

SmartScore[®] 64

MIDI Edition

User's Guide

User Guide SmartScore 64 MIDI Macintosh

User manual version 1.2 (January 2021)



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Musitek

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Registration, Support and Contact

Product Registration

Copies of **SmartScore 64®**, are licensed to individuals directly by the publisher, **Musitek® of Ojai, CA**. Institutional seat licenses are available at significant discounts under special arrangement with Musitek. Individual licenses can be transferred to other individuals provided the original holder contacts Customer Service and authorizes the transfer; whereupon, by agreement, the original holder of the license will be disallowed from using the software.

Additionally, current members of a school, church or non-profit are entitled to personalized licenses at a significant discount provided an active member of that institution is a registered owner of **SmartScore 64**. Interested parties should contact Musitek customer service.

Licensing and End User License Agreement (EULA) details are found in the product packaging as well as in the software installation sequence itself.

Limits on number of installations

Each license holder is allowed up to 5 installations on any computer regardless of platform (Mac, Windows or Linux)*

- * In cases where a qualified user exceeds the installation limit, a simple e-mail or telephone call to Customer Service will initiate a reset of the counter to zero. Musitek reserves the right to withhold resetting the installation counter if fraud is expected.

Tech Support & Contact & Support Info

Due to the limited number of live bodies present at Musitek, we ask that technical issues be handled primarily by e-mail. In nearly every case, we will ask for your original .TIF and or .ENF files anyway. In the interest of time and convenience, please attach your problem files along with a (not too) detailed description and send to the address below. Of course, we will try to catch your tech support phone calls whenever possible.

In addition to in-house support, there is a very active and helpful Smart-Score forum on-line populated by experienced users and administrators. The URL for the forum is:

<https://bsmartscoreusertechresources.runboard.com/>

Musitek Contact Info

Customer Service: 805-646-8051
admin@musitek.com

Tech Support: 805-646-5841
tech@musitek.com
(phone support 10AM-2PM Pacific Time M-F)

Web: www.musitek.com

FAX: 805-646-8099

A reminder ...

Don't forget to attach your originating .TIF and/or .ENF files when contacting Tech Support. We'll get right back to you. Thank you !

Introduction & Tips

SmartScore Editions & Serialization

SmartScore comes in 5 flavors or editions. You can tell which edition you own from the first characters of your Customer ID and serial number:

Customer IDs:

- (1) Download **Fxxxxxxx**
- (2) Manual **Exxxxxxx**

Serials:

- SmartScore 64 Professional Edition **DZD-xxxx-xxxx-xxxx**
- SmartScore 64 Songbook Edition **SZD-xxxx-xxxx-xxxx**
- SmartScore 64 Guitar Edition **GZD-xxxx-xxxx-xxxx**
- SmartScore 64 Piano Edition **PZD-xxxx-xxxx-xxxx**
- SmartScore 64 MIDI Edition **MZD-xxxx-xxxx-xxxx**

Install the correct edition



When installing from a DVD, you will be asked to identify the edition you purchased. Be sure you know which edition you own when installing.

On first run, SmartScore will ask for your ID and serial number. This process is required to validate your ownership. Once validated, you will not be asked again unless you change computers. The software will not validate with an incorrect serial number.

SmartScore 64 User Guide and other aids

User Guide

SmartScore 64 MIDI Edition for Macintosh



Use the table of contents and/or the Index to locate a topic of interest. This publication is not intended for bedside reading unless you believe it will help put you to sleep...

Other helpful resources

We have some helpful videos located on our website at:

<http://www.musitek.com/videos.html>

And don't forget about our Online Forum at:

<https://bsmartscoreusertechresources.runboard.com/>

Welcome

SmartScore 64 MIDI Edition

Scan & play! Sheet music to MIDI in seconds.

Scan multiple pages of printed sheet music or process any PDF file and watch as it reconstructs on-screen in seconds, ready for playback, and transposition. Simultaneously view and edit MIDI data in both notation & familiar Piano Roll, Overview and Event list format. Updating is automatic. Export MIDI files to other programs, including Apple® GarageBand®, Acid®, Cubase®, Cakewalk®, Logic® or other MIDI-based software. Most notation symbols including key and time signatures are written to the MIDI file.

But it's not all work. It's also fun to use. So let's get started...



Workspace Tabs

Input

Access and control your scanner directly. Import and recognize music images downloaded as PDF or TIF. The **MIDI** edition will process a maximum of 4 parts grouped into systems.

Playback

Playback tools include full-featured console (and mini console) for selecting instruments, sound fonts, volume and balance. Add a groove to playback with SmartScore's automatic drum track feature.

Note Editor

Notation editing tools allow for inserting and deleting recognized symbols or for creating new score documents.

MIDI Editor

Full MIDI Editor with Piano Roll, Track Overview and Event List views.

Output

Export finished files as MP3 or standard MIDI files.

Getting started

The Task Window

This window appears immediately after SmartScore 64 starts. It displays the most important for beginning your work. It can be disabled at any time.

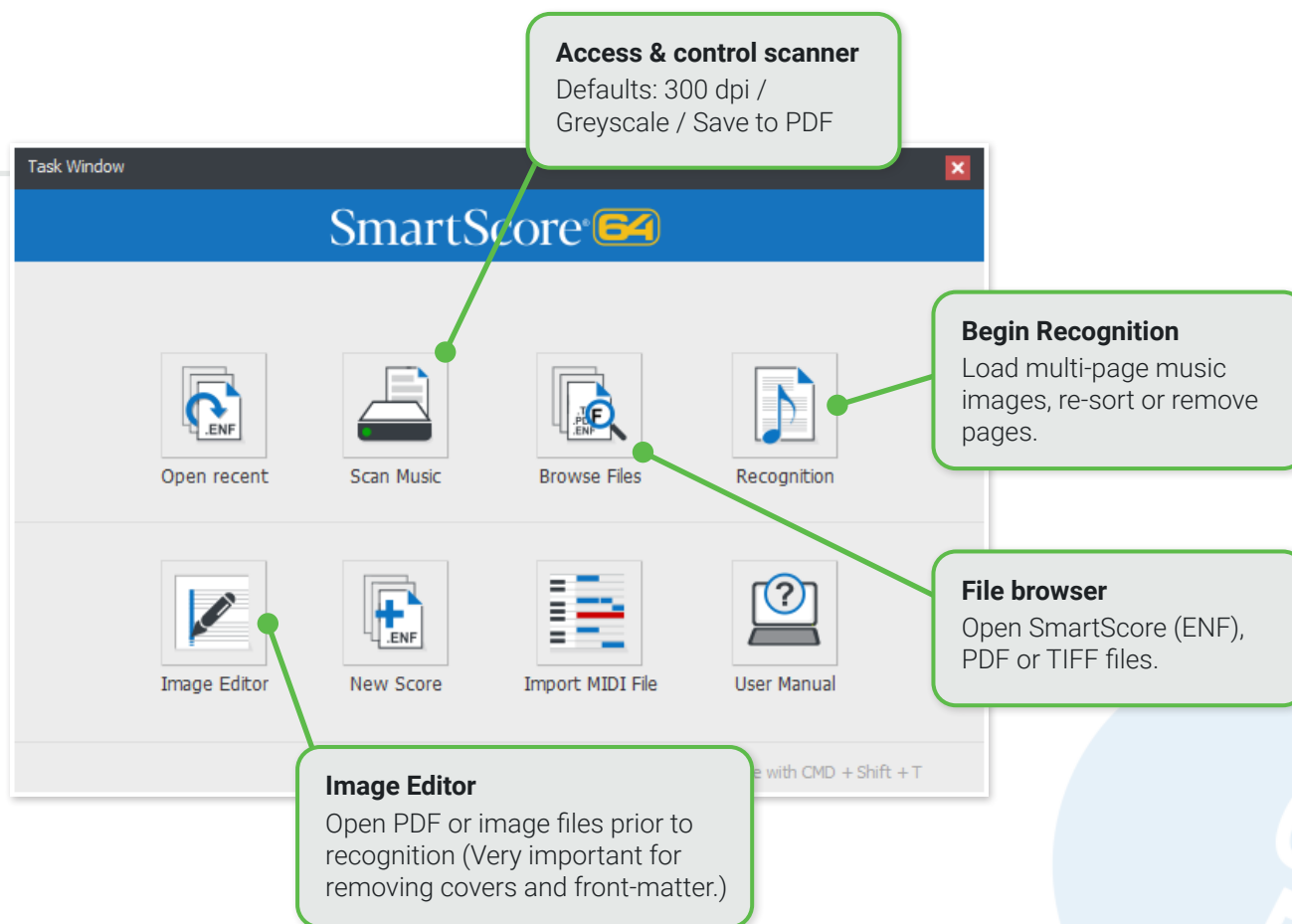
Each function can also be activated at any time using the corresponding commands in the **File menu**. The start window can be opened with the keyboard command **Cmd + Shift + T** or with the menu command, **File > Task Window**.



Opens the Task Window (if hidden).

What's inside the Task Window?

- Open the last-saved SmartScore (ENF) file.
- Locate and control your scanner directly.
- Browse for files that SmartScore can open.
- Begin the Recognition process.
- Open and edit scanned / PDF images prior to recognition.
- Create blank music score from preset templates.
- Import MIDI files for playback or conversion to standard music notation.
- Access the User Manual.



Global and Local Program Preferences

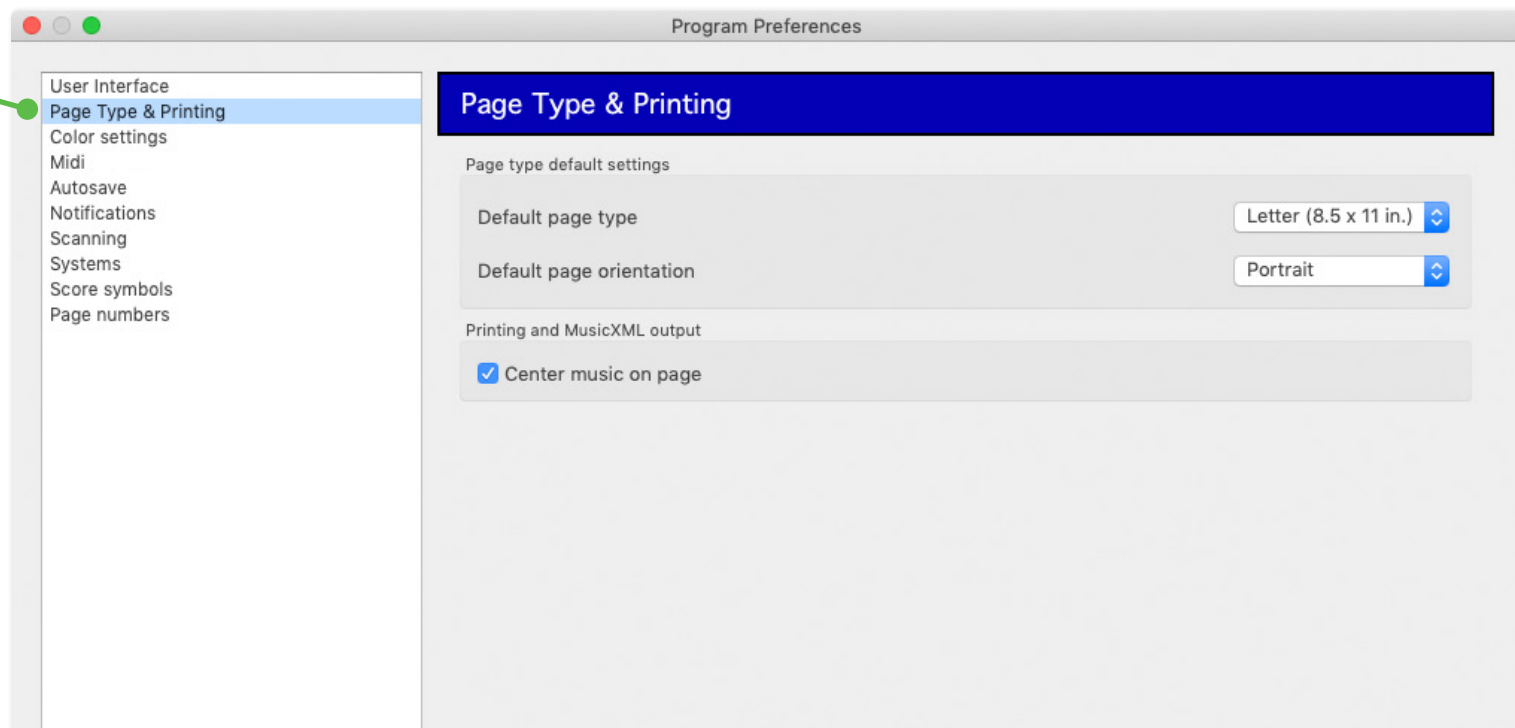
Global Preferences that apply to all documents are found under **Edit > Program Preferences**. Preferences that apply to the current document are found under **Edit > Document Preferences**. The English version of SmartScore is preset to U.S. Letter page size (8.5 x 11"). Portrait orientation.

Page Formatting and Printing Defaults.

1. From the **EDIT menu**, select **Program Preferences**.
2. Select **Page Type & Printing**.
3. Choose the page type and orientation you wish to set as a default (e.g. Legal or A4)

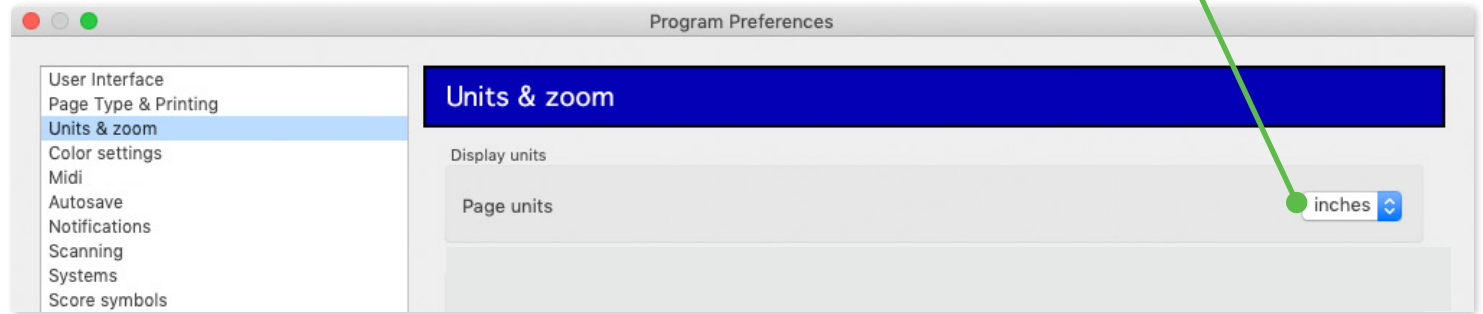
Program Preferences

Click on a heading to reveal settings and attributes in that category that you can change, if you wish to.



