



# **Version history**

## **Known issues & solutions**

February 2023

Steinberg Media Technologies GmbH

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# Dorico 4.3.20

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10 February 2023

## Improvements

### Bar numbers

The enclosure around bar numbers will now be filled with the **Background** color specified in the relevant bar numbers paragraph style, if any.

### Key Editor

*Note name display.* Notes in the piano roll now show their pitch name. Be aware that while dragging notes up and down to edit their pitch, they may show a different pitch and accidental than after you release the mouse button to complete the drag.

*Zooming.* When zooming in and out of the piano roll, Dorico now keeps the selected note or notes centered both vertically and horizontally in the view.

### MIDI import

When mapping MIDI tracks to instruments, Dorico now shows the transposition for the chosen instrument, and it is possible to choose instrument variants with different transpositions if necessary.

### Rehearsal marks

The enclosure around rehearsal marks will now be filled with the **Background** color specified in the Rehearsal Marks paragraph style, if any.



## Issues resolved

Component	Issue
<i>Bar repeats</i>	Under some circumstances, bar repeat regions that coincide with multi-bar rests on another staff would not be correctly consolidated; this has now been fixed.
<i>Bars and barlines</i>	Selecting individual slashes within a rhythm slash region and creating a start repeat barline now creates the balancing end repeat barline in the correct position.
<i>Condensing</i>	Slurs in voices other than the first up-stem voice on an instrument could be incorrectly excluded from condensing; this has now been fixed.
<i>Condensing</i>	<b>Align Dynamics</b> now works as expected on condensed staves.
<i>Cues</i>	Deleting the last cue in a layout could leave remaining notes in the part still drawing at the pitch of the cue's clef; this has now been fixed.
<i>Drum pads</i>	Custom percussion playing techniques defined for hi-hat instruments now appear as expected in the Drum Pads panel in the lower zone.
<i>Dynamics</i>	Input such as <b>f&gt;n</b> and <b>o&lt;p</b> is now interpreted correctly in the <b>Shift+D</b> popover.
<i>Engrave mode</i>	When the page margins are narrower than usual, it could be difficult to click on the measurements for the distances between staves when using the staff spacing tool in Engrave mode; this has now been improved.
<i>Lyrics</i>	When nudging lyrics vertically in Engrave mode, the selected lyrics now always move by the same distance, regardless of whether a lyric hyphen is selected.
<i>MIDI import</i>	When importing a MIDI file into an existing project, under some circumstances Dorico would not correctly reuse existing instruments that had previously been mapped and recalled from the track memory; this has now been fixed.
<i>Key Editor</i>	When a flow begins with a pick-up bar, the bar numbers shown in the ruler in the Key Editor now look correct.
<i>Key Editor</i>	Under some circumstances, switching to the tempo editor in the Key Editor would result in the tempo profile appearing, but no points appearing; this has been fixed.
<i>Key Editor</i>	If the tempo editor is visible in the Key Editor, Dorico no longer immediately replaces the entire Key Editor with the tempo editor when selecting a tempo item.
<i>Key Editor</i>	When dragging a point in the tempo editor, the spin box in the editor header now correctly updates to show the edited value when you complete the drag.

Component	Issue
<i>Key Editor</i>	It is no longer the case that zooming in and out of the piano roll with the mouse wheel or two-finger swipe on the trackpad can result in the piano roll ending up either partially or completely out of view.
<i>Key signatures</i>	When using an invisible clef in conjunction with a custom key signature, Dorico now positions the accidentals following the high or low choices made for the treble G clef.
<i>Library Manager</i>	Under some circumstances, the Library Manager could crash when clicking <b>**Apply**</b> to apply changes with a term entered in the <b>**Search**</b> field; this has been fixed.
<i>Lyrics</i>	Under some circumstances, Dorico could crash when exporting lyrics from the project; this has now been fixed.
<i>Mixer</i>	It is now possible to adjust the volume of the metronome click via the Mixer in Dorico for iPad.
<i>Multi-bar rests</i>	When using bar number ranges that include subsidiary indexes, e.g. 4a, 4b, 4c, the range of bar numbers shown under multi-bar rests were incorrect; this has now been fixed.
<i>Note input</i>	When auditioning notes, Dorico now takes into account the length of the note when choosing the switch in the chosen expression map for the auditioned note, meaning that it is no longer essentially indeterminate which switch will actually be used.
<i>Note input</i>	When clicking or tapping notes on the Keyboard and Fretboard panels, Dorico now uses the correct endpoint for the auditioned sound, rather than always using the endpoint corresponding to the first channel.
<i>Note input</i>	The Force Duration button in the notes toolbox is now correctly enabled when an implicit rest is selected; the Lock Durations button is now disabled except when the caret is visible.
<i>Notes</i>	Notes that are part of chords crossed from a normal-sized staff to a smaller ossia staff no longer have incorrect stem lengths on the ossia staff.
<i>Ornaments</i>	Typing <b>tr</b> and <b>shorttr</b> into the <b>Shift+O</b> popover now each produces the correct ornament (trill and short trill respectively).
<i>Playing techniques</i>	When deleting a playing technique that is no longer used in the project, Dorico now also deletes any music symbols that were used only by that playing technique, to avoid leaving orphaned music symbols behind.
<i>Print mode</i>	When selecting multiple layouts in Print mode with a conflicting value for the <b>Copies</b> field, it is now always possible to reset the number of copies to be printed back to 1 if desired.
<i>Project files</i>	Dorico no longer incorrectly reports if the deprecated font styles for bar numbers or rehearsal marks are set to use a font not installed on the system.

Component	Issue
<i>Project files</i>	When opening one of Dorico's example projects, or a guided tutorial, Dorico will no longer show a warning if the project was last saved in an earlier version of the software.
<i>Staff labels</i>	Under some circumstances, the number for an instrument with no transposition as part of its name could be omitted from its staff label when condensing is enabled; this has now been fixed.
<i>Text</i>	Text in a text frame that shows a border will now always have its border positioned correctly, regardless of the vertical alignment of the text frame itself.
<i>User interface</i>	Under rare circumstances, using the pop-out buttons in the notes toolbox to choose tuplets, rhythm dots or grace note types could cause Dorico to crash; this has now been fixed.
<i>User interface</i>	Under some circumstances, selecting a playback technique in the <b>Library ▶ Playback Techniques</b> dialog could cause a crash; this has now been fixed.
<i>User interface</i>	On the <b>VST Plug-ins</b> page of Preferences, Dorico no longer incorrectly makes it appear that you can remove the first three paths in the list; these paths are always used (Windows only).
<i>User interface</i>	The order of <b>Cut</b> , <b>Copy</b> and <b>Paste</b> in the right-click context menu now matches the <b>Edit</b> menu itself.
<i>User interface</i>	The <b>Voices</b> submenu now appears in the right-click context menu when a lyric is selected.
<i>User interface</i>	After choosing a new default path for Dorico projects, or for saving backup projects, the Preferences window is properly brought back to the front again.
<i>User interface</i>	The <b>Edit ▶ Device Setup</b> dialog now correctly updates to show the new output ports when changing the active device.
<i>User interface</i>	The right-click context menu is no longer incorrectly enabled in the <b>Edit Instrument Names</b> dialog.
<i>User interface</i>	It is no longer incorrectly possible to enable or disable an editable field in the Properties panel by clicking its associated text label, if no slide switch is present.
<i>User interface</i>	The <b>Harmonic rhythm</b> option in <b>Generate Chord Symbols from Notes in Selection</b> now once more correctly shows the <b>Fixed</b> toggle button.
<i>Project files</i>	Under rare circumstances, Dorico could crash when opening a file; this has now been fixed.
<i>Project files</i>	Under rare circumstances, Dorico could crash when activating condensing in certain projects; this has now been fixed.

Component	Issue
<i>Localization</i>	When running Dorico in the Chinese language, the word “in” used before instrument transpositions in staff labels now appears in English.



# Dorico 4.3.10

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1 December 2022

## Improvements

### Key Editor

*Zoom improvements.* The following improvements have been made to zooming in the Key Editor:

- The zoom direction for the **G/H** and **Ctrl+Shift+G/H** shortcuts has been reversed, to match Cubase.
- When zooming horizontally with **G/H**, Dorico now attempts to keep the selected notes in the piano roll in view.

*Score following during playback.* When playing back with the Key Editor open, the view now flips to the new position once the playhead gets to the edge of the view, rather than scrolling continuously.

*Drag and drop MIDI percussion.* When dragging and dropping MIDI data onto the Key Editor or the track overview in Play mode, Dorico now always assumes that it should interpret any unpitched percussion data using the percussion map, regardless of the state of the options on the **Note Input and Editing** page of Preferences.

### Project files

*Music fonts in new projects.* When starting a new project from a factory template using a music font other than Bravura, Dorico now applies the appropriate engraving defaults for that music font; when starting a new project from a user project template using a music font other than Bravura, Dorico applies any necessary changes to things like stem attachments for noteheads, but does not apply the engraving defaults for the chosen font.

### User interface

*Cycle lower zone panels.* A new command **Cycle Lower Zone Panel** has been added to the **Window** category in Key Commands and can be used to cycle through the available lower zone panels if you assign a custom key command.

## Issues resolved

Component	Issue
<i>Chord diagrams</i>	Under some circumstances, the fret number shown to the right of a chord diagram could be incorrectly clipped and wrapped onto two lines; this has now been fixed.
<i>Cues</i>	Cue labels now follow the <b>Period (full stop) after abbreviated instrument names</b> option on the <b>Staff Labels</b> page of Engraving Options.
<i>Engrave mode</i>	It is now possible to edit a selected item (e.g. a chord symbol) in Engrave mode by hitting <b>Return</b> (Dorico Elements only).
<i>Engrave mode</i>	Under some circumstances, Dorico could crash when editing page templates with empty text frames; this has now been fixed.
<i>Font styles</i>	Overriding the font family, style or size in <b>Library ► Font Styles</b> without then specifying a new value for those options now correctly updates the preview right away.
<i>Guitar bends</i>	Under certain circumstances, it was possible for guitar bends to incorrectly end up attached to the same note at both ends, which could result in a variety of problems; this has now been fixed.
<i>Guitar bends</i>	Edits to notes with guitar bends (as well as glissando lines and horizontal note-attached lines) are now much less likely to result in those notations becoming displaced from the notes to which they should be attached.
<i>Guitar tablature</i>	It is now possible to specify the string for a note with a negative pre-bend value specified.
<i>Jump bar</i>	A problem whereby Dorico could fail to execute the command pre-populated in the jump bar after it has shown has been fixed.
<i>Key Editor</i>	When copying and pasting MIDI CC data in the Key Editor, it was sometimes possible for the data belonging to another MIDI CC value to be incorrectly overwritten; this has now been fixed.
<i>Key Editor</i>	Under certain circumstances, the data in the MIDI CC editor could disappear after saving or auto-saving; this has now been fixed.
<i>Key Editor</i>	When viewing played durations in the piano roll in the Key Editor, adding or removing a rhythmic feel event now immediately shows the effect on the notes in the piano roll.
<i>Key Editor</i>	When dragging and dropping MIDI data onto the Key Editor or the track overview in Play mode, Dorico now always assumes that it should interpret any unpitched percussion data using the percussion map, regardless of the state of the options on the <b>Note Input and Editing</b> page of Preferences.

Component	Issue
<i>Library Manager</i>	The new option <b>Appearance of tick barlines</b> now shows its values correctly in the Library Manager.
<i>Localization</i>	Some toggle button groups in some dialogs were not correctly showing their translated strings in non-English language versions of Dorico; this has been fixed.
<i>Localization</i>	The mnemonic/accelerator for the <b>Edit (Modifica)</b> menu has been changed from <b>M</b> to <b>O</b> (Italian only).
<i>Note input</i>	Multi-pasting copied dynamics to multiple staves now works correctly again.
<i>Note input</i>	When Dorico removes harp pedal changes from copied material when pasting to a non-harp instrument, it no longer incorrectly causes other staff-specific items like dynamics to be pasted at the wrong position.
<i>Note input</i>	Multi-paste into percussion kits has been improved.
<i>Note input</i>	Copying and multi-pasting from a percussion kit to multiple individual single-line percussion instruments now works correctly.
<i>Pedal lines</i>	Under some circumstances, pedal lines could erroneously appear on the top staff in the system when the piano instrument to which they belong is completely hidden via the <b>Manual Staff Visibility</b> dialog; this has now been fixed.
<i>Playback</i>	The default value for the <b>Maximum duration for staccato playback technique</b> option on the <b>Timing</b> page of Playback Options is now quarter note (crotchet) instead of eighth note (quaver).
<i>Playback</i>	If a project is saved while deactivated, when subsequently opening it, the state of the Reverb and Output channels in the Mixer could be out of step with the actual state restored by the audio engine, leading to errors when trying to show plug-in interfaces or load different plug-ins; this has now been fixed.
<i>Playback</i>	The actions defined for the <b>Init</b> switch in an expression map are now correctly output to the appropriate MIDI port for the endpoint, instead of being output incorrectly to the first port.
<i>Playback</i>	If an expression map does not define an explicit switch for the staccato playback technique, the new option for the maximum note duration to use the staccato playback technique is no longer applied when calculating the portion of a tied note that should be shortened to play the staccato MIDI effect.
<i>Playback</i>	Initial tempo marks that use a beat value other than a quarter note (crotchet) now result in the correct tempo being sent to VST plug-ins such as Groove Agent.

Component	Issue
<i>Playback</i>	Editing the playback technique of an existing playing technique now immediately updates the effect in playback, so it is no longer required to delete and recreate the playing technique, or close and reopen the project, for the update to take effect.
<i>Playback</i>	If you close the project window while playing back with NotePerformer, Dorico no longer crashes.
<i>Print mode</i>	Some items with colors overridden by the <b>Color</b> property – including chord symbols, clefs, and arpeggio lines – now once again correctly appear colored in Print mode and when printing.
<i>Project files</i>	Under rare circumstances, Dorico could crash when opening a project; this has now been fixed.
<i>Text</i>	Under some circumstances, Dorico could crash when editing a page template pair containing an empty text frame; this has now been fixed.
<i>User interface</i>	A problem whereby the menu item for <b>Generate Notes From Chord Symbols</b> incorrectly appeared, and the item for <b>Generate Chord Symbols From Notes</b> did not appear, has been fixed (Dorico Elements only).
<i>User interface</i>	The new commands added in Dorico 4.3 to switch to a specific lower zone panel now work more reliably, and repeated invocation will toggle the lower zone to be closed.
<i>User interface</i>	A problem whereby a window's restored position could be offset by the height of its caption bar has been fixed.
<i>User interface</i>	After saving a paragraph style in the user library, the list of paragraph styles shown in the <b>Write ► Create Text</b> and <b>Create System Text</b> submenus is now immediately updated.
<i>User interface</i>	Under very rare circumstances, Dorico could crash when attempting to move the score view; this has now been fixed.
<i>User interface</i>	Right-clicking with implicit bar rests selected now correctly allows the <b>Chord Symbols and Diagrams</b> submenu for the score context menu to appear.



# Dorico 4.3

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11 November 2022

## New features

### Generate Notes from Chord Symbols

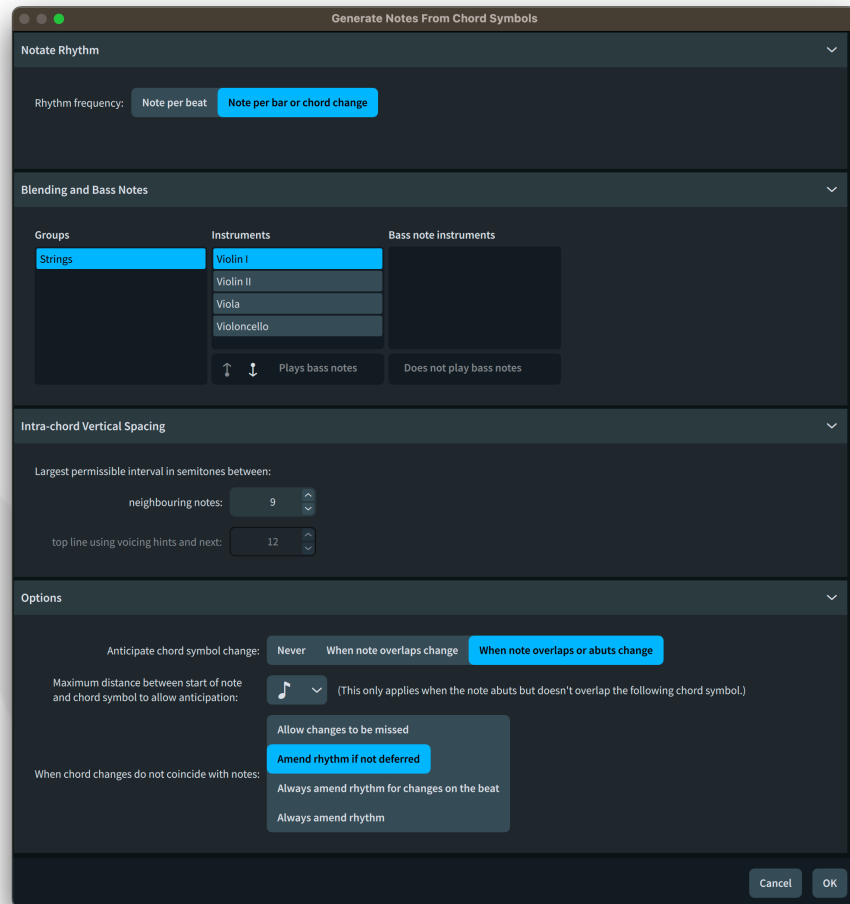
Dorico 4.3 introduces a powerful and sophisticated way to generate music for one or more instruments based on chord symbols. Its algorithms will produce well-voiced chords, with dozens of configurable options to influence voice leading, parallel and contrary motion, cadential resolution, and more. Use it as the starting point for your arrangement, or to save time in filling in parts that would otherwise require more mechanical work.

*Getting started.* First, ensure you have added chord symbols throughout the passage in which you want to generate notes. You can add chord symbols for existing music automatically using **Edit ► Notations ► Chord Symbols and Diagrams ► Generate Chord Symbols From Selection**.

Next, make a selection that describes the range of bars and instruments into which you want Dorico to generate music. Although it's quickest to do this by selecting the first bar in the first instrument and then **Shift**+clicking the last bar in the last instrument to select a continuous range, you don't need to make a continuous selection: Dorico will examine the overall extent of the selection vertically and horizontally to determine the range of the operation. You can select any number of instruments, in any combination, though you can achieve greater variation and flexibility by using the command multiple times with smaller selections of instruments.

You don't need to select the chord symbols themselves: Dorico will look at the chord symbols in the range of bars selected. If the instruments selected have local chord symbols, Dorico will look at them; otherwise, it will look at the global chord symbols.

Finally, choose **Edit ► Notations ► Chord Symbols and Diagrams ► Generate Notes From Chord Symbols In Selection**. If you plan to use this feature a lot, you can assign your own keyboard shortcut via the **Key Commands** page of Preferences, or define an alias to access it quickly via the jump bar. However you invoke the command, this dialog appears:



We will examine each of the options in this dialog in due course, and for greater control over the results, there are dozens more options found on the new **Notes From Chord Symbols** page of **Library ► Note Input Options**.

For now, click **OK** and wait a few moments while Dorico generates music.

*General options.* The **Generate Notes From Chord Symbols** dialog contains both general options that apply regardless of the instruments for which Dorico is generating notes, and also instrument-specific options for polyphonic instruments (such as keyboards, harps, and so on) and for fretted instruments (such as guitars) that appear only when those instruments are part of the selection. Let's first review the general options, section by section.

The options in the **Notate Rhythm** section are as follows:

- **Rhythm frequency** determines whether the note onsets should be determined by the beat grouping of the prevailing meter (**Note per beat**) or the positions of each change of chord or bar boundary, whichever is the nearer (**Note per bar or chord change**).

- If the flow contains instruments with existing music, a checkbox **Use existing rhythm where possible** will appear, allowing you to optionally designate which of the instruments with music at the start of the selection should be used as the source for the rhythm (**Source instrument for rhythm**). For more details on how Dorico uses the rhythm from a source instrument, see *Rhythm and voicing hints* below.

The **Blending and Bass Notes** section allows you to specify the order in which the voice parts created by the generator should be applied to the selected instruments. For example, when writing for a woodwind choir, you might want to assign the higher voices to the first flute and first clarinet, with the next voices being assigned to the second flute and second clarinet, and so on, to produce a blended result. To achieve this, you can select each instrument in the **Instruments** list and move it up or down in the list.

Dorico will automatically assign the lowest, bass part to the lowest instrument in the selection with a playable range that would typically play bass parts. This will appear in the **Bass note instruments** list with a padlock icon to show that you cannot change this assignment. However, you can also assign the bass both the third and ninth scale degrees part to another instrument as required by selecting it in the **Instruments** list and clicking **Plays bass notes** in the action bar, which will move it to the **Bass note instruments** list. If you change your mind, you can select any instrument in the **Bass note instruments** list that does not show a padlock icon and click **Does not play bass notes** in the action bar to return it to the **Instruments** list.

The **Voicing Hints** section appears if your selection contains instruments with existing music. If you have written melodic material that you want the generator to use as hints for the highest part, activate **Use instrument as top note hints** and choose the desired instrument from the drop-down. For more details on how Dorico uses the melody from a source instrument, see *Rhythm and voicing hints* below.

The options in **Intra-chord Vertical Spacing** are also found on the **Notes From Chord Symbols** page of Note Input Options, but are duplicated in the **Generate Notes From Chord Symbols** dialog because it can be useful to adjust them each time you run the generator, depending on the selected instruments.

- **Largest allowed interval between adjacent notes in chord voicing** specifies the maximum distance in half-steps (semitones) between two voices for any given chord in the generated result.

- **Largest allowed interval between top voice using voicing hints and neighbouring voice** is similar, except it applies only in the specific case that you have chosen to use the music in one of the selected instruments as a hint for the top voice, and it can be useful to allow a greater distance between the melody and the generated voices beneath it.

These two options do not apply to the lowest, bass voice in the generated music: intervals of any size are always permitted for the lowest voice.

The **Options** section at the bottom of the **Generate Notes From Chord Symbols** dialog contains the following options concerning how deviations between the rhythmic position of each chord symbol and existing music should be handled:

- **Anticipate chord symbol change** controls whether Dorico should be allowed to use the notes described by a chord symbol at rhythmic positions before the chord symbol itself if you have chosen to use the existing rhythm of one of the instruments in the selection as a rhythm hint for the generated music. **When note overlaps change** means that a note in the resulting rhythm starts before the position of the chord symbol, for example an offbeat note at the end of a bar tied over the barline, with the change of chord arriving on the downbeat. **When note overlaps or abuts change** additionally includes a similar off-beat note at the end of the bar, but not tied over the barline, instead ending at the same rhythmic position as the change of chord.
- **Maximum distance between start of note and chord symbol to allow anticipation** allows you to specify the maximum rhythmic length between a note in the resulting rhythm and the chord symbol that Dorico will allow to anticipate the next change of chord. This applies only to abutting notes, not overlapping notes.
- **When chord changes do not coincide with notes** determines how Dorico should behave when the note onsets in the resulting rhythm you have asked it to use do not line up with the positions of the chord symbols. There are three possible outcomes: the chord change can be skipped; the resulting rhythm can be amended so that a new onset appears at the position of the chord symbol; or the chord change can be deferred to the next note in the resulting rhythm. These outcomes are determined by which of the following four approaches is chosen:
  - **Allow changes to be missed:** if a chord symbol occurs in the middle of a note or rest in the existing rhythm, Dorico will try to defer this chord change to the next note, but if it cannot, it will skip it.

- **Amend rhythm if not deferred:** if a chord symbol occurs in the middle of a note in the existing rhythm, but the existing rhythm has a new onset shortly after the change of chord, the generator will defer the change of chord to the new onset, without changing the existing rhythm. If, however, there is no new onset close to the chord, Dorico will instead amend the existing rhythm to ensure that the change of chord is reflected in the generated music.
- **Always amend rhythm for changes on the beat:** if a chord symbol occurs in the middle of a note in the existing rhythm, Dorico will amend the rhythm if the change of chord falls at a beat position; if the chord symbol is at a non-beat position, and it cannot defer the change of chord to the next note, the rhythm will be amended to ensure that the change of chord is reflected in the generated music.
- **Always amend rhythm:** if a chord symbol occurs in the middle of a note in the existing rhythm, Dorico will split the notes at the position of every chord change, so that no changes of chord are skipped.

*Options for polyphonic instruments.* If your selection includes one or more polyphonic instruments, such as keyboard instruments, mallet percussion or harp (but not fretted instruments such as guitars, which have their own dedicated options – see *Options for fretted instruments* below), an additional **Miscellaneous Polyphonic Instruments** section appears in the **Generate Notes From Chord Symbols** dialog. This allows you to specify the minimum and maximum number of notes that should be produced for each chord.

For example, if you are generating notes for a mallet percussion instrument, Dorico will automatically assume the player can hold two sticks per hand, never producing chords comprising more than four pitches. These options give you the flexibility to override this to, say, only a single stick per hand.

*Options for fretted instruments.* If your selection includes one or more fretted instruments, such as guitar, an additional **Fretted Instruments** section appears in the **Generate Notes From Chord Symbols** dialog:

- **Source for chord shapes** allows you to choose whether the generator should have a free hand in determining the voicings for each generated chord (**Prefer auto-generated shapes**) or whether it should consider the shapes in the library, as used by chord diagrams (**Prefer shapes from library**). Using auto-generated shapes tips the balance in favour of stronger voice-leading, at the possible expense of using more familiar shapes.

- You can specify the **Minimum number of notes in each chord**, and optionally activate **Constrain maximum number of notes in each chord** to specify the maximum number of notes.
- **Allow pitches outside preferred range for fretted instruments** specifies whether Dorico should disregard the values specified in the **Chord Degrees** section of the **Notes From Chord Symbols** page of Note Input Options when voicing chords for fretted instruments.
- **Allow parallel movement on fretted instruments** specifies whether Dorico should disregard any restrictions defined in the **Parallelism and Contrary Motion** section of the **Notes From Chord Symbols** page of Note Input Options when voicing chords for fretted instruments.

*Rhythm and voicing hints.* You can influence the music that Dorico generates by providing hints before you invoke the generator.

If you have existing music in the target passage in one or more of the instruments, you can designate one of those instruments as the **Source instrument for rhythm** in the **Generate Notes From Chord Symbols** dialog. You can either provide a complete rhythm that spans the entire range of bars in which the music should be generated, or you can write a short pattern beginning at the start of the range of selected bars. Dorico will automatically repeat that pattern as many times as required to complete the music. You can also interrupt the pattern, by adding a different rhythm for, say, one or two bars at a later point: after those bars, Dorico will then return to repeating the original pattern.

Similarly, you can also write notes for Dorico to use as the top line of the generated music. Write these notes into the appropriate instrument and include it in your selection when you invoke the generator. You can then activate **Use instrument as top notes hints** and choose the instrument that contains your melody. As with providing rhythm hints, your notes don't need to be contiguous: Dorico will fill in any gaps as it generates the music.

*Note Input Options.* A comprehensive set of further options is provided on the **Notes From Chord Symbols** page of **Library ▶ Note Input Options**, divided into three sections:

- **Parallelism and Contrary Motion** allows you to specify the degree to which you want the generator to avoid parallel fifths and octaves, and the degree to which you favour contrary motion, in particular between the top and bottom parts. Options are also provided for whether or not parallel motion for entire chords is allowed: this can be very stylish in some idioms of music, or sound very out of place.

- **Chord Degrees** specifies the lowest pitches that Dorico should use for each degree of the chord when it is determining voicings, by default specifying the lowest pitches around one and a half octaves below middle C. It also provides options for how the third and dominant seventh degrees should resolve in progressions from dominant or dominant seventh chords to tonic chords.
- **Individual Chords** includes options for the specific kinds of voicings you want to allow, for example, in what circumstances an interval of a single half-step (semitone) should be allowed between the two uppermost or two bottommost voices, and how chords that contain both the third and ninth chord degrees should be voiced.

Most of the options have descriptive text intended to help you understand their purpose.

*Paste Chord Symbols as Notes.* If you want to generate notes somewhere other than at the existing location of the chord symbols, you can do the following:

- Select the chord symbols for which you want to generate notes, and copy them to the clipboard.
- Make a selection in the instrument or instruments into which you want to generate notes, at the position at which you want the generated notes to begin.
- Choose **Edit ▶ Notations ▶ Chord Symbols and Diagrams ▶ Paste Chord Symbols as Notes**.

The **Generate Notes From Chord Symbols** dialog appears, offering exactly the same options as described above. When you confirm the dialog, Dorico will generate notes in the selected instruments, from the first selected position, until the end of the range described by the copied chord symbols.

## Key Editor

Building on the revamped and rebuilt Key Editor introduced in Dorico 4, the cumulative changes introduced in the intervening releases and capped off by the significant improvements in Dorico 4.3 bring to completion our vision for integrating a Key Editor into a music notation-focused application.

*Highlighted improvements.* Among the significant improvements added to the Key Editor in Dorico 4.3 are the following:

- Freely edit in either the piano roll or any other editor below the piano roll without needing to activate either one by clicking in it.



- Open multiple editors below the piano roll, so you can edit multiple MIDI CC values, velocity, dynamics, and tempo. Every editor can have its own independent size.
- Save and recall Key Editor configurations with specific editor setups.
- View and edit multiple instruments at the same time.
- Use the transform and histogram tools for MIDI CC data in addition to velocity.
- Sync regions of MIDI CC, pitch bend and dynamics data from a primary track to multiple secondary tracks, or sync the data for the whole track with a single click.
- Copy and paste notes, MIDI CC, dynamics, pitch bend and tempo data directly within the Key Editor, both with the standard cut/copy/paste key commands, and with **Alt**+click-drag.
- Extended key commands, including **G/H** to zoom in/out horizontally, **Ctrl+Shift+G/H** to zoom in/out vertically, **Alt+[ ]** to change the Key Editor's rhythmic grid when the focus is in the Key Editor, **Shift+Alt+1–6** to access the Key Editor tools for the current editor, and more.
- New commands available via the jump bar or to assign shortcuts in the **Key Commands** page of Preferences to switch to the Key Editor, resize the lower zone, toggle the track selection lock, make a locked multiple track selection from the selected staves in the score, or lengthen/shorten the played duration of a note without changing its written duration.
- Integrated scroll bars and zoom controls, replacing the floating zoom control (which still appears in Dorico for iPad).

The information that follows is designed to be a reasonably complete guide to using the Key Editor in its current form.

*Showing and hiding the Key Editor.* The Key Editor is in the lower zone in Write and Play modes. If the lower zone is not shown, it can be opened by clicking in the status bar at the very bottom of the project window. Alternatively, choose **Window ► Show Lower Zone** or use the key command **Ctrl+8** (Windows) or **Command-8** (macOS).

Several different panels can be shown in the lower zone, depending on the mode you are using: the

Key Editor is chosen by clicking the rightmost button in the group of panel selector buttons at the left-hand side of the lower zone toolbar (shown here in Write mode; in Play mode, buttons for only the Mixer and Key Editor appear).



You can also assign a custom key command to open the lower zone and show a specific panel, via the **Key Commands** page of Preferences. Expand the **Window** category, then the **Show Lower Zone Panel** command, and select the lower zone



panel to which you want to assign a keyboard shortcut. This command can also be invoked via the jump bar, by typing (for example) “show key editor”.

*Setting the size of the lower zone.* When the Mixer, Keyboard, Fretboard or Key Editor panel is shown in the lower zone, the height of the lower zone can be freely resized by clicking and dragging the handle at the right-hand side of the lower zone toolbar (shown above right). You can also grab the top edge of the lower zone and drag it with the mouse: the pointer will change when it is in the right spot.



If you prefer, you can also assign a shortcut to resize the lower zone, cycling between 25%, 50% or 75% of the height of the project window, via the **Key Commands** page of Preferences. Expand the **Window** category and select the **Cycle Lower Zone Size** command. This command can also be invoked via the jump bar.


You can make the Key Editor fill the entire height of the project window if you wish: if you do this, you may find it useful to open a second window onto your project using **Window ► New Window**. One window can show the Key Editor while another shows the music area, and as you select music in one window, the Key Editor will automatically follow the selection (unless the track selection is locked, about which more below).


*Choosing which editors appear in the Key Editor.* By default, the Key Editor is divided into two sections: the piano roll or percussion editor at the top, and one or more editor lanes at the bottom. The height of each editor can be freely determined by dragging the splitter between each section: the mouse pointer will change when it is in the right spot.

The piano roll appears automatically when you have one or more pitched instruments selected in the Key Editor; the percussion editor appears when an unpitched percussion kit or instrument is selected. The piano roll or percussion editor always appears, but it can be reduced to a very small height if you want to focus on the other editors. The piano roll and percussion editors are described in more detail below.

To add another edit below the piano roll or percussion editor, click the **Add Editor** button at the bottom of the Key Editor: a menu appears, from which you can choose any of the four dedicated editors (**Velocity**, **MIDI Pitch Bend**, **Dynamics**, **Tempo**) or add an editor for any MIDI CC value by choosing it from the **Add Automation** submenu. Each of these types of editors is described in more detail below.

Once an editor has been added, you can choose what it displays via the drop-down menu in the header at the left-hand side of the editor. This shows the same menu as the **Add Editor** button.

To remove an editor, click the  button in the top left corner of the editor header.

You can save and recall specific combinations of editors by clicking the  button immediately to the right of the **Add Editor** button at the bottom of the Key Editor. A menu appears from which you can choose any preset configuration you have already saved or choose **Save Configuration** to save the current combination of editors. These configurations are saved application-wide, so are available in all projects.

*Choosing what music appears in the Key Editor.* By default, the music that appears in the Key Editor follows the selection in the music area: if you have a selection that spans multiple instruments, the Key Editor will follow the topmost instrument in the selection. As you move around the music, Dorico will update the view in the Key Editor to keep the same music in view.

The current track (or primary track, if multiple tracks are selected) is always shown in the track selector at the top left corner of the Key Editor.



You can lock the Key Editor to a specific track (or combination of tracks) by locking the track selection, in which case a padlock icon appears in the track selector (as shown above). Click the track selector to open its drop-down menu, and click the padlock to lock or unlock the selection.

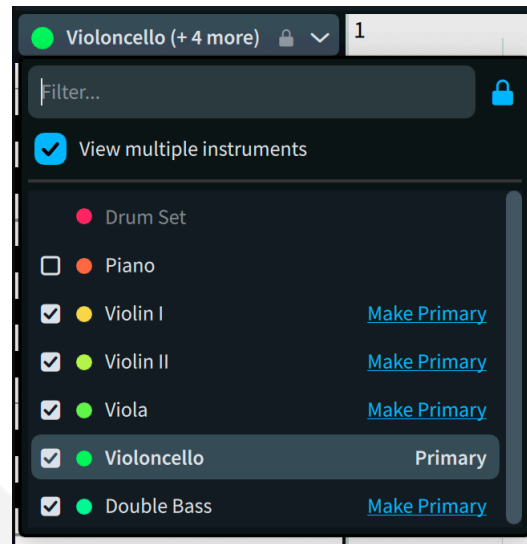
You can also lock or unlock the track selection by assigning a custom shortcut to the **Toggle Key Editor Locked View** command, which you will find in the **Play** category in the **Key Commands** page of Preferences. This command can also be invoked via the jump bar.

To display the music for multiple tracks in the Key Editor, open the track selector and lock the selection; a checkbox, **View multiple instruments**, appears. Activate this to make it possible to select multiple tracks. It is still useful to have the Key Editor locked but to show only a single track, so you can leave the checkbox deactivated and then switch to a locked selection for a different track simply by clicking another track in the list.

When **View multiple instruments** is activated, individual checkboxes appear to the left of each instrument or voice in the track selector: activate the checkboxes for the instruments you want to show in the Key Editor.

You cannot select both pitched instruments and unpitched instruments at the same time, so Dorico prevents you from making an invalid selection by disabling the entries for pitched or unpitched instruments as necessary.

The track selector looks like this when activating multiple instruments:



You can also make a multiple track selection directly in the music area: a command **Lock Key Editor to Selection** appears in the **Play** category in the **Key Commands** page of Preferences to which you can assign a custom shortcut, or you can invoke the command via the jump bar. Make a selection in the score of that contains the instruments whose music you want to edit in the Key Editor, then invoke the command: the Key Editor is shown if it is not currently visible, and a locked track selection corresponding to the instruments in your selection is made, with the topmost instrument designated as the primary track.

*Primary and secondary track selections.* When you select multiple tracks to view and edit in the Key Editor, one track is nominated as the primary track, while all others are secondary tracks. You choose the primary track by opening the track selector and clicking the **Make Primary** link for the relevant instrument.

In the piano roll, you can select and edit notes belonging to all the tracks in the selection, though the voice selector in the Key Editor toolbar only lists the voices belonging to the primary track. Similarly, the velocity editor shows velocities for all notes in all tracks and allows you to edit them all at the same time.

In the MIDI CC, pitch bend and dynamics editors, when a multiple track selection is active, you can see the data from each selected track shown as a non-editable outline in the appropriate track color, but you can only edit the data that is common between the tracks. This is explored in more detail below.

When switching between Write and Play modes, if the track selection in the Key Editor is locked, the track selection is retained: this means that you can, for example, switch to Play mode in order to change the settings in the **Routing** section of the Track Inspector for a different track without losing the selection in the Key Editor.

*Zooming in the Key Editor.* You can specify the horizontal and vertical zoom levels of the Key Editor independently. Using the mouse:



- Change the vertical zoom of the piano roll or percussion editor using the zoom control shown in line with the vertical scroll bar at the right-hand side of the Key Editor (shown on the right). The – and + buttons zoom in and out by a preset amount, or you can drag the slider to zoom by a smaller increment.
- You can also change the vertical zoom of the piano roll by positioning the mouse pointer over the keyboard at the left-hand side, holding **Ctrl** (Windows) or **Command** (Mac), and scrolling your mouse wheel.
- Change the horizontal zoom of the piano roll using the zoom control shown in line with the horizontal scroll bar at the bottom of the Key Editor. This works in the same way as the vertical zoom control described above.
- You can also change the horizontal zoom of the Key Editor by positioning the mouse pointer anywhere in any of the editors, holding **Ctrl** (Windows) or **Command** (Mac), and scrolling your mouse wheel. You can also simply click in the ruler at the top of the Key Editor, hold the left mouse button, and move the mouse down to zoom in or up to zoom out.

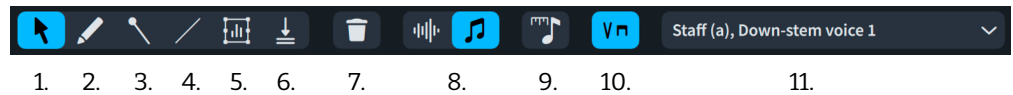
Using the keyboard:

- Change the vertical zoom of the piano roll or percussion editor by typing **Ctrl+Shift+G** (Windows) or **Shift-Command-G** (Mac) to zoom in, or **Ctrl+Shift+H** (Windows) or **Shift-Command-H** (Mac) to zoom out.
- Change the horizontal zoom of the Key Editor by typing **G** to zoom in or **H** to zoom out. (In earlier versions of Dorico, **H** was used to toggle between the hand/marquee tools that control how clicking and dragging on the score in the music area behaves; these tools are now toggled with **Alt+H**.)



When you zoom using key commands, Dorico zooms into the vertical or horizontal center of the current view in the Key Editor as appropriate.

*Navigating in the Key Editor.* To scroll in the Key Editor, you can of course use the vertical and horizontal scroll bars on the right-hand side and at the bottom of the Key Editor respectively. You can scroll up and down in the Key Editor with the mouse wheel; hold **Shift** to scroll left and right.

*Key Editor toolbar.* Various tools specific to the Key Editor appear to the right of the panel selector buttons in the lower zone toolbar, as follows:



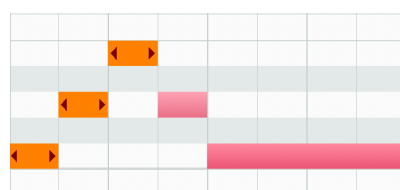
1. *Select tool*. Selects notes in the piano roll, velocity bars in the velocity editor, or points in the MIDI CC, tempo, or dynamics editor. To make a marquee selection, keep the left mouse button held down and drag out a rectangle to select all enclosed items.
2. *Draw tool*. In the piano roll and percussion editor, this allows you to add new notes: simply clicking will add a note of the current rhythmic grid value; click and drag to add a note of any duration. In the velocity and MIDI CC editors, you can sweep across a horizontal region to edit successive velocities, or draw in a series of controller data points.
3. *Drumstick tool* (percussion editor only). When you activate the drumstick tool, each row in the percussion editor shows its own independent rhythmic grid control at the right-hand side of the instrument header, allowing you to specify a different grid value for each instrument. For example, you might specify a grid value of eighths (quavers) for the hi-hat and quarters (crotchets) for the kick and snare drum. With the drumstick active, click and drag across the percussion editor to create multiple notes of the specified grid duration. To remove individual notes, simply click them with the drumstick active. This is a very fast and efficient way of inputting percussion music.
4. *Line tool* (velocity and MIDI CC editor only). The line tool allows you to edit successive velocities in a linear fashion, increasing or decreasing them over time according to the angle of the line you drag out between two points. In the MIDI CC editor, it creates a line between two points, and Dorico will then generate appropriate controller events over the course of the line to play back the changes over time.
5. *Transform tool* (velocity and MIDI CC editor only). This tool allows you to perform transformations on a range of velocities or MIDI CC values. Click and hold the mouse button, then drag across a range of velocities to determine the range to be transformed. The specific transformations that can be performed are described below.
6. *Sync region tool* (MIDI CC and dynamics editor only). When you are viewing multiple tracks in the Key Editor, the sync region tool allows you to push the data from a region shown in the primary track to all of the selected secondary tracks, replacing the existing data in that region in the secondary tracks with the data from the primary track.
7. *Delete*. Deletes the selected notes in the piano roll, percussion editor or velocity editors, or the selected controller data points in the MIDI CC, dynamics or tempo editor.

8. *Played duration / Written duration.* Toggling the piano roll display between showing played durations  and written durations  allows you to edit either the playback data of notes without affecting the way they are shown in the layout, or to edit the notated durations.
9. *Rhythmic grid selector.* The Key Editor has its own rhythmic grid setting shared between Play and Write modes, independent of the rhythmic grid used by editing the music notation directly.
10. *Playback techniques.* Hides or shows the playback techniques lane between the piano roll and velocity editors, so you can see which playback techniques are being used at any given moment; hover your mouse over an entry in the lane to show a tool tip with more detailed information.
11. *Voice selector.* Determines the voice you are currently editing; notes in other voices are shown in a lighter shade of their track color.

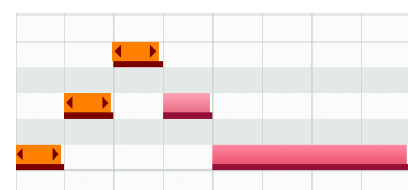
*Quick access to Key Editor tools.* The row of tools shown in the Key Editor toolbar can also be accessed quickly by holding down the right mouse button in any editor. This opens a quick tool selector (like the tool buttons palette in Cubase) that allows you to change the current tool very rapidly: move the pointer over the tool you want to use, then release the right mouse button. You can return to the select tool by simply right-clicking, as the selector will open at the mouse pointer's current position, automatically choosing the select tool.

You can also use the key commands **Shift+Alt+1–6** to choose the tools (when using a non-English keyboard layout, the shortcuts are **Ctrl+Shift+Alt+1–6**). The shortcuts work visually, rather than each digit having a fixed meaning: for example, **Shift+Alt+3** will choose the line tool when the piano roll is active, but the drumstick tool when the percussion editor is active, in each case selecting the third tool in the row. These shortcuts work both in Write and Play mode, and replace the old single-key shortcuts that previously worked only in Play mode.

*Piano roll editor.* If you are familiar with the piano roll editor in a DAW or sequencer, you should feel at home with Dorico's editor. One possibly unfamiliar aspect is that you can edit either the written durations of notes, or only edit their played durations without affecting the appearance of the notation. The notes themselves appear different in each mode:



*Written durations*



*Played durations*

When editing played durations, the written duration is shown as a thin line immediately below the editable part of the note, which represents the note as it will be played back.

Select one or more notes, either by clicking a note or by dragging out a marquee selection, or indeed by selecting notes in the normal way in the music area. With the piano roll set to edit written durations, you can then:

- edit the pitch of the selected notes by dragging them up or down;
- edit the rhythmic position of the selected notes by dragging them left or right, and as you drag, the notes snap to rhythmic grid positions;
- edit the written start position by dragging the left-pointing triangle at the start of one of the selected notes;
- edit the written end position by dragging the right-pointing triangle at the end of one of the selected notes.

Dorico usefully constrains these edits, so that, for example, you cannot change the pitch of the selected notes when editing their duration or start position, and similarly, you cannot change their position or duration when changing their pitch.

If you have the editor set to edit played durations, you can still edit the pitch by dragging the notes up and down, but editing the starts or ends of the notes will edit their playback onset and offset properties rather than affecting the notation. These edits are also constrained to avoid unintentional changes of pitch or played duration.

You can also hold down the **Alt** (Windows) or **Opt** (Mac) key while dragging notes to make a copy of the selected notes.

To write new notes into the piano roll, activate the draw tool, then:

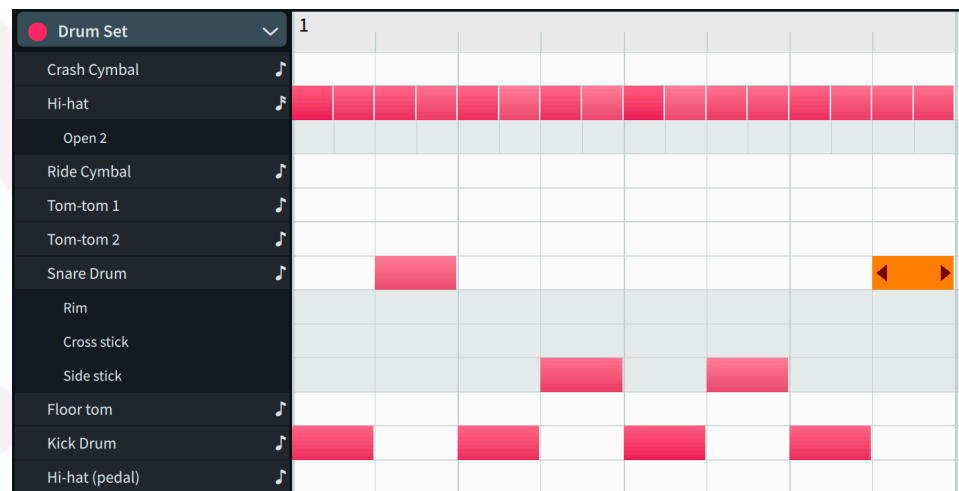
- click to add a note of the pitch that corresponds to the key shown in the vertical piano keyboard at the left-hand side, of the current rhythmic grid value in duration;
- click and hold the mouse button for a moment, then drag to the right to increase its duration; you can also drag up or down to edit the pitch of the note before you release the mouse button.

One other unique feature of Dorico's piano roll editor, and new in Dorico 4, is that it displays any tuplets that apply to the current voice immediately below the ruler. You can drag notes in and out of tuplets freely, and Dorico will correctly scale and unscale them as required.

*Percussion editor.* The percussion editor allows you to easily edit the music on drum sets, other percussion kits, and individual percussion instruments, and taking the place of the piano roll when editing music written for percussion.



Instead of the piano keyboard on the left-hand side, each instrument in the percussion kit is shown, with the playing techniques defined in the **Edit Percussion Playing Techniques** dialog for each kit instrument shown as separate rows immediately below the instrument's row; the main row represents the **Natural** (or equivalent) playing technique. Each row of the percussion editor shows the notes written for that combination of instrument and playing technique. The order in which the instruments appear in the percussion editor is determined by the per-layout option for percussion kit presentation on the **Players** page of Layout Options.



It is possible to edit the music in the same ways as with the piano roll editor for pitched material, and notes can be freely moved both in time and between instruments or playing techniques, and their durations can be freely edited, according to the rhythmic grid.

You can copy a passage of selected notes by holding **Alt** (Windows) or **Opt** (Mac) and dragging the selected notes to a new position.

In addition to the standard draw tool – which allows you to input notes one at a time by clicking to create a note of the current grid duration, then dragging to specify its duration – the percussion editor also provides a drumstick tool, which can be used to input multiple notes with a single sweep of the mouse. When you activate the drumstick tool, each row in the percussion editor shows its own independent rhythmic grid control at the right-hand side of the instrument header, allowing you to specify a different grid value for each instrument. For example, you might specify a grid value of eighths (quavers) for the hi-hat and quarters (crotchets) for the kick and snare drum. With the drumstick active, click and drag across the percussion editor to create multiple notes of the specified grid duration. To remove individual notes, simply click them with the drumstick active. This is a very fast and efficient way of inputting percussion music.

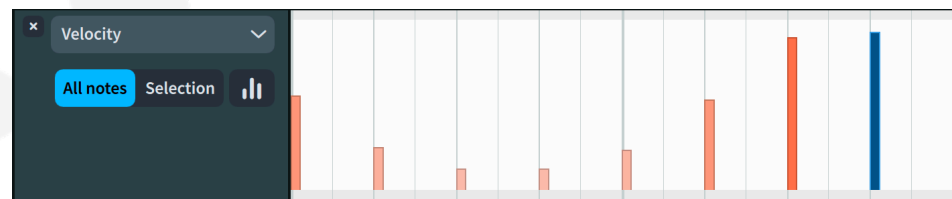


*Rhythmic grid.* The Key Editor has its own rhythmic grid, independent of the rhythmic grid that applies to note input and editing in the music area. The current grid value is shown in the button on the Key Editor toolbar.

Except when note input is active and the caret is shown, you can change the Key Editor grid resolution using the same familiar **Alt+[ ]** shortcuts that you would use in note input and editing. Make sure you click somewhere in the Key Editor before you use the shortcuts, to be sure that the Key Editor is in focus.


The Key Editor's rhythmic grid value affects the increments that notes can be snapped to in the piano roll and percussion editors, and the position of the playhead when clicking in the ruler. The MIDI CC, dynamics and tempo editors use a different, smaller grid resolution that is unaffected by the overall Key Editor grid resolution, to allow sufficiently fine editing.

