Composite note glyphs for setting in-line with characters from other text fonts (e.g. those in the **Metronome marks** range) should be positioned such that they sit on the font baseline (in contrast to notes intended for drawing on a staff, e.g. those in the **Individual notes** range).

# Staff brackets and dividers (U+E000–U+E00F)



**U+E000** (and U+1D114)

*brace*

Brace



**U+E001**

*reversedBrace*

Reversed brace

**U+E002** (and U+1D115)

*bracket*

Bracket

**U+E003**

*bracketTop*

Bracket top

**U+E004**

*bracketBottom*

Bracket bottom

**U+E005**

*reversedBracketTop*

Reversed bracket top

**U+E006**

*reversedBracketBottom*

Reversed bracket bottom

**U+E007**

*systemDivider*

System divider

**U+E008**

*systemDividerLong*

Long system divider

**U+E009**

*systemDividerExtraLong*

Extra long system divider

**U+E00A**

*splitBarDivider*

Split bar divider (bar spans a system break)

**U+E00B**

*staffDivideArrowDown*

Staff divide arrow down

**U+E00C**

*staffDivideArrowUp*

Staff divide arrow up

**U+E00D**

*staffDivideArrowUpDown*

Staff divide arrows

## Recommended stylistic alternates



**uniE000.salt01**

*braceSmall*

Brace (small)



**uniE000.salt02**

*braceLarge*

Brace (large)

**uniE000.salt03**

*braceLarger*

Brace (larger)



**uniE000.salt04**

*braceFlat*

Brace (flat)

## Implementation notes

The **brace** glyph should be scaled vertically in a scoring application to the appropriate height of the two or more staves it encompasses.

**bracket** is a complete bracket of a fixed height useful for displaying brackets in text-based documents or applications.

To display a bracket of variable height in a scoring application, use **bracketTop** and **bracketBottom** as the top and bottom terminals of a bracket drawn using a stroked line or filled rectangle of the appropriate width.

# Staves (U+E010–U+E02F)



**U+E010** (and U+1D116)

*staff1Line*

1-line staff

**U+E011** (and U+1D117)

*staff2Lines*

2-line staff

**U+E012** (and U+1D118)

*staff3Lines*

3-line staff

**U+E013** (and U+1D119)

*staff4Lines*

4-line staff

**U+E014** (and U+1D11A)

*staff5Lines*

5-line staff

**U+E015** (and U+1D11B)

*staff6Lines*

6-line staff



**U+E016**

*staff1LineWide*

1-line staff (wide)

**U+E017**

*staff2LinesWide*

2-line staff (wide)

**U+E018**

*staff3LinesWide*

3-line staff (wide)

**U+E019**

*staff4LinesWide*

4-line staff (wide)

**U+E01A**

*staff5LinesWide*

5-line staff (wide)

**U+E01B**

*staff6LinesWide*

6-line staff (wide)



**U+E01C**

*staff1LineNarrow*

1-line staff (narrow)

**U+E01D**

*staff2LinesNarrow*

2-line staff (narrow)

**U+E01E**

*staff3LinesNarrow*

3-line staff (narrow)

**U+E01F**

*staff4LinesNarrow*

4-line staff (narrow)

**U+E020**

*staff5LinesNarrow*

5-line staff (narrow)

**U+E021**

*staff6LinesNarrow*

6-line staff (narrow)

**U+E022**

*legerLine*

Leger line



**U+E023**

*legerLineWide*

Leger line (wide)



**U+E024**

*legerLineNarrow*

Leger line (narrow)

## Implementation notes

Scoring programs should draw their own staff lines using primitives, not use the glyphs in this range.

Narrow and wide versions are provided for use in fonts intended for use in text-based applications. These glyphs should be zero-width in such fonts.

# Barlines (U+E030–U+E03F)



**U+E030** (and U+1D100)
*barlineSingle*
Single barline



**U+E031** (and U+1D101)
*barlineDouble*
Double barline

**U+E032** (and U+1D102)
*barlineFinal*
Final barline

**U+E033** (and U+1D103)
*barlineReverseFinal*
Reverse final barline



**U+E034**
*barlineHeavy*
Heavy barline

**U+E035**
*barlineHeavyHeavy*
Heavy double barline



**U+E036** (and U+1D104)
*barlineDashed*
Dashed barline



**U+E037**
*barlineDotted*
Dotted barline



**U+E038** (and U+1D105)
*barlineShort*
Short barline



**U+E039**
*barlineTick*
Tick barline

## Implementation notes

Scoring programs should draw their own barlines using primitives, not use the glyphs in this range.

# Repeats (U+E040–U+E04F)

**U+E040** (and U+1D106)
*repeatLeft*
Left (start) repeat sign

**U+E041** (and U+1D107)
*repeatRight*
Right (end) repeat sign

**U+E042**
*repeatRightLeft*
Right and left repeat sign



**U+E043** (and U+1D108)
*repeatDots*
Repeat dots



**U+E044**
*repeatDot*
Single repeat dot

**U+E045** (and U+1D109)
*dalSegno*
Dal segno

**U+E046** (and U+1D10A)
*daCapo*
Da capo

**U+E047** (and U+1D10B)
*segno*
Segno

**U+E048** (and U+1D10C)
*coda*
Coda

**U+E049**
*codaSquare*
Square coda

**U+E04A**
*segnoSerpent1*
Segno (serpent)

**U+E04B**
*segnoSerpent2*
Segno (serpent with vertical lines)

**U+E04C**
*leftRepeatSmall*
Left repeat sign within bar

**U+E04D**
*rightRepeatSmall*
Right repeat sign within bar

## Recommended stylistic alternates

**uniE042.salt01**
*repeatRightLeftThick*
RIght and left repeat sign (thick-thick)

**uniE047.salt01**
*segnoJapanese*
Segno (Japanese style, rotated)

**uniE048.salt01**

*codaJapanese*

Coda (Japanese style, serif)

## Implementation notes

Scoring programs should draw their own repeat barlines using primitives to draw the thick and thin lines and **repeatDots** to draw the dots, not use the precomposed glyphs **leftRepeat** or **rightRepeat**.

**dalSegno** and **daCapo** are provided for compatibility with the Unicode Musical Symbols range. Scoring applications should allow the user to specify the appearance of the *da capo* and *dal segno* instructions using any regular text font.

# Clefs (U+E050–U+E07F)

**U+E050** (and U+1D11E)

*gClef*

G clef

**U+E051**

*gClef15mb*

G clef quindicesima bassa

**U+E052** (and U+1D120)

*gClef8vb*

G clef ottava bassa

**U+E053** (and U+1D11F)

*gClef8va*

G clef ottava alta

**U+E054**

*gClef15ma*

G clef quindicesima alta

**U+E055**

*gClef8vbOld*

G clef ottava bassa (old style)

**U+E056**

*gClef8vbCClef*

G clef ottava bassa with C clef

**U+E057**

*gClef8vbParens*

G clef, optionally ottava bassa

**U+E058**

*gClefLigatedNumberBelow*

Combining G clef, number below

**U+E059**

*gClefLigatedNumberAbove*

Combining G clef, number above

**U+E05A**

*gClefArrowUp*

G clef, arrow up

**U+E05B**

*gClefArrowDown*

G clef, arrow down

**U+E05C** (and U+1D121)

*cClef*

C clef

**U+E05D**

*cClef8vb*

C clef ottava bassa

**U+E05E**

*cClefArrowUp*

C clef, arrow up

**U+E05F**

*cClefArrowDown*

C clef, arrow down

**U+E060**

*cClefSquare*

C clef (19th century)

**U+E061**

*cClefCombining*

Combining C clef

**U+E062** (and U+1D122)

*fClef*

F clef

**U+E063**

*fClef15mb*

F clef quindicesima bassa

**U+E064** (and U+1D124)

*fClef8vb*

F clef ottava bassa

**U+E065** (and U+1D123)

*fClef8va*

F clef ottava alta

**U+E066**

*fClef15ma*

F clef quindicesima alta

**U+E067**

*fClefArrowUp*

F clef, arrow up

**U+E068**

*fClefArrowDown*

F clef, arrow down

**U+E069** (and U+1D125)

*unpitchedPercussionClef1*

Unpitched percussion clef 1

**U+E06A** (and U+1D126)

*unpitchedPercussionClef2*

Unpitched percussion clef 2

**U+E06B**

*semipitchedPercussionClef1*

Semi-pitched percussion clef 1

**U+E06C**

*semipitchedPercussionClef2*

Semi-pitched percussion clef 2

**U+E06D**

*6stringTabClef*

6-string tab clef

**U+E06E**

*4stringTabClef*

4-string tab clef

**U+E06F**

*cClefTriangular*

Triangular C clef

**U+E070**

*fClefTriangular*

Triangular F clef

**U+E071**

*cClefTriangularToFClef*

C clef to F clef change

**U+E072**

*fClefTriangularToCClef*

F clef to C clef change

**U+E073**

*gClefReversed*

Reversed G clef

**U+E074**

*gClefTurned*

Turned G clef

**U+E075**

*cClefReversed*

Reversed C clef

**U+E076**

*fClefReversed*

Reversed F clef

**U+E077**

*fClefTurned*

Turned F clef



**U+E078**

*bridgeClef*

Bridge clef

**U+E079**

*accdnDiatonicClef*

Diatonic accordion clef

**U+E07A**

*gClefChange*

G clef change

**U+E07B**

*cClefChange*

C clef change

**U+E07C**

*fClefChange*

F clef change



**U+E07D**

*clef8*

8 for clefs



**U+E07E**

*clef15*

15 for clefs

**U+E07F**

*clefChangeCombining*

Combining clef change

## Recommended stylistic alternates

**uniE050.ss01**

*gClefSmall*

G clef (small staff)

**uniE05C.salt01**

*cClefFrench*

C clef (French, 18th century)

**uniE05C.ss01**

*cClefSmall*

C clef (small staff)

**uniE062.salt01**

*fClefFrench*

F clef (French, 18th century)

**uniE062.salt02**

*fClef19thCentury*

F clef (19th century)

**uniE062.ss01**

*fClefSmall*

F clef (small staff)

**uniE069.salt01**

*unpitchedPercussionClef1Alt*

Unpitched percussion clef 1 (thick-thin)

**uniE06D.salt01**

*6stringTabClefTall*

6-string tab clef (tall)

**uniE06D.salt02**

*6stringTabClefSerif*

6-string tab clef (serif)

**uniE06E.salt01**

*4stringTabClefTall*

4-string tab clef (tall)

**uniE06E.salt02**

*4stringTabClefSerif*

4-string tab clef (serif)

## Recommended ligatures

**uniE062_uniE885**

*fClef5Below*

F clef, 5 below

**uniE058_uniE880**

*gClef0Below*

G clef, 0 below

**uniE058_uniE881_uniE880**

*gClef10Below*

G clef, 10 below

**uniE058_uniE881_uniE881**

*gClef11Below*

G clef, 11 below

**uniE058_uniE881_uniE882**

*gClef12Below*

G clef, 12 below

**uniE058_uniE881_uniE883**

*gClef13Below*

G clef, 13 below

**uniE058_uniE881_uniE884**

*gClef14Below*

G clef, 14 below

**uniE058_uniE881_uniE885**

*gClef15Below*

G clef, 15 below

**uniE058_uniE881_uniE886**

*gClef16Below*

G clef, 16 below

**uniE058_uniE881_uniE887**

*gClef17Below*

G clef, 17 below

**uniE059_uniE882**

*gClef2Above*

G clef, 2 above

**uniE058_uniE882**

*gClef2Below*

G clef, 2 below

**uniE059_uniE883**

*gClef3Above*

G clef, 3 above

**uniE059_uniE884**

*gClef4Above*

G clef, 4 above

**uniE059_uniE885**

*gClef5Above*

G clef, 5 above

**uniE059_uniE886**

*gClef6Above*

G clef, 6 above

**uniE059_uniE887**

*gClef7Above*

G clef, 7 above

**uniE059_uniE888**

*gClef8Above*

G clef, 8 above

**uniE059_uniE889**

*gClef9Above*

G clef, 9 above

**uniE058_uniE881_uniE880_uniE260**

*gClefFlat10Below*

G clef, flat 10 below

**uniE058_uniE881_uniE883_uniE260**

*gClefFlat13Below*

G clef, flat 13 below

**uniE058_uniE883**

*gClef3Below*

G clef, 3 below

**uniE058_uniE884**

*gClef4Below*

G clef, 4 below

**uniE058_uniE885**

*gClef5Below*

G clef, 5 below

**uniE058_uniE886**

*gClef6Below*

G clef, 6 below

**uniE058_uniE887**

*gClef7Below*

G clef, 7 below

**uniE058_uniE888**

*gClef8Below*

G clef, 8 below

**uniE058_uniE889**

*gClef9Below*

G clef, 9 below

**uniE058_uniE881_uniE881_uniE260**

*gClefFlat11Below*

G clef, flat 11 below

**uniE058_uniE881_uniE884_uniE260**

*gClefFlat14Below*

G clef, flat 14 below

**uniE058_uniE881_uniE885_uniE260**

*gClefFlat15Below*

G clef, flat 15 below

**uniE058_uniE881_uniE886_uniE260**

*gClefFlat16Below*

G clef, flat 16 below

**uniE058_uniE260_uniE881**

*gClefFlat1Below*

G clef, flat 1 below

**uniE059_uniE882_uniE260**

*gClefFlat2Above*

G clef, flat 2 above

**uniE058_uniE260_uniE882**

*gClefFlat2Below*

G clef, flat 2 below

**uniE059_uniE883_uniE260**

*gClefFlat3Above*

G clef, flat 3 above

**uniE058_uniE260_uniE883**

*gClefFlat3Below*

G clef, flat 3 below

**uniE058_uniE260_uniE884**

*gClefFlat4Below*

G clef, flat 4 below

**uniE059_uniE885_uniE260**

*gClefFlat5Above*

G clef, flat 5 above

**uniE059_uniE886_uniE260**

*gClefFlat6Above*

G clef, flat 6 above

**uniE058_uniE260_uniE886**

*gClefFlat6Below*

G clef, flat 6 below

**uniE059_uniE887_uniE260**

*gClefFlat7Above*

G clef, flat 7 above

**uniE058_uniE260_uniE887**

*gClefFlat7Below*

G clef, flat 7 below

**uniE059_uniE888_uniE260**

*gClefFlat8Above*

G clef, flat 8 above

**uniE059_uniE889_uniE260**

*gClefFlat9Above*

G clef, flat 9 above

**uniE058_uniE260_uniE889**

*gClefFlat9Below*

G clef, flat 9 below

**uniE058_uniE261_uniE882**

*gClefNat2Below*

G clef, natural 2 below

**uniE058_uniE881_uniE880_uniE261**

*gClefNatural10Below*

G clef, natural 10 below

**uniE058_uniE881_uniE883_uniE261**

*gClefNatural13Below*

G clef, natural 13 below

**uniE058_uniE881_uniE887_uniE261**

*gClefNatural17Below*

G clef, natural 17 below

**uniE059_uniE882_uniE261**

*gClefNatural2Above*

G clef, natural 2 above

**uniE059_uniE883_uniE261**

*gClefNatural3Above*

G clef, natural 3 above

**uniE058_uniE261_uniE883**

*gClefNatural3Below*

G clef, natural 3 below

**uniE059_uniE886_uniE261**

*gClefNatural6Above*

G clef, natural 6 above

**uniE058_uniE261_uniE886**

*gClefNatural6Below*

G clef, natural 6 below

**uniE059_uniE887_uniE261**

*gClefNatural7Above*

G clef, natural 7 above

**uniE059_uniE889_uniE261**

*gClefNatural9Above*

G clef, natural 9 above

**uniE058_uniE261_uniE889**

*gClefNatural9Below*

G clef, natural 9 below

**uniE058_uniE881_uniE882_uniE262**

*gClefSharp12Below*

G clef, sharp 12 below

**uniE059_uniE881_uniE262**

*gClefSharp1Above*

G clef, sharp 1 above

**uniE059_uniE884_uniE262**

*gClefSharp4Above*

G clef, sharp 4 above

**uniE058_uniE262_uniE885**

*gClefSharp5Below*

G clef, sharp 5 below

## Implementation notes

Scoring applications may choose to create e.g. *ottava alta* and *ottava bassa* versions of the G clef and F clef by combining **gClef** and **fClef** with **clef8** and **clef15** rather than using the precomposed glyphs.

The basic G clef, F clef and C clef symbols can be positioned at different vertical positions relative to the staff as required (e.g. the C clef can be positioned to create an alto or tenor clef).

Clef changes are normally drawn at two-thirds the size of clefs at the beginning of the system[15], but different publishers and engravers may prefer to use a different size. Dedicated glyphs for drawing a clef change are provided for the three most commonly-used clefs (**gClefChange**, **cClefChange**, and **fClefChange**), together with a combining control character (**clefChangeCombining**) that font designers may use to produce smaller versions of less commonly-used clefs by way of glyph substitution (such as OpenType ligatures). Scoring applications may choose to use these dedicated clef change glyphs if they do not provide the end user with control over the size of clef changes. Otherwise, scoring applications should draw clef changes by using the regular clef glyphs at a smaller point size, either fixed at two-thirds the size of normal clefs, or at a size of the end user's choosing.

[15] Gould, *ibid.*, page 7.

# Time signatures (U+E080–U+E09F)

**U+E080**

*timeSig0*

Time signature 0

**U+E081**

*timeSig1*

Time signature 1

**U+E082**

*timeSig2*

Time signature 2

**U+E083**

*timeSig3*

Time signature 3

**U+E084**

*timeSig4*

Time signature 4

**U+E085**

*timeSig5*

Time signature 5

**U+E086**

*timeSig6*

Time signature 6

**U+E087**

*timeSig7*

Time signature 7

**U+E088**

*timeSig8*

Time signature 8

**U+E089**

*timeSig9*

Time signature 9

**U+E08A** (and U+1D134)

*timeSigCommon*

Common time

**U+E08B** (and U+1D135)

*timeSigCutCommon*

Cut time

**U+E08C**

*timeSigPlus*

Time signature +



**U+E08D**

*timeSigPlusSmall*

Time signature + (for numerators)

**U+E08E**

*timeSigFractionalSlash*

Time signature fraction slash



**U+E08F**

*timeSigEquals*

Time signature equals



**U+E090**

*timeSigMinus*

Time signature minus

**U+E091**

*timeSigMultiply*

Time signature multiply

**U+E092**

*timeSigParensLeftSmall*

Left parenthesis for numerator only

**U+E093**

*timeSigParensRightSmall*

Right parenthesis for numerator only

**U+E094**

*timeSigParensLeft*

Left parenthesis for whole time signature

**U+E095**

*timeSigParensRight*

Right parenthesis for whole time signature

**U+E096**

*timeSigComma*

Time signature comma

**U+E097**

*timeSigFractionQuarter*

Time signature fraction ¼

**U+E098**

*timeSigFractionHalf*

Time signature fraction ½

**U+E099**

*timeSigFractionThreeQuarters*

Time signature fraction ¾

**U+E09A**

*timeSigFractionOneThird*

Time signature fraction ⅓

**U+E09B**

*timeSigFractionTwoThirds*

Time signature fraction ⅔

**U+E09C**

*timeSigX*

Open time signature

**U+E09D**

*timeSigOpenPenderecki*

Open time signature (Penderecki)

**U+E09E**

*timeSigCombNumerator*

Control character for numerator digit

**U+E09F**

*timeSigCombDenominator*

Control character for denominator digit

## Recommended stylistic alternates

**uniE080.ss04**

*timeSig0Large*

Time signature 0 (outside staff)

**uniE080.ss01**

*timeSig0Small*

Time signature 0 (small staff)

**uniE081.ss04**

*timeSig1Large*

Time signature 1 (outside staff)

**uniE081.ss01**

*timeSig1Small*

Time signature 1 (small staff)

**uniE082.ss04**
*timeSig2Large*

Time signature 2 (outside staff)

**uniE082.ss01**
*timeSig2Small*

Time signature 2 (small staff)

**uniE083.ss04**
*timeSig3Large*

Time signature 3 (outside staff)

**uniE083.ss01**
*timeSig3Small*

Time signature 3 (small staff)

**uniE084.ss04**
*timeSig4Large*

Time signature 4 (outside staff)

**uniE084.ss01**
*timeSig4Small*

Time signature 4 (small staff)

**uniE085.ss04**
*timeSig5Large*

Time signature 5 (outside staff)

**uniE085.ss01**
*timeSig5Small*

Time signature 5 (small staff)

**uniE086.ss04**
*timeSig6Large*

Time signature 6 (outside staff)

**uniE086.ss01**
*timeSig6Small*

Time signature 6 (small staff)

**uniE087.ss04**
*timeSig7Large*

Time signature 7 (outside staff)

**uniE087.ss01**
*timeSig7Small*

Time signature 7 (small staff)

**uniE088.ss04**
*timeSig8Large*

Time signature 8 (outside staff)

**uniE088.ss01**
*timeSig8Small*

Time signature 8 (small staff)

**uniE089.ss04**
*timeSig9Large*

Time signature 9 (outside staff)

**uniE089.ss01**
*timeSig9Small*

Time signature 9 (small staff)

**uniE08A.ss04**
*timeSigCommonLarge*

Common time (outside staff)

**uniE08B.ss04**
*timeSigCutCommonLarge*

Cut time (outside staff)

**uniE08C.ss04**

*timeSigPlusLarge*

Time signature + (outside staff)

## Recommended ligatures

**uniE09F_uniE080**

*timeSig0Denominator*

Time signature 0 (denominator)

**uniE09E_uniE080**

*timeSig0Numerator*

Time signature 0 (numerator)

**uniE09F_uniE081**

*timeSig1Denominator*

Time signature 1 (denominator)

**uniE09E_uniE081**

*timeSig1Numerator*

Time signature 1 (numerator)

**uniE09F_uniE082**

*timeSig2Denominator*

Time signature 2 (denominator)

**uniE09E_uniE082**

*timeSig2Numerator*

Time signature 2 (numerator)

**uniE09F_uniE083**

*timeSig3Denominator*

Time signature 3 (denominator)

**uniE09E_uniE083**

*timeSig3Numerator*

Time signature 3 (numerator)

**uniE09F_uniE084**

*timeSig4Denominator*

Time signature 4 (denominator)

**uniE09E_uniE084**

*timeSig4Numerator*

Time signature 4 (numerator)

**uniE09F_uniE085**

*timeSig5Denominator*

Time signature 5 (denominator)

**uniE09E_uniE085**

*timeSig5Numerator*

Time signature 5 (numerator)

**uniE09F_uniE086**

*timeSig6Denominator*

Time signature 6 (denominator)

**uniE09E_uniE086**

*timeSig6Numerator*

Time signature 6 (numerator)

**uniE09F_uniE087**

*timeSig7Denominator*

Time signature 7 (denominator)

**uniE09E_uniE087**

*timeSig7Numerator*

Time signature 7 (numerator)

**uniE09F_uniE088**

*timeSig8Denominator*

Time signature 8 (denominator)

**uniE09E_uniE088**

*timeSig8Numerator*

Time signature 8 (numerator)

**uniE09F_uniE089**

*timeSig9Denominator*

Time signature 9 (denominator)

**uniE09E_uniE089**

*timeSig9Numerator*

Time signature 9 (numerator)

**uniE09E_uniE082_uniE09F_uniE084**

*timeSig2over4*

2/4 time signature

**uniE09E_uniE082_uniE09F_uniE082**

*timeSig2over2*

2/2 time signature

**uniE09E_uniE083_uniE09F_uniE082**

*timeSig3over2*

3/2 time signature

**uniE09E_uniE083_uniE09F_uniE084**

*timeSig3over4*

3/4 time signature

**uniE09E_uniE083_uniE09F_uniE088**

*timeSig3over8*

3/8 time signature

**uniE09E_uniE084_uniE09F_uniE084**

*timeSig4over4*

4/4 time signature

**uniE09E_uniE085_uniE09F_uniE084**

*timeSig5over4*

5/4 time signature

**uniE09E_uniE085_uniE09F_uniE088**

*timeSig5over8*

5/8 time signature

**uniE09E_uniE086_uniE09F_uniE084**

*timeSig6over4*

6/4 time signature

**uniE09E_uniE086_uniE09F_uniE088**

*timeSig6over8*

6/8 time signature

**uniE09E_uniE087_uniE09F_uniE088**

*timeSig7over8*

7/8 time signature

**uniE09E_uniE089_uniE09F_uniE088**

*timeSig9over8*

9/8 time signature

**uniE09E_uniE081_uniE09E_uniE082_uniE09F_uniE088**

*timeSig12over8*

12/8 time signature

## Implementation notes

**timeSigCombNumerator** and **timeSigCombDenominator** are control characters designed to be combined with the time signature digits (by way of glyph substitution, such as OpenType ligatures) to shift them vertically into position suitable for drawing as the numerator and denominator of a time signature. These control characters are intended for fonts to be used in text-based applications, since scoring applications should position the numerator and denominator of time signatures independently.

# Noteheads (U+E0A0–U+E0FF)



**U+E0A0**

*noteheadDoubleWhole*

Double whole (breve) notehead



**U+E0A1**

*noteheadDoubleWholeSquare*

Double whole (breve) notehead (square)



**U+E0A2**

*noteheadWhole*

Whole (semibreve) notehead



**U+E0A3** (and U+1D157)

*noteheadHalf*

Half (minim) notehead



**U+E0A4** (and U+1D158)

*noteheadBlack*

Black notehead

**U+E0A5** (and U+1D159)

*noteheadNull*

Null notehead



**U+E0A6**

*noteheadXDoubleWhole*

X notehead double whole



**U+E0A7**

*noteheadXWhole*

X notehead whole



**U+E0A8**

*noteheadXHalf*

X notehead half



**U+E0A9** (and U+1D143)

*noteheadXBlack*

X notehead black



**U+E0AA**

*noteheadXOrnate*

Ornate X notehead



**U+E0AB**

*noteheadXOrnateEllipse*

Ornate X notehead in ellipse



**U+E0AC**

*noteheadPlusDoubleWhole*

Plus notehead double whole



**U+E0AD**

*noteheadPlusWhole*

Plus notehead whole



**U+E0AE**

*noteheadPlusHalf*

Plus notehead half



**U+E0AF** (and U+1D144)

*noteheadPlusBlack*

Plus notehead black



**U+E0B0**

*noteheadCircleXDoubleWhole*

Circle X double whole



**U+E0B1**

*noteheadCircleXWhole*

Circle X whole

**U+E0B2**

*noteheadCircleXHalf*

Circle X half



**U+E0B3** (and U+1D145)

*noteheadCircleX*

Circle X notehead



**U+E0B4**

*noteheadDoubleWholeWithX*

Double whole notehead with X



**U+E0B5**

*noteheadWholeWithX*

Whole notehead with X



**U+E0B6**

*noteheadHalfWithX*

Half notehead with X



**U+E0B7**

*noteheadVoidWithX*

Void notehead with X



**U+E0B8** (and U+1D146)

*noteheadSquareWhite*

Square notehead white



**U+E0B9** (and U+1D147)

*noteheadSquareBlack*

Square notehead black



**U+E0BA**

*noteheadTriangleUpDoubleWhole*

Triangle notehead up double whole



**U+E0BB**

*noteheadTriangleUpWhole*

Triangle notehead up whole



**U+E0BC**

*noteheadTriangleUpHalf*

Triangle notehead up half



**U+E0BD** (and U+1D148)

*noteheadTriangleUpWhite*

Triangle notehead up white



**U+E0BE** (and U+1D149)

*noteheadTriangleUpBlack*

Triangle notehead up black



**U+E0BF** (and U+1D14A)

*noteheadTriangleLeftWhite*

Triangle notehead left white



**U+E0C0** (and U+1D14B)

*noteheadTriangleLeftBlack*

Triangle notehead left black



**U+E0C1** (and U+1D14C)

*noteheadTriangleRightWhite*

Triangle notehead right white



**U+E0C2** (and U+1D14D)

*noteheadTriangleRightBlack*

Triangle notehead right black



**U+E0C3**

*noteheadTriangleDownDoubleWhole*

Triangle notehead down double whole

**U+E0C4**

*noteheadTriangleDownWhole*



Triangle notehead down whole

**U+E0C5**

*noteheadTriangleDownHalf*



Triangle notehead down half

**U+E0C6** (and U+1D14E)

*noteheadTriangleDownWhite*



Triangle notehead down white

**U+E0C7** (and U+1D14F)

*noteheadTriangleDownBlack*



Triangle notehead down black

**U+E0C8** (and U+1D150)

*noteheadTriangleUpRightWhite*



Triangle notehead up right white

**U+E0C9** (and U+1D151)

*noteheadTriangleUpRightBlack*



Triangle notehead up right black

**U+E0CA** (and U+1D152)

*noteheadMoonWhite*



Moon notehead white

**U+E0CB** (and U+1D153)

*noteheadMoonBlack*



Moon notehead black

**U+E0CC** (and U+1D154)

*noteheadTriangleRoundDownWhite*



Triangle-round notehead down white

**U+E0CD** (and U+1D155)

*noteheadTriangleRoundDownBlack*



Triangle-round notehead down black

**U+E0CE** (and U+1D156)

*noteheadParenthesis*

Parenthesis notehead

**U+E0CF**

*noteheadSlashedBlack1*

Slashed black notehead (bottom left to top right)

**U+E0D0**

*noteheadSlashedBlack2*

Slashed black notehead (top left to bottom right)

**U+E0D1**

*noteheadSlashedHalf1*

Slashed half notehead (bottom left to top right)

**U+E0D2**

*noteheadSlashedHalf2*

Slashed half notehead (top left to bottom right)

**U+E0D3**

*noteheadSlashedWhole1*

Slashed whole notehead (bottom left to top right)

**U+E0D4**

*noteheadSlashedWhole2*

Slashed whole notehead (top left to bottom right)

**U+E0D5**

*noteheadSlashedDoubleWhole1*

Slashed double whole notehead (bottom left to top right)

**U+E0D6**

*noteheadSlashedDoubleWhole2*

Slashed double whole notehead (top left to bottom right)

**U+E0D7**

*noteheadDiamondDoubleWhole*

Diamond double whole notehead

**U+E0D8**

*noteheadDiamondWhole*



Diamond whole notehead

**U+E0D9**

*noteheadDiamondHalf*



Diamond half notehead

**U+E0DA**

*noteheadDiamondHalfWide*



Diamond half notehead (wide)

**U+E0DB**

*noteheadDiamondBlack*



Diamond black notehead

**U+E0DC**

*noteheadDiamondBlackWide*



Diamond black notehead (wide)

**U+E0DD**

*noteheadDiamondWhite*



Diamond white notehead

**U+E0DE**

*noteheadDiamondWhiteWide*



Diamond white notehead (wide)

**U+E0DF**

*noteheadDiamondDoubleWholeOld*

Diamond double whole notehead (old)

**U+E0E0**

*noteheadDiamondWholeOld*



Diamond whole notehead (old)

**U+E0E1**

*noteheadDiamondHalfOld*



Diamond half notehead (old)

**U+E0E2**

*noteheadDiamondBlackOld*



Diamond black notehead (old)

**U+E0E3**

*noteheadDiamondHalfFilled*



Half-filled diamond notehead

**U+E0E4**

*noteheadCircledBlack*

Circled black notehead

**U+E0E5**

*noteheadCircledHalf*

Circled half notehead

**U+E0E6**

*noteheadCircledWhole*

Circled whole notehead

**U+E0E7**

*noteheadCircledDoubleWhole*

Circled double whole notehead

**U+E0E8**

*noteheadCircledBlackLarge*

Black notehead in large circle

**U+E0E9**

*noteheadCircledHalfLarge*

Half notehead in large circle

**U+E0EA**

*noteheadCircledWholeLarge*

Whole notehead in large circle

**U+E0EB**

*noteheadCircledDoubleWholeLarge*

Double whole notehead in large circle

**U+E0EC**

*noteheadCircledXLarge*

Cross notehead in large circle

**U+E0ED**

*noteheadLargeArrowUpDoubleWhole*



Large arrow up (highest pitch) double whole notehead

**U+E0EE**

*noteheadLargeArrowUpWhole*

Large arrow up (highest pitch) whole notehead

**U+E0EF**

*noteheadLargeArrowUpHalf*

Large arrow up (highest pitch) half notehead

**U+E0F0**

*noteheadLargeArrowUpBlack*

Large arrow up (highest pitch) black notehead

**U+E0F1**

*noteheadLargeArrowDownDoubleWhole*

Large arrow down (lowest pitch) double whole notehead

**U+E0F2**

*noteheadLargeArrowDownWhole*

Large arrow down (lowest pitch) whole notehead

**U+E0F3**

*noteheadLargeArrowDownHalf*

Large arrow down (lowest pitch) half notehead

**U+E0F4**

*noteheadLargeArrowDownBlack*

Large arrow down (lowest pitch) black notehead

**U+E0F5**

*noteheadParenthesisLeft*



Opening parenthesis

**U+E0F6**

*noteheadParenthesisRight*



Closing parenthesis

**U+E0F7**

*noteheadCircleSlash*



Circle slash notehead

**U+E0F8**

*noteheadHeavyX*



Heavy X notehead

**U+E0F9**

*noteheadHeavyXHat*

Heavy X with hat notehead

**U+E0FA**

*noteheadWholeFilled*



Filled whole (semibreve) notehead

**U+E0FB**

*noteheadHalfFilled*



Filled half (minim) notehead

**U+E0FC**

*noteheadDiamondOpen*



Open diamond notehead

## Recommended stylistic alternates

**uniE0A0.salt01**

*noteheadDoubleWholeAlt*

Double whole note (breve), single vertical strokes

**uniE0A0.ss01**

*noteheadDoubleWholeSmall*

Double whole note (breve) (small staff)

**uniE0A0.ss05**

*noteheadDoubleWholeOversized*

Double whole note (breve) (oversized)

**uniE0A1.ss05**

*noteheadDoubleWholeSquareOversized*

Double whole note (breve) notehead (square) (oversized)

**uniE0A2.ss01**

*noteheadWholeSmall*

Whole notehead (small staff)

**uniE0A2.ss05**

*noteheadWholeOversized*

Whole notehead (oversized)

**uniE0A3.ss01**

*noteheadHalfSmall*

Half (minim) notehead (small staff)

**uniE0A3.ss05**

*noteheadHalfOversized*

Half (minim) notehead (oversized)

**uniE0A4.ss01**

*noteheadBlackSmall*

Black notehead (small staff)

**uniE0A4.ss05**

*noteheadBlackOversized*

Black notehead (oversized)

## Recommended ligatures

**uniE0F5_uniE0A4_uniE0F6**

*noteheadBlackParens*

Parenthesised black notehead

**uniE0F5_uniE0A3_uniE0F6**

*noteheadHalfParens*

Parenthesised half notehead

**uniE0F5_uniE0A2_uniE0F6**

*noteheadWholeParens*

Parenthesised whole (semibreve) notehead

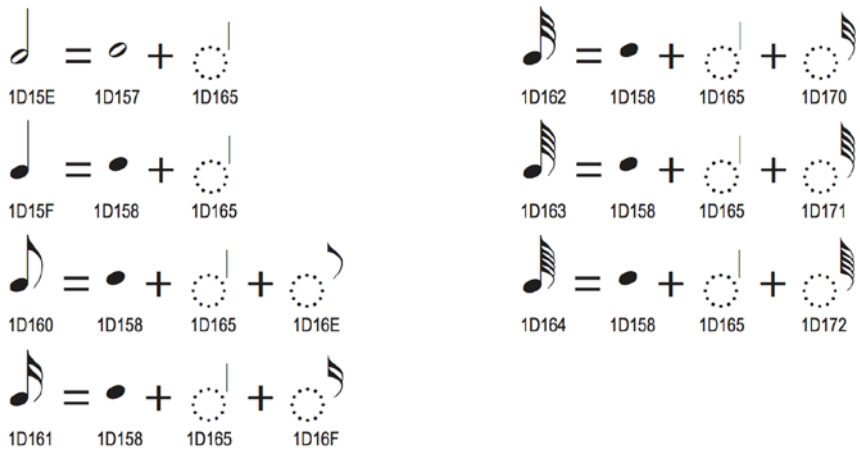
**uniE0F5_uniE0A0_uniE0F6**

*noteheadDoubleWholeParens*

Parenthesised double whole (breve) notehead

## Implementation notes

These noteheads should be combined with stems and flags as necessary to create complete notes. In text-based applications, per the Unicode Musical Symbols documentation:




Scoring applications should draw stems using primitives, rather than using **stem** (i.e. U+1D165 as shown in the above image[16]), so that they can be drawn to the correct length.

*See also* the implementation notes for flags.

[16] From Chapter 15 "Symbols", *The Unicode Standard, Version 6.2*. Ed. Julie D. Allen et al. Mountain View; The Unicode Consortium, 2012.