Units of Measure

1. From the **Units and Zoom** category, you can control whether to choose **inches** or **cm**.



Setting up your scanner

Scanning from inside SmartScore



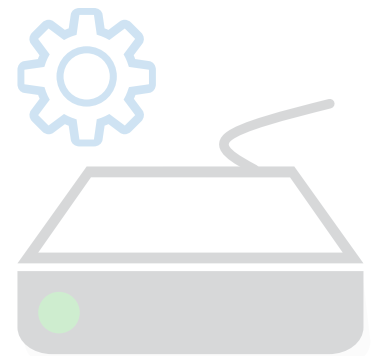
It's preferable to allow SmartScore to control your scanner. The scanning interface will automatically detect print size and set the optimum resolution.

Using your scanner's software for scanning

If necessary, you can scan outside of SmartScore using the software that installed with your scanner.

Basic defaults:

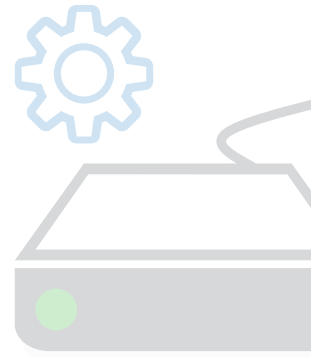
- Scan at 300 to 400 dpi. **NOTE:** Higher resolutions DOES NOT necessarily equate to higher accuracy !
- **NOTE:** Full orchestral and miniature scores may need to be scanned in at 400-600 dpi.
- Scan in grayscale (not color or black & white)
- Scan multiple pages and save to PDF (Larger scores should be broken up into bite-sized sections of no more than 50 pages).



Getting it right ...

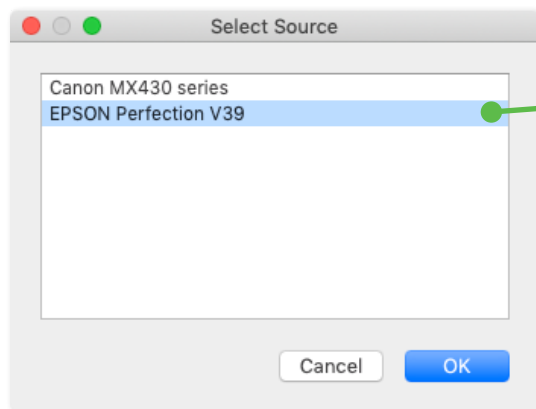
Check these items if any issues occur when you are scanning your music:

1. Is the scanner connected and turned on?
2. Have you installed the most current Mac OS drivers from your scanner's manufacturer?
3. Did you add the latest scanner drivers using **Bonjour** in **System Preferences > Printers & Scanners**?



Connecting SmartScore to your scanner

1. From the **File menu**, choose: **Scan music > Select Scanner**.
2. In the Select Source dialog box, look for your scanner's name or model. This will be the scanner's "driver".
3. Push "OK" to select your driver.



What should you look for?

If your scanner is not shown in the Select Scanner window, then the driver for your scanner was not installed or it is not supported by your operating system. Visit your scanner manufacturer's website then download and install the latest Mac scanner driver for your scanner model.



Alternative Scanning Methods?

SmartScore will process PDF files downloaded from the Internet. Select **File > Open** then browse to the PDF file saved to your computer. It will automatically be converted to SmartScore's preferred format, TIF. We recommend processing only scanned TIFs and PDFs. We don't recommend capturing music scores using cell phone cameras or video scanning devices. Flatbed scanners work best.

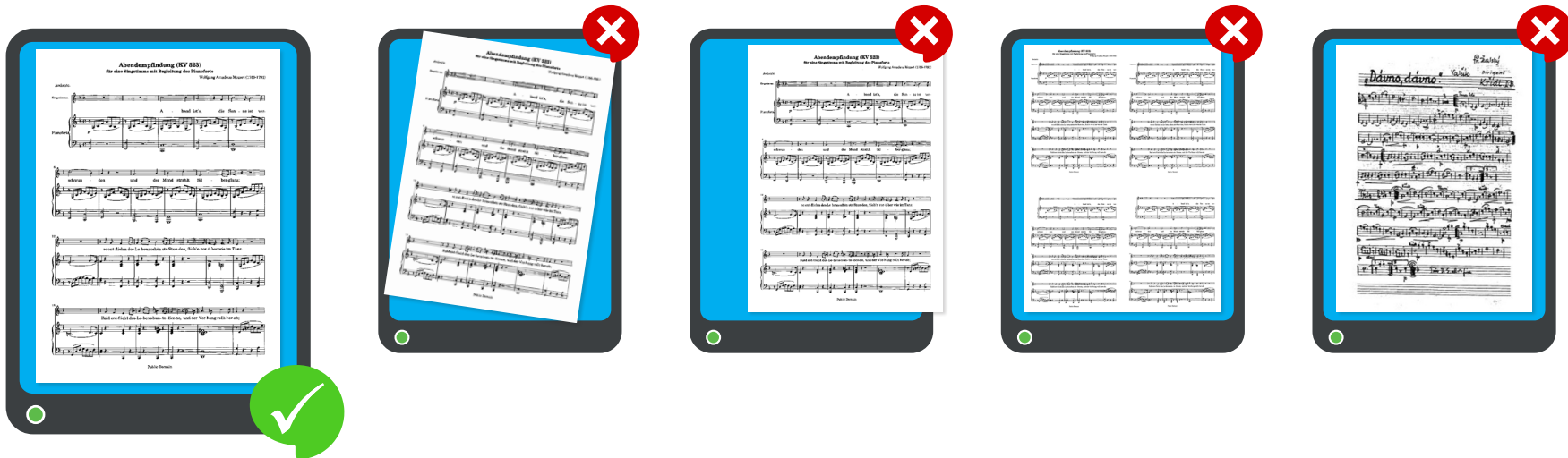
More about alternative Scanning Methods on [Page 91](#).

Scanning music scores

Pay attention when scanning pages

Good scanning technique is essential for getting the best recognition accuracy from SmartScore.

Place the first page in the scanner. Make sure that the area containing the music itself lies within the borders of the scanning area (white margins can be outside the glass). Keep the page as square to the glass as possible. Do not scan double or multiple pages in one pass since SmartScore turns each pass into a page. Avoid scanning in handwritten manuscripts... the results will probably create more problems than it's worth.



Good dog. Bad dog. ?



- ✓ Center the image area of the music onto the glass, keeping the page as square as possible.
- ✗ Avoid skewing the page. NOTE: Don't worry if there is some twisting. You can de-skew later in the Image Editor.
- ✗ Do not allow any part of the music to be cut off. SmartScore needs to see everything on the page!
- ✗ If scanning from a book, avoid light leaking onto the image. MAKE SURE you apply plenty of pressure onto the spine.
- ✗ Don't scan in multi-page sheets. Scan one page per pass.
- ✗ Don't waste a lot of time trying to process handwritten manuscripts.

Start scanning

Once the first page is properly positioned...

- Click on the **Scan Music** button in the SmartScore Task Window or ...
- Click the **Scan** button from the toolbar in the **Input/Output** tab or ...
- From the main menu, select **File> Scan Music>Acquire**.



SmartScore's Scanning Interface

The **Scan** dialog box will immediately open and a low-resolution image should quickly appear in the preview pane.

SmartScore's scanning interface controls your scanner's settings. By default, Automatic Resolution is selected. This allows SmartScore to choose the optimum resolution for each page. If you wish to set resolution manually, uncheck **Resolution** and enter your desired setting, e.g. 300 dpi.

- Once previewed, use your cursor to drag a box around the image of the music leaving about 1/4" of white on all sides.
- Uncheck **Auto-Resolution** if you wish to set DPI manually.
- Click on **Final Scan** to begin scanning the first page.
- If you wish to review the scan again, push **Preview**.

Should a dialog box appear, **Scanning resolution is too low/too high - Reset / Ignore**, it is most likely due to variations in staff line widths which may have confused SmartScore's auto-resolution algorithm. If so, you would normally choose **Reset** and manually set the resolution to 300 dpi.

Define a bounding box
The bounding box defines the area that will be scanned. Leave some room on all sides of the image.

Resolution (DPI)
Auto-resolution allows SmartScore to determine the optimum resolution for each page. Turn off "Auto-resolution" if necessary. (300 dpi is nominal.)

Final Scan
Click to initiate scanning for the previewed page. You will have the opportunity to scan the next page.

The screenshot shows the 'Scan' dialog box with a preview of a music score page. A blue bounding box is drawn around the music. The 'Resolution' is set to 460 dpi. The 'Automatic' section has 'Resolution', 'Cropping', and 'Preview' checked. The 'Image processing' section has 'Deskew' checked and 'Invert' unchecked. The 'Device' is set to 'EPSON Perfection V39'. Buttons for 'Select Scanner', 'Reset to Default', 'Preview', 'Final Scan', and 'Cancel' are visible.

Scanning multiple pages

SmartScore allows you to scan and recognize multiple music pages. When finished, all scanned pages are grouped into a multi-page file format (CCITT Group 3 TIF format). Following recognition, each scanned page becomes a page in SmartScore's **.ENF** file format.

Scanning successive pages ...

1. After scanning the first page, you will be prompted to place the next page into the scanner.
2. Click the **Next Page** button. Continue this process for all remaining pages.

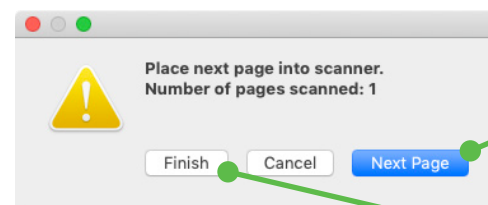
When you have scanned all the pages of your score...

1. Click the **Finish**.
2. You will be prompted to **Save As and Begin Recognition** or **Open Pages in Image Editor**.

NOTE: We always recommend you open your scanned music in SmartScore's Image Editor. This will allow you to fine-tune darkness/lightness of greyscale images using the **Thresholding** tool. You will also be able to **De-skew, Crop, Draw, Erase and Cut and paste** the images prior to Recognition.

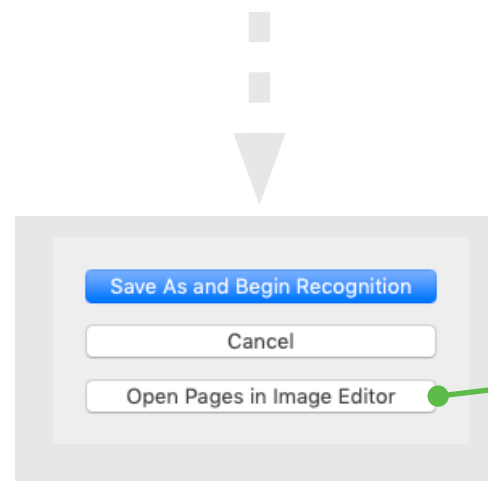
Processing PDF files...

If you've downloaded PDF files from the Internet or saved your scanned music sheets as PDF, then you can move directly to Recognition. Select **File > Open**, browse to your PDF file location and double-click on the filename. The PDF file will automatically convert to multi-page TIF and open in SmartScore's Image Editor for previewing, editing and recognition. Or simply push the Recognition button in the Input / Output toolbar. For more information on processing PDF files see [Page 19](#).



Click **Next Page** after each page of your score is scanned until

Once you've scanned the last page of the score, click **Finish**. If you wish to interrupt the scanning process, click **Cancel**.



We always recommend you open your scanned music in SmartScore's Image Editor. This will allow you to fine-tune darkness/lightness of greyscale images using the **Thresholding** tool. You will also be able to **De-skew, Crop, Draw, Erase and Cut & paste** objects inside the images prior to recognizing the scan.



See [Page 20](#) for more information on working with the Image Editor.

Saving scanned files and converting PDF files

In SmartScore, you're always working with two files: the scanned file (TIF or PDF) and the recognized file (ENF). If you click on the button Save and start recognition after scanning or a PDF conversion or if you call up the save function in the image editor, you can save your note templates in the TIF graphic file format.

Recognition



The Begin Recognition Window

The **Begin Recognition** window will open after the last page is scanned or whenever you activate the following ...

- Click the **Recognition** button in the Task Window.
- Click the **Recognition** button in the **Input / Output** toolbar.
- Select **File > Recognize** from the main menu.

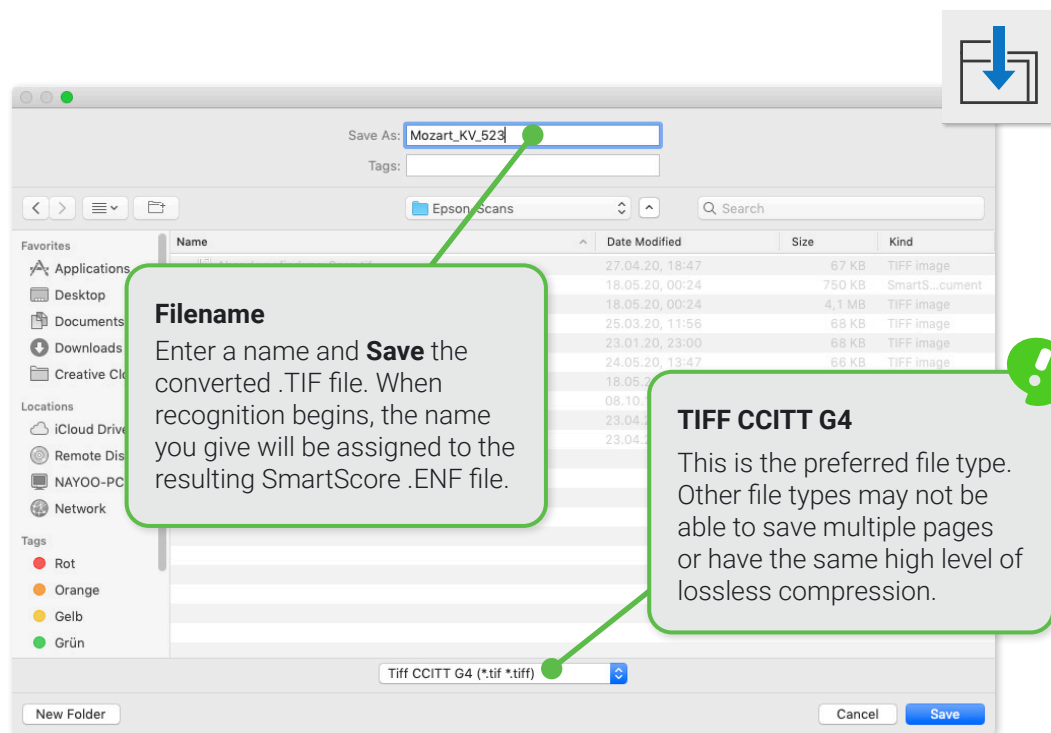
Scanning Outside of SmartScore

In some cases, whether with an older scanner or one without a TWAIN driver, SmartScore's scanning interface may not be available. If so, simply use the software that installed with your scanner or use an 3rd party imaging app to scan in your music. Be sure to follow these guidelines:

- Look for scanner "Settings" (sometimes called "Advanced", "Details", "More", etc.)
- Resolution = 300 dpi** (As a rule, this will be the optimum resolution. Scores with smaller print can be scanned at 400-600 dpi).
- Image Type = Greyscale** (sometimes referred to as "Text" or "Document". Never scan in "Color" or "Black & White".
- Format = PDF** (most scanners will not save multiple pages as a multi-page .TIF file).
- Carefully scan in all your pages. You should be prompted to scan "next page" until you are finished. Then select "Finished".