*Velocity editor.* The velocity editor edits the velocities of the notes shown in the piano roll or percussion editor.

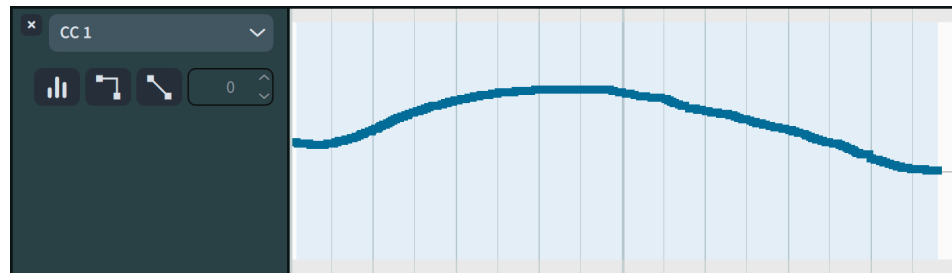


With the select tool active, you can click and drag any velocity bar to edit the velocity value. Make a marquee selection in the velocity editor, or select multiple notes in the piano roll or percussion editor, to select multiple notes, then drag any of the selected bars to edit all of the velocities, maintaining their relative values.

With the draw, line or transform tools active, two additional buttons appear in the editor header at the left-hand side, allowing you to choose whether any edit you make with the tool should apply to **All notes**, or only to the **Selection**. If you need to, say, adjust the velocity of individual notes in a chord, you could filter the top notes of a range of selected chords, click **Selection** in the velocity editor, then specify new velocities using the draw, line or transform tools.

The  button in the editor header activates the histogram tool, which is described in detail below.

*MIDI CC editor.* To add a MIDI CC editor, use the **Add Editor** button or the drop-down in an existing editor and choose the MIDI CC value to be edited from **Add Automation** submenu.



If the MIDI CC value you have chosen is one that Dorico is manipulating automatically because it is specified as the controller for dynamics in the expression map, a faint gray line shows the values that Dorico has generated. This line updates automatically in response to changes in the written dynamics, or indeed to changes you make in the dynamics editor (about which more below).

When you draw in new data with the draw or line tools, a shaded blue area indicates the boundaries of each region of data; these regions determine the extent of the data that is pushed from the primary track to all secondary tracks when using the sync region tool.

You can edit the CC data either by selecting a single point, making a marquee selection and then dragging the selected points. The following modifier keys are supported:

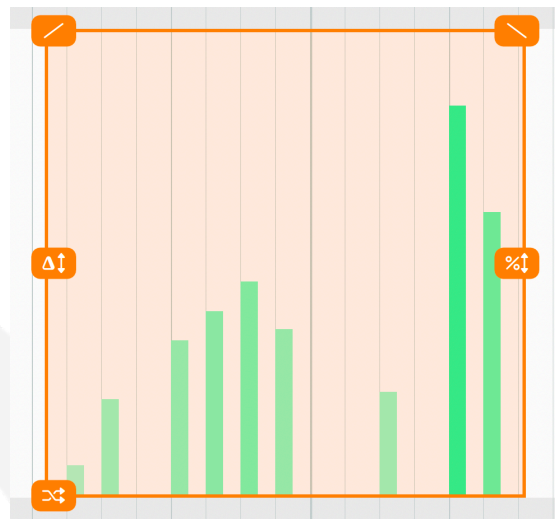
- Hold **Shift** while dragging to constrain the values: when you drag vertically with **Shift** held down, the values of the selected points are edited, but you cannot change their position; when you drag horizontally, the positions of the selected points are edited, but you cannot change their values.
- Hold **Alt** (Windows) or **Opt** (Mac) to drag a copy of the selected points to a new region in the same editor; if you want to copy data to another editor, you can either use copy and paste, or you can use the sync tools, which are detailed below.

The buttons in the editor header allow you to change the type of the selected points from linear, meaning that Dorico will interpolate from the value at this point to the value of the next point, providing a continuous change during playback, to constant, meaning that the value will remain the same during playback until the next point is encountered. You can also specify the precise value for the selected point using the spin control.

As with velocities, you can also use both the transform tool and the histogram for finer control over editing MIDI CC values.


*Transform tool.* For more detailed editing of note velocities or MIDI CC data, use the transform tool to select a range of notes. Activate the tool, then make a marquee selection around the velocities or CC points you want to edit. Whether the edits you

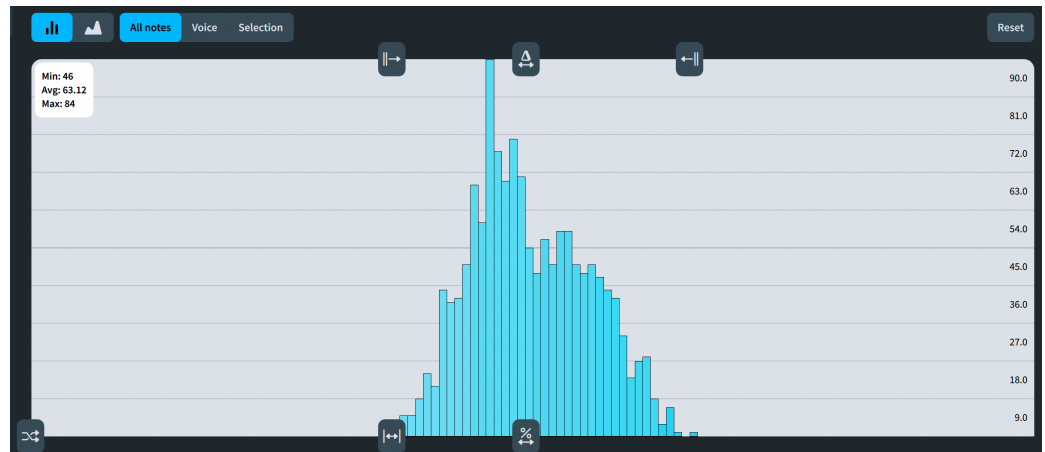
make apply to all the items in range, or only to those items that are selected, is determined by the state of the **All notes** and **Selection** toggle buttons in the editor header to the left. When the transform tool is active, the following overlay appears:



You can click and drag on any of the tools around the edge of the selection to transform the velocities. Moving clockwise from the bottom left-hand corner:

- *Randomize.* Drag up and down to randomize the selected values.
- *Delta.* Drag up and down to increase or decrease all the selected values by a fixed amount.
- *Tilt left.* Drag up and down to tilt the values so that they gradually increase from the start of the selection to the end.
- *Tilt right.* Drag up and down to tilt the values so that they gradually decrease from the start of the selection to the end.
- *Scale.* Drag up and down to increase or decrease the selected values by a scale factor, so larger values change more quickly than smaller ones.

*Histogram tool.* A histogram is a chart where values are grouped according to frequency distribution. Click the  button in the velocity or MIDI CC editor header to show the data for the current instrument as a histogram; by default, **All notes** will be shown, but you can alternatively show the notes only from the current **Selection**.



It is also possible to switch between showing the values as bars, as shown above, or showing an area chart.

In a similar fashion to the multi-edit tool, the histogram editor provides a set of tools at the corners of the values. Moving clockwise from the bottom center:

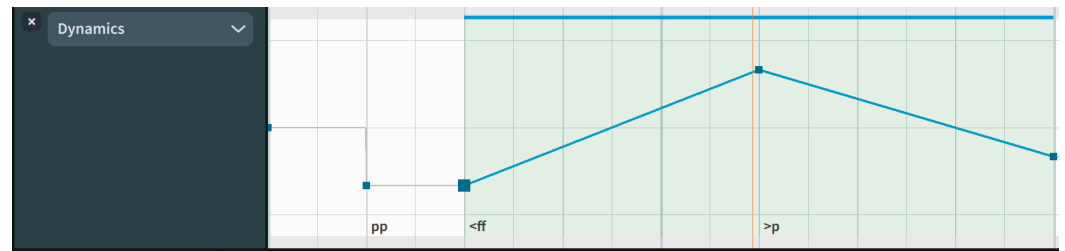
- *Scale*. Increases or decreases all the values by a scale factor.
- *Compress or expand*. Drag left to expand the values out to a wider range, so the lowest values are lower and the highest values are higher, or drag right to compress the values to a smaller range.
- *Lower limit*. Allows you to increase the lower limit, i.e. to increase the value shown as **Min** in the read-out at the top left corner of the histogram.
- *Delta*. Allows you to add or remove a delta to all values, effectively shifting all the values up or down by the same amount.
- *Upper limit*. Allows you to decrease the upper limit, i.e. to decrease the value shown as **Max** in the read-out at the top left corner of the histogram.

At the very bottom left corner of the histogram editor is the randomize tool, which you can drag up and down to edit all the shown values by a random amount.

The histogram editor makes it easy to change the overall character of an instrument's music: you can push the overall velocity level higher or lower, expand the range of velocities used to increase the dynamic contrast, or provide a small degree of randomization to avoid repetitive use of the same samples at precisely the same velocity levels throughout the music.

*Dynamics editor*. The dynamics editor can now be chosen in the **Expression and CC** section of the Key Editor, allowing you once more to tweak the playback effect of written dynamics that are shown in the music, and to add your own non-printing dynamics. These dynamics are automatically translated into the appropriate playback data according to the expression map in use, and it is typically advisable to

use the dynamics editor rather than, say, manipulating MIDI CC1 directly in the continuous controller editor.



Regions in the dynamics editor that correspond to dynamics that are printed in the music have a green background, to differentiate them from regions of freehand points added with the draw (or pencil) and line tools, which have a blue background.

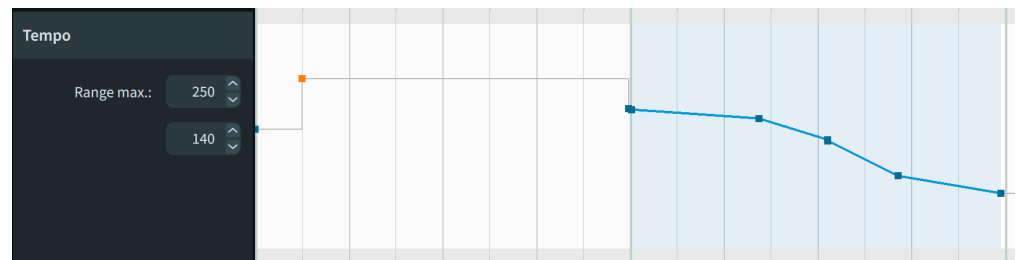
You can move dynamics left and right in the dynamics editor; click and drag the first, larger handle in the green region to move the dynamic. All other dynamics in the same group will also move by the same amount. The range of the group that will be moved is indicated by a blue line at the top of the editor, extending to the end of the last dynamic in the group.

The corresponding printed dynamics in the music will be moved too. Note, however, that you cannot change both the position and the dynamic level of a green region corresponding to a printed dynamic in the same operation. These edits must be performed separately.

Freehand regions drawn with the draw tool, shaded blue, can be moved freely: they will merge with each other, and if you draw or drag a blue region onto a green region, the corresponding printed dynamic in Write mode will still appear, but its playback effect will be overridden by the freehand range you have drawn.

Green regions corresponding to printed dynamics in the score cannot be dragged such that they overlap any other region, either green or blue.

*Tempo editor.* To edit tempo, select the global **Tempo** track at the top of the track overview in Play mode, and ensure the Key Editor is shown in the lower zone and the track selection is unlocked; alternatively, in Write mode, you can simply add a tempo editor to the Key Editor by clicking **Add Editor** and choosing **Tempo** from the menu that appears, or by choosing **Tempo** from the drop-down menu for an existing editor.



Use the draw and line tools to add immediate and gradual tempo changes respectively. Tempo changes that you add in the tempo editor appear in Write mode as signposts, and can be shown for printing via the Properties panel if need be.

*MIDI pitch bend editor.* The MIDI pitch bend editor allows you to add pitch bend to any track. Click **Add Editor** and choose **MIDI Pitch Bend** from the menu, or choose **MIDI Pitch Bend** from the drop-down menu for any existing editor.

*Copy and paste.* You can cut, copy and paste data in the Key Editor using the standard **Ctrl+C/X/V** key commands when the Key Editor is in focus. The rhythmic position for pasting is determined by the playhead: click in the ruler at the top of the Key Editor to move the playhead to the desired position.

If you cut or copy notes in the piano roll, when you paste, they will be pasted into the active voice of the primary track. This means that if you cut or copy notes from multiple voices or tracks, when pasted, they will all be reduced into the active voice. Furthermore, the pasted music will be merged with the existing notes in the active voice.

Cut or copied MIDI CC data will be pasted into the active editor: the active editor is denoted by its header at the left-hand side of the editor showing a highlight. If there is only one editor, then it will always be the active editor. This allows you to copy CC data from, say, MIDI CC 1 and then paste it into an editor for MIDI CC 11, either for the same or a different instrument, which can be very useful.


Be aware that when you copy and paste in the music area, all MIDI CC data in the copied region is included by default. This is a quick way to bring all the MIDI CC data along when you copy and paste music. If you don't want MIDI CC data included when cutting, copying or deleting music in the music area, deactivate **Include MIDI CC, pitch bend and dynamics from Key Editor when copying music** on the **Note Input and Editing** page of Preferences.


Cut or copied dynamics will always be pasted to all selected tracks (the primary track and all secondary tracks).

*Sync region tool and sync track.* When the Key Editor is showing a locked track selection containing multiple instruments, you can see data from all selected tracks in the MIDI CC and dynamics editors.

The data from each of the selected instruments and tracks is shown in its respective track color. If a MIDI CC or dynamics region is identical across all selected tracks, it will appear with its usual blue background and individually editable points, allowing you to edit that data across all selected instruments at the same time. Similarly, if you create new data using the pencil or line tools, this data will be created in all selected instruments.

To synchronize data across all the selected tracks, set the instrument or voice that contains the data you want to be copied to the other instruments to be the primary instrument, by clicking **Make Primary** in the track selector in the top left corner of the Key Editor. You can then choose between syncing all the data, or syncing an individual region.

Click the  button in the editor header on the left of the Key Editor. When you synchronize the whole track, all existing data (for that specific MIDI CC, or for dynamics) on the secondary tracks is removed, replaced by all of the data from the primary track.

To synchronize an individual region across all the selected instruments, use the sync region tool  in the Key Editor toolbar. When you synchronize a region, the data from the primary track's region is copied to all the secondary tracks, overwriting any regions that are contained within or overlap the span of the primary track's region.

*Mouse cursors.* The mouse cursor updates when the different tools are chosen in the piano roll in the Key Editor to provide an additional visual cue for the active tool. Similarly, a fine crosshair is drawn across all editors at the pointer position, allowing you to see at a glance whether, for example, the position at which you are adding MIDI CC data precisely matches the corresponding note's start position.

*Key commands for piano roll note edits.* New commands to increase and decrease the start and end playback offsets of selected notes have been added to the **Note Editing** category in the **Key Commands** page of Preferences. You can use these commands to set up shortcuts to adjust the start or end position of notes in the piano roll editor when set to **Played Durations** mode. Each invocation of the command increases or decreases the relevant offset by 25 ticks.

## Improvements

### Audio engine

*Exclusive mode.* When running Dorico for the first time, the Generic Low-Latency ASIO Device is now set to allow shared use of the computer's audio hardware; in other words, the option **Allow ASIO Host Application to take exclusive control of selected port** is now switched off by default. This allows you to hear Dorico's playback and use other applications that produce sound at the same time (Windows only).

*Updated engine.* Dorico's VST audio engine has been updated to a new version, 5.5, incorporating fixes and performance improvements from Cubase 12.

*Updated plug-ins.* The effects plug-ins included with Dorico have also been updated, incorporating fixes and performance improvements from Cubase 12.

### Barlines

*Start and end repeat barlines.* When creating a start repeat barline with items at more than one rhythmic position selected, Dorico will now automatically create a matching end repeat barline at the end of the selected range.

*Barline joins.* A new **Barline joins** option has been added to the **Brackets and Braces** page of Layout Options, allowing you to specify whether by default barline joins should follow the primary bracket groups, or should break at each instrument.

*Tick barlines.* It is now possible to specify that the **Tick (bottom)** barline should be used as the default barline for the flow on the **Barlines** page of Notation Options.

Two new options have been added to the **Design** section of the **Barlines** page of Engraving Options:

- **Appearance of tick barlines** allows you to choose whether tick barlines (either at the top or bottom of the staff) should cross the outermost staff line, or instead only abut the outermost staff line.
- **Show 'Tick (bottom)' barlines only on bottom staff of the system** specifies whether tick barlines shown at the bottom of the staff should furthermore only appear at the bottom of the lowest staff in the system.

In combination, these two new options allow Dorico to reproduce the house style of Early English Church Music (EECM) publications.

Finally, a new **Tick adj.** property for **Tick** and **Tick (bottom)** barlines in Engrave mode, allowing you to adjust its length. The values specified for these properties will



take effect for all subsequent barlines until the next explicit barline or time signature change.

## Bar numbers

*Bar number changes.* It is now possible to specify that both the primary and subordinate bar numbers should change when creating a **Subordinate** bar number change. This allows a sequence like **6, 7, 8a, 8b, 9** to be created; previously, it was not possible to advance the primary bar number when starting a subordinate bar number sequence, so only something like **6, 7, 8, 8a, 9** was possible. To change the primary bar number as well as the subordinate bar number, activate the **Primary** checkbox after choosing **Subordinate** in the **Bar Number Change** dialog.

## Bar repeats

*Single bar regions.* Regardless of the settings in Engraving Options, a bar repeat region of a single bar in length will now never show a bar count.

## Beams

*Partial beams on stemless rests.* A new option **Allow partial beams on stemless rest at start or end of beam** has been added to the **Beams and Rests** page of Notation Options. Partial beams on rests that don't show a stemlet can look oddly disconnected, so this option is switched off by default in new projects.

*Beams between staves.* The option **Position for secondary beam groups in beams with opposing outer stems** in the **Vertical Position** section of the **Beams** page of Engraving Options is now set to **Allow both sides of primary beam** by default in new projects, as this helps to avoid beam corners in some additional situations that are not covered by **All on same side of primary beam**.

*Centered beams.* The positioning of centered beams inside the staff has been improved; each end of the beam is now correctly positioned and snapped according to the prevailing engraving options. A new option **Ignore beams outside the staff when snapping within-staff centered beams** has been added in the **Advanced Options** section of the **Vertical Position** section of the **Beams** page of Engraving Options which can be activated to disable this new positioning for reasons of backwards compatibility.

## Chord diagrams

*Suppressing fingering.* It is now possible to type **0** as the fingering value for a fretted position when editing a chord diagram, which will result in no fingering being shown there.

*Left-hand thumb in fingering.* A new option **Use of thumb when fingering lowest string** has been added to the **Chord Diagrams** page of Note Input Options, allowing you to specify that Dorico should allow the use of the thumb to finger the lowest string; if you set this to **Allow thumb**, the chord shapes offered to you for a particular chord diagram will be allowed to include variations that use the thumb.

The new option **Update existing chord diagram fingerings when changing use of thumb** allows you to specify whether Dorico should recalculate the fingering of existing chord diagrams to allow or disallow the use of the left thumb.

*Improved automatic fingering.* The algorithm to determine fingering for a chord diagram has now been improved in situations where you have specified one or more of the fingerings manually, and Dorico is required to fill in the remainder.

*Barré appearance.* A new option **Barré appearance** has been added to the **Chord Diagrams** page of Engraving Options, allowing you to choose between showing **Filled dots** or a **Single line**.

*Chords used frame performance.* The performance of maintaining the grid of chord diagrams shown at the start of a flow has been significantly improved, resulting in overall more responsive editing when working on a large layout that shows these chord diagrams above the first system.

## Chord symbols

*Capo chord symbol alignment.* The alignment of capo chord symbols above main chord symbols has been improved, so that the capo chord symbols are shown at a consistent distance above the baseline of the main chord symbol.

A new option **Minimum gap between capo and main chord symbols** has been added to the **Capo** section of the **Chord Symbols** page of Engraving Options. If the capo and main chord symbols would otherwise collide due to either one extending unusually close towards the other, this ensures that they will not collide.

*Editing capo chord symbols.* It is now possible to edit the capo chord symbol independently from the main chord symbol by double-clicking it in Engrave mode.

*Chord symbol spacing.* When considering the impact of chord symbols on horizontal spacing, the width of the capo chord symbol, if shown, is now considered.

## Clefs

*Restorative clef changes.* When creating a new clef with items at more than one rhythmic position selected, Dorico will now automatically create a restorative clef

change back to the prevailing clef at the end of the selected range. This makes it quick and easy to change the clef for, say, a short passage of high notes.

## Condensing

*Trill intervals.* A new option **Trill intervals** has been added to the **Condensing** page of Notation Options, and can also be found in **Engrave ► Condensing Change**. This option allows you to specify whether trills with different intervals should prevent music belonging to different instruments from sharing a stem. Dorico can only show an auxiliary note or other interval indicator for a single trill in each voice, so if you require that the conductor's score shows the intervals of all trills, set **Trill intervals** to **Require identical intervals**, and this will prevent trills with different intervals from sharing a stem.

*Lines.* Horizontal and vertical lines are now included in condensed staves.

Furthermore, identical non-note attached horizontal lines are amalgamated by default in condensed staves. If you want to disable this, set the new **Amalgamation approach for horizontal lines** option to **Prevent amalgamation** on the **Condensing** page of Notation Options. This option can also be changed or reset in the **Engrave ► Condensing Change** dialog.

## Engrave mode

*System and frame fullness indicators.* The system fullness indicator – which previously appeared only when the note spacing tool is active – and the frame fullness indicator – which previously appeared only when the staff spacing tool is active – now appear when the graphical editing tool is active. This is convenient when formatting the music, adding system and frame breaks, and so on, allowing you to see how full systems and frames are without continually switching tools.

## Figured bass

*Brackets for hold and suspension lines.* A new option **Bracket style for hold and suspension lines** has been added to the **Figured Bass** page of Engraving Options, allowing you to choose whether hold and suspension lines should show round or square brackets.

## Fingering

*Substitution appearance.* A new **Substitution appearance** property has been added, allowing you to choose on a per-fingering basis whether a fingering substitution is indicated by a slur or a dash between the two fingering digits.

## Glissando lines

*Popover input.* Typing **gliss** into the **Shift+O** popover now produces a glissando line without the **Glissando style** property being overridden, so it follows the default glissando style defined in Engraving Options by default. If you want to specify a wavy glissando line, use **glisswavy**, or if you want to specify a straight glissando line, use **glissstraight**.

## Key signatures

*24-EDO tonality systems.* By default, both the Gould arrows and Stein-Zimmermann accidental systems are now provided in new Dorico projects, allowing you to easily choose between these two conventions when creating projects using the **Equal Temperament (24-EDO)** tonality system.

## Lyrics

*Export Lyrics.* A new **File ► Export ► Lyrics** command has been added, which exports all lyrics in the current project to a plain text file.

*Alignment options.* A new **Alignment** section has been added to the **Lyrics** page of Engraving Options. This allows you to specify the default note-relative horizontal alignment of each type of lyric, and syllables with extender lines.

Furthermore, a new option **Override alignment of first lyric on system** has been added, allowing you to specify the alignment of the first lyric on each system, regardless of its syllable type, and the complementary option **Center first lyrics on system according to widest lyric**, which is only enabled when the alignment of the first lyric on the system is overridden. When this new option is activated, Dorico will center a stack of left-aligned lyrics on the first note of the system, using the width of the widest lyric to determine the offset for the whole stack. This is a convention used in some hymnals, particularly those originating from the United States.

*Paragraph style indent.* The **Indent** value for the relevant lyrics paragraph style is now considered when positioning left-aligned lyrics (but is ignored when positioning center-aligned lyrics).

With the change to using paragraph styles rather than font styles for lyrics in Dorico 4.1, one subtle impact is that left-aligned lyrics are now aligned according to the left side bearing of the initial character in the lyric. When lyrics were drawn using font styles, the side bearings of the first and last letters in each lyric were disregarded. This results in left-aligned lyrics appearing fractionally further right than in Dorico 4.1 and earlier versions. This can now be compensated for by specifying a tiny negative value for the **Indent** property of the appropriate paragraph style.

*Leading and trailing whitespace.* When opening an existing project, Dorico will automatically trim leading and trailing whitespace characters from all lyrics in the project.

## Mixer

*Hierarchical menus.* The menus allowing you to choose an effects plug-in in the **Inserts** section in each channel strip in the Mixer, and in the **Insert Effects** section of the Track Inspector in the left zone in Play mode, is now hierarchical, with plug-ins listed in submenus organized alphabetically by manufacturer. For some manufacturers, including Steinberg, you may also see a further level of categorization based on the type of each effects plug-in.

## Note input

*Splitting notes.* New commands to split a single note into multiple shorter note values of the same pitch have been added.

When the caret is shown and note input is active, you can split a note into multiple shorter notes by positioning the caret within the duration of the note and typing **Alt+U**. (This is analogous to positioning the caret within the note and typing **U**, which splits the note in two at the caret position.) This splits the note at the caret position, and then at multiples of the caret's offset from the start of the note.

When the caret is not shown, **Alt+U** splits the selected notes according to the current rhythmic grid value.

You can also invoke this command by choosing **Write ► Edit Duration ► Split By Rhythmic Grid Resolution**.

If you often want to split notes by a specific note duration, rather than using the rhythmic grid value, you can assign key commands to the new **Split by Note Duration** command, which you will find in the **Note Input** category in the **Key Commands** page of Preferences.

The most common note values are also exposed in a new **Write ► Edit Duration ► Split by Note Duration** submenu. These commands can also be invoked via the jump bar by typing, for example, **split 1/8** to split a longer note into eighth notes.

*Force Duration.* A new option **Preserve Force Duration state when stopping and restarting note input** has been added to the **Note Input** page of Preferences, allowing you to choose whether or not the state of Force Duration should be remembered when you stop and restart note input.

*Copying and pasting automation data.* A new option **Include MIDI CC, pitch bend and dynamics from Key Editor when copying music** has been added to the **Note Input and Editing** page of Preferences, allowing you to determine whether this kind of data should be included when copying and pasting music.

When using **Paste Into Voice**, MIDI CC and pitch bend data is now included, if specified via the new option in Preferences.

If **Include MIDI CC, pitch bend and dynamics from Key Editor when copying music** is activated, deleting notes in the score will now delete any MIDI CC data in the deleted region if no notes remain.

*Auditioning when repitching.* When moving notes and chords at multiple selected positions up and down with **Alt+ ↑/↓** arrow, Dorico now auditions the pitch of the first selected note or chord, rather than not auditioning anything at all.

*Toggle hide stem.* A new command **Toggle Hide Stem** has been added, available via the jump bar or via a custom shortcut assigned via the **Key Commands** page of Preferences, allowing you to quickly toggle the **Hide stem** property for the selected notes.

*Fretboard input.* When inputting notes via the Fretboard panel, the transposition defined for the target fretted instrument is now always correctly respected, if defined.

Fretted instruments can have a staff notation transposition, created by way of **In staff notation, written C4 sounds as** in the **Edit Strings and Tunings** dialog. When inputting music on such an instrument in terms of the fret number – either directly in tablature, or using the Fretboard panel – the input is now always treated as if the score is in sounding pitch. This ensures that the fret number you specify will always be the fret number you see in the tablature.

## Notes

*Hiding notes.* New **Hide notehead** property in the **Notes and Rests** group in Engrave mode only. This allows the selected notehead to be hidden. A new option, **View ► Note and Rest Colors ► Hidden Noteheads**, which is active by default, shows hidden noteheads in translucent gray, making it easy to select them if they need to be shown again later. No signposts appear for hidden noteheads, because the notehead still takes up space, to ensure that the positioning of stems, accidentals, articulations, etc. are all unchanged.

Rhythm dots are also hidden when the **Hide notehead** property is activated. Be aware that in complex chords of interlocking voices or where intervals of a second

are present there is not necessarily a one-to-one relationship between noteheads and rhythm dots, and that Dorico automatically groups adjacent rhythm dots together for the purposes of positioning. Rhythm dots will only be hidden if *all* of the noteheads that contribute to the dot group have the **Hide notehead** property set.

## Percussion

*Single-line percussion.* A new **Single-line Percussion** section has been added to the **Percussion** page of Engraving Options, with two new options for individual percussion instruments or instruments in percussion kits shown using the **Individual instruments** presentation type:

- **Distance of above/below notes from line** controls how far above or below playing techniques defined as appearing above or below the single line should appear; some percussionists prefer notes to be two or three staff positions away from the line to make them easier to read.
- **Default stem direction** allows you to determine the default stem direction for music written for single-line percussion instruments.

*Articulations.* A new **Placement of articulations for percussion** option has been added to the **Placement** section of the **Articulations** page of Engraving Options, allowing you to choose whether all articulations should be positioned above percussion staves by default.

*Percussion legends.* The **Custom text** property for percussion legends is now available in Write mode as well as in Engrave mode.

In addition, a new **Erase background** property, and accompanying properties for the erasure padding, has been added for percussion legends.

## Playback

*Keyboard panel.* The Keyboard panel in the lower zone now updates to show which notes are sounding during playback, if it is visible.

*Default output level.* A new option **Default output level** has been added to the **Play** page of Preferences, allowing you to specify the default output level for the master output and any plug-in outputs in the Mixer.

By default, Dorico sets output levels to -6dB to ensure that even large ensembles do not produce clipping by default. However, if you typically work with smaller ensembles, you may prefer to set the default output level to 0dB or even +2dB, which can be done by adjusting this new slider. This value takes effect for new projects, or when applying or re-applying a playback template.



*Tempo sync.* For certain simple use cases, it is now possible for plug-ins that need to know the current tempo to sync to Dorico's playback. This works only with the initial tempo in the flow, so tempo changes over the course of the flow are not handled. Unless you are recording in real-time, or if you have a non-zero value set for **Pre-roll before flow** in Playback Options, the bar/beat information sent by Dorico to the audio engine for the purposes of tempo and time sync is correct. This means that for simple projects with a single flow and no tempo changes, sync for plug-ins such as Groove Agent and EZDrummer now works as expected, allowing their patterns to be played back in time. We plan to further develop this tempo sync functionality in future versions.

*Detecting invalid repeat structures.* When Dorico detects that the repeat structure in the current flow is invalid and will result in an infinite repeat, it now dynamically disables the **Play repeats** option on the **Repeats** page of Playback Options. If you look at the dialog, you will see that the option is disabled and a warning is shown, advising you to fix the invalid structure. As soon as you fix the repeat structure, Dorico will automatically re-enable the **Play repeats** option.

*Arpeggios spanning multiple voices.* Playback of arpeggios has been improved: Dorico now considers notes from any voice on the instrument, not only the voice at either end of the arpeggio line, provided the pitches of the notes are within the span of the arpeggio line.

*Preferred HALion plug-in.* A new option **Default HALion plug-in** has been added to the **Playback Template** section of the **Play** page of Preferences. By default, this is set to **Best available**, which means that when it applies one of the default HALion-based playback templates to a new or existing project, Dorico will use the full HALion plug-in if it is installed and activated on your computer; if full HALion is not available, it will use HALion Sonic; if HALion Sonic is not available, it will use HALion Sonic SE.

If you have reason to prefer a particular HALion plug-in, you can set **Use preferred**, and then set **Preferred HALion plug-in** as appropriate.

*Add-on switches.* If an add-on switch in your expression map defines a combination of playback techniques and it allows Dorico to match exactly in combination with a base switch the requested playback techniques, the add-on switch will now be used; previously, only add-on switches that defined a single playback technique would be used.

*Staccato playback techniques.* A new option **Maximum duration for staccato playback technique** has been added to the **Note Duration** section of the **Timing** page of Playback Options. This allows you to specify the maximum notated



duration, when considered at a tempo of 120bpm, that should use a staccato playback technique, if one is defined in the current expression map. For notes that are longer than this maximum duration, Dorico will instead shorten the note by the amount specified under **Staccato notes** a little further up in the dialog; for tied notes, this applies only to the duration of the last notehead in the tie chain. The advantage of this new option is that it will consistently trigger a recorded staccato technique for notes of a particular duration, regardless of whether they are written as a single note value or using a tie chain.

## Play mode

*Left zone.* The left zone in Play mode has been widened, and there is improved visual contrast between the **Track Inspector** and **VST and MIDI** panels. Clicking any of the buttons in one of the cards in the **VST and MIDI** panel in the left zone in Play mode now selects the card.

*Track Inspector.* The power/bypass and **e** buttons for each effect slot in the **Insert Effects** section of the Track Inspector are now disabled if no effect is loaded.

*Hierarchical menus.* When adding a new plug-in in the **VST and MIDI** panel, the menu listing the available plug-ins on your system is now hierarchical, with plug-ins listed in submenus organized alphabetically by manufacturer. For some manufacturers, including Steinberg, you may also see a further level of categorization based on the type of each instrument plug-in.

*Bypass VST plug-ins.* VST instruments in the **VST and MIDI** panel now once again show a power button, allowing you to bypass that plug-in altogether if desired.

*Delete automation in selection.* A new command **Play ► Automation ► Delete All Automation For Selection** has been added, allowing you to clear all MIDI CC and pitch bend data in the selected range.

*Drag and drop MIDI data.* It is once again possible to drag and drop a MIDI file (or MIDI region from Cubase) onto the track overview in Play mode to import that MIDI data into the current project. The position at which the MIDI data will be inserted is now indicated by a vertical line.

## Print mode

*Print preview for graphics export.* When setting the **Destination** to **Graphics**, Dorico now updates the print preview display in Print mode so that the page size defined in the layout currently shown in the preview is shown, rather than the current paper size chosen for the printer. While this does not guarantee that the print preview will

always match the dimensions of the exported graphic, it should in most cases reduce fear, uncertainty, and doubt.

*Exporting graphics.* When exporting graphics from Print mode with **Mono** selected, any item with an overridden color such that it is completely transparent no longer appears in the exported graphic in solid black.

## Project files

*Warn for external changes.* A new preference **Warn when project is updated outside Dorico, moved, or deleted** has been added to the **Files** section of the **General** page of Preferences. Deactivate this if you do not want Dorico to prompt you when the project you are working on is modified outside of the application.

## Properties

*Default global or local scope.* A new option **By default, set local properties** has been added to the **Note Input and Editing** page of Preferences, allowing you to choose whether properties should be set **Locally** or **Globally** by default when starting a new project.

## Rehearsal marks

*Paragraph style.* Rehearsal marks are now drawn using a new **Rehearsal marks** paragraph style, instead of the old **Rehearsal Marks Font** font style, which is now deprecated and no longer appears in **Library ► Font Styles**. Using a paragraph style to draw rehearsal marks means that they can now appear at a different size relative to the staff in score and part layouts.

## Remote control

*Note input tool state.* The **getStatus** message now returns information about the state of the Notes panel and toolbox, allowing remote control clients to determine the current state of the user interface for note input.

## Repeat endings

*Removing and adding time.* When adding or removing time using the **Shift+B** popover within the span of a repeat ending line, the overall duration of the repeat ending line and the relative durations of the individual repeat endings are now intelligently updated.

## Repeat markers

*Repeat count.* A new **Repeat count language** option has been added to the **Language** page of Engraving Options, allowing you to specify the language in which instructions like “Play 4 times” on a repeated section should appear.

## Rhythmic slashes

*Note grouping options.* A new **Rhythmic Slashes** section has been added to the **Note Grouping** page of Notation Options, containing new options for how Dorico should notate rhythm slashes in compound and irregular time signatures.

*Playing techniques in slash regions.* Playing techniques are no longer shown in slash regions, unless the slash region’s **Show other voices** property has been activated.

## System dividers

*Display based on number of staves in system.* A new option to show system dividers when the number of staves in the system exceeds a specific number has been added **System Dividers** section of the **Staves and Systems** page of Layout Options.

## Text

*Border style.* A new **Border style** option has been added to the **Library ► Paragraph Styles** dialog, allowing you to specify the type of border that should be used. Four options are provided:

- **Rectangle**, which is a standard rectangle;
- **Rounded rectangle**, which is a rectangle with rounded corners;
- **Capsule**, sometimes known as an obround or a stadium, which is like a rectangle where the left and right ends have been replaced with semicircles; and
- **Angled ends rectangle**, which produces a rectangle where the left and right sides look like angle brackets.

In general, if you activate the **Border** option for a paragraph style, Dorico will now always draw that paragraph style with the requested border, not only when used in **Shift+X** text items.

A new **Border style** property has been added for text items, allowing you to override the border style for a selected text item.

The border and padding dimensions specified in the paragraph style are now scaled in proportion to the current space size for the layout.

*Layout names.* The **Layout Names** paragraph style now shows a rectangular border by default, so that the instrument names shown at the top left-hand corner of the first page of part layouts are now enclosed by a border in new projects.

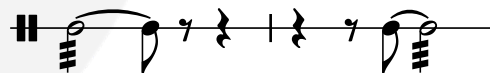
*Layout transposition token.* A new **layoutTransposition** token has been added, allowing you to show whether the layout is currently shown in transposed pitch or at concert pitch.

The token uses the language specified by the **Instrument names language** option on the **Language** page of Engraving Options. If you want to override the text that is shown, you can do so using the new **Custom text for concert layout** and **Custom text for transposed layout** options in the new **Text Tokens** section of the **Page Setup** page of Layout Options.

*Flow duration tokens.* New **flowDurationStraightQuotes** and **flowDurationPrimes** tokens, which use the appropriate straight quotes and prime symbols respectively as minutes and seconds separators.

## Tremolos

*Tremolos with attack and release.* It is common when writing for percussion to write a single-stem tremolo for all the notes in the tie chain, except for the final (usually short) note value at the end of the tie; we might call this a *tremolo with release*. It is less common, but not uncommon, to write the reverse: a single-stem tremolo for all the notes in the tie chain, except for the first (usually short) note value at the start of the tie; we might call this a *tremolo with attack*.



It has always been possible to notate such tremolos in Dorico by use of the **Single-stem tremolo** property, but it's not especially quick to do this. In Dorico 4.3, there are now new buttons in the **Tremolos** section of the **Repeat Structures** panel in Write mode to produce tremolo with release and tremolo with attack with a single click. These buttons will create a tremolo with three strokes.

If you want to create a different number of strokes, use the normal syntax in the **Shift+R** popover, e.g. **//**, but append **rel** for a tremolo with release, or **att** for a tremolo with attack. For example, typing **//rel** will create a two-stroke tremolo with release, while typing **4att** will create a four-stroke tremolo with attack.

Behind the scenes, Dorico is setting the **Single-stem tremolo** property as required for each note value in the tie chain, so such tremolos can still be edited in the usual way by adjusting this property value in Engrave mode.

*Tying notes with tremolos.* When tying together a run of notes with forced durations, some or all of which have single-stem tremolos on them, Dorico will now retain both the offsets of the existing notes in the resulting tied note, and also all of the tremolo properties.

## User interface

*Play menu.* The **Play** menu is now shown in all modes, not only when Play mode is active.

*Lower zone size.* A new command, **Cycle Lower Zone Size**, has been added to the **Window** category in the **Key Commands** page of Preferences. No default key command is assigned to this new command. When invoked, it will show the lower zone if it is not currently shown, and if the active panel in the lower zone supports flexible vertical size (Mixer, Keyboard, Fretboard, Drum Pads, Key Editor), it will cycle between making the height of the lower zone 25%, 50% and 75% of the available window height.

*Lower zone panels.* A new command, **Show Lower Zone Panel**, has been added to the **Window** category in the **Key Commands** page of Preferences. This command allows you to show the lower zone, if it is not currently visible, and make a specific panel active. You can use this, for example, to set up a key command to open the lower zone and switch to the Key Editor, or the Mixer, or the Properties panel.

*More jump bar commands.* You can now invoke more commands via the jump bar:

- It is now possible to invoke the **Play ► Playback Template** command, via the jump bar or key command, from any mode, not only Play mode.
- Similarly, it is now possible to invoke **Duplicate Flow** via the jump bar.
- It is now possible to invoke the **Reset Playback Overrides** command from any mode, using a key command or via the jump bar.

*Transpose dialog.* In **Write ► Transpose**, when changing the **Interval** control to **Octave**, the **Number of octaves** spin control is now set to 1, rather than 0, by default.

*Octave lines options.* The options in the **Design** section of the **Octave Lines** page of Engraving Options have been updated, to make their actual operation clearer and easier to understand.

*Window positioning with multiple displays.* If you sometimes work with Dorico on a multi-display setup and position windows and dialogs on your secondary display, when you subsequently run Dorico with only your primary display available, Dorico will now correctly show those windows and dialogs whose saved positions were on

the secondary display back on your primary display. Additionally, this prevents certain windows from appearing incorrectly as empty white rectangles if they had previously been shown on a secondary display (Windows only).

*Edit Strings and Tunings.* It is now possible to navigate between the strings in the **Edit Strings and Tunings** dialog using the arrow keys, along with **Home/End/Page Up/Page Down**.

*Switching to Engrave mode.* The commands to switch to the sub-modes in Engrave mode can now be used from Setup and Print modes.

*Duplicating flows.* The new flow is now selected in the Flows panel by default after duplicating an existing flow.

## Localization

*Instrument names.* The English instrument “Tenor Horn” is now “Althorn” in German, and the English “Baritone Horn” is now “Tenorhorn” in German.

*Instrument changes.* The instruction that appears for an instrument change in Italian is now “passa a” rather than “riporre”.

## Issues resolved

Component	Issue
<i>Accidentals</i>	The option <b>Notes eligible for a cautionary accidental following an enharmonically equivalent note</b> in the <b>Cautionary Accidentals</b> section of the <b>Accidentals</b> page of Notation Options now works more reliably.
<i>Barlines</i>	The barline at the start of a coda section following a mid-system gap now draws as a regular systemic barline when barlines are drawn between staves by default.
<i>Barlines</i>	If the <b>Barline joins for ossias above or below the outermost staff of an instrument</b> option on the <b>Barlines</b> page of Engraving Options is set to show either a dashed or normal barline, ossias above or below vocal staves will now show the expected barline joining with the main staff.
<i>Barlines</i>	The interaction of the <b>Barline at end of each system</b> and <b>Barline at end of flow</b> options on the <b>Barlines</b> page of Notation Options and the <b>Barline joins between vocal staves at the ends of systems</b> option on the <b>Barlines</b> page of Engraving Options has been clarified: the per-flow Notation Options now correctly take precedence over the project-wide Engraving Option.
<i>Bar numbers</i>	The correct bar number range is now shown on multi-bar rests for ranges of bars in which a bar number change has been used to suppress the primary bar number.
<i>Beaming</i>	Under rare circumstances, it was possible to create a beam that crossed more than two systems and for one of those systems not to contain any notes, resulting in a crash; this has now been fixed.
<i>Beams</i>	Under some circumstances, the stemlets for a beam below the staff joined to rests shared with the up-stem voice could be positioned incorrectly; this has now been fixed.
<i>Brackets and braces</i>	Under specific circumstances, attempting to reorder players in Setup mode when an existing bracket and brace change has been set up in such a way that one or more bracket groups is inverted could cause a crash; this has now been fixed.
<i>Capos</i>	Setting the <b>Starting fret</b> value higher than zero for all strings and then attempting to define a capo at a fret that doesn't exist in the <b>Edit Strings and Tunings</b> dialog no longer results in a crash.
<i>Chord diagrams</i>	Under some circumstances, one or more of the chord shapes shown for a chord symbol with an altered bass note may have included an incorrect root note; this has now been fixed.
<i>Chord diagrams</i>	When determining available shapes for a chord symbol with an altered bass note, Dorico no longer incorrectly also shows voicings that include this altered bass note anywhere other than as the lowest note in the voicing.

Component	Issue
<i>Chord diagrams</i>	The order in which chord shapes are presented to the user in ascending order of complexity could sometimes differ between Windows and macOS; this has now been fixed.
<i>Chord symbols</i>	It is now possible to specify that a new chord symbol should be parenthesized by default by typing, for example, ( <b>Gm7</b> ) into the <b>Shift+Q</b> popover in all flows in the project, not only the first one.
<i>Chord symbols</i>	When chord symbols are set to appear between the staves of a grand staff instrument, and have a background erasure set, if you change the relevant layout option such that the chord symbol should appear above the top staff of the instrument once more, the background erasure is now correctly removed from between the two staves.
<i>Comments</i>	Under certain circumstances, Dorico could crash when adding a comment in a particularly large project; this has now been fixed.
<i>Condensing</i>	Auxiliary notes for trills are now shown correctly when condensed.
<i>Condensing</i>	Under some circumstances, editing items on another system could cause player labels to move unexpectedly away from the staff; this has now been fixed.
<i>Cues</i>	Dorico no longer incorrectly fails to draw fingerings inside the staff when a cue is also shown at that rhythmic position on the same staff.
<i>Cues</i>	Under some circumstances, bar rests shown in cues could behave unstably during editing, appearing and disappearing apparently at random; this has now been fixed.
<i>Flows</i>	Importing a flow where multiple identical instruments are present in the source and destination flows no longer sometimes results in the music for the identical instruments ending up swapped.
<i>Flows</i>	Under some circumstances, Dorico could crash when using <b>Write ► Split Flow</b> ; this has now been fixed.
<i>Glissando lines</i>	The <b>Minimum horizontal span for glissando lines from grace notes</b> option in the <b>Spacing</b> section of the <b>Glissando Lines</b> page of Engraving Options now works correctly for glissando lines after the very start of the flow.
<i>Glissando lines</i>	Glissando lines were unnecessarily removed when changing the duration or position of the notes at either end of the glissando line; this has been improved, such that the glissando line is retained and snapped to a new position under as many circumstances as possible.
<i>Graphic slices</i>	Graphic slices exported in TIFF format no longer incorrectly end up at a slightly lower resolution than specified.



Component	Issue
<i>Guitar tablature</i>	In some circumstances, Dorico could crash when attempting to add a bend from a grace note to a rhythmic note; this has now been fixed.
<i>Key Editor</i>	Editing the start or end offset of a note in the piano roll editor no longer results in an existing offset at the opposite end of the note being incorrectly removed.
<i>Key Editor</i>	The bar number display in the ruler in the Key Editor and the track overview in Play mode now correctly accounts for bars that contain multiple sets of beat groupings.
<i>Key Editor</i>	When dragging a MIDI CC data point to the position of another existing point, the overall ordering of the data points is correctly preserved, so that an unedited point doesn't unexpectedly disappear.
<i>Key Editor</i>	Edits made to note start and end offsets in the piano roll when the <b>Silence</b> playback template is active, or when the selected track is not currently routed to an endpoint for playback, are now shown correctly.
<i>Key Editor</i>	Simply selecting a note in the piano roll is no longer sufficient to sometimes unexpectedly set a start and end offset for the note.
<i>Key Editor</i>	When dragging either end of a note to change its duration, it is no longer possible to simultaneously drag the note to a new pitch.
<i>Key Editor</i>	The voice selector in the Key Editor toolbar now always updates immediately when a new voice is added.
<i>Key Editor</i>	Edits in the MIDI CC editor are now applied almost instantly, instead of causing Dorico to pause for a moment.
<i>Key Editor</i>	Under some circumstances, it was possible for a selected velocity bar to be edited simply by moving the mouse but without the left button held down; this has now been fixed.
<i>Key Editor</i>	Dragging a range of selected points in the MIDI CC and tempo editors now behaves more usefully: all of the selected points are included in the drag, rather than only the points in the area of your click as you begin the drag becoming selected.
<i>Key Editor</i>	In the rare circumstance that you have multiple notes selected in the score and then drag one of those notes in the piano roll to change its position or duration, only the note that you actually dragged in the piano roll will be edited, rather than all of the notes in the selection.
<i>Library Manager</i>	Under rare circumstances, importing library items from a <b>.doricolib</b> file could crash; this has now been fixed.
<i>Library Manager</i>	If you drag a <b>.doricolib</b> file into the Library Manager that only contains library items and no saved options, the options categories will no longer unexpectedly show any differences.

Component	Issue
<i>Lines</i>	The calculation of the area to be erased when erasing the background behind the central annotation on an angled line has been improved.
<i>MIDI export</i>	If you rename an instrument in Setup mode, the updated name is now correctly used in track names when exporting MIDI files.
<i>MIDI import</i>	When mapping tracks in the imported MIDI file to existing instruments in the project, Dorico will now consider variants of the desired instrument, instead of requiring an exact match.
<i>MIDI import</i>	Under some circumstances, Dorico could hang when importing MIDI files with certain time signatures and beat groupings; this has now been fixed.
<i>MIDI import</i>	The performance of MIDI import has been significantly improved.
<i>MIDI import</i>	Hard-quantized tuplets are now detected and imported more accurately.
<i>Mixer</i>	Muting the master output in the Mixer now correctly mutes and unmutes the master output, as well as all of the other plug-in outputs.
<i>Multi-bar rests</i>	When showing timecode every bar in a layout where multi-bar rests are consolidated, timecode is now correctly shown only once at the start of the multi-bar rest.
<i>Note input</i>	When copying and pasting MIDI CC and pitch bend data along with other musical material, the offset between the first selected note or chord and the first selected MIDI CC or pitch bend point is now correctly preserved when pasting.
<i>Note input</i>	When copying and pasting MIDI CC and pitch bend data, Dorico no longer sometimes incorrectly overwrites MIDI CC data for a different controller in the destination region.
<i>Note input</i>	Copying and pasting MIDI CC and pitch bend data now works correctly, even if the first selected item in the destination instrument is not a note or chord.
<i>Note input</i>	Splitting existing notes with <b>U</b> now always correctly maintains all properties set at specific rhythmic offsets within the note's duration.
<i>Note input</i>	When inputting notes onto a single-line percussion instrument using the <b>Use percussion map</b> option, Dorico now correctly inputs the appropriate playing technique.
<i>Note input</i>	When making a selection of notes into multiple tuplets in Insert mode, the Insert stop position is now correctly considered.
<i>Note input</i>	The new option for WinRT MIDI (added in Dorico 4.2) is now disabled by default.
<i>Note input</i>	Certain edits when Insert mode global scope is active could result in the wrong time signature being shown at the conclusion of an edit; this has now been fixed.