# Slash noteheads (U+E100–U+E10F)

**U+E100**

*noteheadSlashVerticalEnds*

Slash with vertical ends

**U+E101** (and U+1D10D)

*noteheadSlashHorizontalEnds*

Slash with horizontal ends

**U+E102**

*noteheadSlashWhiteWhole*

White slash whole

**U+E103**

*noteheadSlashWhiteHalf*

White slash half

**U+E104**

*noteheadSlashDiamondWhite*

Large white diamond



**U+E105**

*noteheadSlashVerticalEndsSmall*

Small slash with vertical ends

**U+E106**

*noteheadSlashX*

Large X notehead

**U+E107**

*noteheadSlashVerticalEndsMuted*

Muted slash with vertical ends

**U+E108**

*noteheadSlashHorizontalEndsMuted*

Muted slash with horizontal ends

**U+E109**

*noteheadSlashWhiteMuted*

Muted white slash

## Implementation notes

See the implementation notes for noteheads.

# Round and square noteheads (U+E110–U+E11F)

**U+E110**

*noteheadRoundBlackLarge*

Large round black notehead

**U+E111**

*noteheadRoundWhiteLarge*

Large round white notehead

**U+E112**

*noteheadRoundWhiteWithDotLarge*

Large round white notehead with dot



**U+E113**

*noteheadRoundBlack*

Round black notehead



**U+E114**

*noteheadRoundWhite*

Round white notehead



**U+E115**

*noteheadRoundWhiteWithDot*

Round white notehead with dot

**U+E116**

*noteheadRoundBlackSlashedLarge*

Large round black notehead, slashed

**U+E117**

*noteheadRoundWhiteSlashedLarge*

Large round white notehead, slashed

**U+E118**

*noteheadRoundBlackSlashed*

Round black notehead, slashed

**U+E119**

*noteheadRoundWhiteSlashed*

Round white notehead, slashed

**U+E11A**

*noteheadSquareBlackLarge*

Large square black notehead

**U+E11B**

*noteheadSquareBlackWhite*

Large square white notehead

# Note clusters (U+E120–U+E14F)

**U+E120** (and U+1D15A)

*noteheadClusterSquareWhite*

Cluster notehead white (square)

**U+E121** (and U+1D15B)

*noteheadClusterSquareBlack*

Cluster notehead black (square)

**U+E122**

*noteheadClusterRoundWhite*

Cluster notehead white (round)

**U+E123**

*noteheadClusterRoundBlack*

Cluster notehead black (round)

**U+E124**

*noteheadClusterDoubleWhole2nd*

Double whole note cluster, 2nd

**U+E125**

*noteheadClusterWhole2nd*

Whole note cluster, 2nd

**U+E126**

*noteheadClusterHalf2nd*

Half note cluster, 2nd

**U+E127**

*noteheadClusterQuarter2nd*

Quarter note cluster, 2nd

**U+E128**

*noteheadClusterDoubleWhole3rd*

Double whole note cluster, 3rd

**U+E129**

*noteheadClusterWhole3rd*

Whole note cluster, 3rd

**U+E12A**

*noteheadClusterHalf3rd*

Half note cluster, 3rd

**U+E12B**

*noteheadClusterQuarter3rd*

Quarter note cluster, 3rd

**U+E12C**

*noteheadClusterDoubleWholeTop*

Combining double whole note cluster, top



**U+E12D**

*noteheadClusterDoubleWholeMiddle*

Combining double whole note cluster, middle

**U+E12E**

*noteheadClusterDoubleWholeBottom*

Combining double whole note cluster, bottom

**U+E12F**

*noteheadClusterWholeTop*

Combining whole note cluster, top



**U+E130**

*noteheadClusterWholeMiddle*

Combining whole note cluster, middle

**U+E131**

*noteheadClusterWholeBottom*

Combining whole note cluster, bottom

**U+E132**

*noteheadClusterHalfTop*

Combining half note cluster, top

**U+E133**

*noteheadClusterHalfMiddle*



Combining half note cluster, middle

**U+E134**

*noteheadClusterHalfBottom*



Combining half note cluster, bottom

**U+E135**

*noteheadClusterQuarterTop*

Combining quarter note cluster, top

**U+E136**

*noteheadClusterQuarterMiddle*



Combining quarter note cluster, middle

**U+E137**

*noteheadClusterQuarterBottom*

Combining quarter note cluster, bottom

**U+E138**

*noteheadDiamondClusterWhite2nd*

White diamond cluster, 2nd

**U+E139**

*noteheadDiamondClusterBlack2nd*

Black diamond cluster, 2nd

**U+E13A**

*noteheadDiamondClusterWhite3rd*

White diamond cluster, 3rd

**U+E13B**

*noteheadDiamondClusterBlack3rd*

Black diamond cluster, 3rd

**U+E13C**

*noteheadDiamondClusterWhiteTop*



Combining white diamond cluster, top

**U+E13D**

*noteheadDiamondClusterWhiteMiddle*



Combining white diamond cluster, middle

**U+E13E**

*noteheadDiamondClusterWhiteBottom*



Combining white diamond cluster, bottom

**U+E13F**

*noteheadDiamondClusterBlackTop*



Combining black diamond cluster, top

**U+E140**

*noteheadDiamondClusterBlackMiddle*



Combining black diamond cluster, middle

**U+E141**

*noteheadDiamondClusterBlackBottom*



Combining black diamond cluster, bottom

**U+E142**

*noteheadRectangularClusterBlackTop*



Combining black rectangular cluster, top

**U+E143**

*noteheadRectangularClusterBlackMiddle*



Combining black rectangular cluster, middle

**U+E144**

*noteheadRectangularClusterBlackBottom*

Combining black rectangular cluster, bottom

**U+E145**

*noteheadRectangularClusterWhiteTop*

Combining white rectangular cluster, top

**U+E146**

*noteheadRectangularClusterWhiteMiddle*

Combining white rectangular cluster, middle

**U+E147**

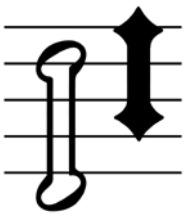
*noteheadRectangularClusterWhiteBottom*

Combining white rectangular cluster, bottom

## Implementation notes

Scoring applications should draw simple note clusters (e.g. **noteheadClusterSquareWhite**, **noteheadClusterRoundBlack**) directly using primitives rather than using these glyphs, so that the clusters can be drawn spanning the correct interval.

The combining glyphs for note clusters are designed to allow the creation of clusters of any interval larger than a third, with a scoring application inserting the appropriate number of "middle" segments between a single instance of the "top" and "bottom" segments:



The left-hand cluster is a stack (top to bottom) of 1 x **noteheadClusterHalfTop**, 3 x **noteheadClusterHalfMiddle**, 1 x **noteheadClusterHalfBottom**; the right-hand cluster is 1 x **noteheadDiamondClusterBlackTop**, 2 x **noteheadDiamondClusterBlackMiddle**, 1 x **noteheadDiamondClusterBlackBottom**.

Clusters for intervals of a second or a third are created using a single glyph, e.g. **noteheadClusterQuarter2nd**. These glyphs are registered such that the lowest pitch in the cluster is centered around y = 0, so to draw correctly, the glyph should be positioned on the staff position corresponding to the lowest note in the cluster.

*See also* the implementation notes for noteheads.

# Note name noteheads (U+E150–U+E1AF)



**U+E150**

*noteDoWhole*

Do (whole note)



**U+E151**

*noteReWhole*

Re (whole note)



**U+E152**

*noteMiWhole*

Mi (whole note)



**U+E153**

*noteFaWhole*

Fa (whole note)



**U+E154**

*noteSoWhole*

So (whole note)



**U+E155**

*noteLaWhole*

La (whole note)



**U+E156**

*noteTiWhole*

Ti (whole note)



**U+E157**

*noteSiWhole*

Si (whole note)



**U+E158**

*noteDoHalf*

Do (half note)



**U+E159**

*noteReHalf*

Re (half note)



**U+E15A**

*noteMiHalf*

Mi (half note)



**U+E15B**

*noteFaHalf*

Fa (half note)



**U+E15C**

*noteSoHalf*

So (half note)



**U+E15D**

*noteLaHalf*

La (half note)



**U+E15E**

*noteTiHalf*

Ti (half note)



**U+E15F**

*noteSiHalf*

Si (half note)



**U+E160**

*noteDoBlack*

Do (black note)



**U+E161**

*noteReBlack*

Re (black note)

**U+E162**

*noteMiBlack*

Mi (black note)

**U+E163**

*noteFaBlack*

Fa (black note)

**U+E164**

*noteSoBlack*

So (black note)

**U+E165**

*noteLaBlack*

La (black note)

**U+E166**

*noteTiBlack*

Ti (black note)

**U+E167**

*noteSiBlack*

Si (black note)

**U+E168**

*noteAFlatWhole*

A flat (whole note)

**U+E169**

*noteAWhole*

A (whole note)

**U+E16A**

*noteASharpWhole*

A sharp (whole note)

**U+E16B**

*noteBFlatWhole*

B flat (whole note)

**U+E16C**

*noteBWhole*

B (whole note)

**U+E16D**

*noteBSharpWhole*

B sharp (whole note)

**U+E16E**

*noteCFlatWhole*

C flat (whole note)

**U+E16F**

*noteCWhole*

C (whole note)

**U+E170**

*noteCSharpWhole*

C sharp (whole note)

**U+E171**

*noteDFlatWhole*

D flat (whole note)

**U+E172**

*noteDWhole*

D (whole note)

**U+E173**

*noteDSharpWhole*

D sharp (whole note)

**U+E174**

*noteEFlatWhole*

E flat (whole note)

**U+E175**

*noteEWhole*

E (whole note)

**U+E176**

*noteESharpWhole*

E sharp (whole note)

**U+E177**

*noteFFlatWhole*

F flat (whole note)

**U+E178**

*noteFWhole*

F (whole note)

**U+E179**

*noteFSharpWhole*

F sharp (whole note)

**U+E17A**

*noteGFlatWhole*

G flat (whole note)

**U+E17B**

*noteGWhole*

G (whole note)

**U+E17C**

*noteGSharpWhole*

G sharp (whole note)

**U+E17D**

*noteHWhole*

H (whole note)

**U+E17E**

*noteHSharpWhole*

H sharp (whole note)

**U+E17F**

*noteAFlatHalf*

A flat (half note)

**U+E180**

*noteAHalf*

A (half note)

**U+E181**

*noteASharpHalf*

A sharp (half note)

**U+E182**

*noteBFlatHalf*

B flat (half note)

**U+E183**

*noteBHalf*

B (half note)

**U+E184**

*noteBSharpHalf*

B sharp (half note)

**U+E185**

*noteCFlatHalf*

C flat (half note)

**U+E186**

*noteCHalf*

C (half note)

**U+E187**

*noteCSharpHalf*

C sharp (half note)

**U+E188**

*noteDFlatHalf*

D flat (half note)

**U+E189**

*noteDHalf*

D (half note)

**U+E18A**

*noteDSharpHalf*

D sharp (half note)

**U+E18B**

*noteEFlatHalf*

E flat (half note)

**U+E18C**

*noteEHalf*

E (half note)

**U+E18D**

*noteESharpHalf*

E sharp (half note)

**U+E18E**

*noteFFlatHalf*

F flat (half note)

**U+E18F**

*noteFHalf*

F (half note)

**U+E190**

*noteFSharpHalf*



F sharp (half note)

**U+E191**

*noteGFlatHalf*



G flat (half note)

**U+E192**

*noteGHalf*



G (half note)

**U+E193**

*noteGSharpHalf*



G sharp (half note)

**U+E194**

*noteHHalf*



H (half note)

**U+E195**

*noteHSharpHalf*



H sharp (half note)

**U+E196**

*noteAFlatBlack*



A flat (black note)

**U+E197**

*noteABlack*



A (black note)

**U+E198**

*noteASharpBlack*

A sharp (black note)

**U+E199**

*noteBFlatBlack*

B flat (black note)

**U+E19A**

*noteBBlack*

B (black note)

**U+E19B**

*noteBSharpBlack*

B sharp (black note)

**U+E19C**

*noteCFlatBlack*

C flat (black note)

**U+E19D**

*noteCBlack*

C (black note)

**U+E19E**

*noteCSharpBlack*

C sharp (black note)

**U+E19F**

*noteDFlatBlack*

D flat (black note)

**U+E1A0**

*noteDBlack*

D (black note)

**U+E1A1**

*noteDSharpBlack*

D sharp (black note)

**U+E1A2**

*noteEFlatBlack*

E flat (black note)

**U+E1A3**

*noteEBlack*

E (black note)

**U+E1A4**

*noteESharpBlack*

E sharp (black note)

**U+E1A5**

*noteFFlatBlack*

F flat (black note)

**U+E1A6**

*noteFBlack*

F (black note)

**U+E1A7**

*noteFSharpBlack*

F sharp (black note)

**U+E1A8**

*noteGFlatBlack*

G flat (black note)

**U+E1A9**

*noteGBlack*

G (black note)

**U+E1AA**

*noteGSharpBlack*

G sharp (black note)

**U+E1AB**

*noteHBlack*

H (black note)

**U+E1AC**

*noteHSharpBlack*

H sharp (black note)

**U+E1AD**

*noteEmptyWhole*

Empty whole note

**U+E1AE**

*noteEmptyHalf*

Empty half note

**U+E1AF**

*noteEmptyBlack*

Empty black note

## Implementation notes

These noteheads are designed for use by scoring applications to render music where the names of notes are shown inside noteheads. For practical use, scoring applications should provide a means of automatically substituting regular noteheads for the appropriate note name notehead glyph according to the pitch of each note.

For maximum legibility, stave lines and ledger lines should not be drawn through the letterforms in these noteheads. Applications should either draw segments of stave lines and ledger lines to the left and right of the extent of each notehead positioned on a line, or draw **noteEmptyWhole**, **noteEmptyHalf** and **noteEmptyBlack** as appropriate in white (or the paper color) on top of the stave or ledger line but behind the note name notehead.

*See also* the implementation notes for **Noteheads**.

# Shape note noteheads (U+E1B0–U+E1CF)



**U+E1B0**

*noteShapeRoundWhite*

Round white (4-shape sol; 7-shape so)



**U+E1B1**

*noteShapeRoundBlack*

Round black (4-shape sol; 7-shape so)



**U+E1B2**

*noteShapeSquareWhite*

Square white (4-shape la; Aikin 7-shape la)



**U+E1B3**

*noteShapeSquareBlack*

Square black (4-shape la; Aikin 7-shape la)



**U+E1B4**

*noteShapeTriangleRightWhite*

Triangle right white (stem down; 4-shape fa; 7-shape fa)



**U+E1B5**

*noteShapeTriangleRightBlack*

Triangle right black (stem down; 4-shape fa; 7-shape fa)



**U+E1B6**

*noteShapeTriangleLeftWhite*

Triangle left white (stem up; 4-shape fa; 7-shape fa)



**U+E1B7**

*noteShapeTriangleLeftBlack*

Triangle left black (stem up; 4-shape fa; 7-shape fa)



**U+E1B8**

*noteShapeDiamondWhite*

Diamond white (4-shape mi; 7-shape mi)



**U+E1B9**

*noteShapeDiamondBlack*

Diamond black (4-shape mi; 7-shape mi)



**U+E1BA**

*noteShapeTriangleUpWhite*

Triangle up white (Aikin 7-shape do)



**U+E1BB**

*noteShapeTriangleUpBlack*

Triangle up black (Aikin 7-shape do)



**U+E1BC**

*noteShapeMoonWhite*

Moon white (Aikin 7-shape re)



**U+E1BD**

*noteShapeMoonBlack*

Moon black (Aikin 7-shape re)



**U+E1BE**

*noteShapeTriangleRoundWhite*

Triangle-round white (Aikin 7-shape ti)



**U+E1BF**

*noteShapeTriangleRoundBlack*

Triangle-round black (Aikin 7-shape ti)



**U+E1C0**

*noteShapeKeystoneWhite*

Inverted keystone white (Walker 7-shape do)



**U+E1C1**

*noteShapeKeystoneBlack*

Inverted keystone black (Walker 7-shape do)

**U+E1C2**

*noteShapeQuarterMoonWhite*



Quarter moon white (Walker 7-shape re)

**U+E1C3**

*noteShapeQuarterMoonBlack*



Quarter moon black (Walker 7-shape re)

**U+E1C4**

*noteShapeIsoscelesTriangleWhite*



Isosceles triangle white (Walker 7-shape ti)

**U+E1C5**

*noteShapeIsoscelesTriangleBlack*



Isosceles triangle black (Walker 7-shape ti)

**U+E1C6**

*noteShapeMoonLeftWhite*



Moon left white (Funk 7-shape do)

**U+E1C7**

*noteShapeMoonLeftBlack*



Moon left black (Funk 7-shape do)

**U+E1C8**

*noteShapeArrowheadLeftWhite*



Arrowhead left white (Funk 7-shape re)

**U+E1C9**

*noteShapeArrowheadLeftBlack*



Arrowhead left black (Funk 7-shape re)

**U+E1CA**

*noteShapeTriangleRoundLeftWhite*



Triangle-round left white (Funk 7-shape ti)

**U+E1CB**

*noteShapeTriangleRoundLeftBlack*



Triangle-round left black (Funk 7-shape ti)

## Implementation notes

A number of different shape note traditions remain in common use in the shape note community. SMuFL encodes the noteheads required for four such systems: one four-shape system; and three seven-shape systems (Walker, Funk, and Aikin). All three seven-shape systems also use the four shapes of the four-shape system, each introducing three additional shapes.

The four-shape system, used in books such as William Walker's *Southern Harmony* (1835), uses a form of solmization where the syllables *fa*, *so*, *la*, *fa*, *so*, *la*, *mi* are assigned to the seven notes of an ascending major scale. Each syllable has its own note shape:

| *Syllable* | *Half notes and longer* | *Quarter notes and shorter* |
|---|---|---|
| *fa* (or *faw*) | Stem down: **noteShapeTriangleRightWhite**<br>Stem up: **noteShapeTriangleLeftWhite** | Stem down: **noteShapeTriangleRightBlack**<br>Stem up: **noteShapeTriangleLeftBlack** |
| *so* (or *sol*) | **noteShapeRoundWhite** | **noteShapeRoundBlack** |
| *la* (or *law*) | **noteShapeSquareWhite** | **noteShapeSquareBlack** |
| *mi* | **noteShapeDiamondWhite** | **noteShapeDiamondBlack** |

Joseph Funk devised his seven-shape system, building upon the existing four-shape system, for his book *Harmonia Sacra* (1851), adding to the four-shape system by adding the syllables *do*, *re* and *ti* (sometimes *si*), so the ascending major scale would use the syllables *do*, *re*, *mi*, *fa*, *so*, *la*, *ti*. The note shapes for each syllable are as follows:

| *Syllable* | *Half notes and longer* | *Quarter notes and shorter* |
|---|---|---|
| *do* | **noteShapeMoonLeftWhite** | **noteShapeMoonLeftBlack** |
| *re* | **noteShapeArrowheadLeftWhite** | **noteShapeArrowheadLeftBlack** |
| *mi* | **noteShapeDiamondWhite** | **noteShapeDiamondBlack** |
| *fa* (or *faw*) | Stem down: **noteShapeTriangleRightWhite**<br>Stem up: **noteShapeTriangleLeftWhite** | Stem down: **noteShapeTriangleRightBlack**<br>Stem up: **noteShapeTriangleLeftBlack** |
| *so* (or *sol*) | **noteShapeRoundWhite** | **noteShapeRoundBlack** |
| *la* (or *law*) | **noteShapeSquareWhite** | **noteShapeSquareBlack** |
| ti (or *si*) | **noteShapeTriangleRoundLeftWhite** | **noteShapeTriangleRoundLeftBlack** |

In addition to being the composer of *Southern Harmony*, William Walker also later devised his own seven-shape system for the book *Christian Harmony* (1867), using the same solmization as Funk. The note shapes for each syllable are as follows:

| *Syllable* | *Half notes and longer* | *Quarter notes and shorter* |
|---|---|---|
| *do* | **noteShapeKeystoneWhite** | **noteShapeKeystoneBlack** |

| | | |
|---|---|---|
| *re* | **noteShapeQuarterMoonWhite** | **noteShapeQuarterMoonBlack** |
| *mi* | **noteShapeDiamondWhite** | **noteShapeDiamondBlack** |
| *fa* (or *faw*) | Stem down: **noteShapeTriangleRightWhite**<br>Stem up: **noteShapeTriangleLeftWhite** | Stem down: **noteShapeTriangleRightBlack**<br>Stem up: **noteShapeTriangleLeftBlack** |
| *so* (or *sol*) | **noteShapeRoundWhite** | **noteShapeRoundBlack** |
| *la* (or *law*) | **noteShapeSquareWhite** | **noteShapeSquareBlack** |
| ti (or *si*) | **noteShapeIsoscelesTriangleWhite** | **noteShapeIsoscelesTriangleBlack** |

Perhaps the most commonly-used seven-shape system, however, is that devised by Jesse B. Aikin, though his system is sometimes incorrectly referred to as the "Aiken" system due to an error made by the musicologist George Pullen Jackson. Aikin introduced his system in *The Christian Minstrel* (1846), and after his shapes were adopted by the influential Ruebush & Kieffer Publishing Company in the late 19th century they have become increasingly widely used. Again using the same solmization as both Funk and Walker, the note shapes for each syllable are as follows:

| *Syllable* | *Half notes and longer* | *Quarter notes and shorter* |
|---|---|---|
| *do* | **noteShapeTriangleUpWhite** | **noteShapeTriangleUpBlack** |
| *re* | **noteShapeMoonWhite** | **noteShapeMoonBlack** |
| *mi* | **noteShapeDiamondWhite** | **noteShapeDiamondBlack** |
| *fa* (or *faw*) | Stem down: **noteShapeTriangleRightWhite**<br>Stem up: **noteShapeTriangleLeftWhite** | Stem down: **noteShapeTriangleRightBlack**<br>Stem up: **noteShapeTriangleLeftBlack** |
| *so* (or *sol*) | **noteShapeRoundWhite** | **noteShapeRoundBlack** |
| *la* (or *law*) | **noteShapeSquareWhite** | **noteShapeSquareBlack** |
| ti (or *si*) | **noteShapeTriangleRoundWhite** | **noteShapeTriangleRoundBlack** |

For practical use, scoring applications should provide a means of automatically substituting regular noteheads for the appropriate shape note notehead glyph according to the pitch of each note.

*See also* the implementation notes for noteheads.

# Individual notes (U+E1D0–U+E1EF)

**U+E1D0** (and U+1D15C)
*noteDoubleWhole*
Double whole note (breve)

**U+E1D1**
*noteDoubleWholeSquare*
Double whole note (square)

**U+E1D2** (and U+1D15D)
*noteWhole*
Whole note (semibreve)

**U+E1D3** (and U+1D15E)
*noteHalfUp*
Half note (minim) stem up

**U+E1D4**
*noteHalfDown*
Half note (minim) stem down

**U+E1D5** (and U+1D15F)
*noteQuarterUp*
Quarter note (crotchet) stem up

**U+E1D6**
*noteQuarterDown*
Quarter note (crotchet) stem down

**U+E1D7** (and U+1D160)
*note8thUp*
Eighth note (quaver) stem up

**U+E1D8**
*note8thDown*
Eighth note (quaver) stem down

**U+E1D9** (and U+1D161)
*note16thUp*
16th note (semiquaver) stem up

**U+E1DA**
*note16thDown*
16th note (semiquaver) stem down

**U+E1DB** (and U+1D162)
*note32ndUp*
32nd note (demisemiquaver) stem up

**U+E1DC**
*note32ndDown*
32nd note (demisemiquaver) stem down

**U+E1DD** (and U+1D163)
*note64thUp*
64th note (hemidemisemiquaver) stem up

**U+E1DE**
*note64thDown*
64th note (hemidemisemiquaver) stem down

**U+E1DF** (and U+1D164)
*note128thUp*
128th note (semihemidemisemiquaver) stem up

**U+E1E0**
*note128thDown*
128th note (semihemidemisemiquaver) stem down

**U+E1E1**
*note256thUp*
256th note (demisemihemidemisemiquaver) stem up

**U+E1E2**

*note256thDown*

256th note (demisemihemidemisemiquaver) stem down

**U+E1E3**

*note512thUp*

512th note (hemidemisemihemidemisemiquaver) stem up

**U+E1E4**

*note512thDown*

512th note (hemidemisemihemidemisemiquaver) stem down

**U+E1E5**

*note1024thUp*

1024th note (semihemidemisemihemidemisemiquaver) stem up

**U+E1E6**

*note1024thDown*

1024th note (semihemidemisemihemidemisemiquaver) stem down

**U+E1E7** (and U+1D16D)

*augmentationDot*

Augmentation dot

## Recommended stylistic alternates



**uniE1D0.salt01**

*noteDoubleWholeAlt*

Double whole note (breve), single vertical strokes

## Implementation notes

Precomposed notes in this range may be used for placing notes on a staff. In fonts intended for text-based applications, these characters may be set up as ligatures with the control characters in the **Combining staff positions** range to allow them to be moved up and down to different positions on a staff (e.g. using characters from the **Staves** range).

However, scoring applications should draw all notes by combining notehead glyphs — e.g. **noteheadBlack** for quarter notes (crotchets) and shorter notes, **noteheadHalf** for half notes (minims) — with stems drawn using primitives.

It is recommended that the characters in this range should have full-length stems, i.e. a minimum length of 3.5 spaces.

Characters suitable for mixing with characters from a regular text font, e.g. as part of a metronome mark, tempo equations, *l'istesso tempo* marking, etc., are found in the **Metronome marks** range (where it is recommended that stems should be shortened to provide a more pleasing balance between the note and the surrounding text characters).

# Beamed groups of notes (U+E1F0–U+E20F)

**U+E1F0**

*textBlackNoteShortStem*

Black note, short stem

**U+E1F1**

*textBlackNoteLongStem*

Black note, long stem

**U+E1F2**

*textBlackNoteFrac8thShortStem*

Black note, fractional 8th beam, short stem

**U+E1F3**

*textBlackNoteFrac8thLongStem*

Black note, fractional 8th beam, long stem

**U+E1F4**

*textBlackNoteFrac16thShortStem*

Black note, fractional 16th beam, short stem

**U+E1F5**

*textBlackNoteFrac16thLongStem*

Black note, fractional 16th beam, long stem

**U+E1F6**

*textBlackNoteFrac32ndLongStem*

Black note, fractional 32nd beam, long stem



**U+E1F7**

*textCont8thBeamShortStem*

Continuing 8th beam for short stem



**U+E1F8**

*textCont8thBeamLongStem*

Continuing 8th beam for long stem



**U+E1F9**

*textCont16thBeamShortStem*

Continuing 16th beam for short stem



**U+E1FA**

*textCont16thBeamLongStem*

Continuing 16th beam for long stem



**U+E1FB**

*textCont32ndBeamLongStem*

Continuing 32nd beam for long stem



**U+E1FC**

*textAugmentationDot*

Augmentation dot



**U+E1FD**

*textTie*

Tie



**U+E1FE**

*textTupletBracketStartShortStem*

Tuplet bracket start for short stem



**U+E1FF**

*textTuplet3ShortStem*

Tuplet number 3 for short stem



**U+E200**

*textTupletBracketEndShortStem*

Tuplet bracket end for short stem



**U+E201**

*textTupletBracketStartLongStem*

Tuplet bracket start for long stem

| | | | |
|---|---|---|---|
| 3 | **U+E202**<br>*textTuplet3LongStem*<br>Tuplet number 3 for long stem | ⌝ | **U+E203**<br>*textTupletBracketEndLongStem*<br>Tuplet bracket end for long stem |

## Implementation notes

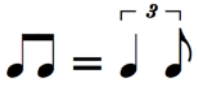
This range is most useful in fonts intended for text-based applications, with metrics that are compatible for mixing musical symbols with text.

In such a font, these glyphs may be used for displaying complex metric modulations and *l'istesso tempo* directions in conjunction with the precomposed note glyphs in the **Individual notes** range.

Kerning pairs for every combination of these glyphs should be included such that the fractional beams overlap slightly with the stems of notes and other beams; this helps provide a consistent appearance in a variety of rendering contexts and at different zoom levels. Special attention should be given to the kerning pairs including textAugmentationDot, which should be kerned rightwards away from notes and leftwards so that it lies underneath glyphs showing the middle of beams (e.g. textCont8thBeamShortStem); and to the pairs involving the tuplet brackets (e.g. textTupletBracketStartShortStem), which should be kerned leftwards such that they are correctly aligned when entered after a note character.

By way of example:

textBlackNoteShortStem, textCont8thBeamShortStem, textBlackNoteFrac8thShortStem, textCont16thBeamShortStem, textBlackNoteFrac16thShortStem



textBlackNoteShortStem, textCont8thBeamShortStem, textBlackNoteFrac8thShortStem, space, =, space, textBlackNoteShortStem, textTupletBracketStartLongStem, textTuplet3LongStem, note8thUp, textTupletBracketEndLongStem

textBlackNoteShortStem, textCont8thBeamShortStem, textAugmentationDot, textCont8thBeamShortStem, textBlackNoteFrac16thShortStem

# Stems (U+E210–U+E21F)



**U+E210** (and U+1D165)

*stem*

Combining stem

**U+E211** (and U+1D166)

*stemSprechgesang*

Combining sprechgesang stem

**U+E212**

*stemSwished*

Combining swished stem

**U+E213**

*stemPendereckiTremolo*

Combining Penderecki unmeasured tremolo stem

**U+E214**

*stemSulPonticello*

Combining sul ponticello (bow behind bridge) stem

**U+E215**

*stemBowOnBridge*

Combining bow on bridge stem

**U+E216**

*stemBowOnTailpiece*

Combining bow on tailpiece stem

**U+E217**

*stemBuzzRoll*

Combining buzz roll stem

**U+E218**

*stemDamp*

Combining damp stem

**U+E219**

*stemVibratoPulse*

Combining vibrato pulse accent (Saunders) stem

**U+E21A**

*stemMultiphonicsBlack*

Combining multiphonics (black) stem

**U+E21B**

*stemMultiphonicsWhite*

Combining multiphonics (white) stem

**U+E21C**

*stemMultiphonicsBlackWhite*

Combining multiphonics (black and white) stem

**U+E21D**

*stemSussurando*

Combining sussurando stem

**U+E21E**

*stemRimShot*

Combining rim shot stem

**U+E21F**

*stemHarpStringNoise*

Combining harp string noise stem

## Implementation notes

The glyphs shown here may be combined with noteheads to produce precomposed glyphs with a fixed stem length.

Scoring applications should produce this effect by imposing the required symbol on a stem drawn using a primitive line, rather than using these precomposed stem glyphs:

- Sprechgesang (**vocalSprechgesang**)
- Swish (**pictSwish**)
- Penderecki unmeasured tremolo (**pendereckiTremolo**)
- Sul ponticello (**stringsBowBehindBridge**)
- Bow on bridge (**stringsBowOnBridge**)
- Bow on tailpiece (**stringsBowOnTailpiece**)
- Buzz roll (**buzzRoll**)
- Damp (**pluckedDampOnStem**)
- Vibrato pulse accent (**stringsVibratoPulse**)
- Multiphonics (**windMultiphonicsBlackStem**, **windMultiphonicsWhiteStem**, **windMultiphonicsBlackWhiteStem**)
- Sussurando (**vocalsSussurando**)
- Rim shot (**pictRimShotOnStem**)
- Harp string noise (**harpStringNoiseStem**)

# Tremolos (U+E220–U+E23F)



**U+E220** (and U+1D167)

*tremolo1*

Combining tremolo 1

**U+E221** (and U+1D168)

*tremolo2*

Combining tremolo 2

**U+E222** (and U+1D169)

*tremolo3*

Combining tremolo 3

**U+E223**

*tremolo4*

Combining tremolo 4

**U+E224**

*tremolo5*

Combining tremolo 5



**U+E225** (and U+1D16A)

*tremoloFingered1*

Fingered tremolo 1

**U+E226** (and U+1D16B)

*tremoloFingered2*

Fingered tremolo 2

**U+E227** (and U+1D16C)

*tremoloFingered3*

Fingered tremolo 3

**U+E228**

*tremoloFingered4*

Fingered tremolo 4

**U+E229**

*tremoloFingered5*

Fingered tremolo 5



**U+E22A**

*buzzRoll*

Buzz roll

**U+E22B**

*pendereckiTremolo*

Penderecki unmeasured tremolo

**U+E22C**

*unmeasuredTremolo*

Wieniawski unmeasured tremolo

**U+E22D**

*unmeasuredTremoloSimple*

Wieniawski unmeasured tremolo (simpler)



**U+E22E**

*tremoloDivisiDots2*

Divide measured tremolo by 2



**U+E22F**

*tremoloDivisiDots3*

Divide measured tremolo by 3



**U+E230**

*tremoloDivisiDots4*

Divide measured tremolo by 4



**U+E231**

*tremoloDivisiDots6*

Divide measured tremolo by 6

## Implementation notes

Scoring applications may simply use multiple instances of **tremolo1** imposed on note stems to draw one-note tremolos with different numbers of slashes.

The fingered tremolo glyphs are for two-note tremolos. Scoring applications should draw two-note tremolos using the same primitives used for drawing beams, rather than using these glyphs.

# Flags (U+E240–U+E25F)

**U+E240** (and U+1D16E)
*flag8thUp*
Combining flag 1 (8th) above

**U+E241**
*flag8thDown*
Combining flag 1 (8th) below

**U+E242** (and U+1D16F)
*flag16thUp*
Combining flag 2 (16th) above

**U+E243**
*flag16thDown*
Combining flag 2 (16th) below

**U+E244** (and U+1D170)
*flag32ndUp*
Combining flag 3 (32nd) above

**U+E245**
*flag32ndDown*
Combining flag 3 (32nd) below

**U+E246** (and U+1D171)
*flag64thUp*
Combining flag 4 (64th) above

**U+E247**
*flag64thDown*
Combining flag 4 (64th) below

**U+E248** (and U+1D172)
*flag128thUp*
Combining flag 5 (128th) above

**U+E249**
*flag128thDown*
Combining flag 5 (128th) below

**U+E24A**
*flag256thUp*
Combining flag 6 (256th) above

**U+E24B**
*flag256thDown*
Combining flag 6 (256th) below

**U+E24C**
*flag512thUp*
Combining flag 7 (512th) above

**U+E24D**
*flag512thDown*
Combining flag 7 (512th) below

**U+E24E**
*flag1024thUp*
Combining flag 8 (1024th) above

**U+E24F**
*flag1024thDown*
Combining flag 8 (1024th) below

**U+E250**
*flagInternalUp*
Internal combining flag above

**U+E251**
*flagInternalDown*
Internal combining flag below

## Recommended stylistic alternates

**uniE240.ss03**

*flag8thUpStraight*

Combining flag 1 (8th) above (straight)

**uniE240.ss02**

*flag8thUpShort*

Combining flag 1 (8th) above (short)

**uniE240.salt03**

*flag8thUpSmall*

Combining flag 1 (8th) above (small staff)

**uniE241.ss03**

*flag8thDownStraight*

Combining flag 1 (8th) below (straight)

**uniE241.salt02**

*flag8thDownSmall*

Combining flag 1 (8th) below (small staff)

**uniE242.ss03**

*flag16thUpStraight*

Combining flag 2 (16th) above (straight)

**uniE242.ss02**

*flag16thUpShort*

Combining flag 2 (16th) above (short)

**uniE242.salt03**

*flag16thUpSmall*

Combining flag 2 (16th) above (small staff)

**uniE243.ss03**

*flag16thDownStraight*

Combining flag 2 (16th) below (straight)

**uniE243.salt02**

*flag16thDownSmall*

Combining flag 2 (16th) below (small staff)

**uniE244.ss03**

*flag32ndUpStraight*

Combining flag 3 (32nd) above (straight)

**uniE244.ss02**

*flag32ndUpShort*

Combining flag 3 (32nd) above (short)

**uniE244.salt03**

*flag32ndUpSmall*

Combining flag 3 (32nd) above (small staff)

**uniE245.ss03**

*flag32ndDownStraight*

Combining flag 3 (32nd) below (straight)

**uniE245.salt02**

*flag32ndDownSmall*

Combining flag 3 (32nd) below (small staff)

**uniE246.ss03**

*flag64thUpStraight*

Combining flag 4 (64th) above (straight)

**uniE246.ss02**

*flag64thUpShort*

Combining flag 4 (64th) above (short)

**uniE246.salt03**

*flag64thUpSmall*

Combining flag 4 (64th) above (small staff)

**uniE247.ss03**

*flag64thDownStraight*

Combining flag 4 (64th) below (straight)

**uniE247.salt02**

*flag64thDownSmall*

Combining flag 4 (64th) below (small staff)

**uniE248.ss03**

*flag128thUpStraight*

Combining flag 5 (128th) above (straight)

**uniE248.ss02**

*flag128thUpShort*

Combining flag 5 (128th) above (short)

**uniE248.salt03**

*flag128thUpSmall*

Combining flag 5 (128th) above (small staff)

**uniE249.ss03**

*flag128thDownStraight*

Combining flag 5 (128th) below (straight)

**uniE249.salt02**

*flag128thDownSmall*

Combining flag 5 (128th) below (small staff)

**uniE24A.ss03**

*flag256thUpStraight*

Combining flag 6 (256th) above (straight)

**uniE24A.ss02**

*flag256thUpShort*

Combining flag 6 (256th) above (short)

**uniE24A.salt03**

*flag256thUpSmall*

Combining flag 6 (256th) above (small staff)

**uniE24B.ss03**

*flag256thDownStraight*

Combining flag 6 (256th) below (straight)

**uniE24B.salt02**

*flag256thDownSmall*

Combining flag 6 (256th) below (small staff)

**uniE24C.ss03**

*flag512thUpStraight*

Combining flag 7 (512th) above (straight)

**uniE24C.ss02**

*flag512thUpShort*

Combining flag 7 (512th) above (short)

**uniE24C.salt03**

*flag512thUpSmall*

Combining flag 7 (512th) above (small staff)

**uniE24D.ss03**

*flag512thDownStraight*

Combining flag 7 (512th) below (straight)

**uniE24D.salt02**

*flag512thDownSmall*

Combining flag 7 (512th) below (small staff)

**uniE24E.ss03**

*flag1024thUpStraight*

Combining flag 8 (1024th) above (straight)

**uniE24E.ss02**

*flag1024thUpShort*

Combining flag 8 (1024th) above (short)

**uniE24E.salt03**

*flag1024thUpSmall*

Combining flag 8 (1024th) above (small staff)

**uniE24F.ss03**

*flag1024thDownStraight*

Combining flag 8 (1024th) below (straight)

**uniE24F.salt02**

*flag1024thDownSmall*

Combining flag 8 (1024th) below (small staff)

## Implementation notes

Scoring applications may create groups of flags for notes shorter than 16th notes (semiquavers) by combining **flag16thUp** with the required number of **flagInternalUp** for stem up notes, or **flag16thDown** with the required number of **flagInternalDown** for stem down notes, stacking **flagInternalUp** above or **flagInternalDown** below respectively, ensuring even spacing.