See [Page 19](#) for more information on PDF recognition.



Recognition Options

You may or may not want to recognize specific elements in your scanned score. The Options tab in the Begin Recognition window contains a list of those elements; some of which are selected and some which are ignored by default. In general, selected default should simply be accepted.

Mazurka.

À Mlle la Comtesse PAULINE PLATER.

F. Chopin. Op.6, No.1.

The image shows a musical score for 'Mazurka' by Frédéric Chopin, Op. 6, No. 1. It features three staves: Piano, Violin, and Ossia. The Piano part is in 3/4 time with a tempo of quarter note = 132. The score includes dynamic markings like *p* and *cresc.*, and performance instructions like *Solo* and *V*. Recognition markers are placed over various elements:

- 1**: A circled '3' above a triplet of notes in the piano part.
- 2**: Circled 'Ped.' markings with a star symbol below notes in the piano part.
- 3**: Circled 'V' markings above notes in the violin part.
- 4**: Circled note heads in the violin part.
- 5**: A circled '5' above the ossia part.

- 1** Tuplet numeral
- 2** Pedal markings
- 3** Bowings
- 4** Hymnal Fonts (stubby flagged notes)
- 5** Ossias

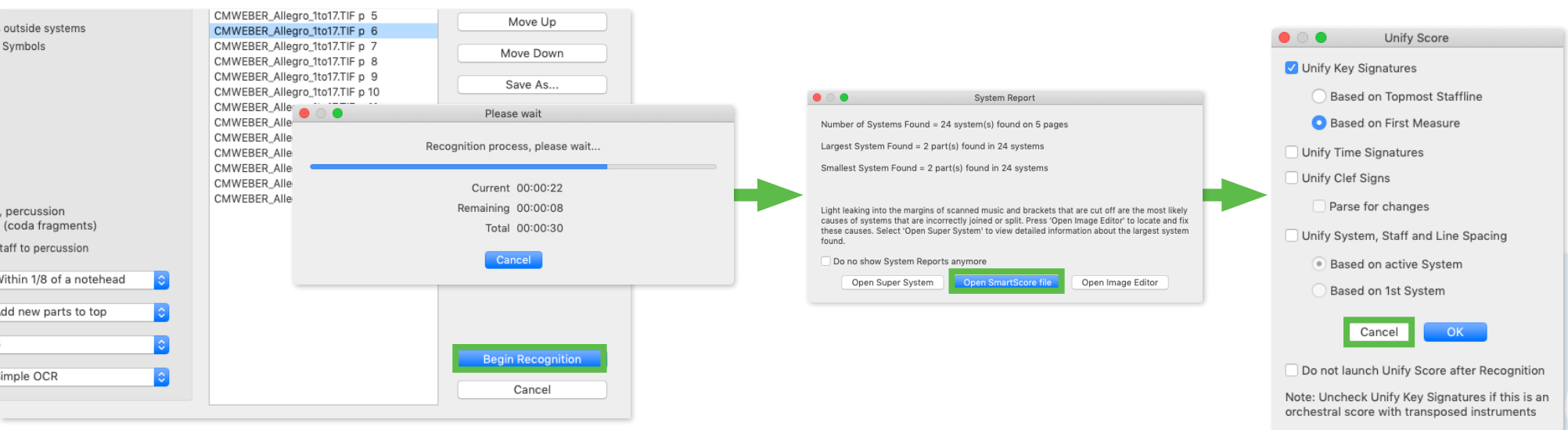
Preview
Options

- Tuplets**
 - Limit to Triplets
- Pedals
- Bowings
- Hymnal Fonts
- Ossias

NOTE: If you need more recognition options, check the [Musitek website](#) for upgrades.

The Recognition Process

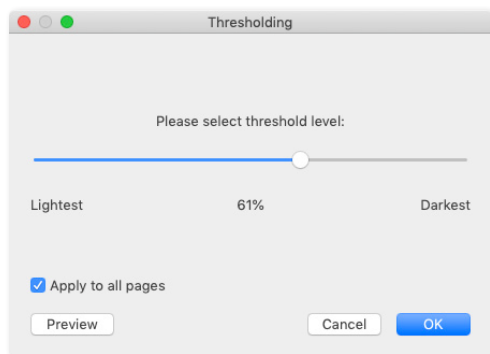
1. Ensure all pages of your score are loaded in proper order. Re-order list of pages, if necessary with **Move Up** or **Move Down** buttons.
NOTE: Once pages are recognized and a SmartScore .ENF file is created, you will not be able reorder pages or append one file to another.
2. Select or change default Recognition **Options**.
3. Click **Begin Recognition** button.
4. Wait for the recognition function to complete. It shouldn't take more than a few seconds for each page.
5. Following recognition, a **System Report** will appear. We recommend you check the number of parts in **Largest System Found** before continuing to the ENF editor. **NOTE:** While you are able to reconnect "broken" systems in the editor, you will not be able to break a system up into smaller ones.
6. If System Report looks good, select the default button, **Open SmartScore File**. If not, **Open Image Editor** will allow you to make changes to the image (such as erasing lines that mistakenly connect one system to another or using the Line Draw tool to reconnect broken system brackets). After that, you can re-recognize again. **Open Super System** will allow you confirm the correct number of parts were recognized and nothing more.
7. In the Unify Score window, we recommend you accept the default, **Based on Topmost Staff line**.
NOTE: If yours is an orchestral score with "optimized" system (disappearing/reappearing parts), we suggest un-checking the **Unify Key Signatures**.



Processing PDF files

The Internet provides access to vast quantities of printed sheet music in PDF format ready to download and recognize using SmartScore. Processing a PDF file is simple ...

1. Select **File > Open** and browse to the location of the PDF file you wish to work on.
2. Double-click on the PDF filename. It will immediately begin converting to .TIF.
3. Following conversion, all score pages will open in SmartScore's **Image Editor**.
4. Check the quality of the image. Use the **Thresholding** tool to darken or lighten the scanned image. You can preview the change before saving the change.



5. Push the **Begin Recognition** button in the Input/Output toolbar (or select **File > Recognition** from the main menu). The **Recognition** window will open and all converted pages will appear in the list of pages. Push **Begin Recognition**.



What if the PDF fails to recognize?

- a) Check that the number of pages in the list of pages does not exceed 50 pages.
- b) Check that the PDF is greyscale or bitmap, not color.
- c) If you get a warning that the PDF is password-protected, try printing it out and then scanning the pages in.



Pièce en forme de Habanera

Maurice Rav
Transc. Pas

Flûte *Presque lent et avec indolence*

Guitare 6 = D *expressif.*

Fl. *après le chant*

Gtr. *Cadenza légèrement*

Fl. *après le chant*

Gtr. *après le chant*

Image Editor

Working with the Image Editor in SmartScore

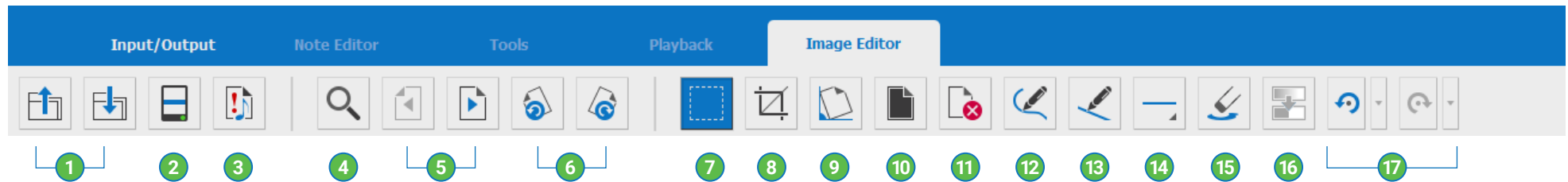
When you open a .PDF file or a scanned or saved .TIF file in SmartScore, it will automatically appear in the Image Editor as a black and white image. If the image file is multi-page, the first page always shows first. Use the paging buttons to step through each page as necessary. The Image Editor can be used to correct imperfections that may affect recognition such as skewed/tilted pages, missing system brackets and removal of black masses due to light leakage. The image editor can also be launched from inside the Task Window at program startup.

Edit Menu
Basic functions available in the Image Editor are listed and activated here.

Recognition
Remember that the image you see in the Image Editor is just that, an image. Before you can do anything with the music itself, the image must be processed by SmartScore's recognition engine.

Toolbar
Here are tools such as the Selector, Skew corrector, Page delete, Line draw and Erase tools.

Functions of the Image Editor toolbar



- 1 **Open and Save** files.
- 2 **Scan:** Activate connected scanner.
- 3 **Begin Recognition:** When you are satisfied with the edited image, push here to start the recognition process.
- 4 **Zoom:** Zoom in and out of image.
- 5 **Paging buttons:** Page forward or page back.
- 6 **Rotate page:** Use to correct upside down or sideways pages.
- 7 **Selector tool:** Use to select an area to be deleted (such as large black masses) or to copy and paste a portion of the music image (see [Page 22](#)).
- 8 **Cropping tool:** Use to define a region of the image for cropping which will remove everything outside the cropping frame (see [Page 22](#)).
- 9 **Skew correction:** Drag a line across a horizontal staff line to straighten pages that are crooked. This improves accuracy (see [Page 23](#)).
- 10 **Invert image:** Reverses scans that may appear white on black.
- 11 **Delete page:** Click to delete the displayed page (see [Page 23](#)).
- 12 **Draw tool:** Create a line by free-drawing with the mouse.
- 13 **Line tool:** Create a straight line. See Line thickness and Erase.
- 14 **Line thickness:** Select the thickness of the line, free draw or eraser.
- 15 **Eraser:** Click to turn free draw or line draw tool into an eraser.
- 16 **Thresholding tool:** If your image file was scanned in greyscale (and it should be), this tool will let you fine-tune the balance between lightness and darkness of the image (see [Page 24](#)).
- 17 **Undo / Redo:** Undo or redo prior action or several prior actions. Click on the selector box to the right of the icon to reverse multiple actions.

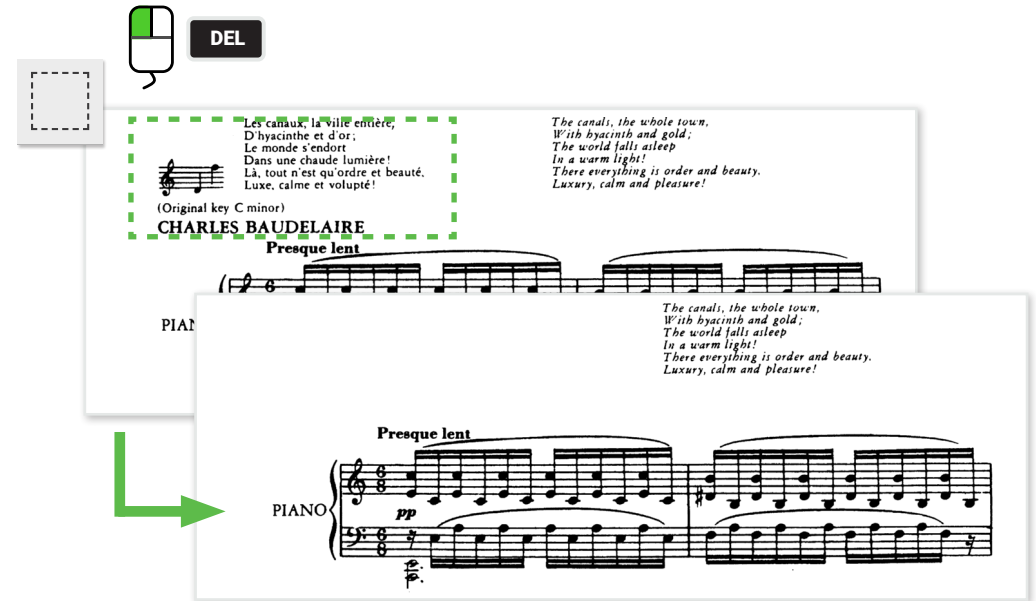
Useful Image Editor tricks

Good recognition is always starts with a good image. Here are some hints that may help give better results ...

1 Delete unnecessary elements that aren't necessary

SmartScore will pick up most everything on the page. You may want to remove text fragments, graphic elements, handwritten notes or stubborn artifacts prior to recognition.

1. Click on the **Selector tool** button..
2. Click and drag a box around the area in question.
3. Hit the **Delete** button on your keyboard to erase whatever is inside the bounding box.