Component	Issue
<i>Note input</i>	Under certain circumstances, Dorico could fail to respect the stop position when inserting tuplets in a bar with global Insert scope chosen; this has now been fixed.
<i>Note input</i>	The value of <b>Pitch of A4</b> on the <b>Tuning</b> page of Playback Options is now respected when playing or inputting notes on the Keyboard panel.
<i>Note input</i>	Under some circumstances, pasting material in global Insert mode scope could fail to move existing content in all existing voices; this has now been corrected.
<i>Note input</i>	MIDI device names containing Japanese characters no longer cause Dorico to crash when using the WinRT MIDI APIs (Windows only).
<i>Note input</i>	Using <b>Select More</b> to extend a selection that starts on the first system of the flow but after the first rhythmic position of the flow now works correctly once more.
<i>Note input</i>	Converting notes to a tuplet in Insert mode now always correctly respects the Insert stop position, if set.
<i>Note input</i>	When copying and pasting music with MIDI CC data included, the copied MIDI CC data is now pasted to the right instrument, rather than all of the data being pasted to the first instrument in the selection.
<i>Note input</i>	When inputting or editing music with Insert mode player scope active, Dorico will now shift MIDI CC and other automation data along with all of the music for that player.
<i>Note input</i>	When copying and pasting music with MIDI CC data included, Dorico no longer sometimes incorrectly overwrites MIDI CC data for a different controller in the destination region.
<i>Note input</i>	Multi-paste now works correctly for selections of music that include MIDI CC data.
<i>Ornaments</i>	Under some circumstances, a trill created during step-time input could be created at the start of the flow rather than at the caret position; this has now been fixed.
<i>Percussion</i>	Under some circumstances, selecting existing notes in a percussion kit and attempting to create a nested tuplet would fail; this has now been fixed.
<i>Percussion</i>	Adding new percussion instruments to a percussion kit held by a player that has been denoted as a soloist no longer results in the newly added instruments having empty names.
<i>Percussion</i>	Slash and slash without stem components in percussion kits no longer incorrectly produce any sound during playback.
<i>Percussion</i>	It is no longer (incorrectly) possible to create an entry in a percussion map for the <b>Slashes</b> or <b>Slashes (with stems)</b> instruments, which do not play back in percussion kits.

Component	Issue
<i>Performance</i>	The performance of editing large projects that use chord symbol regions has been significantly improved.
<i>Playback</i>	Dorico could crash when processing certain combinations of base and add-on switches in an expression map; this has now been fixed.
<i>Playback</i>	Disabled add-on switches from the expression map are no longer incorrectly applied during playback.
<i>Playback</i>	When switching between fixed and follow tempo modes in the Transport, the playhead no longer moves.
<i>Playback</i>	When playback moves from one flow to the next, Dorico would send an incorrect dynamic reset MIDI message immediately after the start of the new flow, which could result in the wrong dynamic being used; this has now been fixed.
<i>Playback</i>	Dynamics that trigger playback techniques in an expression map now correctly take the repeat structure of the flow into account.
<i>Playback</i>	If a grand staff instrument, such as a piano, is held by a section player, dynamics between the staves now correctly take effect on both staves.
<i>Playback</i>	Under very specific circumstances where an instrument with multiple voices is set to use independent voice playback, and where the endpoints assigned to the voices of that instrument are <i>also</i> assigned to other instruments, it was possible for edits to one of those instruments to temporarily cause the other instruments that share the endpoint to be silent during playback; this has now been fixed.
<i>Playback</i>	Playback techniques set to play back as attributes (i.e. affecting only the note at that position) are now played correctly in repeated passages.
<i>Playback</i>	MIDI controllers required for dynamics are now correctly output to channels that are used as a result of executing an add-on switch in the expression map.
<i>Playback templates</i>	When saving an endpoint configuration for all the devices in the <b>VST and MIDI</b> panel, empty slots with no plug-in loaded are now correctly excluded.
<i>Playback templates</i>	Dorico no longer incorrectly marks changing the playback template for the current project as an undoable operation.
<i>Players</i>	When using <b>Duplicate Player</b> to duplicate a player holding a fretted instrument with a staff notation transposition, the new instrument now has the correct transposition applied.
<i>Play mode</i>	When dragging and dropping a MIDI file in the track overview in Play mode or the Key Editor, Dorico no longer incorrectly clears a region matching the length of the MIDI file being dropped at the start of the flow.

Component	Issue
<i>Project files</i>	Projects with commas in their file names now open correctly when double-clicked in the Windows shell (Windows only).
<i>Project files</i>	After importing a MIDI or MusicXML file, Dorico will no longer notify you if the MIDI or MusicXML file is moved, renamed or deleted during that session.
<i>Project files</i>	When opening a project when another project is already open, if <b>Activate subsequent project on load</b> is set to <b>Ask</b> , Dorico will now ask you whether to activate playback for that project, as expected (Mac only).
<i>Project templates</i>	When creating a new project from one of the factory templates, Dorico no longer incorrectly overrides the page and space size for part layouts to the same values as the full score.
<i>Rhythmic slashes</i>	When changing the fretted instrument presentation type on the <b>Players</b> page of Layout Options, slash regions that appear in tablature are correctly removed, allowing the tablature to disappear immediately as expected.
<i>Selections</i>	Under very rare circumstances, Dorico could crash when changing selection; this has now been fixed.
<i>Selections</i>	Under some circumstances, closing the text editor by clicking on and dragging another item in a single motion could result in Dorico showing an error message, and subsequently for undo operations to undo more edits than expected; this has now been fixed.
<i>Slurs</i>	When creating a cross-staff slur, it was sometimes possible for the slur to be attached to the wrong destination note; this has now been fixed.
<i>Slurs</i>	Adding a slur during step-time input in a bar that contains an explicit bar rest now always works as expected.
<i>Staff labels</i>	If some of the staves belonging to instruments within a player group are set not to show staff labels, player group labels and brackets are no longer incorrectly positioned according only to those staves that do show staff labels.
<i>Staff spacing</i>	When detaching an instrument from a single flow, Dorico no longer incorrectly removes staff spacing adjustments for that instrument from all flows.
<i>System dividers</i>	System dividers are now always drawn at the left or right frame margin, plus or minus the horizontal offset defined in Engraving Options, and do not follow manual system indents made in Engrave mode.
<i>Tempo</i>	It is no longer possible to set the <b>Final tempo</b> property for a gradual tempo change to 0%, which would previously have resulted in Dorico being unable to play back the project.

Component	Issue
<i>Text</i>	Dorico no longer shows a border on an empty text item, or if the text item consists only of whitespace.
<i>Tonality systems</i>	Under certain circumstances, Dorico could crash when duplicating a tonality system or an accidental within that tonality system; this has now been fixed.
<i>User interface</i>	Menus that are sufficiently long not to fit in the height of the display now appear as a single scrollable list, rather than multiple columns (Windows only).
<i>User interface</i>	Cosmetic problems with the appearance of the paddles on small spin controls in the Properties panel and text editing popover have been fixed.
<i>User interface</i>	Some parts of Dorico's user interface would use the wrong font when running in Chinese and Japanese; this has now been fixed.
<i>User interface</i>	After changing the application language on the <b>General</b> page of Preferences, all key commands are reset, so that the default key commands for the new language are set up for use right away.
<i>User interface</i>	Selecting a note with an exotic microtonal accidental no longer sometimes results in a crash when the Keyboard or Fretboard panel is shown.
<i>User interface</i>	The tuplet button in the toolbox in Write mode now updates correctly to show the appropriate ratio in all cases.
<i>User interface</i>	Selecting an entry from the device menu in the <b>Routing</b> section of the track inspector in the left zone in Play mode no longer causes that entry to be incorrectly highlighted when opening the menu with a different track selected.
<i>User interface</i>	The width of the Graphical Editing panel in Engrave mode has been adjusted such that the buttons are no longer truncated.
<i>User interface</i>	Pop-up menus, such as the layout selector in the toolbar and the VST plug-in selector in the <b>Routing</b> section of the track inspector in Play mode, are now better-behaved on multi-monitor setups where the dimensions of the two displays are unequal; previously, the pop-up menu would always open to the height of the largest display, rather than the height of the display on which it is being shown. This has now been fixed.
<i>User interfaces</i>	Under certain circumstances, using curly braces as values in Dorico's options dialogs could result in a crash or incorrect appearance of the relevant items; this has now been fixed.
<i>VST plug-ins</i>	On some Mac computers, Native Instruments' KOMplete Kontrol software could cause Dorico to crash on start-up; these components are now blocked from being loaded by Dorico, which should prevent them from causing Dorico to crash.

# Dorico 4.2

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8 July 2022

## Improvements

### Key Editor

*Percussion editor.* Dorico 4.2 reintroduces the percussion editor, which allows you to easily edit the music on drum sets, other percussion kits, and individual percussion instruments, and taking the place of the piano roll when editing music written for percussion.

Instead of the piano keyboard on the left-hand side, each instrument in the percussion kit is shown, with the playing techniques defined in the **Edit Percussion Playing Techniques** dialog for each kit instrument shown as separate rows immediately below the instrument's row; the main row represents the **Natural** (or equivalent) playing technique. Each row of the percussion editor shows the notes written for that combination of instrument and playing technique. The order in which the instruments appear in the percussion editor is determined by the per-layout option for percussion kit presentation on the **Players** page of Layout Options.

It is possible to edit the music in the same ways as with the piano roll editor for pitched material, and notes can be freely moved both in time and between instruments or playing techniques, and their durations can be freely edited, according to the rhythmic grid.

In addition to the standard pencil/draw tool – which allows you to input notes one at a time by clicking to create a note of the current grid duration, then dragging to specify its duration – the percussion editor also includes a new drumstick tool, which can be used to input multiple notes with a single sweep of the mouse. When you activate the drumstick tool, each row in the percussion editor shows its own independent rhythmic grid control at the right-hand side of the instrument header, allowing you to specify a different grid value for each instrument. For example, you might specify a grid value of eighths (quavers) for the hi-hat and quarters (crotchets) for the kick and snare drum. With the drumstick active, click and drag across the percussion editor to create multiple notes of the specified grid duration. To remove individual notes, simply click them with the drumstick active. This is a very fast and efficient way of inputting percussion music.



*Linked mode.* We have revamped the way that linked mode works in the Key Editor. Dorico will no longer automatically disengage linked mode when you zoom or scroll in the Key Editor, and it also no longer automatically changes the zoom level when you make a new selection in order to bring all of the music in the selected voice in the current system into view.

Instead, linked mode now simply follows the selection that is made in the music area in Write mode as non-intrusively as possible. When you select a note, if that note is already in view (even partially) in the piano roll, Dorico will not move the view at all. If you select a note that is out of view, Dorico will scroll the piano roll to bring it into view, positioning it at the left-hand side of the editor. If you select multiple notes, and the range of pitches is too large to fit in the view, Dorico will align the highest note in the selection with the top of the view.

## Lyrics

*Hanging punctuation.* Various whitespace characters and the horizontal ellipsis character is now considered punctuation for the purposes of ignoring the width of hanging punctuation when aligning lyrics.

## Note input

*MIDI CC data.* When copying and pasting notes, any MIDI CC data in the rhythmic range described by the selected notes and rests is also copied and pasted.

If independent voice playback is enabled, when moving notes to another voice, any MIDI CC data in the rhythmic range described by the note is now also moved to the new voice.

*Bluetooth-enabled MIDI devices on Windows.* Dorico now uses the latest WinRT MIDI capabilities in Windows 10 and Windows 11 by default; this allows the use of MIDI devices that connect via Bluetooth as well as via USB. If you encounter any problems with MIDI devices on Windows, try deactivating the new **Enable WinRT MIDI** option in the **Advanced Options** section of the **Play** page of Preferences, then restart Dorico.

## Project files

*User project templates.* When starting a new project based on a user project template from the **Create New** page of the Hub, it is no longer possible to override the music and text font settings from the project template. This ensures that the fonts in the created project match those that were originally set up in the template project.



## Remote control

*Status message.* The **status** message now includes a new key/value pair, **activatedForPlayback**, which corresponds to the state of the power button in the toolbar, allowing remote control clients to determine whether playback is available for the current project.

## User interface

*Play mode.* The **Turn on IRV** button in the **Routing** section of the track inspector in Play mode has been replaced with an icon button.

*Button appearance.* The styling of buttons that change the contents of panels or windows – such as the five main mode selector buttons in the toolbar, the buttons for changing the panel shown in the lower zone, and the buttons for choosing between panels and popovers in the notations toolbox – has been updated, to make them more visually distinct from buttons that indicate whether or not a particular feature is active.

## Issues resolved

Component	Issue
<i>Audio export</i>	Dorico now always uses the active layout when exporting audio (rather than the first-created full score layout), and the list of players shown in the <b>Export Audio</b> dialog now reflects the players included in the layout.
<i>Audio export</i>	When exporting individual players to audio files, they are now exported in score order, so sorting the exported files by modification date from oldest to newest in the Finder or Windows Explorer will list them in score order.
<i>Beaming</i>	Dorico now once again correctly removes any conflicting values for the <b>Beam direction</b> property to ensure that the beam slant direction is consistent.
<i>Chord symbols</i>	When adding players to a layout, Dorico no longer incorrectly temporarily shows local chord symbols belonging to a different player on the newly added players.
<i>Chord symbols</i>	When chord symbols are set to be aligned across the width of the system, Dorico now once again correctly respects the value of the <b>Placement</b> property, so that chord symbols set to appear below the staff now correctly appear there.
<i>Engrave mode</i>	Under some circumstances, Dorico could crash when dragging a music or text frame to change its size, or when editing its properties; this has now been fixed.
<i>Figured bass</i>	The placement of the closing round bracket for bracketed figured bass has been improved when the <b>Figured bass font</b> font style is set to use an absolute, rather than staff-relative, font size.
<i>Key Editor</i>	Selecting notes in both the notation staff and tablature for a fretted instrument with the Key Editor displaying that instrument's music would cause a crash; this has now been fixed.
<i>Key Editor</i>	Clicking and dragging an unselected note in the piano roll with the select tool active now selects and starts dragging the note, rather than beginning a marquee selection.
<i>Key Editor</i>	It is no longer possible to drag the start of a note in the piano roll past its end.
<i>Library Manager</i>	It is once again possible to drag a <b>.doricolib</b> file into the drop zone in the top right-hand corner of the Library Manager.
<i>Library Manager</i>	If you choose <b>Library ► Library Manager</b> when the Library Manager is already open, it is now correctly brought to the front.
<i>Library Manager</i>	When importing certain Layout Options and Engraving Options via the Library Manager, Dorico now ensures that library items referenced by those options are now automatically imported; this fixes a crash that could otherwise occur when importing these options.

Component	Issue
<i>Lyrics</i>	Lyric elisions can now be shown for a lyric that has the <b>Italic</b> property set, but no other local rich text formatting.
<i>Note input</i>	Under certain circumstances, Dorico could hang when attempting to set the endpoint for echoing notes played on your MIDI keyboard; this has now been fixed.
<i>Note input</i>	When using real-time recording, Dorico no longer incorrectly creates an empty <b>MIDI Import</b> player group if the <b>Create player group for new players</b> option is activated in the <b>MIDI Import Options</b> dialog.
<i>Playback</i>	When an add-on switch and a base switch have conflicting values for the same MIDI controller, the value specified in the add-on switch is now sent in preference to the value in the base switch.
<i>Playback</i>	The playback of off-beat notes in 16th (semiquaver) swing has been corrected.
<i>Popovers</i>	If the <b>Alt</b> key was held down to toggle between global and local chord symbols or figured bass and the application loses focus, Dorico now correctly clears the <b>Alt</b> key state.
<i>Preferences</i>	Clicking <b>Reset to Factory</b> in Preferences now correctly additionally resets the default Dorico projects and auto-save folders as it should.
<i>Print mode</i>	When exporting a PDF in Print mode and specifying multiple page ranges, Dorico no longer incorrectly exports each page range to a separate but identically named PDF, each one overwriting the previous one.
<i>Project files</i>	When starting a new project based on a user project template from the <b>Create New</b> page of the Hub with the <b>Project uses multiple flows</b> option switched off, Dorico no longer incorrectly resets the properties of text frames in the layout, resulting in unexpected changes of text alignment.
<i>Project Info</i>	It is now possible to rename a flow that has been added in the <b>Project Info</b> dialog but has not yet been added to the project.
<i>Remote control</i>	It is no longer incorrectly possible to trigger certain commands that rely on the current selection in the Players, Flows or Layouts panels in Setup mode via the remote control API from another mode.
<i>Remote control</i>	It is no longer incorrectly possible to trigger the commands in the <b>Write ► Transform</b> submenu via the remote control API outside Write mode.
<i>Text</i>	The <b>{@staffLabelsFull@}</b> token now correctly shows only the name of the percussion kit instrument itself, and not all of the individual percussion instruments contained in the kit.

Component	Issue
<i>User interface</i>	Changing the layouts associated with a flow no longer incorrectly clears the selection in the Layouts panel.
<i>User interface</i>	When you choose a new layout for an existing tab, Dorico no longer incorrectly shows the final tab in the tab group as active.
<i>User interface</i>	Under some circumstances, the width of the cards in the Players panel could be calculated incorrectly when a vertical scrollbar is shown; this has now been fixed.
<i>User interface</i>	When returning to the Hub after closing the final open project, the list of projects shown in the <b>File ► Open Recent</b> submenu could be incorrect; this has now been fixed.
<i>User interface</i>	When opening and closing the lower zone with multiple tabs open, the zoom level read-out in the status bar no longer now shows the incorrect value for the currently-active tab.

# Dorico 4.1.10

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19 June 2022

## Improvements

### Engrave mode

*Staff spacing adjustments.* When inserting pages into an existing layout, staff spacing adjustments on subsequent pages that are shifted as a result of the insertion are now retained where possible.

*Page overrides.* Two new commands have been added to the **Engrave** menu:

**Remove All Page Overrides** allows you to remove page overrides from all pages in the layout, while **Remove Page Override(s)** removes page overrides from the page or pages on which you have items selected (Dorico Elements only).

*Flow headings.* A new command **Engrave ► Edit Flow Heading** has been added, allowing you to edit the tokens that are used in the default flow heading that appears between flows (Dorico Elements only).

### Library Manager

*Preferred unit of measurement.* The Library Manager now respects the user's choice of preferred measurement unit when displaying measurements.

### Play mode

*Removing MIDI continuous controller data.* A new **Play ► Automation** submenu has been added, with two new commands: **Delete All Automation** will remove all MIDI CC data from all instruments in all flows throughout your project; **Delete All Automation For Instruments In Selection** will remove all MIDI CC data across all flows from all instruments for which at least one item is selected.

### Print mode

*Suspect transpositions for score layouts.* A new option **Warn when printing full or custom score layouts with suspect transposition** has been added to the **General** page of Preferences. If you habitually want your full score layouts to be printed in, say, transposed pitch, you can activate this option and then set **Suspect transposition for score layouts** to **Concert Pitch**. Thereafter, when you try to print a full score layout and it is currently set to concert pitch, Dorico will warn you so that you can choose whether to proceed as-is, or to fix the transposition.

## Project files

*Single-flow projects.* When starting a new project via the **Create New** page of the Hub, if you deactivate **Project uses multiple flows**, Dorico will modify the default page template such that the running header shows the project title rather than the title of the first flow.

## Write mode

*Numbered bar regions.* A new **Numbered Bars** section has been added to the **Repeat Structures** panel, with a new button to allow you to create a numbered bar region.

## User interface

*Update notifications.* If Dorico detects that a new free update is available, a banner appears in the Hub window to let you know the version number of the new update, and recommending that you either run Steinberg Download Assistant or visit the Steinberg web site to download and install the new version.

*Progress dialogs.* The colors used in progress bars have been revised, to try to ensure that the progress percentage can always be read, regardless of the current operating system theme.

## Issues resolved

Component	Issue
<i>Clefs</i>	When applying a clef override in a project using a music font other than Bravura, Dorico no longer unexpectedly resets the project back to using Bravura
<i>Engrave mode</i>	Dorico no longer sometimes crashes when opening a layout where the only music frame on a page shows manuscript staves rather than a regular flow.
<i>Figured bass</i>	When attaching a new player to a layout in which figured bass is already shown for at least one player, Dorico no longer initially also incorrectly shows figured bass for the newly-added player.
<i>Fingering</i>	Certain combinations of grace notes slurred to rhythmic notes connected by fingering slides could exhibit instability in the vertical positioning of the slides; this has now been fixed.
<i>Instrument filters</i>	The instrument filter overlay now always appears correctly when returning to galley view if it is activated in the <b>View</b> menu.
<i>Key Editor</i>	The Histogram and Transform tools in the velocity editor now work correctly once more.
<i>Library Manager</i>	If an item name differed in the source project, the name in the destination project was nevertheless used for both; now each shows its own name.
<i>Library Manager</i>	The status icons for library collections were sometimes not updated when viewing the entity data in the Library Manager, and the ordering of items present only in the source project was not always alphabetical.
<i>Library Manager</i>	When closing a project, Dorico no longer always closes the Library Manager: now it is only closed if either the source or destination project is closing.
<i>Localization</i>	If you change the application language while Dorico is running, the templates shown in the <b>Create New</b> page of the Hub are now immediately updated to the new language.
<i>Lyrics</i>	Overriding the paragraph style of a lyric no longer incorrectly prevents elision slurs from appearing if required.
<i>Lyrics</i>	When ignoring hanging punctuation, punctuation at the start of the lyric is now correctly ignored for naturally left-aligned lyrics.
<i>Lyrics</i>	When ignoring hanging punctuation, right-aligned lyrics (truly rare beasts) now correctly take into account the width of the punctuation at the start of the lyric.
<i>Lyrics</i>	Various European punctuation marks, hyphens and dashes are now additionally considered as punctuation for the purposes of ignoring hanging punctuation.
<i>Lyrics</i>	When ignoring hanging punctuation, lyrics with elision slurs are now correctly positioned.

Component	Issue
<i>Music symbols</i>	Some music symbols with multiple components created in Dorico 3.5 or earlier had an incorrect appearance in Dorico 4; this has now been fixed.
<i>Note input</i>	When starting a new project with a single instrument, playing notes on your MIDI keyboard will now correctly audition the single instrument sound.
<i>Note input</i>	When starting a new project with no sounds assigned (e.g. using the <b>Silence</b> playback template), playing notes on your MIDI keyboard will now correctly audition the appropriate instrument sound as soon as you have set up valid routing in the <b>Routing</b> section of the track inspector.
<i>Note input</i>	Inputting notes using the Fretboard panel in an atonal key signature now correctly respects the chosen string.
<i>Note input</i>	Under very rare circumstances, inputting a note of the same duration and ideal rhythmic spacing as a bar rest could fail to update the score immediately; this has now been fixed.
<i>Play mode</i>	The speed of changing any of the settings in the <b>Routing</b> section of the track inspector for an existing instrument has been significantly improved.
<i>Play mode</i>	Under some circumstances, Dorico could crash when activating a project for playback when the lower zone Mixer is shown; this has now been fixed.
<i>Playback</i>	When multiple instruments are routed to the same endpoint, changes to the MIDI CC data belonging to one of those instruments could cause the other instruments that share the endpoint to stop playing back; this has now been fixed.
<i>Print mode</i>	In large projects, it was sometimes possible for some layouts in a multiple selection to be printed or exported to PDF incompletely, such that only the first page is exported; this has now been fixed, and Dorico shows a progress dialog while it is calculating the selected layouts, to prevent you from starting the print or export before the process is complete.
<i>Project files</i>	If you deactivate <b>Project uses multiple flows</b> when starting a new project, Dorico now sets all layouts in the project not to show flow headings, rather than only the full score layout.
<i>Project files</i>	When loading existing projects, Dorico now automatically removes any MIDI CC data that has been left behind after removing players and instruments; this can reduce the file size of your Dorico project after re-saving.
<i>Project files</i>	Some users were experiencing crashes when starting Dorico or when clicking “Save as Default” for library items; this has now been fixed.
<i>Rehearsal marks</i>	When printing in color, the rehearsal mark letter or number and its enclosure are now both printed in the correct color.



Component	Issue
<i>Text</i>	When editing text, the background color of the text editor now correctly matches the background color of the page.
<i>User interface</i>	When <b>Invert colors for music</b> is activated, some signposts were incorrectly drawing with black backgrounds; this has now been fixed.



# Dorico 4.1

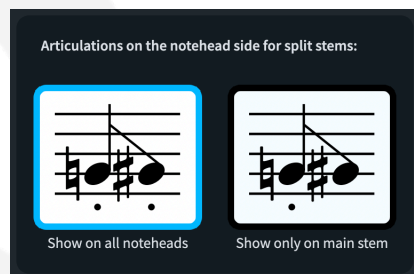
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27 May 2022

## Improvements

### Articulations

*Articulations on split stems.* A new option **Articulations on the notehead side for split stems** has been added to the **Horizontal Position** group of the **Articulations** page in Engraving Options.



This allows you to specify whether articulations should be shown only on the main stem when split stems for altered unisons are present (the default value in new projects) or should be shown on all stems (the default value in existing projects). When set to **Show only on main stem**, when on the stem side, articulations on stemless notes will now only appear on the main stem as well.

*Articulations inside the staff.* If staccatissimos are allowed inside the staff, and articulations of duration are positioned inside slur endpoints, then staccatissimos are now always positioned inside slur endpoints, regardless of their staff position.

### Audio export

*Reverb tail.* Changes to the **Reverb tail (s)** value in the **Export Audio** dialog are now correctly saved in application preferences.

*Broadcast WAV.* When the **Broadcast WAV** option is activated in the **Export Audio** dialog, the correct initial timecode value is now encoded in the exported audio file.

### Barlines

*Reset Appearance.* **Edit ► Reset Appearance** now works for time signatures and special barlines.

*Start repeat barlines at the start of the system.* It is now possible to specify that no barline should appear at the end of the previous system using the **Barline at end of system** property for start repeat barlines.

## Brackets and braces

*Orff instruments.* When the **Orchestral** bracketing approach is chosen, Dorico now ignores the **Orff instruments** family when determining how pitched and unpitched percussion instruments should be bracketed together. Because the **Orff instruments** family includes both pitched and unpitched instruments, it can produce unexpected default bracketing in standard orchestral ensembles, so it is now ignored.

## Capos for fretted instruments

*Note input with fretted instrument transposition.* When **Write ▶ Input Pitch ▶ Written Pitch** is active and **Edit ▶ Transposing Pitch** is set, the value of **In staff notation, written C4 sounds as** in the Edit Strings and Tunings dialog is now taken into consideration during note input.

## Chord diagrams

*Editing chord diagrams in Engrave mode.* It is now possible to edit an existing chord diagram by double-clicking it in Engrave mode in Dorico Elements (and Dorico for iPad, with subscription or lifetime unlock).

## Chord symbols

*Chord symbols between staves of a grand staff instrument.* The option **Position of chord symbols on grand staff instruments** that allows you to specify whether chord symbols should appear above the top staff or between the staves of a grand staff instrument has been moved from Engraving Options and can now be found on the **Chord Symbols and Diagrams** page of Layout Options. As such, this option can now be set independently in each layout if necessary.

## Comments

*Exporting comments.* When exporting comments, the flow number is now appended after the flow title to help identify to which flows the comments belong.

In addition, the name of the layout from which comments are exported is now included in the filename used for the exported comments, to avoid multiple exports from the same project unexpectedly overwriting each other.

## Cues

*Horizontal lines.* A new option **Horizontal lines** has been added to the **Included Notations** section of the **Cues** page of Engraving Options, allowing you to specify whether horizontal lines should be included in cues; a corresponding **Show horizontal lines** property has been added to the **Cues** section of the Properties panel, allowing this to be overridden for individual cues.

## Engrave mode

*Nudging bar number ranges.* It is now possible to nudge the bar count and range of bar numbers on a multi-bar rest in Engrave mode using **Alt+↑/↓/←/→**.

*Nudging lyrics.* Vertical adjustment of lyrics in Engrave mode with **Alt+↑/↓** now nudges in increments of 1/4 space, while horizontal adjustment with **Alt+←/→** moves by 1/8 space.

## Instruments

*Improved default score order.* Side drum is now ordered above bass drum in both the **Orchestral** and **Band** instrument score orders, and the placement of the **Woodwind** sketch instrument has now been corrected in both default score orders.

In addition, the order of the bass drum and clash cymbal instruments have been swapped in the **Concert Band** template.

## Key Editor

The Key Editor has undergone substantial further improvements in Dorico 4.1. In addition to the reintroduction of the dynamics editor, all of the other editors have also received significant attention – read on for the details. Even more improvements are coming in the next Dorico 4 update.

*Dynamics editor.* The dynamics editor can now be chosen in the **Expression and CC** section of the Key Editor, allowing you once more to tweak the playback effect of written dynamics that are shown in the music, and to add your own non-printing dynamics. These dynamics are automatically translated into the appropriate playback data according to the expression map in use, and it is typically advisable to use the dynamics editor rather than, say, manipulating MIDI CC1 directly in the continuous controller editor.

Regions in the dynamics editor that correspond to dynamics that are printed in the music have a green background, to differentiate them from regions of freehand points added with the draw (or pencil) and line tools, which have a blue background.

It is now possible to move dynamics left and right in the dynamics editor; click and drag the first, larger handle in the green region to move the dynamic. All other dynamics in the same group will also move by the same amount. The range of the group that will be moved is indicated by a blue line at the top of the editor, extending to the end of the last dynamic in the group.

The corresponding printed dynamics in the music will be moved too. Note, however, that you cannot change both the position and the dynamic level of a green region corresponding to a printed dynamic in the same operation. These edits must be performed separately.

Freehand regions drawn with the draw tool, shaded blue, can be moved freely: they will merge with each other, and if you draw or drag a blue region onto a green region, the corresponding printed dynamic in Write mode will still appear, but its playback effect will be overridden by the freehand range you have drawn.

Green regions corresponding to printed dynamics in the score cannot be dragged such that they overlap any other region, either green or blue.

*MIDI continuous controller editor.* The resolution of the MIDI continuous controller editor has been significantly increased, so freehand points can now be positioned much closer to each other.

When drawing new data into or moving existing points in the MIDI continuous controller editor, if appropriate the new or moved data will be merged with any existing region at that position, ensuring that no gap exists at the boundary between the existing and new data.

Editing multiple selected points in the MIDI continuous controller editor has been greatly improved, providing much greater freedom in the kinds of edits that are possible: in particular, a selected continuous range of points can be dragged to any position; a single point can be dragged up to the adjacent point on either side; and a discontinuous selection can be dragged by the distance to the closest adjacent point to either side.

The hit testing for points in the MIDI continuous controller editor has been improved, so the expected point is always selected, and clicking on the background in the MIDI continuous controller and velocity editors now correctly clears the selection.

*Modifiers for dragging.* You can now add modifier keys when clicking and dragging selected points in the continuous controller, tempo and dynamics editors:

- Hold **Shift** when dragging selected points to constrain the positions and change only the values when dragging vertically, or to constrain the values and change only the positions when dragging horizontally.

- Hold **Alt** when dragging selected points to copy them instead of moving them.

*Velocity editor.* It is now possible to edit the velocities of individual notes in chords. Velocity bars are now stacked in order of velocity, with the highest velocity at the back and the lowest velocity at the front; if you select a velocity bar, then it will always be drawn on top of all other velocity bars at that position.

With the select tool active, clicking in the velocity editor when no velocity bar is already selected will select the frontmost velocity bar at that position. You can then click and drag up and down anywhere in the horizontal space occupied by the velocity bar to change its value; as such, to select another velocity bar at the same position when a velocity bar is already selected, either use **Ctrl**+click (Windows) or **Command**-click (Mac) to add or remove from the selection, or click on a blank part of the editor background to clear the current selection before selecting the desired velocity bar.

Marquee selections now also allow you to select individual velocity bars without selecting all notes in that rhythmic region.

With the line or pencil tools active, as you drag across a series of velocity bars, if no velocity bars are selected at that position, the resulting edit will apply to all notes at that position, but if one or more velocity bars is selected at that position, the resulting edit will only apply to the selected notes at that position.

The performance of the pencil and line tools have also been improved, so changing velocities by drawing freehand across a range of notes and chords now feels much more responsive.

Finally, the vertical bars in the velocity editor now have a border, to make it easier to differentiate multiple notes at the same position.

*Tempo editor.* It is now possible to set the vertical range of the tempo editor in the Key Editor by specifying the maximum tempo value that can be displayed: simply set **Range max.** to the desired maximum value; this choice is saved in the current project.

*Pitch bend editor.* The pitch bend editor now shows a horizontal guide line in the vertical center of the editor, showing the mid-point (value 0); points will snap to this line as they are dragged towards this value. To prevent points from snapping, hold **Ctrl** (Windows) or **Command** (Mac) while dragging.

## Key signatures

*Accidental placement.* The default placement of accidentals in flat key signatures for the mezzo-soprano clef has been improved.

## Library Manager

*Export Library.* A new **Library ► Export Library** command has been added that allows you to export all library collections and options from the current project into a **.doricolib** file that can later be imported, in whole or in part, into another project via the Library Manager.

*Comparing against the user library.* When comparing the current project's library to the user library, the factory library values are now shown for values that are not set in the user library, giving a more accurate picture of the effect of importing settings from the user library.

## Lyrics

*Lyrics and paragraph styles.* Lyrics are now drawn using paragraph styles, rather than font styles; you will find five new paragraph styles – **Lyrics**, **Lyrics (Chorus)**, **Lyrics (Chorus Translation)**, **Lyrics (Translation)** and **Lyrics (Verse Numbers)** – in **Library ► Paragraph Styles**, and the old font styles no longer appear in **Library ► Font Styles**.

When opening an existing project, Dorico will update the new lyrics paragraph styles to match as closely as possible the appearance of the corresponding font styles.

When you open a project last saved in Dorico 4.1 in an earlier version, you will find that the basic parameters of the lyrics paragraph styles have been applied to the font styles, so lyrics will appear in at least the correct font family, style and size in the earlier version, but any advanced paragraph style properties (such as squashing or stretching the text) will not appear.

The precise positioning of lyrics in existing projects cannot be maintained in Dorico 4.1: for most projects you should notice no visible difference, but the change to drawing lyrics using rich rather than plain text results in unavoidable changes in metrics and measurements. The impact is that lines of lyrics may appear slightly further away from the staff than before, and because the widths for individual lyrics now include the side bearings of the first and last character in each lyric, they are slightly wider than before.

If you have performed very detailed editing of lyric placement and spacing in your existing projects and do not want to carefully proof-read and potentially re-edit them, you are recommended to maintain Dorico 4.0.31 on your computer alongside Dorico 4.1, and use the older version for those existing projects.

Because lyrics are now drawn with paragraph styles, they can have a different size in full score and part layouts if desired.

*Edit Single Lyric.* A new **Edit ▶ Notations ▶ Lyrics ▶ Edit Single Lyric** dialog has been added, allowing you to edit the rich text content of an individual selected lyric. This allows you to change the style and formatting of individual characters within the lyric, including changing the font if necessary. If you change the font family or point size of an individual lyric, it will very likely no longer be aligned vertically with neighboring lyrics in the same line. You can use the baseline shift property in the **Edit Single Lyric** dialog to mitigate this if necessary.

*Overriding the paragraph style for a lyric.* A new **Paragraph style** property has been added to the **Lyrics** group in the Properties panel, allowing you to override the paragraph style used for an individual lyric. This is helpful if you want to make an adjustment to, say, all the lyrics on a system, to choose a paragraph style with a slightly different size or **Text stretch** value.

*Reset Appearance.* Any formatting changes made to a lyric in **Edit Single Lyric** can be reset using **Edit ▶ Reset Appearance**.

When you change the content of a lyric via the popover, e.g. to correct a typo or change the word altogether, any existing rich text formatting added via the **Edit Single Lyric** dialog will similarly be removed.

*Hanging punctuation.* A new option **Punctuation at the start or end of lyrics** has been added to the **Spacing** section of the **Lyrics** page of Engraving Options, allowing you to specify whether hanging punctuation (at the start or end of each lyric syllable) should be considered when determining the alignment of each lyric syllable relative to the note to which it belongs; in new projects, hanging punctuation will be ignored, but to preserve the appearance of existing projects, the option is set to **Consider when positioning** by default.

*Elision slurs.* A new option **Scale factor for gap between elided syllables** has been added to the **Spacing** section of the **Lyrics** page of Engraving Options: in new projects this is set to 0.5, which reduces the space occupied by the elision slur and the gap between adjacent lyrics; it remains set to 1.0 in existing projects to preserve their current appearance.

## Note input and editing

*Lock Duration.* A new option **Jump over rests to next note only if closer than  $n$  quarters (crotchets)** has been added to the **Note Input and Editing** page of Preferences. When using Lock Duration to repitch existing music, this allows you to specify that Dorico should exit Lock Duration when you come to a large gap in the voice, rather than jumping ahead by potentially dozens or even hundreds of bars.



## Percussion

*Playback of diddles.* The playback of diddles (measured single-note tremolos) for unpitched percussion instruments has been improved: only for percussion kits, Dorico now considers only the actual number of tremolo strokes on the stem, instead of adding together the number of beam lines and tremolo strokes, to determine whether the tremolo meets the threshold **Minimum number of strokes for playback of unmeasured tremolos** on the **Timing** page of Playback Options. In practice this means that a single tremolo stroke written on a note of any duration will always play as a measured tremolo.

## Playback

*New effects plug-ins.* Dorico 4.1 includes two new built-in VST effect plug-ins: Frequency and Multiband Compressor.

Frequency is a high-quality equalizer with 8 fully parametric bands. The bands can act as shelving filter, as peak or notch filter (band-pass), or as cut filter (low-pass/high-pass).

Multiband Compressor allows a signal to be split into four frequency bands. You can specify the level, bandwidth, and compressor characteristics for each band.

*Editing velocity via Properties.* A new **Velocity** property has been added to the **Notes and Rests** group in the Properties panel, allowing you to edit the MIDI velocity of a selected note.

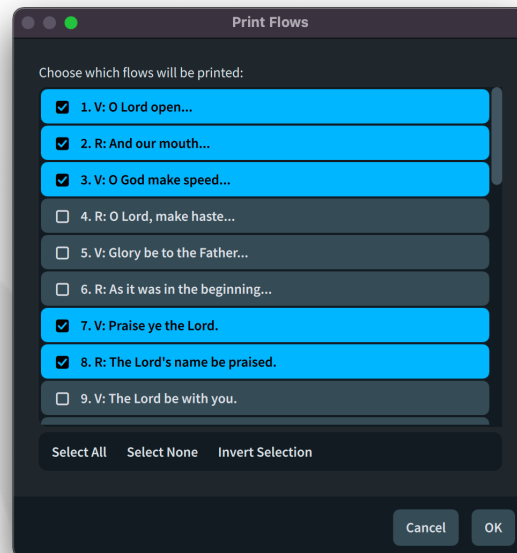
*Abutting notes with 100% duration.* If the option **Play as % of written duration** for **Default notes** on the **Timing** page of Playback Options is set to 100%, a new option **Shorten note if followed by abutting note of same pitch** appears, allowing you to specify whether the first of two abutting notes of the same pitch should be shortened by a single MIDI tick, to ensure that the note off message for the first note is processed before the note on message for the second note.

*Resetting port and channel when choosing a new plug-in.* When you choose a new VST instrument or MIDI device in the **Routing** section of the track inspector in Play mode, the **Port** and **Channel** controls are now automatically reset to 1.

*Updated audio engine.* The audio engine and its related components have been updated to the latest versions, providing some bug fixes and stability improvements.

## Print mode

*Printing selected flows.* A new option **Flows** has been added in the **Job Type** section of the right-hand options panel in Print mode. Click **Choose** to select which flows should be printed, as a quick way of setting up a page range for printing:



If your layouts allow multiple flows to appear on the same page, please note that only complete pages will be printed, so if you ask Dorico to print the third flow, and the third flow begins on the same page on which the second flow ends, that complete page will be printed. The choice of flows is saved in the project, so it will be preserved the next time you print the project.

## Project files

*Cloud-aware project handling.* When the open project file is located in a cloud-enabled directory – for example, iCloud Drive, Dropbox, or OneDrive – and the project file is updated as a result of synchronizing changes made on another device, Dorico will now show you a prompt informing you that the project has changed, allowing you to choose whether to save your current version under a new name, or overwrite the updated version, or, if the project has no unsaved changes, reload the updated version.

*Exporting flows.* A new option **Omit empty flows and layouts when exporting flows** has been added to the **Files** section of the **General** page of Preferences. If you are exporting individual flows from a larger project and want to maintain the same instrumentation and layouts for the exported file, even if some instruments may not be playing in the flows you export, deactivate this option.

## Staff labels

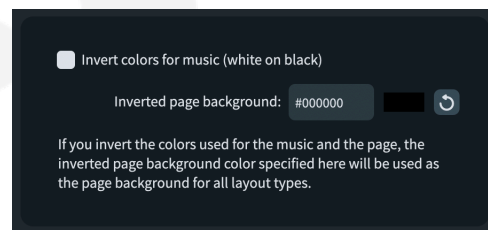
*Periods after abbreviated instrument names.* The **Period (full stop) after abbreviated instrument names** option on the **Staff Labels** page of Engraving Options is now also applied to staff labels that use the short player name instead of the short instrument name.

*Player names for percussion grids.* It is now possible to use the player name instead of the instrument name for players holding percussion kits when using the grid presentation type.

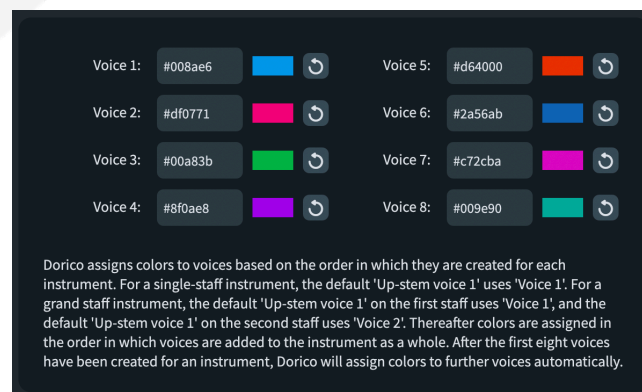
## User interface

*Custom colors.* A new **Colors** page has been added to the Preferences dialog. The existing options for the setting the page and background colors that were previously in the **View** section of the **General** page have been moved to this page.

Additionally, a new option **Invert colors for music (white on black)** has been added to the new **Colors** page of Preferences; activate this to show the music in white on a dark background, the color of which can be customized.

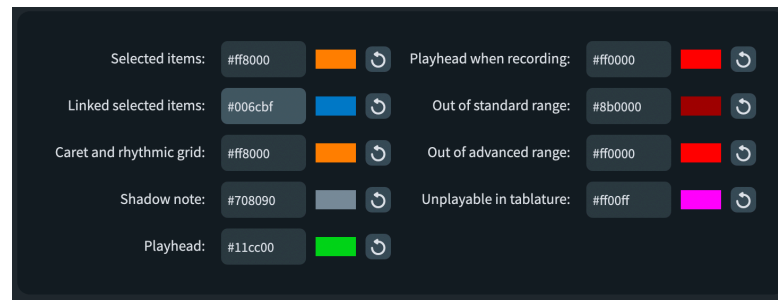


A new **Voice Colors** section has been added to the new **Colors** page of Preferences, allowing you to customize the colors used for the first eight voices on each instrument.



Finally, a new **Other Colors** section has been added to the **Colors** page of Preferences, allowing you to customize the colors used for items that display in the

score, including the caret and rhythmic grid, the shadow note, selections, out of range notes, and the playhead:



*Properties panel.* It is now possible to click on the text label to the right of the slide switch to activate or deactivate a property in the Properties panel.

*List view in the Hub.* The project name and path shown in the list view in the **Open Recent** page of the Hub are now elided if necessary.

*Adding a new tab.* If you invoke **Window ► New Tab** when the tab bar is not visible, Dorico first shows the tab bar and then creates a new tab.

*Colors in Play mode.* The colors used in the Key Editor and in Play mode have been updated to make them more vibrant.

## Issues resolved

Component	Issue
<i>Bar rests</i>	Updating the <b>Bar rest design in long time signatures</b> option on the <b>Rests</b> page of Notation Options now always correctly updates the score immediately.
<i>Barlines</i>	Under some circumstances, changing the barline at the end of the previous system using the <b>Barline at end of system</b> property for start repeat barlines would not cause an immediate redraw; this has now been fixed.
<i>Barlines</i>	It is now always possible to restore the default final barline at the end of a flow, either via the panel or via the popover.
<i>Beaming</i>	With certain values for <b>Shortened stem length for 16th (semiquaver) and shorter</b> on the <b>Notes</b> page of Engraving Options, it was possible for flat 32nd note beams to be incorrectly positioned with respect to staff lines; this has now been fixed.
<i>Beams</i>	The option <b>Flat beams with inner note closer to the beam than outer notes</b> in the <b>Advanced Options</b> section of the <b>Slants</b> section of the <b>Beams</b> page of Engraving Options now only takes effect for eighth note (quaver) beams.
<i>Chord diagrams</i>	It is no longer possible to specify zero chord diagrams per row in the frame showing chord diagrams used in the flow; this prevents Dorico from crashing.
<i>Chord diagrams</i>	Fingerings now correctly chord diagrams shown at the start of the flow if <b>Show fingerings in chord diagrams at start of flow</b> is activated on the <b>Chord Symbols and Diagrams</b> page of Layout Options.
<i>Chord symbols</i>	Creating a chord symbol region via the <b>Shift+Q</b> popover can now be correctly undone.
<i>Chord symbols</i>	Choosing either of the appearances that specify the use of a comma for the option <b>Separating added notes and alterations</b> in the <b>Alterations</b> section of the <b>Chord Symbols</b> page of Engraving Options now works correctly.
<i>Chord symbols</i>	Background erasure rectangles for chord symbols no longer sometimes remain on staves where chord symbols are no longer drawn.
<i>Chord symbols</i>	When changing the default music font to Petaluma, small accidentals as shown in alterations in chord symbols are now the correct size by default.
<i>Chord symbols</i>	Under some circumstances, changing the custom player order for a layout could cause chord symbols supposedly set to appear above the top staff to appear in the wrong place; this has now been fixed.

Component	Issue
<i>Chord symbols</i>	A problem whereby chord symbols in galley view could unexpectedly move progressively further away from the staff when editing later notes has been fixed.
<i>Clefs</i>	Entering an invalid string such as <b>sub-f</b> into the <b>Shift+C</b> popover no longer causes Dorico to crash.
<i>Comments</i>	The <b>Add Comment</b> command is now only enabled when something is selected.
<i>Comments</i>	The <b>Export Comments</b> button in the action bar in the Comments panel is now always correctly enabled if at least one comment exists.
<i>Cues</i>	Hidden cues that start or end in the middle of a bar no longer sometimes leave behind padding rests.
<i>Cues</i>	The <b>Instrument pitch or transposition</b> option for cue labels on the <b>Cues</b> page of Engraving Options is now always correctly respected.
<i>Engrave mode</i>	Glissando lines can once again be nudged in Engrave mode.
<i>Harp pedaling</i>	Harp pedal changes hidden by way of the <b>Hidden</b> property or having <b>Show harp pedaling</b> deactivated on the <b>Players</b> page of Layout Options no longer prevent otherwise empty staves from being hidden.
<i>Jump bar</i>	<b>Setup ► Propagate Part Formatting</b> can now be invoked via the jump bar regardless of whether a layout is selected in the Layouts panel in Setup mode.
<i>Key Editor</i>	It is no longer possible to drag a velocity bar in the velocity editor to a value of zero.
<i>Key Editor</i>	When saving the project, the selected instrument in the Key Editor is no longer unexpectedly reset.
<i>Library Manager</i>	Under some circumstances, Dorico could crash when importing library items in the Library Manager; these problems should no longer occur.
<i>Library Manager</i>	The Library Manager no longer lists internal-only font styles.
<i>Localization</i>	It is now possible to use the Input Method Editor (IME) in the instrument picker.
<i>MIDI import</i>	When importing a MIDI file into an existing flow, the time and key signatures in the MIDI file will now be imported if the destination flow has no existing time or key signature at the start.
<i>MIDI import</i>	When importing a MIDI file into an existing project in versions of Dorico that limit the total number of players, Dorico once again now only imports sufficient tracks to avoid exceeding the player limit.

Component	Issue
<i>Mixer</i>	Under some circumstances, opening multiple projects and activating and deactivating them for projects could result in the VU meters in the lower zone Mixer not updating correctly; this has now been fixed.
<i>Music symbols</i>	The relative position of imported graphics in user-defined music symbols has now been corrected, and matches the appearance of Dorico 3.5 and earlier versions.
<i>MusicXML import</i>	MusicXML 4.0 files that contain the new <b>swing</b> element now import without reporting the file as invalid.
<i>Note input and editing</i>	When editing notes that span tuplet boundaries, Dorico will scale any properties that force the note to be split with ties at specific positions so that the ties are retained if possible.
<i>Note input and editing</i>	When pasting material, Dorico no longer incorrectly selects any notes that were not part of the pasted material but were affected (e.g. truncated) by the pasted material.
<i>Note input and editing</i>	<b>Edit ▶ Select to End of Flow</b> no longer incorrectly includes time and key signatures if the selection was invoked on the top staff in the system.
<i>Note input and editing</i>	Dorico no longer considers the duration of an entire dynamic group of which a single dynamic is selected when determining the extent for multi-paste.
<i>Note input and editing</i>	Under some circumstances, including explicit rests that have no specific duration in the selection and then changing their duration (for example, using <b>Double Note Durations</b> ) could result in the notes ending up at incorrect rhythmic positions; this has now been fixed.
<i>Note input and editing</i>	When pasting, Dorico now once more retains the voice of the source material by default.
<i>Note input and editing</i>	The speed of <b>Edit ▶ Select All</b> has been greatly improved.
<i>Note input and editing</i>	Under some circumstances, changing the transposition of the current layout when condensing is active could cause rhythm slashes to be incorrectly transposed; this has now been fixed.
<i>Note input and editing</i>	Deleting multiple notes within a tuplet when the global scope for Insert mode is being used no longer sometimes causes the remaining notes in that voice to be incorrectly deleted.
<i>Note input and editing</i>	A problem whereby swapping voices could unexpectedly fail to remove a tuplet if another item, such as a slur, overlaps the range to be swapped has been fixed.
<i>Note spacing</i>	When adding or removing time via step-time input in Insert mode, Dorico now shifts note spacing adjustments where possible, instead of removing them.