The set of stylistic alternates for shorter flags may be substituted by a scoring application in the case of a dotted note with an upward stem, to avoid collisions between the augmentation dot and the flag.

# Standard accidentals (12-EDO) (U+E260–U+E26F)

**U+E260** (and 266D)

*accidentalFlat*

Flat

**U+E261** (and 266E)

*accidentalNatural*

Natural

**U+E262** (and 266F)

*accidentalSharp*

Sharp



**U+E263** (and U+1D12A)

*accidentalDoubleSharp*

Double sharp

**U+E264** (and U+1D12B)

*accidentalDoubleFlat*

Double flat

**U+E265**

*accidentalTripleSharp*

Triple sharp

**U+E266**

*accidentalTripleFlat*

Triple flat

**U+E267**

*accidentalNaturalFlat*

Natural flat

**U+E268**

*accidentalNaturalSharp*

Natural sharp

**U+E269**

*accidentalSharpSharp*

Sharp sharp



**U+E26A**

*accidentalParensLeft*

Accidental parenthesis, left



**U+E26B**

*accidentalParensRight*

Accidental parenthesis, right

## Recommended stylistic alternates

**uniE260.ss01**

*accidentalFlatSmall*

Flat (for small staves)

**uniE261.ss01**

*accidentalNaturalSmall*

Natural (for small staves)

**uniE262.ss01**

*accidentalSharpSmall*

Sharp (for small staves)

**uniE264.salt01**

*accidentalDoubleFlatJoinedStems*

Double flat (joined stems)

**uniE266.salt01**

*accidentalTripleFlatJoinedStems*

Triple flat (joined stems)

## Recommended ligatures

**uniE26A_uniE260_uniE26B**

*accidentalFlatParens*

Parenthesised flat

**uniE26A_uniE261_uniE26B**

*accidentalNaturalParens*

Parenthesised natural

**uniE26A_uniE262_uniE26B**

*accidentalSharpParens*

Parenthesised sharp

**uniE26A_uniE263_uniE26B**

*accidentalDoubleSharpParens*

Parenthesised double sharp

**uniE26A_uniE264_uniE26B**

*accidentalDoubleFlatParens*

Parenthesised double flat

## Implementation notes

Scoring applications may choose to substitute stylistic alternate versions of the common accidentals glyphs for a better appearance on smaller staves.

# Gould arrow quartertone accidentals (24-EDO) (U+E270–U+E27F)

**U+E270** (and U+1D12C)

*accidentalQuarterToneFlatArrowUp*

Quarter-tone flat

**U+E271** (and U+1D12D)

*accidentalThreeQuarterTonesFlatArrowDown*

Three-quarter-tones flat

**U+E272** (and U+1D12E)

*accidentalQuarterToneSharpNaturalArrowUp*

Quarter-tone sharp

**U+E273** (and U+1D12F)

*accidentalQuarterToneFlatNaturalArrowDown*

Quarter-tone flat

**U+E274** (and U+1D130)

*accidentalThreeQuarterTonesSharpArrowUp*

Three-quarter-tones sharp

**U+E275** (and U+1D131)

*accidentalQuarterToneSharpArrowDown*

Quarter-tone sharp

**U+E276**

*accidentalFiveQuarterTonesSharpArrowUp*

Five-quarter-tones sharp

**U+E277**

*accidentalThreeQuarterTonesSharpArrowDown*

Three-quarter-tones sharp

**U+E278**

*accidentalThreeQuarterTonesFlatArrowUp*

Three-quarter-tones flat

**U+E279**

*accidentalFiveQuarterTonesFlatArrowDown*

Five-quarter-tones flat

**U+E27A**

*accidentalArrowUp*

Arrow up (raise by one quarter-tone)

**U+E27B**

*accidentalArrowDown*

Arrow down (lower by one quarter-tone)

# Stein-Zimmermann accidentals (24-EDO) (U+E280–U+E28F)

**U+E280**

*accidentalQuarterToneFlatStein*

Reversed flat (quarter-tone flat) (Stein)

**U+E281**

*accidentalThreeQuarterTonesFlatZimmermann*

Reversed flat and flat (three-quarter-tones flat) (Zimmermann)

**U+E282**

*accidentalQuarterToneSharpStein*

Half sharp (quarter-tone sharp) (Stein)

**U+E283**

*accidentalThreeQuarterTonesSharpStein*

One and a half sharps (three-quarter-tones sharp) (Stein)

**U+E284**

*accidentalNarrowReversedFlat*

Narrow reversed flat(quarter-tone flat)

**U+E285**

*accidentalNarrowReversedFlatAndFlat*

Narrow reversed flat and flat(three-quarter-tones flat)

# Extended Stein-Zimmermann accidentals (U+E290–U+E29F)

**U+E290**

*accidentalReversedFlatArrowUp*

Reversed flat with arrow up

**U+E291**

*accidentalReversedFlatArrowDown*

Reversed flat with arrow down

**U+E292**

*accidentalFilledReversedFlatArrowUp*

Filled reversed flat with arrow up

**U+E293**

*accidentalFilledReversedFlatArrowDown*

Filled reversed flat with arrow down

**U+E294**

*accidentalReversedFlatAndFlatArrowUp*

Reversed flat and flat with arrow up

**U+E295**

*accidentalReversedFlatAndFlatArrowDown*

Reversed flat and flat with arrow down

**U+E296**

*accidentalFilledReversedFlatAndFlat*

Filled reversed flat and flat

**U+E297**

*accidentalFilledReversedFlatAndFlatArrowUp*

Filled reversed flat and flat with arrow up

**U+E298**

*accidentalFilledReversedFlatAndFlatArrowDown*

Filled reversed flat and flat with arrow down

**U+E299**

*accidentalHalfSharpArrowUp*

Half sharp with arrow up

**U+E29A**

*accidentalHalfSharpArrowDown*

Half sharp with arrow down

**U+E29B**

*accidentalOneAndAHalfSharpsArrowUp*

One and a half sharps with arrow up

**U+E29C**

*accidentalOneAndAHalfSharpsArrowDown*

One and a half sharps with arrow down

## Implementation notes

These accidentals were not actually proposed by Richard Stein or Bernd Zimmermann, but are instead logical extensions of their symbols adding arrows to provide options for notating slight pitch modifications[17].

[17] Gould, *ibid.*, page 96 acknowledges the Stein-Zimmermann accidentals as the most commonly-used symbols with fixed meanings; however, the extensions provided here do not have fixed meanings.

# Sims accidentals (72-EDO) (U+E2A0–U+E2AF)

**U+E2A0**

*accidentalSims12Down*

1/12 tone low

**U+E2A1**

*accidentalSims6Down*

1/6 tone low

**U+E2A2**

*accidentalSims4Down*

1/4 tone low

**U+E2A3**

*accidentalSims12Up*

1/12 tone high

**U+E2A4**

*accidentalSims6Up*

1/6 tone high

**U+E2A5**

*accidentalSims4Up*

1/4 tone high

## Implementation notes

These glyphs may be used alone and to the left of the standard 12-EDO accidentals.

# Johnston accidentals (just intonation) (U+E2B0–U+E2BF)

**U+E2B0**

*accidentalJohnstonPlus*



Plus (raise by 81:80)

**U+E2B1**

*accidentalJohnstonMinus*



Minus (lower by 81:80)

**U+E2B2**

*accidentalJohnstonEl*



Inverted seven (raise by 36:35)

**U+E2B3**

*accidentalJohnstonSeven*



Seven (lower by 36:35)

**U+E2B4**

*accidentalJohnstonUp*

Up arrow (raise by 33:32)

**U+E2B5**

*accidentalJohnstonDown*



Down arrow (lower by 33:32)

**U+E2B6**

*accidentalJohnston13*



Thirteen (raise by 65:64)

**U+E2B7**

*accidentalJohnston31*



Inverted 13 (lower by 65:64)

## Recommended ligatures

**uniE262_uniE2B2**

*accidentalSharpJohnstonEl*

Sharp-inverted seven

**uniE262_uniE2B4**

*accidentalSharpJohnstonUp*

Sharp-up arrow

**uniE262_uniE2B5**

*accidentalSharpJohnstonDown*

Sharp-down arrow

**uniE260_uniE2B2**

*accidentalFlatJohnstonEl*

Flat-inverted seven

**uniE260_uniE2B4**

*accidentalFlatJohnstonUp*

Flat-up arrow

**uniE260_uniE2B5**

*accidentalFlatJohnstonDown*

Flat-down arrow

**uniE2B3_uniE262**

*accidentalJohnstonSevenSharp*

Seven-sharp

**uniE2B3_uniE260**

*accidentalJohnstonSevenFlat*

Seven-flat

**uniE2B3_uniE2B4**

*accidentalJohnstonSevenUp*

Seven-up arrow

**uniE2B3_uniE2B5**

*accidentalJohnstonSevenDown*

Seven-down arrow

**uniE2B4_uniE2B2**

*accidentalJohnstonUpEl*

Up arrow-inverted seven

**uniE2B5_uniE2B2**

*accidentalJohnstonDownEl*

Down arrow-inverted seven

**uniE262_uniE2B4_uniE2B2**

*accidentalSharpJohnstonUpEl*

Sharp-up arrow-inverted seven

**uniE262_uniE2B5_uniE2B2**

*accidentalSharpJohnstonDownEl*

Sharp-down arrow-inverted seven

**uniE2B3_uniE262_uniE2B4**

*accidentalJohnstonSevenSharpUp*

Seven-sharp-up arrow

**uniE2B3_uniE262_uniE2B5**

*accidentalJohnstonSevenSharpDown*

Seven-sharp-down arrow

**uniE260_uniE2B4_uniE2B2**

*accidentalFlatJohnstonUpEl*

Flat-up arrow-inverted seven

**uniE260_uniE2B2_uniE2B5**

*accidentalFlatJohnstonElDown*

Flat-inverted seven-down arrow

**uniE2B3_uniE260_uniE2B4**

*accidentalJohnstonSevenFlatUp*

Seven-flat-up arrow

**uniE2B3_uniE260_uniE2B5**

*accidentalJohnstonSevenFlatDown*

Seven-flat-down arrow

## Implementation notes

These glyphs are intended for combining with the standard 12-EDO accidentals.

# Extended Helmholtz-Ellis accidentals (just intonation) (U+E2C0–U+E2FF)

**U+E2C0**

*accidentalDoubleFlatOneArrowDown*

Double flat lowered by one syntonic comma

**U+E2C1**

*accidentalFlatOneArrowDown*

Flat lowered by one syntonic comma

**U+E2C2**

*accidentalNaturalOneArrowDown*

Natural lowered by one syntonic comma

**U+E2C3**

*accidentalSharpOneArrowDown*

Sharp lowered by one syntonic comma

**U+E2C4**

*accidentalDoubleSharpOneArrowDown*

Double sharp lowered by one syntonic comma

**U+E2C5**

*accidentalDoubleFlatOneArrowUp*

Double flat raised by one syntonic comma

**U+E2C6**

*accidentalFlatOneArrowUp*

Flat raised by one syntonic comma

**U+E2C7**

*accidentalNaturalOneArrowUp*

Natural raised by one syntonic comma

**U+E2C8**

*accidentalSharpOneArrowUp*

Sharp raised by one syntonic comma

**U+E2C9**

*accidentalDoubleSharpOneArrowUp*

Double sharp raised by one syntonic comma

**U+E2CA**

*accidentalDoubleFlatTwoArrowsDown*

Double flat lowered by two syntonic commas

**U+E2CB**

*accidentalFlatTwoArrowsDown*

Flat lowered by two syntonic commas

**U+E2CC**

*accidentalNaturalTwoArrowsDown*

Natural lowered by two syntonic commas

**U+E2CD**

*accidentalSharpTwoArrowsDown*

Sharp lowered by two syntonic commas

**U+E2CE**

*accidentalDoubleSharpTwoArrowsDown*

Double sharp lowered by two syntonic commas

**U+E2CF**

*accidentalDoubleFlatTwoArrowsUp*

Double flat raised by two syntonic commas

**U+E2D0**

*accidentalFlatTwoArrowsUp*

Flat raised by two syntonic commas

**U+E2D1**

*accidentalNaturalTwoArrowsUp*

Natural raised by two syntonic commas

**U+E2D2**

*accidentalSharpTwoArrowsUp*

Sharp raised by two syntonic commas

**U+E2D3**

*accidentalDoubleSharpTwoArrowsUp*

Double sharp raised by two syntonic commas

**U+E2D4**

*accidentalDoubleFlatThreeArrowsDown*

Double flat lowered by three syntonic commas

**U+E2D5**

*accidentalFlatThreeArrowsDown*

Flat lowered by three syntonic commas

**U+E2D6**

*accidentalNaturalThreeArrowsDown*

Natural lowered by three syntonic commas

**U+E2D7**

*accidentalSharpThreeArrowsDown*

Sharp lowered by three syntonic commas

**U+E2D8**

*accidentalDoubleSharpThreeArrowsDown*

Double sharp lowered by three syntonic commas

**U+E2D9**

*accidentalDoubleFlatThreeArrowsUp*

Double flat raised by three syntonic commas

**U+E2DA**

*accidentalFlatThreeArrowsUp*

Flat raised by three syntonic commas

**U+E2DB**

*accidentalNaturalThreeArrowsUp*

Natural raised by three syntonic commas

**U+E2DC**

*accidentalSharpThreeArrowsUp*

Sharp raised by three syntonic commas

**U+E2DD**

*accidentalDoubleSharpThreeArrowsUp*

Double sharp raised by three syntonic commas

**U+E2DE**

*accidentalLowerOneSeptimalComma*

Lower by one septimal comma

**U+E2DF**

*accidentalRaiseOneSeptimalComma*

Raise by one septimal comma

**U+E2E0**

*accidentalLowerTwoSeptimalCommas*

Lower by two septimal commas

**U+E2E1**

*accidentalRaiseTwoSeptimalCommas*

Raise by two septimal commas

**U+E2E2**

*accidentalLowerOneUndecimalQuartertone*

Lower by one undecimal quartertone

**U+E2E3**

*accidentalRaiseOneUndecimalQuartertone*

Raise by one undecimal quartertone

**U+E2E4**

*accidentalLowerOneTridecimalQuartertone*



Lower by one tridecimal quartertone

**U+E2E5**

*accidentalRaiseOneTridecimalQuartertone*



Raise by one tridecimal quartertone

**U+E2E6**

*accidentalCombiningLower17Schisma*

Combining lower by one 17-limit schisma

**U+E2E7**

*accidentalCombiningRaise17Schisma*

Combining raise by one 17-limit schisma

**U+E2E8**

*accidentalCombiningLower19Schisma*



Combining lower by one 19-limit schisma

**U+E2E9**

*accidentalCombiningRaise19Schisma*



Combining raise by one 19-limit schisma

**U+E2EA**

*accidentalCombiningLower23Limit29LimitComma*

Combining lower by one 23-limit comma or 29-limit comma

**U+E2EB**

*accidentalCombiningRaise23Limit29LimitComma*

Combining raise by one 23-limit comma or 29-limit comma

**U+E2EC**

*accidentalCombiningLower31Schisma*



Combining lower by one 31-limit schisma

**U+E2ED**

*accidentalCombiningRaise31Schisma*

Combining raise by one 31-limit schisma

**U+E2EE**

*accidentalCombiningOpenCurlyBrace*



Combining open curly brace

**U+E2EF**

*accidentalCombiningCloseCurlyBrace*



Combining close curly brace

**U+E2F0**

*accidentalDoubleFlatEqualTempered*

Double flat equal tempered semitone

**U+E2F1**

*accidentalFlatEqualTempered*

Flat equal tempered semitone

**U+E2F2**

*accidentalNaturalEqualTempered*

Natural equal tempered semitone

**U+E2F3**

*accidentalSharpEqualTempered*

Sharp equal tempered semitone

**U+E2F4**

*accidentalDoubleSharpEqualTempered*

Double sharp equal tempered semitone

# Spartan Sagittal single-shaft accidentals (U+E300–U+E30F)



**U+E300**

*accSagittal5v7KleismaUp*

5:7 kleisma up, (5:7k, ~11:13k, 7C less 5C)



**U+E301**

*accSagittal5v7KleismaDown*

5:7 kleisma down



**U+E302**

*accSagittal5CommaUp*

5 comma up, (5C), 1° up [22 27 29 34 41 46 53 96 EDOs], 1/12-tone up



**U+E303**

*accSagittal5CommaDown*

5 comma down, 1° down [22 27 29 34 41 46 53 96 EDOs], 1/12-tone down



**U+E304**

*accSagittal7CommaUp*

7 comma up, (7C), 1° up [43 EDO], 2° up [72 EDO], 1/6-tone up



**U+E305**

*accSagittal7CommaDown*

7 comma down, 1° down [43 EDO], 2° down [72 EDO], 1/6-tone down

**U+E306**

*accSagittal25SmallDiesisUp*

25 small diesis up, (25S, ~5:13S, ~37S, 5C plus 5C), 2° up [53 EDO]

**U+E307**

*accSagittal25SmallDiesisDown*

25 small diesis down, 2° down [53 EDO]

**U+E308**

*accSagittal35MediumDiesisUp*

35 medium diesis up, (35M, ~13M, ~125M, 5C plus 7C), 2/9-tone up

**U+E309**

*accSagittal35MediumDiesisDown*

35 medium diesis down, 1°[50] 2°[27] down, 2/9-tone down

**U+E30A**

*accSagittal11MediumDiesisUp*

11 medium diesis up, (11M), 1°[17 31] 2°46 up, 1/4-tone up

**U+E30B**

*accSagittal11MediumDiesisDown*

11 medium diesis down, 1°[17 31] 2°46 down, 1/4-tone down

**U+E30C**

*accSagittal11LargeDiesisUp*

11 large diesis up, (11L), (sharp less 11M), 3° up [46 EDO]

**U+E30D**

*accSagittal11LargeDiesisDown*

11 large diesis down, 3° down [46 EDO]

**U+E30E**

*accSagittal35LargeDiesisUp*

35 large diesis up, (35L, ~13L, ~125L, sharp less 35M), 2°50 up

**U+E30F**

*accSagittal35LargeDiesisDown*

35 large diesis down, 2° down [50 EDO], 5/18-tone down

## Implementation notes

It is not necessary to implement the complete Sagittal microtonal notation system. The Spartan set is sufficient to notate 13-limit just intonation (JI), 1/12-tones, 50 common equal divisions of the octave (EDOs), and their related linear temperaments.

The eight pairs of single-shaft accidentals above are sufficient to provide these capabilities when used alone, and to the left of the standard **accidentalDoubleFlat**, **accidentalFlat**, **accidentalSharp**, and the almost-standard **accidentalLargeDoubleSharp**. This is called "mixed Sagittal."

As an alternative, the following group (the multi-shaft Spartans) provides a complete set of stand-alone accidentals to replace each of the above combinations of a single-shaft Sagittal with a standard accidental. This is called "pure Sagittal." The standard **accidentalNatural** is used alone in both mixed and pure variants, but only to cancel a previous accidental.

Sagittal accidentals are not intended to be combined with one another, inasmuch as symbols representing useful combinations and powers of primes are already provided. An accidental can often be used to represent alternative commas that differ by 2 cents or less. In such cases the intended comma ratio may be determined by the note to which it is applied, or by the musical context. Alternatively, diacritics (from the Herculean and subsequent extensions) may be added to distinguish these commas. Commas which require diacritics for exact representation are preceded by a tilde "~" in the glyph descriptions.

Sagittal extensions following Spartan allow notation of JI ratios with primes beyond 13, and more combinations of lower primes, as well as finer tone-fractions, degrees of larger EDOs, and more complex temperaments, all with single Sagittal accidentals. The same choice of mixed versus pure is available with each extension. See http://sagittal.org for more information.

Other Sagittal-compatible accidentals are **accidentalQuarterToneSharpStein** and **accidentalThreeQuarterTonesSharpStein** which may be substituted for **accSagittal11MediumDiesisUp** and **accSagittalSharp11MUp**; the **accidentalNarrowReversedFlat** and **accidentalNarrowReversedFlatAndFlat** which may be substituted for **accSagittal11MediumDiesisDown** and **accSagittalFlat11MDown**; and the **accidentalWilsonPlus** and **accidentalWilsonMinus** which may be substituted for the **accSagittal5CommaUp** and **accSagittal5CommaDown**.

# Spartan Sagittal multi-shaft accidentals (U+E310–U+E33F)

**U+E310**

*accSagittalSharp25SDown*

Sharp 25S-down, 3° up [53 EDO]

**U+E311**

*accSagittalFlat25SUp*

Flat 25S-up, 3° down [53 EDO]

**U+E312**

*accSagittalSharp7CDown*

Sharp 7C-down, 2° up [43 EDO], 4° up [72 EDO], 1/3-tone up

**U+E313**

*accSagittalFlat7CUp*

Flat 7C-up, 2° down [43 EDO], 4° down [72 EDO], 1/3-tone down

**U+E314**

*accSagittalSharp5CDown*

Sharp 5C-down, 2°[22 29] 3°[34 41] 4°[46 53 60] up, 5/12-tone up

**U+E315**

*accSagittalFlat5CUp*

Flat 5C-up, 2°[22,29] 3°[34 41] 4°[46 53 60] down, 5/12-tone down

**U+E316**

*accSagittalSharp5v7kDown*

Sharp 5:7k-down

**U+E317**

*accSagittalFlat5v7kUp*

Flat 5:7k-up

**U+E318**

*accSagittalSharp*

Sharp, (apotome up)[almost all EDOs], 1/2-tone up

**U+E319**

*accSagittalFlat*

Flat, (apotome down)[almost all EDOs], 1/2-tone down

**U+E31A**

*accSagittalUnused1*

Unused

**U+E31B**

*accSagittalUnused2*

Unused

**U+E31C**

*accSagittalSharp5v7kUp*

Sharp 5:7k-up

**U+E31D**

*accSagittalFlat5v7kDown*

Flat 5:7k-down

**U+E31E**

*accSagittalSharp5CUp*

Sharp 5C-up, 4°[22 29] 5°[27 34 41] 6°[39 46 53] up, 7/12-tone up

**U+E31F**

*accSagittalFlat5CDown*

Flat 5C-down, 4°[22 29] 5°[27 34 41] 6°[39 46 53] down, 7/12-tone down

**U+E320**

*accSagittalSharp7CUp*

Sharp 7C-up, 4° up [43 EDO], 8° up [72 EDO], 2/3-tone up

**U+E321**

*accSagittalFlat7CDown*

Flat 7C-down, 4° down [43 EDO], 8° down [72 EDO], 2/3-tone down

**U+E322**

*accSagittalSharp25SUp*

Sharp 25S-up, 7° up [53 EDO]

**U+E323**

*accSagittalFlat25SDown*

Flat 25S-down, 7° down [53 EDO]

**U+E324**

*accSagittalSharp35MUp*

Sharp 35M-up, 4° up [50 EDO], 6° up [27 EDO], 13/18-tone up

**U+E325**

*accSagittalFlat35MDown*

Flat 35M-down, 4° down [50 EDO], 6° down [27 EDO], 13/18-tone down

**U+E326**

*accSagittalSharp11MUp*

Sharp 11M-up, 3° up [17 31 EDOs], 7° up [46 EDO], 3/4-tone up

**U+E327**

*accSagittalFlat11MDown*

Flat 11M-down, 3° down [17 31 EDOs], 7° down [46 EDO], 3/4-tone down

**U+E328**

*accSagittalSharp11LUp*

Sharp 11L-up, 8° up [46 EDO]

**U+E329**

*accSagittalFlat11LDown*

Flat 11L-down, 8° up [46 EDO]

**U+E32A**

*accSagittalSharp35LUp*

Sharp 35L-up, 5° up [50 EDO]

**U+E32B**

*accSagittalFlat35LDown*

Flat 35L-down, 5° down [50 EDO]

**U+E32C**

*accSagittalDoubleSharp25SDown*

Double sharp 25S-down, 8°up [53 EDO]

**U+E32D**

*accSagittalDoubleFlat25SUp*

Double flat 25S-up, 8°down [53 EDO]

**U+E32E**

*accSagittalDoubleSharp7CDown*

Double sharp 7C-down, 5°[43] 10°[72] up, 5/6-tone up

**U+E32F**

*accSagittalDoubleFlat7CUp*

Double flat 7C-up, 5° down [43 EDO], 10° down [72 EDO], 5/6-tone down

**U+E330**

*accSagittalDoubleSharp5CDown*

Double sharp 5C-down, 5°[22 29] 7°[34 41] 9°53 up, 11/12 tone up

**U+E331**

*accSagittalDoubleFlat5CUp*

Double flat 5C-up, 5°[22 29] 7°[34 41] 9°53 down, 11/12 tone down

**U+E332**

*accSagittalDoubleSharp5v7kDown*

Double sharp 5:7k-down

**U+E333**

*accSagittalDoubleFlat5v7kUp*

Double flat 5:7k-up

**U+E334**

*accSagittalDoubleSharp*

Double sharp, (2 apotomes up)[almost all EDOs], whole-tone up

**U+E335**

*accSagittalDoubleFlat*

Double flat, (2 apotomes down)[almost all EDOs], whole-tone down

# Athenian Sagittal extension (medium precision) accidentals (U+E340–U+E36F)

**U+E340**

*accSagittal7v11KleismaUp*

7:11 kleisma up, (7:11k, ~29k)

**U+E341**

*accSagittal7v11KleismaDown*

7:11 kleisma down

**U+E342**

*accSagittal17CommaUp*

17 comma up, (17C)

**U+E343**

*accSagittal17CommaDown*

17 comma down

**U+E344**

*accSagittal55CommaUp*

55 comma up, (55C, 11M less 5C), 3°up [96 EDO], 3/16-tone up

**U+E345**

*accSagittal55CommaDown*

55 comma down, 3° down [96 EDO], 3/16-tone down

**U+E346**

*accSagittal7v11CommaUp*

7:11 comma up, (7:11C, ~13:17S, ~29S, 11L less 7C), 1° up [60 EDO]

**U+E347**

*accSagittal7v11CommaDown*

7:11 comma down, 1° down [60 EDO], 1/10-tone down

**U+E348**

*accSagittal5v11SmallDiesisUp*

5:11 small diesis up, (5:11S, ~7:13S, ~11:17S, 5:7k plus 7:11C)

**U+E349**

*accSagittal5v11SmallDiesisDown*

5:11 small diesis down

**U+E34A**

*accSagittalSharp5v11SDown*

Sharp 5:11S-down

**U+E34B**

*accSagittalFlat5v11SUp*

Flat 5:11S-up

**U+E34C**

*accSagittalSharp7v11CDown*

Sharp 7:11C-down, 4° up [60 EDO], 2/5-tone up

**U+E34D**

*accSagittalFlat7v11CUp*

Flat 7:11C-up, 4° down [60 EDO], 2/5-tone down

**U+E34E**

*accSagittalSharp55CDown*

Sharp 55C-down, 5° up [96 EDO], 5/16-tone up

**U+E34F**

*accSagittalFlat55CUp*

Flat 55C-up, 5° down [96 EDO], 5/16-tone down

**U+E350**

*accSagittalSharp17CDown*

Sharp 17C-down

**U+E351**

*accSagittalFlat17CUp*

Flat 17C-up

**U+E352**

*accSagittalSharp7v11kDown*

Sharp 7:11k-down

**U+E353**

*accSagittalFlat7v11kUp*

Flat 7:11k-up

**U+E354**

*accSagittalSharp7v11kUp*

Sharp 7:11k-up

**U+E355**

*accSagittalFlat7v11kDown*

Flat 7:11k-down

**U+E356**

*accSagittalSharp17CUp*

Sharp 17C-up

**U+E357**

*accSagittalFlat17CDown*

Flat 17C-down

**U+E358**

*accSagittalSharp55CUp*

Sharp 55C-up, 11° up [96 EDO], 11/16-tone up

**U+E359**

*accSagittalFlat55CDown*

Flat 55C-down, 11° down [96 EDO], 11/16-tone down

**U+E35A**

*accSagittalSharp7v11CUp*

Sharp 7:11C-up, 6° up [60 EDO], 3/5-tone up

**U+E35B**

*accSagittalFlat7v11CDown*

Flat 7:11C-down, 6° down [60 EDO], 3/5- tone down

**U+E35C**

*accSagittalSharp5v11SUp*

Sharp 5:11S-up

**U+E35D**

*accSagittalFlat5v11SDown*

Flat 5:11S-down

**U+E35E**

*accSagittalDoubleSharp5v11SDown*

Double sharp 5:11S-down

**U+E35F**

*accSagittalDoubleFlat5v11SUp*

Double flat 5:11S-up

**U+E360**

*accSagittalDoubleSharp7v11CDown*

Double sharp 7:11C-down, 9° up [60 EDO], 9/10-tone up

**U+E361**

*accSagittalDoubleFlat7v11CUp*

Double flat 7:11C-up, 9° down [60 EDO], 9/10-tone down

**U+E362**

*accSagittalDoubleSharp55CDown*

Double sharp 55C-down, 13° up [96 EDO], 13/16-tone up

**U+E363**

*accSagittalDoubleFlat55CUp*

Double flat 55C-up, 13° down [96 EDO], 13/16-tone down

**U+E364**

*accSagittalDoubleSharp17CDown*

Double sharp 17C-down

**U+E365**

*accSagittalDoubleFlat17CUp*

Double flat 17C-up

**U+E366**

*accSagittalDoubleSharp7v11kDown*

Double sharp 7:11k-down

**U+E367**

*accSagittalDoubleFlat7v11kUp*

Double flat 7:11k-up

# Trojan Sagittal extension (12-EDO relative) accidentals (U+E370–U+E38F)

**U+E370**

*accSagittal23CommaUp*

23 comma up, (23C), 2° up [96 EDO], 1/8-tone up

**U+E371**

*accSagittal23CommaDown*

23 comma down, 2° down [96 EDO], 1/8-tone down



**U+E372**

*accSagittal5v19CommaUp*

5:19 comma up, (5:19C, 5C plus 19s), 1/20-tone up



**U+E373**

*accSagittal5v19CommaDown*

5:19 comma down, 1/20-tone down

**U+E374**

*accSagittal5v23SmallDiesisUp*

5:23 small diesis up, (5:23S, 5C plus 23C), 2° up [60 EDO], 1/5-tone up

**U+E375**

*accSagittal5v23SmallDiesisDown*

5:23 small diesis down, 2° down [60 EDO], 1/5-tone down

**U+E376**

*accSagittalSharp5v23SDown*

Sharp 5:23S-down, 3° up [60 EDO], 3/10-tone up

**U+E377**

*accSagittalFlat5v23SUp*

Flat 5:23S-up, 3° down [60 EDO], 3/10-tone down

**U+E378**

*accSagittalSharp5v19CDown*

Sharp 5:19C-down, 9/20-tone up

**U+E379**

*accSagittalFlat5v19CUp*

Flat 5:19C-up, 9/20-tone down

**U+E37A**

*accSagittalSharp23CDown*

Sharp 23C-down, 6° up [96 EDO], 3/8-tone up

**U+E37B**

*accSagittalFlat23CUp*

Flat 23C-up, 6° down [96 EDO], 3/8-tone down

**U+E37C**

*accSagittalSharp23CUp*

Sharp 23C-up, 10° up [96 EDO], 5/8-tone up

**U+E37D**

*accSagittalFlat23CDown*

Flat 23C-down, 10° down [96 EDO], 5/8-tone down

**U+E37E**

*accSagittalSharp5v19CUp*

Sharp 5:19C-up, 11/20-tone up

**U+E37F**

*accSagittalFlat5v19CDown*

Flat 5:19C-down, 11/20-tone down

**U+E380**

*accSagittalSharp5v23SUp*

Sharp 5:23S-up, 7° up [60 EDO], 7/10-tone up

**U+E381**

*accSagittalFlat5v23SDown*

Flat 5:23S-down, 7° down [60 EDO], 7/10-tone down

**U+E382**

*accSagittalDoubleSharp5v23SDown*

Double sharp 5:23S-down, 8° up [60 EDO], 4/5-tone up

**U+E383**

*accSagittalDoubleFlat5v23SUp*

Double flat 5:23S-up, 8° down [60 EDO], 4/5-tone down

**U+E384**

*accSagittalDoubleSharp5v19CDown*

Double sharp 5:19C-down, 19/20-tone up

**U+E385**

*accSagittalDoubleFlat5v19CUp*

Double flat 5:19C-up, 19/20-tone down

**U+E386**

*accSagittalDoubleSharp23CDown*

Double sharp 23C-down, 14°up [96 EDO], 7/8-tone up

**U+E387**

*accSagittalDoubleFlat23CUp*

Double flat 23C-up, 14° down [96 EDO], 7/8-tone down

## Implementation notes

The Trojan (or tone-fraction) set is not strictly-speaking an extension of Athenian, as there are a few Athenians (including Spartans) that are not Trojan. Those are the glyphs whose descriptions include “5:7k”, “7:11k”, “5:11S”, “25S” or “11L” and do not include a tone-fraction.

The descriptions below the Sagittal glyphs do not include all possible uses, only a selection of the most common. To determine which of these glyphs to use for tone-fractions not listed here (as well as for JI ratios and degrees of EDOs that are not listed here) please see http://sagittal.org.