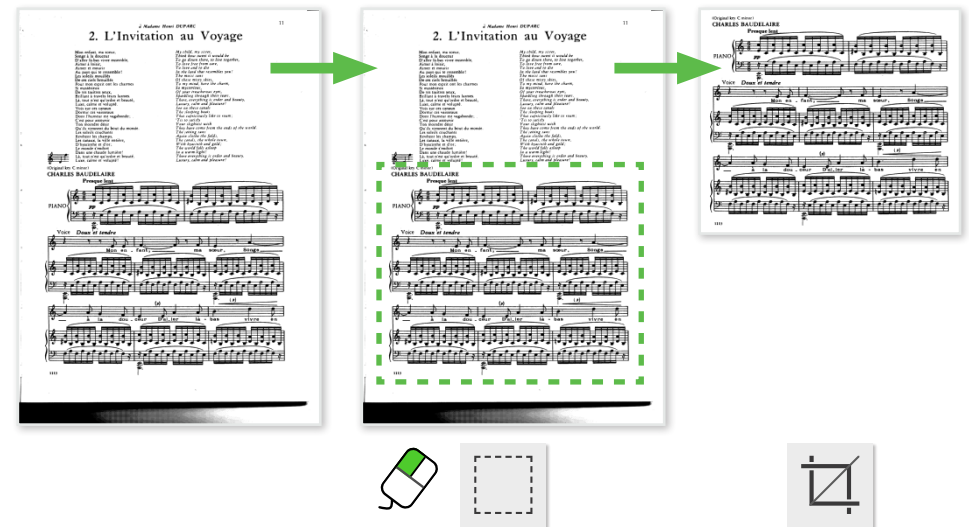
2 Crop the image to reveal only the music

Often light can leak onto the side of a scanned page and appear as a dark mass. Leaks can affect recognition quality. Using the **Crop tool** can quickly eliminate such noise.

NOTE:

Cropping will change the resulting page size after recognition. That is easily corrected later in **Page Setup** by selecting **Center on Page**.

1. Click on the **Selector tool** button..
2. Once selected, click the **Crop tool** button.



3 Correcting skewed pages


It's not always easy to get pages squared up in the scanner. There's no need to rescan a crooked page when you can easily straighten it in the Image Editor prior to recognition ...

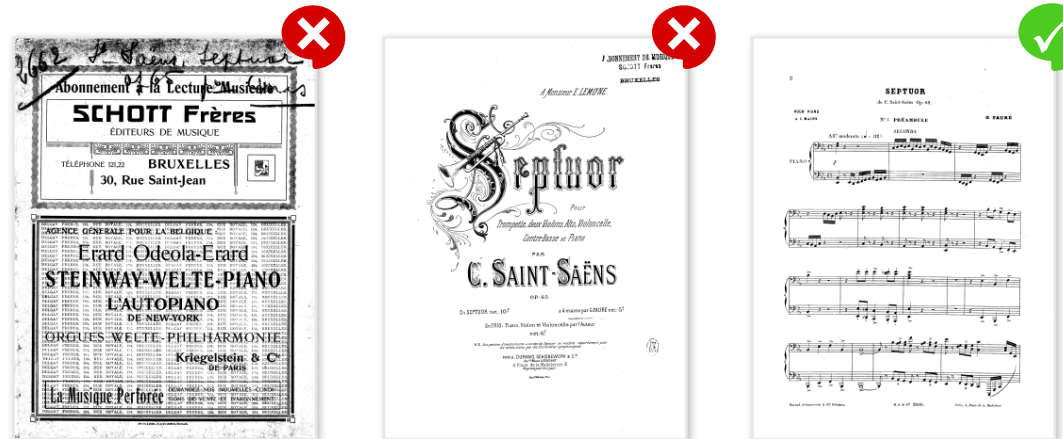
1. Click on the **De-skew tool**.
2. Click and drag the red alignment line along any horizontal staff line.
3. SmartScore will calculate the skew angle and correct it automatically.



4 Delete pages not containing music

PDF scores downloaded from the Internet often include cover / title pages, front matter, table of contents, etc. These pages should be deleted in the Image Editor prior to recognition.

1. Once opened in the Image Editor, navigate to the first page that does not contain music.
2. Click the **Delete page** button. 
3. Click the Page forward button and delete front matter and other non-essential pages until the first page of music appears.



5 Rotate pages 90° or 180°

Music is often published in Landscape format and must be scanned with the head of the page along the side of the glass. This is not a problem since you can rotate the page in the Image Editor.

1. Click the **Left rotate** or **Right rotate** button to rotate each page so that it becomes right-side-up. If the page was scanned upside-down, click either rotate button twice to rotate the page 180°.



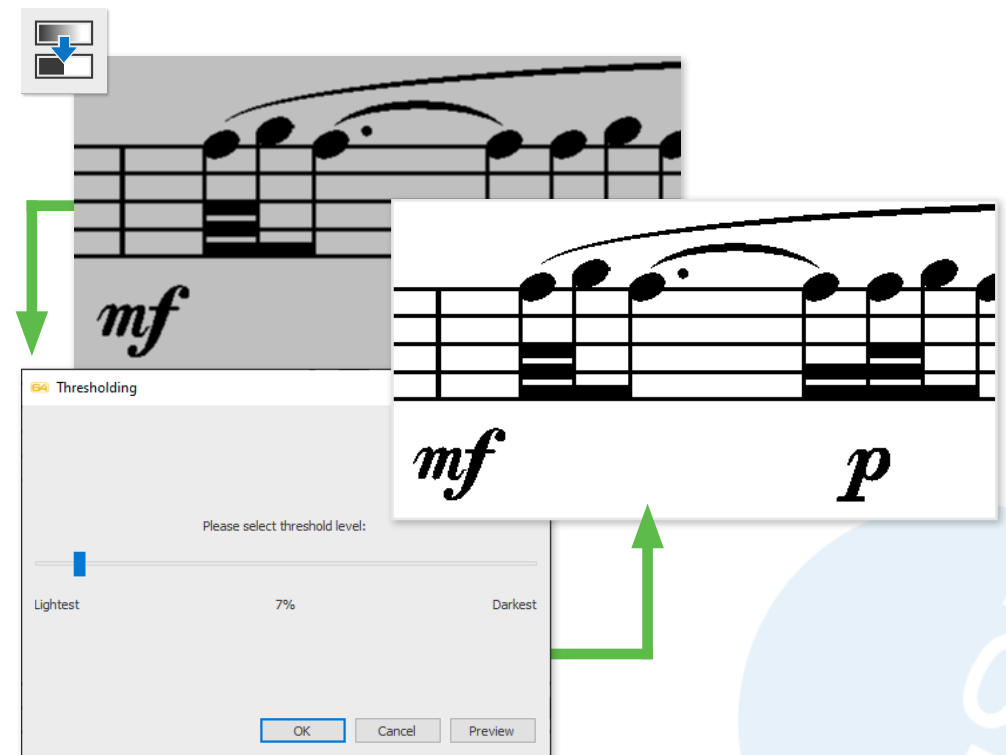
6 Thresholding tool

If your score was scanned in grayscale (and hopefully it was), you will be able to adjust its relative lightness / darkness to achieve a nice balance of solid black symbols against a stark white background.

NOTE: Thickness counts for good recognition accuracy !

1. In the **Thresholding** window, drag the slider a bit and push **Preview**.
2. Examine the notation and compare. Repeat until you see a nice balance between thick black lines against solid white background.
3. Once satisfied, click **OK**.

- ! It's not always necessary to apply thresholding. It's useful only if the original scan is particularly weak or too dark.



Note Editor (ENF - TIF view panes)

Following recognition, two panes appear. The top half in yellow displays the original scanned page (TIF pane). The bottom half in white displays SmartScore's recognized version (ENF pane). Under normal conditions, they should appear nearly identical. If not, that's where the editor comes in. Use your mouse wheel or the scroller along the right side to move up and down the page. Select the Zoom tool to move in and out of each view.

Main Menu
Common functions are accessible from the menu bar including custom functions.

Notation Symbols
The most commonly-used symbols are permanently displayed on top of this stack. "Last selected" symbols appear at the bottom of stack.

Open Symbol Selector
Click either of these buttons to open the main Symbol Selection window where all symbols are organized into groups by category.

Window Shade control
Pull the window shade up or down to reveal more or less of either pane.

Tabbed Views
Each of these five tabs are organized based on usage: File management / Notation editing / Special tools / Playback / Image Editor.

Mini-console
Contains playback transport controls as well as spring-loaded scrubber and positioning slider.

TIF pane
The original scanned page.

ENF pane
SmartScore's recreation after recognition.

The screenshot shows the SmartScore 64 MIDI Macintosh interface. At the top, there is a menu bar (File, Edit, Playback, Help) and a tabbed interface with five tabs: Input/Output, Note Editor (selected), Tools, Playback, and Image Editor. Below the tabs is a toolbar with various musical notation tools. The main workspace is split into two panes: a top yellow pane (TIF pane) showing the original scanned page of a musical score for Mozart's 'Wolfgang Amadeus Mozart (1756-1791)', and a bottom white pane (ENF pane) showing the software's recognized version of the same score. A 'Symbol Selection' window is open on the right, displaying a list of musical symbols categorized into groups like Accidentals, Articulations, Barlines & Repeats, etc. A window shade control is visible on the right side of the panes.

Display formats

In SmartScore, you can arrange the arrangement of the TIF view (image template) and ENF view (recognition result) in the way that best suits your way of working. The program is also extremely flexible when it comes to displaying the individual note pages within these views.

Choose how corresponding ENF and TIF panes behave

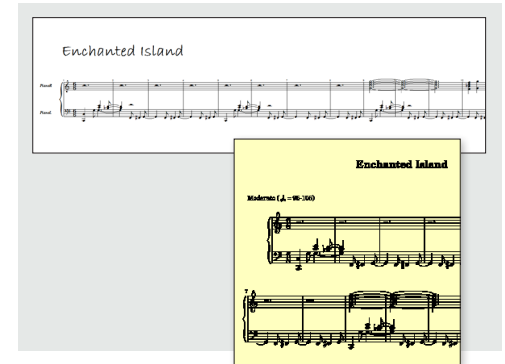
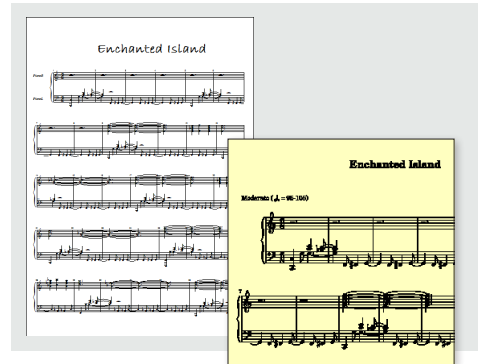
You can arrange the TIF and ENF views horizontally or vertically.

- The menu selection: **Window > Split Screen** allows you to display panes in either in **Horizontal** view or **Vertical** view.



Also, you can view a small area of the original scan corresponding to your mouse position in the ENF pane:

- The menu selection: **Window > Scan View Window > Show** displays a small, floating window of the area in the original scan that corresponds to where your mouse is positioned in the ENF pane. The floating Scan View window is resizable and both views responds to **Zoom control**.



Another option is to remove the TIF view from the program window and display it in a separate window on a second monitor.



Arranging various page views

Part 1 / 1 Page 1 / 2 0.40,0.40 inches 8.5 x 11.0 in. (Letter, Portrait)



To the right in the status bar at the bottom of SmartScore's window are four buttons that will change how pages will be displayed:

- **Horizontal view** 1
- **Vertical view** 2
- **Double page view** 3
- **Long view** 4



The menu commands for these views can also be found here:

View > View Mode.



! **Show only ENF or only TIF pane**
 You can choose to show only one pane by going to the menu selection: **Window > View Window > ENF only or TIF only** .

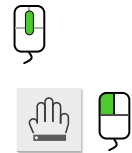
Long View
 This is a page-less, seamless view of the entire score in linear format.

Navigating inside the document

SmartScore offers various ways to navigate in and around ENF documents ...

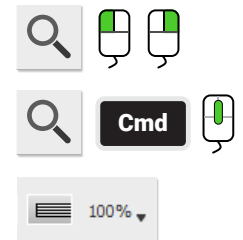
Scrolling and moving

- Drag the scroller tab along the right side of the window up or down. TIF and ENF panes are synchronous and move together.
- Use the wheel of your mouse to move up and down.
- Use the **Hand drag** tool. The button is located in the **Note Editor** toolbar.



Zooming in and out

- Select the **Zoom** tool button found in the **Note Editor** and **Playback** toolbars. Right click = zoom in. Left click = zoom out.
- With the zoom tool selected, zoom in and out by holding down the **Cmd** button and rolling your mouse wheel up or down.
- To the far right of the status bar at the bottom of the window you will find another zoom command.

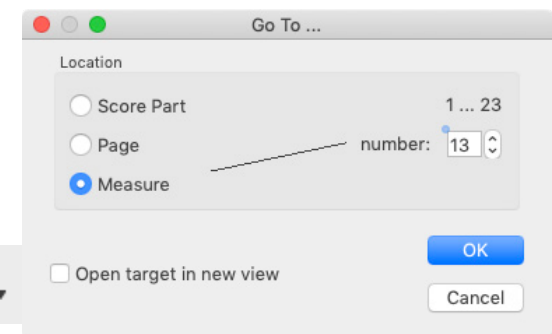


Jump to Measure / Page / Score part

- Use the **Page forward / Page back** buttons found in the toolbar of each tabbed view.
- Click on either of the **Part** or **Page** selectors found in the status bar. The **Go To** dialog box appears. Choose the measure you wish to jump to or select Page and choose a page then press OK.



You can also use the keyboard shortcut **Cmd + G** to open the dialog box or use the menu command **View > Go To**.



Part 1 / 1 Page 1 / 2 0.40,0.40 inches

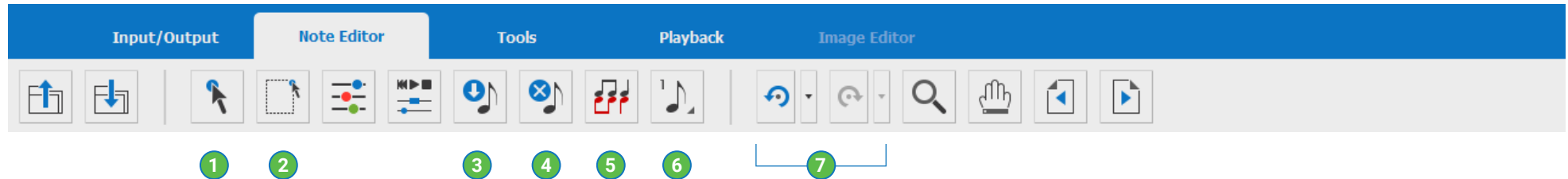
8.5 x 11.0 in. (Letter, Portrait)



Tabs, Toolbars and their functions

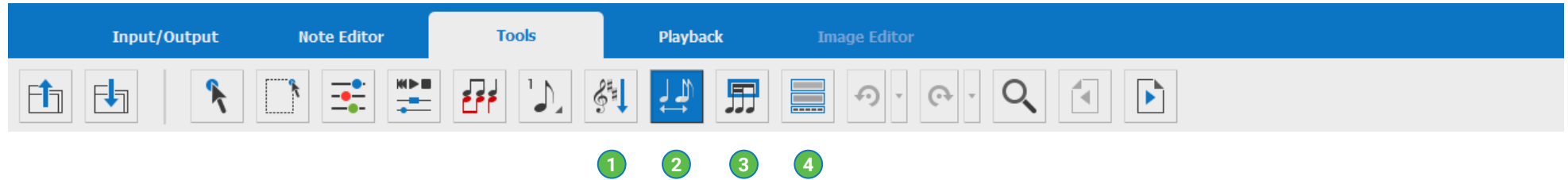
Buttons that activate certain functions are organized into one of five activity tabs: File management (Input/Output), Editing (Note Editor), Advanced tools (Tools), Playback and the Image Editor.