Component	Issue
<i>Percussion</i>	When opening existing projects, Dorico now removes any spurious <b>Starts voice/Ends voice</b> properties that were set on percussion kits in versions prior to 4.0, ensuring that all expected rests appear when the project is opened in the current version.
<i>Playback</i>	When a trill is followed by a slashed grace note of the trilled-to pitch, Dorico now ensures that the final note generated for the playback of the trill itself is the trilled-from pitch, to avoid a repeated pitch.
<i>Playback</i>	If the current expression map specifies playback techniques for trills or unmeasured tremolos as add-on switches, Dorico no longer incorrectly also plays the trill using generated notes.
<i>Playback</i>	Add-on switches no longer prevent any transposition (if any) specified in the base switch from being applied during playback and auditioning.
<i>Playback</i>	When multiple instruments are routed to the same endpoint (the same port/channel of the same VST instrument or MIDI device), editing the music on one of those instruments would then cause the other instruments routed to the endpoint to become silent until the project is reloaded; this has now been corrected.
<i>Playback</i>	Deactivating a project for playback while it is playing back now correctly stops playback.
<i>Playback</i>	Dorico now sends 'all notes off' and controller reset messages when changing the endpoint for an existing instrument, to ensure any note currently playing on the previous endpoint is correctly stopped.
<i>Playback</i>	When MIDI controller values, key switch notes and regular notes are all intended to be output at the same MIDI tick, Dorico now plays key switches first, then controllers, then finally the regular notes.
<i>Playback</i>	When calculating playback technique regions for dynamics (e.g. for <i>sfz</i> dynamics assigned to a specific playback technique in an expression map), Dorico now correctly uses the position of the individual dynamic within its larger group, if any.
<i>Playback</i>	Dorico did not calculate the duration of grace notes and generated notes for tremolos for tempos that use a beat unit other than a quarter note (crotchet); this has now been fixed.
<i>Playback</i>	When the project is not active for playback, it is no longer possible to attempt to load instrument or effects plug-ins via the track inspector in Play mode or via the Mixer.
<i>Playback</i>	In some projects with extended passages of open meter, the playhead and time display read-out in the Transport would sometimes stall before the next barline; this has now been fixed.
<i>Playback templates</i>	When matching instruments in the project to a playback template, Dorico once again correctly uses the parent instrument type if no more specific entry for an instrument is found.
<i>Print mode</i>	Horizontal lines with overridden color are now also printed in the correct, overridden color.



Component	Issue
<i>Print mode</i>	If the user's saved page range is empty when switching to Print mode, Dorico now automatically resets the page range to contain all pages.
<i>Project files</i>	Dorico no longer removes empty-handed players that are not assigned to any flows, or empty player groups, when saving projects.
<i>Project files</i>	When opening existing projects, Dorico will automatically remove any duplicate font styles that it finds.
<i>Project templates</i>	User-defined project templates now correctly take precedence over factory-supplied projects with the same name.
<i>Project templates</i>	When you create a new project based on a user-defined project template via the <b>File ► New From Template</b> submenu, Dorico no longer incorrectly changes the <b>Show flow headings</b> option on the <b>Page Setup</b> page of Layout Options.
<i>Real-time recording</i>	When recording MIDI continuous controller data during real-time recording, the automation data is now directed to the appropriate track if independent voice playback is enabled.
<i>Real-time recording</i>	When recording at the start of any flow after the first in a layout, Dorico no longer incorrectly resets the sound used for auditioning to the sound used by the topmost instrument in the layout.
<i>Real-time recording</i>	When determining the optimal enharmonic spelling for notes input via real-time recording, Dorico now correctly considers any explicit key signature changes in the flow.
<i>Staff labels</i>	Horn in B now appears correctly as "Horn in B" when the options on the <b>Language</b> page of Engraving Options are set to use German instrument names with English note names.
<i>Tempo</i>	Under some circumstances, a gradual tempo marking coinciding with a time signature change and spanning a system break could fail to be aligned with the time signature; this has now been corrected.
<i>Text</i>	When editing a paragraph style in <b>Library ► Paragraph Styles</b> , Dorico now correctly remembers any edits that are made purely to whether or not a particular property has been overridden from its parent style for all styles edited during a single session of the dialog.
<i>Text</i>	Dorico can now once again correctly apply stretch and compression to extended weights (medium, semibold, etc.) of font families (macOS only).
<i>Time signatures</i>	When switching between time signatures above and inside the staff, Dorico no longer sometimes incorrectly continues to draw cautionary time signatures above the system.
<i>Tokens</i>	In layouts where flows can start anywhere on the page, the <b>{@flowPage@}</b> token is now calculated correctly.

Component	Issue
<i>Transformations</i>	Under some circumstances, Dorico could crash when applying transformations from the <b>Write ► Transform</b> submenu; this has now been fixed.
<i>User interface</i>	The redundant <b>Register Now</b> menu item in the <b>Help</b> menu has been removed.
<i>User interface</i>	If you have edited the name of a factory-supplied library item, Dorico now ensures that your edited name appears throughout the application; in some places, the original name was sometimes incorrectly shown.
<i>User interface</i>	Clicking an existing project in the <b>Open Recent</b> page of the Hub and then hitting <b>Return</b> to open it now always opens the project you clicked.
<i>User interface</i>	The click areas for the spin boxes used to specify measurement values for staff spacing in Engrave mode have been adjusted, and it is now possible to select a system handle nearby to the spin box.
<i>User interface</i>	When reopening the Hub, for example after closing the last project, the first (most recently opened) project on the <b>Open Recent</b> page is now automatically highlighted.
<i>User interface</i>	If you had selected an ensemble from the <b>Choose</b> page of the ensemble picker and then switched to the <b>Build</b> page and specified some instruments, when you clicked <b>Build</b> , the ensemble from the <b>Choose</b> page would have incorrectly been created; this has now been fixed.
<i>User interface</i>	The buttons to edit playing techniques in the Playing Techniques panel in Write mode are now only enabled when a playing technique is selected.
<i>User interface</i>	The list of playing techniques in <b>Library ► Playing Techniques</b> now scrolls automatically to bring the selected playing technique into view.
<i>User interface</i>	The placement of the checkboxes on the cards in the Layouts panel in Setup mode when the vertical scrollbar appears has been improved.
<i>User interface</i>	Line styles that contain font characters in their bodies now appear correctly in the Lines panel in Write mode when the dark theme is enabled.
<i>User interface</i>	The list of font styles that appears in the various music symbol editors in Dorico now show the translated name for each font style rather than its internal name.
<i>User interface</i>	If one of the tools in Engrave mode that shows no panel is active when returning to Engrave mode from Print mode, the toolbox is no longer incorrectly displayed halfway down the left-hand edge of the project window.
<i>User interface</i>	Hitting <b>Space</b> after choosing the type of editor in the Key Editor to start playback no longer unexpectedly opens the combo box as well as starting Playback.

# Dorico 4.0.30

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20 March 2022

## Improvements

### Play mode

*Tempo editor.* The tempo editor has been reinstated in Play mode. To edit tempo, select the global **Tempo** track at the top of the track overview in Play mode, and ensure the Key Editor is shown in the lower zone. In addition, if linked mode is active, selecting a tempo item in Write mode will show the tempo editor in the Key Editor, if it is visible.

Editing tempo is much the same as in Dorico 3.5: you can use the Draw and Line tools to add immediate and gradual tempo changes respectively. Tempo changes that you add in Play mode appear in Write mode as signposts, and can be shown for printing via the Properties panel if need be.

*MIDI pitch bend editor.* The MIDI pitch bend editor has also been reinstated in Play mode. It can be chosen from the menu in the **Expression and CC** section of the Key Editor. The semantic pitch bend editor (which shows, for example, the pitch bends produced by guitar bends) is not included in Dorico 4.0.30 but will return in a future update, along with the remaining missing editors (dynamics and percussion).

### Hub

*List view.* The **Open Recent** page of the Hub now supports a list view in addition to the familiar grid view: simply choose your preferred view type using the buttons on the right-hand side of the window.

*Keyboard access.* You can now use ↑/↓ to move through the grid or list of recent projects, and hit **Return** or **Enter** to open the highlighted project.

*Learn updates.* When the Hub first appears after starting Dorico, the **Learn** button will now show a red badge to indicate that new items have been added to the **Videos** or **Dorico blog** feeds on the Learn page; when you click the **Learn** button, the badge will disappear.

### Barlines

*Start repeat barlines at the start of the system.* When you have a start repeat barline that coincides with the start of a system, you may wish the barline at the end of the previous system to be shown either as a normal barline or a double barline; an

option to control this has long been found in the **Repeats** section of the **Barlines** page of Engraving Options. However, such an option always applies to the whole project, which may or may not be appropriate.

Therefore, a new property **Barline at end of system** has been added to the **Time Signatures** group in the Properties panel, which appears only when a start repeat barline is selected; this allows you to specify what kind of barline should appear at the end of the previous system.

The same property can also be used to override the barline shown when a change of key signature and a start repeat barline coincide: by default, Dorico shows a double barline to the left of the key change, then the start repeat barline. If you want to show a different barline instead, activate **Barline at end of system** and choose the desired barline type.

## Chord diagrams

*Fingerings at the end of the string.* A new **Chord diagram fingering font** font style has been added, now used to draw the fingering numbers at the ends of strings in chord diagrams, allowing you to specify their font, style and size.

## Cues

*Properties.* When selecting an item as part of a cue in Engrave mode, the Properties panel now hides any global properties so that you cannot inadvertently change the appearance of the source material by setting properties in another layout.

*Reset Appearance and Reset Position.* Similarly, when you have selected an item as part of a cue in Engrave mode, **Edit ► Reset Appearance** and **Reset Position** will not reset global properties.

## Staff labels

*Periods after abbreviated instrument names.* There are different conventions for whether or not an abbreviated word should be indicated by appending a period (full stop): some publishers always indicate an abbreviation by appending a period, while others only append a period when the last letter of the abbreviation is not the last letter of the full word. Dorico has always followed this latter convention, until now.

A new option **Period (full stop) after abbreviated instrument names** has been added to the **Staff Labels** page of Engraving Options, allowing you to specify whether you want to see, for example, “Vln” or “Vln.” for abbreviated instrument names.

## Issues resolved

Component	Issue
<i>Bars and barlines</i>	The location for adding bars in the <b>Bars and Barlines</b> panel is now set to <b>End of flow</b> by default.
<i>Flows</i>	Under some circumstances, attempting to import a flow from a project containing empty-handed players could fail, resulting in an empty flow being added to the project; this has now been fixed.
<i>Instrument filters</i>	When the instrument filter overlay is not shown, it is now possible to select the items in the area where it previously appeared (we mean it this time).
<i>Library Manager</i>	Closing a project or quitting Dorico with the Library Manager open now correctly closes the Library Manager and the source project, if any, from which items and options are being imported.
<i>Library Manager</i>	When opening the Library Manager and choosing the <b>Layout Options</b> category on the left, the Layout drop-down now shows the correct layout name by default.
<i>MusicXML import</i>	Under some circumstances, when importing a MusicXML file with unmetered passages, Dorico could crash trying to allocate an incorrect size to a bar; this has now been fixed.
<i>Numbered bar regions</i>	The value of the <b>Show in final bar</b> property for a numbered bar region now always takes precedence over the corresponding Engraving Option.
<i>Percussion</i>	Real-time recording into a custom or imported percussion kit now works correctly.
<i>Percussion</i>	The correct percussion sounds are now always played when auditioning notes in a percussion kit.
<i>Performance</i>	A problem whereby network requests resulting in redirections could eventually exhaust a Windows resource, resulting in a crash, has been resolved (Windows only).
<i>Performance</i>	The overall performance of Dorico when you have a very large number (hundreds) of VST plug-ins installed is now significantly improved.
<i>Playing techniques</i>	Continuation lines for playing techniques now always draw on the correct staff following a system break, regardless of whether the glyph or text is repeated at the start of the system.
<i>Quick Look</i>	Attempting to show a Quick Look preview for a project that does not contain one no longer causes Quick Look to crash (macOS only).
<i>Repeats</i>	Changing the number of times a repeat ending should be played now correctly immediately updates playback.

Component	Issue
<i>Slash regions</i>	Under some circumstances, setting properties on a selected barline in the middle of a slash region could cause slashes in the bar before the barline to disappear temporarily; this has now been corrected.
<i>Text</i>	Under some circumstances, attempting to edit a system-attached text item in a layout containing tablature could crash; this has now been fixed.
<i>User interface</i>	The color of scroll bar thumbs when running Dorico in its light theme has now been darkened.
<i>Views</i>	When opening an existing project with the tab bar showing, Dorico once more correctly restores the last-saved view and zoom level in each tab.

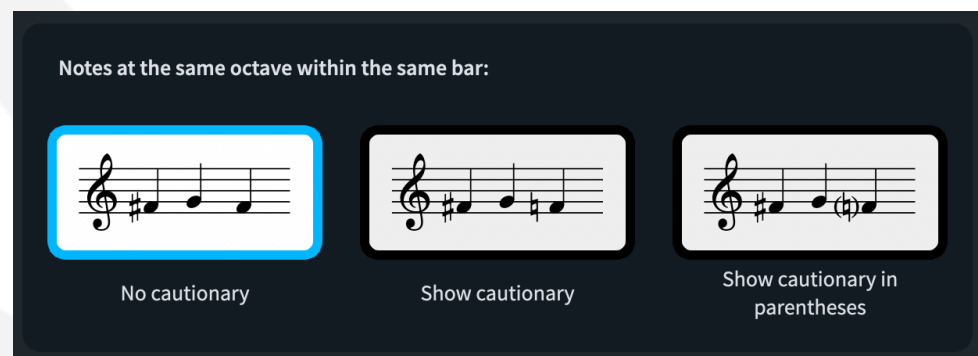
# Dorico 4.0.20

7 March 2022

## Improvements

### Accidentals

*Cautionary accidentals in the Modernist scheme.* A new option **Notes at the same octave within the same bar** for cautionary accidentals has been added to the **Modernist Options** section of the **Accidentals** page of Notation Options.

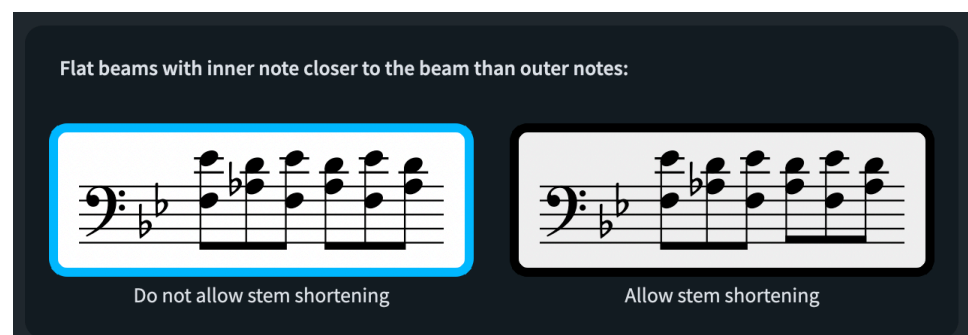


### Barlines

*Barline joins on vocal staves.* A new **Barlines between vocal staves at the ends of systems** option has been added to the **Barlines** page of Engraving Options, making it possible to join a group of vocal staves with a single barline at the end of the system while maintaining breaks between staves at other barlines to accommodate lyrics. This convention is used by some European publishers.

### Beams

A new option **Flat beams with inner note closer to the beam than outer notes** has been added to the disclosable **Advanced Options** section of the **Slants** section of the **Beams** page of Engraving Options.



This option allows you to disable stem shortening for flat beams where the inner note is closer than the outer notes, which can produce a more consistent beam placement in passages of repeated, alternating notes or chords.

## Chord diagrams

*Fingerings in chord used in flow.* A new **Show fingerings in chord diagrams at start of flow** option has been added to the **Chord Diagrams** section of the **Chord Symbols and Diagrams** page of Layout Options.

## Holds and pauses

*Single-stroke caesura.* A new single-stroke caesura has been added. It can be created using the **Holds and Pauses** panel in Write mode, or by typing `//single` into the **Shift+H** popover.

## Jump bar

*Additional commands.* The jump bar now lists a wider range of commands: in general, any command that appears in the **Key Commands** page of Preferences and can have a shortcut assigned should now appear in the jump bar.

*Fuzzy matching.* The algorithm used to match your input to commands in the jump bar has been adjusted, so that it is no longer necessary to type a precise substring corresponding to the command's name: you can alternatively type initials or snippets of the command name, and Dorico will perform a fuzzy match to try to return more useful results.

## Key Editor

*Quick tool selector.* Right-clicking in the editor opens a quick tool selector (similar to the tool buttons palette in Cubase) that allows you to change the current tool very rapidly: hold the right mouse button to show the quick tool selector, move the pointer over the tool you want to use, then release the right mouse button. You can return to the select tool by simply right-clicking, as the selector will open at the mouse pointer's current position, automatically choosing the select tool.

*Selection behavior.* The multi-select tool has been removed from Dorico for macOS and Windows (though it is still present in Dorico for iPad), and its functionality has been combined with the existing select tool. With the single tool:

- Clicking a note, velocity bar or automation point will set the selection to the clicked object
- Clicking an empty space will clear the selection
- Marquee selections can be made by dragging from an empty space, without the need to use a keyboard modifier



- **Ctrl**+click (Windows) or **Command**-click (macOS) will add or remove a note, velocity bar or automation point from the selection
- Holding **Ctrl** (Windows) or **Command** (macOS) while clicking and dragging a marquee will add to the current selection
- **Shift**+click will add a range to the selection. This either adds all objects before the start of the range, after the end or in the middle.

*Zoom.* It is now possible to change the horizontal zoom level of the Key Editor when the mouse pointer is over any part of the main piano roll, velocity and continuous controller editors by holding **Ctrl** (Windows) or **Command** (macOS) and using the mouse wheel.

*Velocity editor.* When modifying the velocities of multiple selected notes in the velocity editor, edits are applied as deltas on the current values, rather than first snapping the values of all selected notes to a single value.

## Library Manager

*Synchronizing options and collections.* It is now possible to synchronize all options and all library collections using the new buttons in line with the corresponding category headers in the left-hand list in the Library Manager.

## Lyrics

*Navigation in Engrave mode.* Navigating between lyrics has been improved: in Engrave mode, using ↑/↓ to move between lines of lyrics is more reliable, and in both Write and Engrave modes, using ←/→ to move between adjacent lyrics in the same line is likewise now more reliable.

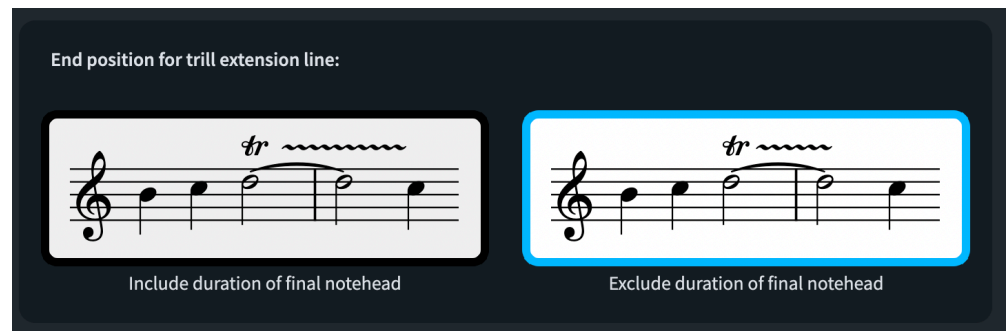
## Playback templates

*NotePerformer.* When applying the NotePerformer playback template, Dorico now automatically sets **Playback approach for trills** to **Generated only** on the **Trills** page of Playback Options.

This is especially useful if you are running Dorico Elements or Dorico SE, which do not provide direct access to editing Playback Options.

## Trills

*Trill extension lines.* A new option **End position for trill extension line** has been added to the **Ornaments** page of **Engraving Options**, allowing you to specify that the trill extension line should end immediately after the last notehead in a tie chain (as recommended by Ted Ross), or should extend to just before the following note (as recommended by Elaine Gould).



## Spotlight and Quick Look (macOS only)

Dorico now supports Spotlight system-wide search and Quick Look file preview on macOS.

The fields in **Project Info** in Dorico projects, such as title, composer, lyricist and so on, can be indexed by Spotlight.

Dorico projects last saved in Dorico 4 or Dorico for iPad include a PDF preview of the last active layout, and this is what will be shown when activating Quick Look in the Finder (by default, this is bound to the keyboard shortcut **Space**), and such projects will also show a thumbnail in the Finder instead of the standard Dorico project icon. Projects that have not yet been saved from Dorico 4 or Dorico for iPad do not include suitable graphic previews, and so will not display a thumbnail in the Finder or show a preview via Quick Look.

## Issues resolved

Component	Issue
<i>Audio engine</i>	Having certain older versions of Groove Agent SE installed could cause the audio engine to crash on start-up; this has now been fixed.
<i>Audio export</i>	When exporting audio, Dorico no longer incorrectly considers the instruments selected in the score when determining which instruments to export.
<i>Bar numbers</i>	When choosing to propagate layout options when using <b>Propagate Part Formatting</b> , the <b>Bar Numbers</b> options are now included.
<i>Barlines</i>	Setting <b>Barline at end of each system</b> to <b>Join all staves</b> on the <b>Barlines</b> page of Notation Options no longer causes all staves to be joined with a single barline every few bars in galley view.
<i>Beams</i>	Dorico no longer crashes if you confirm the <b>Custom Centered Beam</b> dialog with no beamed groups selected.
<i>Chord diagrams</i>	Under some circumstances, Dorico would refuse to allow you to delete a user-defined chord diagram shape, even once it is no longer in use in the project; this has now been fixed.
<i>Chord diagrams</i>	When editing fingerings in the <b>Edit Chord Diagram</b> dialog, the editing fingerings now appear in the expected place.
<i>Chord symbols</i>	Dorico no longer hangs or crashes when clicking <b>Save as Default</b> in the <b>Project Default Chord Symbol Appearances</b> dialog.
<i>Clefs</i>	Typing <b>g1</b> into the <b>Shift+C</b> popover now produces a French violin clef.
<i>Cues</i>	Deleting a cue now always ensures that any multi-bar rests at the end of the flow are correctly updated.
<i>Cues</i>	When creating a cue on a percussion kit, Dorico now correctly creates a rhythmic cue even if a slash region is selected.
<i>Dynamics</i>	When a <i>messa di voce</i> hairpin follows an immediate dynamic, the transition point from one hairpin to the next is now handled correctly.
<i>Engrave mode</i>	Articulations on down-stem notes now move in the expected direction when nudged with <b>Alt+↑/↓</b> in Engrave mode.
<i>Engrave mode</i>	Crosshairs for selected items in Engrave mode no longer appear twice in layouts showing both tablature and staff notation.

Component	Issue
<i>Engrave mode</i>	Double-clicking a lyric in Engrave mode now once again correctly switches to Write mode and edits the lyric, as expected.
<i>Engrave mode</i>	Horizontal lines can once again be nudged with <b>Alt+↑/↓/←/→</b> in Engrave mode.
<i>Engrave mode</i>	Nudging an instrument change label that has been positioned after a cue (by way of the <b>Show instrument change label after cue, if cue precedes first note in new instrument</b> option on the <b>Players</b> page of Layout Options) no longer causes that instrument change label to disappear.
<i>Engrave mode</i>	Nudging lyrics vertically with <b>Alt+↑/↓</b> now moves them by the same distance as they moved in Dorico 3.5 and earlier.
<i>Figured bass</i>	When using Figurato for figured bass instead of Bravura, the placement of brackets and parentheses around figures and accidentals is now correct.
<i>Fingering</i>	When <b>Allow left-hand fingerings inside the staff for fretted instruments</b> is deactivated on the <b>Fingering</b> page of Engraving Options, all existing fingerings are now immediately and correctly updated.
<i>Guitar bends</i>	It is now possible to nudge the individual segments of guitar bends and hold lines that cross a system break correctly in Engrave mode.
<i>Instrument filters</i>	When the instrument filter overlay is not shown, it is now possible to select the items in the area where it previously appeared.
<i>Instruments</i>	Dorico no longer adds an unnecessary trailing or leading space in instrument change warnings when using a custom prefix or suffix.
<i>Instruments</i>	Switching off the <b>Show instrument change label at start of flow</b> option on the <b>Players</b> page of Layout Options now correctly updates the score display right away.
<i>Instruments</i>	The border padding values defined for the <b>Instrument change</b> paragraph style are now always used if set to show a border.
<i>Instruments</i>	The default order of saxophone instruments in the <b>Orchestral</b> and <b>Band</b> instrument score orders has been improved (thanks to Matt Ehler).
<i>Instruments</i>	Tubular bells in new projects are now correctly written at their strike pitch and sound one octave lower than written in playback.
<i>Jump bar</i>	Under some circumstances, hitting <b>J</b> followed by <b>Return</b> to execute the last-used command in the jump bar would not work; this has now been fixed.

Component	Issue
<i>Key Editor</i>	Adding a new voice in Write mode now updates the display of per-voice tracks for instruments with IRV enabled in the track overview in Play mode.
<i>Key Editor</i>	Drawing points for the first time into a particular MIDI controller lane for an instrument and then undoing now always updates the display immediately.
<i>Key Editor</i>	Notes input in the piano roll now respect the octave transposition of the current instrument, if any.
<i>Key Editor</i>	The display of playing techniques in both the playing technique lane itself and its tool tips has been corrected: it no longer sometimes shows information for the previous playing technique, and correctly takes repeats into account.
<i>Key Editor</i>	The line that shows the constant value of the final point in the continuous controller editor is now always drawn in the correct position.
<i>Key Editor</i>	Under rare circumstances, it was possible for Dorico to hang or crash when selecting a point corresponding to a dynamic in the dynamics editor in Play mode; although the dynamics editor is not currently available in Dorico 4, this underlying problem has been resolved.
<i>Library Manager</i>	The header for a list of entities in a collection in the Library Manager was not always correctly updated when changing the source library; this has now been fixed.
<i>Library Manager</i>	The Library Manager is now closed automatically when the last window belonging to the project with which it is associated is closed.
<i>Library Manager</i>	The Library Manager now opens with the user library chosen for comparison by default, if available.
<i>Library Manager</i>	Under some circumstances, clicking <b>Apply</b> to apply changes in the Library Manager with a term entered into the filter line edit could cause Dorico to crash; this has now been fixed.
<i>Library Manager</i>	When clicking <b>Apply</b> in the Library Manager, the right-hand area now retains its current scroll position, rather than returning to the top.
<i>Library Manager</i>	When clicking the button to open the file picker in the Library Manager, the picker now opens on your <b>Dorico Projects</b> folder by default.
<i>Localization</i>	A problem whereby choosing to use English note names for instrument transpositions when running Dorico in German could cause the note name B flat to appear as H flat has been resolved.
<i>Localization</i>	If you have <b>Keyboard language</b> set to <b>Auto</b> on the <b>Key Commands</b> page of Preferences, the default key commands will be reloaded when you change the application language while Dorico is running.

Component	Issue
<i>Localization</i>	The jump bar is now correctly updated when you change the application language while Dorico is running.
<i>Localization</i>	The track inspector and VST rack on the left-hand side of Play mode are now wider, and correctly accommodate translated strings in all supported languages.
<i>Localization</i>	When changing the application language via Preferences, all existing menus and sub-menus are now immediately updated with the newly-chosen language.
<i>Lyrics</i>	A problem whereby having the <b>Show verse number</b> property overridden for multiple lyrics in the same line could cause verse numbers to be unexpectedly hidden has been resolved.
<i>MIDI import</i>	When combining multiple tracks together during MIDI import, Dorico no longer sometimes incorrectly applies a tuplet structure that has been calculated for another track to later combined tracks.
<i>MIDI import</i>	When importing a tempo track into a flow after the first in a project, markers are now imported at the correct positions, instead of being incorrectly offset by the total length of all preceding flows.
<i>MIDI import</i>	When importing MIDI files, Dorico now ignores a time signature defined in the MIDI file if it is the same as the immediately preceding one (as happens with MIDI files exported from iReal Pro).
<i>Mixer</i>	Combining separate percussion instruments held by the same player into a kit now immediately updates the Mixer.
<i>Mixer</i>	If the Mixer is shown before a project is activated for playback, the channels in the Mixer now correctly update their VU meters; similarly, after changing the plug-in for an existing slot in the VST instruments rack, the corresponding VU meters in the Mixer are now correctly updated.
<i>Mixer</i>	When starting a new project, the appropriate default channel gain and pan values are now set, so that the effective gain and pan settings match the initial state shown in the Mixer.
<i>MusicXML import</i>	MusicXML 4.0 files can now be opened in Dorico 4.0.20 without throwing any errors; however, at this time Dorico does not support any of the new features added in MusicXML 4.0.
<i>Note input</i>	A problem whereby some notes in tuplets in unpitched percussion kits could be omitted when copying and pasting has been resolved.
<i>Note input</i>	Activating chord input while using pitch before duration note input now clears any previously chosen accidental, so that the next note added to the chord does not unexpectedly assume the accidental of the previous note.

Component	Issue
<i>Note input</i>	Copying music containing tuplets to the clipboard no longer sometimes causes additional bars to appear at the end of the flow.
<i>Note input</i>	Dorico no longer crashes when attempting to create a playing technique with no items selected.
<i>Note input</i>	Dorico no longer crashes when performing <b>Select All</b> in a project with multiple completely empty percussion kits.
<i>Note input</i>	<b>Edit ▶ Paste Special ▶ Paste Articulations</b> now works as expected with grace notes.
<i>Note input</i>	If both dynamics and slurs are selected when you choose <b>Edit ▶ Notations ▶ Dynamics ▶ Remove From Group</b> , the operation is now aborted, to avoid unexpectedly removing the selected slurs.
<i>Note input</i>	It is now possible to paste articulations into a different destination voice than the source voice in which the articulations originally appeared.
<i>Note input</i>	It is once again possible to extend the duration of a flow by selecting an implicit rest at the end of the flow and typing <b>R</b> .
<i>Note input</i>	It is once again possible to paste grace notes in chord mode.
<i>Note input</i>	Under some circumstances, pasting an item with no duration, such as a piece of text, could cause a hang or crash; this has now been fixed.
<i>Note input</i>	When deleting music across multiple players in Insert mode, the correct range is now deleted under all circumstances.
<i>Page layout</i>	Dorico no longer crashes when attempting to use <b>Move Bar to Next/Previous System</b> in an open meter passage, or when a frame handle or note/staff spacing handle is selected.
<i>Percussion</i>	Changing the <b>Overlapping notes in the same voice in a kit or grid presentation</b> option on the <b>Percussion</b> page of Notation Options now always updates the displayed music immediately.
<i>Percussion maps</i>	Dorico now chooses an appropriate default filename for a percussion map when exported to a library file from <b>Library ▶ Percussion Maps</b> .
<i>Play mode</i>	When changing layout, Dorico now correctly maintains a selection in the track overview in Play mode.
<i>Play mode</i>	When loading a new VST plug-in, the FX send is now correctly enabled by default.

Component	Issue
<i>Playback templates</i>	When setting up the playback data for an instrument, including when saving an endpoint configuration, Dorico now uses the exact ID of the instrument type created in the project, except in the case that the instrument type does not appear in the factory library (for example, because it has been modified as part of the MusicXML or MIDI import process), in which case it will instead use the ID of its parent or base instrument type.
<i>Project files</i>	Under some circumstances, opening, closing and then reopening the same project in quick succession without allowing the sounds to load could cause Dorico to hang; this has now been fixed.
<i>Project templates</i>	When starting a new project from a user-defined project template, Dorico no longer applies the engraving options specified in the SMuFL metadata file associated with the chosen music font.
<i>Rehearsal marks</i>	When using an absolute font size for the <b>Rehearsal marks font</b> font style, the padding and line thickness for the rehearsal mark enclosure are now determined such that they will not vary if the staff size of the staff on which rehearsal marks appear change over the course of the layout.
<i>Remote control</i>	It is no longer incorrectly possible to execute commands via the remote control interface that are not enabled in the application for the current state or mode.
<i>Staff labels</i>	Under some circumstances, Dorico would not extend the bracket for a player group label to all of the staves in the group, if the outermost staves in the group belonged to condensed divisi players; this has now been fixed.
<i>Staff labels</i>	Under some circumstances, player group labels did not always encompass all staves of multi-staff instruments; this has now been fixed.
<i>Staff spacing</i>	<b>Alt+←/→</b> now moves staves up and down when using the staff spacing tool in Engrave mode.
<i>Tempo</i>	The display of tempo values in the Properties panel and the Transport window and mini-transport on the toolbar has been improved, so that tempos that are very, very close to integral values are displayed as integral values, as expected.
<i>Tempo</i>	The relative positioning of metronome marks following longer tempos written in Petaluma Script has now been improved.
<i>Time signatures</i>	Instruments in the <b>Electronics</b> family no longer cause large time signatures for instruments between the brass and string sections to show multiple time signatures instead of one.
<i>Transport</i>	The upper limit for the tempo display and slider in the Transport has been increased to 500 quarters per minute.



Component	Issue
<i>Trills</i>	Under rare circumstances, accumulating errors in the calculation of notes required to play very long trills at slow tempos could cause trills to play unexpectedly at earlier points in the project; this has now been fixed.
<i>User interface</i>	Certain augmented intervals were not correctly calculated in the <b>Transpose</b> dialog; this has now been corrected.
<i>User interface</i>	<b>Help ► Keyboard Shortcuts</b> now works correctly once more.
<i>User interface</i>	In Dorico SE, it is once again possible to access the Expression Maps, Percussion Maps and Playback Techniques dialogs in the <b>Library</b> menu.
<i>User interface</i>	It is no longer incorrectly possible to open multiple instances of the Preferences dialog.
<i>User interface</i>	It is now possible to open a file from the Hub by tapping it on touch-enabled Windows devices.
<i>User interface</i>	Long printer names no longer cause the width of the right zone in Print mode to change in an unhelpful way.
<i>User interface</i>	The appearance of the <b>Players in Dorico Project</b> list on the right-hand side in the <b>MIDI Import Options</b> dialog is now improved on high pixel density displays (Windows only).
<i>User interface</i>	The button to hide and show the left zone has been restored to the toolbox in Engrave mode.
<i>User interface</i>	The layout of the <b>Edit Strings and Tunings</b> dialog has been improved.
<i>User interface</i>	The pop-up buttons that appear when right-clicking or long-pressing the rhythm dot, Insert mode etc. buttons in the notes toolbox now work more reliably.
<i>User interface</i>	The selected text colour in the <b>Create Comment</b> dialog when using the light theme has been improved.
<i>User interface</i>	The width of the layout selector drop-down in the toolbar has been increased.
<i>User interface</i>	Under some circumstances, the size of the scroll area in which the score pages are drawn would not update in response to pages being added or removed; this has now been fixed.
<i>User interface</i>	Various commands in Setup mode are now more appropriately enabled and disabled based on whether a player, flow, or layout is selected.
<i>Video</i>	Dorico no longer crashes on start-up when a Blackmagic DeckLink Recorder card is connected to your computer (Windows only).
<i>Video</i>	Remaining issues with the behaviour of the Video window when moving it to a second display that is handled by a separate GPU have been addressed.

# Dorico 4.0.10

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28 January 2022

## Improvements

### Key Editor

Dorico 4.0.10 includes several minor improvements to the keyboard and mouse interaction with the new Key Editor, in both Write and Play modes. Further improvements will follow in future updates.

*Piano roll editor.* It is now possible to drag out a marquee with the select or multi-select tools in the piano roll without having to click and hold the mouse button for a moment: you can now simply click and drag. If the select tool is active, you still need to hold **Shift** to trigger a marquee selection.

*Automation editor.* It is now possible to remove selected points from the selection in the automation editor by holding **Ctrl** (Windows) or **Command** (Mac) and clicking the selected point.

*Velocity editor.* The way the select and multi-select tools function in the velocity editor have been adjusted as follows. With the select tool active:

- Clicking a velocity bar selects that bar and clears an existing selection.
- Clicking on the editor background clears the existing selection.
- Clicking and dragging a velocity bar selects it and changes its value in the same click-and-drag operation.

With the multi-select tool active:

- Clicking a velocity bar either adds it to or removes it from the selection as appropriate.
- Dragging up and down will increase or decrease the velocities of the selected bars; if you click on a previously unselected velocity bar when starting the drag, that velocity bar will also become selected and its value will likewise be edited.
- Dragging left or right will trigger a marquee selection; all velocity bars covered by the marquee will be selected at the end of the operation.

*Zoom.* You can now zoom the piano roll editor by hovering the mouse over the vertical keyboard display, holding **Ctrl** (Windows) or **Command** (Mac) and scrolling the mouse wheel.

Similarly, it is now possible to change the horizontal zoom in both the track overview and the Key Editor by hovering the mouse over the ruler, holding **Ctrl** (Windows) or **Command** (Mac) and scrolling the mouse wheel.

*Expression and CC.* The **Automation and CC** label in the Key Editor has been revised to **Expression and CC** to better reflect its actual functionality.

## Note input and editing

*Paste Articulations.* **Edit ► Paste Special ► Paste Articulations** now includes slurs and jazz articulations.

## Library Manager

*Importing all options or items in a category.* The Library Manager now shows the status of each overall set of options and library collections by way of a status indicator in the list in the left-hand category list; these indicators can also be clicked to sync the entire collection or set of options in the destination library with the contents of the source library.

*Font and paragraph styles.* When displaying descriptions of font and paragraph styles in the Library Manager, the styles are correctly resolved using their parent styles, and any overridden values are denoted with asterisks.

*Non-modal dialog.* The Library Manager dialog is now non-modal, so it is possible to keep it open while you edit the project.

## Capos for fretted instruments

*Chord symbols used at start of flow.* A new option **Capo chord symbols** has been added to the **Chord Diagrams** section of the **Chord Symbols and Diagrams** page of Layout Options, allowing you to specify whether and how the capo definition specified in **Use capo with transposition** should affect the chord symbols displayed above the chord diagrams shown at the start of the flow.

## Issues resolved

Component	Issue
<i>Accidentals</i>	A number of small problems with the new options for note spelling in atonal key signatures in Note Input Options have been fixed.
<i>Audio engine</i>	A problem that could cause periodic drop-outs in audio due to high-performance timers required to update the user interface has been fixed (Windows only).
<i>Audio engine</i>	Dorico's audio engine now automatically ignores the Eucon control component if it is found on the system, to avoid a crash on start-up.
<i>Audio engine</i>	Under some circumstances, Dorico could crash when restoring saved audio engine data in existing projects; this has now been fixed.
<i>Audio engine</i>	When running natively on Apple silicon Macs, the audio engine no longer incorrectly attempts to scan Intel plug-ins on start-up.
<i>Bar numbers</i>	The default values for the new Engraving Options for bar number placement relative to clefs are now set for existing projects such that they will not cause the placement of bar numbers to change when opening the project for the first time in Dorico 4.
<i>Bar repeats</i>	Dorico now erases the background behind the bar count numbers for 2- and 4-bar repeats.
<i>Chord symbols</i>	<b>Edit ► Notations ► Chord Symbols and Diagrams ► Generate Chord Symbols From Notes</b> is now correctly included in Dorico Elements.
<i>Chord symbols</i>	Using <b>Edit ► Notations ► Chord Symbols and Diagrams ► Clear Chord Symbol Played Pitches</b> now takes effect immediately when playing back.
<i>Chord symbols</i>	When only one chord symbol is shown above a chord diagram when a capo is active, the chord symbol now correctly follows the engraving option that determines whether it should be Roman or italicised.
<i>Chord symbols</i>	When using <b>Generate Chord Symbols from Notes</b> , Dorico now correctly ignores your usual preference for whether inversions should be detected when inputting chord symbols via the MIDI keyboard.
<i>Comments</i>	Comments no longer appear in a darker colour when they have non-zero duration.
<i>Condensing</i>	A problem whereby items with duration, such as hairpins, caused unnecessary recalculation when editing with condensing enabled has been fixed, providing a speed improvement when editing condensed music (for example, hiding or editing player labels).
<i>Engrave mode</i>	When using <b>Alt+up/down</b> to nudge unbeamed stems in Engrave mode, the direction in which the stem moves now visually matches the direction of the pressed arrow key when the stem points down.

Component	Issue
<i>Figured bass</i>	Under some circumstances, Dorico could crash when calculating the position of a <i>tasto solo</i> indication in figured bass; this has now been fixed.
<i>Figured bass</i>	When the <b>Figured bass font</b> font style has been changed, the placement of parentheses and brackets relative to the enlarged or reduced figures is now correct.
<i>Glissando lines</i>	When determining whether to apply the minimum space for a glissando line, Dorico now correctly considers whether the starting note is tied.
<i>Grace notes</i>	It is once again possible to create grace notes within nested tuplets; this also fixes problems with opening existing projects in Dorico 4.0 in which such grace notes would unexpectedly not be displayed.
<i>Hub</i>	Files with certain characters in their names would not open properly when dragged and dropped onto the Hub window; this has now been fixed.
<i>Hub</i>	It is now possible to open MIDI files with the extension <b>.midi</b> from the <b>Open or Import File</b> button in the Hub window.
<i>Hub</i>	RAM usage in the Hub window has been significantly reduced.
<i>Insert mode</i>	Changing the duration of implicit rests with Insert mode active now once again works correctly.
<i>Insert mode</i>	Dragging the Insert mode stop position now only affects the flow in which you are actively dragging the line.
<i>Insert mode</i>	When removing time from the end of a dynamic group, Dorico now more intelligently handles affected dynamics at the end of the group.
<i>Instrument filters</i>	Changing the active instrument filter preset in galley view no longer takes an unexpectedly long time in a project where condensing is enabled.
<i>Instrument filters</i>	The instrument filter overlay now only appears in Write mode.
<i>Instruments</i>	It is now possible to add a trumpet in the ensemble picker using the abbreviation “trp”.
<i>Instruments</i>	The new <b>Woodwind</b> sketch instrument now correctly appears in the instrument picker as expected.
<i>Jump bar</i>	It is now possible to launch the Preferences and Device Setup dialogs via the jump bar.
<i>Jump bar</i>	When the jump bar is visible, the up/down arrow keys will now always navigate the pop-up list in the jump bar rather than passing those keypresses on to the project window, potentially navigating or otherwise editing the music.

Component	Issue
<i>Key Editor</i>	It is now possible to shorten a note at the initial rhythmic position of the flow in the Key Editor if required.
<i>Key Editor</i>	Switching from Write mode with linked mode in the Key Editor enabled to Play mode no longer causes the piano roll to become much more zoomed in.
<i>Key Editor</i>	When switching away from the Velocity editor back to the piano roll editor, if the transform tool was active, it is now properly deactivated automatically.
<i>Library Manager</i>	It is now always possible to undo changes applied in the Library Manager immediately, without needing to make a further edit.
<i>Lyrics</i>	Dorico no longer crashes when opening a project created in an earlier version where multiple lines of lyrics are displayed and verse numbers are enabled, but verse numbers do not appear for one or more lines of lyrics.
<i>Lyrics</i>	When lyric hyphens are set not to appear at the start of the system, Dorico now correctly accounts for grace notes before the first rhythmic note at the start of the new system.
<i>Lyrics</i>	When pasting lyrics into a staff with tuplets with chord mode enabled, the lyrics are now positioned correctly relative to the destination tuplets.
<i>MIDI export</i>	Pick-up (upbeat) bars are now once more correctly handled in MIDI export by creating an appropriate time signature for each pick-up bar.
<i>MIDI export</i>	The notes generated for playback of the Chords track in Play mode are now included when exporting MIDI.
<i>MIDI import</i>	Projects created in Dorico 4.0 by importing MIDI files could exhibit instability when continuing to edit them later on, and could crash; the underlying problem has now been fixed, and existing projects will be automatically repaired upon opening them in 4.0.10.
<i>MIDI import</i>	Setting custom start and end playing techniques for tracks when importing MIDI files now works correctly.
<i>Mixer</i>	Editing the name of an instrument no longer incorrectly causes all channels in the Mixer to have their names updated.
<i>Mixer</i>	The faders in the Mixer are now rate-limited, so they feel more responsive when adjusting levels during playback.
<i>Mixer</i>	When closing a project with the Mixer window open, the Mixer window no longer sometimes incorrectly appears completely blank.
<i>Mixer</i>	When reloading a VST plug-in into an existing slot, the connection of the FX send to the Effects channel is no longer incorrectly lost.

Component	Issue
<i>Multi-bar rests</i>	It is no longer incorrectly possible to set the <b>H bar X offset</b> property globally.
<i>Music symbols</i>	Music symbols with more than two components are once again drawn with each component positioned correctly relative to each other.
<i>MusicXML import</i>	Deactivating the <b>Articulation placement</b> option on the <b>MusicXML Import</b> page of Preferences now works as expected when importing MusicXML files.
<i>MusicXML import</i>	Under some circumstances, Dorico could crash when opening MusicXML files with particular encodings for accented or extended characters; this has now been fixed.
<i>Note input</i>	A problem whereby note input into fretted instruments with capo definitions would result in incorrect transposition has been resolved.
<i>Note input</i>	Auditioning notes in the Keyboard and Fretboard panels now uses the correct sound.
<i>Note input</i>	Creating a playing technique with more than one note on a percussion kit selected no longer causes Dorico to crash.
<i>Note input</i>	Dorico no longer crashes if you mistakenly enter the single character = into the <b>Shift+I</b> popover.
<i>Note input</i>	It is once again possible to increase the length of the flow by lengthening selected implicit rests.
<i>Note input</i>	It is once again possible to transpose key signatures by an interval of an augmented unison.
<i>Note input</i>	Lengthening or shortening grace notes with <b>Shift+Alt+←/→</b> now retains their selection.
<i>Note input</i>	Under some circumstances, Dorico could fail to bring the end of the flow into view when inputting new notes that extend the flow length in galley view; this has now been fixed.
<i>Note input</i>	When navigating from one bar to the next in Write mode, it could under rare circumstances be possible for Dorico to crash when navigating into a slash region; this is now fixed.
<i>Note input</i>	When recording in real-time, Dorico will now always use polyphonic voice separation when recording into both staves of a grand staff instrument.
<i>Note input</i>	You can once again exit note input by hitting <b>Return</b> when the caret is visible but nothing is selected.
<i>Numbered bar regions</i>	If the options dictate that the bar count should not appear on the first bar of a numbered bar region, this is now respected.
<i>Numbered bar regions</i>	Under some circumstances, the bar count shown for numbered bar region bar counts could collide with playing techniques shown above the staff; this has now been fixed.

Component	Issue
<i>Page layout</i>	<b>Move Bar to Next System</b> and <b>Move Bar to Previous System</b> now work as expected when a barline is selected.
<i>Page layout</i>	When using <b>Move Bar to Previous System</b> with a multi-bar rest selected, Dorico no longer incorrectly moves the bar following the multi-bar rest to the previous system.
<i>Play mode</i>	Combo boxes in the track inspector no longer retain keyboard focus, so hitting Space to play back after e.g. changing VST instrument no longer causes the menu to pop back open again.
<i>Play mode</i>	<b>Play ► Navigate Forwards</b> , <b>Navigate Backwards</b> and <b>Navigate To Start</b> have temporarily been removed until they can be made to work correctly with the new Play mode.
<i>Play mode</i>	The pop-up for the VST instrument combo box in the VST Rack is now significantly wider.
<i>Play mode</i>	When enabling or disabling independent voice playback, the selection in the track overview is now preserved.
<i>Playback</i>	Under some circumstances, Dorico could crash when calculating rhythmic feel in open time signatures; this has now been fixed.
<i>Project files</i>	Dorico no longer applies the user's default or factory options when starting a new project based on a user-defined template; instead, the options saved in the template are used.
<i>Project files</i>	Dorico no longer crashes when importing flows into a project that has existing players, but no flows.
<i>Project files</i>	Under some circumstances, Dorico could crash when opening projects that use custom tonality systems where the specified temperament definition is not included in the project; this has now been fixed.
<i>Project files</i>	When a project is not active for playback that has not yet been saved, Dorico no longer incorrectly reports an error during auto-save.
<i>Project files</i>	When choosing <b>File ► New</b> or choosing a project from <b>File ► New From Template</b> , the user's saved choice for whether or not flow headings should be shown is now correctly respected.
<i>Rhythmic slash regions</i>	Setting properties on multiple selected rhythmic slash regions now works as expected across all selected regions, not only one of them.
<i>Staff labels</i>	Under certain circumstances, player group labels could be drawn incorrectly after changing staff spacing in Engrave mode; this has now been fixed.
<i>Staff labels</i>	When clicking <b>Reset to Factory</b> in Engraving Options, instrument names are no longer reset to defaults.



Component	Issue
<i>Staff labels</i>	When erasing the background around player group labels relative to their brackets, the value in Engraving Options for padding now only affects the amount of padding directly above and below the label.
<i>Steinberg Licensing</i>	If Dorico has no license, it is now correctly possible to quit the application.
<i>Tempo</i>	The <b>Metronome mark order</b> property now correctly takes effect in all open layouts when set or changed.
<i>User interface</i>	It is now always possible to position the insertion point in the line edit control in the instrument and ensemble pickers.
<i>User interface</i>	It is once again possible to force Dorico Pro to run as Dorico Elements or Dorico SE by holding down <b>Alt</b> or <b>Ctrl</b> (Windows) or <b>Command</b> (Mac) respectively at start-up.
<i>User interface</i>	It is once again possible to set the background gradient for Engrave mode in Preferences.
<i>User interface</i>	Pinch-zooming on a multi-touch trackpad and using <b>Ctrl</b> +mouse wheel to zoom in and out with nothing selected now always zooms into the centre of the view, rather than unexpectedly zooming towards the start or end of the layout.
<i>User interface</i>	Selected notes are now denoted by blue dots in the Keyboard panel.
<i>User interface</i>	The alignment of the icons in the mini Transport and Transport relative to their buttons have been improved.
<i>User interface</i>	The contrast of the slide switch thumb against its background has been greatly improved when running Dorico with the light theme.
<i>User interface</i>	The controls in the toolbar, Notations toolbox and lower zone toolbar now all correctly respond to touch inputs on touch-enabled Windows devices.
<i>User interface</i>	The ensemble picker now appears correctly immediately to the right of the Players panel.
<i>User interface</i>	The focus ring indicating which list has the keyboard focus now appears in the instrument and ensemble pickers once more.
<i>User interface</i>	The search filter for accidentals in the <b>Edit Tonality System</b> dialog now works with non-alphanumeric characters.
<i>User interface</i>	The <b>Sort Layouts</b> button in the Layouts panel in Setup mode now bears an indicator to show that it can be long-pressed or right-clicked to show a menu of options.
<i>User interface</i>	The Transport window now correctly shows a close button on both Windows and macOS.