# Promethean Sagittal extension (high precision) single-shaft accidentals (U+E390–U+E3AF)



**U+E390**

*accSagittal19SchismaUp*

19 schisma up, (19s)



**U+E391**

*accSagittal19SchismaDown*

19 schisma down



**U+E392**

*accSagittal17KleismaUp*

17 kleisma up, (17k)



**U+E393**

*accSagittal17KleismaDown*

17 kleisma down



**U+E394**

*accSagittal143CommaUp*

143 comma up, (143C, 13L less 11M)



**U+E395**

*accSagittal143CommaDown*

143 comma down



**U+E396**

*accSagittal11v49CommaUp*

11:49 comma up, (11:49C, 11M less 49C)



**U+E397**

*accSagittal11v49CommaDown*

11:49 comma down



**U+E398**

*accSagittal19CommaUp*

19 comma up, (19C)



**U+E399**

*accSagittal19CommaDown*

19 comma down



**U+E39A**

*accSagittal7v19CommaUp*

7:19 comma up, (7:19C, 7C less 19s)



**U+E39B**

*accSagittal7v19CommaDown*

7:19 comma down



**U+E39C**

*accSagittal49SmallDiesisUp*

49 small diesis up, (49S, ~31S)



**U+E39D**

*accSagittal49SmallDiesisDown*

49 small diesis down



**U+E39E**

*accSagittal23SmallDiesisUp*

23 small diesis up, (23S)



**U+E39F**

*accSagittal23SmallDiesisDown*

23 small diesis down

**U+E3A0**

*accSagittal5v13MediumDiesisUp*

5:13 medium diesis up, (5:13M, ~37M, 5C plus 13C)

**U+E3A1**

*accSagittal5v13MediumDiesisDown*

5:13 medium diesis down

**U+E3A2**

*accSagittal11v19MediumDiesisUp*

11:19 medium diesis up, (11:19M, 11M plus 19s)

**U+E3A3**

*accSagittal11v19MediumDiesisDown*

11:19 medium diesis down

**U+E3A4**

*accSagittal49MediumDiesisUp*

49 medium diesis up, (49M, ~31M, 7C plus 7C)

**U+E3A5**

*accSagittal49MediumDiesisDown*

49 medium diesis down

**U+E3A6**

*accSagittal5v49MediumDiesisUp*

5:49 medium diesis up, (5:49M, half apotome)

**U+E3A7**

*accSagittal5v49MediumDiesisDown*

5:49 medium diesis down

**U+E3A8**

*accSagittal49LargeDiesisUp*

49 large diesis up, (49L, ~31L, apotome less 49M)

**U+E3A9**

*accSagittal49LargeDiesisDown*

49 large diesis down

**U+E3AA**

*accSagittal11v19LargeDiesisUp*

11:19 large diesis up, (11:19L, apotome less 11:19M)

**U+E3AB**

*accSagittal11v19LargeDiesisDown*

11:19 large diesis down

**U+E3AC**

*accSagittal5v13LargeDiesisUp*

5:13 large diesis up, (5:13L, ~37L, apotome less 5:13M)

**U+E3AD**

*accSagittal5v13LargeDiesisDown*

5:13 large diesis down

# Promethean Sagittal extension (high precision) multi-shaft accidentals (U+E3B0–U+E3EF)

**U+E3B0**

*accSagittalSharp23SDown*

Sharp 23S-down

**U+E3B1**

*accSagittalFlat23SUp*

Flat 23S-up

**U+E3B2**

*accSagittalSharp49SDown*

Sharp 49S-down

**U+E3B3**

*accSagittalFlat49SUp*

Flat 49S-up

**U+E3B4**

*accSagittalSharp7v19CDown*

Sharp 7:19C-down

**U+E3B5**

*accSagittalFlat7v19CUp*

Flat 7:19C-up

**U+E3B6**

*accSagittalSharp19CDown*

Sharp 19C-down

**U+E3B7**

*accSagittalFlat19CUp*

Flat 19C-up

**U+E3B8**

*accSagittalSharp11v49CDown*

Sharp 11:49C-down

**U+E3B9**

*accSagittalFlat11v49CUp*

Flat 11:49C-up

**U+E3BA**

*accSagittalSharp143CDown*

Sharp 143C-down

**U+E3BB**

*accSagittalFlat143CUp*

Flat 143C-up

**U+E3BC**

*accSagittalSharp17kDown*

Sharp 17k-down

**U+E3BD**

*accSagittalFlat17kUp*

Flat 17k-up

**U+E3BE**

*accSagittalSharp19sDown*

Sharp 19s-down

**U+E3BF**

*accSagittalFlat19sUp*

Flat 19s-up

**U+E3C0**

*accSagittalSharp19sUp*

Sharp 19s-up

**U+E3C1**

*accSagittalFlat19sDown*

Flat 19s-down

**U+E3C2**

*accSagittalSharp17kUp*

Sharp 17k-up

**U+E3C3**

*accSagittalFlat17kDown*

Flat 17k-down

**U+E3C4**

*accSagittalSharp143CUp*

Sharp 143C-up



**U+E3C5**

*accSagittalFlat143CDown*

Flat 143C-down



**U+E3C6**

*accSagittalSharp11v49CUp*

Sharp 11:49C-up



**U+E3C7**

*accSagittalFlat11v49CDown*

Flat 11:49C-down



**U+E3C8**

*accSagittalSharp19CUp*

Sharp 19C-up



**U+E3C9**

*accSagittalFlat19CDown*

Flat 19C-down



**U+E3CA**

*accSagittalSharp7v19CUp*

Sharp 7:19C-up



**U+E3CB**

*accSagittalFlat7v19CDown*

Flat 7:19C-down



**U+E3CC**

*accSagittalSharp49SUp*

Sharp 49S-up



**U+E3CD**

*accSagittalFlat49SDown*

Flat 49S-down



**U+E3CE**

*accSagittalSharp23SUp*

Sharp 23S-up



**U+E3CF**

*accSagittalFlat23SDown*

Flat 23S-down



**U+E3D0**

*accSagittalSharp5v13MUp*

Sharp 5:13M-up



**U+E3D1**

*accSagittalFlat5v13MDown*

Flat 5:13M-down

**U+E3D2**

*accSagittalSharp11v19MUp*

Sharp 11:19M-up

**U+E3D3**

*accSagittalFlat11v19MDown*

Flat 11:19M-down

**U+E3D4**

*accSagittalSharp49MUp*

Sharp 49M-up

**U+E3D5**

*accSagittalFlat49MDown*

Flat 49M-down

**U+E3D6**

*accSagittalSharp5v49MUp*

Sharp 5:49M-up, (one and a half apotomes)

**U+E3D7**

*accSagittalFlat5v49MDown*

Flat 5:49M-down

**U+E3D8**

*accSagittalSharp49LUp*

Sharp 49L-up

**U+E3D9**

*accSagittalFlat49LDown*

Flat 49L-down

**U+E3DA**

*accSagittalSharp11v19LUp*

Sharp 11:19L-up

**U+E3DB**

*accSagittalFlat11v19LDown*

Flat 11:19L-down

**U+E3DC**

*accSagittalSharp5v13LUp*

Sharp 5:13L-up

**U+E3DD**

*accSagittalFlat5v13LDown*

Flat 5:13L-down

**U+E3DE**

*accSagittalUnused3*

Unused

**U+E3DF**

*accSagittalUnused4*

Unused

**U+E3E0**

*accSagittalDoubleSharp23SDown*

Double sharp 23S-down

**U+E3E1**

*accSagittalDoubleFlat23SUp*

Double flat 23S-up

**U+E3E2**

*accSagittalDoubleSharp49SDown*

Double sharp 49S-down

**U+E3E3**

*accSagittalDoubleFlat49SUp*

Double flat 49S-up

**U+E3E4**

*accSagittalDoubleSharp7v19CDown*

Double sharp 7:19C-down

**U+E3E5**

*accSagittalDoubleFlat7v19CUp*

Double flat 7:19C-up

**U+E3E6**

*accSagittalDoubleSharp19CDown*

Double sharp 19C-down

**U+E3E7**

*accSagittalDoubleFlat19CUp*

Double flat 19C-up

**U+E3E8**

*accSagittalDoubleSharp11v49CDown*

Double sharp 11:49C-down

**U+E3E9**

*accSagittalDoubleFlat11v49CUp*

Double flat 11:49C-up

**U+E3EA**

*accSagittalDoubleSharp143CDown*

Double sharp 143C-down

**U+E3EB**

*accSagittalDoubleFlat143CUp*

Double flat 143C-up

**U+E3EC**

*accSagittalDoubleSharp17kDown*

Double sharp 17k-down

**U+E3ED**

*accSagittalDoubleFlat17kUp*

Double flat 17k-up

**U+E3EE**

*accSagittalDoubleSharp19sDown*

Double sharp 19s-down

**U+E3EF**

*accSagittalDoubleFlat19sUp*

Double flat 19s-up

# Herculean Sagittal extension (very high precision) accidental diacritics (U+E3F0–U+E3FF)



**U+E3F0**

*accSagittalShaftUp*

Shaft up, (natural for use with only diacritics up)



**U+E3F1**

*accSagittalShaftDown*

Shaft down, (natural for use with only diacritics down)



**U+E3F2**

*accSagittalAcute*

Acute, 5 schisma up (5s), 2 cents up



**U+E3F3**

*accSagittalGrave*

Grave, 5 schisma down, 2 cents down

## Implementation notes

Sagittal diacritics are placed to the left of Sagittal accidentals if required; at most one diacritic from each group. If there are multiple diacritics, those representing the larger alteration are placed closer to the accidental. If diacritics are directly altering the natural note, they should be placed to the left of, but not touching, one of the bare-shaft glyphs (accSagittalShaftUp or accSagittalShaftDown); whichever one represents the direction of the sum of the diacritic alterations.

# Olympian Sagittal extension (extreme precision) accidental diacritics (U+E400–U+E40F)

*Reserved for future use.*

## Implementation notes

This range is reserved for the future definition of four glyphs, representing alterations of one and two 455 or 65:77 schismina. These schismina are approximately 0.4 cents.

# Magrathean Sagittal extension (insane precision) accidental diacritics (U+E410–U+E41F)

*Reserved for future use.*

## Implementation notes

This range is reserved for the future definition of 38 glyphs, representing alterations of a half to nine-and-a-half tinas. A tina is approximately 0.14 cents.

# Wyschnegradsky accidentals (72-EDO) (U+E420–U+E43F)

**U+E420**

*accidentalWyschnegradsky1TwelfthsSharp*

1/12 tone sharp

**U+E421**

*accidentalWyschnegradsky2TwelfthsSharp*



1/6 tone sharp

**U+E422**

*accidentalWyschnegradsky3TwelfthsSharp*

1/4 tone sharp

**U+E423**

*accidentalWyschnegradsky4TwelfthsSharp*

1/3 tone sharp

**U+E424**

*accidentalWyschnegradsky5TwelfthsSharp*

5/12 tone sharp

**U+E425**

*accidentalWyschnegradsky6TwelfthsSharp*

1/2 tone sharp

**U+E426**

*accidentalWyschnegradsky7TwelfthsSharp*

7/12 tone sharp

**U+E427**

*accidentalWyschnegradsky8TwelfthsSharp*

2/3 tone sharp

**U+E428**

*accidentalWyschnegradsky9TwelfthsSharp*

3/4 tone sharp

**U+E429**

*accidentalWyschnegradsky10TwelfthsSharp*

5/6 tone sharp

**U+E42A**

*accidentalWyschnegradsky11TwelfthsSharp*

11/12 tone sharp

**U+E42B**

*accidentalWyschnegradsky1TwelfthsFlat*

1/12 tone flat

**U+E42C**

*accidentalWyschnegradsky2TwelfthsFlat*

1/6 tone flat

**U+E42D**

*accidentalWyschnegradsky3TwelfthsFlat*

1/4 tone flat

**U+E42E**

*accidentalWyschnegradsky4TwelfthsFlat*

1/3 tone flat

**U+E42F**

*accidentalWyschnegradsky5TwelfthsFlat*

5/12 tone flat

**U+E430**

*accidentalWyschnegradsky6TwelfthsFlat*

1/2 tone flat

**U+E431**

*accidentalWyschnegradsky7TwelfthsFlat*

7/12 tone flat

**U+E432**

*accidentalWyschnegradsky8TwelfthsFlat*

2/3 tone flat

**U+E433**

*accidentalWyschnegradsky9TwelfthsFlat*

3/4 tone flat

**U+E434**

*accidentalWyschnegradsky10TwelfthsFlat*

5/6 tone flat

**U+E435**

*accidentalWyschnegradsky11TwelfthsFlat*

11/12 tone flat

# Arel-Ezgi-Uzdilek (AEU) accidentals (U+E440–U+E44F)

**U+E440**

*accidentalBuyukMucennebFlat*

Büyük mücenneb (flat)

**U+E441**

*accidentalKucukMucennebFlat*

Küçük mücenneb (flat)

**U+E442**

*accidentalBakiyeFlat*

Bakiye (flat)

**U+E443**

*accidentalKomaFlat*

Koma (flat)

**U+E444**

*accidentalKomaSharp*

Koma (sharp)

**U+E445**

*accidentalBakiyeSharp*

Bakiye (sharp)



**U+E446**

*accidentalKucukMucennebSharp*

Küçük mücenneb (sharp)



**U+E447**

*accidentalBuyukMucennebSharp*

Büyük mücenneb (sharp)

# Turkish folk music accidentals (U+E450–U+E45F)

**U+E450**

*accidental1CommaSharp*

1-comma sharp

**U+E451**

*accidental2CommaSharp*

2-comma sharp

**U+E452**

*accidental3CommaSharp*

3-comma sharp

**U+E453**

*accidental5CommaSharp*

5-comma sharp

**U+E454**

*accidental1CommaFlat*

1-comma flat

**U+E455**

*accidental2CommaFlat*

2-comma flat

**U+E456**

*accidental3CommaFlat*

3-comma flat

**U+E457**

*accidental4CommaFlat*

4-comma flat

# Persian accidentals (U+E460–U+E46F)

**U+E460**

*accidentalKoron*

Koron (quarter tone flat)

**U+E461**

*accidentalSori*

Sori (quarter tone sharp)

# Other accidentals (U+E470–U+E49F)

**U+E470**

*accidentalXenakisOneThirdToneSharp*

One-third-tone sharp (Xenakis)

**U+E471**

*accidentalXenakisTwoThirdTonesSharp*

Two-third-tones sharp (Xenakis)

**U+E472**

*accidentalQuarterToneSharpBusotti*

Quarter tone sharp (Bussotti)

**U+E473**

*accidentalSharpOneHorizontalStroke*

One or three quarter tones sharp

**U+E474**

*accidentalThreeQuarterTonesSharpBusotti*

Three quarter tones sharp (Bussotti)

**U+E475**

*accidentalQuarterToneSharpWiggle*

Quarter tone sharp with wiggly tail

**U+E476**

*accidentalTavenerSharp*

Byzantine-style Büyük mücenneb sharp (Tavener)

**U+E477**

*accidentalTavenerFlat*

Byzantine-style Bakiye flat (Tavener)

**U+E478**

*accidentalQuarterToneFlatPenderecki*

Quarter tone flat (Penderecki)



**U+E479**

*accidentalCommaSlashUp*

Syntonic/Didymus comma (80:81) up (Bosanquet)



**U+E47A**

*accidentalCommaSlashDown*

Syntonic/Didymus comma (80:81) down (Bosanquet)

**U+E47B**

*accidentalWilsonPlus*

Wilson plus (5 comma up)

**U+E47C**

*accidentalWilsonMinus*

Wilson minus (5 comma down)

**U+E47D**

*accidentalLargeDoubleSharp*

Large double sharp

**U+E47E** (and U+1D132)

*accidentalQuarterToneSharp4*

Quarter-tone sharp

**U+E47F** (and U+1D133)

*accidentalQuarterToneFlat4*

Quarter-tone flat

**U+E480**

*accidentalQuarterToneFlatFilledReversed*

Filled reversed flat (quarter-tone flat)

**U+E481**

*accidentalSharpReversed*

Reversed sharp

**U+E482**

*accidentalNaturalReversed*

Reversed natural

**U+E483**

*accidentalDoubleFlatReversed*

Reversed double flat

**U+E484**

*accidentalFlatTurned*

Turned flat

**U+E485**

*accidentalDoubleFlatTurned*

Turned double flat

**U+E486**

*accidentalThreeQuarterTonesFlatGrisey*

Three-quarter-tones flat (Grisey)

**U+E487**

*accidentalThreeQuarterTonesFlatTartini*

Three-quarter-tones flat (Tartini)

**U+E488**

*accidentalQuarterToneFlatVanBlankenburg*

Quarter-tone flat (van Blankenburg)

**U+E489**

*accidentalThreeQuarterTonesFlatCouper*

Three-quarter-tones flat (Couper)

**U+E48A**

*accidentalOneThirdToneSharpFerneyhough*

One-third-tone sharp (Ferneyhough)

**U+E48B**

*accidentalOneThirdToneFlatFerneyhough*

One-third-tone flat (Ferneyhough)

**U+E48C**

*accidentalTwoThirdTonesSharpFerneyhough*

Two-third-tones sharp (Ferneyhough)

**U+E48D**

*accidentalTwoThirdTonesFlatFerneyhough*

Two-third-tones flat (Ferneyhough)

# Articulation (U+E4A0–U+E4BF)



**U+E4A0** (and U+1D17B)

*articAccentAbove*

Accent above



**U+E4A1**

*articAccentBelow*

Accent below



**U+E4A2** (and U+1D17C)

*articStaccatoAbove*

Staccato above



**U+E4A3**

*articStaccatoBelow*

Staccato below



**U+E4A4** (and U+1D17D)

*articTenutoAbove*

Tenuto above



**U+E4A5**

*articTenutoBelow*

Tenuto below



**U+E4A6** (and U+1D17E)

*articStaccatissimoAbove*

Staccatissimo above



**U+E4A7**

*articStaccatissimoBelow*

Staccatissimo below



**U+E4A8**

*articStaccatissimoWedgeAbove*

Staccatissimo wedge above



**U+E4A9**

*articStaccatissimoWedgeBelow*

Staccatissimo wedge below



**U+E4AA**

*articStaccatissimoStrokeAbove*

Staccatissimo stroke above



**U+E4AB**

*articStaccatissimoStrokeBelow*

Staccatissimo stroke below



**U+E4AC** (and U+1D17F)

*articMarcatoAbove*

Marcato above



**U+E4AD**

*articMarcatoBelow*

Marcato below



**U+E4AE** (and U+1D180)

*articMarcatoStaccatoAbove*

Marcato-staccato above



**U+E4AF**

*articMarcatoStaccatoBelow*

Marcato-staccato below



**U+E4B0** (and U+1D181)

*articAccentStaccatoAbove*

Accent-staccato above



**U+E4B1**

*articAccentStaccatoBelow*

Accent-staccato below

**U+E4B2** (and U+1D182)
*articTenutoStaccatoAbove*

Louré (tenuto-staccato) above

**U+E4B3**
*articTenutoStaccatoBelow*

Louré (tenuto-staccato) below

**U+E4B4**
*articTenutoAccentAbove*

Tenuto-accent above

**U+E4B5**
*articTenutoAccentBelow*

Tenuto-accent below

**U+E4B6**
*articStressAbove*

Stress above

**U+E4B7**
*articStressBelow*

Stress below

**U+E4B8**
*articUnstressAbove*

Unstress above

**U+E4B9**
*articUnstressBelow*

Unstress below

**U+E4BA**
*articLaissezVibrerAbove*

Laissez vibrer (l.v.) above

**U+E4BB**
*articLaissezVibrerBelow*

Laissez vibrer (l.v.) below

**U+E4BC**
*articMarcatoTenutoAbove*

Marcato-tenuto above

**U+E4BD**
*articMarcatoTenutoBelow*

Marcato-tenuto below

## Recommended stylistic alternates

**uniE4A0.salt01**
*articAccentAboveLarge*

Large accent above

**uniE4A0.ss01**
*articAccentAboveSmall*

Accent above (small staff)

**uniE4A1.salt01**
*articAccentBelowLarge*

Large accent below

**uniE4A1.ss01**
*articAccentBelowSmall*

Accent below (small staff)

**uniE4A2.ss01**
*articStaccatoAboveSmall*

Staccato above (small staff)

**uniE4A3.ss01**
*articStaccatoBelowSmall*

Staccato below (small staff)

**uniE4A4.ss01**

*articTenutoAboveSmall*

Tenuto above (small staff)



**uniE4A5.ss01**

*articTenutoBelowSmall*

Tenuto below (small staff)



**uniE4A6.ss01**

*articStaccatissimoAboveSmall*

Staccatissimo above (small staff)



**uniE4A7.ss01**

*articStaccatissimoBelowSmall*

Staccatissimo below (small staff)



**uniE4A8.ss01**

*articStaccatissimoWedgeAboveSmall*

Staccatissimo wedge above (small staff)



**uniE4A9.ss01**

*articStaccatissimoWedgeBelowSmall*

Staccatissimo wedge below (small staff)



**uniE4AA.ss01**

*articStaccatissimoStrokeAboveSmall*

Staccatissimo stroke above (small staff)



**uniE4AB.ss01**

*articStaccatissimoStrokeBelowSmall*

Staccatissimo stroke below (small staff)



**uniE4AC.ss01**

*articMarcatoAboveSmall*

Marcato above (small staff)



**uniE4AD.ss01**

*articMarcatoBelowSmall*

Marcato below (small staff)

**uniE4AE.ss01**

*articMarcatoStaccatoAboveSmall*

Marcato-staccato above (small staff)

**uniE4AF.ss01**

*articMarcatoStaccatoBelowSmall*

Marcato-staccato below (small staff)

**uniE4B0.ss01**

*articAccentStaccatoAboveSmall*

Accent-staccato above (small staff)

**uniE4B1.ss01**

*articAccentStaccatoBelowSmall*

Accent-staccato below (small staff)

**uniE4B2.ss01**

*articTenutoStaccatoAboveSmall*

Louré (tenuto-staccato) above (small staff)

**uniE4B3.ss01**

*articTenutoStaccatoBelowSmall*

Louré (tenuto-staccato) below (small staff)

**uniE4B4.ss01**

*articTenutoAccentAboveSmall*

Tenuto-accent above (small staff)

**uniE4B5.ss01**

*articTenutoAccentBelowSmall*

Tenuto-accent below (small staff)

# Holds and pauses (U+E4C0–U+E4DF)

**U+E4C0** (and U+1D110)

*fermataAbove*

Fermata above

**U+E4C1** (and U+1D111)

*fermataBelow*

Fermata below

**U+E4C2**

*fermataVeryShortAbove*

Very short fermata above

**U+E4C3**

*fermataVeryShortBelow*

Very short fermata below

**U+E4C4**

*fermataShortAbove*

Short fermata above

**U+E4C5**

*fermataShortBelow*

Short fermata below

**U+E4C6**

*fermataLongAbove*

Long fermata above

**U+E4C7**

*fermataLongBelow*

Long fermata below

**U+E4C8**

*fermataVeryLongAbove*

Very long fermata above

**U+E4C9**

*fermataVeryLongBelow*

Very long fermata below

**U+E4CA**

*fermataLongHenzeAbove*

Long fermata (Henze) above

**U+E4CB**

*fermataLongHenzeBelow*

Long fermata (Henze) below

**U+E4CC**

*fermataShortHenzeAbove*

Short fermata (Henze) above

**U+E4CD**

*fermataShortHenzeBelow*

Short fermata (Henze) below



**U+E4CE** (and U+1D112)

*breathMarkComma*

Breath mark (comma)

**U+E4CF**

*breathMarkTick*

Breath mark (tick-like)



**U+E4D0**

*breathMarkUpbow*

Breath mark (upbow-like)

**U+E4D1** (and U+1D113)

*caesura*

Caesura

**U+E4D2**

*caesuraThick*

Thick caesura

**U+E4D3**

*caesuraShort*

Short caesura

**U+E4D4**

*caesuraCurved*

Curved caesura

**U+E4D5**

*breathMarkSalzedo*

Breath mark (Salzedo)



**U+E4D6**

*curlewSign*

Curlew (Britten)

## Recommended stylistic alternates



**uniE4D1.salt01**

*caesuraSingleStroke*

Caesura (single stroke)

# Rests (U+E4E0–U+E4FF)

**U+E4E0**

*restMaxima*

Maxima rest



**U+E4E1**

*restLonga*

Longa rest



**U+E4E2** (and U+1D13A)

*restDoubleWhole*

Double whole (breve) rest



**U+E4E3** (and U+1D13B)

*restWhole*

Whole (semibreve) rest



**U+E4E4** (and U+1D13C)

*restHalf*

Half (minim) rest

**U+E4E5** (and U+1D13D)

*restQuarter*

Quarter (crotchet) rest

**U+E4E6** (and U+1D13E)

*rest8th*

Eighth (quaver) rest

**U+E4E7** (and U+1D13F)

*rest16th*

16th (semiquaver) rest

**U+E4E8** (and U+1D140)

*rest32nd*

32nd (demisemiquaver) rest

**U+E4E9** (and U+1D141)

*rest64th*

64th (hemidemisemiquaver) rest

**U+E4EA** (and U+1D142)

*rest128th*

128th (semihemidemisemiquaver) rest

**U+E4EB**

*rest256th*

256th rest

**U+E4EC**

*rest512th*

512th rest

**U+E4ED**

*rest1024th*

1024th rest

**U+E4EE** (and U+1D129)

*restHBar*

Multiple measure rest

**U+E4EF**

*restHBarLeft*

H-bar, left half



**U+E4F0**

*restHBarMiddle*

H-bar, middle

**U+E4F1**

*restHBarRight*

H-bar, right half

**U+E4F2**

*restQuarterOld*

Old-style quarter (crotchet) rest

**U+E4F3**

*restDoubleWholeLegerLine*

Double whole rest on leger lines

**U+E4F4**

*restWholeLegerLine*



Whole rest on leger line

**U+E4F5**

*restHalfLegerLine*



Half rest on leger line

## Implementation notes

Scoring applications should draw multiple measure rests using primitives to provide variable width and line thickness rather than using **restHBar**.

"Old style" multiple measure rests can be created by laying out **restLonga** (four bars), **restDoubleWhole** (two bars) and **restWhole** (one bar) next to each other.

For dotted rests, the augmentation dot glyph **augmentationDot** should be used.

# Bar repeats (U+E500–U+E50F)

**U+E500** (and U+1D10E)

*repeat1Bar*

Repeat last bar

**U+E501** (and U+1D10F)

*repeat2Bars*

Repeat last two bars

**U+E502**

*repeat4Bars*

Repeat last four bars

# Octaves (U+E510–U+E51F)

**U+E510**
*ottava*
Ottava

**U+E511** (and U+1D136)
*ottavaAlta*
Ottava alta

**U+E512** (and U+1D137)
*ottavaBassa*
Ottava bassa

**U+E513**
*ottavaBassaBa*
Ottava bassa (ba)

**U+E514**
*quindicesima*
Quindicesima

**U+E515** (and U+1D138)
*quindicesimaAlta*
Quindicesima alta

**U+E516** (and U+1D139)
*quindicesimaBassa*
Quindicesima bassa

**U+E517**
*ventiduesima*
Ventiduesima

**U+E518**
*ventiduesimaAlta*
Ventiduesima alta

**U+E519**
*ventiduesimaBassa*
Ventiduesima bassa



**U+E51A**
*octaveParensLeft*
Left parenthesis for octave signs



**U+E51B**
*octaveParensRight*
Right parenthesis for octave signs

**U+E51C**
*ottavaBassaVb*
Ottava bassa (8vb)

**U+E51D**
*quindicesimaBassaMb*
Quindicesima bassa (mb)

**U+E51E**
*ventiduesimaBassaMb*
Ventiduesima bassa (mb)

**U+E51F**
*octaveBassa*
Bassa

## Implementation notes

These glyphs are for use in octave markings, sometimes called *ottava lines*.

*8* (**ottava**), *15* (**quindicesima**), and *22* (**ventiduesima**) may be used to indicate the raising or lowering of pitch by one, two, or three octaves respectively; the position of these glyphs relative to a dashed line with hook, and the placement relative to the staff (above to raise, below to lower), indicates whether or not the pitch is raised or lowered.

To more explicitly indicate raising the pitch by one, two, or three octaves, the glyphs with superscript suffixes — *8va* (**ottavaAlta**), *15ma* (**quindicesimaAlta**), *22ma* (**ventiduesimaAlta**) — may be used.

To explicitly indicate lowering the pitch by one, two, or three octaves, the glyphs with baseline suffixes — 8va (**ottavaBassaBase**), 15ma (**quindicesimaBassaBase**), 22ma (**ventiduesimaBassaBase**) — may be used, optionally with the additional indication *bassa* (**octaveBassa**).

In the case where an octave marking applies to only some of the notes on a given staff, the indication *loco* (**octaveLoco**), meaning "with the octave", is sometimes also used. (This glyph is found in the **Octaves supplement** range.)

When an octave line crosses a system or page break, the octave marking is repeated at the start of the new system, and may optionally be enclosed within parentheses, which are provided as **octaveParensLeft** and **octaveParensRight**.

The *8vb* (**ottavaBassaVb**), *15mb* (**quindicesimaBassaMb**) and *22mb* (**ventiduesimaBassaMb**) glyphs are included because they are sometimes used, but they are corruptions of the more correct forms *8va bassa*, *15ma bassa*, and *22ma bassa*. *8va* is short for "ottava", *15ma* is short for "quindicesima", and *22ma* is short for "ventiduesima"; as such, it is nonsensical to replace the suffix *va* with *vb*, or *ma* with *mb*. The recommended abbreviation for *8va bassa* is *8ba* (**ottavaBassaBa**), which is included.

# Dynamics (U+E520–U+E54F)

**U+E520** (and U+1D18F)
*dynamicPiano*

Piano

**U+E521** (and U+1D190)
*dynamicMezzo*

Mezzo

**U+E522** (and U+1D191)
*dynamicForte*

Forte

**U+E523** (and U+1D18C)
*dynamicRinforzando*

Rinforzando

**U+E524** (and U+1D18D)
*dynamicSforzando*

Sforzando

**U+E525** (and U+1D18E)
*dynamicZ*

Z

**U+E526**
*dynamicNiente*

Niente

**U+E527**
*dynamicPPPPPP*

pppppp

**U+E528**
*dynamicPPPPP*

ppppp

**U+E529**
*dynamicPPPP*

pppp

**U+E52A**
*dynamicPPP*

ppp

**U+E52B**
*dynamicPP*

pp

**U+E52C**
*dynamicMP*

mp

**U+E52D**
*dynamicMF*

mf

**U+E52E**
*dynamicPF*

pf

**U+E52F**
*dynamicFF*

ff

**U+E530**
*dynamicFFF*

fff

**U+E531**
*dynamicFFFF*

ffff

**U+E532**
*dynamicFFFFF*

fffff

**U+E533**
*dynamicFFFFFF*

ffffff

**U+E534**
*dynamicFortePiano*

Forte-piano

**U+E535**
*dynamicForzando*

Forzando

**U+E536**
*dynamicSforzando1*

Sforzando 1

**U+E537**
*dynamicSforzandoPiano*

Sforzando-piano

**U+E538**
*dynamicSforzandoPianissimo*

Sforzando-pianissimo

**U+E539**
*dynamicSforzato*

Sforzato

**U+E53A**
*dynamicSforzatoPiano*

Sforzato-piano

**U+E53B**
*dynamicSforzatoFF*

Sforzatissimo

**U+E53C**
*dynamicRinforzando1*

Rinforzando 1

**U+E53D**
*dynamicRinforzando2*

Rinforzando 2

**U+E53E** (and U+1D192)
*dynamicCrescendoHairpin*

Crescendo

**U+E53F** (and U+1D193)
*dynamicDiminuendoHairpin*

Diminuendo

**U+E540**
*dynamicMessaDiVoce*

Messa di voce

**U+E541**
*dynamicNienteForHairpin*

Niente (for hairpins)

## Recommended stylistic alternates

**uniE520.ss01**
*dynamicPianoSmall*

Piano (small staff)

**uniE521.ss01**
*dynamicMezzoSmall*

Mezzo (small staff)

**uniE522.ss01**
*dynamicForteSmall*
𝑓 Forte (small staff)

**uniE523.ss01**
*dynamicRinforzandoSmall*
𝑟 Rinforzando (small staff)

**uniE524.ss01**
*dynamicSforzandoSmall*
𝑠 Sforzando (small staff)

**uniE525.ss01**
*dynamicZSmall*
𝑧 Z (small staff)

**uniE526.ss01**
*dynamicNienteSmall*
𝑛 Niente (small staff)

## Implementation notes

Scoring applications should draw *crescendo* and *diminuendo* hairpins using primitives rather than dynamicCrescendoHairpin and dynamicDiminuendoHairpin in order to provide variable width, line thickness, angle and aperture.

Ligatures should be defined for common combinations of dynamics, such as 𝑚𝑝. Special attention should be paid to kerning pairs for these glyphs.

Scoring applications may choose to draw dynamics either using multiple glyphs (e.g. 3 x dynamicForte for 𝑓𝑓𝑓) or using the pre-composed glyph (e.g. 1 x dynamicFFF for 𝑓𝑓𝑓).

# Lyrics (U+E550–U+E55F)



**U+E550**

*lyricsElisionNarrow*

Narrow elision



**U+E551**

*lyricsElision*

Elision



**U+E552**

*lyricsElisionWide*

Wide elision



**U+E553**

*lyricsHyphenBaseline*

Baseline hyphen



**U+E554**

*lyricsHyphenBaselineNonBreaking*

Non-breaking baseline hyphen

# Common ornaments (U+E560–U+E56F)

**U+E560** (and U+1D194)
*graceNoteAcciaccaturaStemUp*
Slashed grace note stem up

**U+E561**
*graceNoteAcciaccaturaStemDown*
Slashed grace note stem down

**U+E562** (and U+1D195)
*graceNoteAppoggiaturaStemUp*
Grace note stem up

**U+E563**
*graceNoteAppoggiaturaStemDown*
Grace note stem down

**U+E564**
*graceNoteSlashStemUp*
Slash for stem up grace note

**U+E565**
*graceNoteSlashStemDown*
Slash for stem down grace note

**U+E566** (and U+1D196)
*ornamentTrill*
Trill



**U+E567** (and U+1D197)
*ornamentTurn*
Turn



**U+E568** (and U+1D198)
*ornamentTurnInverted*
Inverted turn

**U+E569** (and U+1D199)
*ornamentTurnSlash*
Turn with slash

**U+E56A** (and U+1D19A)
*ornamentTurnUp*
Turn up

**U+E56B**
*ornamentTurnUpS*
Inverted turn up



**U+E56C**
*ornamentMordent*
Mordent

**U+E56D**
*ornamentMordentInverted*
Inverted mordent



**U+E56E**
*ornamentTremblement*
Tremblement



**U+E56F**
*ornamentHaydn*
Haydn ornament

## Recommended ligatures

**uniE260_uniE566**

*ornamentTrillFlatAbove*

Trill, flat above

**uniE261_uniE566**

*ornamentTrillNaturalAbove*

Trill, natural above

**uniE262_uniE566**

*ornamentTrillSharpAbove*

Trill, sharp above

**uniE260_uniE567**

*ornamentTurnFlatAbove*

Turn, flat above

**uniE260_uniE567_uniE262**

*ornamentTurnFlatAboveSharpBelow*

Turn, flat above, sharp below

**uniE567_uniE260**

*ornamentTurnFlatBelow*

Turn, flat below

**uniE261_uniE567**

*ornamentTurnNaturalAbove*

Turn, natural above

**uniE567_uniE261**

*ornamentTurnNaturalBelow*

Turn, natural below

**uniE262_uniE567**

*ornamentTurnSharpAbove*

Turn, sharp above

**uniE262_uniE567_uniE260**

*ornamentTurnSharpAboveFlatBelow*

Turn, sharp above, flat below

**uniE567_uniE262**

*ornamentTurnSharpBelow*

Turn, sharp below

## Implementation notes

Scoring applications should draw grace notes in the same way as they draw regular notes, rather than using the precomposed glyphs.

Likewise, scoring applications should draw *glissandi* using multiple instances of a wiggly line segment (e.g. **wiggleGlissando**), not the precomposed glyphs, to provide variable length and angle.

# Other baroque ornaments (U+E570–U+E58F)

**U+E570**

*ornamentPortDeVoixV*

Port de voix



**U+E571**

*ornamentRightFacingHalfCircle*

Right-facing half circle



**U+E572**

*ornamentLeftFacingHalfCircle*

Left-facing half circle

**U+E573**

*ornamentRightFacingHook*

Right-facing hook

**U+E574**

*ornamentLeftFacingHook*

Left-facing hook

**U+E575**

*ornamentHookBeforeNote*

Hook before note

**U+E576**

*ornamentHookAfterNote*

Hook after note



**U+E577**

*ornamentUpCurve*

Curve above



**U+E578**

*ornamentDownCurve*

Curve below

**U+E579**

*ornamentShortObliqueLineBeforeNote*

Short oblique straight line SW-NE

**U+E57A**

*ornamentShortObliqueLineAfterNote*

Short oblique straight line NW-SE

**U+E57B**

*ornamentObliqueLineBeforeNote*

Oblique straight line SW-NE

**U+E57C**

*ornamentObliqueLineAfterNote*

Oblique straight line NW-SE

**U+E57D**

*ornamentDoubleObliqueLinesBeforeNote*

Double oblique straight lines SW-NE

**U+E57E**

*ornamentDoubleObliqueLinesAfterNote*

Double oblique straight lines NW-SE



**U+E57F**

*ornamentObliqueLineHorizBeforeNote*

Oblique straight line tilted SW-NE



**U+E580**

*ornamentObliqueLineHorizAfterNote*

Oblique straight line tilted NW-SE



**U+E581**

*ornamentComma*

Comma

**U+E582**
*ornamentShake3*
Shake

**U+E583**
*ornamentVerticalLine*
Vertical line

**U+E584**
*ornamentShakeMuffat1*
Shake (Muffat)

**U+E585** (and U+1D1B1)
*glissandoUp*
Glissando up

**U+E586** (and U+1D1B2)
*glissandoDown*
Glissando down

**U+E587**
*ornamentSchleifer*
Schleifer (long mordent)

**U+E588**
*ornamentPinceCouperin*
Pincé (Couperin)

**U+E589**
*ornamentTremblementCouperin*
Tremblement appuyé (Couperin)

## Implementation notes

There is little agreement over the meaning, or indeed the naming, of ornaments beyond those that have survived into modern usage. The glyphs included in this range are the shapes that are used by a wide variety of composers, particularly in the baroque period. For information about the uses and interpretations of individual symbols in this range, consult Neumann (ibid.).