Note Editor toolbar



- 1 **Properties tool:** When activated, the Properties tool can be used to investigate and change playback properties of many symbols that are clicked on. It also activates staff & system spacing tabs (see [Page 50](#)).
- 2 **Selector tool:** The Selector tool is used to grab and highlight objects by a dragging around them. Dragging over a range of measures with right-mouse down = Select temporary play range.
- 3 **Insert mode:** When activated, symbols will drop wherever you right click inside any active staff line (see [Page 33](#)).
- 4 **Delete mode:** When activated, right clicking on any object in the active staff line will be deleted (see [Page 33](#)).
- 5 **Contrapuntal voice colors:** This button activates and deactivates contrapuntal voiceline colors (black, red, blue and green).
- 6 **Voice Override:** Occasionally, contrapuntal voices of one color or another need to be reassigned to another color (voice).
- 7 **Undo / Redo:** Undo / Redo last edit action or with the action history list, you can undo/redo multiple actions by clicking and dragging to select any number of prior actions.

Tools toolbar (unique to Tools tab)



1 Unify key and time signatures: Activate this function if you want key and/or time signatures to become unified throughout the score. You can choose to unify based on the topmost staff line of each system or the first measure of the first system (helpful for orchestral scores).

2 Automatic spacing: When activated, this function will automatically arrange notes and rests within the measure you are working with. Symbols will become properly spaced based on the duration value of each symbol in the measure (referred to as “pagination”).



NOTE: This tool may cause consternation. Use with caution.

3 Automatic beaming: When activated, this function will automatically attempt to beam notes with values less than a quarter note into acceptable groupings.

4 Tile Windows: Arranges all open documents in vertically split windows so that they are visible at the same time.

Score Properties

Right-clicking inside any active staff line will open the Score Properties window containing a number of important tools for controlling and formatting the score.

Score Properties	
Line/Staff Spacing	
Staff Properties	
Bracketing...	⌘B
Part Linking...	⌘L
Add empty pages...	
System	▶ Insert above
Staff / Part	▶ Insert below
Score Part	▶ Remove
Ossia	▶

Editing notation symbols

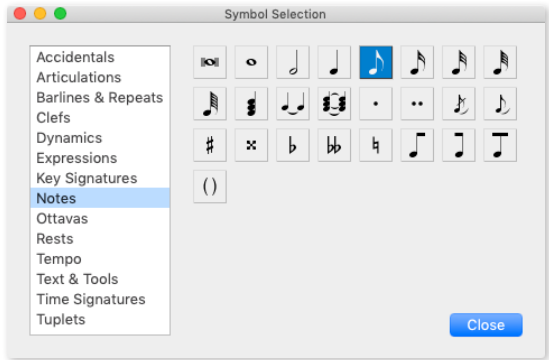
Inserting, changing and deleting notation symbols is probably the most important part of editing a SmartScore document. Since you'll be starting off with a lot of music already on the page, it will be just as important to CHANGE an existing symbol as it is to insert one. Clicking on an existing symbol in the score will change that symbol to the one you have just selected (it appears on your cursor). Here are the two methods of selecting notation symbols:

Selecting symbols

Choose the symbol you wish to edit. **Quick-select (Ctrl + click)** is the easiest method. Or you can pick any one of all possible symbols from the **Symbol Selection** window.

1 Symbol palette and Symbol Selection window

- The most commonly-used symbols (notes and rests) are permanently displayed in two vertical columns (Symbols palette).
- To access all possible symbols, click the **Open Symbol Selection window button**. Symbols will appear grouped into basic categories for easy identification.

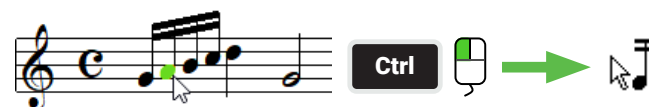


Whenever you select a symbol from the **Symbol Selector** tool, it will temporarily appear in this column at the bottom of the palette. Six of the **Last Used** symbols will stack up and rotate as they're used.

2 Quick-Select (Ctrl + click)

Unlike most notation programs that start with nothing, SmartScore starts with A LOT of symbols on the page. The fastest way to select any symbol for editing is to use the **Quick-Select** method:

Hold the **Ctrl** button down and **click** on ANY symbol you wish to select. The cursor will become that object then you're ready to edit. You can now insert the symbol anywhere. You can even change an object belonging to the same class (e.g. change a quarter note to a 16th note) simply by clicking on it.



Function keys (F1 to F12)

You can also use the function keys on your computer keyboard to open the Symbol Selection window and to switch between the different Symbol sections. See next page and [Page 86](#) for a complete list of keyboard shortcuts.

F1
F2
⋮
F12

3 Keyboard Shortcuts (Left hand position)

Here are the most important and keyboard shortcuts. Hold your index finger over the "C" key and your hand becomes perfectly positioned:

Shift: Nudge mode

Z: Cluster (chord) mode

X: Delete mode

C: Insert mode

Ctrl + click: Quick-Select

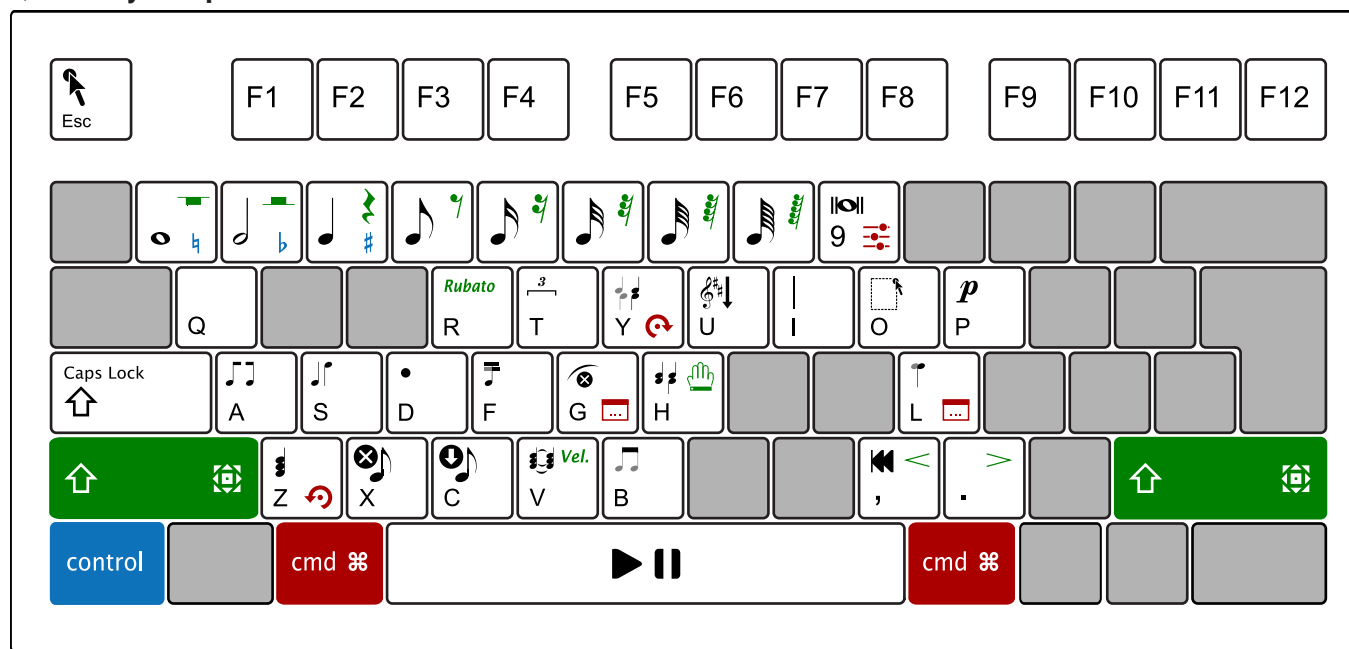


NOTE: Probably the most useful of all the keyboard shortcuts is **Quick-Select (Ctrl + left click)**. Clicking on any existing symbol (note, rest, key signature, clef) will select that symbol for editing and the cursor will display the newly-selected symbol.

Complete list

See [Page 86](#) for a complete list of keyboard shortcuts.

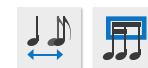
4 Quick-keys Map



Key	Function
ESC	Properties Tool
1 - 9	Note Values
T	Triplet
Y	Glue / Unglue Selected Voices
U	Unify Key, Time, Clef
I	Barline (Insert / Delete)
O	Select Tool / Lasso
P	Dynamic / piano
A	Beam Direction Toggle
S	Stem Direction Toggle
D	Dot (Insert / Delete)
F	Change Half-beam Direction
G	Delete Selected Articulations
H	Split Selected Clusters
L	Swap Noteheads
Z	Single / Cluster
X	Delete Mode
C	Insert Mode
V	Tie (Insert / Delete)
B	Beam Selected Notes
control + Key	Click Quick-Select (Ctrl + Click)
1 - 3	#, b, Natural
cmd ⌘ + Key	9 Playback Console
Y	Redo
G	Go to Page / Measure
L	Part Linking
Z	Undo
Other	Caps L. Lock Active Staff
Space	Play / Pause
,	Rewind
↑ + Key	Only Nudge Mode
1 - 8	Rests
R	Rubato
H	Reposition
V	Velocities
,	Crescendo Hairpin
.	Decrescendo Hairpin
F1 ... F12	Symbol Selection Window
	Notes (F1), Accidentals (F2), Rests (F3), Dynamics (F4), Articulations (F5), Tempo (F6), Tuplets (F7), Text & Tools (F8), Key Signatures (F9), Time Signatures (F10), Clefs (F11), Balines & Repeats (F12)

Editing Notes (Selecting/Inserting/Deleting)

1. When you select a symbol, either with the Quick--Select method or from the Symbols Selection window, Insert mode is automatically activated.
2. **Automatic spacing** is on by default. If not, we recommend it be activated prior to editing notes.
3. To enter the selected symbol, simply position your cursor where you want to drop the symbol



Colored measure?
Measures highlighted with a color (default = yellow) indicate that there MAY be a rhythmic error somewhere in the measure. Colored measures may be turned off and on in the menu, [View > Show > Error measure.](#)

Deleting notation symbols

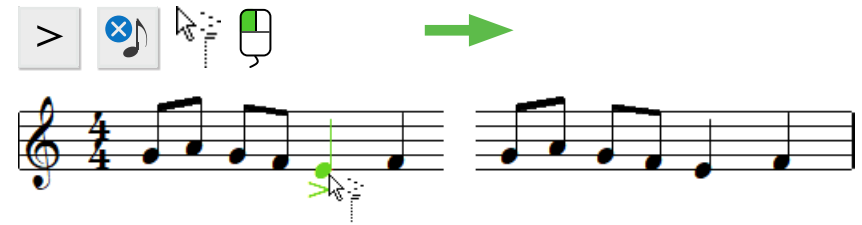
Deleting a single symbol is easily done by activating the Delete mode (hitting the “X” key on your keyboard).

1 How to delete any symbol

1. Press the **X** key on your keyboard to enter Delete mode. Or you can click on the “Delete” button from the toolbar.
2. Position the arrow of the cursor over the object you wish to delete. It will highlight in color. Left-click to delete the highlighted object.

2 Deleting specific symbols

1. You may need to delete a specific symbol and not anything nearby.
2. Select a symbol (Quick-Select or Symbol Selector). In this case, a **tenuto** symbol needs to be deleted from a note head.
3. Click on the note head associated with the tenuto. Only the tenuto is removed and not the note itself.



3 Delete a range of symbols using the Selector tool

1. Activate the Selector button from the toolbar or simply hit the **O** key. With your mouse, click and drag a box around the objects you wish to delete. Selected objects will highlight in color. Hit the **Delete** key on your keyboard. All selected symbols will be removed. A single click on any object can also be selected with the Selector tool.

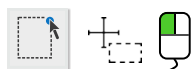
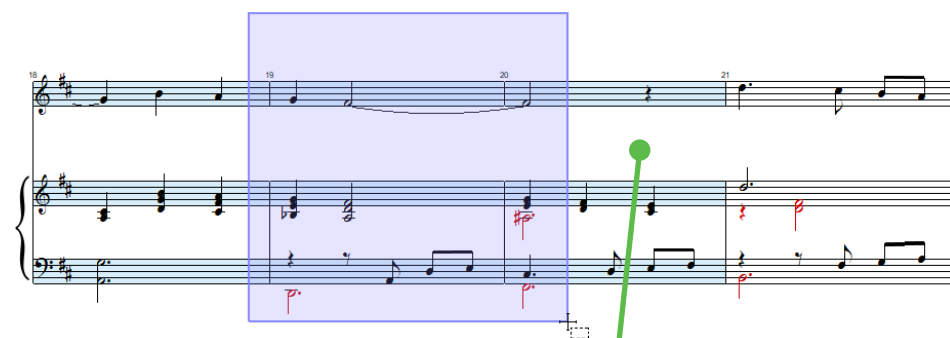


4 Delete multiple articulation symbols at once.

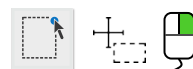
1. It may be difficult to select only certain articulations without highlighting notes and rests nearby. Here's how ...
2. Hit the **O** key and drag a box roughly around the area containing articulations you wish to delete (such as slurs and hairpins).
3. Now hit the **G** key. Or you may select this menu item: **Edit > Special > Delete Selected Articulations**.