Component	Issue
<i>User interface</i>	Under some circumstances, the toolbox in Engrave mode could appear too narrow when switching from another mode; this has now been fixed.
<i>VST plug-ins</i>	The controls to allow or blow specific VST2.x plug-ins on the <b>VST Plug-ins</b> page of Preferences no longer incorrectly appear when running natively on Apple silicon Macs.
<i>VST plug-ins</i>	The Maximiser and Envelope Shaper effects plug-ins were inadvertently excluded from Dorico 4.0; they are now restored.

# Dorico 4.0

5 January 2022


## New features

### Key Editor in Write mode

Dorico has always included a piano roll editor in Play mode, together with tools for editing note velocities, MIDI continuous controllers, and so on. These tools, more conventionally found in a digital audio workstation like Cubase, are increasingly important to users of music notation and composition software like Dorico, as the demands of sophisticated virtual instruments and sample libraries mean that a wider range of musicians than ever before needs to be able to manipulate and shape the virtual performance of their music.


Dorico 4 extends these tools beyond Play mode and into Write mode, allowing you to work more fluently with the piano roll and MIDI editors directly alongside standard music notation. These editors are now found in the lower zone in both Play mode and Write mode, and together they are now known as the Key Editor.



*Showing the Key Editor.* In both Write mode and Play mode, you can show the Key Editor by showing the lower zone, which you can do either by clicking in the disclosure area along the bottom of the project window or using the key command **Ctrl+8** (Windows) or **Command-8** (Mac). The lower zone now accommodates a number of different panels in each mode, but in both Write and Play modes, the Key Editor is the rightmost button in the panel selector at the left-hand side of the lower zone toolbar. Click  to show the Key Editor.

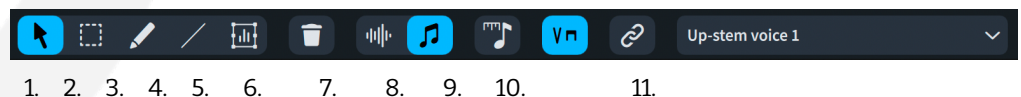
In Play mode, you can also quickly show the Key Editor by double-clicking a track in the track overview, which will show the lower zone if it is currently hidden, and switch to the Key Editor.

*Choosing what instrument to edit.* The Key Editor allows you to edit the material of one instrument at a time. In Play mode, you specify the instrument by selecting its track in the track overview.

In Write mode, by default the Key Editor is in linked mode, indicated by the  button in the lower zone toolbar. When in linked mode, the instrument shown in the Key Editor follows the selection you make in the music notation: the horizontal zoom is adjusted to bring the music corresponding to the system where the current selection begins, and the vertical position of the piano roll is adjusted to bring the music into view. In this way, the same music that you can see in the notation is shown in the piano roll, and the view is automatically updated as you move around the layout.



You can manually deactivate linked mode by clicking the button in the lower zone toolbar, or alternatively Dorico will automatically deactivate linked mode when you directly manipulate the zoom level, vertical position of the piano roll, or manually scroll the view in the piano roll. Once linked mode is deactivated, Dorico will not automatically update the view in the piano roll, until you reactivate linked mode once more.

*Lower zone toolbar.* To the right of the panel selector buttons, the lower zone toolbar includes the following tools when the Key Editor is active:



1. **Select tool.** In Play mode, this tool has the key command **S**. Selects individual notes in the piano roll, velocity bars in the velocity editor, or points in the MIDI controller editor. When you click on multiple items in succession, the previous item is deselected.
2. **Multi-select tool.** Selects multiple items in the Key Editor. Click on multiple items in succession to add them to the selection, or click a selected item a second time to remove it from the selection again. To make a marquee selection, click and hold the mouse button for a moment on a blank area of the editor; an animated rectangle will appear after a moment to show that it is now ready to make a marquee selection. Keep the mouse button held down and drag out a rectangle to select all enclosed items.
3. **Draw tool.** In Play mode, this tool has the key command **D**. In the piano roll, this allows you to add new notes: simply clicking will add a note of the current

rhythmic grid value; click and hold the mouse button for a moment and you can drag out a note of any duration. In the velocity and MIDI controller editors, you can sweep across a horizontal region to edit successive velocities, or draw in a series of controller data points.

15. *Line tool* (velocity and controller editor only). In Play mode, this tool has the key command **L**. The line tool allows you to edit successive velocities in a linear fashion, increasing or decreasing them over time according to the angle of the line you drag out between two points. In the MIDI controller editor, it creates a line between two points, and Dorico will then generate appropriate controller events over the course of the line to play back the changes over time.
16. *Multi-edit tool* (velocity editor only). This tool allows you to perform transformations on a range of velocities. Click and hold the mouse button, then drag across a range of velocities to determine the range to be transformed. The specific transformations that can be performed are described below.
17. *Delete*. Deletes the selected notes in the piano roll or velocity editors, or the selected controller data points in the MIDI controller editor.
18. *Played duration / Written duration*. Toggling the piano roll display between showing played durations  and written durations  allows you to edit either the playback data of notes without affecting the way they are shown in the layout, or to edit the notated durations.
19. *Rhythmic grid selector*. The Key Editor has its own rhythmic grid setting shared between Play and Write modes, independent of the rhythmic grid used by editing the music notation directly.
20. *Playback techniques*. Hides or shows the playback techniques lane between the piano roll and velocity editors, so you can see which playback techniques are being used at any given moment; hover your mouse over an entry in the lane to show a tool tip with more detailed information.
21. *Linked mode* (Write mode only). Determines whether the Key Editor follows the selection you make in the music notation.
22. *Voice selector*. Determines the voice you are currently editing; notes in other voices are shown in grey.

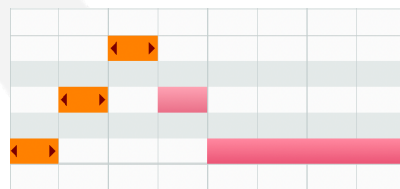
*Switching between editors*. When the Key Editor is first shown, the piano roll editor is active by default. To activate the velocity or MIDI controller editors, click either in the header area at the left-hand side, or click on any part of the editor itself. To activate the piano roll editor again, similarly click either in the vertical piano keyboard display at the left-hand side, or click on any part of the editor itself.

Currently, the velocity and MIDI controller editors are combined into a single area (though we plan to make it possible to show multiple editors in addition to the piano roll editor in a future release). The menu immediately below the **Automation and**

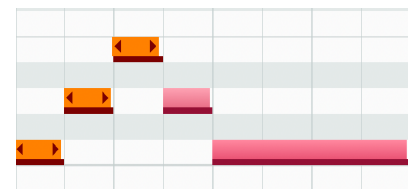
**CC** heading allows you to choose between editing velocity and any MIDI controllers for which data already exists.

If you have not yet added data for a particular MIDI controller, it will not yet appear in the list: click the **+** button next to the **Add Automation** label to show a selector from which you can choose the desired MIDI controller. The chosen MIDI controller is now selected in the menu above, allowing you to add your own data.

*Piano roll editor.* If you are familiar with the piano roll editor in a DAW or sequencer, you should feel at home with Dorico's editor. One possibly unfamiliar aspect is that you can edit either the written durations of notes, or only edit their played durations without affecting the appearance of the notation. The notes themselves appear different in each mode:



*Written durations*



*Played durations*

When editing played durations, the written duration is shown as a thin line immediately below the editable part of the note, which represents the note as it will be played back.

Select a single existing note with the select tool active, or use the multi-select tool to select multiple notes. You can then, if the editor is set to edit written durations:

- edit the pitch of the selected notes by dragging them up or down;
- edit the rhythmic position of the selected notes by dragging them left or right, and as you drag, the notes snap to rhythmic grid positions;
- edit the written start position by dragging the left-pointing triangle at the start of one of the selected notes;
- edit the written end position by dragging the right-pointing triangle at the end of one of the selected notes.

If you have the editor set to edit played durations, you can still edit the pitch by dragging the notes up and down, but editing the starts or ends of the notes will edit their playback onset and offset properties rather than affecting the notation.

To write new notes into the piano roll, activate the draw tool, then:

- click to add a note of the pitch that corresponds to the key shown in the vertical piano keyboard at the left-hand side, of the current rhythmic grid value in duration;

- click and hold the mouse button for a moment, then drag to the right to increase its duration; you can also drag up or down to edit the pitch of the note before you release the mouse button.

One other unique feature of Dorico's piano roll editor, and new in Dorico 4, is that it displays any tuplets that apply to the current voice immediately below the ruler. You can drag notes in and out of tuplets freely, and Dorico will correctly scale and unscale them as required.

By default, the piano roll is linked to the selection in the music notation view in Write mode, but if you drag, scroll or zoom the piano roll view, it will become unlinked. You can re-enable the link at any time simply by clicking the link button in the lower zone toolbar.

To change the zoom level of the piano roll, you can use the floating zoom control that appears in the bottom right-hand corner of the Key Editor:



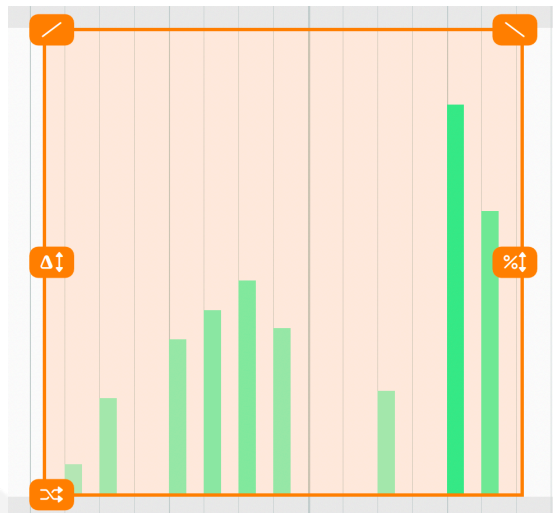
The arrows at the left- and right-hand sides of the zoom control determine whether the slider will affect the horizontal or vertical zoom; click the arrows that represent the direction you want to zoom in, then drag the slider.

Alternatively, you can drag up and down in the ruler at the top of the piano roll editor to change the horizontal zoom, or in the vertical piano keyboard at the left-hand side to change the vertical zoom.

*Velocity editor.* To edit note velocities, activate the velocity editor by clicking anywhere in the editor itself or in the header area on the left-hand side. You can edit individual note velocities by using the select tool to select an individual note, then click again and drag the top of the velocity bar to change its value. To edit the velocity of an individual note in a chord, first select the note in the notation (in Write mode) or in the piano roll. You can then click and drag the velocity bar to set that individual note's value.

To edit the velocities of multiple notes, you can use the draw tool to draw values freehand over a range of notes or use the line tool to create a consistent increase or decrease in velocity over the range. For more detailed editing, use the multi-edit tool to select a range of notes: click the mouse button and hold for a moment to start a marquee selection, then drag across the notes you want to edit.

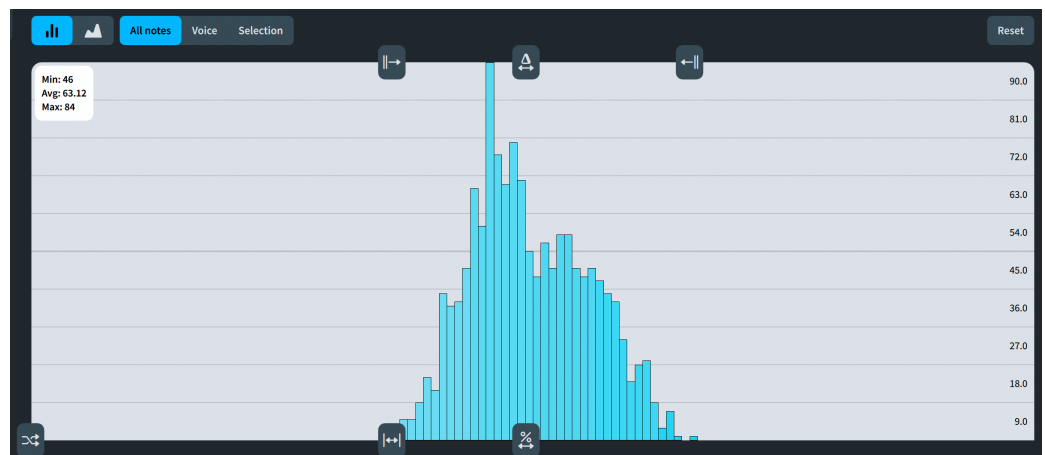




You can click and drag on any of the tools around the edge of the selection to transform the velocities. Moving clockwise from the bottom left-hand corner:

- *Randomize*. Drag up and down to randomize the selected values.
- *Delta*. Drag up and down to increase or decrease all the selected values by a fixed amount.
- *Tilt left*. Drag up and down to tilt the values so that they gradually increase from the start of the selection to the end.
- *Tilt right*. Drag up and down to tilt the values so that they gradually decrease from the start of the selection to the end.
- *Scale*. Drag up and down to increase or decrease the selected values by a scale factor, so larger values change more quickly than smaller ones.

*Editing velocities with the histogram.* A histogram is a chart where values are grouped according to frequency distribution. Click the **Histogram** button to show the velocities for the current instrument as a histogram; by default, **All notes** will be shown, but you can alternatively show the notes only from the current **Voice** chosen in the voice selector, or in the **Selection**.





It is also possible to switch between showing the values as bars, as shown above, or showing an area chart.

In a similar fashion to the multi-edit tool, the histogram editor provides a set of tools at the corners of the values. Moving clockwise from the bottom center:

- *Scale*. Increases or decreases all the values by a scale factor.
- *Compress or expand*. Drag left to expand the values out to a wider range, so the lowest values are lower and the highest values are higher, or drag right to compress the values to a smaller range.
- *Lower limit*. Allows you to increase the lower limit, i.e. to increase the value shown as **Min** in the read-out at the top left corner of the histogram.
- *Delta*. Allows you to add or remove a delta to all values, effectively shifting all the values up or down by the same amount.
- *Upper limit*. Allows you to decrease the upper limit, i.e. to decrease the value shown as **Max** in the read-out at the top left corner of the histogram.

At the very bottom left corner of the histogram editor is the randomize tool, which you can drag up and down to edit all the shown values by a random amount.

If you want to undo the edits you have made during the current session in which the histogram editor is shown, click **Reset** in the histogram editor toolbar to return all notes' velocities to their prior values.

The histogram editor makes it easy to change the overall character of an instrument's music: you can push the overall velocity level higher or lower, expand the range of velocities used to increase the dynamic contrast, or provide a small degree of randomization to avoid repetitive use of the same samples at precisely the same velocity levels throughout the music.

*Further editors.* Dorico 3.5 and earlier versions included a few other editors that are not yet included in Dorico 4, including the dynamics editor and the tempo editor. We are sorry that these editors are not included in the initial release of Dorico 4, but they will return in new and improved form in a future free maintenance update. In the meantime, we apologize for any inconvenience caused by their absence.

## Revamped Play mode

Dorico 4 introduces a brand new user interface for Play mode, designed to complement the changes that allow the Key Editor to be used in Write mode as well as Play mode. If you have used Play mode in Dorico for iPad, then the new layout on the desktop will look familiar.



*Interface changes since Dorico 3.5.* The toolbox on the left-hand side has been removed, with the tools moving into the toolbar in the lower zone, when the Key Editor is shown.

The VST Instruments panel on the right-hand side has been removed, and is now found on the left-hand side, where you can switch between showing the track inspector and showing the VST and MIDI instruments in the rack.


The individual track headers for each instrument are now more minimal than before, serving primarily as a means of selecting an instrument, which then updates both the track inspector on the left and the Key Editor in the lower zone. From the track header you can mute and solo the track, but otherwise all editing is performed via the track inspector.

**Track inspector.** The controls that were previously in the track header for assigning the endpoint (combination of plug-in, port, and channel) are now found in the **Routing** section of the track inspector.

For pitched instruments (not for percussion kits), you can click **Turn on IRV** in the **Routing** section to enable independent voice playback, which shows a separate track for each voice in the track overview area. Select the track associated with each voice to change the endpoint settings in the **Routing** section of the track inspector.

The **Insert Effects** and **Channel** sections in the track inspector mirror the relevant sections of the new Mixer.

**Track overview.** The track overview shows all the tracks in the current flow and layout. Select a track to edit its settings in the track inspector on the left-hand side, or to edit its musical content in the Key Editor in the lower zone.

To fit more tracks into the vertical height of the window, click  in the area above the track headers to cycle between three different vertical sizes for the tracks in the overview.

You can change the horizontal zoom of the track overview by clicking and dragging vertically in the ruler at the top of the window. To position the playhead, simply click in the ruler.

*Global tracks.* The Tempo, Chords, and Markers global tracks are shown above all of the instrument tracks in the track overview. They can be hidden or shown using the buttons above the track headers.

For the Tempo and Chords global tracks, you can use the **Routing** section of the track inspector to change the endpoint for the metronome click and the playback of chord symbols respectively.

You can add a new marker at the playhead position by clicking the + button in the Markers global track header.

*Lower zone.* You can now open the lower zone in Play mode, where it can show either the new Mixer or the Key Editor. Like the track inspector, the Key Editor in the lower zone follows the selection in the track overview, so to view the piano roll and velocity editors for a particular instrument, select it in the track overview.


The lower zone can be resized by grabbing the handle at the right-hand side of the lower zone toolbar, or anywhere along the length of the toolbar where your mouse pointer turns into resize arrows.

The tools formerly in the Play mode toolbox on the left of the window are now shown in the lower zone toolbar, together with a new drop-down to allow you to specify the voice to be edited; if multiple voices are present, the active voice is shown in the accent color for the track, and other voices are shown in grey. A button to show the playing technique lane is also found in the lower zone toolbar, and when shown the playing technique lane appears in between the piano roll and velocity editors.

*Further editors.* Play mode in Dorico 3.5 and earlier versions included a few other editors that are not yet included in Dorico 4, including the tempo editor and the drum editor. We are sorry that these editors are not included in the initial release of Dorico 4, but they will return in new and improved form in a future free maintenance update. In the meantime, we apologize for any inconvenience caused by their absence.

## Revamped Mixer

The Mixer has been completely rebuilt from scratch in Dorico 4. It is functionally identical to the Mixer in previous versions, but is now more performant, more beautiful to look at, and available in more locations in the software. It can be shown in its own window, as before, but it is also now embedded in the lower zone, and accessible in Write, Engrave and Play modes.

*Mixer window.* To show the Mixer window, click  in the toolbar, or choose **Window ► Mixer**, or use the key command **F3**.

The Mixer is split into two resizable sections, with the main fader controls in the lower section, and the insert effects, EQ and effects send controls in the upper section.

To add an insert effect, load it into one of the slots in the Inserts section for that channel. Once an effect is loaded into one of the slots, hover the mouse pointer over that effect to see the controls to bypass the effect or show its interface. To remove the effect, choose the --- entry at the top of the list of available effects.

The EQ is enabled by clicking the circular indicator to the left of the **EQ** label in the section header. Each band can then be enabled and disabled independently.

The effects send is enabled by default and can be disabled by clicking the circular indicator to the left of the **FX** label in the section header. The fader specifies how much signal should be sent to the **Reverb** channel, which has the REVerence convolution reverb effect loaded by default.

The Mixer is now a regular window, so it is not forced in front of all windows belonging to all applications, and it does not disappear on macOS when the application loses focus; as a corollary, however, that means it can also disappear behind the project window.

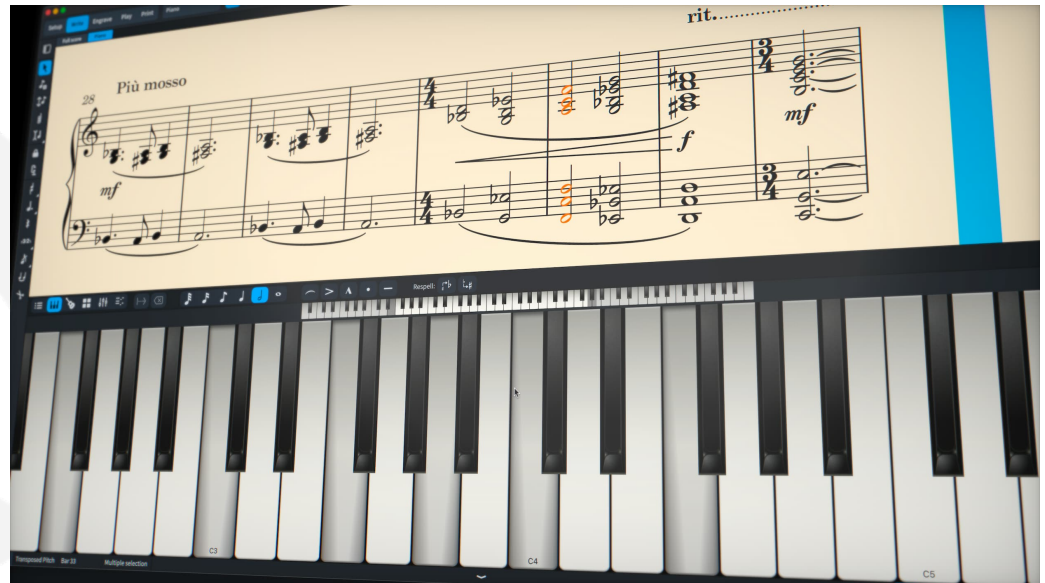
*Lower zone Mixer.* When shown in the lower zone, only the most commonly needed sections of the Mixer are shown: main fader, pan, mute and solo controls.


*Channel filters.* Whether shown in the lower zone or as a separate window, you can filter which channels are shown in the Mixer by using the filters shown in the lower zone toolbar or in the Mixer window toolbar.


By default, the Mixer does not show unused channels, in other words those outputs in the loaded VST plug-ins that do not have any instrument routed to them. This minimizes the number of faders that you see in the Mixer.

## On-screen instruments

The lower zone in Write mode now includes three new, beautiful and useful on-screen instruments, which are designed to assist with note input and editing: the Keyboard panel is ideal for inputting into any pitched instrument; the Fretboard panel allows quick and easy specification of string and fret information for notes on fretted instruments like guitar; and the Drum Pads make it quick and easy to input for specific instruments in a percussion kit.



*Keyboard panel.* To show the Keyboard panel, first show the lower zone by clicking in the disclosure area along the bottom of the project window or using the key command **Ctrl+8** (Windows) or **Command-8** (Mac), then click .

You can resize the lower zone to make the Keyboard panel larger or smaller, either by dragging the resize handle  at the right-hand side of the lower zone toolbar, or by dragging the top edge of the lower zone.


You can also change the width of the keys in the Keyboard panel by enlarging or reducing the range of keys shown: the keyboard range selector immediately above the large keys shows the keys currently visible in white, with those keys outside the visible range shaded. You can click and drag the dark grey keys at the top and bottom of the visible range left or right to increase or decrease the visible range, thus changing the width of the visible keys. You can also change the visible range of keys by clicking and dragging the white area between the two dark grey keys.

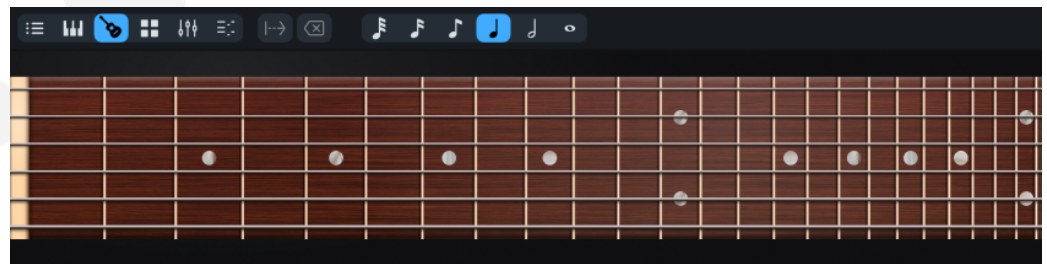
The Keyboard panel can be used both in step-time input and when recording in real time by clicking the keys with the mouse, or, if you have a touch-enabled display (for example, a Windows Surface computer or similar), by tapping them directly with your fingers. If you do not have a touch-enabled display, you are unlikely to get

satisfactory results when recording in real time clicking on the keys with the mouse, but the option is there should you need it.

However, it can certainly be convenient to use the Keyboard panel for step-time input: the lower zone toolbar contains the common note durations and articulations, so most of the items you need for note entry are within easy reach with the mouse. Similar to input with a MIDI keyboard, Dorico will choose an appropriate enharmonic spelling for notes automatically, but if you want to adjust the spelling of the note you have just input, use the appropriate **Respell** button.

Outside note input, the Keyboard panel depresses the keys corresponding to any selected notes, which can be helpful to visualize a chord voicing or harmony. When there is no selection, if you play on your MIDI keyboard, the corresponding keys on the Keyboard panel will become pressed and released as you play.

*Fretboard panel.* To show the Fretboard panel, first show the lower zone by clicking in the disclosure area along the bottom of the project window or using the key command **Ctrl+8** (Windows) or **Command-8** (Mac), then click .




The Fretboard panel can only be used with fretted instruments, and the display updates as appropriate for the kind of instrument you choose, with the number of frets and strings as specified in the **Edit Strings and Tuning** dialog. If you define a full or partial capo (see **Capos for fretted instruments** below), the capo will also be shown in the Fretboard panel and will effectively block off the frets below the capo on the appropriate strings.

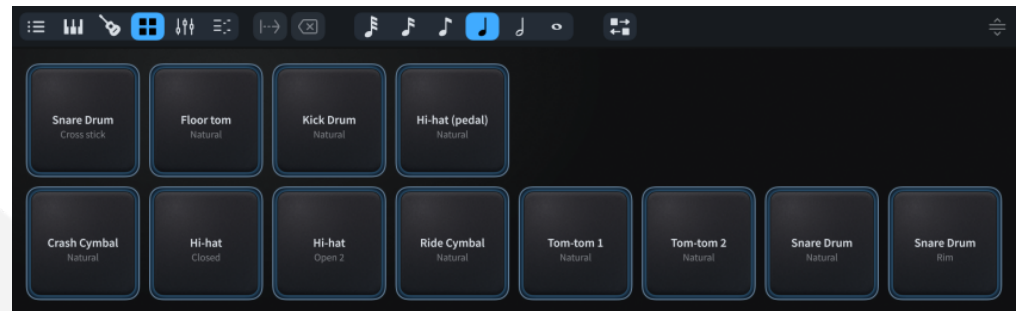
Like the Keyboard panel, the Fretboard can be used to input notes, though only in step-time input. When the caret is visible, simply click the string at the fret position where you want the note to be input. If you have a touch-enabled display (for example, a Windows Surface computer or similar), you can also input by tapping directly with your fingers.

Outside note input, the Fretboard panel shows the fret positions for the selected note or chord. If the notes were input directly with the Fretboard, or have otherwise have the string on which they should be played set explicitly, for example in tablature, they will appear at the corresponding place on the Fretboard; if, however,




the notes were input using alphabetic input or using a MIDI keyboard, Dorico will automatically calculate the string and fret positions.

*Drum pads.* To show the Drum Pads panel, first show the lower zone by clicking in the disclosure area along the bottom of the project window or using the key command **Ctrl+8** (Windows) or **Command-8** (Mac), then click .



The Drum Pads panel can only be used with unpitched percussion instruments and kits. The display updates to show the appropriate combination of instruments and playing techniques when you select a note, rest or other item on a percussion kit.

The arrangement of pads shown can be edited: click  and the outline around each of the pads turns orange, indicating that they can now be dragged into a new position. Click **Add Space** in the lower zone toolbar to add a spacer pad that allows you to create gaps between pads if you choose. The arrangement of the pads is saved for the instrument or kit in the current project.

You can use the drum pads to input notes both in step-time input and when recording in real time. When recording in real time, clicking closer to the centre of the pad will produce a higher velocity than clicking near the edge of the pad. If you have a touch-enabled display, you can tap the pads directly with your fingers, and tap multiple pads simultaneously.

## Smart MIDI import

MIDI files provide the most common route to transfer data between music notation software like Dorico and sequencers and digital audio workstations like Cubase. One of the most common workflows involves taking a mock-up produced in a DAW written for virtual instruments and transferring it to a scoring application for orchestration, the process of translating the composer's intentions currently expressed in terms of the specific sound libraries and virtual instruments in use in the DAW into notated music that can be performed by a live ensemble.

Mock-ups are often written in large-scale DAW templates, with many tracks – certainly dozens, frequently hundreds, and sometimes thousands. Before the orchestration process can begin in earnest, the first step is to understand the

structure of the template, which can itself be a time-consuming process. The music that is ultimately intended for a single or section player might be split across many tracks, with different playing techniques and articulations played by each track; some of the music may be doubled up with alternative or additional sounds to provide a richer, lush sound in the mock-up, but resulting in tracks that can be omitted as they duplicate material already found in other tracks; the tracks may have cryptic names that make sense to the composer, but which require deciphering by the orchestrator.

Even after understanding the structure of the template, the job of distributing the music from the large number of tracks in the MIDI file to the appropriate players in the notated score is a serious logistical undertaking, manually copying and pasting music from staves created by the import process into the staves that form part of the final notated score.

And since composers often use the same large-scale template for multiple cues or pieces within the same project, a good deal of this logistical work must be repeated for every cue, with very little help in automating any of these steps.

Dorico 4 greatly streamlines this entire process: it introduces a new workflow for transferring MIDI data into music notation, with a great deal of assistance that mostly automates the time-consuming busy work that precedes the real job of preparing the music for the recording session.

The new MIDI file import workflow in Dorico 4 allows you to quickly eliminate empty tracks, map multiple tracks representing different articulations and playing techniques onto a single instrument, or indeed map a single track representing multiple instruments onto multiple instruments, filter out key switches, detect grace notes, slurs, trills and tremolos automatically, and so on – and every decision you make is then stored in Dorico's track memory, so you need only make it once. Next time you open a project with the same or similar tracks, Dorico automatically configures things the way you did before.

*Opening versus importing.* If you want to create a new project from your MIDI file, use **File ► Open** to open the MIDI file. This will allow Dorico to create all the required players and instruments as determined by the process of mapping tracks in the MIDI file onto players and instruments.

If, on the other hand, you already have a suitable template with the target players and instruments created, use **File ► Import ► MIDI** to import the MIDI file into the current project; you can still create any additional players and instruments required as part of the import process.



When importing into an existing project, you can choose to import into a new flow, or to import the music into an existing flow. This is very helpful, as it makes some advanced workflows possible: for example, if you receive an updated MIDI file from a colleague but only some of the instruments have new music, you can re-import the material belonging to those instruments, overwriting the previous version while leaving the rest of the ensemble untouched; or if you discover that a single set of quantization values don't produce ideal results for all of the tracks in the MIDI file, you could re-import the MIDI file into the existing flow using different quantization options and importing the music only from a subset of tracks.

To choose whether the music should be imported into a new or existing flow, set the **Destination** drop-down in the top right corner of the **MIDI Import Options** dialog accordingly.

*Basic versus advanced editing.* When the **MIDI Import Options** dialog opens, by default it shows the basic editor, which primarily consists of a table showing the tracks in the MIDI file, with a few global options in the bar at the top of the dialog.

Here you can find the option to **Use track memory**. If you want Dorico to remember the choices you make for the tracks in this MIDI file so that they will be automatically applied the next time you open this MIDI file, or another MIDI file with identically named tracks, activate this option.

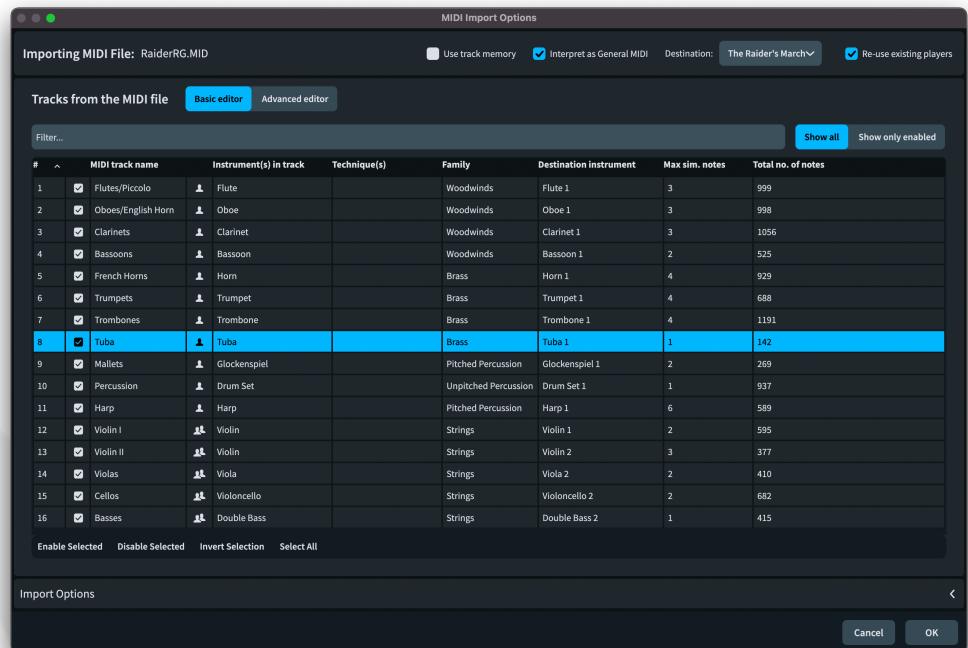
**Interpret as General MIDI** determines whether Dorico should use the MIDI program changes at the beginning of each track as hints for determining the instruments. Similarly, it gives Dorico the hint that any track set to use channel 10 will contain unpitched percussion using the General MIDI drum set. If you are not certain that your MIDI file conforms to General MIDI conventions, you should deactivate this option.

As a rule of thumb, older MIDI files of popular works that you download from the internet may well conform to General MIDI conventions, but newly created MIDI files you receive from a sequencer or DAW probably do not.

If you are importing rather than opening the MIDI file, the **Destination** drop-down allows you to specify whether the MIDI file should be imported into an existing flow, or whether a new flow should be created. **Re-use existing players** tells Dorico whether it should try to assign the tracks in the MIDI file to players and instruments that already exist in the project, or whether it should create new players and instruments for each track by default.

Once you have set these global options appropriately, you can review the tracks in the MIDI file itself and determine which should be imported, and how they should be mapped onto players and instruments in your project.

*Basic editing.* When the basic editor is enabled, the dialog looks like this:



Immediately above the tracks table is a filter edit control, allowing you to type part of a track name to show only those tracks that match the filter text. The toggle buttons to the right of the filter edit control allow you to show either all tracks, or only those that are enabled for import.

By default, all non-empty tracks are enabled for import. To disable a track for import, deactivate its checkbox at the left of its row in the tracks table. To enable or disable multiple tracks at once, make a multiple selection in the tracks table with **Shift+click** or **Ctrl+click** (Windows) or **Command-click** (macOS) and click **Enable Selected** or **Disable Selected** in the action bar at the bottom of the table.

The **Instrument(s) in track** column shows which instrument Dorico thinks is represented by each track. If you want to change the assignment, simply double-click the shown instrument, which opens a simple dialog containing the standard instrument picker, allowing you to choose the desired instrument. If the track represents multiple instruments – for example, a single horns track needs to be mapped onto multiple horn instruments in the resulting flow – you must use the advanced editor, described below.

The **Technique(s)** column shows which playing technique, if any, is represented by this track. If the track is the normal or natural playing technique for that instrument, you don't need to specify that: similarly, if the track contains a mixture of normal and legato notes, you don't need to specify the legato playing technique, as Dorico will automatically create slurs as needed. You can double-click the cell in

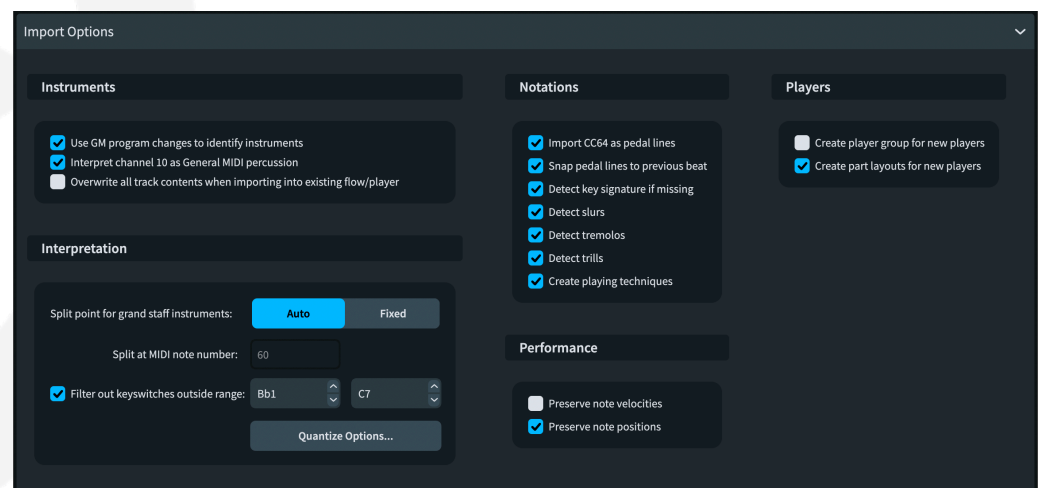
the table to activate a drop-down from which you can choose one of the preset playing technique combinations; if you require a combination that is not shown, you must use the advanced editor, described below.

The **Max. sim. notes** column tells you how many notes are played simultaneously on each track, which is helpful when determining whether the track represents a single instrument or multiple instruments.

Finally, **Total no. of notes** provides a count of the notes in each track. This allows you to see at a glance which tracks in the MIDI file contain no notes at all, and which it may therefore be unnecessary to import.

For simple cases, checking the tracks table as described above is sufficient: you can now click **OK** to import the MIDI file. If you want to explore the deeper capabilities, read on.

*Import Options.* To show additional options for MIDI import, expand the **Import Options** section at the bottom of the dialog. You can scroll within the dialog if necessary to see all these options:



**Instruments section:**

- **Use GM program changes to identify instruments** specifies whether Dorico should use the MIDI program changes on each track as a hint to identify instruments; if this option is switched off, Dorico will use the track name as the primary means of determining the instrument.
- **Interpret channel 10 as General MIDI percussion** specifies whether any tracks set to use channel 10 should be assumed to conform to the General MIDI drum set standard.
- **Overwrite all track contents when importing into existing flow/player** determines whether existing music should be overwritten, or new music

should be merged with the existing music. This option applies only when importing a MIDI file into an existing flow.

#### Interpretation section:

- **Split point for grand staff instruments** determines how music imported onto grand staff instruments should be disposed between the two staves: if **Auto** is chosen, Dorico will consider musical context and normal hand span when determining whether notes should be assigned to each staff; if **Fixed** is chosen, the value of **Split at MIDI note number** will be used.
- **Filter out key switches outside range** allows you to specify the playable range for the tracks in the MIDI file, omitting any notes that are required to trigger specific articulations or playing techniques in the sound library or virtual instrument used in the original sequence. Any notes lower than the low note name and octave, and any notes higher than the high note name and octave, will be omitted during import.

The options in the **Notation** section are the same as those found in the **Recording** section of the **Play** page of Preferences, and the options in the **Performance** section are the same as those found in the **Quantization** section – see **Polyphonic MIDI transcription** below for further discussion of these options.

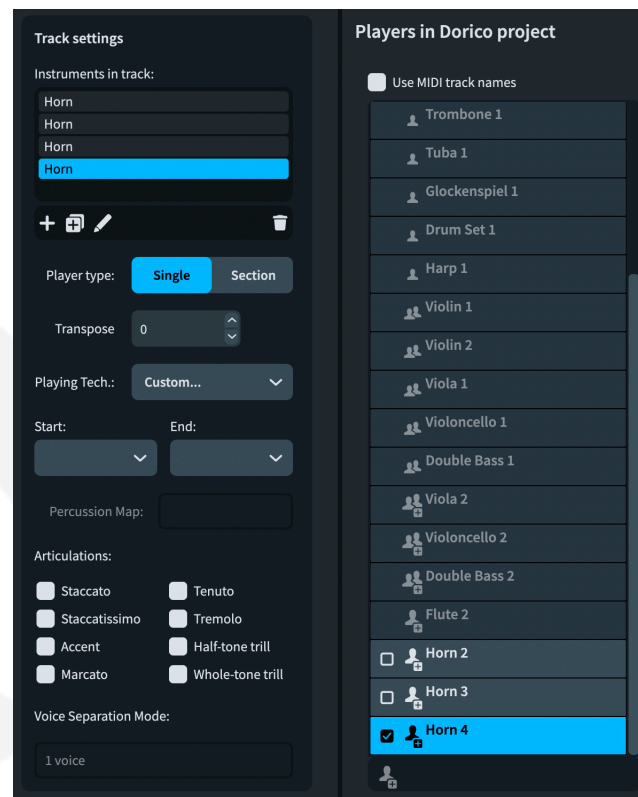
#### Players section:


- **Create player group for new players** creates a player group to contain all the players added as part of the import process: if you already have an existing ensemble of players in your project, it can be helpful to group newly added players together so that you can find them easily.
- **Create part layouts for new players** specifies whether players added as part of the import process should have part layouts created for them; if you know you are going to remove these players later after moving their music to existing instruments, it may be helpful not to see part layouts for these temporary players in the interim.

Dorico remembers the state of all these options, so they will be set the same way for each MIDI file that you import.

*Advanced editing.* For complex MIDI files, you may require greater control than provided by the basic editor. Activating the **Advanced editor** toggle button shows two additional sections, **Track settings** and **Players in Dorico project**, that together provide detailed control over how each track is mapped to one or more players in the resulting flow.

The **Track settings** section updates based on the selection in the tracks table on the left-hand side of the dialog. It shows the full details of how the track will be interpreted during import:



The **Instruments in track** list at the top of the section shows the instruments required by the track. If you have, for example, a **Horns** track that shows **4** under **Max. sim. notes**, you may well want to specify four horn instruments in the **Instruments in track** list, so that each individual horn line will end up in its own instrument. When you select an instrument in the **Instruments in track** list, a corresponding selection is made in the **Players in Dorico project** list to the right. If the track requires more instruments than exist at present, new players will be added to the **Players in Dorico project** list to accommodate the required instruments. Players that are going to be added show + in their icon  to differentiate them from players already present in the project.

**Player type** allows you to specify whether the players required for the instruments in this track should be **Single** or **Section** players.

**Transpose** specifies the number of half-steps (semitones) by which the music in the track should be transposed; some sample libraries and virtual instruments transpose instruments by one or more octaves to bring them into a more useful

playable range on a MIDI keyboard. To transpose by an octave, specify **12** to transpose up or **-12** to transpose down.

**Playing tech.** specifies the pair of playing techniques represented by this track. When preparing templates in a sequencer or DAW, composers often create multiple tracks for a single instrument, so that it's easy to access different playing techniques and articulations simply by moving notes to a different track, which is in turn set to trigger a particular sound in the sample library or virtual instrument in use. Dorico can combine multiple tracks, each representing a different playing technique or articulation, into a single instrument. The first in the pair of playing techniques specifies the playing technique that is used when music from this track appears, and the second in the pair specifies the technique that is used when music from this track ends.

For example, if music for a violin instrument is split across two tracks, one using the normal or natural playing technique and the other using pizzicato, you would choose **Pizzicato/Arco** for the pizzicato track. Dorico will then automatically create the required *pizz.* playing technique at the start of the music notated from the pizzicato track, and *arco* at the start of the music notated from the natural track.

If you need a combination of playing techniques that is not listed, you can choose **Custom** from the **Playing tech.** drop-down, then set the **Start** and **End** playing techniques using the dedicated menus immediately below.

Similarly, the **Articulations** section specifies which articulation is represented by this track. If you choose, say, **Staccato**, then all notes from this track will be notated staccato in the resulting flow.

**Voice separation mode** specifies how Dorico will handle chords, if the destination for a track is a single instrument. If you have mapped a single track to multiple instruments, Dorico will automatically distribute the notes to each of the destination instruments, and this option will be disabled.

When mapping a track to a single instrument, Dorico will choose an appropriate voice separation mode: for example, for a harp or piano it will choose **4 voice keyboard (auto)**. However, you may wish to adjust this setting yourself, in which case the options are:

- **1 voice** will notate all music in the track in a single voice
- **2 voice (auto)** is the most appropriate choice for a track that contains music for two instruments but which you want to be notated on a single staff, rather than assigning it to two instruments (which is recommended)

- **2 voice (fixed split point)** is suitable for grand staff instruments, and uses the value of Split at MIDI note number in the Import Options section to determine which notes should be distributed to the upper and lower staves
- **2 voice (explode)** will create two voices throughout, and is appropriate for notating a single staff
- **4 voice keyboard (auto)** is the most appropriate choice for a track for a grand staff instrument, and can automatically detect common keyboard textures, such as bass and melody with inner chords; for more details, see Polyphonic MIDI transcription below.

*Percussion.* When importing a drum set using General MIDI percussion, if the incoming track uses instruments that are not already defined in the target percussion kit, Dorico will now automatically add the missing instruments during import, assigning noteheads and staff positions that can later be edited in the **Edit Percussion Kit** dialog after the import is complete.

## Polyphonic MIDI transcription

Dorico 4 includes a suite of significant improvements to the transcription of MIDI music, whether it is recorded into Dorico in real time or imported via a MIDI file. These improvements include the ability to automatically transcribe keyboard textures with multiple moving parts cleanly into separate voices, transcription of slurs, grace notes, trills, tremolos, and smarter transcription of pedal lines.

The result is that music entered into Dorico via MIDI import or real-time recording is automatically transcribed much more cleanly, bringing you closer to your desired final result much more quickly.

*Transcription options.* Dorico uses a common set of options for transcribing music in real time and importing MIDI files, but they are shown in different locations: for information about setting transcription options when importing MIDI, see **Smart MIDI import** above.

To set the options for real time recording, go to the **Play** page of Preferences. The options under **Quantization** determine the minimum note value Dorico will use when interpreting your input, and you can specify whether triplets and grace notes should be detected, as well as specifying whether Dorico should **Fill gaps**, which automatically extends durations to prevent short rests appearing between notes.

The options under **Recording** specify further specific behaviors for handling particular notations during real time recording.

*Slurs.* Dorico now detects slurs when importing MIDI data and creates them automatically for notes that overlap by a small amount. If you would prefer Dorico



not to do this, switch off **Detect slurs** in the **Import Options** section of **MIDI Import Options**, or in the **Recording** section of the **Play** page of Preferences.

*Grace notes.* Dorico now detects slashed grace notes (acciaccaturas) during MIDI import and retains the original played durations and dynamics. To prevent Dorico from doing this, click **Quantize Options** in MIDI Import Options, and in the dialog that appears, switch off **Detect grace notes**. This option is also found in the **Quantization** section of the **Play** page of Preferences.

*Trills and tremolos.* Dorico can now detect trills and tremolos during MIDI import and real time recording, and replace the original MIDI performance of the trill or tremolo with a notated trill or tremolo that will subsequently be performed using Dorico's automatic playback features. To prevent Dorico from doing this, switch off **Detect tremolos** and **Detect trills** in the **Import Options** section of MIDI Import Options, or in the **Recording** section of the **Play** page of Preferences.

*Pedal lines.* When creating pedal lines, Dorico now merges abutting pedal lines into a single pedal line with retakes at the appropriate positions. When piano pedaling is performed in real-time, the sustain pedal is usually suppressed after the notes that should be sustained have been played, but it is conventional for the start of the pedal line to be notated at the same rhythmic position as the notes that should be sustained. The new option **Snap pedal lines to previous beat** enables Dorico to do this by default.

If you would prefer Dorico not to create pedal lines at all, switch off **Import CC64 as pedal lines** in the **Import Options** section of MIDI Import Options dialog, or in the **Recording** section of the **Play** page of Preferences.

*Key signatures.* When importing MIDI files, by default Dorico will attempt to choose the most appropriate key signature for the imported music if none is specified in the MIDI file. Dorico will only create a single key signature at the start of the flow, so this will work best with music with a strong tonal center and without modulation. To disable this, deactivate **Detect key signature if missing** in the **Import Options** section of the MIDI Import Options dialog.


*Starting recording.* Dorico now shows a helpful message if it is unable to start recording because there is no valid location to record from.

## Insert mode

Insert mode is one of Dorico's most powerful and unique features, but in practice it can be difficult to handle. Dorico 4 introduces several significant improvements to Insert mode to make it even more powerful, but crucially also more practical: firstly, you can specify a stop position beyond which edits will have no effect, so that you



can be sure that there will be no unwanted changes later in the flow; and secondly, it is now possible to specify the scope for Insert mode, allowing you to insert or remove time not only in the current voice, but in the whole player, and the whole ensemble.

*Stop position.* To set the stop position in a flow, either show the caret, or select a note, rest or other item at the desired position, then choose **Write ► Insert Mode Scope ► Set Edit Stop Position**, or type the shortcut **Shift+Alt+I**. Alternatively, if the system track is visible, you can click the  “no entry” icon to set the stop position at that barline.

The stop position appears as a translucent red line that spans all of the staves in the flow. You can move the stop position to a new position by choosing **Set Edit Stop Position** again, or by dragging it with the mouse: the top of the line has a handle that you can click and drag. By default, the stop position snaps to barlines; hold the **Alt** key to drag the stop position by the rhythmic grid value instead.

To remove the stop position altogether, you can drag it off the start or end of the flow: when the stop position becomes dotted, when you release the mouse button, the stop position will be removed.

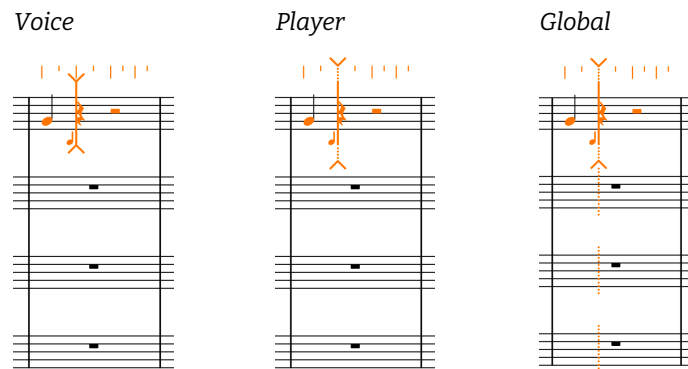
When you perform an edit that crosses the stop position, such as copying and pasting, repeating material, or pushing material along by entering new notes in Insert mode, the edit will not allow any changes after the stop position.