# Combining strokes for trills and mordents (U+E590–U+E5AF)

**U+E590**

*ornamentTopLeftConcaveStroke*

Ornament top left concave stroke

**U+E591** (and U+1D1A5)

*ornamentTopLeftConvexStroke*

Ornament top left convex stroke



**U+E592**

*ornamentHighLeftConcaveStroke*

Ornament high left concave stroke

**U+E593** (and U+1D1A2)

*ornamentHighLeftConvexStroke*

Ornament high left convex stroke



**U+E594** (and U+1D19B)

*ornamentLeftVerticalStroke*

Ornament left vertical stroke

**U+E595**

*ornamentLeftVerticalStrokeWithCross*

Ornament left vertical stroke with cross (+)

**U+E596**

*ornamentLeftShakeT*

Ornament left shake t

**U+E597**

*ornamentLeftPlus*

Ornament left +

**U+E598**

*ornamentLowLeftConcaveStroke*

Ornament low left concave stroke



**U+E599** (and U+1D1A4)

*ornamentLowLeftConvexStroke*

Ornament low left convex stroke

**U+E59A**

*ornamentBottomLeftConcaveStroke*

Ornament bottom left concave stroke

**U+E59B** (and U+1D1A1)

*ornamentBottomLeftConcaveStrokeLarge*

Ornament bottom left concave stroke, large

**U+E59C**

*ornamentBottomLeftConvexStroke*

Ornament bottom left convex stroke



**U+E59D** (and U+1D19C)

*ornamentZigZagLineNoRightEnd*

Ornament zig-zag line without right-hand end



**U+E59E** (and U+1D19D)

*ornamentZigZagLineWithRightEnd*

Ornament zig-zag line with right-hand end



**U+E59F** (and U+1D1A0)

*ornamentMiddleVerticalStroke*

Ornament middle vertical stroke

**U+E5A0**

*ornamentTopRightConcaveStroke*

Ornament top right concave stroke

**U+E5A1** (and U+1D19E)

*ornamentTopRightConvexStroke*

Ornament top right convex stroke

**U+E5A2**

*ornamentHighRightConcaveStroke*

Ornament high right concave stroke



**U+E5A3**

*ornamentHighRightConvexStroke*

Ornament high right convex stroke

**U+E5A4**

*ornamentRightVerticalStroke*

Ornament right vertical stroke



**U+E5A5** (and U+1D1A3)

*ornamentLowRightConcaveStroke*

Ornament low right concave stroke

**U+E5A6**

*ornamentLowRightConvexStroke*

Ornament low right convex stroke

**U+E5A7** (and U+1D19F)

*ornamentBottomRightConcaveStroke*

Ornament bottom right concave stroke

**U+E5A8**

*ornamentBottomRightConvexStroke*

Ornament bottom right convex stroke

## Implementation notes

When designing the Unicode Musical Symbols range, Perry Roland elected to develop a scheme for creating complex ornaments using a series of glyphs rather than defining precomposed glyphs for every ornament, as shown below:[18]

[18] *Ibid.*, Allen, page 539.

| | |
|---|---|
|  | 1D19C STROKE-2 + 1D19D STROKE-3 |
|  | 1D19C STROKE-2 + 1D1A0 STROKE-6 + 1D19D STROKE-3 |
|  | 1D1A0 STROKE-6 + 1D19C STROKE-2 + 1D19C STROKE-2 + 1D19D STROKE-3 |
|  | 1D19C STROKE-2 + 1D19C STROKE-2 + 1D1A0 STROKE-6 + 1D19D STROKE-3 |
|  | 1D19C STROKE-2 + 1D19C STROKE-2 + 1D1A3 STROKE-9 |
|  | 1D1A1 STROKE-7 + 1D19C STROKE-2 + 1D19C STROKE-2 + 1D19D STROKE-3 |
|  | 1D1A2 STROKE-8 + 1D19C STROKE-2 + 1D19C STROKE-2 + 1D19D STROKE-3 |
|  | 1D19C STROKE-2 + 1D19C STROKE-2 + 1D19D STROKE-3 + 1D19F STROKE-5 |
|  | 1D1A1 STROKE-7 + 1D19C STROKE-2 + 1D19C STROKE-2 + 1D1A0 STROKE-6 + 1D19D STROKE-3 |
|  | 1D1A1 STROKE-7 + 1D19C STROKE-2 + 1D19C STROKE-2 + 1D19D STROKE-3 + 1D19F STROKE-5 |
|  | 1D1A2 STROKE-8 + 1D19C STROKE-2 + 1D19C STROKE-2 + 1D1A0 STROKE-6 + 1D19D STROKE-3 |
|  | 1D19B STROKE-1 + 1D19C STROKE-2 + 1D19C STROKE-2 + 1D19D STROKE-3 |
|  | 1D19B STROKE-1 + 1D19C STROKE-2 + 1D19C STROKE-2 + 1D19D STROKE-3 + 1D19E STROKE-4 |
|  | 1D19C STROKE-2 + 1D19D STROKE-3 + 1D19E STROKE-4 |

This range expands upon the repertoire of 11 strokes in the Unicode Musical Symbols range.

The side-bearings for the glyphs in this range must be adjusted carefully to ensure correct positioning. (Kerning pairs may also be used.)

Glyphs between **ornamentTopLeftConcaveStroke** and **ornamentBottomLeftConvexStroke** are designed to be positioned immediately to the left of and to join seamlessly to **ornamentZigZagLineNoRightEnd**. **ornamentZigZagLineWithRightEnd** and glyphs between **ornamentTopRightConcaveStroke** and **ornamentBottomRightConvexStroke** are designed to be positioned immediately to the right of and to join seamlessly to **ornamentZigZagLineNoRightEnd**. **ornamentMiddleVerticalStroke** should be used immediately to the left of either **ornamentZigZagLineNoRightEnd** or **ornamentZigZagLineWithRightEnd** to provide correct positioning of the vertical stroke across the zig-zag line.

# Precomposed trills and mordents (U+E5B0–U+E5CF)

**U+E5B0**

*ornamentPrecompSlide*

Slide

**U+E5B1**

*ornamentPrecompDescendingSlide*

Descending slide

**U+E5B2**

*ornamentPrecompAppoggTrill*

Supported appoggiatura trill

**U+E5B3**

*ornamentPrecompAppoggTrillSuffix*

Supported appoggiatura trill with two-note suffix

**U+E5B4**

*ornamentPrecompTurnTrillDAnglebert*

Turn-trill (D'Anglebert)

**U+E5B5**

*ornamentPrecompSlideTrillDAnglebert*

Slide-trill (D'Anglebert)

**U+E5B6**

*ornamentPrecompSlideTrillMarpurg*

Slide-trill with one-note suffix (Marpurg)

**U+E5B7**

*ornamentPrecompTurnTrillBach*

Turn-trill with two-note suffix (J.S. Bach)

**U+E5B8**

*ornamentPrecompSlideTrillBach*

Slide-trill with two-note suffix (J.S. Bach)

**U+E5B9**

*ornamentPrecompSlideTrillMuffat*

Slide-trill (Muffat)

**U+E5BA**

*ornamentPrecompSlideTrillSuffixMuffat*

Slide-trill with two-note suffix (Muffat)

**U+E5BB**

*ornamentPrecompTrillSuffixDandrieu*

Trill with two-note suffix (Dandrieu)

**U+E5BC**

*ornamentPrecompPortDeVoixMordent*

Pre-beat port de voix follwed by multiple mordent (Dandrieu)

**U+E5BD**

*ornamentPrecompTrillWithMordent*

Trill with mordent

**U+E5BE**

*ornamentPrecompCadence*

Cadence

**U+E5BF**

*ornamentPrecompCadenceWithTurn*

Cadence with turn

**U+E5C0**
*ornamentPrecompDoubleCadenceLowerPrefix*

Double cadence with lower prefix

**U+E5C1**
*ornamentPrecompCadenceUpperPrefix*

Cadence with upper prefix

**U+E5C2**
*ornamentPrecompCadenceUpperPrefixTurn*

Cadence with upper prefix and turn

**U+E5C3**
*ornamentPrecompDoubleCadenceUpperPrefix*

Double cadence with upper prefix

**U+E5C4**
*ornamentPrecompDoubleCadenceUpperPrefixTurn*

Double cadence with upper prefix and turn

**U+E5C5**
*ornamentPrecompMordentRelease*

Mordent with release

**U+E5C6**
*ornamentPrecompMordentUpperPrefix*

Mordent with upper prefix

**U+E5C7**
*ornamentPrecompInvertedMordentUpperPrefix*

Inverted mordent with upper prefix

**U+E5C8**
*ornamentPrecompTrillLowerSuffix*

Trill with lower suffix

## Implementation notes

The glyphs in this range show how the glyphs in the preceding range can be combined, based on examples from the "Selective Glossary of Terms and Symbols" in Neumann (*ibid.*), and other charts of Baroque ornamentation.

| | |
|---|---|
| ornamentPrecompSlide | 2 x ornamentZigZagLineNoRightEnd + ornamentHighRightConcaveStroke |
| ornamentPrecompDescendingSlide | 2 x ornamentZigZagLineNoRightEnd + ornamentBottomRightConvexStroke |
| ornamentPrecompAppoggTrill | ornamentLeftVerticalStroke + 2 x ornamentZigZagLineNoRightEnd + ornamentZigZagLineWithRightEnd |
| ornamentPrecompAppoggTrillSuffix | ornamentLeftVerticalStroke + 2 x ornamentZigZagLineNoRightEnd + ornamentRightVerticalStroke |
| ornamentPrecompTurnTrillDAnglebert | ornamentHighLeftConvexStroke + 3 x ornamentZigZagLineNoRightEnd + ornamentTopRightConcaveStroke |
| ornamentPrecompSlideTrillDAnglebert | ornamentBottomLeftConcaveStrokeLarge + ornamentZigZagLineNoRightEnd + ornamentZigZagLineWithRightEnd |

| | |
|---|---|
| ornamentPrecompSlideTrillMarpurg | ornamentBottomLeftConcaveStrokeLarge + 2 x ornamentZigZagLineNoRightEnd + ornamentTopRightConvexStroke |
| ornamentPrecompTurnTrillBach | ornamentHighLeftConvexStroke + 3 x ornamentZigZagLineNoRightEnd + ornamentMiddleVerticalStroke + ornamentZigZagLineWithRightEnd |
| ornamentPrecompSlideTrillBach | ornamentBottomLeftConcaveStroke + 2 x ornamentZigZagLineNoRightEnd + ornamentMiddleVerticalStroke + ornamentZigZagLineWithRightEnd |
| ornamentPrecompSlideTrillMuffat | ornamentBottomLeftConvexStroke + 2 x ornamentZigZagLineNoRightEnd + ornamentTopRightConcaveStroke |
| ornamentPrecompSlideTrillSuffixMuffat | ornamentBottomLeftConvexStroke + 2 x ornamentZigZagLineNoRightEnd + ornamentTopRightConvexStroke |
| ornamentPrecompTrillSuffixDandrieu | 3 x ornamentZigZagLineNoRightEnd + ornamentZigZagLineWithRightEnd |
| ornamentPrecompPortDeVoixMordent | ornamentLowLeftConcaveStroke + 2 x ornamentZigZagLineNoRightEnd + ornamentMiddleVerticalStroke + ornamentZigZagLineWithRightEnd |
| ornamentPrecompTrillWithMordent | 2 x ornamentZigZagLineNoRightEnd + ornamentMiddleVerticalStroke + ornamentZigZagLineWithRightEnd |
| ornamentPrecompCadence | ornamentHighLeftConcaveStroke + ornamentZigZagLineNoRightEnd + ornamentZigZagLineWithRightEnd |
| ornamentPrecompCadenceWithTurn | ornamentHighLeftConcaveStroke + ornamentZigZagLineNoRightEnd + ornamentMiddleVerticalStroke + ornamentZigZagLineWithRightEnd |
| ornamentPrecompDoubleCadenceLowerPrefix | ornamentLowLeftConvexStroke + 2 x ornamentZigZagLineNoRightEnd + ornamentZigZagLineWithRightEnd |
| ornamentPrecompCadenceUpperPrefix | ornamentLowLeftConvexStroke + ornamentZigZagLineNoRightEnd + ornamentZigZagLineWithRightEnd |
| ornamentPrecompCadenceUpperPrefixTurn | ornamentLowLeftConvexStroke + ornamentZigZagLineNoRightEnd + ornamentMiddleVerticalStroke + ornamentZigZagLineWithRightEnd |
| ornamentPrecompDoubleCadenceUpperPrefix | ornamentLowLeftConvexStroke + 2 x ornamentZigZagLineNoRightEnd + ornamentZigZagLineWithRightEnd |

| | |
|---|---|
| ornamentPrecompDoubleCadenceUpperPrefixTurn | ornamentLowLeftConvexStroke + 2 x ornamentZigZagLineNoRightEnd + ornamentMiddleVerticalStroke + ornamentZigZagLineWithRightEnd |
| ornamentPrecompMordentRelease | ornamentZigZagLineNoRightEnd + ornamentTopRightConvexStroke |
| ornamentPrecompMordentUpperPrefix | ornamentTopLeftConvexStroke + 2x ornamentZigZagLineNoRightEnd + ornamentZigZagLineWithRightEnd |
| ornamentPrecompInvertedMordentUpperPrefix | ornamentTopLeftConvexStroke + 2x ornamentZigZagLineNoRightEnd + ornamentMiddleVerticalStroke + ornamentZigZagLineWithRightEnd |
| ornamentPrecompTrillLowerSuffix | 2 x ornamentZigZagLineNoRightEnd + ornamentBottomRightConcaveStroke |

# Brass techniques (U+E5D0–U+E5EF)



**U+E5D0**
*brassScoop*
Scoop

**U+E5D1**
*brassLiftShort*
Lift, short

**U+E5D2**
*brassLiftMedium*
Lift, medium

**U+E5D3**
*brassLiftLong*
Lift, long

**U+E5D4** (and U+1D185)
*brassDoitShort*
Doit, short

**U+E5D5**
*brassDoitMedium*
Doit, medium

**U+E5D6**
*brassDoitLong*
Doit, long

**U+E5D7** (and U+1D186)
*brassFallLipShort*
Lip fall, short

**U+E5D8**
*brassFallLipMedium*
Lip fall, medium

**U+E5D9**
*brassFallLipLong*
Lip fall, long

**U+E5DA**
*brassFallSmoothShort*
Smooth fall, short

**U+E5DB**
*brassFallSmoothMedium*
Smooth fall, medium

**U+E5DC**
*brassFallSmoothLong*
Smooth fall, long

**U+E5DD**
*brassFallRoughShort*
Rough fall, short

**U+E5DE**
*brassFallRoughMedium*
Rough fall, medium

**U+E5DF**
*brassFallRoughLong*
Rough fall, long

**U+E5E0**
*brassPlop*
Plop

**U+E5E1** (and U+1D187)
*brassFlip*
Flip

**U+E5E2** (and U+1D188)

*brassSmear*

Smear

**U+E5E3** (and U+1D189)

*brassBend*

Bend



**U+E5E4**

*brassJazzTurn*

Jazz turn

**U+E5E5**

*brassMuteClosed*

Muted (closed)

**U+E5E6**

*brassMuteHalfClosed*

Half-muted (half-closed)

**U+E5E7**

*brassMuteOpen*

Open

**U+E5E8**

*brassHarmonMuteClosed*

Harmon mute, stem in

**U+E5E9**

*brassHarmonMuteStemHalfLeft*

Harmon mute, stem extended, left

**U+E5EA**

*brassHarmonMuteStemHalfRight*

Harmon mute, stem extended, right

**U+E5EB**

*brassHarmonMuteStemOpen*

Harmon mute, stem out

**U+E5EC**

*brassLiftSmoothShort*

Smooth lift, short

**U+E5ED**

*brassLiftSmoothMedium*

Smooth lift, medium

**U+E5EE**

*brassLiftSmoothLong*

Smooth lift, long

# Wind techniques (U+E5F0–U+E60F)



**U+E5F0** (and U+1D18A)
*doubleTongueAbove*
Double-tongue above



**U+E5F1**
*doubleTongueBelow*
Double-tongue below



**U+E5F2** (and U+1D18B)
*tripleTongueAbove*
Triple-tongue above



**U+E5F3**
*tripleTongueBelow*
Triple-tongue below

**U+E5F4**
*windClosedHole*
Closed hole

**U+E5F5**
*windThreeQuartersClosedHole*
Three-quarters closed hole

**U+E5F6**
*windHalfClosedHole1*
Half-closed hole

**U+E5F7**
*windHalfClosedHole2*
Half-closed hole 2

**U+E5F8**
*windHalfClosedHole3*
Half-open hole

**U+E5F9**
*windOpenHole*
Open hole

**U+E5FA**
*windTrillKey*
Trill key

**U+E5FB**
*windFlatEmbouchure*
Flatter embouchure

**U+E5FC**
*windSharpEmbouchure*
Sharper embouchure

**U+E5FD**
*windRelaxedEmbouchure*
Relaxed embouchure

**U+E5FE**
*windLessRelaxedEmbouchure*
Somewhat relaxed embouchure

**U+E5FF**
*windTightEmbouchure*
Tight embouchure

**U+E600**
*windLessTightEmbouchure*
Somewhat tight embouchure

**U+E601**
*windVeryTightEmbouchure*
Very tight embouchure

**U+E602**

*windWeakAirPressure*

Very relaxed embouchure / weak air-pressure

**U+E603**

*windStrongAirPressure*

Very tight embouchure / strong air pressure

**U+E604**

*windReedPositionNormal*

Normal reed position

**U+E605**

*windReedPositionOut*



Very little reed (pull outwards)

**U+E606**

*windReedPositionIn*

Much more reed (push inwards)

**U+E607**

*windMultiphonicsBlackStem*

Combining multiphonics (black) for stem

**U+E608**

*windMultiphonicsWhiteStem*

Combining multiphonics (white) for stem

**U+E609**

*windMultiphonicsBlackWhiteStem*

Combining multiphonics (black and white) for stem

## Recommended stylistic alternates

**uniE5F0.salt01**

*doubleTongueAboveNoSlur*



Double-tongue above (no slur)

**uniE5F1.salt01**

*doubleTongueBelowNoSlur*



Double-tongue below (no slur)

**uniE5F2.salt01**

*tripleTongueAboveNoSlur*



Triple-tongue above (no slur)

**uniE5F3.salt01**

*tripleTongueBelowNoSlur*



Triple-tongue below (no slur)

# String techniques (U+E610–U+E62F)

**U+E610** (and U+1D1AA)

*stringsDownBow*

Down bow

**U+E611**

*stringsDownBowTurned*

Turned down bow

**U+E612** (and U+1D1AB)

*stringsUpBow*

Up bow

**U+E613**

*stringsUpBowTurned*

Turned up bow



**U+E614** (and U+1D1AC)

*stringsHarmonic*

Harmonic



**U+E615**

*stringsHalfHarmonic*

Half-harmonic



**U+E616**

*stringsMuteOn*

Mute on



**U+E617**

*stringsMuteOff*

Mute off



**U+E618**

*stringsBowBehindBridge*

Bow behind bridge (sul ponticello)



**U+E619**

*stringsBowOnBridge*

Bow on top of bridge



**U+E61A**

*stringsBowOnTailpiece*

Bow on tailpiece

**U+E61B**

*stringsOverpressureDownBow*

Overpressure, down bow

**U+E61C**

*stringsOverpressureUpBow*

Overpressure, up bow

**U+E61D**

*stringsOverpressurePossibileDownBow*

Overpressure possibile, down bow

**U+E61E**

*stringsOverpressurePossibileUpBow*

Overpressure possibile, up bow



**U+E61F**

*stringsOverpressureNoDirection*

Overpressure, no bow direction



**U+E620**

*stringsJeteAbove*

Jeté (gettato) above



**U+E621**

*stringsJeteBelow*

Jeté (gettato) below

**U+E622**

*stringsFouette*



Fouetté

**U+E623**

*stringsVibratoPulse*

Vibrato pulse accent (Saunders) for stem

**U+E624**

*stringsThumbPosition*



Thumb position

**U+E625**

*stringsThumbPositionTurned*

Turned thumb position

**U+E626**

*stringsChangeBowDirection*

Change bow direction, indeterminate

## Recommended stylistic alternates

**uniE626.salt01**

*stringsChangeBowDirectionLiga*

Change bow direction, indeterminate (Pricope)

**uniE626.salt02**

*stringsChangeBowDirectionImposed*

Change bow direction, indeterminate (Plötz)

## Implementation notes

Scoring applications should not use the precomposed glyphs that include stems but instead draw the stems using primitives and impose the symbols upon them to ensure optimal positioning.

# Plucked techniques (U+E630–U+E63F)

**U+E630** (and U+1D1AD)
*pluckedSnapPizzicatoBelow*
Snap pizzicato below

**U+E631**
*pluckedSnapPizzicatoAbove*
Snap pizzicato above

**U+E632**
*pluckedBuzzPizzicato*
Buzz pizzicato

**U+E633**
*pluckedLeftHandPizzicato*
Left-hand pizzicato

**U+E634** (and U+1D183)
*arpeggiatoUp*
Arpeggiato up

**U+E635** (and U+1D184)
*arpeggiatoDown*
Arpeggiato down

**U+E636** (and U+1D1B3)
*pluckedWithFingernails*
With fingernails

**U+E637**
*pluckedFingernailFlick*
Fingernail flick

**U+E638** (and U+1D1B4)
*pluckedDamp*
Damp

**U+E639** (and U+1D1B5)
*pluckedDampAll*
Damp all

**U+E63A**
*pluckedPlectrum*
Plectrum

**U+E63B**
*pluckedDampOnStem*
Damp for stem

## Recommended stylistic alternates

**uniE630.salt01**
*pluckedSnapPizzicatoBelowGerman*
Snap pizzicato below (German)

**uniE631.salt01**
*pluckedSnapPizzicatoAboveGerman*
Snap pizzicato above (German)

## Implementation notes

Scoring applications should draw arpeggiato markings using multiple instances of the appropriate wiggly line segment glyphs (in the **Multi-segment lines** range) rather than the precomposed glyphs (**arpeggiatoUp** and **arpeggiatoDown**) to allow variable length.

# Vocal techniques (U+E640–U+E64F)

**U+E640**

*vocalMouthClosed*

Mouth closed

**U+E641**

*vocalMouthSlightlyOpen*

Mouth slightly open

**U+E642**

*vocalMouthOpen*

Mouth open

**U+E643**

*vocalMouthWideOpen*

Mouth wide open

**U+E644**

*vocalMouthPursed*

Mouth pursed

**U+E645**

*vocalSprechgesang*

Sprechgesang

**U+E646**

*vocalsSussurando*

Combining sussurando for stem

# Keyboard techniques (U+E650–U+E67F)

**U+E650** (and U+1D1AE)
*keyboardPedalPed*
Pedal mark

**U+E651**
*keyboardPedalP*
Pedal P

**U+E652**
*keyboardPedalE*
Pedal e

**U+E653**
*keyboardPedalD*
Pedal d



**U+E654**
*keyboardPedalDot*
Pedal dot

**U+E655** (and U+1D1AF)
*keyboardPedalUp*
Pedal up mark

**U+E656** (and U+1D1B0)
*keyboardPedalHalf*
Half-pedal mark

**U+E657**
*keyboardPedalUpNotch*
Pedal up notch



**U+E658**
*keyboardPedalHyphen*
Pedal hyphen

**U+E659**
*keyboardPedalSost*
Sostenuto pedal mark

**U+E65A**
*keyboardPedalS*
Pedal S



**U+E65B**
*keyboardPedalHalf2*
Half pedal mark 1



**U+E65C**
*keyboardPedalHalf3*
Half pedal mark 2

**U+E65D**
*keyboardPedalUpSpecial*
Pedal up special

**U+E65E**
*keyboardLeftPedalPictogram*
Left pedal pictogram

**U+E65F**
*keyboardMiddlePedalPictogram*
Middle pedal pictogram

**U+E660**
*keyboardRightPedalPictogram*
Right pedal pictogram

**U+E661**
*keyboardPedalHeel1*
Pedal heel 1

**U+E662**

*keyboardPedalHeel2*

Pedal heel 2

**U+E663**

*keyboardPedalHeel3*

Pedal heel 3 (Davis)

**U+E664**

*keyboardPedalToe1*

Pedal toe 1

**U+E665**

*keyboardPedalToe2*

Pedal toe 2

**U+E666**

*keyboardPedalHeelToe*

Pedal heel or toe

**U+E667**

*keyboardPluckInside*

Pluck strings inside piano (Maderna)



**U+E668**

*keyboardBebung2DotsAbove*

Clavichord bebung, 2 finger movements (above)



**U+E669**

*keyboardBebung2DotsBelow*

Clavichord bebung, 2 finger movements (below)



**U+E66A**

*keyboardBebung3DotsAbove*

Clavichord bebung, 3 finger movements (above)



**U+E66B**

*keyboardBebung3DotsBelow*

Clavichord bebung, 3 finger movements (below)



**U+E66C**

*keyboardBebung4DotsAbove*

Clavichord bebung, 4 finger movements (above)



**U+E66D**

*keyboardBebung4DotsBelow*

Clavichord bebung, 4 finger movements (below)

**U+E66E**

*keyboardPlayWithRH*

Play with right hand

**U+E66F**

*keyboardPlayWithRHEnd*

Play with right hand (end)

**U+E670**

*keyboardPlayWithLH*

Play with left hand

**U+E671**

*keyboardPlayWithLHEnd*

Play with left hand (end)

## Recommended stylistic alternates

**uniE650.salt01**

*keyboardPedalPedNoDot*

Pedal mark (no dot)

**uniE659.salt01**

*keyboardPedalSostNoDot*

Sostenuto pedal mark (no dot)

# Harp techniques (U+E680–U+E69F)



**U+E680**

*harpPedalRaised*

Harp pedal raised (flat)



**U+E681**

*harpPedalCentered*

Harp pedal centered (natural)



**U+E682**

*harpPedalLowered*

Harp pedal lowered (sharp)

**U+E683**

*harpPedalDivider*

Harp pedal divider

**U+E684**

*harpSalzedoSlideWithSuppleness*

Slide with suppleness (Salzedo)



**U+E685**

*harpSalzedoOboicFlux*

Oboic flux (Salzedo)

**U+E686**

*harpSalzedoThunderEffect*

Thunder effect (Salzedo)

**U+E687**

*harpSalzedoWhistlingSounds*

Whistling sounds (Salzedo)

**U+E688**

*harpSalzedoMetallicSounds*

Metallic sounds (Salzedo)

**U+E689**

*harpSalzedoTamTamSounds*

Tam-tam sounds (Salzedo)

**U+E68A**

*harpSalzedoPlayUpperEnd*

Play at upper end of strings (Salzedo)

**U+E68B**

*harpSalzedoTimpanicSounds*

Timpanic sounds (Salzedo)

**U+E68C**

*harpSalzedoMuffleTotally*

Muffle totally (Salzedo)



**U+E68D**

*harpSalzedoFluidicSoundsLeft*

Fluidic sounds, left hand (Salzedo)



**U+E68E**

*harpSalzedoFluidicSoundsRight*

Fluidic sounds, right hand (Salzedo)

**U+E68F**

*harpMetalRod*

Metal rod pictogram

**U+E690**

*harpTuningKey*

Tuning key pictogram

**U+E691**

*harpTuningKeyHandle*

Use handle of tuning key pictogram

**U+E692**

*harpTuningKeyShank*

Use shank of tuning key pictogram

**U+E693**

*harpTuningKeyGlissando*

Retune strings for glissando

**U+E694**

*harpStringNoiseStem*

Combining string noise for stem

**U+E695**

*harpSalzedoAeolianAscending*

Ascending aeolian chords (Salzedo)

**U+E696**

*harpSalzedoAeolianDescending*

Descending aeolian chords (Salzedo)

## Recommended stylistic alternates

**uniE68F.salt01**

*harpMetalRodAlt*

Metal rod pictogram (alternative)

**uniE690.salt01**

*harpTuningKeyAlt*

Tuning key pictogram (alternative)

## Implementation notes

harpSalzedoFluidicSoundsLeft and harpSalzedoFluidicSoundsRight are similar in function to noteheads, and should be positioned relative to note stems in the same way.

harpSalzedoOboicFlux and harpSalzedoPlayUpperEnd may be repeated to create a continuing line, indicating the duration of the technique.

# Tuned mallet percussion pictograms (U+E6A0–U+E6BF)


**U+E6A0**

*pictGlsp*

Glockenspiel


**U+E6A1**

*pictXyl*

Xylophone


**U+E6A2**

*pictXylTenor*

Tenor xylophone


**U+E6A3**

*pictXylBass*

Bass xylophone


**U+E6A4**

*pictXylTrough*

Trough xylophone


**U+E6A5**

*pictXylTenorTrough*

Trough tenor xylophone


**U+E6A6**

*pictMar*

Marimba


**U+E6A7**

*pictVib*

Vibraphone


**U+E6A8**

*pictVibMotorOff*

Metallophone (vibraphone motor off)

**U+E6A9**

*pictEmptyTrap*

Empty trapezoid


**U+E6AA**

*pictGlspSmithBrindle*

Glockenspiel (Smith Brindle)


**U+E6AB**

*pictXylSmithBrindle*

Xylophone (Smith Brindle)


**U+E6AC**

*pictMarSmithBrindle*

Marimba (Smith Brindle)


**U+E6AD**

*pictVibSmithBrindle*

Vibraphone (Smith Brindle)

**U+E6AE**

*pictCrotales*

Crotales


**U+E6AF**

*pictSteelDrums*

Steel drums


**U+E6B0**

*pictCelesta*

Celesta

**U+E6B1**

*pictLithophone*

Lithophone


**U+E6B2**

*pictTubaphone*

Tubaphone

## Recommended stylistic alternates

**uniE6A0.salt01**

*pictGlspPeinkofer*

Glockenspiel (Peinkofer/Tannigel)

**uniE6A1.salt01**

*pictXylPeinkofer*

Xylophone (Peinkofer/Tannigel)

**uniE6A2.salt01**

*pictXylTenorPeinkofer*

Tenor xylophone (Peinkofer/Tannigel)

**uniE6A3.salt01**

*pictXylBassPeinkofer*

Bass xylophone (Peinkofer/Tannigel)

**uniE6A6.salt01**

*pictMarPeinkofer*

Marimba (Peinkofer/Tannigel)

**uniE6A7.salt01**

*pictVibPeinkofer*

Vibraphone (Peinkofer/Tannigel)

**uniE6A8.salt01**

*pictVibMotorOffPeinkofer*

Metallophone (vibraphone motor off) (Peinkofer/Tannigel)

**uniE6B1.salt01**

*pictLithophonePeinkofer*

Lithophone (Peinkofer/Tannigel)

**uniE6B2.salt01**

*pictTubaphonePeinkofer*

Tubaphone (Peinkofer/Tannigel)

# Chimes pictograms (U+E6C0–U+E6CF)

**U+E6C0**

*pictTubularBells*

Tubular bells

**U+E6C1**

*pictWindChimesGlass*

Wind chimes (glass)

**U+E6C2**

*pictChimes*

Chimes


**U+E6C3**

*pictBambooChimes*

Bamboo tube chimes


**U+E6C4**

*pictShellChimes*

Shell chimes


**U+E6C5**

*pictGlassTubeChimes*

Glass tube chimes


**U+E6C6**

*pictGlassPlateChimes*

Glass plate chimes


**U+E6C7**

*pictMetalTubeChimes*

Metal tube chimes


**U+E6C8**

*pictMetalPlateChimes*

Metal plate chimes

# Drums pictograms (U+E6D0–U+E6EF)

**U+E6D0**

*pictTimpani*

Timpani

**U+E6D1**

*pictSnareDrum*

Snare drum

**U+E6D2**

*pictSnareDrumSnaresOff*

Snare drum, snares off

**U+E6D3**

*pictSnareDrumMilitary*

Military snare drum

**U+E6D4**

*pictBassDrum*

Bass drum

**U+E6D5**

*pictBassDrumOnSide*

Bass drum on side

**U+E6D6**

*pictTenorDrum*

Tenor drum

**U+E6D7**

*pictTomTom*

Tom-tom


**U+E6D8**

*pictTomTomChinese*

Chinese tom-tom


**U+E6D9**

*pictTomTomJapanese*

Japanese tom-tom


**U+E6DA**

*pictTomTomIndoAmerican*

Indo-American tom tom

**U+E6DB**

*pictTambourine*

Tambourine

**U+E6DC**

*pictTimbales*

Timbales

**U+E6DD**

*pictBongos*

Bongos

**U+E6DE**

*pictConga*

Conga

**U+E6DF**

*pictLogDrum*

Log drum

**U+E6E0**

*pictSlitDrum*

Slit drum

**U+E6E1**

*pictBrakeDrum*

Brake drum

**U+E6E2**

*pictGobletDrum*

Goblet drum (djembe, dumbek)

**U+E6E3**

*pictTabla*

Indian tabla

**U+E6E4**

*pictCuica*

Cuica

## Recommended stylistic alternates

**uniE6D0.salt01**

*pictTimpaniPeinkofer*

Timpani (Peinkofer/Tannigel)

**uniE6D4.salt01**

*pictBassDrumPeinkofer*

Bass drum (Peinkofer/Tannigel)

**uniE6D7.salt01**

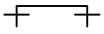
*pictTomTomPeinkofer*

Tom-tom (Peinkofer/Tannigel)

**uniE6D8.salt01**

*pictTomTomChinesePeinkofer*

Chinese tom-tom (Peinkofer/Tannigel)



**uniE6DB.salt01**

*pictTambourineStockhausen*

Tambourine (Stockhausen)

**uniE6DC.salt01**

*pictTimbalesPeinkofer*

Timbales (Peinkofer/Tannigel)

**uniE6DD.salt01**

*pictBongosPeinkofer*

Bongos (Peinkofer/Tannigel)

**uniE6DE.salt01**

*pictCongaPeinkofer*

Conga (Peinkofer/Tannigel)

# Wooden struck or scraped percussion pictograms (U+E6F0–U+E6FF)

**U+E6F0**
*pictWoodBlock*
Wood block

**U+E6F1**
*pictTempleBlocks*
Temple blocks

**U+E6F2**
*pictClaves*
Claves

**U+E6F3**
*pictGuiro*
Guiro

**U+E6F4**
*pictRatchet*
Ratchet

**U+E6F5**
*pictFootballRatchet*
Football rattle

**U+E6F6**
*pictWhip*
Whip

**U+E6F7**
*pictBoardClapper*
Board clapper

**U+E6F8**
*pictCastanets*
Castanets



**U+E6F9**
*pictCastanetsWithHandle*
Castanets with handle

**U+E6FA**
*pictQuijada*
Quijada (jawbone)

**U+E6FB**
*pictBambooScraper*
Bamboo scraper



**U+E6FC**
*pictRecoReco*
Reco-reco

## Recommended stylistic alternates

**uniE6F3.salt01**
*pictGuiroSevsay*
Guiro (Sevsay)

**uniE6F3.salt02**
*pictGuiroPeinkofer*
Guiro (Peinkofer/Tannigel)

**uniE6F8.salt01**

*pictCastanetsSmithBrindle*

Castanets (Smith Brindle)

# Metallic struck percussion pictograms (U+E700–U+E70F)

**U+E700**

*pictTriangle*

Triangle

**U+E701**

*pictAnvil*

Anvil

# Bells pictograms (U+E710–U+E71F)

**U+E710**
*pictSleighBell*
Sleigh bell

**U+E711**
*pictCowBell*
Cow bell

**U+E712**
*pictAlmglocken*
Almglocken

**U+E713**
*pictBellPlate*
Bell plate

**U+E714**
*pictBell*
Bell

**U+E715**
*pictHandbell*
Handbell

**U+E716**
*pictCencerro*
Cencerro

**U+E717**
*pictAgogo*
Agogo

**U+E718**
*pictShellBells*
Shell bells

**U+E719**
*pictJingleBells*
Jingle bells

**U+E71A**
*pictBellTree*
Bell tree

## Recommended stylistic alternates

**uniE710.salt01**
*pictSleighBellSmithBrindle*
Sleigh bell (Smith Brindle)

**uniE711.salt01**
*pictCowBellBerio*
Cow bell (Berio)

# Cymbals pictograms (U+E720–U+E72F)

**U+E720**

*pictCrashCymbals*

Crash cymbals



**U+E721**

*pictSuspendedCymbal*

Suspended cymbal



**U+E722**

*pictHiHat*

Hi-hat

**U+E723**

*pictHiHatOnStand*

Hi-hat cymbals on stand



**U+E724**

*pictSizzleCymbal*

Sizzle cymbal

**U+E725**

*pictVietnameseHat*

Vietnamese hat cymbal

**U+E726**

*pictChineseCymbal*

Chinese cymbal

**U+E727**

*pictFingerCymbals*

Finger cymbals

**U+E728**

*pictCymbalTongs*

Cymbal tongs

**U+E729**

*pictEdgeOfCymbal*

Edge of cymbal

**U+E72A**

*pictBellOfCymbal*

Bell of cymbal

# Gongs pictograms (U+E730–U+E73F)

**U+E730**

*pictTamTam*

Tam-tam

**U+E731**

*pictTamTamWithBeater*

Tam-tam with beater (Smith Brindle)