5 Selecting content from measures (partial content or all content) in measures and systems

1. Activate the **Selector tool** ("O" key). The **Selector** button is also found in the Note Editor toolbar.
2. To select specific symbols inside measures, **LEFT**-drag your mouse around the symbols you wish to delete. Symbols will highlight **green**. You can shift the pitch of the selected notes (**Shift** + drag) or delete highlighted symbols with the **Del** key.
3. To remove ALL content from many measures, **RIGHT**-drag your mouse button and drag a frame inside multiple measures in a staff or multiple staves of a system. When selected measures will turn **blue**. Push the Del key on your keyboard to delete.



Selector tool + LEFT-drag selects a specific group of symbols within one or more measures for the purpose of pitch-shifting (**Shift+drag**) or for deleting (**Del** key). Highlighted symbols will turn **green**.



Selector tool + RIGHT-drag selects ALL symbols within highlighted measures for the purpose of deleting. Partially-selected measures will highlight **blue** and ALL symbols inside highlighted measures will be removed with the **Del** key.



Removing LOTS of content at once

If you need to remove a large part of the score, the best method is to switch your view to **Continuous View** (**VIEW > View Mode > Long View**). Or pick the **continuous long view** icon located at the far right of the status bar along the bottom edge of the ENF view window. Zooming out will give you a bird's eye view of the entire score.



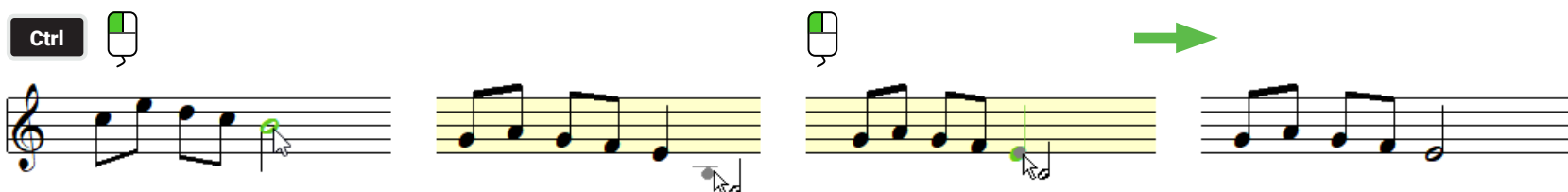
Changing notation symbols

You can easily change the value of any existing symbol (note, rest, tempo or dynamic marking) by locating the same symbol then selecting a different value. Once the cursor registers the new value, the symbol in place will inherit the new value when it is clicked on.

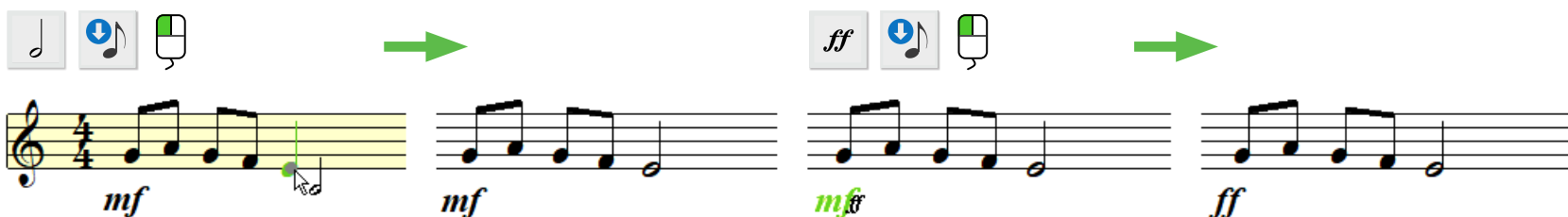


1 Changing the value of a given symbol

- Quick-Select:** The easiest way to change the value of a symbol is to locate a similar symbol nearby with the correct value. **Quick-select** the symbol by holding down the **Ctrl** button and clicking on it. Your cursor will immediately inherit the symbol and its value. Then simply click on the symbol to be changed. For example, **Quick-select** a half note. Notice the cursor inherits the symbol and its value. Then click on a nearby quarter note. The quarter note immediately becomes a half note.



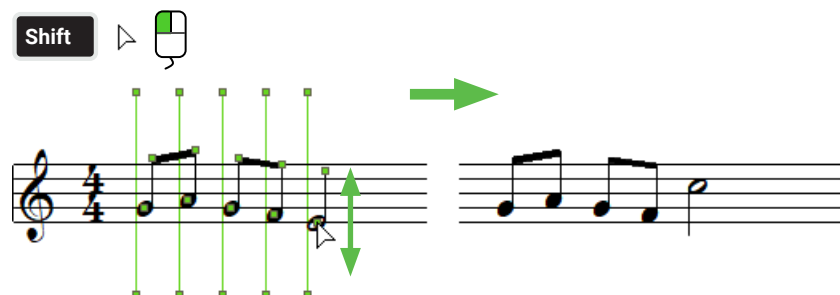
- Of course you can always activate the **Selector Tool**  and choose a new symbol and value.



2 Changing note pitches

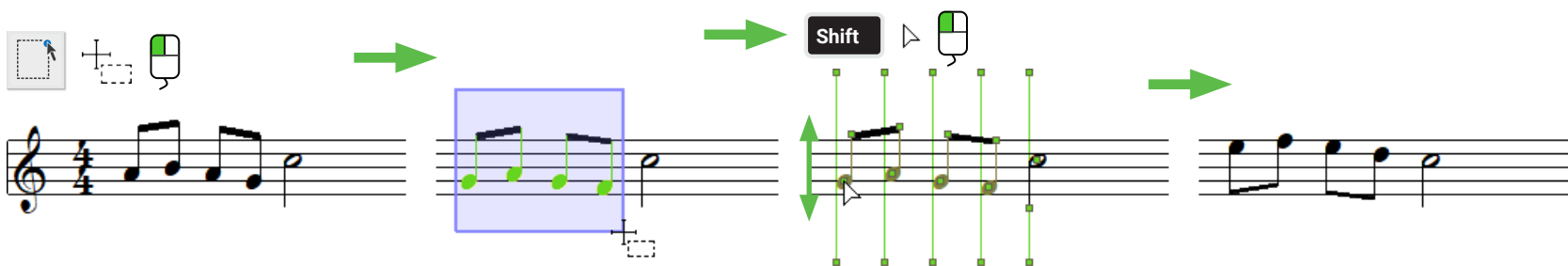


- Hold the **Shift** key down (**Nudge mode**). Green control handles will appear.
- Click inside the note head and drag to up or down to change its pitch (see also [Page 37](#)).



3 Changing pitches of a group of notes

1. Choose the **Selector** tool (or hit the **O** key).
2. Click and drag a region around the notes you wish to shift pitches.
3. Hold down the **Shift** key (**Nudge** mode).
4. Click and drag ganged notes up or down to a new pitch. **NOTE:** This is not the usual method for transposition. See Transposition on [Page 55](#).

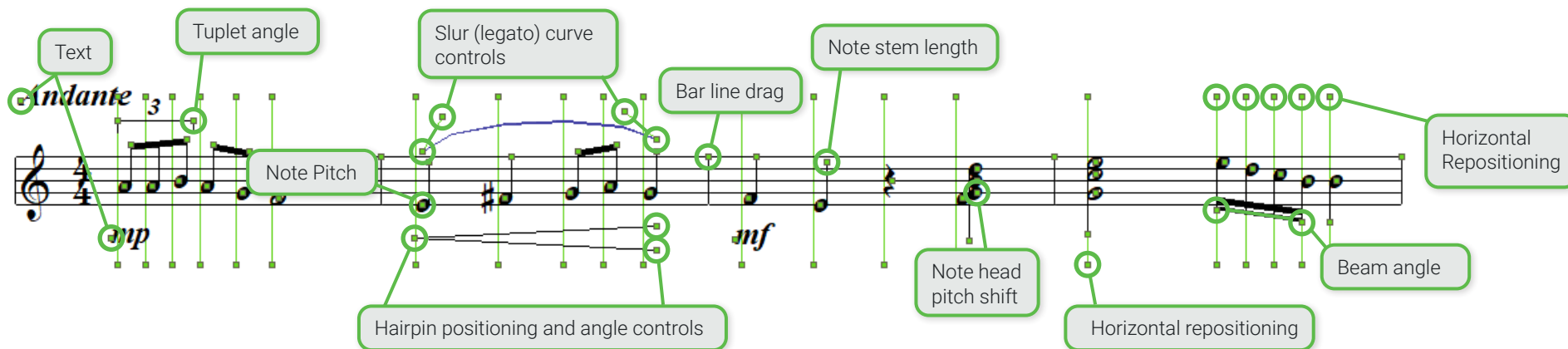


Repositioning symbols using NUDGE mode



The Nudge tool is found in the **Text & Tools** category inside Symbols Selection window.

Shifting symbols horizontally or vertically is done in **Nudge** mode. Hold the **Shift** key down and notice that most objects will appear with green control "handles". Drag note heads to change pitch up or down. Drag handles of other objects to move horizontally.



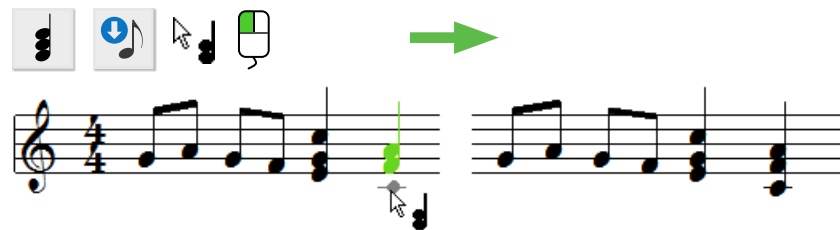
Inserting notes and voices

We put as much engineering effort in SmartScore's notation editor as we did building the Recognition module. Music is rich in its complexity and therefore, any notation editor worth its salt must be able to cope with that complexity as well as with its exceptions.



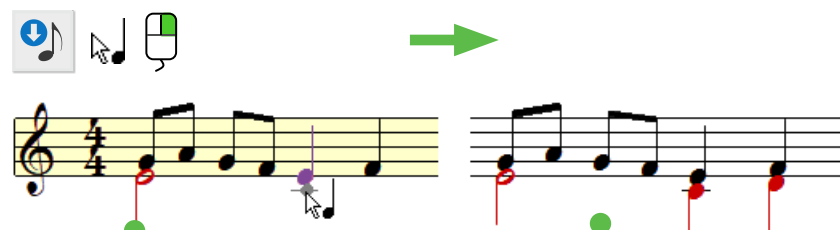
1 Creating chord clusters

1. To add multiple note heads to an existing note stem, hit the **Z** key on your keyboard.
2. Your cursor will show a double-note glyph and arrow. Position the pointer over the existing note stem and click onto a line or space to insert the note head.
3. Hit the **X** key and you will be able to delete single note heads from the cluster.



2 Adding another voice (Contrapuntal voices)

1. Select the note or rest you wish to insert as another voice.
2. Position your cursor exactly under or over the note or rest that corresponds to the same beat (time slice) that they both will share.
3. The existing note will highlight **PURPLE** indicating notes are now synced.
4. Be sure that the stem direction of the new note is pointed in the opposite direction as the original.
 - Insert with **left click** = Note stem points in same direction as cursor.
 - Insert with **right-click** = Note stem will insert in opposite direction as cursor.



Swapping a note stem

You can easily change the stem direction of any note by positioning your cursor over the note until it highlights then hit the **S** key on your keyboard. Or select from the menu: **Edit > Special > Swap stem direction**.



Contrapuntal voice colors

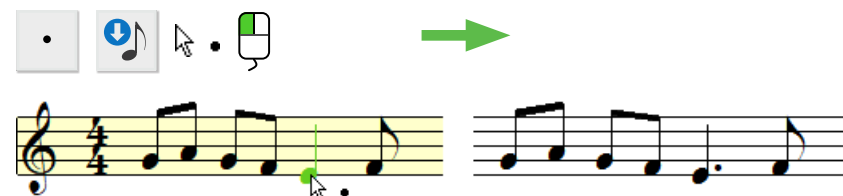
The primary voice color is black and the secondary voice color is red, etc. Voice number and color can be changed using the **Voice Color** button or suppressed using the **Voice Visibility** button.



Articulations, dots, ties and accidentals

1 Dots of Prolongation

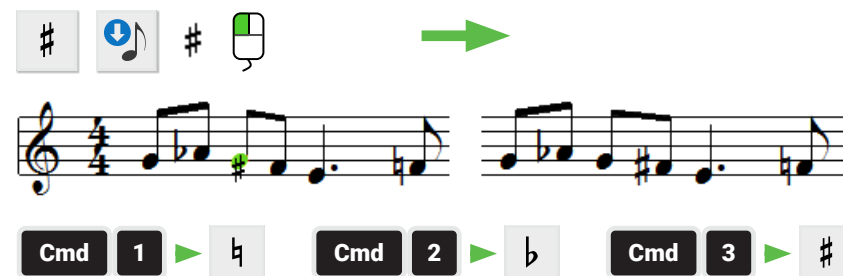
1. Press the **D** key on your keyboard to activate a single dot.
2. Position your cursor over a note head you wish to attach a dot to. The note will highlight in color, then click.
3. To delete a dot, simply hit the **X** key and click on the note head again.



Entering multiple dotted notes
 Select your note value from the Notes category in the Symbols Selection window. Then select the "dot" symbol located nearby. Notes will insert with dots attached wherever you click.

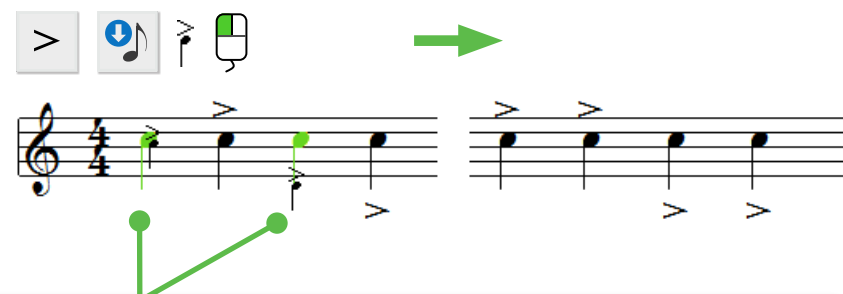
2 Accidentals

1. The easiest way to select an accidental is to **Ctrl + click** (Quick-Select) on any accidental you find nearby. Otherwise, you can hold the **Cmd** button down and hit the numerals **1, 2, or 3** on your keyboard.
2. Position your cursor over the note head you wish to attach an accidental to and left-click.