In general, the stop position will not be moved automatically, but in a couple of situations, such as when you are lengthening or shortening a bar in Insert mode, Dorico will adjust the stop position automatically such that it still makes sense.

*Insert mode scope.* In a major expansion of the capabilities of Insert mode, you can now choose the scope that will be affected by your Insert mode edits from the new **Write ► Insert Scope** submenu, or cycle through the four options by typing **Alt+I**. The four different scopes are:

- **Voice:** familiar from previous versions of Dorico, only notes, rests, tuplets and other items in the current voice are affected
- **Player:** affects all voices belonging to the current player, and all non-voice-attached items, such as dynamics
- **Global:** affects all players in the flow
- **Global Adjustment of Current Bar:** affects all players in the flow, but if note input is active, it additionally changes the length of the current bar rather than pushing or pulling items across barlines.

If the caret is shown, the appearance of the caret is modified according to the chosen scope:



The current scope is also shown in the Notes toolbox on the left-hand side in Write mode. You can additionally click and hold, or right-click, the Insert toolbox button to choose the desired scope.

*Percussion kits.* When working with unpitched percussion kits set to be displayed using the five-line staff or grid presentation types, Dorico automatically uses **Player** scope when Insert mode is active. Using **Player** scope ensures that all the instruments in the kit will be affected correctly, rather than only those that happen to be notated in the same voice.

*Global adjustment of the current bar.* The ability to dynamically lengthen or shorten the current bar is very useful when working with unmetered music, such as chant or psalmody, or for special cases such as cadenzas. Depending on the situation, you may or may not find it helpful for Dorico to insert a new time signature in the affected bar. An option to control this, **When inserting with Global Adjustment of Current Bar**, can be found on the new **Insert Mode** page of Note Input Options.

## Melodic and rhythmic transformations

Dorico 4 introduces a powerful new suite of tools for transforming melodic and rhythmic material. They can all be found in the **Write ► Transform** submenu, or they can be invoked from the **Shift+I** popover.

### Write ► Transform ► Pitches:

- **Invert Pitches** changes the melodic contour such that a rising interval becomes a falling one of the same size.
- **Reverse Pitches** takes the pitches of a series of notes and reverse their order, so that the first pitch becomes the last, the second becomes the penultimate, and so on; this is also known as retrograde.

- **Reverse and Invert Pitches** performs what is also known as a retrograde inversion, where the melodic contour is inverted the order of pitches is reversed.
- **Rotate Pitches** shifts the pitches by a specified number of notes in a circular fashion; rotating a single note will, for example, take the pitch of the last selected note and apply that pitch to the first selected note, with the pitch of every subsequent note being shifted to the right by one note.
- **Map Pitches** provides a specific mapping from one pitch to another, so that all notes with a particular pitch will have their pitches changed to another particular pitch.
- **Map Scale** provides a mapping from one scale to another, adjusting the pitches of all notes according to a source and destination scale.
- **Repeat Pitches** applies the pitches of the first *n* selected notes in turn to each of the remainder of the selected notes.

**Write ► Transform ► Rhythm:**

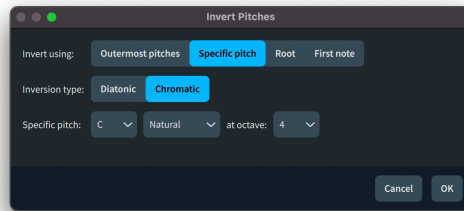
- **Reverse Rhythms** reverses the order of the durations of the selected notes, so the duration of the first note is applied to the final note, the duration of the second note is applied to the penultimate note, and so on.
- **Rotate Rhythms** shifts the durations by a specified number of notes in a circular fashion.

**Write ► Transform ► Both:**

- **Reverse Pitches and Rhythms** reverses the order of both the durations and pitches of the selected notes.
- **Reverse and Invert Pitches and Reverse Rhythms** reverses the order of both the durations and pitches of the selected notes, additionally inverting the pitches (such that a rising interval becomes a falling one of the same size).
- **Rotate Pitches and Rhythms** effectively shuffles the selected notes by a specified number of notes in a circular fashion.

All these melodic and rhythmic transformations apply not only to notes, but also to all other selected material, including playing techniques, lyrics, dynamics, slurs, and so on. They can be applied not only to pitched material, but also to unpitched material written for percussion instruments.

*Inversion.* Choosing **Write ► Transform ► Pitches ► Invert Pitches** shows the following dialog:



**Invert using** specifies the behavior of the inversion operation:

- **Outermost pitches** retains the highest and lowest pitches in the selected passage, and transposes the other notes chromatically within the range described by those outermost pitches. It is not possible to choose the **Diatonic** inversion type when retaining the outermost pitches.
- **Specific pitch** allows you to specify the pitch around which the inversion should take place using the controls that appear below. You can choose in this case whether to perform a **Diatonic** or **Chromatic** inversion.
- **Root** uses the root note of the key signature, or C in the case of an open/atonal or no key signature, as the pitch around which the inversion should take place. You can additionally choose whether to perform a **Diatonic** or **Chromatic** inversion.
- **First note** uses the pitch of the first selected note as the pivot point for the inversion, and in case the first selected note is actually a chord, you can furthermore choose whether to use the highest or lowest note of the chord as the pivot point. You can additionally choose whether to perform a **Diatonic** or **Chromatic** inversion.

The same dialog appears when you choose **Write ► Transform ► Pitches ► Reverse and Invert Pitches** and **Write ► Transform ► Pitches ► Reverse and Invert Pitches and Reverse Rhythms**, so that you can specify the inversion behavior in each case.

To specify the inversion transformation when using the **Shift+I** popover, type **inversion**, **invert**, **mirror** or **inv**. In addition:

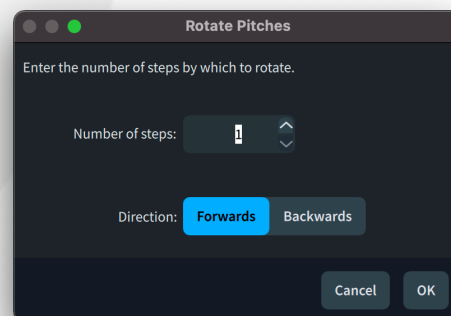
- Add a note name and octave to specify the pitch around which the inversion should pivot, e.g. **invc4** will invert around middle C (C4), or **invEb5** will invert around Eb5.
- You can also specify the pitch in terms of divisions of the octave: for example, if you are using a 24-EDO tonality system, typing **inv D1/24 4** will invert around D quarter-sharp 4.
- Add **root** instead of a note name to specify that the inversion should be around the root of the key.

- Add **diatonic** or **diat** to specify diatonic inversion, or **chromatic** or **chrom** to specify chromatic inversion.
- To invert around the pitch of the first note, specify **top** or **bottom** to choose between using the highest or lowest pitch if the first note is a chord.

*Retrograde.* Using the **Shift+I** popover you can reverse either or both the pitches and rhythms of the selected music:

- Type **retrograde**, **ret**, **reverse** or **rev** to perform a complete retrograde of both pitches and rhythms of the selected notes.
- To reverse only the pitches, add **pitches** or **pt**, e.g. **rev pitches**.
- To reverse only the rhythms, add **rhythms** or **rm**, e.g. **ret rm**.
- To invert the pitches as well as reverse them, add **invert** or **inv**, along with any additional instructions for the inversion operation, as described above.
- To specify that Dorico should additionally include items that are not in the selected voice, but instead belong to the player as a whole, add **player**.
- Conversely, to specify that only items in the same voice as the selected notes should be affected, add **voice**.

*Rotation.* Choosing **Write ► Transform ► Pitches ► Rotate Pitches**, **Write ► Transform ► Rhythm ► Rotate Rhythms**, or **Write ► Transform ► Both ► Rotate Pitches and Rhythms** shows the following dialog:

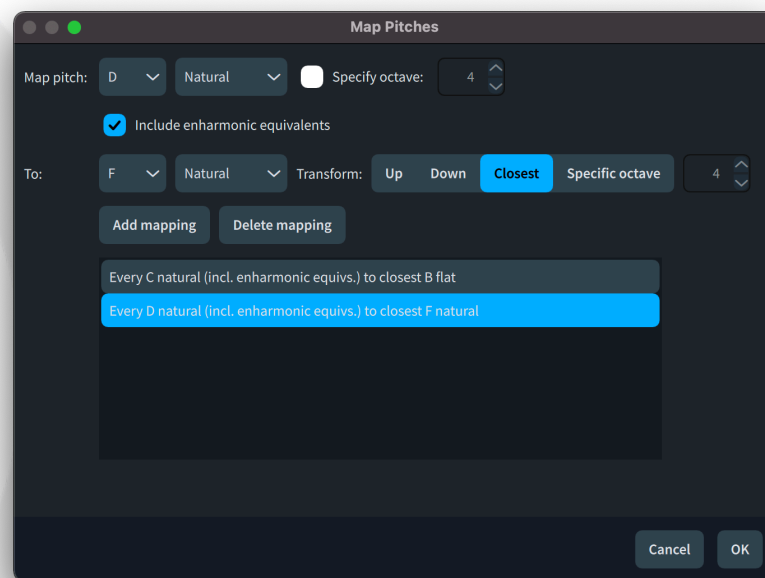


You can specify the **Number of steps**, and the **Direction** of rotation. **Forwards** means that things are shifted to the right, so that the pitch or rhythm of the last note becomes the pitch or rhythm of the first note; **Backwards** means that things are shifted to the left, so that the pitch or rhythm of the first note becomes the pitch or rhythm of the last note.

To specify rotation via the **Shift+I** popover:

- To rotate both rhythms and pitches, type **rotate** or **rot**.
- To rotate only pitches, add **pitches** or **pit**, e.g. **rot pit**.
- To rotate only rhythms, add **rhythm**, **rhy**, or **rm**, e.g. **rot rhy**.
- To specify the number of steps, use a positive number to specify a number of forwards steps, or use a negative number to specify a number of backwards steps, e.g. **rot pit 3** or **rot rhy -2**. If you prefer, you can also specify backwards rotation using **backwards**, **bw**, or **prev**.

*Pitch mapping.* Choosing **Write ► Transform ► Pitches ► Map Pitches** shows the following dialog:



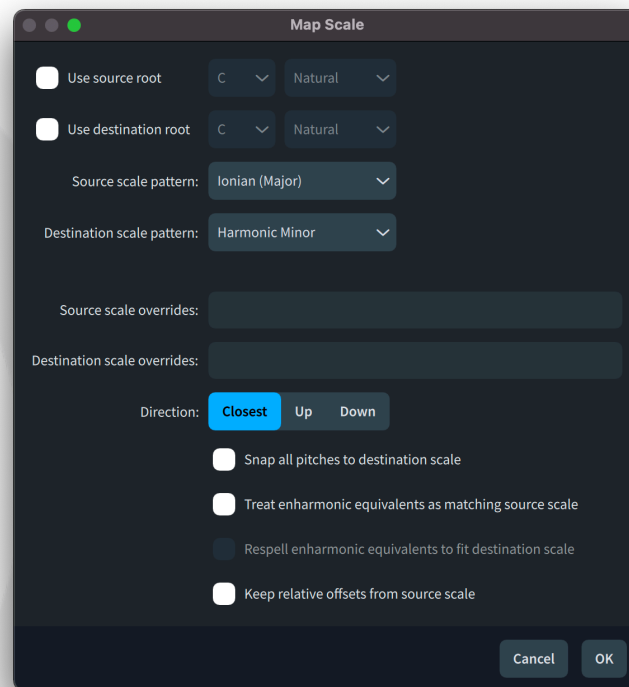
You can specify one or more mappings for pitches: set the source pitch using the controls next to **Map pitch**, and the destination pitch using the controls next to **To**. Specify whether the destination pitch should be specifically higher or lower than the source pitch, closest in pitch, or in a specific octave, then click **Add Mapping**. If you want to remove a mapping that you have set up, select it in the list of defined mappings, and click **Delete Mapping**. When you have set up all of the required mappings, click **OK** to apply the transformation.

To specify pitch mapping via the **Shift+I** popover:

- Type the source and destination pitches, separated by an equals sign, and each pair of mapped pitches with a comma, e.g. **c4 = b3, d#5 = f#**
- Use the note name on its own if you don't want to specify a particular octave, or add the octave number after the note name if you do.

- Add \* (asterisk) after the note name and optional octave to specify that you want notes enharmonically equivalent to the chosen source note to be included.
- Add **up** or **down** to specify that the destination pitch should be higher or lower than the source pitch.

Scale mapping. Choosing **Write ► Transform ► Pitches ► Map Scale** shows the following dialog:



Scale mapping works by mapping each selected note to a source scale, so that it knows the equivalent scale degree for each note, and then mapping that source scale to a destination scale, so that each note is assigned to the corresponding degree of the destination scale, thus transforming the melodic contour.

Dorico provides 18 preset types of scales, but if you want to specify a custom scale as either the source or destination, you can describe the scale by choosing the closest available preset, then entering any differing pitches in the **Source scale overrides** or **Destination scale overrides** edit controls.

By default, Dorico will perform the transformation using the scale root implied by the prevailing key signature, but if you want to specify a different root note for either the source or destination scales, you can do so using the **Use source root** and **Use destination root** controls at the top of the dialog.

Choose the **Source scale pattern** and **Destination scale pattern**, apply any overrides to either scale, specify the **Direction** for notes to be snapped, and click **OK** to apply the transformation.

You may also want to set one or more of the additional options at the bottom of the dialog:

- **Snap all pitches to destination scale** determines what Dorico should do with non-scale tones in the selected music; if you activate this option, notes outside the scale will be snapped to the nearest pitch in the destination scale.
- **Treat enharmonic equivalents as matching source scale** determines whether notes that have the same sounding pitch as notes in the source scale should be considered as matching the source scale, and as such whether they should be mapped to the destination scale.
- If **Treat enharmonic equivalents as matching source scale** is activated, you can additionally activate **Respell enharmonic equivalents to fit destination scale**, which will cause those notes to be respelled.
- **Keep relative offsets from source scale** is subtle. When Dorico transforms material from one scale to another, it begins by transposing all the music by the interval between the roots of the source and destination scales. For example, if you write B $\flat$  in C major, and transform C major to D Aeolian, the interval between the roots of the scales is a major second. The interval between B $\flat$  and B natural, the nearest scale tone, is a diminished unison, so the B $\flat$  could end up as a C $\flat$ , but C natural is a more likely note in the destination scale. If you would prefer to maintain the offsets between the notes at the expense of less likely scale tones after transformation, activate **Keep relative offsets from source scale**.

To specify scale mapping via the **Shift+I** popover, you type in the form *source to destination*, where the source and destination scales should be written in the form of the note name of the root followed by the kind of scale:

- Ionian or major: **ion, maj, M**
- Harmonic minor: **harm min, har m, hmc m**
- Melodic minor ascending: **me min, mdc m**
- Dorian: **dor, drn**
- Phrygian: **phryg, phry, phr**
- Lydian: **lyd**
- Lydian dominant: **lyd dom**
- Mixolydian: **mixlyd, mlyd, mixo, mix, ml**



- Aeolian or natural minor: **aeol min**, **aeo m**, **aln m**, **nat min**
- Locrian: **loc**
- Super Locrian (altered scale): **super loc**, **sup loc**, **spr loc**
- Major pentatonic: **maj pent**, **M pent**, **maj 5tonic**, **M 5ton**
- Minor pentatonic: **min pent**, **m pent**, **min 5tonic**, **m 5ton**
- Major blues: **maj blue**, **M bls**, **maj bls**
- Minor blues: **min blue**, **m bls**, **min bls**
- Half-whole diminished or octatonic: **half whole**, **halfwhole**, **hw**, **half-tone**, **half tone**, **halftone**, **htone**, **hton**, **half**, **ht**, **dimin**, **octa**, **dim**, **oct**
- Whole-half diminished or octatonic: **whole half octa**, **wholehalf dim**, **wh oct**, **whole-tone oct**, **whole tone dim**, **wholetone dimin**, **wtone oct**, **wton dim**, **whole dim**, **wt dim**, **wt dimin**
- Whole tone: **whole-tone**, **wholetone**, **wtone**, **wton**, **whole**, **wt**
- Locrian  $\flat\flat 7$  or harmonic major mode 7: **loc harm maj 7**, **loc har M 7**, **loc har mode7**
- Super locrian  $\flat\flat 7$  or harmonic minor mode 7: **sup loc**, **spr loc**, **harm min mode7**, **hm mod7**

All the above popover terms are case-insensitive, apart from **M** and **m**, which represent major and minor respectively. To map from C major to C minor, for example, you could type **c M to c m**.

You can also specify alterations to any of the scales by including the degree to be modified: for example, to raise the fourth degree of the major scale, you could type **maj #4**.

To activate the **Snap all pitches to destination scale** option, include the word **snap** in your popover input. You can also specify the direction in which Dorico should move notes that have to be adjusted to match the new scale; by default, it will always use the smallest interval, but if you want to enforce a specific direction, you can add **up**, **higher**, **down** or **lower** to your input.

Finally, you can also use scale mapping to manipulate the spelling of notes without applying a new scale, or to snap non-scale tones to a particular scale. To respell the selected notes in a passage according to a particular scale, type (say) **spell C maj**. To snap non-scale tones, type (say) **snap F min**. You can even combine these two operations, so if you have managed to end up with, for example, both an  $F\flat$  and an  $A\flat$  in music nominally in C major, typing **spell snap C maj** will both respell the  $F\flat$  as  $E\sharp$ , and snap the  $A\flat$  to  $A\sharp$ .

*Repeat pitches.* The transformation to repeat pitches takes the specified number of pitches from the beginning of the selection, and then repeats those pitches in sequence across the remaining selected notes. Choosing **Write ► Transform ► Pitches ► Repeat Pitches** shows the following dialog:



Simply specify the **Number of pitches to repeat** and click **OK** to confirm the dialog.

To repeat pitches using the **Shift+I** popover, type **repeat  $n$  pitches**, or for short **rep  $n$  pit**, where  $n$  is the number of pitches to be repeated.

*Note Input Options.* A new **Musical Transformations** page has been added to the Note Input Options dialog. Detailed explanations for each of the options are provided in the dialog itself, but it is worth dwelling on the first two options.

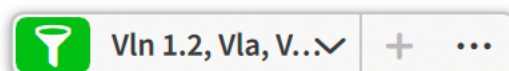
Some transformation operations can cause the overall duration of the selection to change; by default, Dorico will clip any notes that exceed the original selected duration, but if you prefer, you can specify that Dorico should instead not carry out the transformation at all.

Similarly, in complex situations involving tuplets, it is possible for notes that were not previously contained in a tuplet to be moved into one, or vice versa. By default, Dorico will scale notes as necessary to allow them to enter or leave a tuplet, but if you prefer, you can specify that the transformation should not be carried out.

## Instrument filters

When working on layouts with many instruments, it can be useful to see just one or a few staves that you want to focus on for a while. Dorico 4 introduces new instrument filters for galley view that make it quick and easy to show a subset of the instruments in the layout.

*Instrument filter overlay.* When you switch to galley view, by default Dorico will show the instrument filter overlay in the top left corner of the view.



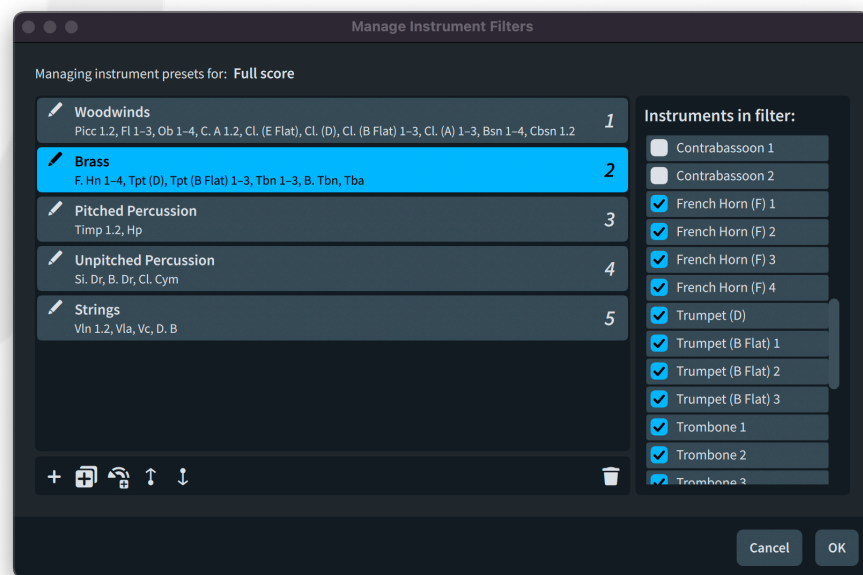
If you don't want to see the overlay, you can switch it off by deactivating **View ► Instrument Filter Overlay**.

The filter button at the left-hand side of the overlay activates or deactivates the filter shown in the menu in the middle of the control. You can also activate or deactivate the current filter by choosing **Write ► Instrument Visibility ► Use Instrument Filter**.

The + button in the overlay is enabled when you have a selection in the music, and allows you to create a new instrument filter by selecting items in one or more instruments in the music. You can also use **Write ► Instrument Visibility ► Create Preset From Selection** to perform the same action.

Finally, the ... button at the right-hand side of the overlay opens the **Manage Instrument Filters** dialog, which allows you to create, edit and delete instrument filters. You can also access this dialog by choosing **Write ► Instrument Visibility ► Edit Instrument Filter Presets**.

*Manage Instrument Filters dialog.* The **Manage Instrument Filters** dialog looks like this:



Instrument filters are specific to a particular layout in your project (since each layout can, and usually does, contain different players and their respective instruments), so the dialog reminds you of the layout for which you are managing presets.

The presets are shown in the large list that occupies most of the dialog. When you select a preset, the **Instruments in filter** list on the right-hand side shows which instruments are currently included, and allows you to add or remove instruments from the filter by activating or deactivating the relevant checkbox.

Dorico generates names for each preset based on the short names of the instruments included in the filter, but you can edit the names by clicking the pencil icon at the left-hand side of each list entry. The name shown in bold in the first row of the entry is the name that will appear in the instrument filter overlay, and in the **Write ► Instrument Visibility** submenu.

The number at the right-hand side of the list entry indicates the index of the preset, corresponding to the numbers that appear in the **Key Commands** page of Preferences – see below. To change the index of a selected preset, use the arrows in the action bar below the list to move it up or down in the list.

To quickly generate a useful set of presets, you can click the **Add Presets from Instrument Families** button, which as its name suggests will create presets for each instrument family represented in the layout.

*Key commands for instrument filters.* To make it quick and easy to recall instrument filters, it is possible to define custom key commands for up to 10 presets. On the **Key Commands** page of Preferences, expand the **Edit** category and you will find 10 commands from **Instrument Filter Preset 1** through **Instrument Filter Preset 10**. Remember that instrument filters are specific to a particular layout, so the key command for (say) **Instrument Filter Preset 1** will recall a completely different preset in two different layouts within the same project, or in a different project.

*Working with instrument filters.* When an instrument filter is active, Dorico draws a dashed line at the point in the system where one or more instruments is hidden. You cannot select music belonging to instruments that are hidden by an instrument filter, and nor can you paste into instruments hidden by an instrument filter.

## User-defined project templates

Dorico 4 makes it possible to save any project as a template for future projects. This allows you to create future projects for the same ensemble of players and instruments, using your own preferred options, page templates, playback template, and so on.

*Save as Project Template.* To save your current project as a project template, choose **File ► Save As Project Template**, which shows a simple dialog in which you can specify the category in which the template should appear and its name. If you save a


template with the same name as an existing factory-supplied template in the same category, your template will take precedence over the factory template.

You can choose whether to retain the existing flows in the project (so that they will appear in a new project you create based on the template) and whether to retain the current **Project Info** values in the template.


*Using the project template.* Any project templates you create will appear both in the **Create New** page in the Hub, and in the **File ► New From Project Template** submenu.

When you use the **Create New** page in the Hub to start a new project based on your user-defined template, you can use options on the right-hand side to set various defaults for the newly created project. The **Page size**, orientation and **Rastral size** options are disabled, however, so that the new project always uses the values from the template.

When you choose your user-defined project template from the **File ► New From Project Template** submenu, none of these options in the Hub will be applied, and the project will be created containing either an empty flow of a single quarter (crotchet) in length, or whatever flow you chose to keep when you saved your project as a template.

*Deleting a template.* You can delete a user-defined project template by clicking the menu button  in the top right-hand corner of the template's card in the **Create New** page in the Hub and choosing **Delete Project Template** from the menu. You will be prompted to confirm the deletion: if you proceed, the project template will be deleted and will no longer appear in the application.

## Revamped ensemble picker

Dorico 4 provides a new, efficient way to add multiple players to your project, and save your own combinations of instruments for later recall, via the revamped ensemble picker. As in previous versions, the ensemble picker can be opened by choosing **Setup ► Add Ensemble** or by clicking the  button in the action bar in the Players panel. New in Dorico 4, you can also now open it via the new default key command **Shift+E**.

The ensemble builder has two modes of operation, **Build** and **Choose**, which are accessed using the toggle buttons at the top of the picker.

*Choosing an ensemble.* To simply choose one of the preset ensembles, as in previous versions of Dorico, click **Choose**. All the default ensembles appear, organized as

before into categories, and any user-defined ensembles that you save in the **Build** page will appear here too.

*Building your own ensemble.* To add any combination of instruments to your project, you can use the new **Build** page. You can type full or abbreviated instrument names – for example **fl** or **flute** – optionally prefixed with a number – for example **4 hn** to add four horns in F. Each instrument must be separated with a comma: for example, you could type **2 fl, picc, 2 ob, 2 clar**. If you omit the commas, Dorico will attempt to parse the entire input text as an instruction for a single instrument.

As you type into the edit control at the top of the **Build** page, the instruments that Dorico has detected from your input are shown in the list below, but if you delete any of the existing text from the edit control, the corresponding instruments will be removed from the list. To confirm to Dorico that the instruments shown so far should definitely be added, hit **Tab** to commit the current instruments shown in the list below, clearing the edit control and allowing you to type further instruments.

You can also use orchestral shorthand for woodwind and brass instruments, for example **2picc.2.2.1 / 4.3.3.1** for two flutes, one piccolo, two clarinets, two oboes, one bassoon, four horns, three trumpets, three trombones, and one tuba. The woodwind shorthand describes the number of flutes (plus optional piccolo, specified by adding **picc** after the number of flutes), clarinets, oboes and bassoons. The brass shorthand describes the number of horns, trumpets, trombones and tubas.

If you provide only one set of shorthand digits, Dorico will assume it is specifying woodwind instruments. To specify only brass, prefix the shorthand with **br**, for example **br4221**.

You do not have to separate the digits for each instrument with a period or any other separator, though you can if you wish. Dorico expects there to be a maximum of nine instruments in any section – you cannot add (say) 12 horns by typing **br12.3.3.1**.

Finally, you can also type the name of any preset ensemble into the edit control on the **Build** page to add those instruments to the list to be added to the project.

To toggle the type of player to be added between single and section players, simply double-click the relevant row in the ensemble builder.


When you are happy with the players and instruments shown in the list in the **Build** page, click **Add** to add them to the project.

To save your own ensemble preset for future use, add the desired players and instruments to the list, then click **Save** to specify the name and category for the new preset ensemble. This preset will then be available in Setup mode in all projects, and will appear in the **Choose** page of the ensemble picker in the specified category.

## Automatic score order and soloists

When adding new players and instruments, Dorico now automatically sorts the instruments according to the conventional orchestral score order. It is also possible to designate a particular player as a soloist, which will move them to the traditional position in the score order, namely above the strings, and automatically name and bracket them appropriately.

*Enabling automatic score order in existing projects.* To avoid making unexpected or unwanted changes to your existing projects, automatic score ordering is only enabled by default in new projects you create in Dorico 4.

To enable automatic score ordering, click and hold or right-click the new **Sort Players** button  in the action bar in the Players panel in Setup mode: a menu will appear in which you can choose between **None**, which disables automatic score ordering, and **Orchestral**, which specifies the standard orchestral instrument order. This choice specifies the order that will be applied when you click **Sort Players** or when adding new instruments, so having chosen **Orchestral**, if you then click **Sort Players**, the standard orchestral score order will be applied.

*Soloists.* If you have a player that should be designated as a soloist in your project, right-click that player in the Players panel, and choose **Soloist** from the context menu.

This causes the instrument to move in the score order to the conventional position for a soloist (for example, in a concerto), directly above the strings. In addition:

- Any instruments held by that player will no longer be considered for numbering with other similar instruments in the same player group
- Provided the full and short names for the instrument are the same as the default full and short names for the instrument, Dorico will prepend **Solo** to the instrument name (and hence staff label), using the language chosen for instrument names in Engraving Options.
- Soloists will also not be bracketed with instruments in the same family if they are adjacent, so if for example you have a solo violin directly above Violin 1 (and both are the same player type, however unlikely that may be), then soloist will not be bracketed with the strings.



All these things are reversed if you choose **Soloist** again from the context menu to say that a player should no longer be considered a soloist.

*System items for soloists.* You can choose whether system-attached items such as tempos and rehearsal marks should appear above the first soloist staff by activating the Soloist checkbox in the **Show system objects above the first bracket for the given instrument families** list on the **Players** page of Layout Options.

*Bracketing for soloists.* If you have the **Bracketed groups with only one instrument** option on the **Brackets and Braces** page of Layout Options set to **Use bracket**, then the soloist will now get a bracket; if there are two or more soloists, then they will now be joined by a bracket regardless of whether they are from the same instrument family.

*Layouts.* By default, part layouts in the **Layouts** panel will also be sorted in the same order as the players, but if you prefer, you can specify that layouts should instead be sorted by layout number; click and hold on the **Sort Layouts** button to choose between these two sorting approaches.

*Single players.* To disambiguate soloists, what were previously known as solo players in earlier versions of Dorico are now called single players.

## Library Manager ONLY IN PRO

In Dorico, the term *library* refers to the complete set of *options* in the five primary options dialogs (Engraving Options, Layout Options, Notation Options, Note Input Options and Playback Options) and all the *collections* of items whose appearance and semantic meaning you can edit or define, including (but not limited to) font styles, paragraph styles, playing techniques, notehead sets, music symbols, expression and percussion maps, and so on.

To reinforce the concept of the library, Dorico 4 includes a new **Library** menu, which brings together all the main options dialogs and all the dialogs in which you can edit or define the items used in your project. Full details of these changes can be found under **User interface** on page 189.

Dorico is almost endlessly configurable, with hundreds of user-selectable options and the ability to customize the appearance of practically every item in your project. Managing these options even within a single project is challenging and being able to maintain a consistent appearance and set of options across multiple projects was impractical in previous versions of the software.

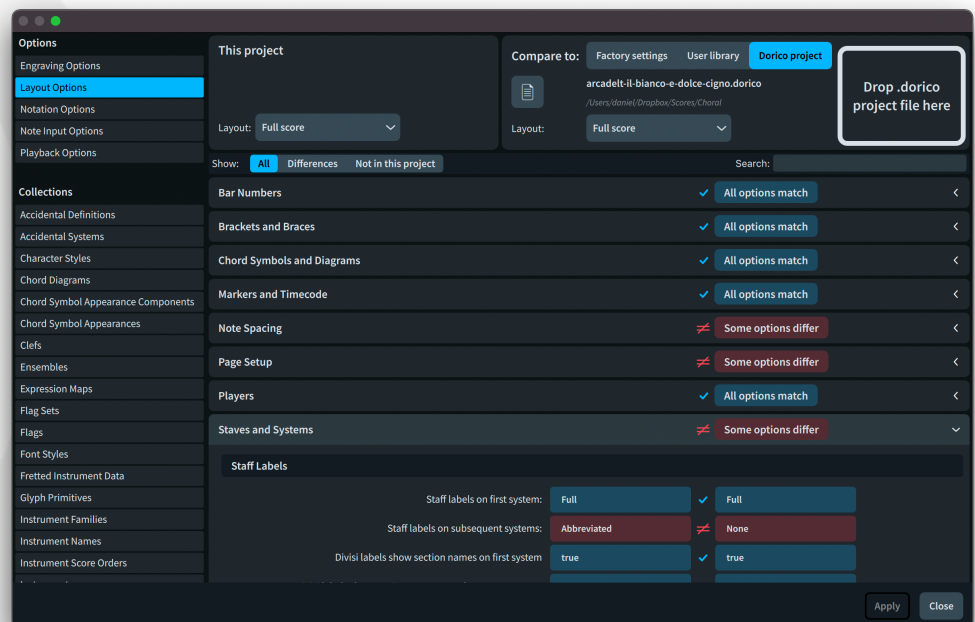
Dorico 4 aims to change that, with the introduction of the new Library Manager. The Library Manager allows you to examine the library of the current project in detail,



and compare it with the library in another project, or the factory library (Dorico's default settings), or your user library (which is a combination of the factory library and the changes you have made to it and then saved as defaults for use in future projects).

It is then easy to import settings or items from the source library – either the library from another project, or the factory library, or your user library – into the target library, which is the library of the project you are currently editing. You can import individual settings within individual classes of options, or you can import everything from the source library. Everything is completely within your control.

*Opening the Library Manager.* To open the Library Manager, choose **Library ► Library Manager**. This dialog opens:



At the top of the right-hand side of the dialog, you can specify the source library: you can drag and drop the Dorico project containing the source library into the drop area; or you can click the document icon to show a file chooser to browse to the Dorico project containing the source library. Alternatively, click **Factory settings** or **User library** to choose the factory library or your user library.



Once you have specified the source library, you can see how the target library differs from the source. On the left-hand side of the dialog, the library contents are separated into two lists: **Options**, and **Collections**.

*Filtering and searching.* To quickly see only the differences between the source and target libraries, use the provided filters: click **Differences** to see only those option


values and collection items that differ between the source and target libraries, or click **Not in this project** to see only collection items that exist only in the source library and not in the target library.




At the right-hand side is a **Search** box, which searches within the currently selected set of options or collection type.

*Comparing and importing options.* To compare a specific set of options in the source library with the target library, first click the desired set of options in the left-hand list. You can then navigate through the categories of options within that set on the right-hand side. If all the options have identical values between the source and target libraries, the category will show a checkmark  and the words **All options match**. If one or more of the options have differing values, however, the category will show an inequality sign  and the words **Some options differ**.



To set all the options in the target library to the values from the source library, simply click the inequality sign. The inequality sign will be replaced by a left-pointing arrow  to indicate that the differing values have been updated.

If you change your mind and decide you do not wish to import those values after all, simply click the left-pointing arrow again; when you hover your mouse over the arrow, it will become a cross  that you can click to revert those changes.

If you prefer to examine individual option values within a category, expand the section by clicking the disclosure arrow at the right-hand side. Each option in that category is shown, with the value in the project's library (the target) on the left and the source library on the right. In the same way as with whole categories, you can click the inequality sign between the target and source values to apply the source library's value to the target library.




*Layout- and flow-specific options.* Layout Options can have different values for each layout in a project, while Notation Options can differ for each flow.

When you choose to examine Layout Options in the Library Manager, you can specify for both the target library (the project currently being edited) and the source library (the project or library from which you want to import options values and collection items) which layout should be used to provide the values. It is generally advisable to compare the options for similar layouts, for example full score layouts with full score layouts, and part layouts with part layouts.

Similarly, when you choose to examine Notation Options in the Library Manager, you can choose which flow in the target library and the source library to compare.

*Comparing and importing collections.* As you examine the various collections of items in the source and target libraries, bear in mind that any individual Dorico project is unlikely to contain every item in every collection in the library: only those items that are actually used in the project, or which have been edited or defined by you, are included in the library. When you compare the libraries of two Dorico projects, then, you should not expect to see every item in every collection shown in the Library Manager; indeed, it is quite unlikely that the two libraries will even contain the same items as each other within any given collection.

When you select a particular collection, Dorico will display the items that exist in that collection in the respective libraries. All items have a detailed text description that provides information about the properties of that item, and many items provide a graphical preview when selected, so that you can compare the items in the source and target libraries graphically.

Once you have decided to import an item, click the inequality sign , which will be replaced by a left-pointing arrow  to indicate that a new item will be imported or an existing item updated. If you change your mind and decide you do not wish to import an item after all, simply click the left-pointing arrow again; when you hover your mouse over the arrow, it will become a cross  that you can click to revert the change.

*Dependent items.* It is especially useful to be able to import collection items that are not present at all in the target library, for example to bring in custom expression maps, percussion maps, playing techniques and playback techniques that you have defined in one project into another. When an item is not present at all in the target library, and you choose to import it, it will be added, along with any other items that the chosen item depends upon.

For example, a playing technique may depend on either a specific font style (if it is shown as text), or on a particular music symbol, in which case it will depend on at least one font style, and possibly more, or perhaps even a graphic file embedded in the source project. When you choose to import that playing technique, the dependent items are also imported. Exactly what happens to those dependent items depends on the state of the target library:

- Any collection items that already exist in the target library and which are identical to those in the source library are not imported, provided all of their dependencies similarly exist and are identical.
- If any of those dependent items in the target library have different internal identifiers to the entities in the source library (which they will if they have

been user-defined), the parent items will be updated with the new target library identifiers, so that they remain correctly linked together.

- If any of the dependent items that are being imported from the source library have the same name as an item already in the target library, each of those items is given a new unique name upon import (for example, by appending a number to the end of its name).
- If any of the dependent items that are being imported have the same internal identifier as any items already in the target library, each imported item is given a new internal identifier, references to which are updated in each parent item that requires that item.

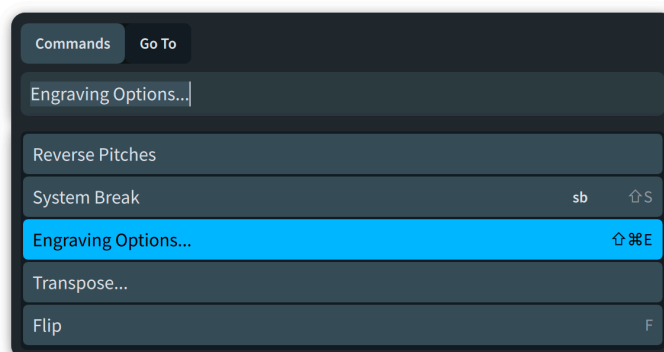
In summary, to ensure that imported items have the same appearance and behavior in the target library as they had in the source library, any dependent items are imported without overwriting any corresponding items in the target library, to avoid existing items that already use (say) a dependent font style changing appearance after import.

*Applying the changes.* Any change you make in either the **Options** or **Collections** sections will not be applied until you click the **Apply** button. If you need to import options or collection items from multiple different source libraries within the same session, you must click **Apply** before you select a new source library.

## Jump bar

The jump bar is a new user interface element that allows you to quickly run commands, and to efficiently navigate through your music by going to specific flows, rehearsal marks, bars, or pages.

*Showing the jump bar.* The jump bar is invoked by hitting J and appears in the center of the project window:



*Jump bar modes.* It has two modes: **Command** and **Go To**. By default, it opens in command mode. You can switch between the two modes either by clicking the buttons in the jump bar, or:

- On Windows, type **Alt+C** for command mode and **Alt+G** for go to mode.
- On Mac, type **Control-1** for command mode and **Control-2** for go to mode.

The jump bar remembers which mode it was last in, so reopens in that mode. At the start of each new session, the jump bar will always default to command mode.

*Command mode.* In command mode, when the jump bar first opens, the last-used command is shown in the text field, and the text is selected. You can simply hit **Return** to execute that command again, or you can type to choose another command, or you can use  $\uparrow/\downarrow$  to open the pop-up below the text field to choose from your most frequently used commands.

Each time you execute a command via the jump bar, Dorico updates its persistent cache of the frequency with which you use each command, so as you use the jump bar it will learn which commands you use most often.

The five most frequently used commands are shown in the pop-up by default, so you can use the up/down keys to choose one of them. If the last command you executed is not among the five most frequently used commands, it is nevertheless also added to the pop-up so that it can be chosen by default.

Commands can only be chosen via the jump bar if they can be executed given the current window mode, selection state, and so on. For example, if one of your five most frequently used commands is, say, **System Break**, this won't appear unless you are in Engrave mode and there is a valid selection.

If you want to execute an arbitrary command, you can type to search for one. All valid commands that can be executed without special parameters being specified will appear.

Dorico also helpfully adds special commands for each of the pages of each of the five main multi-page options dialogs, so you can type e.g. **bar numbers** and you will see separate entries for the **Bar Numbers** pages of Engraving Options, Layout Options, and Notation Options.

*Jump bar aliases.* You can also set aliases for commands in the jump bar, which are special sequences of characters that you can use to trigger a particular command as quickly as possible. Let's say you want to create an alias of **st** for the **View ► System Track** command. You would do this by typing **system track=st** into the jump bar. The characters following the equals sign will be set as the alias for that command, which allows you to then quickly execute that command by typing **J** (to show the jump bar) **st** (to choose the alias) **Return** (to confirm the jump bar).

Jump bar aliases appear in the jump bar's pop-up, just to the left of the key command for that command, if it has one. Aliases can also be edited on the **Key Commands** page of Preferences: search for the command in the main tree view, and any defined jump bar alias will appear in the **Jump Bar Alias** section in the bottom right-hand corner, allowing you to update or delete the alias. You can also set a new alias from here if you wish.

To set a new alias via the jump bar without executing the command, hold **Alt** when you hit **Return** to confirm the jump bar: that will set the alias, but not execute the command.

*Go to mode.* In go to mode, you can type the following:

- **f** followed by a number, e.g. **f3**, to go to that flow (equivalent to clicking that flow's card in the Flows panel in Setup mode)
- **fn** to go to the next flow, or **fp** to go to the previous flow
- **b** followed by a number, e.g. **b24**, to go to that bar in the current flow (equivalent to **Edit ▶ Go To ▶ Go To Bar**)
- **f** and **b** can be combined, e.g. **f2b14**, to go to a particular bar in a specific flow in the layout
- **p** followed by a number, e.g. **p13**, to go to that page (equivalent to **Edit ▶ Go To ▶ Go To Page**)
- **r** followed by a letter or a number, e.g. **rc** or **r13**, to go to that rehearsal mark (equivalent to **Edit ▶ Go To ▶ Go To Rehearsal Mark**).

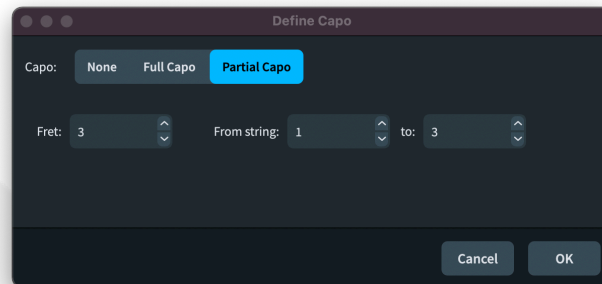
Beware that the current flow is the flow in which you either currently have items selected, or it was the flow in which you most recently had items selected; it is not necessarily the flow that is currently in the view.

## Capos for fretted instruments

A capo is a device that is applied to the neck of a fretted instrument, typically a guitar, that depresses some, but more typically all, of the strings at a particular fret, thus raising their open pitch. Capos are normally used to make it possible to play in a particular sounding key while using the same fingerings that would normally be used when playing open, or in other words without a capo.

Dorico 4 introduces comprehensive support for capos for fretted instruments, allowing you to define a full or partial capo for your instrument, and specify the effect this should have on the staff notation, chord symbols and diagrams, and the tablature itself.

*Defining a capo.* Capos are defined in the **Edit Strings and Tuning** dialog. To open the dialog, expand the card for the player holding the guitar or other fretted instrument in the Players panel in Setup mode, then click the ... menu button at the right-hand side of the label for the instrument that is revealed in the expanded card, and finally choose **Edit Strings and Tuning**. To define the capo, click **Capo** at the bottom of the dialog, which shows the following simple dialog:



If you choose **Full Capo**, you need only specify the **Fret** at which the capo should be placed; if you choose **Partial Capo**, you specify not only the **Fret** but also which strings to which the capo should apply. When you confirm your choice, a graphical representation of the capo appears on the neck in **Edit Strings and Tuning**.

You may want to show the notation transposed into the sounding key, in which case set **Transposition interval for staff notation** to the desired value. Because a capo at the, say, second fret might suggest a root of either F# or Gb, it is important to be able to specify the interval in terms of a note name rather than simply applying a transposition by a number of half-steps or semitones.

Having specified a transposition interval for staff notation, this will only take effect if the new **Use fretted instrument transposition for notation** option is set for this specific instrument in the **Fretted Instruments** section of the **Players** page of Layout Options, and if the layout is currently shown at transposed pitch.

*Chord symbols.* Because chord symbols in Dorico are global by default and therefore apply to all the instruments in the flow, the chord symbols shown above a given player do not consider a capo defined for any particular instrument in your ensemble. Instead, you can specify the transposition interval to be used for the notional capo for each player if you wish.

To specify the transposition interval, right-click the player above whose staff the capo chord symbols should appear in the Players panel in Setup mode, and from the **Chord Symbols** submenu of the contextual menu, choose **Capo Chord Symbol Transposition for Player**. This shows a dialog in which you can specify the interval



by which the chord symbol should be transposed, in the same manner as in the **Edit Strings and Tuning** dialog.

Once the capo transposition has been specified, there are several options for how the chord symbols themselves should appear for the player, all of which can be similarly chosen from the **Chord Symbols** submenu of the player's contextual menu:

- **Show Main Chord Symbol for Capo** shows only the main chord symbol, and does not show the transposed capo chord symbol
- **Show Transposed Chord Symbol for Capo** shows only the transposed capo chord symbol, and does not show the main chord symbol
- **Show Capo Chord Symbol Above Main** shows both the capo and main chord symbols, with the transposed chord symbol above the main chord symbol
- **Show Capo Chord Symbol Below Main** shows both the capo and main chord symbols, with the transposed chord symbol below the main chord symbol

When showing capo chord symbols together with main chord symbols, it can be helpful to visually differentiate the two kinds of chord symbols, and Dorico can either display capo chord symbols in italics, or in parentheses. To change this, modify **Capo chord symbol appearance** in the new **Capo** section of the **Chord Symbols** page of Engraving Options. You can also here change the vertical gap between the capo and main chord symbols if necessary.

If you wish, you can also override whether the capo or main chord symbol is shown for a selected item by activating the new **Show only** property in the **Chord Symbols** group in the Properties panel and choosing either **Capo Chord** or **Main Chord** as you prefer.

*Chord diagrams.* If a capo transposition is defined for a particular player and a fretted instrument tuning is chosen from the **Chord Diagrams** submenu of the player's context menu in the Players panel in Setup mode, the chord diagram shown for each chord symbol will take the capo into account.

If you have **Show chord diagrams used at start of flow** activated on the **Chord Symbols and Diagrams** page of Layout Options, if you want to show chord diagrams that take a specific capo transposition into account (because, for example, one of the instruments in your ensemble has a capo defined), you must provide the appropriate transposition here too, by setting **Use capo with transposition** to the appropriate pitch.



*Fretboard panel.* If the selected instrument has a full or partial capo defined, the Fretboard panel in the lower zone in Write mode will display the capo. For more information about the Fretboard panel, see **On-screen instruments** above.

## Numbered bar regions

When preparing instrumental parts, it is usually very helpful to number bars of repeated material to help the performer keep their place through the passage. Dorico 4 makes this easy with the introduction of numbered bar regions, which build on the functionality of the existing feature for bar repeat regions. For more information about bar repeats, please refer to the [Operation Manual](#).

*Visibility of numbered bar regions.* By default, numbered bar regions appear only in part layouts, though you can create them in any kind of layout. It is recommended to create numbered bar regions in part layouts, but if you would prefer to create them in the full score layout, you will find it useful to activate **Show bar count in numbered bar regions** in the **Numbered Bar Regions** section of the **Players** page of Layout Options for the full score layout.

*Creating a numbered bar region.* To create a numbered bar region, select the bars that should be numbered, then choose **Write ► Create Numbered Bar Region**, or type **Shift+R** to open the repeats popover, and enter **numbars** (or **number bars**, **num**, or **nb**) followed by **Return** to confirm the popover. Be aware that if numbered bar regions are not set to be visible in the current layout, you will see only the handles of the region, and even they will disappear once you change the selection.

*Numbered bar region highlights.* When numbered bars regions are visible, a translucent blue highlight is shown in the bars contained in the region. To switch this off, choose **View ► Highlight Bar Repeat Regions**. The same option controls the display of the highlights for both numbered bar regions and bar repeat regions.

*Extended or shortening the region.* In Write mode, select any of the bar count numbers shown in the region to select the whole region and show the circular handles at the start and end of the range. Drag these handles to change the bars included in the region. Alternatively, you can use **Alt+←/→** to move the entire region left or right a bar at a time, or **Shift+Alt+←/→** to lengthen or shorten the region a bar at a time.

*Bar count.* By default, Dorico will number every bar in the bar repeat region, and if the region is longer than four bars, it will also indicate the total length of the region by adding the range of the region to the bar count on the first bar: for example, for an eight-bar region, the first bar will show **1(-8)** by default.

The default bar count frequency can be set using the options in the **Numbered Bar Regions** section of the **Bar Repeats** page of Engraving Options. You can also specify whether the bar count should be shown in parentheses, whether it should be shown above or below the staff, and whether Dorico should align the numbers at the same vertical position across the width of the system, or instead allow individual numbers to move vertically to conserve vertical space.

Further options are provided for the appearance of the range on the first bar of the region, and for additionally numbering the final bar in each system and the final bar in the region if the chosen frequency would not otherwise cause a number to be shown there.

You can override these defaults using the properties found in the **Bar Repeat Regions** section of the Properties panel.

*Engrave mode.* You can adjust the position of individual bar count numbers in the region by selecting them and either dragging them with the mouse, nudging them with the arrow keys while holding **Alt**, or adjusting the value of the **Number offset** property.

*Appearance.* The bar count is drawn using the **Bar Repeat Count** font style, which you can edit in **Library ► Font Styles**. The same font style is shared between numbered bar regions and bar repeat regions.

## SuperVision

Dorico 4 now includes SuperVision, a professional tool suite for monitoring and analyzing your audio. The plug-in comes with several different modules for level, spectral, phase, or waveform analysis.