**U+E732**

*pictGong*

Gong

**U+E733**

*pictGongWithButton*

Gong with button (nipple)

**U+E734**

*pictSlideBrushOnGong*

Slide brush on gong

# Shakers or rattles pictograms (U+E740–U+E74F)

**U+E740**
*pictFlexatone*
Flexatone

**U+E741**
*pictMaraca*
Maraca

**U+E742**
*pictMaracas*
Maracas

**U+E743**
*pictCabasa*
Cabasa

**U+E744**
*pictThundersheet*
Thundersheet

**U+E745**
*pictVibraslap*
Vibraslap

**U+E746**
*pictSistrum*
Sistrum

**U+E747**
*pictRainstick*
Rainstick



**U+E748**
*pictChainRattle*
Chain rattle

## Recommended stylistic alternates

**uniE740.salt01**
*pictFlexatonePeinkofer*
Flexatone (Peinkofer/Tannigel)

**uniE741.salt01**
*pictMaracaSmithBrindle*
Maraca (Smith Brindle)

# Whistles and aerophones pictograms (U+E750–U+E75F)

**U+E750**
*pictSlideWhistle*
Slide whistle

**U+E751**
*pictBirdWhistle*
Bird whistle

**U+E752**
*pictPoliceWhistle*
Police whistle

**U+E753**
*pictSiren*
Siren

**U+E754**
*pictWindMachine*
Wind machine

**U+E755**
*pictCarHorn*
Car horn

**U+E756**
*pictKlaxonHorn*
Klaxon horn

**U+E757**
*pictDuckCall*
Duck call

**U+E758**
*pictWindWhistle*
Wind whistle (or mouth siren)

**U+E759**
*pictMegaphone*
Megaphone

**U+E75A**
*pictLotusFlute*
Lotus flute

## Recommended stylistic alternates



**uniE75A.salt01**
*pictLotusFlutePeinkofer*
Lotus flute (Peinkofer/Tannigel)

# Miscellaneous percussion instrument pictograms (U+E760–U+E76F)

**U+E760**

*pictPistolShot*

Pistol shot

**U+E761**

*pictCannon*

Cannon

**U+E762**

*pictSandpaperBlocks*

Sandpaper blocks

**U+E763**

*pictLionsRoar*

Lion's roar

**U+E764**

*pictGlassHarp*

Glass harp

**U+E765**

*pictGlassHarmonica*

Glass harmonica

**U+E766**

*pictMusicalSaw*

Musical saw

**U+E767**

*pictJawHarp*

Jaw harp

## Recommended stylistic alternates

**uniE766.salt01**

*pictMusicalSawPeinkofer*

Musical saw (Peinkofer/Tannigel)

# Beaters pictograms (U+E770–U+E7EF)

**U+E770**

*pictBeaterSoftXylophoneUp*

Soft xylophone stick up

**U+E771**

*pictBeaterSoftXylophoneDown*

Soft xylophone stick down

**U+E772**

*pictBeaterSoftXylophoneRight*

Soft xylophone stick right

**U+E773**

*pictBeaterSoftXylophoneLeft*

Soft xylophone stick left

**U+E774**

*pictBeaterMediumXylophoneUp*

Medium xylophone stick up

**U+E775**

*pictBeaterMediumXylophoneDown*

Medium xylophone stick down

**U+E776**

*pictBeaterMediumXylophoneRight*

Medium xylophone stick right

**U+E777**

*pictBeaterMediumXylophoneLeft*

Medium xylophone stick left

**U+E778**

*pictBeaterHardXylophoneUp*

Hard xylophone stick up

**U+E779**

*pictBeaterHardXylophoneDown*

Hard xylophone stick down

**U+E77A**

*pictBeaterHardXylophoneRight*

Hard xylophone stick right

**U+E77B**

*pictBeaterHardXylophoneLeft*

Hard xylophone stick left

**U+E77C**

*pictBeaterWoodXylophoneUp*

Wood xylophone stick up

**U+E77D**

*pictBeaterWoodXylophoneDown*

Wood xylophone stick down

**U+E77E**

*pictBeaterWoodXylophoneRight*

Wood xylophone stick right

**U+E77F**

*pictBeaterWoodXylophoneLeft*

Wood xylophone stick left



**U+E780**

*pictBeaterSoftGlockenspielUp*

Soft glockenspiel stick up



**U+E781**

*pictBeaterSoftGlockenspielDown*

Soft glockenspiel stick down

**U+E782**

*pictBeaterSoftGlockenspielRight*

Soft glockenspiel stick right

**U+E783**

*pictBeaterSoftGlockenspielLeft*

Soft glockenspiel stick left



**U+E784**

*pictBeaterHardGlockenspielUp*

Hard glockenspiel stick up



**U+E785**

*pictBeaterHardGlockenspielDown*

Hard glockenspiel stick down

**U+E786**

*pictBeaterHardGlockenspielRight*

Hard glockenspiel stick right

**U+E787**

*pictBeaterHardGlockenspielLeft*

Hard glockenspiel stick left

**U+E788**

*pictBeaterSoftTimpaniUp*

Soft timpani stick up

**U+E789**

*pictBeaterSoftTimpaniDown*

Soft timpani stick down

**U+E78A**

*pictBeaterSoftTimpaniRight*

Soft timpani stick right

**U+E78B**

*pictBeaterSoftTimpaniLeft*

Soft timpani stick left

**U+E78C**

*pictBeaterMediumTimpaniUp*

Medium timpani stick up

**U+E78D**

*pictBeaterMediumTimpaniDown*

Medium timpani stick down

**U+E78E**

*pictBeaterMediumTimpaniRight*

Medium timpani stick right

**U+E78F**

*pictBeaterMediumTimpaniLeft*

Medium timpani stick left

**U+E790**

*pictBeaterHardTimpaniUp*

Hard timpani stick up

**U+E791**

*pictBeaterHardTimpaniDown*

Hard timpani stick down

**U+E792**

*pictBeaterHardTimpaniRight*

Hard timpani stick right

**U+E793**

*pictBeaterHardTimpaniLeft*

Hard timpani stick left

**U+E794**

*pictBeaterWoodTimpaniUp*

Wood timpani stick up

**U+E795**

*pictBeaterWoodTimpaniDown*

Wood timpani stick down

**U+E796**

*pictBeaterWoodTimpaniRight*

Wood timpani stick right

**U+E797**

*pictBeaterWoodTimpaniLeft*

Wood timpani stick left

**U+E798**

*pictBeaterSoftBassDrumUp*

Soft bass drum stick up

**U+E799**

*pictBeaterSoftBassDrumDown*

Soft bass drum stick down

**U+E79A**

*pictBeaterMediumBassDrumUp*

Medium bass drum stick up

**U+E79B**

*pictBeaterMediumBassDrumDown*

Medium bass drum stick down

**U+E79C**

*pictBeaterHardBassDrumUp*

Hard bass drum stick up

**U+E79D**

*pictBeaterHardBassDrumDown*

Hard bass drum stick down

**U+E79E**

*pictBeaterMetalBassDrumUp*

Metal bass drum stick up

**U+E79F**

*pictBeaterMetalBassDrumDown*

Metal bass drum stick down

**U+E7A0**

*pictBeaterDoubleBassDrumUp*

Double bass drum stick up

**U+E7A1**

*pictBeaterDoubleBassDrumDown*

Double bass drum stick down

**U+E7A2**

*pictBeaterSoftYarnUp*

Soft yarn beater up

**U+E7A3**

*pictBeaterSoftYarnDown*

Soft yarn beater down

**U+E7A4**

*pictBeaterSoftYarnRight*

Soft yarn beater right

**U+E7A5**

*pictBeaterSoftYarnLeft*

Soft yarn beater left

**U+E7A6**

*pictBeaterMediumYarnUp*

Medium yarn beater up

**U+E7A7**

*pictBeaterMediumYarnDown*

Medium yarn beater down

**U+E7A8**

*pictBeaterMediumYarnRight*

Medium yarn beater right

**U+E7A9**

*pictBeaterMediumYarnLeft*

Medium yarn beater left

**U+E7AA**

*pictBeaterHardYarnUp*

Hard yarn beater up

**U+E7AB**

*pictBeaterHardYarnDown*

Hard yarn beater down

**U+E7AC**

*pictBeaterHardYarnRight*

Hard yarn beater right

**U+E7AD**

*pictBeaterHardYarnLeft*

Hard yarn beater left

**U+E7AE**

*pictBeaterSuperballUp*

Superball beater up

**U+E7AF**

*pictBeaterSuperballDown*

Superball beater down

**U+E7B0**

*pictBeaterSuperballRight*

Superball beater right

**U+E7B1**

*pictBeaterSuperballLeft*

Superball beater left



**U+E7B2**

*pictSuperball*

Superball

**U+E7B3**

*pictWoundHardUp*

Wound beater, hard core up

**U+E7B4**

*pictWoundHardDown*

Wound beater, hard core down

**U+E7B5**

*pictWoundHardRight*

Wound beater, hard core right

**U+E7B6**

*pictWoundHardLeft*

Wound beater, hard core left

**U+E7B7**

*pictWoundSoftUp*

Wound beater, soft core up

**U+E7B8**

*pictWoundSoftDown*

Wound beater, soft core down

**U+E7B9**

*pictWoundSoftRight*

Wound beater, soft core right

**U+E7BA**

*pictWoundSoftLeft*

Wound beater, soft core left

**U+E7BB**

*pictGumSoftUp*

Soft gum beater, up

**U+E7BC**

*pictGumSoftDown*

Soft gum beater, down

**U+E7BD**

*pictGumSoftRight*

Soft gum beater, right

**U+E7BE**

*pictGumSoftLeft*

Soft gum beater, left

**U+E7BF**

*pictGumMediumUp*

Medium gum beater, up

**U+E7C0**

*pictGumMediumDown*

Medium gum beater, down

**U+E7C1**

*pictGumMediumRight*

Medium gum beater, right

**U+E7C2**

*pictGumMediumLeft*

Medium gum beater, left

**U+E7C3**

*pictGumHardUp*

Hard gum beater, up

**U+E7C4**

*pictGumHardDown*

Hard gum beater, down

**U+E7C5**

*pictGumHardRight*

Hard gum beater, right

**U+E7C6**

*pictGumHardLeft*

Hard gum beater, left

**U+E7C7**

*pictBeaterMetalUp*

Metal beater, up

**U+E7C8**

*pictBeaterMetalDown*

Metal beater down

**U+E7C9**

*pictBeaterMetalRight*

Metal beater, right

**U+E7CA**

*pictBeaterMetalLeft*

Metal beater, left

**U+E7CB**

*pictBeaterHammerWoodUp*

Wooden hammer, up

**U+E7CC**

*pictBeaterHammerWoodDown*

Wooden hammer, down

**U+E7CD**

*pictBeaterHammerPlasticUp*

Plastic hammer, up

**U+E7CE**

*pictBeaterHammerPlasticDown*

Plastic hammer, down

**U+E7CF**

*pictBeaterHammerMetalUp*

Metal hammer, up

**U+E7D0**

*pictBeaterHammerMetalDown*

Metal hammer, down



**U+E7D1**

*pictBeaterSnareSticksUp*

Snare sticks up



**U+E7D2**

*pictBeaterSnareSticksDown*

Snare sticks down



**U+E7D3**

*pictBeaterJazzSticksUp*

Jazz sticks up



**U+E7D4**

*pictBeaterJazzSticksDown*

Jazz sticks down

**U+E7D5**

*pictBeaterTriangleUp*

Triangle beater up

**U+E7D6**

*pictBeaterTriangleDown*

Triangle beater down

**U+E7D7**

*pictBeaterWireBrushesUp*

Wire brushes up

**U+E7D8**

*pictBeaterWireBrushesDown*

Wire brushes down

**U+E7D9**

*pictBeaterBrassMalletsUp*

Brass mallets up

**U+E7DA**

*pictBeaterBrassMalletsDown*

Brass mallets down

**U+E7DB**

*pictBeaterSoftXylophone*

Soft xylophone beaters

**U+E7DC**

*pictBeaterSpoonWoodenMallet*

Spoon-shaped wooden mallet

**U+E7DD**

*pictBeaterGuiroScraper*

Guiro scraper



**U+E7DE**

*pictBeaterBow*

Bow

**U+E7DF**

*pictBeaterMallet*

Chime hammer

**U+E7E0**

*pictBeaterMetalHammer*

Metal hammer

**U+E7E1**

*pictBeaterHammer*

Hammer

**U+E7E2**

*pictBeaterKnittingNeedle*

Knitting needle

**U+E7E3**

*pictBeaterHand*

Hand

**U+E7E4**

*pictBeaterFinger*

Finger

**U+E7E5**

*pictBeaterFist*

Fist



**U+E7E6**

*pictBeaterFingernails*

Fingernails

**U+E7E7**

*pictCoins*

Coins



**U+E7E8**

*pictDrumStick*

Drum stick

**U+E7E9**

*pictBeaterCombiningParentheses*

Combining parentheses for round beaters (padded)

**U+E7EA**

*pictBeaterCombiningDashedCircle*

Combining dashed circle for round beaters (plated)

**U+E7EB**

*pictBeaterBox*

Box for percussion beater

# Percussion playing technique pictograms (U+E7F0–U+E80F)

**U+E7F0**

*pictStickShot*

Stick shot

**U+E7F1**

*pictScrapeCenterToEdge*

Scrape from center to edge

**U+E7F2**

*pictScrapeEdgeToCenter*

Scrape from edge to center

**U+E7F3**

*pictScrapeAroundRim*

Scrape around rim

**U+E7F4**

*pictOnRim*

On rim

**U+E7F5**

*pictOpenRimShot*

Closed / rim shot

**U+E7F6**

*pictHalfOpen1*

Half-open

**U+E7F7**

*pictHalfOpen2*

Half-open 2 (Weinberg)

**U+E7F8**

*pictOpen*

Open

**U+E7F9**

*pictDamp1*

Damp

**U+E7FA**

*pictDamp2*

Damp 2

**U+E7FB**

*pictDamp3*

Damp 3

**U+E7FC**

*pictDamp4*

Damp 4



**U+E7FD**

*pictRimShotOnStem*

Rim shot for stem

**U+E7FE**

*pictCenter1*

Center (Weinberg)

**U+E7FF**

*pictCenter2*

Center (Ghent)

**U+E800**

*pictCenter3*

Center (Caltabiano)

**U+E801**

*pictRim1*

Rim or edge (Weinberg)

**U+E802**

*pictRim2*

Rim (Ghent)

**U+E803**

*pictRim3*

Rim (Caltabiano)

**U+E804**

*pictNormalPosition*

Normal position (Caltabiano)

**U+E805**

*pictChokeCymbal*



Choke (Weinberg)

**U+E806**

*pictRightHandSquare*

Left hand (Agostini)

**U+E807**

*pictLeftHandCircle*



Right hand (Agostini)

**U+E808**

*pictSwishStem*

Combining swish for stem

**U+E809**

*pictTurnRightStem*

Combining turn right for stem

**U+E80A**

*pictTurnLeftStem*



Combining turn left for stem

**U+E80B**

*pictTurnRightLeftStem*



Combining turn left or right for stem

**U+E80C**

*pictCrushStem*



Combining crush for stem

**U+E80D**

*pictDeadNoteStem*

Combining X for stem (dead note)

# Handbells (U+E810–U+E82F)

**U+E810**

*handbellsMartellato*

Martellato

**U+E811**

*handbellsMartellatoLift*

Martellato lift

**U+E812**

*handbellsHandMartellato*

Hand martellato

**U+E813**

*handbellsMutedMartellato*

Muted martellato

**U+E814**

*handbellsMalletBellSuspended*

Mallet, bell suspended

**U+E815**

*handbellsMalletBellOnTable*

Mallet, bell on table

**U+E816**

*handbellsMalletLft*

Mallet lift

**U+E817**

*handbellsPluckLift*

Pluck lift



**U+E818**

*handbellsSwingUp*

Swing up



**U+E819**

*handbellsSwingDown*

Swing down

**U+E81A**

*handbellsSwing*

Swing

**U+E81B**

*handbellsEcho1*

Echo



**U+E81C**

*handbellsEcho2*

Echo 2

**U+E81D**

*handbellsGyro*

Gyro

**U+E81E**

*handbellsDamp3*

Damp 3

**U+E81F**

*handbellsBelltree*

Belltree

**U+E820**

*handbellsTableSingleBell*

Table single handbell

**U+E821**

*handbellsTablePairBells*

Table pair of handbells

# Guitar (U+E830–U+E84F)

**U+E830**
*guitarVibratoBarScoop*

Guitar vibrato bar scoop

**U+E831**
*guitarVibratoBarDip*

Guitar vibrato bar dip

**U+E832**
*guitarShake*

Guitar shake

**U+E833**
*guitarString0*

String number 0

**U+E834**
*guitarString1*

String number 1

**U+E835**
*guitarString2*

String number 2

**U+E836**
*guitarString3*

String number 3

**U+E837**
*guitarString4*

String number 4

**U+E838**
*guitarString5*

String number 5

**U+E839**
*guitarString6*

String number 6

**U+E83A**
*guitarString7*

String number 7

**U+E83B**
*guitarString8*

String number 8

**U+E83C**
*guitarString9*

String number 9

**U+E83D**
*guitarOpenPedal*

Open wah/volume pedal

**U+E83E**
*guitarHalfOpenPedal*

Half-open wah/volume pedal

**U+E83F**
*guitarClosePedal*

Closed wah/volume pedal

**U+E840**
*guitarLeftHandTapping*

Left-hand tapping

**U+E841**
*guitarRightHandTapping*

Right-hand tapping

**U+E842**

*guitarGolpe*

Golpe (tapping the pick guard)

**U+E843**

*guitarFadeIn*

Fade in

**U+E844**

*guitarFadeOut*

Fade out

**U+E845**

*guitarVolumeSwell*

Volume swell

**U+E846**

*guitarStrumUp*

Strum direction up

**U+E847**

*guitarStrumDown*

Strum direction down

## Recommended stylistic alternates

**uniE842.salt01**

*guitarGolpeFlamenco*

Golpe (tapping the pick guard)
(Vounelakos)

# Chord diagrams (U+E850–U+E85F)

**U+E850**

*fretboard3String*

3-string fretboard

**U+E851**

*fretboard3StringNut*

3-string fretboard at nut

**U+E852** (and U+1D11D)

*fretboard4String*

4-string fretboard

**U+E853**

*fretboard4StringNut*

4-string fretboard at nut

**U+E854**

*fretboard5String*

5-string fretboard

**U+E855**

*fretboard5StringNut*

5-string fretboard at nut

**U+E856** (and U+1D11C)

*fretboard6String*

6-string fretboard

**U+E857**

*fretboard6StringNut*

6-string fretboard at nut

**U+E858**

*fretboardFilledCircle*

• Fingered fret (filled circle)

**U+E859**

*fretboardX*

× String not played (X)

**U+E85A**

*fretboard0*

○ Open string (O)

## Implementation notes

Scoring applications may choose to draw chord diagram fretboards using primitives in order to provide the end user with control over grid spacing and line thickness relative to size.

# Analytics (U+E860–U+E86F)

**U+E860** (and U+1D1A6)
*analyticsHauptstimme*
Hauptstimme

**U+E861** (and U+1D1A7)
*analyticsNebenstimme*
Nebenstimme



**U+E862**
*analyticsStartStimme*
Start of stimme



**U+E863** (and U+1D1A8)
*analyticsEndStimme*
End of stimme

**U+E864**
*analyticsTheme*
Theme

**U+E865**
*analyticsThemeRetrograde*
Retrograde of theme

**U+E866**
*analyticsThemeRetrogradeInversion*
Retrograde inversion of theme

**U+E867**
*analyticsThemeInversion*
Inversion of theme

**U+E868**
*analyticsTheme1*
Theme 1

**U+E869**
*analyticsInversion1*
Inversion 1

**U+E86A**
*analyticsChoralmelodie*
Choralmelodie (Berg)

**U+E86B**
*analyticsHauptrhythmus*
Hauptrhythmus (Berg)

## Recommended stylistic alternates

**uniE86B.salt01**
*analyticsHauptrhythmusR*
Hauptrhythmus R (Berg)

# Chord symbols (U+E870–U+E87F)

**U+E870** (and U+1D1A9)
*csymDiminished*
Diminished

**U+E871**
*csymHalfDiminished*
Half-diminished

**U+E872**
*csymAugmented*
Augmented

**U+E873**
*csymMajorSeventh*
Major seventh



**U+E874**
*csymMinor*
Minor

**U+E875**
*csymParensLeftTall*
Double-height left parenthesis

**U+E876**
*csymParensRightTall*
Double-height right parenthesis

**U+E877**
*csymBracketLeftTall*
Double-height left bracket

**U+E878**
*csymBracketRightTall*
Double-height right bracket

## Implementation notes

These symbols are designed to combine with accidental symbols (**accidentalSharp** and **accidentalFlat**) from the music font and the letters A–G (for root and bass alterations), lower case letters (for chord qualities, e.g. “maj” and “min”) and numbers (for chord extensions or tensions) from any standard text font to produce complete chord symbols.

Scoring applications should be able to create strings with complex formatting, e.g. superscript and subscript characters, small digits stacked on top of each other, and scale these symbols to any arbitrary size in order to produce satisfactory chord symbols with a wide variety of visual appearances.

# Tuplets (U+E880–U+E88F)

**U+E880**
*tuplet0*
𝘰 Tuplet 0

**U+E881**
*tuplet1*
𝘱 Tuplet 1

**U+E882**
*tuplet2*
𝘲 Tuplet 2

**U+E883**
*tuplet3*
𝘳 Tuplet 3

**U+E884**
*tuplet4*
𝘴 Tuplet 4

**U+E885**
*tuplet5*
𝘵 Tuplet 5

**U+E886**
*tuplet6*
𝘶 Tuplet 6

**U+E887**
*tuplet7*
𝘷 Tuplet 7

**U+E888**
*tuplet8*
𝘸 Tuplet 8

**U+E889**
*tuplet9*
𝘹 Tuplet 9

**U+E88A**
*tupletColon*
: Tuplet colon

## Implementation notes

This range provides glyphs for tuplet numbers. These digits may also be used in ligatures with clefs to indicate the interval by which a transposing instrument transposes, used in some scores in C.

Scoring applications should use primitives to draw tuplet brackets.

Simple triplets (including brackets) can be written in fonts intended for use in text-based applications using the glyphs in the **Beamed groups of notes** range.

# Conductor symbols (U+E890–U+E89F)

**U+E890**

*conductorStrongBeat*

Strong beat or cue

**U+E891**

*conductorLeftBeat*

Left-hand beat or cue

**U+E892**

*conductorRightBeat*

Right-hand beat or cue

**U+E893**

*conductorWeakBeat*

Weak beat or cue

**U+E894**

*conductorBeat2Simple*

Beat 2, simple time

**U+E895**

*conductorBeat3Simple*

Beat 3, simple time

**U+E896**

*conductorBeat4Simple*

Beat 4, simple time

**U+E897**

*conductorBeat2Compound*

Beat 2, compound time

**U+E898**

*conductorBeat3Compound*

Beat 3, compound time

**U+E899**

*conductorBeat4Compound*

Beat 4, compound time

# Accordion (U+E8A0–U+E8DF)

**U+E8A0**

*accdnRH3RanksPiccolo*

Right hand, 3 ranks, 4' stop (piccolo)

**U+E8A1**

*accdnRH3RanksClarinet*

Right hand, 3 ranks, 8' stop (clarinet)

**U+E8A2**

*accdnRH3RanksUpperTremolo8*

Right hand, 3 ranks, upper tremolo 8' stop

**U+E8A3**

*accdnRH3RanksLowerTremolo8*

Right hand, 3 ranks, lower tremolo 8' stop

**U+E8A4**

*accdnRH3RanksBassoon*

Right hand, 3 ranks, 16' stop (bassoon)

**U+E8A5**

*accdnRH3RanksOboe*

Right hand, 3 ranks, 4' stop + 8' stop (oboe)

**U+E8A6**

*accdnRH3RanksViolin*

Right hand, 3 ranks, 8' stop + upper tremolo 8' stop (violin)

**U+E8A7**

*accdnRH3RanksImitationMusette*

Right hand, 3 ranks, 4' stop + 8' stop + upper tremolo 8' stop (imitation musette)

**U+E8A8**

*accdnRH3RanksAuthenticMusette*

Right hand, 3 ranks, lower tremolo 8' stop + 8' stop + upper tremolo 8' stop (authentic musette)

**U+E8A9**

*accdnRH3RanksOrgan*

Right hand, 3 ranks, 4' stop + 16' stop (organ)

**U+E8AA**

*accdnRH3RanksHarmonium*

Right hand, 3 ranks, 4' stop + 8' stop + 16' stop (harmonium)

**U+E8AB**

*accdnRH3RanksBandoneon*

Right hand, 3 ranks, 8' stop + 16' stop (bandoneón)

**U+E8AC**

*accdnRH3RanksAccordion*

Right hand, 3 ranks, 8' stop + upper tremolo 8' stop + 16' stop (accordion)

**U+E8AD**

*accdnRH3RanksMaster*

Right hand, 3 ranks, 4' stop + lower tremolo 8' stop + upper tremolo 8' stop + 16' stop (master)

**U+E8AE**

*accdnRH3RanksTwoChoirs*

Right hand, 3 ranks, lower tremolo 8' stop + upper tremolo 8' stop

**U+E8AF**

*accdnRH3RanksTremoloLower8ve*

Right hand, 3 ranks, lower tremolo 8' stop + upper tremolo 8' stop + 16' stop

**U+E8B0**

*accdnRH3RanksTremoloUpper8ve*

Right hand, 3 ranks, 4' stop + lower tremolo 8' stop + upper tremolo 8' stop

**U+E8B1**

*accdnRH3RanksDoubleTremoloLower8ve*

Right hand, 3 ranks, lower tremolo 8' stop + 8' stop + upper tremolo 8' stop + 16' stop

**U+E8B2**

*accdnRH3RanksDoubleTremoloUpper8ve*

Right hand, 3 ranks, 4' stop + lower tremolo 8' stop + 8' stop + upper tremolo 8' stop

**U+E8B3**

*accdnRH3RanksFullFactory*

Right hand, 3 ranks, 4' stop + lower tremolo 8' stop + 8' stop + upper tremolo 8' stop + 16' stop

**U+E8B4**

*accdnRH4RanksSoprano*

Right hand, 4 ranks, soprano

**U+E8B5**

*accdnRH4RanksAlto*

Right hand, 4 ranks, alto

**U+E8B6**

*accdnRH4RanksTenor*

Right hand, 4 ranks, tenor

**U+E8B7**

*accdnRH4RanksMaster*

Right hand, 4 ranks, master

**U+E8B8**

*accdnRH4RanksSoftBass*

Right hand, 4 ranks, soft bass

**U+E8B9**

*accdnRH4RanksSoftTenor*

Right hand, 4 ranks, soft tenor

**U+E8BA**

*accdnRH4RanksBassAlto*

Right hand, 4 ranks, bass/alto

**U+E8BB**

*accdnLH2Ranks8Round*

Left hand, 2 ranks, 8' stop (round)

**U+E8BC**

*accdnLH2Ranks16Round*

Left hand, 2 ranks, 16' stop (round)

**U+E8BD**

*accdnLH2Ranks8Plus16Round*

Left hand, 2 ranks, 8' stop + 16' stop (round)

**U+E8BE**

*accdnLH2RanksMasterRound*

Left hand, 2 ranks, master (round)

**U+E8BF**

*accdnLH2RanksMasterPlus16Round*

Left hand, 2 ranks, master + 16' stop (round)

**U+E8C0**

*accdnLH2RanksFullMasterRound*

Left hand, 2 ranks, full master (round)

**U+E8C1**

*accdnLH3Ranks8Square*

Left hand, 3 ranks, 8' stop (square)

**U+E8C2**

*accdnLH3Ranks2Square*

Left hand, 3 ranks, 2' stop (square)

**U+E8C3**

*accdnLH3RanksDouble8Square*

Left hand, 3 ranks, double 8' stop (square)

**U+E8C4**

*accdnLH3Ranks2Plus8Square*

Left hand, 3 ranks, 2' stop + 8' stop (square)

**U+E8C5**

*accdnLH3RanksTuttiSquare*

Left hand, 3 ranks, 2' stop + double 8' stop (tutti) (square)

**U+E8C6**

*accdnCombRH3RanksEmpty*

Combining right hand, 3 ranks, empty

**U+E8C7**

*accdnCombRH4RanksEmpty*

Combining right hand, 4 ranks, empty

**U+E8C8**

*accdnCombLH2RanksEmpty*

Combining left hand, 2 ranks, empty

**U+E8C9**

*accdnCombLH3RanksEmptySquare*

Combining left hand, 3 ranks, empty (square)



**U+E8CA**

*accdnCombDot*

Combining accordion coupler dot

**U+E8CB**

*accdnPush*

Push

**U+E8CC**

*accdnPull*

Pull

**U+E8CD**

*accdnRicochet2*

Ricochet (2 tones)

**U+E8CE**

*accdnRicochet3*

Ricochet (3 tones)

**U+E8CF**

*accdnRicochet4*

Ricochet (4 tones)

**U+E8D0**

*accdnRicochet5*

Ricochet (5 tones)

**U+E8D1**

*accdnRicochet6*

Ricochet (6 tones)

**U+E8D2**

*accdnRicochetStem2*

Combining ricochet for stem (2 tones)

**U+E8D3**

*accdnRicochetStem3*

Combining ricochet for stem (3 tones)

**U+E8D4**

*accdnRicochetStem4*

Combining ricochet for stem (4 tones)

**U+E8D5**

*accdnRicochetStem5*

Combining ricochet for stem (5 tones)

**U+E8D6**

*accdnRicochetStem6*

Combining ricochet for stem (6 tones)

## Recommended stylistic alternates

**uniE8CB.salt01**

*accdnPushAlt*

Push (Draugsvoll & Højsgaard)

# Beams and slurs (U+E8E0–U+E8EF)

**U+E8E0** (and U+1D173)
*controlBeginBeam*
Begin beam

**U+E8E1** (and U+1D174)
*controlEndBeam*
End beam

**U+E8E2** (and U+1D175)
*controlBeginTie*
Begin tie

**U+E8E3** (and U+1D176)
*controlEndTie*
End tie

**U+E8E4** (and U+1D177)
*controlBeginSlur*
Begin slur

**U+E8E5** (and U+1D178)
*controlEndSlur*
End slur

**U+E8E6** (and U+1D179)
*controlBeginPhrase*
Begin phrase

**U+E8E7** (and U+1D17A)
*controlEndPhrase*
End phrase

## Implementation notes

These are format characters as defined in the Unicode Standard[19]:

> Extensive ligature-like beams are used frequently in musical notation between groups of notes having short values. The practice is widespread and very predictable, so it is therefore amenable to algorithmic handling. The format characters U+1D173 musical symbol begin beam and U+1D174 musical symbol end beam can be used to indicate the extents of beam groupings. In some exceptional cases, beams are left unclosed on one end. This status can be indicated with a U+1D159 musical symbol null notehead character if no stem is to appear at the end of the beam.
>
> Similarly, format characters have been provided for other connecting structures. The characters U+1D175 musical symbol begin tie, U+1D176 musical symbol end tie, U+1D177 musical symbol begin slur, U+1D178 musical symbol end slur, U+1D179 musical symbol begin phrase, and U+1D17A musical symbol end phrase indicate the extent of these features. Like beaming, these features are easily handled in an algorithmic fashion.
>
> These pairs of characters modify the layout and grouping of notes and phrases in full musical notation. When musical examples are written or rendered in plain text without special software, the start/end format characters may be rendered as brackets or left uninterpreted. To the extent possible, more sophisticated software that renders musical examples inline with natural-language text might interpret them in their actual format control capacity, rendering slurs, beams, and so forth, as appropriate.

Scoring applications may choose to implement these format characters for beams, slurs, phrase marks and ties or not, as they wish.

[19] *Ibid.*, Allen, page 537.