3 Inserting individual articulations

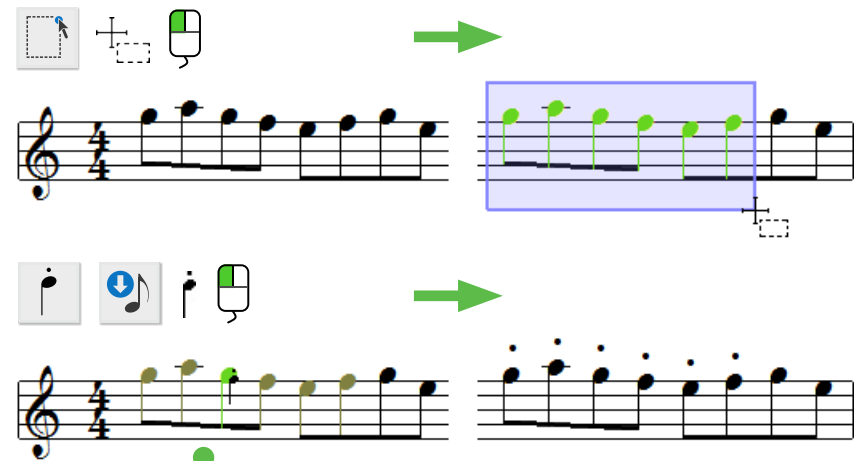
1. Select the required articulation from the **Symbol Selection** window.
2. Click on the note head to attach the articulation near the note head itself.
3. Click on the lower part of the note stem to attach the articulation to the tip of the note stem.



Where you click matters
 Clicking near the tip of the note stem attaches the articulation there. Clicking on the note head attaches it near there.

4 Assigning an articulation to many notes at once

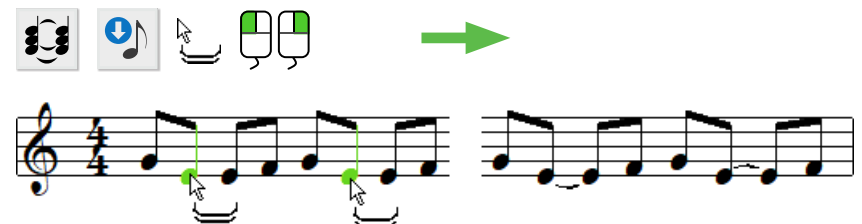
1. Choose the Selector tool from the toolbar or simply hit the **O** key on your keyboard.
2. If you see the articulation you want nearby, **Ctrl + click** on it. Otherwise, choose an articulation from the Symbols Selection window.
3. Hit the **C** key on your keyboard or select **Insert** mode button from the toolbar.
4. Position your cursor over any of the highlighted notes and click. Your selected articulation will attach to all highlighted notes.



To de-select a highlighted region, simply left-click outside of the active staff line.

5 Inserting Ties

1. The **V** key on your keyboard activates the **Tie** symbol.
2. Left-click on the first note head of a tied pair of note heads. A tie will connect two adjacent notes of the same pitch.
3. The default shape of the arc depends on whether the note heads are above or below the center staff line. To insert a tie with the opposite arc shape, left-click.



Single tie / Multiple tie

If you need to insert a single tie (and ignore other notes in the same cluster) you can find the single tie symbol in the **Notes** category of **Symbols Selection** window.



Working with Grace Notes

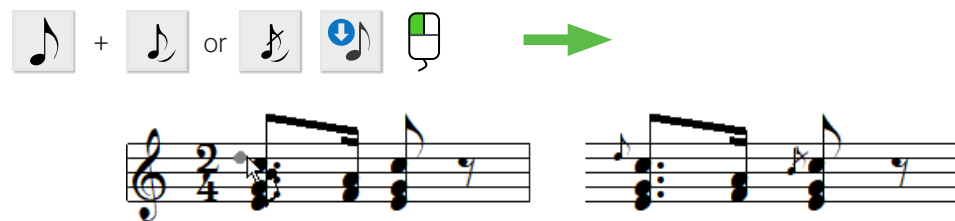
Grace notes are a kind of ornament that precede and “lean into” the note that immediately follows. SmartScore 64 supports two types of grace notes: the **appoggiatura** (with a slur mark) and the **acciaccatura** (with a slash mark). Grace notes can appear signally or joined together in a beam group.

- An **appoggiatura** sounds before the beat. It is heard before its ornamented note which plays precisely on the beat.
- An **acciaccatura** sounds on the beat. It's ornamented note will be heard slightly after the beat. Acciaccaturas are more accentuated than appoggiaturas.



1. To insert a grace note, open the NOTES sub-menu in the **Symbol Locator** tool and select either the **appoggiatura** icon (with a slur mark) or the **acciaccatura** icon (with a slash mark).
2. Choose a duration to be applied to the grace note by selecting an appropriate note value. You must choose between an eighth and thirty-second note.
3. Click anywhere in the staff to insert.
4. You may insert more than one grace note. To beam multiple grace notes together, activate the Selector Tool (Arrow or Esc key), draw a box so they highlight then hit the “B” key.

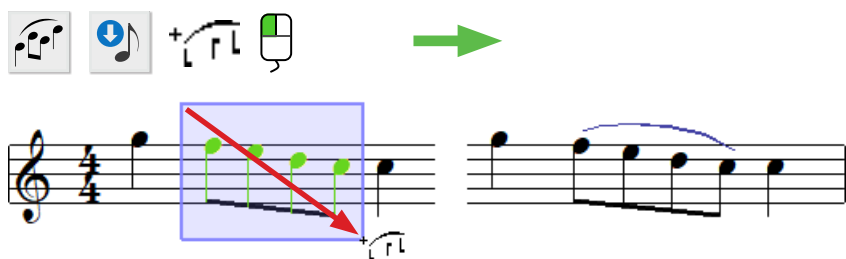
NOTE: Acciaccaturas will not sound if placed before the first note of a measure. If you wish to insert a grace note before the first note, it must be an appoggiatura in order to be heard.



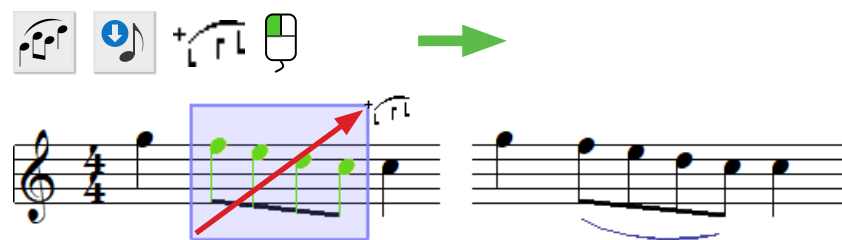
Articulations over a range of notes

Certain articulations as well as tempo and dynamic markings are meant to be applied over a range of notes. These include slurs (legatos), Crescendo/Decrescendo hairpins and dynamic markings.

1 Slurs (Legatos)

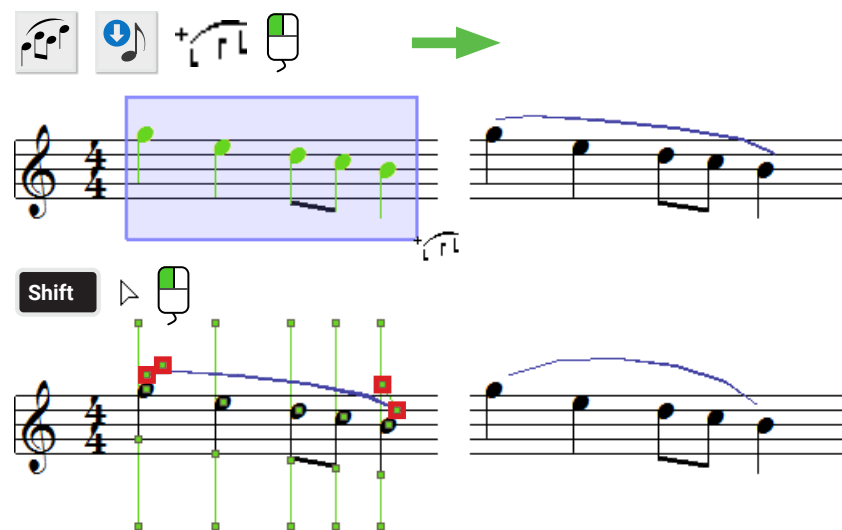


IMPORTANT
If the frame is dragged from top to bottom, the symbol appears above the notes. When dragging from bottom to top, it appears below.



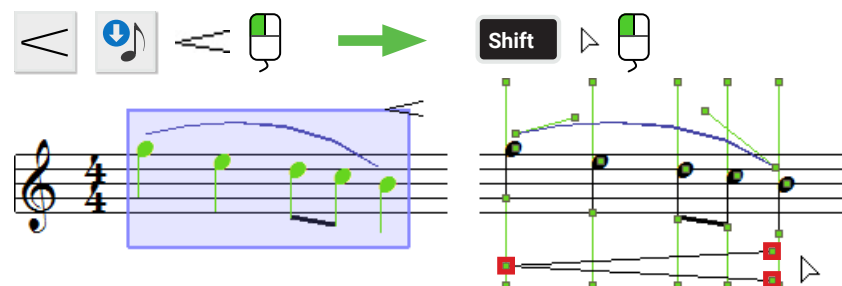
2 Inserting slurs

1. Select the **Slur** button from the Articulations category of the **Symbol Selection** window. Or Quick-Select (**Ctrl + click**) on a nearby slur.
2. Click and drag a frame over the notes (from top to bottom or from bottom to top) depending on how you want the arc to appear (above or below) the notes.
3. In **Nudge** mode, you can control the shape of the arc by adjusting either one of two "Bezier" control handles near the endpoints of each slur.



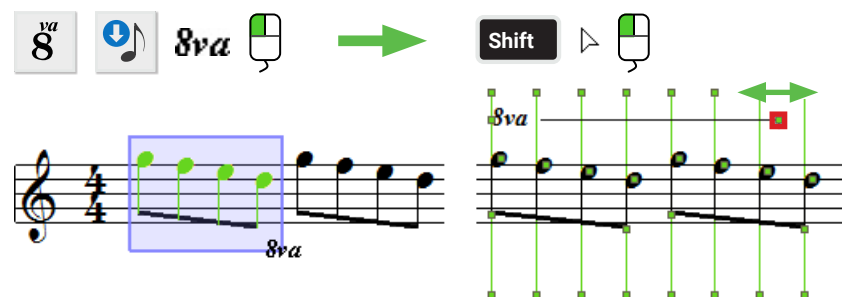
3 Inserting hairpins (Cres. & Decres. markings)

1. Select one of the hairpin markings from the Articulations category in the **Symbol Selection** window. Or simply hit the **>** or the **<** characters on your keyboard.
2. If necessary, hold down the **Shift** key and change the angle of the fork by dragging one of the endpoints. Dragging either endpoint horizontally extends the dynamic effect over a longer range of notes.



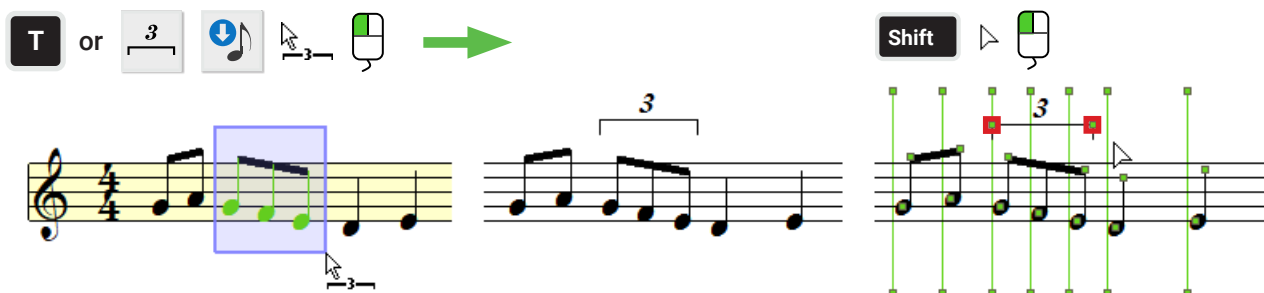
4 Inserting Dynamics, Tempo and other multi-note markings

1. Select the desired symbol from one of the categories in the **Symbol Selection** window.
2. Drag the cursor glyph over the range you wish to apply the dynamic or tempo marking.
3. You can change the positioning of the inserted symbol in **Nudge** mode.



5 Triplets and Tuplets

1. Hit the **T** key on your keyboard to activate Triplets. Or go to the **Symbol Selection** window and click on **Tuplets**.
2. Drag a box around the notes/rests to be assigned the tuplet. Letting go of the mouse button inserts the symbol.
3. To include or exclude more notes in the tuplet, hold the **Shift** button down and drag one of the two green handles on the tuplet endpoints..
4. To delete the inserted tuplet, hit the **X** key, hover over the tuplet and click on it. It will be removed.

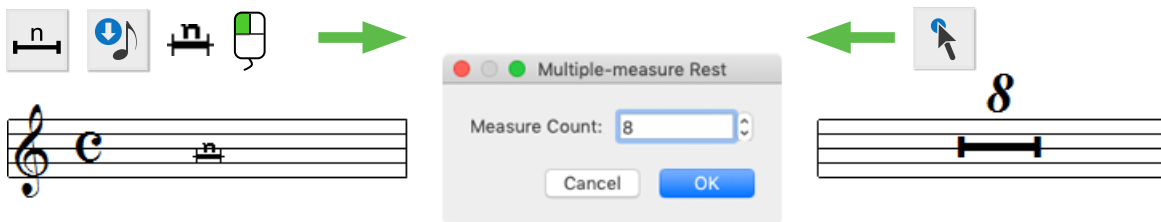


Custom tuplet (beats over value)

Tuplets actually subdivide a selected range of notes and rests into “extra-metric” groupings. You can define a unique ratio that represents the DIVISION of beats over the number of beats (VALUE).

Multi-measure rests

1. Select Multi-measure rests from the Rest category in the **Symbol Selection** window.
2. Enter the number of measures that will be paused during playback.
3. Click inside an EMPTY measure to insert the multi-measure rest. To change the value of a multi-measure rest, hit the **ESC** key and click of the multi-measure rest you wish to edit.