You can insert SuperVision on any channel in the Mixer, but perhaps the most useful place to insert it is in the **Inserts** section for the master stereo output, where it will allow you to get an overview of the overall sound.

Please refer to the dedicated [SuperVision](#) documentation for more information.

## VST Amp Rack and VST Bass Amp

Dorico 4 now includes two powerful new plug-ins for shaping guitar sounds. VST Amp Rack and VST Bass Amp are powerful guitar amp simulators, each offering a choice of amplifiers and speaker cabinets that can be combined with stomp box effects.



To use either of these effects, use the **Inserts** section of the Mixer for the channel on which you want the effect to appear, and choose either **VST Amp Rack** or **VST Bass Rack** from the menu of effects.

Please refer to the dedicated [VST Amp Rack](#) and [VST Bass Amp](#) documentation for more information.

## Universal app on macOS

Dorico 4 is now a Universal app, which means that it runs natively on both Intel-powered Macs, and on the latest Apple silicon Macs, such as the M1 MacBook Pro, iMac and Mac mini. If you have an Apple silicon Mac, Dorico will run as a native application by default.

*VST plug-ins.* When running natively on Apple silicon, Dorico can only load VST plug-ins that can run natively as well: it is not possible for Dorico running natively

to load VST plug-ins running under Rosetta 2, the technology that allows software built for Intel-powered Macs to run on Apple silicon Macs.

In addition, there is no support for VST 2 plug-ins on Apple silicon, so when running natively on Apple silicon, only native VST 3 plug-ins will appear.

If you still rely on one or more VST 2 plug-ins, or if a VST 3 plug-in you rely on is not yet available in Universal format, you can force Dorico to run under Rosetta, which will allow VST 2 and Intel-native plug-ins to be loaded, though at the expense of slower overall performance.

To force Dorico to run under Rosetta:

- Quit the application if it is running.
- Locate Dorico 4 in your **Applications** folder.
- Select the icon and type **Command-I** to open the info panel.
- Activate the **Open using Rosetta** checkbox.

When you next start Dorico, it will run under Rosetta.

## Steinberg Licensing

Dorico 4 is the first product to use the new Steinberg Licensing system, replacing the eLicenser system that has been used by all previous versions of Dorico, and indeed by all of Steinberg's software products.

Steinberg Licensing uses your registered Steinberg ID as the means to identify you and determine your eligibility to run the software.

*Running for the first time.* When you run Dorico 4 for the first time, a separate application called Steinberg Activation Manager will launch. You may be prompted to sign in, in which case clicking **Sign In** will open your default web browser.

If you are not currently signed in, you will be prompted to enter your Steinberg ID email address and password. If your browser is already signed in with your Steinberg ID, you will not be asked to sign in again.

Once you are signed in, you will be prompted to authorize Steinberg Activation Manager to use your credentials: depending on your browser, click **Allow** or **Open** (and, if you wish, activate the option to remember this choice in future).

You will then be returned to Steinberg Activation Manager, which should report that your software has been activated successfully. You can close Steinberg Activation Manager and use Dorico as normal.

*How activation works.* Once your license is activated on a computer, Dorico 4 no longer needs to contact the Steinberg Licensing server for the purposes of activation.

You must remain signed in with your Steinberg ID to keep running your software: if you sign out of Steinberg Activation Manager, your Dorico 4 license will be deactivated on that computer.

*Activating on another computer.* With the introduction of Steinberg Licensing, your single-user Dorico 4 license allows you to use the software on up to three computers, with the intention that the software is used only by you.

To activate Dorico 4 on another computer, simply install the software on the second computer as normal. When you run the software, you will be prompted to sign into Steinberg Activation Manager with your Steinberg ID. Provided you have not already activated Dorico 4 on three computers, you will be told that activation has been successful.

If you are told that Dorico 4 has already been activated on the maximum number of computers, you will need to deactivate the software on one of the computers on which it is currently activated. To do this, run Steinberg Activation Manager on that computer, and click the **Deactivate** button corresponding to your Dorico 4 license.

If you do not currently have access to the computer on which you need to deactivate your license, you can contact Steinberg support to ask them to deactivate the license for you.

You can freely deactivate and reactivate Dorico on your computers without limits, but the software can only be activated on three computers simultaneously.

## **Remote control support**

Dorico 4 introduces a new remote control API that allows richer control from external applications such as the Elgato Stream Deck or Metasystem's Metagrid apps for iOS and Android. This API allows software to connect to Dorico using WebSockets, then to send commands, update properties, read the state of the application, and so on.

If you are a software developer who would be interested in finding out more about Dorico's remote control API, please contact us.

## Improvements

### Accidentals

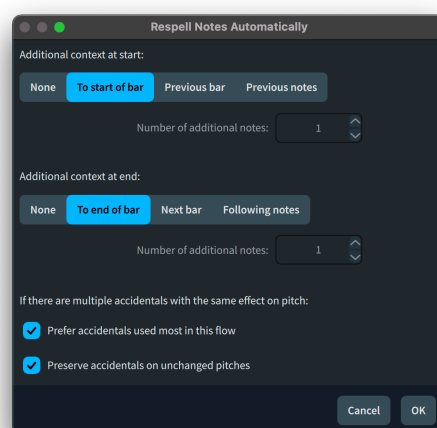
*Respelling accidentals.* A good deal of additional flexibility has been added for managing the spelling of accidentals between different layouts.

By default, when you change the spelling of a note in the full score layout, that change will be applied to all part layouts in which that note appears; conversely, when you change the spelling of a note in a part layout, that change is local to the part and is not reflected in the score.

Dorico 4 introduces powerful new commands that allow you to reset the spelling, either to the spelling used in the full score or to an automatically determined new default spelling, or to propagate the spelling in one layout to all other layouts.

Four new commands have been added to the **Write ► Respell** submenu:

- **Propagate Note Spellings** applies the spelling of the selected notes in the current layout and applies it to all layouts where those notes appear; this is useful if you have respelled notes in a part layout but now want to propagate those changes to the full score.
- **Reset Note Spellings in Current Layout** resets the spelling of the selected notes in the current layout to the spelling used in the full score layout; this is useful if you have respelled notes in a part layout but want to return to the default spelling used in the full score.
- **Reset Note Spellings in All Layouts** resets the spelling of the selected notes in all layouts in which they appear to the spelling used in the full score layout.
- **Respell Notes Automatically** allows you to recalculate the spelling of the selected notes based on an analysis of the musical content. The following dialog appears:



The options **Additional context at start** and **Additional context at end** allow you to specify how much of the music either before or after the notes you have selected to consider when Dorico analyses the music to determine its tonal center.

The two options at the bottom of the dialog – **Prefer accidentals used most in this flow** and **Preserve accidentals on unchanged pitches** – take effect only if your project uses a tonality system in which multiple accidentals are defined that have the same effect on the pitch of the note. When respelling notes in such a project, Dorico can be told to prefer to use the accidental that is most often used throughout the flow.

*Spelling in atonal key signatures.* When writing atonal music, it may be preferable to spell accidentals as simply as possible, without considering what would in tonal music be the harmonic and intervallic relationships between notes in the same chord or successive notes. Dorico 4 introduces new options to determine how it chooses enharmonic spellings when you are writing in an open or atonal key signature. The following new options are found in the **Note Spelling** section on the **MIDI Input** page of Note Input Options:

- **Note spelling for remote accidentals in atonal key signatures** specifies whether you should **Allow remote accidentals**, like F flat, B sharp, or any double or triple accidental, or **Disallow remote accidentals**, in which case such remote accidentals will not be chosen.
- **Preferred accidentals in atonal key signature** specifies whether Dorico should try to favour only flats, only sharps, or allow a mixture.
- **Exceptional cases when spelling chords in atonal key signatures** specifies how Dorico should handle the spelling of notes in chords, taking into account your choices for the preceding two options. For example, if **Preferred accidentals in atonal key signature** is set to **Flats only**, and you input a dyad of G sharp and B natural, this would spell the G sharp as A flat and leave the B natural unchanged, producing an interval of an augmented second. In this situation, choosing **Avoid remote spellings** would spell the dyad G sharp and B natural, while choosing **Avoid contradiction of accidental preference** would spell the dyad A flat and C natural, in each case producing a more legible minor third. Dorico will not make any adjustments for exceptional cases if you choose **No exceptions**.
- **For notes in atonal key signatures that could be spelled using double or triple accidentals** allows you to specify that, depending on the other choices made for these options, you may still nevertheless prefer Dorico not to use double or triple accidentals, even if you have specified that it should, for



example, prefer sharps. For example, if you input a G#m(maj7) chord, having set **Sharps only** and **Avoid remote spellings**, the root note of the chord would be spelled as G sharp when **Allow double and triple accidentals** is chosen. When **Disallow double and triple accidentals** is chosen, however, it will instead spell the chord on an A flat to eliminate the F double-sharp, even though the alternative still contains a C flat as its third.

These options have no effect when you are writing in any other key signature, whether it is a minor or major key signature, or a custom key signature.

*Independent scale factor.* It is now possible to scale accidentals independently of notes. In Engrave mode, select the notehead to which the accidental belongs, then activate the new **Accidental scale property** in the **Notes and Rests** group in the Properties panel.

*Gaps between accidentals and following notes.* Additional control over the gap between the rightmost flat and an unshortened ledger line when note is in a space or on a line has been provided, with new options on the **Accidentals** page of Engraving Options.

*Accidentals for 24-EDO tonality system.* In response to user feedback, Dorico now employs the Stein-Zimmermann accidentals in its default 24-EDO tonality system, rather than the accidentals with arrows recommended by Elaine Gould in *Behind Bars*.

## Articulations ONLY IN PRO

*Pasting articulations independently of notes.* A new **Edit ► Paste Special ► Paste Articulations** command has been added. Copy a passage of notes to the clipboard, then select the note from which you want the articulations to be pasted, then choose the new command; the articulations in the copied passage will be pasted.

## Audio export

*FLAC support.* It is now possible to export audio in FLAC format. FLAC is a lossless compression format, so unlike MP3 there is no effect on the quality of the sound itself. FLAC typically compresses by around 50% compared to WAV, but it is not universally supported by all playback software. When exporting in FLAC format, you can choose between exporting at 16- or 24-bit depth.

*Bit depth.* When exporting in WAV format, you can now specify the bit depth of the exported audio, with a choice between 16-bit, 24-bit or 32-bit.



## Bar numbers

*Bar number changes.* Bar number changes can omit the primary number, so you can easily make sequences such as **1, 2, 3, a, b, c, 4**, which are sometimes required for inserts in musical theatre scores.

*Position relative to clef at start of system.* New options have been added to the **Bar Numbers** page of Engraving Options specifying the minimum distance above or below treble G, treble G with 8 below and tenor C clefs bar numbers at the start of the system should appear. This allows you to specify a smaller gap above or below the staff for bar numbers shown at other positions along the system and still have bar numbers avoid clefs at the start of the system.

*Ranges of bar numbers on multi-bar rests.* When **Show ranges of bar numbers under multi-bar rests and consolidated bar repeats** is activated on the **Bar Numbers** page of Layout Options, Dorico will now only show those bar number ranges on the staves on which bar numbers would normally appear, rather than on every staff on which the multi-bar rest appears.

*Local versus global bar numbers.* When Dorico draws bar numbers, it uses the bar numbers calculated for the staff on which the bar numbers are drawn. This can be useful in polymetric music where the bar numbering may vary between instruments, but in cases where local time signatures have only been used to do things like change default beam grouping for a passage, it can be less helpful.

A new **Bar Numbers** page has been added to Notation Options, with the new option **Bar number calculations**, allowing you to choose whether the bar number calculations for each flow should **Use global bar count** or **Use local bar count**.

## Bar repeats

*Numbering the final bar of a bar repeat region.* A new option **Appearance of bar repeat count for the last bar in the region** has been added to the **Bar Repeats** page of Engraving Options, allowing you to specify that the last bar in a bar repeat region should always be numbered, even if it would not normally be numbered according to the chosen interval for bar numbering in the region.

## Beaming

*Centered beams.* A centered beam, sometimes called a “knead beam”, describes a beam that is positioned between notes on the same staff, both above and below the beam. By default, Dorico will only show a centered beam if the natural stem directions of the notes in the beamed group specify that both up- and down-stems

would be required if the notes were unbeamed; in practice, this means that only beam groups that straddle the middle staff line can show centered beams.

To provide additional flexibility for centered beams, you can now select the notes in a beamed group and choose **Edit ► Notations ► Stem ► Custom Centered Beam**, which will show a simple dialog in which you can specify the desired stem direction for each note. When you confirm the dialog, if the combination of stem directions you have chosen should give rise to a centered beam, one will be created.

*Notes on the middle line of the staff.* When notes on the middle line of the staff are given a default direction instead of a contextual direction (because **Stem direction for notes on the middle line of the staff** is set to **Use default direction**), such notes can govern the overall stem direction for a beamed group, which is sometimes undesirable. A new option, **Notes on the middle line of the staff in beamed groups**, has been added to the **Stems** section of the **Notes** page of Engraving Options, allowing you to change this behavior: choose **Ignore for stem direction**, and only the notes either side of the middle line of the staff will govern the overall stem direction for the group.

*Stem direction calculation for beamed groups.* By default, Dorico considers the number of notes or chords above or below the middle of the staff when determining the stem direction for a beamed group of notes, and uses the note furthest from the middle of the staff in the event of an equal number of notes above and below the middle of the staff. If you prefer to consider only the note furthest from the middle of the staff, you can now set the new **Stem direction for beamed groups** option in the **Stems** section of the **Notes** page of Engraving Options to **Consider only furthest note from middle of staff**.

*Beam thickness.* It is now possible to override the thickness of and separation between beam lines in Engrave mode, using new **Thickness** and **Separation** properties in the **Beaming** group in Properties.

## Breaks

*Moving bars between systems.* A pair of new commands have been added that make it quick and easy to change the casting-off of your music. In Engrave mode, you can select a note or indeed any item in a bar, and then use either **Engrave ► Format Systems ► Move Bar to Previous System** or **Move Bar to Next System** to move that bar to the previous or next system, leaving all other systems in the layout untouched. These menu items have the default key commands , (comma) and . (period or full stop) for quick access.

When you move a bar to the previous or next system, Dorico creates appropriate breaks to ensure that the right bars are on each system. For example, if you have two systems, the first with four bars and the second with three, and you decide that the first system would look better with only three bars, you can select any item in the last bar of the first system and type **.** to move that bar to the next system. Dorico ensures there is a break at the start of the first system, then creates a new system break at the start of the bar in which you made your selection, so that bar becomes the first bar of the second system. It sets the **Wait for next system break** property on the original first system to ensure that the first system keeps the three bars it already had. By default, Dorico does not force the layout of the second system; instead it simply ensures that it begins with the bar that you moved from the first system.

If you have previously used Finale, these commands will be familiar to you. If you have not used Finale, you may be finding the purpose of these commands a little abstract. Rest assured that they are much easier to understand by experimentation than by reading about them: open an existing project, switch to Engrave mode, select something and type **,** or **.** to see for yourself what happens.

In Finale, however, the equivalent commands work a little differently: to continue the example described above, Finale would force the contents of the second system so that even after adding one or more bars from the first system, all of the bars that were previously on the second system should remain there, which could make it more cramped. If you would like Dorico to behave exactly like Finale in this regard, you can do so: activate **Lock source and destination systems when moving bars to previous or next system** on the **Note Input and Editing** page of Preferences. When this option is enabled, Dorico will create a further system break at the end of the second system, and set the **Wait for next system break** property on the new break at the start of the second system, effectively locking the contents of both the first and second systems.

*Break locations.* A new option, **Snap system and frame breaks to barlines when creating**, has been added to the **Note Input and Editing** page of Preferences. This option is switched on by default.

You can create a system or frame break at any rhythmic position, including in the middle of a bar, but by default breaks will snap to barlines. When creating a single system or frame break, the break will be created at the start of the bar in which the earliest item is selected. When using **Make Into System** or **Make Into Frame**, the first break will be created at the start of the bar in which the earliest item is selected, and the second break will be created at the end of the bar in which the latest item is selected.

This makes it much quicker to create breaks and perform casting off in your layouts, because you no longer need to worry about making a selection at a precise rhythmic position before you create a break.

*Retaining properties on breaks.* Dorico now always maintains **Wait for next system/frame break** properties, staff size overrides and hide empty staves overrides for breaks at the same positions as new breaks being created as part of **Make Into System/Frame** or **Lock System/Frame** operations. This prevents unexpected changes in casting off if you return to the same passage to perform more formatting.

*Lock and Reset Layout.* It is now possible to lock the formatting of the current layout, inserting suitable system and frame breaks on every page, by choosing **Engrave ► Format Music Frames ► Lock Layout**. This is equivalent to selecting an item in each frame in turn and clicking **Lock Frame**, but you do not have to select anything in advance.

The converse operation is also now available: to remove all system formatting from your layout by deleting all system and frame breaks, choose **Engrave ► Format Music Frames ► Reset Layout**.

## Chord diagrams

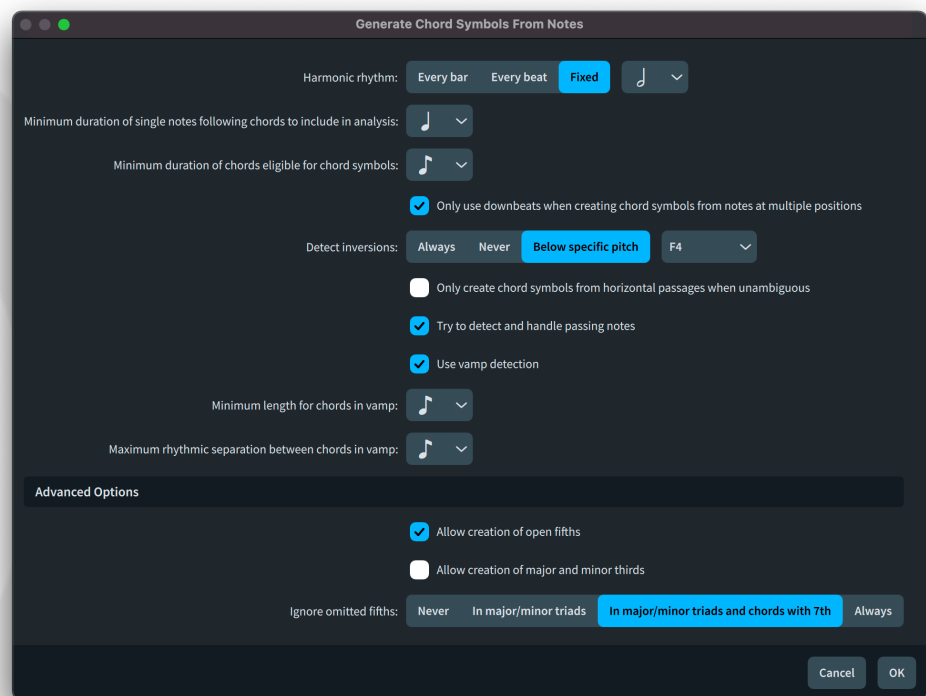
*Fingering numbers.* It is now possible to show fingerings on chord diagrams, either as numbers within the dots, or at the ends of the strings. To show fingerings, activate **Show fingerings in chord diagrams** on the **Chord Symbols and Diagrams** page of Layout Options. Use **Fingerings position** to choose between showing the fingerings **Inside dot** or **At end of string**.

Dorico will show default fingerings for all the chord shapes in the factory library, but you can edit them if you choose, either for an individual chord diagram by double-clicking it in Engrave mode, or for the whole project via **Library ► Chord Diagrams**. Fingerings will only appear in the chord diagram editor if they are shown in the current layout, so be sure to activate **Show fingerings in chord diagrams** before you try to edit them.

To edit a fingering, double-click it in the **Edit Chord Diagram** dialog, then type the finger number. If you type a finger number that is already used on another string, Dorico will attempt to reallocate the other strings sensibly. If, however, you need to reset to the default fingering, choose **Edit ► Notations ► Chord Symbols and Diagrams ► Reset Chord Diagram Finger Numbering**.

## Chord symbols

*Creating chord symbols from selected notes.* Dorico can now create chord symbols based on the harmonies described by a selection of notes. First, select the music from which you would like to generate chord symbols, which can be any size of selection from a single chord on a single instrument to an extended passage of music spanning multiple instruments. Once you have made your selection, choose **Edit ► Notations ► Chord Symbols and Diagrams ► Generate Chord Symbols From Selection**. The following dialog appears:



- **Harmonic rhythm** specifies the interval at which Dorico should create new chord symbols, examining the selected music chunk by chunk. Dorico automatically chooses a useful value for this option based on the music you have selected.
- **Minimum duration of single notes following chords to include in analysis** allows you to exclude passing notes from the analysis. Set this option to the shortest note value you typically want to be considered as part of the analysis; any shorter note values will be ignored.
- **Minimum duration of chords eligible for chord symbols** similarly allows you to exclude transitory chords from the analysis. Set this to the shortest note value you typically want to be considered as a distinct chord; any chords with shorter note values will be ignored.

- **Only use downbeats when creating chord symbols from notes at multiple positions** considers the metrical structure of the bars containing the selected music, and if switched on, it will only consider the notes that start on strong beats in its analysis.
- **Detect inversions** specifies whether Dorico should consider inversions when analyzing the music; you may want to set this to **Never** when selecting music from multiple instruments. When you are working with music from a single instrument, you may want to either **Always** consider inversions, or help Dorico to identify the bass notes in the chord by specifying a specific pitch below which it should consider notes as describing inversions.
- **Only create chord symbols from horizontal passages when unambiguous** is switched off by default; if you switch it on, it will limit Dorico to looking for simpler chord symbols, particularly when notes at different rhythmic positions are considered together as forming a single chord.
- **Try to detect and handle passing notes** enables heuristics that try to determine which notes in the selection are passing notes and therefore not critical to the analysis of the prevailing harmony.
- **Use vamp detection** enables heuristics that try to identify rhythmic patterns and textures often used when vamping, which are then taken into consideration during the analysis. The two following options, **Minimum length for chords in vamp** and **Maximum rhythmic separation between chords in vamp**, can be adjusted based on the specific rhythmic patterns used in the selection to help guide Dorico's vamp detection.
- **Allow creation of open fifths** determines whether Dorico will detect open fifths (i.e. dyads a fifth apart, with no kind of third between them).
- **Allow creation of major and minor thirds** determines whether Dorico will allow dyads that have no fifth or higher scale degrees to be interpreted as major or minor triads for the purposes of analysis.
- **Ignore omitted fifths** determines how Dorico should handle chords that would typically include a fifth, but in which the fifth is omitted.

Once you are satisfied with the options, click **OK** and Dorico will create chord symbols in the selected passage. All instruments from which music was selected will show chord symbols.

*Parenthesizing chord symbols.* It is now possible to enclose a chord symbol in parentheses by activating the new **Parenthesized** property in the **Chord Symbols** group in the Properties panel. When inputting a chord symbol via the **Shift+Q** popover, you can also surround the chord symbol with parentheses, e.g. **(Cm7)**, and the resulting chord symbol will be parenthesized.

If you want to indicate that a sequence of chord symbols is optional or an alternative set of changes, you can show only the opening (left) parenthesis for one chord symbol, and then the closing (right) parenthesis for another chord symbol, using the new **Parenthesis to show** property.

Depending on the size and shape of the chord symbol, you may want to change the type of parenthesis used; different parenthesis characters are provided that are used for chord symbols of different heights, and you can choose between these by activating the new **Parenthesis style** property. Further fine-tuning of the size of the parenthesis can be achieved by altering the **Parenthesis scale** property.

If a chord symbol already includes parentheses, for example surrounding alterations, then surrounding the entire chord symbol with a larger set of parentheses can appear fussy or cluttered; as such, a new **Suppress parentheses around alterations** option has been added to the new **Parentheses** section of the **Chord Symbols** page of Engraving Options. This allows you to choose whether the parentheses around alterations in chord symbols should appear, and under what circumstances.

The **Parentheses** section of the **Chord Symbols** page of Engraving Options also includes options for the gap between the parentheses and the chord symbol, and the scale factor for parentheses; by default, the parentheses are scaled slightly large relative to the chord symbols themselves, so that they extend a little way above and below the chord symbol, making them more conspicuous.

*Placement.* A new option, **Position of chord symbols relative to single staff instruments**, has been added to the **Position** section of the **Chord Symbols** page of Engraving Options. This option allows you to specify whether chord symbols should appear above the staff (the default), or below the staff.

You can also change the placement of an individual chord symbol by activating the new **Placement** property in the **Chord Symbols** group in the Properties panel.

*Erase background.* When chord symbols are shown between the two staves of a grand staff instrument, or otherwise above a staff that is joined to the staff above by a barline, it may not always be possible to avoid the chord symbol colliding with a barline. A new **Erase background** property has been added to the **Chord Symbols** group in Properties; when activated, barlines and staff lines will be covered. The padding for the erasure is determined by a new option in the **Design** section of the **Chord Symbols** page of Engraving Options.

*Chord symbol visibility regions.* It is now possible to create a chord symbol visibility region by typing **reg** into the **Shift+Q** popover.



*Showing either chord symbols or diagrams.* A new **Show only** property has been added to the **Chord Symbols** group of the Properties panel, allowing you to specify that either the chord symbol or chord diagram component should be hidden.

*Chord symbols with altered bass notes.* You can now override the default arrangement for altered bass notes, as specified in the **Altered Bass Notes** section of the **Chord Symbols** page of Engraving Options, by activating the new **Compound chord arrangement** property in the **Chord Symbols** group of the Properties panel.

*Disabling MIDI input for chord symbols.* If you do not ever want to input chord symbols using your MIDI keyboard, you can set the new **Chord symbol input via MIDI keyboard** option on the **MIDI Input** page of Note Input Options to **Disallow MIDI input**.

*Clearing played pitches.* When you input chord symbols using your MIDI keyboard, Dorico remembers the voicing you used for the chord, and that voicing will be reproduced when you subsequently play back the chord symbols via the **Chords** track in Play mode. If you later decide that you would like to restore the default voicing for a chord symbol, select it and choose **Edit ▶ Notations ▶ Chord Symbols and Diagrams ▶ Clear Chord Symbol Played Pitches**.

*Chord symbol region highlights.* When **View ▶ Highlight Chord Symbol Regions** is switched off, Dorico now also hides the purple bar drawn for making it possible to select chord symbol regions.

*Flat 10 alteration.* It is now possible to create a  $\flat 10$  alteration: simply type **b10** into the **Shift+Q** popover. You may need to enclose it in parentheses, e.g. **C(b10)**.

## Clefs

*Lead sheet style.* A new option **Clefs at start of systems following first system** has been added to the **Clefs** page in Notation Options, allowing you to hide clefs on systems following the first. This is a convention sometimes followed in hand-copied lead sheets, and a corresponding option has been added for key signatures.

*Octave shifts.* It is now possible to specify an octave shift for the clef to be created in the **Shift+C** popover: for example, typing **g+2** will create a treble G clef with an **Octave shift** value of 2, or **f-1** will create a bass F clef with an **Octave shift** value of -1.

## Comments

*Comments from all flows.* The Comments panel in the right zone in Write mode now shows comments from all flows assigned to the current layout, rather than only the current flow, as in previous versions.



## Condensing ONLY IN PRO

*Tempo signposts.* Signposts for hidden tempo items above condensed staves can now be selected in Write mode.

## Cues ONLY IN PRO

*Fermatas.* It is now possible to specify whether fermatas should be included in cues, both via a new option on the **Cues** page of Engraving Options, and on a per-cue basis via the new **Show fermatas** property in the Cues group in the Properties panel.

*Cues on unpitched percussion.* It is now possible to create a rhythmic cue from a pitched instrument on an unpitched percussion instrument or kit.

*Popover input.* It is no longer necessary to hit **Return** twice to confirm input of the **Shift+U** popover.

*Cues at instrument changes.* A new option **Show instrument change label after cue, if cue precedes first note in new instrument** has been added to the **Players** page of Layout Options allowing you to specify that when an instrument change occurs at the same point as a cue, the label showing where the new instrument starts playing should be positioned at the end of the cue, rather than at the start. The new option is disabled in existing projects by default to avoid changing their appearance unexpectedly, but enabled in new projects.

## Dynamics

*Dynamics in tight spacing.* The behavior of dynamics in tight situations – either when note spacing is very narrow, or when wide dynamics are covering short rhythmic durations – has been improved.

The way Dorico allocates additional space for gradual dynamics has been improved, and the way *messa di voce* hairpins are handled has been overhauled: if a *messa di voce* hairpin needs to be shortened to accommodate an immediate dynamic or barline at either end, the amount to be shortened is now distributed over both segments of the hairpin, rather than only the second, which looks much better.

In the specific case that a *messa di voce* hairpin is written over a single note or chord, and ends at a barline position, Dorico will now evenly distribute the two segments of the hairpin to improve its appearance. Options to control this new behavior can be found in the **Advanced Options** section of the **Gradual Dynamics** section of the **Dynamics** page in Engraving Options.

## Engrave mode

*Crosshairs.* Most items that are positioned outside the staff now show a pair of crosshairs in Engrave mode when they are selected and when they are dragged with the mouse. Although the implementation is very simple – there are no rulers, and no snapping of items as they are dragged – the crosshairs are nevertheless helpful when positioning items manually in Engrave mode, allowing you to see the horizontal and vertical alignment of items immediately.

The following types of items show crosshairs when selected or dragged in Engrave mode:

- Immediate and gradual dynamics
- Staff- and system-attached text
- Octave lines
- Slurs
- Guitar bends
- Immediate and gradual tempo changes
- Playing techniques
- Rehearsal marks
- Lyrics
- Ornaments and trills
- Pauses
- Pedal lines
- Arpeggio lines
- Chord symbols
- Repeat endings
- Percussion legends
- Repeat markers
- Harp pedal changes
- Horizontal and vertical lines
- Figured bass

If you would prefer not to see crosshairs in Engrave mode, you can deactivate **Show When Selected** or **Show When Dragging** in the new **Engrave ► Crosshairs** submenu.

*Switching to Engrave mode.* By default, Dorico remembers which of the tools in the toolbox was last active when you return to Engrave mode, but you might find it helpful to always have the graphical editing tool active when you return to Engrave mode. If so, activate the new option **When switching to Engrave mode, activate the Graphical Editing tool** in the **Window** section of the **General** page of Preferences.

*Nudging frames and handles.* You can now use all of the combinations of modifiers with the arrow keys used for nudging in graphical editing mode when nudging selected frames, vertical spacing handles, and note spacing handles to nudge by different amounts.

## Figured bass

*Bracketing.* Dorico 4 introduces comprehensive support for adding parentheses or square brackets to figured bass in your score. Whole stacks of figures, individual figures, or even individual accidentals can all be flexibly bracketed.

To specify brackets when inputting figures using the **Shift+G** popover, simply type parentheses around the figures, figure or accidental that you want to be bracketed. For example, typing **(#643)** will bracket the entire stack of figures; typing **#6(4)3** will bracket only the figure 4; and typing **(#)643** will bracket only the sharp accidental to the left of the figure 6.

You may want to show an opening bracket on one stack of figures, and then a closing bracket on a later stack of figures, for example to denote that a passage of figures has been added by the editor or could be played optionally. In this case, bracket both stacks of figures as normal, then in Engrave mode, activate the **Hide single bracket** property in the **Figured Bass** section of the Properties panel, then specify whether it is the **Start** or **End** bracket that should be hidden.

By default, Dorico uses square brackets, but you can use round brackets (or parentheses) instead: set **Bracket style** to **Round brackets** in the **Design** section of the **Figured Bass** page of Engraving Options. In this section you will also find a comprehensive set of options for the design, size and positioning of the brackets.

*Tasto solo.* It is now possible to add a *tasto solo* indication, telling the continuo player that the following passage should be played without harmony, using the **Shift+G** popover: simply enter **tasto** or **ts** into the popover. The wording and case of the *tasto solo* indication is controlled by the new **Tasto solo appearance** option in the **Design** section of the **Figured Bass** page of Engraving Options. To change the font or size of the indication, edit the new **Figured bass taste solo** paragraph style in **Library ► Paragraph Styles**.

*MusicXML import.* When importing figured bass from MusicXML files, you can activate the new **Figured bass appearance** option on the **MusicXML Import** page of Preferences if you want to retain the precise appearances of figured bass as stated in the MusicXML file. By default, Dorico will use the default appearance options as specified in Engraving Options and default interpretation options as specified in Note Input Options to determine how the figured should be imported.

*MusicXML export.* Figured bass is now included when exporting MusicXML.

## Filters

*Quick filters.* New quick filters for **Repeat Markers** and **Repeat Endings** have been added to the **Edit ► Filter** submenu.

## Fingering

*Fingering shifts.* It is now possible to specify fingering shifts directly in the **Shift+F** popover by appending / after the finger number; for example, **3/**.

## Grace notes

*Converting to and from rhythmic notes.* It is now possible to convert the selected notes to and from grace notes by clicking the grace note button in the Notes toolbox when the caret is not visible. This is particularly useful when editing music that was input using real-time recording, or was automatically transcribed from a MIDI file.

To convert one or more selected rhythmic notes into grace notes, simply type the key command / or click the grace note button in the Notes toolbox. To choose between slashed (acciaccatura) or unslashed (appoggiatura) grace notes, press and hold, or right-click, the grace note button to open a pop-up menu from which you can make the choice between the two types.

When converting rhythmic notes into grace notes, by default Dorico snaps slashed grace notes rightwards, so that they abut the next rhythmic position, and snaps unslashed grace notes leftwards, so that they precede the rhythmic position at which the first selected rhythmic note was previously located. If you want to change this behavior, you can adjust **Direction of rhythmic movement when converting to grace notes** on the **Note Input and Editing** page of Preferences.

To convert one or more selected grace notes into rhythmic notes, the procedure is the same: simply type / or click the grace note button in the Notes toolbox. The new rhythmic notes will begin at the primary rhythmic position the grace notes formerly preceded, overwriting the following notes. If you want to prevent the grace notes from overwriting the following notes, ensure Insert mode is active before you convert them.

## Harp pedaling

*Scale and color.* Harp pedal change items now respond to the **Scale**, **Custom scale** and **Color** properties in the **Common** group in the Properties panel.

## Hub

The Hub window has been redesigned for Dorico 4. It is now split into three pages, **Open Recent**, **Create New**, and **Learn**.

*Open Recent page.* Recently opened projects are listed in the reverse order in which you last opened them. Projects saved in Dorico 4 or Dorico for iPad show a thumbnail of the first page of the last layout that was shown when the project was open; projects last saved in an earlier version of Dorico, or files in other formats (such as MIDI or MusicXML) will not show a thumbnail. Click the menu button in the top right-hand corner of each project card to open a contextual menu from which you can choose to remove the project from the Hub or open the folder where the project is located.

*Create New page.* Template categories are listed on the left, and choosing one shows the templates in that category in the grid in the middle of the page. New options on the right-hand side allow you to make some initial choices about your project, including specifying the title, composer, music and text fonts, starting key and time signature, and (if specifying a time signature) an initial number of bars. **Project will use multiple flows** determines whether flow headings should be shown by default. All these initial decisions can of course be changed later.

*Learn page.* In addition to showing the latest videos from the Dorico YouTube channel and the latest posts from the Dorico blog, the **Learn** page also includes a set of hands-on tutorials that are designed to introduce important note input and editing concepts to new users.

## Instrument changes

*Instrument change labels.* If the **Instrument change** paragraph style is set to use a border, instrument change labels are now shown with a border.

## Instrument types

*Sketch instruments.* A new **Sketch** family of instruments has been added, containing generic treble, bass and grand staff instruments, and grand staff instruments for woodwind, brass and strings.

These can be useful when importing MIDI data from your DAW or sequencer if the original project uses sectional sounds on a single track, since a grand staff sketch instrument is easier to read than a single staff with notes on many ledger lines either above or below.

They can also be useful when building up an arrangement from scratch in Dorico, using a section sound while experimenting with texture, before splitting the music out onto individual instruments in the family.

## Key signatures

*Lead sheet style.* A new option **Key signatures at start of systems following first system** has been added to a new **Key Signatures** page in Notation Options, allowing you to hide key signatures on systems following the first. This is a convention sometimes followed in hand-copied lead sheets, and a corresponding option has been added for clefs.

*Filter for accidentals.* The **Edit Tonality System** dialog now contains a field into which you can type to filter accidentals, helpful in tonality systems with many accidentals defined.

## Layouts

*Duplicate Layout.* It is now possible to duplicate an existing layout in your project, making an exact copy that retains all the edits you have made, including adjustments to Layout Options, page templates, flow headings, properties, clef and transposition overrides, vertical spacing adjustments, note spacing adjustments, lyric vertical position adjustments, custom staff sizes, graphics frames, and so on.

To duplicate a layout, select it in the Layouts panel in Setup mode, then either right-click and choose **Duplicate Layout** from the context menu, or choose **Setup ► Duplicate Layout**.

*Propagate Part Formatting.* The layout options related to page numbers are now propagated to part layouts when using **Propagate Part Formatting**.

*Sorting layouts.* It is now possible to sort layouts either according to their layout number (which can be edited by expanding each layout's card) or by following the instrument score order. Click and hold, or right-click, the **Sort Layouts** button in the action bar at the bottom of the Layouts panel in Setup mode to choose whether to sort by **Layout Number** or **Instrument Score Order**.

*Counterpart Layout.* **Window ► Counterpart Layout** now works correctly with a rest selected, as well as with a note or other type of item. Relatedly, it is now possible to use **Window ► Counterpart Layout** to switch back from a part layout to the full score layout with nothing selected. (The converse is not possible, as without any selection, Dorico cannot determine which part layout to switch to.)

## Lyrics

*Lyric hyphens at the start of the system.* When a word is split into multiple syllables across a system break, with a new syllable on the note at the start of the new system, some publishers will show a hyphen both at the end of the preceding system and at the start of the new one, while others will show a hyphen only at the end of the preceding system. This latter convention is now possible to achieve in Dorico by setting the new **Lyric hyphens before the first note of the system** option on the **Lyrics** page of Engraving Options to **Do not show**.

*Retain properties when edited.* When editing existing lyrics, any properties set on those lyrics are now preserved.

*Nudging lyric lines.* It is now possible to adjust lyric baselines by a tiny amount in Engrave mode using **Ctrl+Shift+Alt+↑/↓**.

## Multi-bar rests

*Hidden time signatures.* Hidden time signatures no longer cause multi-bar rests to be split.

*Horizontal position of H-bars.* Additional control over the width and position of H-bar symbols used for multi-bar rests has been added.

Two new options, **Items before barline at the end of multi-bar rest** and **Items after barline at the start of multi-bar rest**, have been added to the **Rests** page of Engraving Options, allowing you to specify whether items that appear to the left (such as clefs) or right (such as time and key signatures) of barlines should be considered when determining the position of H-bars. By default, both options are set to **Consider width of items**, but if you would prefer H-bars to always be centered between barlines regardless of the widths of any intruding items, choose **Ignore width of items**.

Furthermore, you can also now adjust the horizontal position of a selected H-bar using the new **H-bar X offset** property in the **Multi-bar Rests** group in the Properties panel.

## Music fonts

*Music symbol substitution.* When using a music font other than Bravura, any symbols that are required by the music but not provided by the chosen font will now automatically be drawn using Bravura. If you want to specify a different fallback music font, you can do so by adding a font to the new **Substitutions** list for the relevant font style in **Library ► Music Fonts**.



*User interface improvements.* The list of fonts in **Library ▶ Music Fonts** is now sorted alphabetically. It is now possible to confirm the choice in the **Music Fonts** dialog by double-clicking an entry in the list.

## MusicXML export

*Partial beams.* Partial beams are now correctly exported to MusicXML.

## MusicXML import

*Clefs.* The “none” clef type in MusicXML files is now interpreted as a treble G clef, as recommended.

*Tablature import.* When importing MusicXML files containing staff notation and tablature written as separate parts, Dorico will try to determine whether the two parts are separate representations of the same music and should be interpreted as a single instrument showing both staff notation and tablature. You can control whether and how Dorico does this by changing the new **When notation and tablature are both encoded as separate parts** option in the **Advanced Options** section at the bottom of the **MusicXML Import** page of Preferences.

## Notation Options

*Note grouping in irregular meter.* New **When splitting notes at beat subdivisions** option in the **Time signatures with irregular meter** section of the **Note Grouping** page of Notation Options, allowing you to specify whether Dorico should split notes at all subdivisions or only at subdivisions of different length.

## Note input

*Notes toolbox.* The Notes toolbox in the left zone in Write mode includes several new buttons. Several buttons – including those for Insert mode, adding or cycling through voices, specifying rhythm dots, grace notes, and tuplets – now show a menu if you click and hold the button for a moment.



**Start Note Input.** Click this to show or hide the caret; equivalent to typing **Shift+N**. If there is no selection, Dorico will show the caret at the start of the bar closest to the top left corner of the current view.



**Insert for current voice.** Equivalent to having Insert mode active in earlier versions of Dorico: adds or removes time from the selected voice, or the voice set in the caret. This button can be held down to show a menu allowing you to choose a different Insert mode scope.



**Insert for current instrument.** Adds or removes time from all voices in the selected instrument, and also includes items that are not in a particular voice but are instead attached to the staff, such as dynamics and lyrics.



**Insert for all instruments.** Adds or removes time from all instruments in the ensemble. This shifts music forwards and backwards while retaining the existing time signatures.



**Insert for all instruments and extend current bar.** Adds or removes time from all instruments in the ensemble, but also increases or decreases the duration of the current bar.



**Add new voice.** Primes the caret to start inputting in a new voice; equivalent to typing **Shift+V**. This button can be held down to show a menu allowing you to choose between adding a new slash voice, or cycling between the currently active voices (equivalent to typing **V** on its own, without **Shift**).

The changes to the Notes toolbox are intended to make more of Dorico's note input tools more readily available using the mouse.

*Notations toolbox.* The Notations toolbox in the right zone in Write mode has been revamped, and it now contains a pair of buttons at the top of the toolbox that allow you to switch between showing panels and opening popovers:



**Panels**

**Popovers**

When **Panels** is active, clicking a button will show or hide the relevant panel in the right zone; when **Popovers** is active, clicking a button will open the relevant popover. The buttons shown in the toolbox differ, since not all panels have an equivalent popover, and vice versa.

*Starting note input.* You can now start note input and real-time recording without first making a selection: choosing **Write ► Note Input** (shortcut **Shift+N**) or **Play ► Record** (shortcut **Ctrl+R** on Windows, **Command-R** on Mac) will now show the caret on or start recording in the first visible bar in the first visible staff in the current view.

*Changing the voice of existing notes.* It has always been possible to change the voice of existing notes using the commands in the **Edit ► Notations ► Voices** submenu, but Dorico 4 introduces an additional, very natural method to do this, using the same key commands that are used during step-time input: **V** to cycle between the voices already present on the staff, or **Shift+V** to move the notes to a new voice.

## Note spacing

*Minimum gap after rhythm dot.* A new **Gap after last rhythm dot** option has been added to the **Rhythm Dots** section of the **Notes** page of Engraving Options, which defines the amount of space Dorico should enforce following the rightmost column

of rhythm dots, so that in tightly-spaced music it is no longer possible for the leftmost note at the next rhythmic position to appear closer to the rhythm dot to its left than that rhythm dot appears to the note to its left to which it actually belongs. In existing projects, this option has a value of 0 spaces, to avoid changing the appearance of those projects; the default in new projects is half a space.

## Percussion

*Rests.* It is now possible to edit rests in music written for percussion kits when displayed using the five-line staff and grid presentation types. As far as is possible, rests now behave the same way in percussion kits as they do in pitched instruments. It is possible to change the vertical position of rests in the staff using the **Rest pos.** property, it is possible to hide them using **Edit ► Remove Rests**, and you can also manually hide and show them using the **Starts voice** and **Ends voice** properties.

Be aware that if you save a project in Dorico 4 that makes use of these new capabilities for editing rests, those edits will not be predictably preserved if the project is opened in Dorico 3.5 or an earlier version.

*Inputting tuplets.* The handling of tuplets during note input onto percussion kits has been thoroughly overhauled, and now feels much more natural. Whenever you create a tuplet in an unpitched percussion kit, the tuplet is added to all of the kit components that share the same notated voice in the kit presentation type, so that any notes you subsequently add to other instruments in the kit in the range of the tuplet will be correctly notated.


*Removing instruments from kits.* A new command, **Remove All Instruments From Kit**, has been added to the instrument context menu, accessed from an expanded player card. This command removes all instruments from the kit, leaving the kit empty, and showing each instrument that was previously included in the kit as an individual instrument assigned to the player.

## Playback

*Project activation.* When working with multiple projects at the same time, only one project can be active for playback. In previous versions, Dorico has always activated a project when one of its windows becomes active, and depending on the playback template in use, you may experience a delay of multiple seconds (or longer, in the case of very large and complex playback templates) before you can work in the newly activated project.

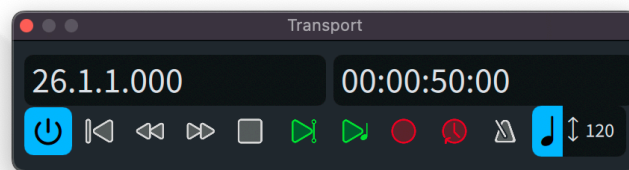
In Dorico 4, however, the default behavior is now different: the first project you open is automatically activated for playback, as before, but if you open a second

project without closing the first, a dialog will appear asking you whether you want to activate this project, deactivating the first.

If you choose not to activate the new project, then you will not be able to play back in that project until you manually activate it by clicking the  button on the toolbar.

On the **Play** page of Preferences, you will find two new options that control the project activation behavior when opening projects.

*Transport window.* The Transport window has been redesigned to share the same look and feel as the mini Transport in the toolbar.



The Transport window now includes the **Activate Project** button, and it is now possible to change the tempo value in fixed tempo mode in the Transport window (previously this was only possible using the mini Transport in the toolbar).

*Viewing items suppressed in playback.* A new option, **View ► Note and Rest Colors ► Suppressed Playback**, has been added, which when activated causes any items that have been muted by way of the **Suppress playback** property to be shown in gray, so that they are easier to spot. This option is switched on by default.

*Rhythmic feel.* Notes that have manual offsets applied to their duration (in other words, affecting their end position) can now have swing rhythmic feels applied, if appropriate.

*Metronome click.* The default metronome click in new projects is now **Click**, rather than **Beep**. You can change this on the **Click** page of Playback Options.

*Ghost notes.* A new option **Bracketed noteheads (ghost notes) for unpitched percussion** has been added to the **Dynamics** page of Playback Options. This allows you to specify the amount of reduction in dynamic level that arises from a ghost note. This can also be overridden in the **Playback Options Overrides** section of the Expression Maps dialog if needed. The reduction is expressed in terms of steps in dynamic level; **1.0** is the difference between, say, *f* and *ff*.

*Repeats playback.* If Dorico detects during project loading that the repeat structure is malformed and will lead to infinite repeats, it automatically switches off the **Play repeats** option on the **Repeats** page of Playback Options.

*Play button behavior.* A new preference has been added to the **Play** page of Preferences that determines whether the Play button in the mini transport on the toolbar plays from the playhead position (the default behavior) or from the selection.

## Playback templates

*Moving projects between iPad and Mac or Windows.* If you edit the same project in Dorico for iPad and in Dorico 4 for Mac or Windows, the playback configuration for each platform will now be preserved, so that changes you make to sounds and effects on one platform will not cause the saved configuration for the other platform to be lost.

*Warning about missing playback templates.* The warning that appears when opening a project that uses a playback template that is not present on your computer can now be suppressed so it no longer appears.

## Playing techniques

*Pedal lines.* All the commands in the **Edit ► Notations ► Pedal Lines** submenu that make sense to be able to operate at multiple rhythmic positions within the span of a pedal line – such as adding or removing retakes, or changing to a different pedal level – now take effect at all selected rhythmic positions if multiple notes are selected within the length of the pedal line. If the caret is visible, then the edit will take effect at the location of the caret instead.

*Popover input.* It is no longer necessary to hit **Return** twice to confirm input of the **Shift+P** popover. Furthermore, when creating a playing technique with an existing playing technique selected (for example, by hitting **Return** and editing it in the popover), the original playing technique is now replaced, rather than a new playing technique appearing in addition to the original one.

*Hiding empty staves.* Hidden playing techniques no longer cause staves that would otherwise be allowed to be hidden as empty staves to appear.

## Print mode

*Transposition warning.* When determining whether you should be warned that the part layout about to be printed is in concert rather than transposing pitch, Dorico now considers whether the layout contains any transposing instruments, and will only show the warning in the event that it does (so, for example, a part layout containing a piano set to concert pitch will no longer trigger the warning to appear).

## Slurs

*Collision avoidance.* The property formerly called **Disable auto curve adjustment** is now called **Avoid collisions**, and can be set to force Dorico to adjust the curve of the slur to avoid collisions with items under its arc as well as to disable collision avoidance.

## Staff labels

*Player group labels.* Dorico can now display labels in the left margin corresponding to player groups as defined in the Players panel in Setup mode. For example, you may wish to identify two separate mixed voice choirs as “Choir 1” and “Choir 2” in your ensemble, or identify an off-stage group of performers, or perhaps identify groups that can play the same music in a piece written for a flexible ensemble. Player group labels are rotated through 90 degrees, and are written vertically up the page, positioned to the left of staff labels for individual instruments.

In new projects created in Dorico 4, player group labels will appear by default as soon as you create a player group in the Players panel, but in existing projects they do not appear by default to avoid changing the appearance of those projects. To show player group labels in your layout, activate the new **Show player group names** option in the **Staff Labels** section of the **Staves and Systems** page of Layout Options.

To control the font, style and size of player group labels, you can edit the new **Player Group Labels** paragraph style in **Library ► Paragraph Styles**. By default, player group labels are drawn centered on a vertical bracket that spans the staves belonging to the instruments included in the group; if you prefer not to show a bracket, or to show the group label inside the bracket rather than centered on the bracket, you can adjust the options in the new **Player Group Labels** section of the **Staff Labels** page of Engraving Options.

If there is insufficient room to show the full group name, Dorico will show the group's short name instead. To edit the full and short names for a player group, select the group (rather than any of the players contained within) in the Players panel in Setup mode, right-click, and choose **Rename Player Group** from the context menu.