# Medieval and Renaissance staves (U+E8F0–U+E8FF)

**U+E8F0**

*chantStaff*

Plainchant staff

**U+E8F1**

*chantStaffWide*

Plainchant staff (wide)

**U+E8F2**

*chantStaffNarrow*

Plainchant staff (narrow)



**U+E8F3**

*chantDivisioMinima*

Divisio minima



**U+E8F4**

*chantDivisioMaior*

Divisio maior



**U+E8F5**

*chantDivisioMaxima*

Divisio maxima



**U+E8F6**

*chantDivisioFinalis*

Divisio finalis



**U+E8F7**

*chantVirgula*

Virgula



**U+E8F8**

*chantCaesura*

Caesura

# Medieval and Renaissance clefs (U+E900–U+E90F)

**U+E900**
*mensuralGclef*
Mensural G clef

**U+E901**
*mensuralGclefPetrucci*
Petrucci G clef

**U+E902** (and U+1D1D1)
*chantFclef*
Plainchant F clef

**U+E903**
*mensuralFclef*
Mensural F clef

**U+E904**
*mensuralFclefPetrucci*
Petrucci F clef

**U+E905**
*mensuralCclef*
Mensural C clef



**U+E906** (and U+1D1D0)
*chantCclef*
Plainchant C clef

**U+E907**
*mensuralCclefPetrucciPosLowest*
Petrucci C clef, lowest position

**U+E908**
*mensuralCclefPetrucciPosLow*
Petrucci C clef, low position

**U+E909**
*mensuralCclefPetrucciPosMiddle*
Petrucci C clef, middle position

**U+E90A**
*mensuralCclefPetrucciPosHigh*
Petrucci C clef, high position

**U+E90B**
*mensuralCclefPetrucciPosHighest*
Petrucci C clef, highest position

## Recommended stylistic alternates

**uniE902.salt01**
*chantFclefHufnagel*
Plainchant F clef (Hufnagel)

**uniE905.salt01**
*mensuralCclefVoid*
Void mensural C clef

**uniE905.salt02**
*mensuralCclefBlack*
Black mensural C clef

**uniE906.salt01**
*chantCclefHufnagel*
Plainchant C clef (Hufnagel)

# Medieval and Renaissance prolations (U+E910–U+E92F)

**U+E910** (and U+1D1C7)

*mensuralProlation1*

Tempus perfectum cum prolatione perfecta (9/8)

**U+E911** (and U+1D1C8)

*mensuralProlation2*

Tempus perfectum cum prolatione imperfecta (3/4)

**U+E912** (and U+1D1C9)

*mensuralProlation3*

Tempus perfectum cum prolatione imperfecta diminution 1 (3/8)

**U+E913**

*mensuralProlation4*

Tempus perfectum cum prolatione perfecta diminution 2 (9/16)

**U+E914** (and U+1D1CA)

*mensuralProlation5*

Tempus imperfectum cum prolatione perfecta (6/8)

**U+E915** (and U+1D1CB)

*mensuralProlation6*

Tempus imperfectum cum prolatione imperfecta (2/4)

**U+E916** (and U+1D1CC)

*mensuralProlation7*

Tempus imperfectum cum prolatione imperfecta diminution 1 (2/2)

**U+E917**

*mensuralProlation8*

Tempus imperfectum cum prolatione imperfecta diminution 2 (6/16)

**U+E918** (and U+1D1CD)

*mensuralProlation9*

Tempus imperfectum cum prolatione imperfecta diminution 3 (2/2)

**U+E919** (and U+1D1CE)

*mensuralProlation10*

Tempus imperfectum cum prolatione imperfecta diminution 4

**U+E91A**

*mensuralProlation11*

Tempus imperfectum cum prolatione imperfecta diminution 5

**U+E91B**

*mensuralProportionTempusPerfectum*

Tempus perfectum

**U+E91C**

*mensuralProportionProportioDupla1*

Proportio dupla 1

**U+E91D**

*mensuralProportionProportioDupla2*

Proportio dupla 2

**U+E91E**

*mensuralProportionProportioTripla*

Proportio tripla

**U+E91F**

*mensuralProportionProportioQuadrupla*

Proportio quadrupla

**U+E920**

*mensuralProlationCombiningDot*



Combining dot

**U+E921**

*mensuralProlationCombiningTwoDots*



Combining two dots

**U+E922**

*mensuralProlationCombiningThreeDots*



Combining three dots horizontal

**U+E923**

*mensuralProlationCombiningThreeDotsTri*



Combining three dots triangular

**U+E924**

*mensuralProlationCombiningDotVoid*



Combining void dot

**U+E925**

*mensuralProlationCombiningStroke*



Combining vertical stroke

**U+E926**

*mensuralProportion1*

Mensural proportion 1

**U+E927**

*mensuralProportion2*

Mensural proportion 2

**U+E928**

*mensuralProportion3*

Mensural proportion 3

**U+E929**

*mensuralProportion4*

Mensural proportion 4

**U+E92A**

*mensuralProportionMinor*

Mensural proportion minor

**U+E92B**

*mensuralProportionMajor*

Mensural proportion major

**U+E92C**

*mensuralModusPerfectumVert*

Modus perfectum, vertical

**U+E92D**

*mensuralModusImperfectumVert*

Modus imperfectum, vertical

**U+E92E**

*mensuralTempusPerfectumHoriz*

Tempus perfectum, horizontal

**U+E92F**

*mensuralTempusImperfectumHoriz*

Tempus imperfectum, horizontal

## Recommended stylistic alternates

**uniE929.salt01**

*mensuralProportion4Old*

Mensural proportion 4 (old)

# Medieval and Renaissance noteheads and stems (U+E930–U+E94F)



**U+E930**
*mensuralNoteheadMaximaBlack*
Maxima notehead, black



**U+E931** (and U+1D1B6)
*mensuralNoteheadMaximaVoid*
Maxima notehead, void

**U+E932**
*mensuralNoteheadMaximaBlackVoid*
Maxima notehead, black and void

**U+E933**
*mensuralNoteheadMaximaWhite*
Maxima notehead, white

**U+E934**
*mensuralNoteheadLongaBlack*
Longa/brevis notehead, black

**U+E935** (and U+1D1B7)
*mensuralNoteheadLongaVoid*
Longa/brevis notehead, void

**U+E936**
*mensuralNoteheadLongaBlackVoid*
Longa/brevis notehead, black and void

**U+E937**
*mensuralNoteheadLongaWhite*
Longa/brevis notehead, white

**U+E938** (and U+1D1BA)
*mensuralNoteheadSemibrevisBlack*
Semibrevis notehead, black

**U+E939** (and U+1D1B9)
*mensuralNoteheadSemibrevisVoid*
Semibrevis notehead, void

**U+E93A**
*mensuralNoteheadSemibrevisBlackVoid*
Semibrevis notehead, black and void

**U+E93B**
*mensuralNoteheadSemibrevisBlackVoidTurned*
Semibrevis notehead, black and void (turned)

**U+E93C**
*mensuralNoteheadMinimaWhite*
Minima notehead, white

**U+E93D**
*mensuralNoteheadSemiminimaWhite*
Semiminima/fusa notehead, white



**U+E93E**
*mensuralCombStemUp*
Combining stem up



**U+E93F**
*mensuralCombStemDown*
Combining stem down

**U+E940**

*mensuralCombStemDiagonal*

Combining stem diagonal

**U+E941**

*mensuralCombStemUpFlagRight*

Combining stem with flag right up

**U+E942**

*mensuralCombStemDownFlagRight*

Combining stem with flag right down

**U+E943**

*mensuralCombStemUpFlagLeft*

Combining stem with flag left up

**U+E944**

*mensuralCombStemDownFlagLeft*

Combining stem with flag left down

**U+E945**

*mensuralCombStemUpFlagFlared*

Combining stem with flared flag up

**U+E946**

*mensuralCombStemDownFlagFlared*

Combining stem with flared flag down

**U+E947**

*mensuralCombStemUpFlagExtended*

Combining stem with extended flag up

**U+E948**

*mensuralCombStemDownFlagExtended*

Combining stem with extended flag down

**U+E949**

*mensuralCombStemUpFlagSemiminima*

Combining stem with semiminima flag up

**U+E94A**

*mensuralCombStemDownFlagSemiminima*

Combining stem with semiminima flag down

**U+E94B**

*mensuralCombStemUpFlagFusa*

Combining stem with fusa flag up

**U+E94C**

*mensuralCombStemDownFlagFusa*

Combining stem with fusa flag down

## Recommended ligatures

**uniE938_uniE94C**

*mensuralFusaBlackStemDown*

Fusa black, stem down

**uniE938_uniE94B**

*mensuralFusaBlackStemUp*

Fusa black, stem up

**uniE93A_uniE94C**

*mensuralFusaBlackVoidStemDown*

Fusa black and void, stem down

**uniE93A_uniE94B**

*mensuralFusaBlackVoidStemUp*

Fusa black and void, stem up

**uniE939_uniE94C**

*mensuralFusaVoidStemDown*

Fusa void, stem down

**uniE939_uniE94B**

*mensuralFusaVoidStemUp*

Fusa void, stem up

**uniE93F_uniE934**

*mensuralLongaBlackStemDownLeft*

Longa black, stem down left

**uniE934_uniE93F**

*mensuralLongaBlackStemDownRight*

Longa black, stem down right

**uniE93E_uniE934**

*mensuralLongaBlackStemUpLeft*

Longa black, stem up left

**uniE934_uniE93E**

*mensuralLongaBlackStemUpRight*

Longa black, stem up right

**uniE93F_uniE936**

*mensuralLongaBlackVoidStemDownLeft*

Longa black and void, stem down left

**uniE936_uniE93F**

*mensuralLongaBlackVoidStemDownRight*

Longa black and void, stem down right

**uniE93E_uniE936**

*mensuralLongaBlackVoidStemUpLeft*

Longa black and void, stem up left

**uniE936_uniE93E**

*mensuralLongaBlackVoidStemUpRight*

Longa black and void, stem up right

**uniE93F_uniE935**

*mensuralLongaVoidStemDownLeft*

Longa void, stem down left

**uniE935_uniE93F**

*mensuralLongaVoidStemDownRight*

Longa void, stem down right

**uniE93E_uniE935**

*mensuralLongaVoidStemUpLeft*

Longa void, stem up left

**uniE935_uniE93E**

*mensuralLongaVoidStemUpRight*

Longa void, stem up right

**uniE93F_uniE930**

*mensuralMaximaBlackStemDownLeft*

Maxima black, stem down left

**uniE930_uniE93F**

*mensuralMaximaBlackStemDownRight*

Maxima black, stem down right

**uniE93E_uniE930**

*mensuralMaximaBlackStemUpLeft*

Maxima black, stem up left

**uniE930_uniE93E**

*mensuralMaximaBlackStemUpRight*

Maxima black, stem up right

**uniE93F_uniE932**

*mensuralMaximaBlackVoidStemDownLeft*

Maxima black and void, stem down left

**uniE932_uniE93F**

*mensuralMaximaBlackVoidStemDownRight*

Maxima black and void, stem down right

**uniE93E_uniE932**

*mensuralMaximaBlackVoidStemUpLeft*

Maxima black and void, stem up left

**uniE932_uniE93E**

*mensuralMaximaBlackVoidStemUpRight*

Maxima black and void, stem up right

**uniE93F_uniE931**

*mensuralMaximaVoidStemDownLeft*

Maxima void, stem down left

**uniE931_uniE93F**

*mensuralMaximaVoidStemDownRight*

Maxima void, stem down right

**uniE93E_uniE931**

*mensuralMaximaVoidStemUpLeft*

Maxima void, stem up left

**uniE931_uniE93E**

*mensuralMaximaVoidStemUpRight*

Maxima void, stem up right

**uniE938_uniE93F**

*mensuralMinimaBlackStemDown*

Minima black, stem down

**uniE938_uniE948**

*mensuralMinimaBlackStemDownExtendedFlag*

Minima black, stem down with extended flag

**uniE938_uniE944**

*mensuralMinimaBlackStemDownFlagLeft*

Minima black, stem down with flag left

**uniE938_uniE942**

*mensuralMinimaBlackStemDownFlagRight*

Minima black, stem down with flag right

**uniE938_uniE946**

*mensuralMinimaBlackStemDownFlaredFlag*

Minima black, stem down with flared flag

**uniE938_uniE93E**

*mensuralMinimaBlackStemUp*

Minima black, stem up

**uniE938_uniE947**

*mensuralMinimaBlackStemUpExtendedFlag*

Minima black, stem up with extended flag

**uniE938_uniE943**

*mensuralMinimaBlackStemUpFlagLeft*

Minima black, stem up with flag left

**uniE938_uniE941**

*mensuralMinimaBlackStemUpFlagRight*

Minima black, stem up with flag right

**uniE938_uniE945**

*mensuralMinimaBlackStemUpFlaredFlag*

Minima black, stem up with flared flag

**uniE93A_uniE93F**

*mensuralMinimaBlackVoidStemDown*

Minima black and void, stem down

**uniE93A_uniE944**

*mensuralMinimaBlackVoidStemDownFlagLeft*

Minima black and void, stem down with flag left

**uniE93A_uniE946**

*mensuralMinimaBlackVoidStemDownFlaredFlag*

Minima black and void, stem down with flared flag

**uniE93A_uniE947**

*mensuralMinimaBlackVoidStemUpExtendedFlag*

Minima black and void, stem up with extended flag

**uniE93A_uniE941**

*mensuralMinimaBlackVoidStemUpFlagRight*

Minima black and void, stem up with flag right

**uniE939_uniE93F**

*mensuralMinimaVoidStemDown*

Minima void, stem down

**uniE939_uniE944**

*mensuralMinimaVoidStemDownFlagLeft*

Minima void, stem down with flag left

**uniE939_uniE946**

*mensuralMinimaVoidStemDownFlaredFlag*

Minima void, stem down with flared flag

**uniE939_uniE93E**

*mensuralMinimaVoidStemUp*

Minima void, stem up

**uniE93A_uniE948**

*mensuralMinimaBlackVoidStemDownExtendedFlag*

Minima black and void, stem down with extended flag

**uniE93A_uniE942**

*mensuralMinimaBlackVoidStemDownFlagRight*

Minima black and void, stem down with flag right

**uniE93A_uniE93E**

*mensuralMinimaBlackVoidStemUp*

Minima black and void, stem up

**uniE93A_uniE943**

*mensuralMinimaBlackVoidStemUpFlagLeft*

Minima black and void, stem up with flag left

**uniE93A_uniE945**

*mensuralMinimaBlackVoidStemUpFlaredFlag*

Minima black and void, stem up with flared flag

**uniE939_uniE948**

*mensuralMinimaVoidStemDownExtendedFlag*

Minima void, stem down with extended flag

**uniE939_uniE942**

*mensuralMinimaVoidStemDownFlagRight*

Minima void, stem down with flag right

**uniE939_uniE947**

*mensuralMinimaVoidStemUpExtendedFlag*

Minima void, stem up with extended flag

**uniE939_uniE943**

*mensuralMinimaVoidStemUpFlagLeft*

Minima void, stem up with flag left

**uniE939_uniE941**

*mensuralMinimaVoidStemUpFlagRight*

Minima void, stem up with flag right

**uniE938_uniE94A**

*mensuralSemiminimaBlackStemDown*

Semiminima black, stem down

**uniE93A_uniE94A**

*mensuralSemiminimaBlackVoidStemDown*

Semiminima black and void, stem down

**uniE939_uniE94A**

*mensuralSemiminimaVoidStemDown*

Semiminima void, stem down

**uniE939_uniE945**

*mensuralMinimaVoidStemUpFlaredFlag*

Minima void, stem up with flared flag

**uniE938_uniE949**

*mensuralSemiminimaBlackStemUp*

Semiminima black, stem up

**uniE93A_uniE949**

*mensuralSemiminimaBlackVoidStemUp*

Semiminima black and void, stem up

**uniE939_uniE949**

*mensuralSemiminimaVoidStemUp*

Semiminima void, stem up

# Medieval and Renaissance individual notes (U+E950–U+E96F)

**U+E950**

*mensuralBlackMaxima*

Black mensural maxima

**U+E951**

*mensuralBlackLonga*

Black mensural longa

**U+E952**

*mensuralBlackBrevis*

Black mensural brevis

**U+E953** (and U+1D1BA)

*mensuralBlackSemibrevis*

Black mensural semibrevis

**U+E954** (and U+1D1BC)

*mensuralBlackMinima*

Black mensural minima

**U+E955**

*mensuralBlackSemiminima*

Black mensural semiminima

**U+E956**

*mensuralBlackBrevisVoid*

Black mensural void brevis

**U+E957** (and U+1D1B9)

*mensuralBlackSemibrevisVoid*

Black mensural void semibrevis

**U+E958** (and U+1D1BB)

*mensuralBlackMinimaVoid*

Black mensural void minima

**U+E959**

*mensuralBlackSemibrevisCaudata*

Black mensural semibrevis caudata

**U+E95A**

*mensuralBlackDragma*

Black mensural dragma

**U+E95B**

*mensuralBlackSemibrevisOblique*

Black mensural oblique semibrevis

**U+E95C** (and U+1D1B6)

*mensuralWhiteMaxima*

White mensural maxima

**U+E95D** (and U+1D1B7)

*mensuralWhiteLonga*

White mensural longa

**U+E95E** (and U+1D1B8)

*mensuralWhiteBrevis*

White mensural brevis

**U+E95F**

*mensuralWhiteMinima*

White mensural minima

**U+E960** (and U+1D1BC)

*mensuralWhiteSemiminima*

White mensural semiminima

**U+E961** (and U+1D1BE)

*mensuralWhiteFusa*

White mensural fusa

# Medieval and Renaissance oblique forms (U+E970–U+E98F)

**U+E970**

*mensuralObliqueAsc2ndBlack*

Oblique form, ascending 2nd, black

**U+E971**

*mensuralObliqueAsc2ndVoid*

Oblique form, ascending 2nd, void

**U+E972**

*mensuralObliqueAsc2ndBlackVoid*

Oblique form, ascending 2nd, black and void

**U+E973**

*mensuralObliqueAsc2ndWhite*

Oblique form, ascending 2nd, white

**U+E974**

*mensuralObliqueAsc3rdBlack*

Oblique form, ascending 3rd, black

**U+E975**

*mensuralObliqueAsc3rdVoid*

Oblique form, ascending 3rd, void

**U+E976**

*mensuralObliqueAsc3rdBlackVoid*

Oblique form, ascending 3rd, black and void

**U+E977**

*mensuralObliqueAsc3rdWhite*

Oblique form, ascending 3rd, white

**U+E978**

*mensuralObliqueAsc4thBlack*

Oblique form, ascending 4th, black

**U+E979**

*mensuralObliqueAsc4thVoid*

Oblique form, ascending 4th, void

**U+E97A**

*mensuralObliqueAsc4thBlackVoid*

Oblique form, ascending 4th, black and void

**U+E97B**

*mensuralObliqueAsc4thWhite*

Oblique form, ascending 4th, white

**U+E97C**

*mensuralObliqueAsc5thBlack*

Oblique form, ascending 5th, black

**U+E97D**

*mensuralObliqueAsc5thVoid*

Oblique form, ascending 5th, void

**U+E97E**

*mensuralObliqueAsc5thBlackVoid*

Oblique form, ascending 5th, black and void

**U+E97F**

*mensuralObliqueAsc5thWhite*

Oblique form, ascending 5th, white

**U+E980**

*mensuralObliqueDesc2ndBlack*

Oblique form, descending 2nd, black

**U+E981**

*mensuralObliqueDesc2ndVoid*

Oblique form, descending 2nd, void

**U+E982**

*mensuralObliqueDesc2ndBlackVoid*

Oblique form, descending 2nd, black and void

**U+E983**

*mensuralObliqueDesc2ndWhite*

Oblique form, descending 2nd, white

**U+E984**

*mensuralObliqueDesc3rdBlack*

Oblique form, descending 3rd, black

**U+E985**

*mensuralObliqueDesc3rdVoid*

Oblique form, descending 3rd, void

**U+E986**

*mensuralObliqueDesc3rdBlackVoid*

Oblique form, descending 3rd, black and void

**U+E987**

*mensuralObliqueDesc3rdWhite*

Oblique form, descending 3rd, white

**U+E988**

*mensuralObliqueDesc4thBlack*

Oblique form, descending 4th, black

**U+E989**

*mensuralObliqueDesc4thVoid*

Oblique form, descending 4th, void

**U+E98A**

*mensuralObliqueDesc4thBlackVoid*

Oblique form, descending 4th, black and void

**U+E98B**

*mensuralObliqueDesc4thWhite*

Oblique form, descending 4th, white

**U+E98C**

*mensuralObliqueDesc5thBlack*

Oblique form, descending 5th, black

**U+E98D**

*mensuralObliqueDesc5thVoid*

Oblique form, descending 5th, void

**U+E98E**

*mensuralObliqueDesc5thBlackVoid*

Oblique form, descending 5th, black and void

**U+E98F**

*mensuralObliqueDesc5thWhite*

Oblique form, descending 5th, white

# Medieval and Renaissance plainchant single-note forms (U+E990–U+E9AF)

**U+E990**
*chantPunctum*

Punctum

**U+E991**
*chantPunctumInclinatum*

Punctum inclinatum

**U+E992**
*chantPunctumInclinatumAuctum*

Punctum inclinatum auctum

**U+E993**
*chantPunctumInclinatumDeminutum*

Punctum inclinatum deminutum

**U+E994**
*chantAuctumAsc*

Punctum auctum, ascending

**U+E995**
*chantAuctumDesc*

Punctum auctum, descending

**U+E996** (and U+1D1D3)
*chantPunctumVirga*

Punctum virga

**U+E997**
*chantPunctumVirgaReversed*

Punctum virga, reversed

**U+E998**
*chantPunctumCavum*

Punctum cavum

**U+E999**
*chantPunctumLinea*

Punctum linea

**U+E99A**
*chantPunctumLineaCavum*

Punctum linea cavum

**U+E99B**
*chantQuilisma*

Quilisma

**U+E99C**
*chantOriscusAscending*

Oriscus ascending

**U+E99D**
*chantOriscusDescending*

Oriscus descending

**U+E99E**
*chantOriscusLiquescens*

Oriscus liquescens

**U+E99F**
*chantStrophicus*

Strophicus

**U+E9A0**

*chantStrophicusAuctus*

Strophicus auctus

**U+E9A1**

*chantPunctumDeminutum*

Punctum deminutum

# Medieval and Renaissance plainchant multiple-note forms (U+E9B0–U+E9CF)



**U+E9B0**
*chantPodatusLower*
Podatus, lower



**U+E9B1** (and U+1D1D4)
*chantPodatusUpper*
Podatus, upper



**U+E9B2**
*chantDeminutumUpper*
Punctum deminutum, upper



**U+E9B3**
*chantDeminutumLower*
Punctum deminutum, lower



**U+E9B4**
*chantEntryLineAsc2nd*
Entry line, ascending 2nd



**U+E9B5**
*chantEntryLineAsc3rd*
Entry line, ascending 3rd



**U+E9B6**
*chantEntryLineAsc4th*
Entry line, ascending 4th



**U+E9B7**
*chantEntryLineAsc5th*
Entry line, ascending 5th



**U+E9B8**
*chantEntryLineAsc6th*
Entry line, ascending 6th

**U+E9B9**
*chantLigaturaDesc2nd*
Ligated stroke, descending 2nd

**U+E9BA**
*chantLigaturaDesc3rd*
Ligated stroke, descending 3rd

**U+E9BB**
*chantLigaturaDesc4th*
Ligated stroke, descending 4th

**U+E9BC**
*chantLigaturaDesc5th*
Ligated stroke, descending 5th



**U+E9BD**
*chantConnectingLineAsc2nd*
Connecting line, ascending 2nd



**U+E9BE**
*chantConnectingLineAsc3rd*
Connecting line, ascending 3rd



**U+E9BF**
*chantConnectingLineAsc4th*
Connecting line, ascending 4th

**U+E9C0**
*chantConnectingLineAsc5th*
Connecting line, ascending 5th

**U+E9C1**
*chantConnectingLineAsc6th*
Connecting line, ascending 6th

**U+E9C2**
*chantStrophicusLiquescens2nd*
Strophicus liquescens, 2nd

**U+E9C3**
*chantStrophicusLiquescens3rd*
Strophicus liquescens, 3rd

**U+E9C4**
*chantStrophicusLiquescens4th*
Strophicus liquescens, 4th

**U+E9C5**
*chantStrophicusLiquescens5th*
Strophicus liquescens, 5th

## Implementation notes

To produce ligatures of three or more notes, some of the glyphs in this range have to be combined.

Glyphs should be positioned relative to their starting pitch: for example, the **chantLigaturaDesc3rd** glyph, which describes a downwards progression by an interval of a third, should be positioned on the staff line or space of the starting note of the downwards pattern; the connecting lines (e.g. **chantConnectingLineAsc3rd**) should likewise be positioned on the staff line or space corresponding to the bottom of the line; for an ascending liquescent, position **chantAuctumAsc** on the starting staff position, and **chantDeminutemUpper** on the ending staff position, with the appropriate length of connecting line between them.

Scoring applications should position these glyphs like any other notehead, i.e. moving them vertically according to the desired starting staff position. Fonts intended for use in text-based applications should include glyphs that present these symbols at different staff positions, and a means to easily choose between them; one possible implementation would be to define OpenType ligatures of each of the glyphs in the **Combining staff positions** range with each of the glyphs in this range.

The table below shows how to produce some common ligatures, and describes which glyphs should be used; glyphs whose names appear in parentheses are control characters that move the following glyph vertically to a different staff position, as might be used in a font that employs OpenType ligatures.

Podatus, ascending 3rd: **chantPodatusLower** + **chantConnectingLineAsc3rd** + (**staffPosRaise3**) + **chantPodatusUpper**

Clivis, descending 4th: **chantPunctumVirgaReversed** + (**staffPosLower4**)
**chantConnectingLineAsc4th** + (**staffPosLower4**) + **chantPunctum**

Salicus: **chantPunctum** + (**staffPosRaise1**) + **chantPodatusLower** + (**staffPosRaise1**) + **chantConnectingLineAsc2nd** + (**staffPosRaise2**) + **chantPodatusUpper**

Climacus: **chantPunctumVirga** + (**staffPosLower1**) + **chantPunctumInclinatum** + (**staffPosLower2**) + **chantPunctumInclinatum**

Torculus: **chantPunctum** + (**staffPosRaise1**) + **chantPunctum** + **chantPunctum**

Porrectus: **chantEntryLineAsc5th** + (**staffPosRaise5**) + **chantLigaturaDesc4th** + (**staffPosRaise1**) + **chantConnectingLineAsc3rd** + (**staffPosRaise4**) + **chantPunctum**

Scandicus flexus: **chantPodatusLower** + (**staffPosRaise1**) + **chantConnectingLineAsc2nd** + (**staffPosRaise2**) + **chantPodatusUpper** + **chantPunctumVirga** + **chantConnectingLineAsc3rd** + **chantPunctum**

Porrectus flexus: **chantConnectingLineAsc3rd** + (**staffPosRaise3**) + **chantLigaturaDesc3rd** + **chantPunctumVirga** + **chantConnectingLineAsc3rd** + **chantPunctum**

Climacus resupinus: **chantPunctumVirga** + (**staffPosRaise1**) + **chantPunctumInclinatum** + **chantPunctumInclinatum** + (**staffPosRaise1**) + **chantPunctum**

Torculus resupinus: **chantPunctum** + (**staffPosRaise1**) + **chantPunctum** + **chantPunctum** + (**staffPosRaise1**) + **chantPunctumVirga**

Pes subbipunctus: **chantPodatusLower** + (**staffPosRaise1**) + **chantConnectingLineAsc2nd** + (**staffPosRaise2**) + **chantPodatusUpper** + **chantPunctumInclinatum** + (**staffPosLower1**) + **chantPunctumInclinatum**

Virga praetripunctis: **chantPodatusLower** + (**staffPosRaise1**) + **chantConnectingLineAsc3rd** + (**staffPosRaise3**) + **chantPodatusUpper** **chantPodatus3rd** + (**staffPosRaise4**) + **chantPodatusLower** + (**staffPosRaise5**) + **chantConnectingLineAsc2nd** + (**staffPosRaise6**) + **chantPodatusUpper**

Epiphonus (liquescent podatus): **chantAuctumAsc** + (**staffPosRaise1**) + **chantDeminutemUpper**

Cephalicus (liquescent flexa): **chantConnectingLineAsc3rd** + (**staffPosRaise3**) + **chantAuctumDesc** + (**staffPosRaise2**) + **chantDeminutemLower**

Pinnosa (liquescent torculus): **chantPunctum** + **chantConnectingLineAsc4th** + (**staffPosRaise4**) + **chantAuctumDesc** + (**staffPosRaise3**) + **chantDeminutemLower**

Porrectus liquescens: **chantPunctumVirgaReversed** + (**staffPosLower1**) + **chantAuctumAsc** + (**staffPosRaise1**) + **chantDeminutemUpper**

Scandicus liquescens: **chantPunctum** + (**staffPosRaise1**) + **chantAuctumAsc** + + (**staffPosRaise1**) + **chantConnectingLineAsc3rd** + (**staffPosRaise4**) + **chantDeminutemUpper**

# Medieval and Renaissance plainchant articulations (U+E9D0–U+E9DF)

**U+E9D0**
*chantIctusAbove*
Ictus above

**U+E9D1**
*chantIctusBelow*
Ictus below

**U+E9D2**
*chantCirculusAbove*
Circulus above

**U+E9D3**
*chantCirculusBelow*
Circulus below

**U+E9D4**
*chantSemicirculusAbove*
Semicirculus above

**U+E9D5**
*chantSemicirculusBelow*
Semicirculus below

**U+E9D6**
*chantAccentusAbove*
Accentus above

**U+E9D7**
*chantAccentusBelow*
Accentus below

**U+E9D8**
*chantEpisema*
Episema

**U+E9D9**
*chantAugmentum*
Augmentum (mora)

# Medieval and Renaissance accidentals (U+E9E0–U+E9EF)

**U+E9E0** (and U+1D1D2)
*medRenFlatSoftB*

Flat, soft b (fa)

**U+E9E1**
*medRenFlatHardB*

Flat, hard b (mi)

**U+E9E2**
*medRenNatural*

Natural

**U+E9E3** (and U+1D1CF)
*medRenSharpCroix*

Croix

**U+E9E4**
*medRenFlatWithDot*

Flat with dot

**U+E9E5**
*medRenNaturalWithCross*

Natural with interrupted cross

## Recommended stylistic alternates

**uniE9E0.salt01**
*medRenFlatSoftBOld*

Flat (old)

**uniE9E0.salt02**
*medRenFlatSoftBHufnagel*

Flat (Hufnagel)

# Medieval and Renaissance rests (U+E9F0–U+E9FF)

**U+E9F0**
*mensuralRestMaxima*

Maxima rest

**U+E9F1** (and U+1D1C1)
*mensuralRestLongaPerfecta*

Longa perfecta rest

**U+E9F2** (and U+1D1C2)
*mensuralRestLongaImperfecta*

Longa imperfecta rest

**U+E9F3** (and U+1D1C3)
*mensuralRestBrevis*

Brevis rest

**U+E9F4** (and U+1D1C4)
*mensuralRestSemibrevis*

Semibrevis rest

**U+E9F5** (and U+1D1C5)
*mensuralRestMinima*

Minima rest

**U+E9F6** (and U+1D1C6)
*mensuralRestSemiminima*

Semiminima rest

**U+E9F7**
*mensuralRestFusa*

Fusa rest

**U+E9F8**
*mensuralRestSemifusa*

Semifusa rest

# Medieval and Renaissance miscellany (U+EA00–U+EA1F)

**U+EA00**

*mensuralSignumUp*

Signum congruentiae up

**U+EA01**

*mensuralSignumDown*

Signum congruentiae down

**U+EA02**

*mensuralCustosUp*

Mensural custos up

**U+EA03**

*mensuralCustosDown*

Mensural custos down



**U+EA04**

*chantCustosStemUpPosLowest*

Plainchant custos, stem up, lowest position



**U+EA05**

*chantCustosStemUpPosLow*

Plainchant custos, stem up, low position



**U+EA06**

*chantCustosStemUpPosMiddle*

Plainchant custos, stem up, middle position



**U+EA07**

*chantCustosStemDownPosMiddle*

Plainchant custos, stem down, middle position



**U+EA08**

*chantCustosStemDownPosHigh*

Plainchant custos, stem down, high position



**U+EA09**

*chantCustosStemDownPosHighest*

Plainchant custos, stem down, highest position

**U+EA0A**

*mensuralCustosCheckmark*

Checkmark custos



**U+EA0B**

*mensuralCustosTurn*

Turn-like custos



**U+EA0C**

*mensuralColorationStartSquare*

Coloration start, square



**U+EA0D**

*mensuralColorationEndSquare*

Coloration end, square



**U+EA0E**

*mensuralColorationStartRound*

Coloration start, round



**U+EA0F**

*mensuralColorationEndRound*

Coloration end, round

**U+EA10**

*mensuralAlterationSign*

Alteration sign

# Medieval and Renaissance symbols in CMN (U+EA20–U+EA2F)

**U+EA20**

*ornamentQuilisma*



Quilisma

**U+EA21**

*ornamentOriscus*



Oriscus

**U+EA22**

*medRenLiquescenceCMN*



Liquescence

**U+EA23**

*medRenPlicaCMN*



Plica

**U+EA24**

*medRenGClefCMN*

G clef (Corpus Monodicum)

**U+EA25**

*medRenPunctumCMN*



Punctum (Corpus Monodicum)

**U+EA26**

*medRenLiquescentAscCMN*

Liquescent ascending (Corpus Monodicum)

**U+EA27**

*medRenLiquescentDescCMN*

Liquescent descending (Corpus Monodicum)

**U+EA28**

*medRenQuilismaCMN*



Quilisma (Corpus Monodicum)

**U+EA29**

*medRenStrophicusCMN*

Strophicus (Corpus Monodicum)

**U+EA2A**

*medRenOriscusCMN*



Oriscus (Corpus Monodicum)

# Daseian notation (U+EA30–U+EA4F)

**U+EA30**

*daseianGraves1*

Daseian graves 1

**U+EA31**

*daseianGraves2*

Daseian graves 2

**U+EA32**

*daseianGraves3*

Daseian graves 3

**U+EA33**

*daseianGraves4*

Daseian graves 4

**U+EA34**

*daseianFinales1*

Daseian finales 1

**U+EA35**

*daseianFinales2*

Daseian finales 2

**U+EA36**

*daseianFinales3*

Daseian finales 3

**U+EA37**

*daseianFinales4*

Daseian finales 4

**U+EA38**

*daseianSuperiores1*

Daseian superiores 1

**U+EA39**

*daseianSuperiores2*

Daseian superiores 2

**U+EA3A**

*daseianSuperiores3*

Daseian superiores 3

**U+EA3B**

*daseianSuperiores4*

Daseian superiores 4

**U+EA3C**

*daseianExcellentes1*

Daseian excellentes 1

**U+EA3D**

*daseianExcellentes2*

Daseian excellentes 2

**U+EA3E**

*daseianExcellentes3*

Daseian excellentes 3

**U+EA3F**

*daseianExcellentes4*

Daseian excellentes 4



**U+EA40**

*daseianResidua1*

Daseian residua 1



**U+EA41**

*daseianResidua2*

Daseian residua 2

# Figured bass (U+EA50–U+EA6F)

**U+EA50**

*figbass0*

0 Figured bass 0

**U+EA51**

*figbass1*

1 Figured bass 1

**U+EA52**

*figbass2*

2 Figured bass 2

**U+EA53**

*figbass2Raised*

2 Figured bass 2 raised by half-step

**U+EA54**

*figbass3*

3 Figured bass 3

**U+EA55**

*figbass4*

4 Figured bass 4

**U+EA56**

*figbass4Raised*

4 Figured bass 4 raised by half-step

**U+EA57**

*figbass5*

5 Figured bass 5

**U+EA58**

*figbass5Raised1*

5 Figured bass 5 raised by half-step

**U+EA59**

*figbass5Raised2*

5 Figured bass 5 raised by half-step 2

**U+EA5A**

*figbass5Raised3*

5 Figured bass diminished 5

**U+EA5B**

*figbass6*

6 Figured bass 6

**U+EA5C**

*figbass6Raised*

6 Figured bass 6 raised by half-step

**U+EA5D**

*figbass7*

7 Figured bass 7

**U+EA5E**

*figbass7Raised1*

7 Figured bass 7 raised by half-step

**U+EA5F**

*figbass7Raised2*

7 Figured bass 7 raised by a half-step 2

**U+EA60**

*figbass8*

8 Figured bass 8

**U+EA61**

*figbass9*

9 Figured bass 9

**U+EA62**

*figbass9Raised*

 Figured bass 9 raised by half-step

**U+EA63**

*figbassDoubleFlat*

 Figured bass double flat

**U+EA64**

*figbassFlat*

 Figured bass flat

**U+EA65**

*figbassNatural*

 Figured bass natural

**U+EA66**

*figbassSharp*

 Figured bass sharp

**U+EA67**

*figbassDoubleSharp*

 Figured bass double sharp

**U+EA68**

*figbassBracketLeft*

[ Figured bass [

**U+EA69**

*figbassBracketRight*

] Figured bass ]

**U+EA6A**

*figbassParensLeft*

( Figured bass (

**U+EA6B**

*figbassParensRight*

) Figured bass )

**U+EA6C**

*figbassPlus*

 Figured bass +

**U+EA6D**

*figbassCombiningRaising*

 Combining raise

**U+EA6E**

*figbassCombiningLowering*

 Combining lower

**U+EA6F**

*figbass6Raised2*

 Figured bass 6 raised by half-step 2

# Function theory symbols (U+EA70–U+EA9F)

0

**U+EA70**

*functionZero*

Function theory 0

1

**U+EA71**

*functionOne*

Function theory 1

2

**U+EA72**

*functionTwo*

Function theory 2

3

**U+EA73**

*functionThree*

Function theory 3

4

**U+EA74**

*functionFour*

Function theory 4

5

**U+EA75**

*functionFive*

Function theory 5

6

**U+EA76**

*functionSix*

Function theory 6

7

**U+EA77**

*functionSeven*

Function theory 7

8

**U+EA78**

*functionEight*

Function theory 8

9

**U+EA79**

*functionNine*

Function theory 9

<

**U+EA7A**

*functionLessThan*

Function theory less than

-

**U+EA7B**

*functionMinus*

Function theory minus

>

**U+EA7C**

*functionGreaterThan*

Function theory greater than

SS

**U+EA7D**

*functionSSUpper*

Function theory major subdominant of subdominant

ss

**U+EA7E**

*functionSSLower*

Function theory minor subdominant of subdominant

D

**U+EA7F**

*functionDUpper*

Function theory major dominant

d

**U+EA80**

*functionDLower*

Function theory minor dominant

DD

**U+EA81**

*functionDD*

Function theory dominant of dominant

**U+EA82**

*functionSlashedDD*

Function theory double dominant seventh

**U+EA83**

*functionGUpper*

Function theory G

**U+EA84**

*functionGLower*

Function theory g

**U+EA85**

*functionNUpper*

Function theory N

**U+EA86**

*functionNLower*

Function theory n

**U+EA87**

*functionPUpper*

Function theory P

**U+EA88**

*functionPLower*

Function theory p

**U+EA89**

*functionSUpper*

Function theory major subdominant

**U+EA8A**

*functionSLower*

Function theory minor subdominant

**U+EA8B**

*functionTUpper*

Function theory tonic

**U+EA8C**

*functionTLower*

Function theory minor tonic

**U+EA8D**

*functionVUpper*

Function theory V

**U+EA8E**

*functionVLower*

Function theory v

**U+EA8F**

*functionBracketLeft*

Function theory bracket left

**U+EA90**

*functionBracketRight*

Function theory bracket right

**U+EA91**

*functionParensLeft*

Function theory parenthesis left

**U+EA92**

*functionParensRight*

Function theory parenthesis right

**U+EA93**

*functionAngleLeft*

Function theory angle bracket left

**U+EA94**

*functionAngleRight*

Function theory angle bracket right



**U+EA95**

*functionRepetition1*

Function theory repetition 1

**U+EA96**

*functionRepetition2*

Function theory repetition 2

**U+EA97**

*functionRing*

Function theory prefix ring

**U+EA98**

*functionPlus*

Function theory prefix plus

# Multi-segment lines (U+EAA0–U+EB0F)



**U+EAA0**

*wiggleTrillFastest*

Trill wiggle segment, fastest



**U+EAA1**

*wiggleTrillFasterStill*

Trill wiggle segment, faster still



**U+EAA2**

*wiggleTrillFaster*

Trill wiggle segment, faster



**U+EAA3**

*wiggleTrillFast*

Trill wiggle segment, fast



**U+EAA4**

*wiggleTrill*

Trill wiggle segment



**U+EAA5**

*wiggleTrillSlow*

Trill wiggle segment, slow



**U+EAA6**

*wiggleTrillSlower*

Trill wiggle segment, slower



**U+EAA7**

*wiggleTrillSlowerStill*

Trill wiggle segment, slower still



**U+EAA8**

*wiggleTrillSlowest*

Trill wiggle segment, slowest



**U+EAA9**

*wiggleArpeggiatoUp*

Arpeggiato wiggle segment, upwards



**U+EAAA**

*wiggleArpeggiatoDown*

Arpeggiato wiggle segment, downwards



**U+EAAB**

*wiggleArpeggiatoUpSwash*

Arpeggiato upward swash



**U+EAAC**

*wiggleArpeggiatoDownSwash*

Arpeggiato downward swash



**U+EAAD**

*wiggleArpeggiatoUpArrow*

Arpeggiato arrowhead up



**U+EAAE**

*wiggleArpeggiatoDownArrow*

Arpeggiato arrowhead down



**U+EAAF**

*wiggleGlissando*

Glissando wiggle segment



**U+EAB0**

*wiggleVibrato*

Vibrato / shake wiggle segment



**U+EAB1**

*wiggleVibratoWide*

Wide vibrato / shake wiggle segment

**U+EAB2**

*guitarVibratoStroke*

Vibrato wiggle segment



**U+EAB3**

*guitarWideVibratoStroke*

Wide vibrato wiggle segment

**U+EAB4**

*wiggleWavyNarrow*

Narrow wavy line segment

**U+EAB5**

*wiggleWavy*

Wavy line segment

**U+EAB6**

*wiggleWavyWide*

Wide wavy line segment

**U+EAB7**

*wiggleSquareWaveNarrow*

Narrow square wave line segment

**U+EAB8**

*wiggleSquareWave*

Square wave line segment

**U+EAB9**

*wiggleSquareWaveWide*

Wide square wave line segment

**U+EABA**

*wiggleSawtoothNarrow*

Narrow sawtooth line segment

**U+EABB**

*wiggleSawtooth*

Sawtooth line segment

**U+EABC**

*wiggleSawtoothWide*

Wide sawtooth line segment

**U+EABD**

*wiggleGlissandoGroup1*

Group glissando 1



**U+EABE**

*wiggleGlissandoGroup2*

Group glissando 2



**U+EABF**

*wiggleGlissandoGroup3*

Group glissando 3

**U+EAC0**

*wiggleCircularConstant*

Constant circular motion segment

**U+EAC1**

*wiggleCircularConstantFlipped*

Constant circular motion segment (flipped)