*Using player names as staff labels.* It is sometimes required that the staff label in the margin should reflect the player's name and number, rather than the names and numbers of the instruments held by that player; for example, in the case of percussionists with multiple instruments, it may be preferable for the staff label to

appear simply as “Percussion 2” rather than listing all of the instruments played by that player.

To accommodate this, a new section, **Show player name instead of instrument names**, has been added to the **Staves and Systems** page of Layout Options, allowing you to specify which players in the layout should use their name as their staff label.

Players can now therefore have different full and short names. To edit a player's names, right-click the player in the Players panel in Setup mode and choose **Rename Player**, which shows a simple dialog in which you can specify the full and short names for the player.

*Instrument name language.* A new option **Default language for instrument names** has been added to the **General** page of Preferences, allowing you to specify the language that should be used for instrument names in new projects. This sets the **Instrument names language** option on the **Language** page of Engraving Options.

When you change the language used for instrument names in Engraving Options, the existing instrument names in the project are now automatically updated. If you don't want to change the names in your project, deactivate **Reset instrument names when changing language** on the **Language** page.

Furthermore, Dorico is now much more consistent in the way it handles instrument name languages: the instrument picker in Setup mode now always follows the language chosen for the user interface of the application (either your operating system's language, or the language explicitly chosen on the **General** page of Preferences); default player and layout names shown in Setup mode always follow the **Instrument names language** defined in Engraving Options; and staff labels likewise follow the **Instrument names language** option, including using this language for the note names used to describe instrument transpositions.

To better handle instrument transpositions in languages other than English, new options have been added to the **Language** page of Engraving Options, allowing you to specify the case for note names, the approach to be taken for accidentals in German, and whether the note C should be described as “Do” or “Ut” in French.

*Instrument transposition in staff labels.* Greater flexibility for how the transposition of an instrument appears as part of its staff label has been introduced, thanks to new options on the **Staves and Systems** page of Layout Options. In addition to the existing **Position of instrument pitch in full staff labels** option, that allows you to choose between “B♭ Clarinet 1” (**Start**) or “Clarinet in B♭ 1” (**End**), three further new options have been added:



Show on separate line	Clarinet 1 Bb
Show in parentheses	Clarinet (Bb) 1
Show instrument number before transposition	Clarinet 1 in Bb

These options can be combined in various ways, and it should now be possible to achieve any of the standard conventions for formatting instrument transpositions.

The `{@staffLabelsFull@}` token has also been updated to take the state of these options into account, and produce a similar result to the current Layout Options.

*Stacking player numbers for condensed staves.* If the option **Player numbers for condensed players** on the **Staff Labels** page of Engraving Options is set to **Stack horizontally**, the option **When stacking player numbers for condensed players vertically** no longer unexpectedly takes effect, i.e. the option to **Ignore stem allocation** no longer causes the player numbers to be stacked vertically.

Furthermore, adjacent section players can now use vertically stacked labels if desired.

*Grouping for adjacent section players.* A new **Staff labels for identical adjacent instruments held by section players** option has been added to the **Staff Labels** page of Engraving Options. Choose **Group between staves** to show a single instrument name between the staves, and the individual player numbers on each staff.

*Vertical position for grouped solo instruments.* In some jazz and big band scores, it is customary to show the full instrument name only on the staff corresponding to the first chair for that instrument. For example, Trumpet 1 would show both the instrument name and its number, while Trumpet 2 would show only its number.

This convention is now easily achieved in Dorico, first by setting **Staff labels for identical adjacent instruments held by single players** to **Group between staves**, and then setting the new **Position of instrument names for grouped staff labels** to **Align instrument name with first staff**. These options are both found on the **Staff Labels** page of Engraving Options.

## Tacets

*Paragraph style.* In previous versions of Dorico, the **Tacets** page of Engraving Options contained options related entirely to the appearance of the *tacet* indication that is shown: whether it should have a border; the thickness of the border; and the padding to the left or right of the text within the border.

Since all these properties are also part of the **Tacet** paragraph style used to determine the font, style and size of the text, Dorico 4 now uses the properties for border, thickness and padding defined in the **Tacet** paragraph style, allowing greater flexibility (particularly for padding), and the **Tacet** page of Engraving Options has now been removed.

When opening an existing project created in an earlier version of Dorico, the values that were previously defined on the **Tacets** page of Engraving Options are used to modify the **Tacet** paragraph style, so that the appearance of your existing project is maintained as far as possible.

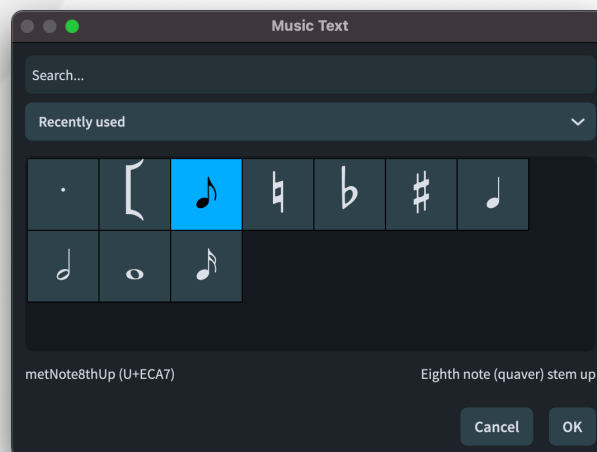
## Tempo

*Metronome mark order.* A new option **Order of metronome mark relative to tempo instruction** has been added to the Tempo page of Engraving Options, allowing you to specify that the metronome mark should appear **Before tempo instruction** by default, as it is preferred by some publishers.

You can also override this on a per-item basis using the new **Metronome mark order** property in the **Tempo** group in the Properties panel.

## Text

*Adding music symbols.* To make it quicker and easier to add musical symbols both to **Shift+X** text items and to text frames, a new **Insert Music Symbol** dialog has been added, accessible from the right-click context menu when editing text:



By default, the dialog shows a handful of useful characters, but it also remembers each symbol you choose and shows this selection of **Recently used** characters when

the dialog opens. These choices are remembered between sessions, so if you habitually need the same symbols in multiple projects, they will always be available by default.

You can otherwise search for a symbol by name, using its SMuFL name, or you can browse through the symbols by SMuFL range, choosing the desired range from the drop-down menu.

Once you have found the symbol you want to insert, simply select it and click **OK** or hit **Return** to confirm the dialog.

*Selection after editing.* When you finish editing a text item after you have either created or edited it, the text item will now remain selected.

## Ties

*Tie end and middle thickness.* It is now possible to override the thickness of the ends and middles of individual ties via the Properties panel.

## Localization

*Date and time formatting.* When using tokens that show the current date or time, or using the option to print the current date and time as an annotation, Dorico can now show the date and time in the correct localized format. A new option **Date and time tokens language** has been added to the **Language** page of Engraving Options to determine which language will be used. If you are running Dorico in a language other than English, this will be set automatically to the language in which you are running Dorico when starting a new project.

*Changing application language.* When you choose a new application language on the **General** page of Preferences, it is no longer necessary to quit and restart Dorico for the change of language to take effect.

## User interface

*Library menu.* A new **Library** menu has been added, available from all modes. This new menu includes all five of the main options dialogs, in addition to the new Library Manager dialog. It also contains all the dialogs that edit library items in your project, in other words those items whose appearance you can customize.

The new menu draws together items that were previously found in other menus (most often the **Engrave** menu), as follows:

<i>Menu item</i>	<i>Previous menu</i>
Music Fonts...	Engrave
Font Styles...	Engrave

<i>Menu item</i>	<i>Previous menu</i>
Paragraph Styles...	Engrave
Character Styles...	Engrave
Chord Diagrams...	Engrave
Chord Symbols...	<i>Not applicable</i>
Music Symbols...	Engrave
Notehead Sets...	Engrave
Playing Techniques...	Engrave
Lines...	Engrave
Line Bodies...	Engrave
Line Annotations...	Engrave
Repeatable Symbols...	Engrave
Expression Maps...	Play
Percussion Maps...	Play
Playback Techniques...	Play
Engraving Options...	Engrave
Layout Options...	Setup
Notation Options...	Write
Note Input Options...	Write
Playback Options...	Play
Library Manager...	<i>New in Dorico 4</i>

**Context menu.** The menu that appears when you right-click (Windows) or **Control**-click (Mac) has been improved, and now changes its contents based on the selected items, so it is truly now a context menu. All the items in the context menu can be found in the main menu bar, mostly in the **Edit** menu. Many of the notation-specific submenus in the **Edit** menu have now been moved into a new **Notations** submenu to reduce the overall length of the top-level **Edit** menu.

**Keyboard access.** It is now possible to choose between different options shown as buttons with music examples on them in the various multi-page options dialogs, such as Engraving Options and Notation Options. It is now possible to move the focus to these sets of buttons with **Tab** or **Shift+Tab**, then use **←/→** to toggle the buttons in the group. On macOS, this requires **Use keyboard navigation to move focus between controls** to be activated in the **Shortcuts** tab of the **Keyboard** pane of System Preferences.

**Tab bar.** A new preference has been added to the **View** section of the **General** page of Preferences, controlling whether the tab bar should appear by default in new projects, switched off by default.

*Hand tool.* When the hand tool is active, you can now trigger a marquee selection using only the mouse by clicking and holding the mouse pointer for a moment; when you see an animated rectangle appear for a moment, dragging will now create a marquee rather than dragging the score as it normally would.

*Switching mode and view.* When switching between page view and galley view, or when switching between Write mode in galley view and Engrave mode in page view, Dorico now does a much better job of keeping the selected items in view. If there is nothing selected, Dorico will try to keep the bar that was closest to the center of the view in view after changing view type.

Dorico also now retains information about the view type (galley or page view), zoom level, and which page or bar was in view when you switch between different layouts within the same tab, or when the tab bar is not shown at all.

Furthermore, a new **Center Selection** command has been added, which can be assigned to a keyboard shortcut via the **Key Commands** page of Preferences and which allows you to bring the selection into view. This can be useful not only after switching view, but also simply after having scrolled to a different part of the current layout.

In addition, a new **Toggle View Type** command has been added, which switches back and forth between galley view and page view. You can assign a keyboard shortcut to this if you wish, on the **Key Commands** page of Preferences.

*Switching between windows or tabs.* If you have opened multiple windows on the same project, or if you have multiple tabs open within the same window, when you switch from one window or tab to another, if you have one or more items selected, you may want to bring the selection into view automatically: to do this, activate the new **When switching tab or window, bring selection into view** option in the **View** section of the **General** page of Preferences.

*Overscroll.* When you scroll through the pages of your layout, Dorico does not permit you to drag very far beyond the first or last page of the layout. Some users have found this frustrating, as they want to be able to position, say, the top left-hand corner of the first page in the center of their workspace, but Dorico does not allow this much overscroll.

To address this, a new **Overscroll amount** option has been added to the **View** section of the **General** page of Preferences, allowing you to configure the amount of overscroll that Dorico will allow when scrolling off the start or end of the layout. By default, this is set to **Small**; if you set it to **Large**, you can drag the pages almost

completely out of view, while **Medium** is, as you might expect, somewhere between the other two.

*Taskbar buttons on Windows.* The buttons for Dorico project windows, dialogs, and the VST audio engine are now all grouped together on Windows; previously, the audio engine buttons (for plug-in windows, for example) were grouped separately.

*Application icon.* For the first time since its initial release in 2016, Dorico 4 now sports a new application icon, part of a new unified set of application icons for Steinberg software products.

*Options dialogs.* The buttons in each of the five main options dialogs for saving defaults, removing saved defaults, resetting to the saved defaults and resetting to the factory defaults have been reworked so that it is no longer necessary to hold a modifier key to access all of their functions.

In the Layout Options dialog, the menu in the bottom left-hand corner of the dialog for specifying the layout type to which the options to save and restore defaults should apply has been removed. Dorico now determines which layout type the save or restore defaults operation should apply to automatically, based on the layouts selected in the **Layouts** panel on the right-hand side of the dialog.

*Preferences dialog.* A new **Reset to Factory** button has been added to the Preferences dialog, allowing you to restore the factory defaults for application preferences if necessary.

On the **Play** page, the options for enabling and disabling MIDI input devices and determining the default quantization settings for real-time recording are now embedded directly in the Preferences dialog, instead of requiring you to open subsidiary dialogs.

*Missing Fonts dialog.* The **Missing Fonts** dialog, which can appear when opening a project, has been improved such that the widths of the columns in the table in the dialog can be resized, and the chosen sizes will be saved and recalled in future.

*Endpoint Setup dialog.* The **Endpoint Setup** dialog, which allows you to specify the expression and percussion maps assigned to each channel in your playback devices, has similarly been improved such that the widths of the columns in the table in the dialog can be resized, and the chosen sizes will be saved and recalled in future.

*Transpose dialog.* It is no longer possible to choose an interval of diminished unison in the **Write ► Transpose** dialog; instead, to transpose from (say) C to C flat, you transpose down by an augmented unison.

*Percussion Maps dialog.* If you have unsaved changes to one or more percussion maps, hitting **Esc** will now show a prompt giving you the chance to confirm that you want to discard your changes and close the **Percussion Maps** dialog, rather than closing the dialog right away.

*Underline access key shortcut.* The underline access key shortcut for the **Write** menu has been changed from **Alt+I** to **Alt+R** (Windows only).

*Renaming projects.* If you rename a project in the Finder while it is open in Dorico, the project's name will automatically be updated in Dorico, so that subsequent save operations continue to update the current project, rather than unexpectedly causing it to be saved again under its old name (Mac only).

*Project thumbnails.* When you save your project, Dorico now saves two preview images inside the project, based on the layout that is active at the time the project is saved. One thumbnail consists of a PNG graphic of the first page of the project, and is displayed in the **Open Recent** page of the Hub, while the other consists of a PDF graphic of the entire layout, and is not currently displayed anywhere, but it is planned to be used in the future to allow for Quick Look support on macOS.

Although it normally adds only a negligible amount of time to the save operation, and increases the file size of the project by a similarly modest amount, you may find that in very large and complex projects, saving thumbnails imposes a performance penalty that you want to avoid. In such cases, you can deactivate the **Generate preview thumbnails when saving** checkbox in **File ► Project Info**.

Regardless of the state of this checkbox, Dorico does not save thumbnails when auto-saving: only when you explicitly invoke the **Save** or **Save As** command.

## Installation

*Improved installation process.* It is recommended to use Steinberg Download Assistant to download and install Dorico 4. When you run Steinberg Download Assistant you will be prompted to sign in with your Steinberg ID. You should then click **Enter your Download Access Code** in the top left-hand corner of the Steinberg Download Assistant window, and enter the code that you received from the Steinberg online shop or on the license redemption card in your Dorico 4 package.

Click **My Products** in the left-hand panel, where you should see the appropriate Dorico 4 product listed. Click its icon to select this product. Finally, on the right-hand side, you should see a button **Install All** at the top of the list of application components. Click this, and all the required components will be downloaded and installed with no further intervention.



When you first run Dorico 4, Steinberg Activation Manager will be launched automatically to activate your license. You may be prompted to sign in with your Steinberg ID to complete the activation process.

## System requirements

*Minimum supported operating system versions.* On macOS, Dorico now requires Mac OS X 10.14 Mojave or later. Dorico 4 cannot even be installed on earlier versions of macOS. Dorico 4 is supported on Mac OS X 10.14 Mojave, Mac OS X 10.15 Catalina, macOS 11 Big Sur and macOS 12 Monterey.

On Windows, Dorico 4 is supported on 64-bit Windows 10 update 21H2 (or later), and 64-bit Windows 11 update 21H2 (or later).

## Dorico Elements

The feature set of Dorico Elements has been expanded in version 4, with the following changes over previous versions:

*Increased maximum player count.* You can now create projects with up to 24 players in Dorico Elements, making it possible to write for ensembles like big bands, medium-sized orchestras, and small concert and wind bands.

*Engrave mode with graphical editing.* You can now adjust the fine graphical placement of every item in your project with the inclusion of the graphical editing tool in Dorico Elements.

*Notation Options.* Dorico Elements now includes the Notation Options dialog (in the **Library** menu), providing access to all of the options for note, beam and rest grouping, accidental duration, and barline handling, which were previously only included in Dorico Pro.

*Project Language.* A new **Library ► Project Language** dialog allows you to change the language used for staff labels at any time in your project.

*Customizable chord symbols.* A new **Library ► Chord Symbols** dialog provides access to the options from the **Chord Symbols** page of Engraving Options in Dorico Pro, making it easy to choose from any of the provided presets or adjust individual aspects of chord symbols.

## Issues resolved

Component	Issue
<i>Accidentals</i>	Deleting a trill now correctly recalculates the accidentals for following notes in the bar.
<i>Accidentals</i>	Any text-based symbols added to the music symbols used for custom accidentals are now correctly imported when importing a tonality system.
<i>Accidentals</i>	In transposing layouts where the key signature has been simplified, modifying the accidental for a selected grace note could lead to the wrong accidental appearing; this has now been fixed.
<i>Accidentals</i>	If you create a key signature in a project using a user-defined tonality system that is present in your user library, Dorico now always ensures that the tonality system itself is added to the project.
<i>Audio export</i>	Dorico no longer incorrectly sends MIDI controller messages that are destined for channels that are not included when exporting audio for a particular layout.
<i>Audio export</i>	When exporting audio, Dorico now prepends the flow number before the name of the flow, so that identically named flows don't overwrite each other as they are exported.
<i>Auto-save</i>	Auto-save location is no longer incorrectly migrated when migrating settings from previous version.
<i>Auto-save</i>	Under some circumstances, the combination of a short auto-save interval and a very long-running operation could cause Dorico to hang indefinitely; this has now been fixed.
<i>Barlines</i>	Selecting multiple adjacent barlines and deleting them now works as expected.
<i>Barlines</i>	If a barline type other than the single barline is chosen as the default barline for the flow in Notation Options, selecting a default barline in the flow now shows the appropriate barline highlighted in the <b>Create Barline</b> section of the Bars and Barlines panel.
<i>Bar repeats</i>	Under some circumstances, the end handle for a bar repeat or numbered bar region could draw before the start handle when selected in Write mode; this has now been fixed.
<i>Beams</i>	Fixed the incorrect option images and descriptions for <b>Horizontal eighth note (quaver) beams within the staff</b> option for Ted Ross-style straddle-hang (but not sit) beams.
<i>Bracketing</i>	Under some circumstances, changing an instrument held by a player to one in a different instrument family could cause the bracketing to be calculated incorrectly; this has now been fixed.
<i>Bracketing</i>	A problem whereby the width of bracket line, rather than the distance of the bracket from the systemic barline, was being used to determine the additional width for the horizontal lines for sub-brackets set to reach the systemic barline has been fixed.

Component	Issue
<i>Bracketing</i>	It is now possible to create bracketing changes on condensed divisi staves.
<i>Bracketing</i>	Bracket and barline change signposts can now be selected when they are shown on a condensed staff.
<i>Chord diagrams</i>	Changing the <b>Show barre using slur</b> option on the <b>Chord Diagrams</b> page of Engraving Options now works as expected.
<i>Chord diagrams</i>	Chord diagrams saved by the user no longer prevent identical chord shapes from the default library from appearing at other positions up the neck.
<i>Chord diagrams</i>	Chord diagrams with explicitly excluded strings can now be transposed up the neck of the guitar as expected.
<i>Chord diagrams</i>	<b>Edit ► Reset Appearance</b> now works as expected on selected chord diagrams.
<i>Chord diagrams</i>	Under some circumstances, a barre slur shown in a chord diagram in the frame of used chord diagrams at the start of the flow could be drawn incorrectly; this has now been fixed.
<i>Chord diagrams</i>	Chord symbols shown above chord diagrams in the grid of used chords at the start of the flow now correctly take the complete height of the chord symbol into account, avoiding collisions.
<i>Chord diagrams</i>	Under some circumstances, Dorico could display multiple chord diagrams with the same appearance when cycling through diagrams, which would prevent further cycling; this has now been fixed.
<i>Chord symbols</i>	Saving multiple project default chord symbols no longer sometimes results in the font styles used by chord symbols being duplicated in the project.
<i>Chord symbols</i>	Copying and pasting a chord symbol with an overridden appearance no longer causes the pasted chord symbol not to draw.
<i>Chord symbols</i>	Under certain circumstances, editing the appearance of stacked alterations in the <b>Project Default Chord Symbol Appearance</b> dialog could overwrite the edited appearance of other, different stacked alterations; this has now been fixed.
<i>Chord symbols</i>	Local chord symbols now appear correctly if the <b>Position of chord symbols on grand staff instruments</b> engraving option is set to <b>Between staves</b> .
<i>Chord symbols</i>	Editing chord symbols to change the size and position of components within the chord symbol now works much more reliably.
<i>Chord symbols</i>	When removing time (via the <b>Shift+B</b> popover) from the middle of ongoing cues or chord symbol visibility regions, those regions are now correctly reduced by the corresponding amount.

Component	Issue
<i>Comments</i>	Under some circumstances, comments that had been created with a range of music selected would show a range of bar numbers where the ending bar number is before the starting bar number; this has now been fixed.
<i>Condensing</i>	Under rare circumstances, Dorico could crash when activating condensing in some specific situations involving beamed stemlet rests; this has now been fixed.
<i>Condensing</i>	Mid-bar system breaks in condensed staves no longer sometimes cause bar rests on condensed staves to be split incorrectly.
<i>Condensing</i>	In the unlikely event that a condensing group of section players contains more than 16 divisi sections, Dorico no longer crashes when enabling condensing.
<i>Condensing</i>	Under rare circumstances, condensing voices containing chords could crash; this has now been fixed.
<i>Condensing</i>	Under some circumstances, apparently equivalent slurs can limit the maximum condensing result, preventing music from being notated in unison or on a shared stem; this has now been fixed.
<i>Cues</i>	When splitting a flow in the middle of a cue, the cue will now be correctly split into two parts in the existing and new flows.
<i>Cues</i>	When importing a flow into a new project, cues in the imported flow are now retained.
<i>Cues</i>	When cueing material from a divisi section, Dorico now calculates the label to show for the cue from the prevailing divisi change, so it should be correct under more circumstances.
<i>Cues</i>	Stems are no longer slightly misaligned relative to noteheads in cues.
<i>Dynamics</i>	Immediate dynamics hidden by way of <b>Hide intensity marking</b> now show signposts in the correct rhythmic position, and can be correctly deleted by selecting the signpost and hitting <b>Delete</b> .
<i>Dynamics</i>	Deleting a dynamic from a group (e.g. the hairpin from the middle of <b>p&lt;f</b> ) now splits the group, so that subsequently adding further dynamics doesn't delete distant dynamics from the same group.
<i>Dynamics</i>	When hiding a dynamic in the middle of a dynamic group, the signpost now appears at the rhythmic position of the individual hidden dynamic, not at the position of the start of the overall group.
<i>Dynamics</i>	Under some circumstances, pasting dynamics to multiple instruments could result in the dynamics being pasted on the wrong staff; this has now been fixed.

Component	Issue
<i>Dynamics</i>	Dorico now always correctly adds a space between <i>poco</i> and <i>più</i> modifiers when added to a <b><i>mp</i></b> or <b><i>mf</i></b> dynamic.
<i>Dynamics</i>	The behavior of <b>Align Dynamics</b> has been improved when aligning dynamics above the staff.
<i>Dynamics</i>	When removing time via the <b>Shift+B</b> popover from the middle of an existing group of dynamics, Dorico now intelligently shortens or removes the appropriate dynamics.
<i>Engrave mode</i>	All items – including guitar bends, figured bass and lines – now show their handles in Engrave mode if <b>Engrave ▶ Show Handles ▶ Always</b> is active.
<i>Expression maps</i>	Changing the name of an existing expression map in <b>Expression Maps</b> no longer causes that expression map to be duplicated unexpectedly.
<i>Expression maps</i>	Options in the <b>Playback Options Overrides</b> section of the <b>Expression Maps</b> editor that can use floating point values now correctly save and restore values between 0 and 1.
<i>Expression maps</i>	The <b>Export Library</b> button in <b>Expression Maps</b> now works correctly if it is the very first thing you do in the dialog without first selecting an expression map.
<i>Figured bass</i>	Figured bass signposts on rests now update correctly when the note being using as the basis for their figures changes pitch.
<i>Figured bass</i>	Figures containing octave doublings no longer sometimes draw duplicate intervals if the bass note is modified.
<i>Figured bass</i>	Entering <b>s</b> (as equivalent to <b>#</b> for sharp) followed by one or more numbers into the <b>Shift+G</b> popover is now parsed correctly.
<i>Figured bass</i>	Under some circumstances, ongoing hold lines for figured bass could disappear following a system break; this has now been fixed.
<i>Figured bass</i>	Under some circumstances, dragging a figured bass resolution in Engrave mode would cause the line itself to become invisible during dragging; this has now been fixed.
<i>Figured bass</i>	Under some circumstances, hold lines crossing a system break could stop before the note at the correct rhythmic position; this has now been fixed.
<i>Figured bass</i>	Figured bass hold lines that continue after a suspension now draw correctly on the following system if that is where the suspension resolution appears.
<i>Figured bass</i>	Figured bass hold lines that continue through one figure and end at another now end at the correct position if the final figured bass is after a system break.

Component	Issue
<i>Figured bass</i>	Figured bass hold lines for a single figure are now positioned correctly in the event that another set of figures on the same system has more rows.
<i>Figured bass</i>	Figured bass hold lines now correctly draw through figures at the end of the line if they match the initial figure.
<i>Figured bass</i>	The <b>Draw line through figures at end</b> property now works correctly even for figures that are not adjacent.
<i>Figured bass</i>	Sharpened thirds in figured bass now follow the <b>Appearance of raised or lowered third</b> engraving option as expected when an additional seventh is included.
<i>Figured bass</i>	Dominant seventh chords are now correctly abbreviated as expected on staves with a different bass note.
<i>Figured bass</i>	If a figured bass suspension and resolution are separated by a system break, the resolution's figure can now be set independently of the initial suspension figure.
<i>Figured bass</i>	Resolution figures no longer appear in the wrong position if on a different system to the initial suspension figure.
<i>Figured bass</i>	The figured bass calculator no longer sometimes finds the wrong bass note in the presence of multiple voices with conflicting rhythms.
<i>Figured bass</i>	Figured bass signposts on rests now correctly update when the earlier note to which they relate changes pitch.
<i>Figured bass</i>	The <b>Draw line through figures at end</b> property now works as expected for lines that end at system breaks.
<i>Figured bass</i>	Figured bass containing octave doublings no longer sometimes draw duplicate intervals when the bass note is repitched.
<i>Fingering</i>	When inputting fingerings on a percussion kit, advancing the fingering popover through a triplet position could sometimes cause Dorico to crash; this has now been fixed.
<i>Fingerings</i>	Intra-staff fingerings no longer incorrectly appear in cues.
<i>Flow headings</i>	It is now possible to specify a much larger value for the top and bottom flow heading margins in the <b>Flow Heading Change</b> dialog.
<i>Flows</i>	When importing a flow into an existing project, additional instruments held by the player but not used in the incoming flow will now be correctly padded with rests.

Component	Issue
<i>Glissando lines</i>	Under some circumstances, making an unrelated edit like adding a slur could cause a cross-staff glissando line on another instrument to temporarily disappear in galley view; this has now been fixed.
<i>Glissandos</i>	Creating a glissando between non-consecutive notes no longer sometimes causes a rhythmic distortion between the note on which the glissando starts and the note immediately following.
<i>Glissandos</i>	Under some circumstances, a glissando line between a grace note and a rhythmic note would not appear correctly; this has now been fixed.
<i>Grace notes</i>	Grace notes immediately preceding a key signature change could sometimes show the wrong spelling in transposing layouts; this has now been fixed.
<i>Graphics export</i>	When exporting to SVG, dashes in octave lines could end up with the wrong size under some circumstances; this has now been fixed.
<i>Graphics export</i>	Colored text no longer incorrectly appears in grey in a PDF that was exported using the <b>Mono</b> option.
<i>Graphics export</i>	It is no longer necessary for a project to be activated for playback in order for the commands to export and print graphics from the current layout to be operational.
<i>Guitar tablature</i>	Vibrato bar dips now display the correct value above the dip for intervals other than a half-step (semitone).
<i>Guitar tablature</i>	In projects with many chords with more notes than the available number of strings in the instrument, Dorico could take so long to open the project that it would appear to have hung; this is now fixed.
<i>Guitar techniques</i>	Guitar techniques (hammer-on, pull-off, tapping, etc.) can now correctly be nudged by holding <b>Alt</b> and using the arrow keys when in Engrave mode.
<i>Harmonics</i>	When showing a harmonic as a notehead above the fundamental, if fundamental notehead has a specific accidental override, Dorico now uses the same accidental for the harmonic notehead.
<i>Harp pedaling</i>	When <b>Set local properties</b> is set to <b>Globally</b> , changes to the appearance of harp pedal changes now correctly apply to all layouts in which they appear.
<i>Key signatures</i>	Key signature cancellations that appear for instrument changes in transposition layouts are now always relative to the current key signature, and not sometimes the initial key signature at the start of the flow.
<i>Key signatures</i>	Custom tonality systems are now always correctly added to the project when you create a key signature using that tonality system.



Component	Issue
<i>Lines</i>	The effect of the <b>Repeat</b> options <b>Accelerating</b> and <b>Decelerating</b> has now been inverted.
<i>Lines</i>	Barline-attached horizontal lines now attach properly to start repeat barlines at the start of the system.
<i>Lines</i>	Dorico no longer incorrectly truncates the length of a line when pasting another line of the same type within the duration of the longer line.
<i>Lines</i>	It is no longer incorrectly possible to delete line body or repeatable symbol library items that are used by line items defined in the project library, which could previously lead to a crash.
<i>Localization</i>	When using a German keyboard layout, it was not always possible to type the curly brace characters needed for text tokens; this has now been fixed.
<i>Lyrics</i>	It is now possible to adjust the vertical position of lyrics in divisi sections.
<i>Lyrics</i>	Dorico no longer crashes if you attempt to vertically nudge lyrics if you inadvertently also have a beam selected.
<i>Lyrics</i>	Lyrics are now always nudged by the same distance as other items, regardless of the current staff size.
<i>Markers</i>	When nudging markers using <b>Alt</b> + <b>←/→</b> , the video start time offset (if any) is now correctly taken into account.
<i>MIDI export</i>	When Dorico exports MIDI, it now uses the active layout to determine which players and flows to export. Choose a layout that contains the instruments and flows you want to export before you export.
<i>MIDI import</i>	Quantization now correctly recognizes tuplets if they appear anywhere in the bar, not only in the first half of the bar.
<i>MIDI import</i>	When importing drum set tracks from MIDI files, Dorico can now resolve the tuplets to be used by up- and down-stem voices separately, leading to more legible results.
<i>Music symbols</i>	It is no longer incorrectly possible to delete the attachment between two components in a composite music symbol by selecting one of the components and typing <b>Delete</b> .
<i>Music symbols</i>	A problem with scaling music symbols that would cause custom noteheads to become misaligned from their stems and staff positions at different staff sizes has been fixed.
<i>MusicXML import</i>	Dorico no longer incorrectly shows a niente circle on a hairpin imported from MusicXML if the <b>wedge</b> element explicitly defines that a niente marking should not be shown.
<i>MusicXML import</i>	When importing hairpins from MusicXML files, Dorico now correctly respects the value of the <b>niente</b> attribute.

Component	Issue
<i>MusicXML import</i>	In projects created by opening a MusicXML file, part layouts you subsequently create after the initial import now work correctly.
<i>MusicXML import</i>	When importing MusicXML files that contain grand staff instruments with notes crossing between staves, it was sometimes impossible to navigate the caret onto one of the staves of the grand staff instrument; this has now been fixed.
<i>MusicXML import</i>	Text items attached to drum or percussion parts in MusicXML files are now imported more reliably.
<i>MusicXML import</i>	If notes or rests in a MusicXML file have zero duration, they no longer sometimes cause Dorico to crash when importing.
<i>MusicXML import</i>	When importing tablature for fretted instruments with more or fewer than six strings, the tablature would often end up with the wrong number of strings; this has now been fixed.
<i>MusicXML import</i>	When importing a MusicXML file that creates a custom tonality system, the custom tonality system now appears correctly chosen in the Key Signatures panel in Write mode.
<i>Note input</i>	When <b>Specify accidental, rhythm dot and articulations</b> is set to <b>After inputting note</b> , Dorico no longer incorrectly auditions the selected note instead of the shadow note in pitch before duration input.
<i>Note input</i>	Changing the duration of a chord where notes have different durations now works properly.
<i>Note input</i>	Changing the duration of a grace note no longer causes it to become deselected.
<i>Note input</i>	Under some circumstances, Dorico could hang when connecting or disconnecting a MIDI input device while the application is running; this has now been fixed.
<i>Note input</i>	When moving a note between instruments in a percussion kit using the five-line staff presentation type, tuplets are now always correctly created on each instrument to ensure the rhythm is preserved.
<i>Note input</i>	When you change the duration of a rest, it will now remain selected as expected.
<i>Note input</i>	The pitch before duration button in the Notes toolbox now correctly remains active if activated by clicking it with the mouse rather than using its key command.
<i>Note input</i>	Under some circumstances, it was possible to edit the duration of a note that crosses a barline in such a way that undoing the edit would not restore the original note grouping; this has now been fixed.
<i>Note input</i>	It is now possible to repitch notes on a pitched instrument even when it uses a percussion clef.

Component	Issue
<i>Note input</i>	<b>Edit ► Select More</b> now correctly advances directly from selecting the current bar to the whole flow in galley view.
<i>Note input</i>	Starting a new voice by adding a bar rest via the <b>Shift+B</b> popover now works as expected.
<i>Note input</i>	Dorico no longer resets the number of rhythm dots to zero when advancing the caret with <b>Space</b> when <b>Specify accidental, rhythm dot and articulations</b> is set to <b>After duration</b> .
<i>Note input</i>	When the option to set rhythm dot, accidental and articulations after the note has been created is set, double-clicking a dotted note no longer advances the caret to the end of the note.
<i>Note input</i>	Selecting an implicit rest in a tuplet on a percussion kit now selects the appropriate duration in the Notes panel in Write mode.
<i>Note spacing</i>	Changing the <b>Voice column X offset</b> property for a note will now correctly immediately update the horizontal position of any playing technique at the same position.
<i>Note spacing</i>	Moving a bracketed note using the <b>Voice column X</b> property now updates the position of the parentheses right away.
<i>Note spacing</i>	Changes to stem direction for cross-staff notes that cause the beam to be positioned above a different staff now correctly always cause the note spacing to be updated.
<i>Note spacing</i>	Under some circumstances, note spacing could behave unstably in projects with multiple note spacing changes; this has now been fixed.
<i>Note spacing</i>	Items on staves hidden via the <b>Manual Staff Visibility</b> dialog no longer sometimes incorrectly affect rhythmic spacing on the visible staves.
<i>Octave lines</i>	Octave lines that start and end on grace notes now both draw and take effect correctly on the notes under their span.
<i>Octave lines</i>	Changing the scale factor for the music symbols at the start of octave lines in <b>Library ► Music Symbols</b> now works correctly.
<i>Page layout</i>	When using <b>Make Into System/Frame</b> or <b>Lock System/Frame</b> , Dorico now correctly preserves the <b>Wait for next system/frame break</b> properties of any existing breaks at affected positions.
<i>Page layout</i>	If you lock the format of a system, frame or layout, the <b>Staff label</b> property for any existing break that is affected by the operation is no longer incorrectly reset.
<i>Page layout</i>	Under some circumstances, all the staves belonging to instruments held by a player could become hidden incorrectly, causing the system to simply not appear in the layout; this has now been fixed.

Component	Issue
<i>Page layout</i>	The <b>Manual Staff Visibility</b> dialog now shows more appropriate names for condensed divisi staves.
<i>Page layout</i>	Hiding of empty staves now always works correctly for instruments that are set to show chord symbols in slash and chord symbol regions, even if <b>Allow individual staves of grand staff instruments to be hidden</b> is switched on.
<i>Page layout</i>	When fixing the number of bars per system using the <b>Casting Off</b> options on the <b>Staves and Systems</b> page of Layout Options, pick-up (upbeat) bars are now handled correctly.
<i>Page layout</i>	Choosing <b>Engrave ► Staff Spacing ► Reset Selected Frame</b> with no selection will no longer incorrectly reset the staff spacing for the whole layout.
<i>Pedal lines</i>	If the <b>Dashed segments</b> property for a pedal line is set to <b>End Segment</b> , Dorico now correctly only draws the very final segment dashed, rather than incorrectly drawing the final segment on each system in which the pedal line appears dashed.
<i>Pedal lines</i>	Dorico now correctly respects changes made to scale and color in <b>Library ► Music Symbols</b> for symbols used in pedal lines.
<i>Percussion</i>	When exporting a percussion kit, any notehead types or other music symbols referenced by the kit are all now correctly exported.
<i>Percussion</i>	When copying and pasting pitched material to an unpitched percussion kit, any text items in the selection are no longer incorrectly duplicated to every instrument in the kit.
<i>Percussion</i>	If you have multiple windows open for a project and make changes in the Edit Percussion Kit dialog, such as removing an instrument from the kit, the dialog now always updates correctly.
<i>Percussion</i>	Editing or deleting an empty or hidden text item shown as a signpost on a percussion kit now works as expected.
<i>Percussion</i>	For some complex percussion maps with many instruments mapped, you would sometimes end up with two notes being input when playing a single key on your MIDI keyboard; this has now been fixed.
<i>Percussion</i>	Editing the name, playing techniques or notehead of instruments in a percussion kit after moving the instrument to a different staff position no longer causes the instrument to be moved back to its original staff position.
<i>Percussion legends</i>	Percussion legends are now positioned inside instrument change labels, if they occur at the same rhythmic position.
<i>Percussion maps</i>	Changing the name of an existing percussion map in <b>Percussion Maps</b> no longer causes that percussion map to be duplicated unexpectedly.

Component	Issue
<i>Percussion maps</i>	When opening the <b>Playing Technique Combinations</b> dialog from <b>Percussion Maps</b> , the initial choice in the <b>Playing Technique Combinations</b> dialog is now always correctly populated.
<i>Performance</i>	Adding the first note to an empty instrument in a long flow with many instruments is now much faster than before.
<i>Play mode</i>	If you deactivate a VST instrument in the VST Instruments panel in Play mode, its state is now correctly restored when reopening the project.
<i>Play mode</i>	Changing the selection no longer causes the state of the buttons for each instrument in the VST Instruments panel in Play mode to become reset.
<i>Play mode</i>	When opening a project and cleaning up empty voices, Dorico will not remove a voice if it has been routed to an endpoint and independent voice routing is enabled. This prevents voice assignments from being removed unexpectedly in the event that you have set up routing for e.g. divisi sections but have not yet written any notes written for one or more voices.
<i>Play mode</i>	Individual points added to the dynamics lane in Play mode now take effect in playback as expected.
<i>Playback</i>	The duration of the individual notes generated for unmeasured tremolo playback no longer incorrectly depends on the beat unit of the prevailing tempo.
<i>Playback</i>	Parenthesized noteheads are now only treated as ghost notes with reduced volume on playback on unpitched percussion instruments.
<i>Playback</i>	The metronome click now plays back correctly at the velocity level specified in <b>Playback Options</b> .
<i>Playback</i>	In some situations, projects with unmatched repeat barlines that would play back in an infinite loop could cause Dorico to crash when reopening them; this has now been fixed.
<i>Playback</i>	<b>Play ► Set Solo From Selection</b> no longer incorrectly takes effect if you invoke the command with no selection; previously this would incorrectly cause the metronome click to be soloed.
<i>Playback</i>	If a switch in an expression map is disabled, any <b>Transpose</b> value for that switch would nevertheless have been incorrectly applied during this playback; this has now been fixed.
<i>Playback</i>	Dorico will no longer play back silently if the chosen sample rate for the only available audio device is not available.
<i>Playback</i>	Dorico will no longer hang when playback moves from one flow to the next if something is selected an earlier flow.

Component	Issue
<i>Playback</i>	The WordBuilder feature in EastWest's Symphonic Choirs and Hollywood Choirs libraries now works correctly with Dorico's audio engine.
<i>Playback</i>	When Dorico generates playback for chord symbols, the generated chords now respect the standard note duration option on the <b>Timing</b> page of Playback Options.
<i>Playback</i>	When Dorico plays a two-note tremolo, it now ensures that they always consist of an even number of notes, so abutting two-note tremolos join smoothly.
<i>Playback</i>	Two-note tremolos no longer incorrectly cause the unmeasured tremolo playing technique to be triggered during playback.
<i>Playback templates</i>	When saving an endpoint configuration, custom playback techniques referenced by a percussion map necessary for the endpoint configuration are now correctly included.
<i>Playback templates</i>	When importing a playback template, Dorico now only imports user-defined library items, and does not overwrite factory library items, preventing unexpected side-effects like text fonts changing.
<i>Playback templates</i>	When exporting expression maps as part of an endpoint configuration, all playback techniques referenced by add-on switches are now correctly included in the exported file.
<i>Playing techniques</i>	Dorico no longer automatically adds a space at the end of a text-based playing technique when adding a <b>Suffix</b> via the Properties panel.
<i>Playing techniques</i>	When reverting an editing playing technique back to its default or factory appearance, controls on the <b>Continuation</b> tab of the <b>Edit Playing Technique</b> dialog are now correctly reset if necessary.
<i>Playing techniques</i>	When dragging one of the repeated symbols of a playing technique that uses the <b>Repeat the signs</b> continuation type in Engrave mode, the correct symbol is now always dragged.
<i>Properties</i>	When nothing is selected, the Common group in the Properties panel now always appears empty.
<i>Properties</i>	Deactivating the switch for a property in the Properties panel and then undoing to reactivate the property now restores the previous state in a single step.
<i>Rehearsal marks</i>	The calculation of the width of enclosed items, such as rehearsal marks, now correctly considers the thickness of the line used to draw the enclosure, fixing some collisions in tight situations.
<i>Rehearsal marks</i>	The whole line width for enclosures around items like rehearsal marks and boxed text is now considered for the purposes of collision avoidance.

Component	Issue
<i>Repeat endings</i>	It is now possible to specify the position for a created repeat ending by selecting one or more slashes in a slash region, without first splitting or deleting the slash region.
<i>Repeat markers</i>	When hiding or showing staves via the <b>Manual Staff Visibility</b> , any repeat markers that coincide with the end of the flow now appear or disappear as required if the top or bottom staff in the system changes.
<i>Repeats</i>	The <b>Play n times</b> property now enforces a maximum value of 50 repeats, and this now matches the maximum number of repetitions Dorico will play before it will stop automatically.
<i>Rhythm slashes</i>	Under some circumstances, deleting bars could cause slash regions to be notated across the wrong region; this has now been fixed.
<i>Rhythmic feel</i>	Dorico no longer incorrectly plays some tuplets swung when it shouldn't.
<i>Rhythmic feel</i>	Swung eighths rhythmic feels no longer incorrectly affect the playback of quadruplet quarter notes (crotchets).
<i>Rhythmic feel</i>	Slurs on grace notes no longer incorrectly prevent rhythmic notes in the following beat from being swung if appropriate.
<i>Slurs</i>	Under some circumstances, slurs could tuck in beside staccato and staccatissimo articulations on the notehead side; Dorico now ensures that slurs cannot end between the articulation and the note.
<i>Staff labels</i>	When the option to show staff labels for voice instruments in upper case is chosen, Dorico now handles extended and accented characters correctly.
<i>Staff labels</i>	Staff labels for user condensable groups containing different instruments (for example, Trombone and Bass Trombone) are no longer sometimes grouped incorrectly.
<i>Staff labels</i>	When a single uncondensed instrument is adjacent to a condensed staff, a single grouped staff label can now be shown between the staves as expected.
<i>Staff labels</i>	If the option for showing instrument transposition in the <b>Edit Instrument Names</b> dialog is set to <b>Always</b> , this is now correctly also applied to abbreviated staff labels as well as full ones.
<i>Staff labels</i>	Changing the <b>Default text</b> paragraph style will now correctly update the staff labels in the project right away, assuming you have not updated the <b>Staff labels</b> style such that it does not inherit.
<i>System dividers</i>	System dividers are now always correctly centered between systems; previously they could be misaligned if the height of the outermost staves on adjacent systems differed.
<i>Tempo</i>	The correct left and right arrows are now used in tempo equations.



Component	Issue
<i>Tempo</i>	<b>Edit ► Reset Appearance</b> now works as expected for properties on immediate and gradual tempo markings.
<i>Text</i>	Clicking the star button in <b>Paragraph Styles</b> or <b>Character Styles</b> to save a paragraph or character style as a default for future projects now works even if the style has not been modified in that session.
<i>Text</i>	The asterisk that indicates whether a style has been modified in <b>Paragraph Styles</b> or <b>Character Styles</b> now works correctly when changing the selection in the dialog.
<i>Text</i>	Text that has been colored – either via its paragraph style, or via an override in the text editor, or via the <b>Color</b> property – now shows correctly as black when printing or exporting monochrome graphics.
<i>Text</i>	The <code>{@staffLabelsShort@}</code> and <code>{@staffLabelsFull@}</code> tokens now show player numbers in Roman or Arabic numerals, according to the relevant engraving options.
<i>Text</i>	When changing the default text font in <b>Engrave ► Music Fonts</b> , Dorico no longer allows existing font and paragraph styles to be updated to use non-existent bold or italic styles of the chosen font.
<i>Text</i>	Under rare circumstances, nudging right-aligned text could cause the text to move unexpectedly away from the staff; this has now been fixed.
<i>Text</i>	When inputting text in an East Asian language, the initial size of the text editor is now correct and it grows correctly as more text is entered.
<i>Text</i>	System text no longer incorrectly responds to the <b>Edit ► Flip</b> command.
<i>Ties</i>	All the controls on the <b>Ties</b> page of Engraving Options for the number of spaces by which ties are allowed to move in tight situations now use the correct units.
<i>Time signatures</i>	When filtering for time signatures, Dorico now only selects time signatures themselves, not barlines.
<i>Time signatures</i>	When deleting music at the end of a flow, if the new end position of the flow coincides with an open time signature, that time signature is now deleted, to avoid the final empty bar drawing incorrectly.
<i>Time signatures</i>	When showing large time signatures centered on bracketed groups, Dorico no longer sometimes incorrectly leaves an erasure background behind on the first staff in the bracketed group.

Component	Issue
<i>Time signatures</i>	When showing large time signatures centered on bracketed groups, Dorico no longer sometimes incorrectly leaves an erasure background behind on the first staff in the bracketed group.
<i>Transport</i>	Beat divisions for a wider range of simple and compound time signatures now appear correctly in the playback counter in the Transport.
<i>Transport</i>	Enabling or disabling the metronome click in the mini Transport now correctly updates the click button in the Transport window.
<i>Tremolos</i>	Adjusting the <b>Tremolo Y</b> property for a whole note with a single-stem tremolo now correctly updates the position of the tremolo strokes right away.
<i>Tremolos</i>	The option <b>Maximum length of tremolo lines for unbeamed notes</b> now takes effect as expected.
<i>Tremolos</i>	When calculating the durations of notes played for unmeasured tremolos, ensure that the played duration is the same regardless of the beat unit currently in force.
<i>Tuplets</i>	When deleting notes with <b>Backspace</b> during note input, Dorico will now correctly delete both inner and outer tuplets if the parent tuplet in a nest of tuplets becomes empty.
<i>Tuplets</i>	Deleting all the notes from a tuplet but without deleting the tuplet itself no longer sometimes cause the remaining tuplet bracket and its containing rests to disappear incorrectly.
<i>Tuplets</i>	Tuplets beamed across a beat boundary and system break no longer always draw a bracket even if the <b>Bracket appearance</b> property is overridden.
<i>Tuplets</i>	Under some circumstances, tuplets created in an irregular bar longer than the prevailing time signature could be padded with rests incorrectly; this has now been fixed.
<i>User interface</i>	Filenames containing an ampersand now display correctly in the <b>File ► Open Recent</b> submenu.
<i>User interface</i>	Commands to move the score by a page at a time (for example, those mapped to <b>Home</b> and <b>End</b> by default) now work correctly even when the page fills the viewport precisely.
<i>User interface</i>	When switching to Play mode, Dorico now ensures the mouse cursor is updated to match the active tool in the Play toolbox.
<i>User interface</i>	The various commands in the <b>Print</b> category in <b>Key Commands</b> for exporting and printing layouts are now correctly available from all modes.

Component	Issue
<i>User interface</i>	In dialog pages with multiple <b>Advanced Options</b> sections, only the first section would be automatically expanded when searching for terms found within the page; this has now been fixed.
<i>User interface</i>	It is now possible to use <b>Fit...</b> zoom levels when editing page templates in Engrave mode.
<i>User interface</i>	If <b>Window ► Hide/Restore Zones</b> is active, using <b>Ctrl+8</b> to show the lower zone now correctly works at the first time of asking.
<i>User interface</i>	When toggling <b>View ► Full Screen</b> , if the project window was previously maximized, that state is now correctly restored.
<i>Vertical spacing</i>	In the specific situation that a frame is precisely 100% full, Dorico would not perform vertical justification due to an incorrect boundary check; this has now been fixed.
<i>Vertical spacing</i>	The light blue shaded areas that show the top and bottom music frame margins in music frames in Engrave mode now correctly reflect the values defined in Layout Options.
<i>Voices</i>	Dorico will no longer prune voices with no notes when opening an existing project if the voice is assigned to a staff using independent voice routing and has an endpoint assigned.
<i>VST plug-ins</i>	When a VST plug-in's interface is shown, it is now always correctly brought in front of the Dorico project window (Windows only).
<i>VST plug-ins</i>	If you deactivate a VST plug-in, this state is now correctly restored when you save and subsequently reopen the project.

# Known issues and solutions

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## Frequently asked questions

Answers to frequently asked questions about Dorico can be found online in the [Dorico forum](#).

## Knowledge base

For the latest information about issues and solutions you may encounter when running Dorico, please [consult the Knowledge Base](#).

## Key commands to transpose notes by an octave (Windows only)

The Intel Graphics Adaptor drivers used by many Windows computers define a default key command to flip the screen by 90, 180 and 270 degrees via a shortcut **Ctrl+Alt+↑/↓/←/→** arrows.

**Ctrl+Alt+↑/↓** option conflicts with the key commands in Dorico note input for transposing notes by an octave.

For information about how to disable the default Intel Graphics Adaptor key command, [consult the Knowledge Base](#).

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