**U+EAC2**

*wiggleCircularConstantLarge*

Constant circular motion segment (large)

**U+EAC3**

*wiggleCircularConstantFlippedLarge*

Constant circular motion segment (flipped, large)

**U+EAC4**
*wiggleCircularStart*

Circular motion start

**U+EAC5**
*wiggleCircularLargest*

Circular motion segment, largest

**U+EAC6**
*wiggleCircularLargerStill*

Circular motion segment, larger still

**U+EAC7**
*wiggleCircularLarger*

Circular motion segment, larger

**U+EAC8**
*wiggleCircularLarge*

Circular motion segment, large

**U+EAC9**
*wiggleCircular*

Circular motion segment

**U+EACA**
*wiggleCircularSmall*

Circular motion segment, small

**U+EACB**
*wiggleCircularEnd*

Circular motion end

**U+EACC**
*wiggleVibratoStart*

Vibrato start

**U+EACD**
*wiggleVibratoSmallestFastest*

Vibrato smallest, fastest

**U+EACE**
*wiggleVibratoSmallestFasterStill*

Vibrato smallest, faster still

**U+EACF**
*wiggleVibratoSmallestFaster*

Vibrato smallest, faster

**U+EAD0**
*wiggleVibratoSmallestFast*

Vibrato smallest, fast

**U+EAD1**
*wiggleVibratoSmallestSlow*

Vibrato smallest, slow

**U+EAD2**
*wiggleVibratoSmallestSlower*

Vibrato smallest, slower

**U+EAD3**
*wiggleVibratoSmallestSlowest*

Vibrato smallest, slowest

**U+EAD4**
*wiggleVibratoSmallFastest*

Vibrato small, fastest

**U+EAD5**
*wiggleVibratoSmallFasterStill*

Vibrato small, faster still

**U+EAD6**
*wiggleVibratoSmallFaster*
Vibrato small, faster

**U+EAD7**
*wiggleVibratoSmallFast*
Vibrato small, fast

**U+EAD8**
*wiggleVibratoSmallSlow*
Vibrato small, slow

**U+EAD9**
*wiggleVibratoSmallSlower*
Vibrato small, slower

**U+EADA**
*wiggleVibratoSmallSlowest*
Vibrato small, slowest

**U+EADB**
*wiggleVibratoMediumFastest*
Vibrato medium, fastest

**U+EADC**
*wiggleVibratoMediumFasterStill*
Vibrato medium, faster still

**U+EADD**
*wiggleVibratoMediumFaster*
Vibrato medium, faster

**U+EADE**
*wiggleVibratoMediumFast*
Vibrato medium, fast

**U+EADF**
*wiggleVibratoMediumSlow*
Vibrato medium, slow

**U+EAE0**
*wiggleVIbratoMediumSlower*
Vibrato medium, slower

**U+EAE1**
*wiggleVibratoMediumSlowest*
Vibrato medium, slowest

**U+EAE2**
*wiggleVibratoLargeFastest*
Vibrato large, fastest

**U+EAE3**
*wiggleVibratoLargeFasterStill*
Vibrato large, faster still

**U+EAE4**
*wiggleVibratoLargeFaster*
Vibrato large, faster

**U+EAE5**
*wiggleVibratoLargeFast*
Vibrato large, fast

**U+EAE6**
*wiggleVibratoLargeSlow*
Vibrato large, slow

**U+EAE7**
*wiggleVibratoLargeSlower*
Vibrato large, slower

**U+EAE8**

*wiggleVibratoLargeSlowest*

Vibrato large, slowest

**U+EAE9**

*wiggleVibratoLargestFastest*

Vibrato largest, fastest

**U+EAEA**

*wiggleVibratoLargestFasterStill*

Vibrato largest, faster still

**U+EAEB**

*wiggleVibratoLargestFaster*

Vibrato largest, faster

**U+EAEC**

*wiggleVibratoLargestFast*

Vibrato largest, fast

**U+EAED**

*wiggleVibratoLargestSlow*

Vibrato largest, slow

**U+EAEE**

*wiggleVIbratoLargestSlower*

Vibrato largest, slower

**U+EAEF**

*wiggleVibratoLargestSlowest*

Vibrato largest, slowest

**U+EAF0**

*wiggleRandom1*

Quasi-random squiggle 1

**U+EAF1**

*wiggleRandom2*

Quasi-random squiggle 2

**U+EAF2**

*wiggleRandom3*

Quasi-random squiggle 3

**U+EAF3**

*wiggleRandom4*

Quasi-random squiggle 4

**U+EAF4**

*beamAccelRit1*

Accel./rit. beam 1 (widest)

**U+EAF5**

*beamAccelRit2*

Accel./rit. beam 2

**U+EAF6**

*beamAccelRit3*

Accel./rit. beam 3

**U+EAF7**

*beamAccelRit4*

Accel./rit. beam 4

**U+EAF8**

*beamAccelRit5*

Accel./rit. beam 5

**U+EAF9**

*beamAccelRit6*

Accel./rit. beam 6

**U+EAFA**

*beamAccelRit7*

Accel./rit. beam 7

**U+EAFB**

*beamAccelRit8*

Accel./rit. beam 8

**U+EAFC**

*beamAccelRit9*

Accel./rit. beam 9

**U+EAFD**

*beamAccelRit10*

Accel./rit. beam 10

**U+EAFE**

*beamAccelRit11*

Accel./rit. beam 11

**U+EAFF**

*beamAccelRit12*

Accel./rit. beam 12

**U+EB00**

*beamAccelRit13*

Accel./rit. beam 13

**U+EB01**

*beamAccelRit14*

Accel./rit. beam 14

**U+EB02**

*beamAccelRit15*

Accel./rit. beam 15 (narrowest)



**U+EB03**

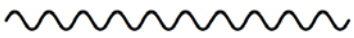
*beamAccelRitFinal*

Accel./rit. beam terminating line

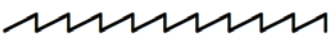
## Implementation notes

Scoring applications can combine these glyphs to produce lines of varying lengths. By way of example:

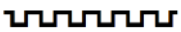
ornamentTrill + wiggleTrillFastest + wiggleTrillFasterStill + wiggleTrillFaster + wiggleTrillFast + wiggleTrill + wiggleTrillSlower + wiggleTrillSlowerStill + wiggleTrill + wiggleTrillFaster + wiggleTrillFasterStill



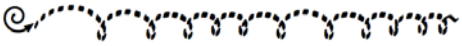
10 x wiggleWavy



10 x wiggleSawtooth



6 x wiggleSquaretooth



wiggleCircularStart + wiggleCircularLargest + wiggleCircularLargerStill + wiggleCircularLarger + wiggleCircularLarge + wiggleCircularEnd

wiggleVibratoStart + wiggleVibratoSmallestFastest + wiggleVibratoMediumSlower + wiggleVibratoMediumSlowest + wiggleVibratoMediumFaster + wiggleVibratoMediumFasterStill, etc.

beamAccelRit15 + beamAccelRit14 + beamAccelRit13 + beamAccelRit12 + beamAccelRit11 + beamAccelRit10 + beamAccelRit9 + beamAccelRit10 + beamAccelRit11 + beamAccelRit12 + beamAccelRit13 + beamAccelRit14 + beamAccelRit15 + beamAccelRitFinal

# Electronic music pictograms (U+EB10–U+EB5F)

**U+EB10**
*elecMicrophone*
Microphone

**U+EB11**
*elecHeadphones*
Headphones

**U+EB12**
*elecHeadset*
Headset

**U+EB13**
*elecDisc*
Disc

**U+EB14**
*elecTape*
Tape

**U+EB15**
*elecMixingConsole*
Mixing console

**U+EB16**
*elecUSB*
USB connection

**U+EB17**
*elecVideoCamera*
Video camera

**U+EB18**
*elecMonitor*
Monitor

**U+EB19**
*elecProjector*
Projector

**U+EB1A**
*elecLoudspeaker*
Loudspeaker

**U+EB1B**
*elecCamera*
Camera

**U+EB1C**
*elecPlay*
Play

**U+EB1D**
*elecStop*
Stop

**U+EB1E**
*elecPause*
Pause

**U+EB1F**
*elecFastForward*
Fast-forward

**U+EB20**
*elecRewind*
Rewind

**U+EB21**
*elecSkipForwards*
Skip forwards

**U+EB22**
*elecSkipBackwards*
Skip backwards

**U+EB23**
*elecLoop*
Loop

**U+EB24**
*elecReplay*
Replay

**U+EB25**
*elecShuffle*
Shuffle

**U+EB26**
*elecMute*
Mute

**U+EB27**
*elecUnmute*
Unmute

**U+EB28**
*elecMicrophoneMute*
Mute microphone

**U+EB29**
*elecMicrophoneUnmute*
Unmute microphone

**U+EB2A**
*elecPowerOnOff*
Power on/off

**U+EB2B**
*elecEject*
Eject

**U+EB2C**
*elecVolumeFader*
Combining volume fader



**U+EB2D**
*elecVolumeFaderThumb*
Combining volume fader thumb

**U+EB2E**
*elecVolumeLevel0*
Volume level 0%



**U+EB2F**
*elecVolumeLevel20*
Volume level 20%

**U+EB30**
*elecVolumeLevel40*
Volume level 40%



**U+EB31**
*elecVolumeLevel60*
Volume level 60%

**U+EB32**
*elecVolumeLevel80*
Volume level 80%



**U+EB33**
*elecVolumeLevel100*
Volume level 100%

**U+EB34**

*elecMIDIIn*

MIDI in

**U+EB35**

*elecMIDIOut*

MIDI out

**U+EB36**

*elecMIDIController0*

MIDI controller 0%

**U+EB37**

*elecMIDIController20*

MIDI controller 20%

**U+EB38**

*elecMIDIController40*

MIDI controller 40%

**U+EB39**

*elecMIDIController60*

MIDI controller 60%

**U+EB3A**

*elecMIDIController80*

MIDI controller 80%

**U+EB3B**

*elecMIDIController100*

MIDI controller 100%

**U+EB3C**

*elecAudioMono*

Mono audio setup

**U+EB3D**

*elecAudioStereo*

Stereo audio setup

**U+EB3E**

*elecAudioChannelsOne*

One channel (mono)

**U+EB3F**

*elecAudioChannelsTwo*

Two channels (stereo)

**U+EB40**

*elecAudioChannelsThreeFrontal*

Three channels (frontal)

**U+EB41**

*elecAudioChannelsThreeSurround*

Three channels (surround)

**U+EB42**

*elecAudioChannelsFour*

Four channels

**U+EB43**

*elecAudioChannelsFive*

Five channels

**U+EB44**

*elecAudioChannelsSix*

Six channels (5.1 surround)

**U+EB45**

*elecAudioChannelsSeven*

Seven channels

**U+EB46**

*elecAudioChannelsEight*

Eight channels (7.1 surround)

**U+EB47**

*elecLineIn*

Line in

**U+EB48**

*elecLineOut*

Line out

**U+EB49**

*elecAudioIn*

Audio in

**U+EB4A**

*elecAudioOut*

Audio out

**U+EB4B**

*elecVideoIn*

Video in

**U+EB4C**

*elecVideoOut*

Video out

**U+EB4D**

*elecDataIn*

Data in

**U+EB4E**

*elecDataOut*

Data out

**U+EB4F**

*elecDownload*

Download

**U+EB50**

*elecUpload*

Upload

# Arrows and arrowheads (U+EB60–U+EB8F)

**U+EB60**

*arrowBlackUp*

Black arrow up (N)

**U+EB61**

*arrowBlackUpRight*

Black arrow up-right (NE)



**U+EB62**

*arrowBlackRight*

Black arrow right (E)

**U+EB63**

*arrowBlackDownRight*

Black arrow down-right (SE)

**U+EB64**

*arrowBlackDown*

Black arrow down (S)

**U+EB65**

*arrowBlackDownLeft*

Black arrow down-left (SW)



**U+EB66**

*arrowBlackLeft*

Black arrow left (W)

**U+EB67**

*arrowBlackUpLeft*

Black arrow up-left (NW)

**U+EB68**

*arrowWhiteUp*

White arrow up (N)

**U+EB69**

*arrowWhiteUpRight*

White arrow up-right (NE)



**U+EB6A**

*arrowWhiteRight*

White arrow right (E)

**U+EB6B**

*arrowWhiteDownRight*

White arrow down-right (SE)

**U+EB6C**

*arrowWhiteDown*

White arrow down (S)

**U+EB6D**

*arrowWhiteDownLeft*

White arrow down-left (SW)



**U+EB6E**

*arrowWhiteLeft*

White arrow left (W)

**U+EB6F**

*arrowWhiteUpLeft*

White arrow up-left (NW)

**U+EB70**

*arrowOpenUp*

Open arrow up (N)

**U+EB71**

*arrowOpenUpRight*

Open arrow up-right (NE)

**U+EB72**
*arrowOpenRight*

Open arrow right (E)

**U+EB73**
*arrowOpenDownRight*

Open arrow down-right (SE)

**U+EB74**
*arrowOpenDown*

Open arrow down (S)

**U+EB75**
*arrowOpenDownLeft*

Open arrow down-left (SW)

**U+EB76**
*arrowOpenLeft*

Open arrow left (W)

**U+EB77**
*arrowOpenUpLeft*

Open arrow up-left (NW)

**U+EB78**
*arrowheadBlackUp*

Black arrowhead up (N)

**U+EB79**
*arrowheadBlackUpRight*

Black arrowhead up-right (NE)

**U+EB7A**
*arrowheadBlackRight*

Black arrowhead right (E)

**U+EB7B**
*arrowheadBlackDownRight*

Black arrowhead down-right (SE)

**U+EB7C**
*arrowheadBlackDown*

Black arrowhead down (S)

**U+EB7D**
*arrowheadBlackDownLeft*

Black arrowhead down-left (SW)

**U+EB7E**
*arrowheadBlackLeft*

Black arrowhead left (W)

**U+EB7F**
*arrowheadBlackUpLeft*

Black arrowhead up-left (NW)

**U+EB80**
*arrowheadWhiteUp*

White arrowhead up (N)

**U+EB81**
*arrowheadWhiteUpRight*

White arrowhead up-right (NE)

**U+EB82**
*arrowheadWhiteRight*

White arrowhead right (E)

**U+EB83**
*arrowheadWhiteDownRight*

White arrowhead down-right (SE)

**U+EB84**

*arrowheadWhiteDown*

▽ White arrowhead down (S)

**U+EB85**

*arrowheadWhiteDownLeft*

◺ White arrowhead down-left (SW)

**U+EB86**

*arrowheadWhiteLeft*

◁ White arrowhead left (W)

**U+EB87**

*arrowheadWhiteUpLeft*

◸ White arrowhead up-left (NW)

**U+EB88**

*arrowheadOpenUp*

∧ Open arrowhead up (N)

**U+EB89**

*arrowheadOpenUpRight*

↗ Open arrowhead up-right (NE)

**U+EB8A**

*arrowheadOpenRight*

> Open arrowhead right (E)

**U+EB8B**

*arrowheadOpenDownRight*

↘ Open arrowhead down-right (SE)

**U+EB8C**

*arrowheadOpenDown*

∨ Open arrowhead down (S)

**U+EB8D**

*arrowheadOpenDownLeft*

↙ Open arrowhead down-left (SW)

**U+EB8E**

*arrowheadOpenLeft*

< Open arrowhead left (W)

**U+EB8F**

*arrowheadOpenUpLeft*

↖ Open arrowhead up-left (NW)

# Combining staff positions (U+EB90–U+EB9F)

**U+EB90**
*staffPosRaise1*
Raise 1 staff position

**U+EB91**
*staffPosRaise2*
Raise 2 staff positions

**U+EB92**
*staffPosRaise3*
Raise 3 staff positions

**U+EB93**
*staffPosRaise4*
Raise 4 staff positions

**U+EB94**
*staffPosRaise5*
Raise 5 staff positions

**U+EB95**
*staffPosRaise6*
Raise 6 staff positions

**U+EB96**
*staffPosRaise7*
Raise 7 staff positions

**U+EB97**
*staffPosRaise8*
Raise 8 staff positions

**U+EB98**
*staffPosLower1*
Lower 1 staff position

**U+EB99**
*staffPosLower2*
Lower 2 staff positions

**U+EB9A**
*staffPosLower3*
Lower 3 staff positions

**U+EB9B**
*staffPosLower4*
Lower 4 staff positions

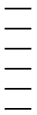
**U+EB9C**
*staffPosLower5*
Lower 5 staff positions

**U+EB9D**
*staffPosLower6*
Lower 6 staff positions

**U+EB9E**
*staffPosLower7*
Lower 7 staff positions

**U+EB9F**
*staffPosLower8*
Lower 8 staff positions

# Renaissance lute tablature (U+EBA0–U+EBBF)



**U+EBA0**

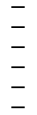
*luteStaff6Lines*

Lute tablature staff, 6 courses

**U+EBA1**

*luteStaff6LinesWide*

Lute tablature staff, 6 courses (wide)



**U+EBA2**

*luteStaff6LinesNarrow*

Lute tablature staff, 6 courses (narrow)

**U+EBA3**

*luteBarlineStartRepeat*

Lute tablature start repeat barline

**U+EBA4**

*luteBarlineEndRepeat*

Lute tablature end repeat barline

**U+EBA5**

*luteBarlineFinal*

Lute tablature final barline



**U+EBA6**

*luteDurationDoubleWhole*

Double whole note (breve) duration sign



**U+EBA7**

*luteDurationWhole*

Whole note (semibreve) duration sign

**U+EBA8**

*luteDurationHalf*

Half note (minim) duration sign

**U+EBA9**

*luteDurationQuarter*

Quarter note (crotchet) duration sign

**U+EBAA**

*luteDuration8th*

Eighth note (quaver) duration sign

**U+EBAB**

*luteDuration16th*

16th note (semiquaver) duration sign

**U+EBAC**

*luteDuration32nd*

32nd note (demisemiquaver) duration sign



**U+EBAD**

*luteFingeringRHThumb*

Right-hand fingering, thumb



**U+EBAE**

*luteFingeringRHFirst*

Right-hand fingering, first finger



**U+EBAF**

*luteFingeringRHSecond*

Right-hand fingering, second finger



**U+EBB0**

*luteFingeringRHThird*

Right-hand fingering, third finger

## Recommended stylistic alternates

**uniEBB0.salt01**

*luteFingeringRHThirdAlt*



Right-hand fingering, third finger (alternate)

# French and English Renaissance lute tablature (U+EBC0–U+EBDF)

**U+EBC0**

*luteFrenchFretA*



Open string (a)

**U+EBC1**

*luteFrenchFretB*

First fret (b)

**U+EBC2**

*luteFrenchFretC*

Second fret (c)

**U+EBC3**

*luteFrenchFretD*



Third fret (d)

**U+EBC4**

*luteFrenchFretE*



Fourth fret (e)

**U+EBC5**

*luteFrenchFretF*



Fifth fret (f)

**U+EBC6**

*luteFrenchFretG*

Sixth fret (g)

**U+EBC7**

*luteFrenchFretH*

Seventh fret (h)

**U+EBC8**

*luteFrenchFretI*



Eighth fret (i)

**U+EBC9**

*luteFrenchFretK*

Ninth fret (k)

**U+EBCA**

*luteFrenchFretL*



10th fret (l)

**U+EBCB**

*luteFrenchFretM*

11th fret (m)

**U+EBCC**

*luteFrenchFretN*

12th fret (n)

**U+EBCD**

*luteFrench7thCourse*

Seventh course (diapason)

**U+EBCE**

*luteFrench8thCourse*



Eighth course (diapason)

**U+EBCF**

*luteFrench9thCourse*



Ninth course (diapason)

**U+EBD0**

*luteFrench10thCourse*

10th course (diapason)

**U+EBD1**

*luteFrenchMordentUpper*

Mordent with upper auxiliary

**U+EBD2**

*luteFrenchMordentLower*

Mordent with lower auxiliary

**U+EBD3**

*luteFrenchMordentInverted*

Inverted mordent

**U+EBD4**

*luteFrenchAppoggiaturaBelow*



Appoggiatura from below

**U+EBD5**

*luteFrenchAppoggiaturaAbove*



Appoggiatura from above

## Recommended stylistic alternates

**uniEBC2.salt01**

*luteFrenchFretCAlt*

Second fret (c), alternate appearance

**uniEBCD.salt01**

*luteFrench7thCourseStrikethru*



Seventh course (diapason), strikethrough

**uniEBCD.salt02**

*luteFrench7thCourseUnderline*

Seventh course (diapason), underline

**uniEBCD.salt03**

*luteFrench7thCourseRight*



Seventh course (diapason), right

**uniEBCE.salt01**

*luteFrench8thCourseStrikethru*

Eighth course (diapason), strikethrough

**uniEBCE.salt02**

*luteFrench8thCourseUnderline*

Eighth course (diapason), underlined

**uniEBCE.salt03**

*luteFrench8thCourseRight*

Eighth course (diapason), right

**uniEBCF.salt01**

*luteFrench9thCourseStrikethru*

Ninth course (diapason), strikethrough

**uniEBCF.salt02**

*luteFrench9thCourseUnderline*

Ninth course (diapason), underlined

**uniEBCF.salt03**

*luteFrench9thCourseRight*

Ninth course (diapason), right

**uniEBD0.salt01**

*luteFrench10thCourseStrikethru*

10th course (diapason), strikethrough

**uniEBD0.salt02**

*luteFrench10thCourseUnderline*

10th course (diapason), underlined

**uniEBD0.salt03**

*luteFrench10thCourseRight*

𝒂/// 10th course (diapason), right

# Italian and Spanish Renaissance lute tablature (U+EBE0–U+EBFF)

**U+EBE0**

*luteItalianFret0*

Open string (0)

**U+EBE1**

*luteItalianFret1*



First fret (1)

**U+EBE2**

*luteItalianFret2*

Second fret (2)

**U+EBE3**

*luteItalianFret3*

Third fret (3)

**U+EBE4**

*luteItalianFret4*



Fourth fret (4)

**U+EBE5**

*luteItalianFret5*



Fifth fret (5)

**U+EBE6**

*luteItalianFret6*



Sixth fret (6)

**U+EBE7**

*luteItalianFret7*



Seventh fret (7)

**U+EBE8**

*luteItalianFret8*



Eighth fret (8)

**U+EBE9**

*luteItalianFret9*



Ninth fret (9)

**U+EBEA**

*luteItalianTempoFast*

Fast tempo indication (de Mudarra)

**U+EBEB**

*luteItalianTempoSomewhatFast*

Somewhat fast tempo indication (de Narvaez)

**U+EBEC**

*luteItalianTempoNeitherFastNorSlow*

Neither fast nor slow tempo indication (de Mudarra)

**U+EBED**

*luteItalianTempoSlow*

Slow tempo indication (de Mudarra)

**U+EBEE**

*luteItalianTempoVerySlow*

Very slow indication (de Narvaez)

**U+EBEF**

*luteItalianTimeTriple*

Triple time indication

**U+EBF0**

*luteItalianClefFFaUt*

F fa ut clef

**U+EBF1**

*luteItalianClefCSolFaUt*

C sol fa ut clef

**U+EBF2**

*luteItalianTremolo*



Single-finger tremolo or mordent

**U+EBF3**

*luteItalianHoldNote*



Hold note

**U+EBF4**

*luteItalianHoldFinger*



Hold finger in place

**U+EBF5**

*luteItalianReleaseFinger*



Release finger

**U+EBF6**

*luteItalianVibrato*



Vibrato (verre cassé)

# German Renaissance lute tablature (U+EC00–U+EC2F)

**U+EC00**

*luteGermanALower*

5th course, 1st fret (a)

**U+EC01**

*luteGermanBLower*

4th course, 1st fret (b)

**U+EC02**

*luteGermanCLower*

3rd course, 1st fret (c)

**U+EC03**

*luteGermanDLower*

2nd course, 1st fret (d)

**U+EC04**

*luteGermanELower*

1st course, 1st fret (e)

**U+EC05**

*luteGermanFLower*

5th course, 2nd fret (f)

**U+EC06**

*luteGermanGLower*

4th course, 2nd fret (g)

**U+EC07**

*luteGermanHLower*

3rd course, 2nd fret (h)

**U+EC08**

*luteGermanILower*



2nd course, 2nd fret (i)

**U+EC09**

*luteGermanKLower*

1st course, 2nd fret (k)

**U+EC0A**

*luteGermanLLower*



5th course, 3rd fret (l)

**U+EC0B**

*luteGermanMLower*

4th course, 3rd fret (m)

**U+EC0C**

*luteGermanNLower*

3rd course, 3rd fret (n)

**U+EC0D**

*luteGermanOLower*

2nd course, 3rd fret (o)

**U+EC0E**

*luteGermanPLower*



1st course, 3rd fret (p)

**U+EC0F**

*luteGermanQLower*



5th course, 4th fret (q)

**U+EC10**
*luteGermanRLower*

4th course, 4th fret (r)

**U+EC11**
*luteGermanSLower*

3rd course, 4th fret (s)

**U+EC12**
*luteGermanTLower*

2nd course, 4th fret (t)

**U+EC13**
*luteGermanVLower*

1st course, 4th fret (v)

**U+EC14**
*luteGermanXLower*

5th course, 5th fret (x)

**U+EC15**
*luteGermanYLower*

4th course, 5th fret (y)

**U+EC16**
*luteGermanZLower*

3rd course, 5th fret (z)

**U+EC17**
*luteGermanAUpper*

6th course, 1st fret (A)

**U+EC18**
*luteGermanBUpper*

6th course, 2nd fret (B)

**U+EC19**
*luteGermanCUpper*

6th course, 3rd fret (C)

**U+EC1A**
*luteGermanDUpper*

6th course, 4th fret (D)

**U+EC1B**
*luteGermanEUpper*

6th course, 5th fret (E)

**U+EC1C**
*luteGermanFUpper*

6th course, 6th fret (F)

**U+EC1D**
*luteGermanGUpper*

6th course, 7th fret (G)

**U+EC1E**
*luteGermanHUpper*

6th course, 8th fret (H)

**U+EC1F**
*luteGermanIUpper*

6th course, 9th fret (I)

**U+EC20**
*luteGermanKUpper*

6th course, 10th fret (K)

**U+EC21**
*luteGermanLUpper*

6th course, 11th fret (L)

**U+EC22**

*luteGermanMUpper*

6th course, 12th fret (M)

**U+EC23**

*luteGermanNUpper*

6th course, 13th fret (N)

# Kievan square notation (U+EC30–U+EC3F)

**U+EC30** (and U+1D1DE)

*kievanCClef*

Kievan C clef (tse-fa-ut)

**U+EC31** (and U+1D1DF)

*kievanEndingSymbol*

Kievan ending symbol

**U+EC32** (and U+1D1E1)

*kievanNoteReciting*

Kievan reciting note

**U+EC33** (and U+1D1E2)

*kievanNoteWhole*

Kievan whole note

**U+EC34** (and U+1D1E0)

*kievanNoteWholeFinal*

Kievan final whole note

**U+EC35** (and U+1D1E3)

*kievanNoteHalfStaffLine*

Kievan half note (on staff line)

**U+EC36**

*kievanNoteHalfStaffSpace*

Kievan half note (in staff space)

**U+EC37** (and U+1D1E5)

*kievanNoteQuarterStemUp*

Kievan quarter note, stem up

**U+EC38** (and U+1D1E4)

*kievanNoteQuarterStemDown*

Kievan quarter note, stem down

**U+EC39** (and U+1D1E7)

*kievanNote8thStemUp*

Kievan eighth note, stem up

**U+EC3A** (and U+1D1E6)

*kievanNote8thStemDown*

Kievan eighth note, stem down



**U+EC3B**

*kievanNoteBeam*

Kievan beam



**U+EC3C**

*kievanAugmentationDot*

Kievan augmentation dot

**U+EC3D**

*kievanAccidentalSharp*

Kievan sharp

**U+EC3E** (and U+1D1E8)

*kievanAccidentalFlat*

Kievan flat

## Implementation notes

This range of Kievan square notation glyphs will be encoded in Unicode 8.0 at the code points U+1D1DE–U+1D1E8.

For **kievanNoteWholeFinal** and **kievanNoteReciting**, the symbol is positioned on the staff such that for a note on a staff line, the staff line passes between the two thick horizontal lines. For **kievanNoteWhole** on a staff line, the staff line passes between the two diamonds. For **kievanNote8thStemDown** on a staff line, the staff line passes through the top diamond.

In the type of Kievan notation used in modern chant books of the Russian Orthodox Church, the symbol for half note has two variants: the variant with the long tail down (**kievanNoteHalfStemDown**) is used when the note occurs on a staff line, and the variant with the long tail up (**kievanNoteHalfStemUp**) is used when the note occurs in a space. Only the first of these characters is encoded in Unicode, while the second character is to be selected programmatically via font features; SMuFL encodes both characters at separate code points.

Kievan notes may be beamed, with stems up or stems down. These ligatures are not encoded explicitly either in Unicode or in SMuFL, but it is recommended that fonts provide ligatures. They may also be available in Unicode fonts via ligature substitution by entering, e.g., the following character sequence: U+1D1E4 Musical Symbol Kievan Quarter Note Stem Down, U+1D173 Musical Symbol Begin Beam, U+1D1E4 Musical Symbol Kievan Quarter Note Stem Down, U+1D174 Musical Symbol End Beam.

# Kodály hand signs (U+EC40–U+EC4F)

**U+EC40**

*kodalyHandDo*

Do hand sign

**U+EC41**

*kodalyHandRe*

Re hand sign

**U+EC42**

*kodalyHandMi*

Mi hand sign

**U+EC43**

*kodalyHandFa*

Fa hand sign

**U+EC44**

*kodalyHandSo*

So hand sign

**U+EC45**

*kodalyHandLa*

La hand sign

**U+EC46**

*kodalyHandTi*

Ti hand sign

# Simplified Music Notation (U+EC50–U+EC5F)

**U+EC50**

*smnSharp*

Sharp stem up

**U+EC51**

*smnSharpWhite*

Sharp (white) stem up

**U+EC52**

*smnFlat*

Flat

**U+EC53**

*smnFlatWhite*

Flat (white)

**U+EC54**

*smnHistorySharp*



Sharp history sign

**U+EC55**

*smnHistoryDoubleSharp*



Double sharp history sign

**U+EC56**

*smnHistoryFlat*



Flat history sign

**U+EC57**

*smnHistoryDoubleFlat*



Double flat history sign

**U+EC58**

*smnNatural*



Natural (N)

**U+EC59**

*smnSharpDown*

Sharp stem down

**U+EC5A**

*smnSharpWhiteDown*

Sharp (white) stem down

## Implementation notes

Simplified Music Notation is a notation system in which the usual accidentals symbols are replaced with noteheads of different shapes. Double sharps, double flats and sharps and flats produced by playing white notes on the piano (e.g. B sharp and E sharp) are notated using “history signs.”

For more information about Simplified Music Notation, visit http://www.simplifiedmusicnotation.org/

# Miscellaneous symbols (U+EC60–U+EC7F)

**U+EC60**

*miscDoNotPhotocopy*

Do not photocopy


**U+EC61**

*miscDoNotCopy*

Do not copy

**U+EC62**

*miscEyeglasses*

Eyeglasses



**U+EC63**

*metricModulationArrowLeft*

Left-pointing arrow for metric modulation



**U+EC64**

*metricModulationArrowRight*

Right-pointing arrow for metric modulation

# Time signatures supplement (U+EC80–U+EC8F)

**U+EC80**

*timeSigBracketLeft*



Left bracket for whole time signature

**U+EC81**

*timeSigBracketRight*



Right bracket for whole time signature

**U+EC82**

*timeSigBracketLeftSmall*



Left bracket for numerator only

**U+EC83**

*timeSigBracketRightSmall*



Right bracket for numerator only

**U+EC84**

*timeSigSlash*

Time signature slash separator

**U+EC85**

*timeSigCut2*

Cut time (Bach)

# Octaves supplement (U+EC90–U+EC9F)

**U+EC90**
*octaveLoco*

Loco

**U+EC91**
*octaveBaselineA*

a (baseline)

**U+EC92**
*octaveSuperscriptA*

a (superscript)

**U+EC93**
*octaveBaselineB*

b (baseline)

**U+EC94**
*octaveSuperscriptB*

b (superscript)

**U+EC95**
*octaveBaselineM*

m (baseline)

**U+EC96**
*octaveSuperscriptM*

m (superscript)

**U+EC97**
*octaveBaselineV*

v (baseline)

**U+EC98**
*octaveSuperscriptV*

v (superscript)

# Metronome marks (U+ECA0–U+ECBF)

**U+ECA0**

*metNoteDoubleWhole*

Double whole note (breve)

**U+ECA1**

*metNoteDoubleWholeSquare*

Double whole note (square)

**U+ECA2**

*metNoteWhole*

Whole note (semibreve)

**U+ECA3**

*metNoteHalfUp*

Half note (minim) stem up

**U+ECA4**

*metNoteHalfDown*

Half note (minim) stem down

**U+ECA5**

*metNoteQuarterUp*

Quarter note (crotchet) stem up

**U+ECA6**

*metNoteQuarterDown*

Quarter note (crotchet) stem down

**U+ECA7**

*metNote8thUp*

Eighth note (quaver) stem up

**U+ECA8**

*metNote8thDown*

Eighth note (quaver) stem down

**U+ECA9**

*metNote16thUp*

16th note (semiquaver) stem up

**U+ECAA**

*metNote16thDown*

16th note (semiquaver) stem down

**U+ECAB**

*metNote32ndUp*

32nd note (demisemiquaver) stem up

**U+ECAC**

*metNote32ndDown*

32nd note (demisemiquaver) stem down

**U+ECAD**

*metNote64thUp*

64th note (hemidemisemiquaver) stem up

**U+ECAE**

*metNote64thDown*

64th note (hemidemisemiquaver) stem down

**U+ECAF**

*metNote128thUp*

128th note (semihemidemisemiquaver) stem up

**U+ECB0**

*metNote128thDown*

128th note (semihemidemisemiquaver) stem down

**U+ECB1**

*metNote256thUp*

256th note (demisemihemidemisemiquaver) stem up

**U+ECB2**

*metNote256thDown*

256th note (demisemihemidemisemiquaver) stem down

**U+ECB3**

*metNote512thUp*

512th note (hemidemisemihemidemisemiquaver) stem up

**U+ECB4**

*metNote512thDown*

512th note (hemidemisemihemidemisemiquaver) stem down

**U+ECB5**

*metNote1024thUp*

1024th note (semihemidemisemihemidemisemiquaver) stem up

**U+ECB6**

*metNote1024thDown*

1024th note (semihemidemisemihemidemisemiquaver) stem down

**U+ECB7**

*metAugmentationDot*

Augmentation dot

## Implementation notes

This range is most useful in fonts intended for text-based applications, with metrics that are compatible for mixing musical symbols with text. These precomposed notes may be used for displaying metronome marks and simple metric modulations. More complex metric modulations and *l'istesso tempo* directions may be drawn using these characters in conjunction with the **Beamed groups of notes** range.

It is recommended that the default stem length for characters in this range is reduced by 0.75 spaces from the normal minimum of 3.5 spaces. This helps to balance the notehead and its stem and flag with the surrounding text.

By contrast, the characters in the **Individual notes** range are intended for positioning on a staff, and hence have the default minimum stem length of 3.5 spaces.