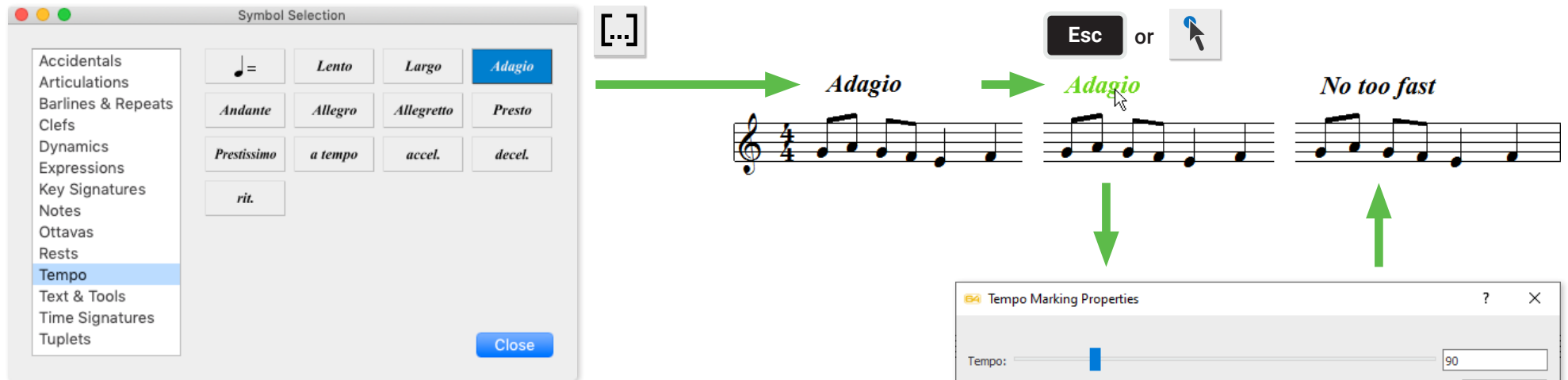


Clock and Measure count

Once you have inserted a multi-measure rest, measure count and timing are automatically updated..

Inserting Tempo markings

Many tempo markings are automatically recognized by SmartScore. Following recognition, you may find that playback is faster or slower than the default tempo. That's because recognized as well as inserted tempo markings (e.g Adagio, Andante, etc.) have pre-set tempo values. Any tempo marking will over-ride the default tempo (set in the Playback Console). You can reset Tempo marking values permanently or just for the active document. Tempo markings are found in the **Tempo** category of the **Symbol Selection** window.



Resetting default Tempo values. Creating custom tempo markings.

1. Choose any Tempo marking from the **Tempo** category of the **Symbol Selection** window.
2. Hit the **ESC** key on your keyboard or select the **Properties** tool arrow from the toolbar.
3. Left-click on any Tempo marking. The **Tempo Marking Properties** window will open up.
4. Move the tempo slider or select a new BPM value from the readout window.
5. Click OK to apply the change. The new value will be applied **ONLY** to the current open ENF document.

Apply change locally or globally

Uncheck both boxes to apply change only to the selected marking. Check "Apply setting for all future files" to permanently change the tempo value for that marking.

Create a custom tempo mark

Give a name for the custom mark and it will appear in the score as such.
NOTE: UNCHECK BOTH Apply to... boxes so you don't permanently over-ride the standard tempo marking.

Inserting Expressions

Expressions in a score convey information about how a particular section of the music ought to be performed. Expressions are generally simple phrases and are more suggestive than say, a metronome marking, which would be considered strict. SmartScore comes with a library containing hundreds of the most common Expressions in **German, Italian, French and English**. You may edit the wording of an existing expression or simply type in your own wording when the Expression dialog opens.

Ex

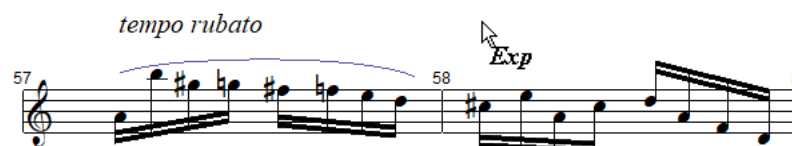
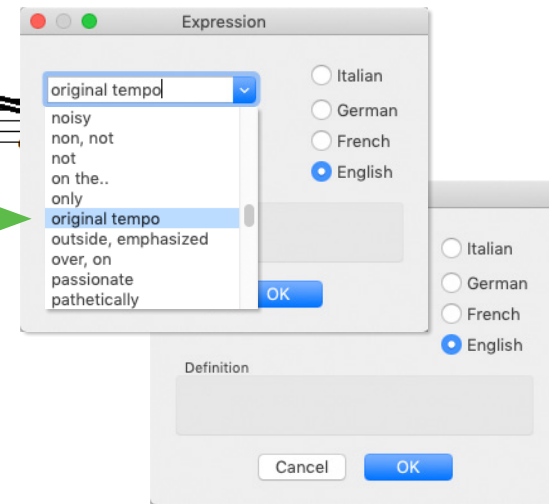
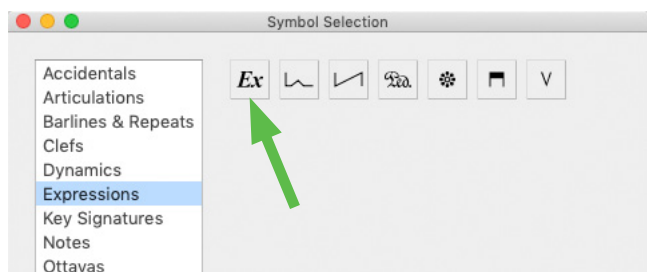


1 How to insert an Expression

- Click on one of the **Open Symbol Selector** buttons located in the main palette along the left margin. The **Symbol Selection** window will open.
- Select **Expressions** section then choose the **Expressions tool**.

[...]

Ex



- Click inside the score where you wish to insert the phrase. The **Expression window** pops open.
- Type in your own custom phrase or select a preferred language. Scroll down to select a phrase from the list. Click **OK** to insert the expression.
- If necessary, you can reposition the inserted Expression in **Nudge** mode (**SHIFT** button).

Ex

Changing an existing Expression

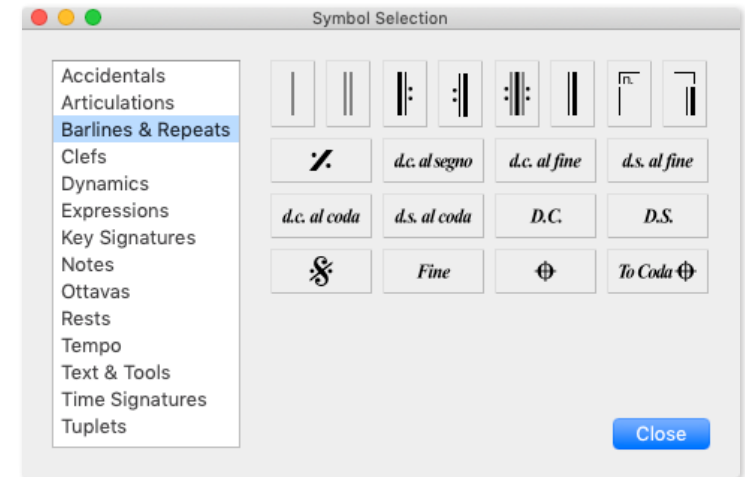
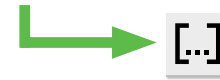
Changing an existing Expression phrase is easy. Choose the **Expressions tool** from the **Symbol Selection window** again. Select **Expressions** and the phrase you would like to change. Edit your selected phrase.



Repeats, jumps and endings

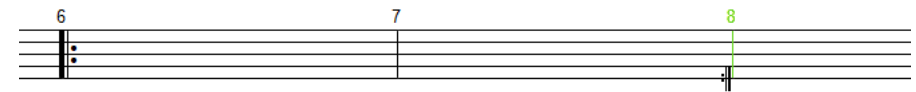
In the **Barlines & Repeats** window of the **Symbol Selector** tool, you will find all the necessary symbols for entering and editing repetitions, jumps and numbered endings.

Clicking on one of the **Open Symbol Selector** buttons located in the main edit palette will open the **Symbol Selection** window.



1 Inserting and changing repeat symbols

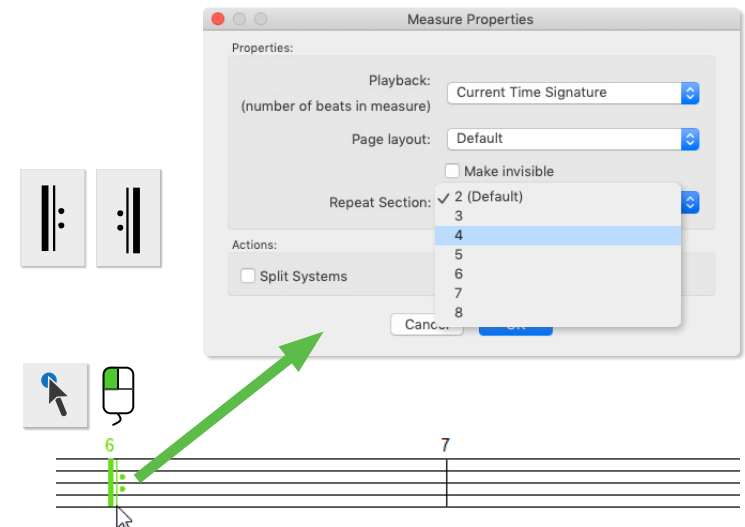
- Choose any repeat character from the **Symbol Selection** window. Left-click anywhere to insert the symbol at the desired position.
- To change an existing barline to a repeat sign or numbered ending, select the appropriate symbol then position your cursor over the existing barline you wish to change. It will highlight green. Click on the barline to effect the change.



2 Left and right repeat barlines (multiple repeats)

You can specify the number of times a section repeats when it is bracketed between left-repeat and right-repeat barlines.

1. Select the **Properties** tool from the toolbar (or simply hit the **ESC** key).
2. Click on the repeat barline that begins the section (the right-repeat barline).
3. In the **Repeat Section** area of the **Measure Properties** dialog, select the number of times you want the section to repeat.
4. Click **OK**.

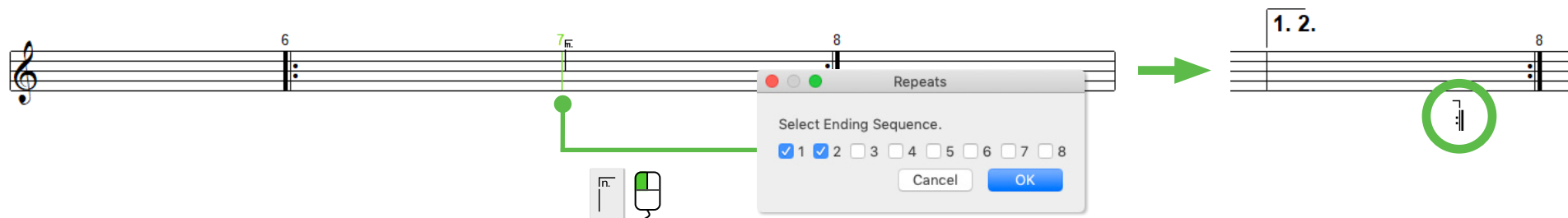


3 Working with numbered endings

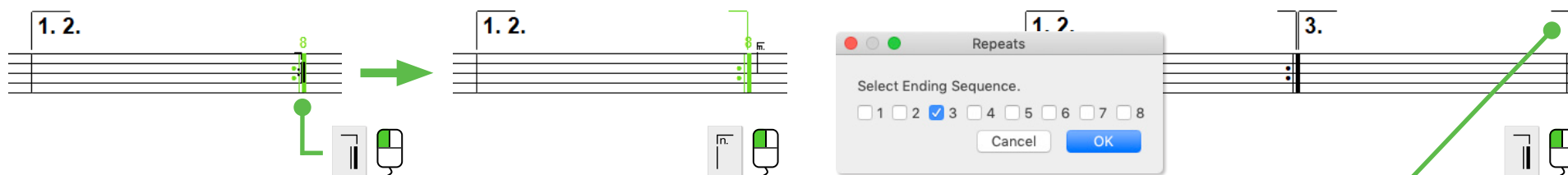
Repeated sections can be simple, but they can also be quite complex. Sections may repeat several times but then have a different ending for the last repeat before moving on through the piece. Numbered endings allow for a set of measures that end a section to play but then to jump to an entirely different ending on the last repeat, skipping the first set of ending measures before continuing on.



1. You need to establish the start and finish of both the initial ending and the final ending using specific symbols. Select the **start alt repeat** barline symbol from the **Barlines & Repeats** category of the **Symbol Selector** dialog. Hover over a barline where the first ending sequence should begin. The barline will highlight green then click on it.



2. In the **Repeats** dialog, check the number of boxes that correspond to the number of times you wish the sequence to repeat.



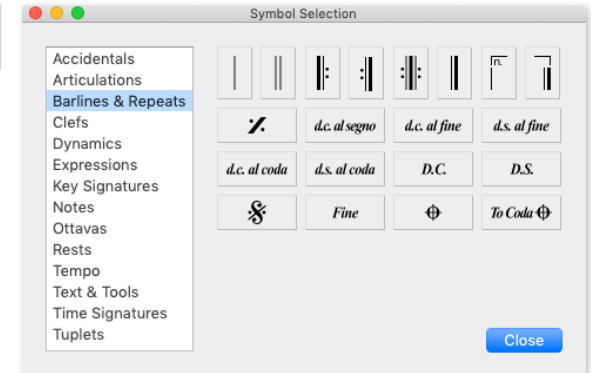
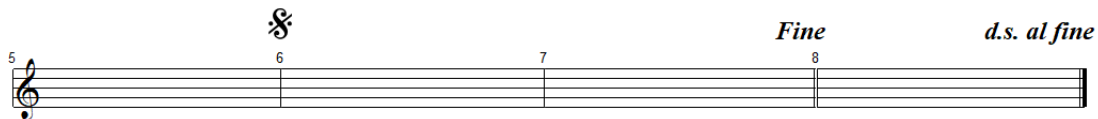
3. The **end alt repeat** barline symbol should automatically appear on your cursor. Locate the **left-repeat** barline that ends the first ending of the sequence and click on it.
4. Your cursor should automatically revert to the **start alt repeat** symbol again. Click on the same **left-repeat** barline that ends the first ending. This will establish the last sequence.
5. In the **Repeats** dialog, choose the number of ending(s) to be repeated. Be sure to “close out” the last repeated sequence by clicking on the final barline that ends the last sequence.

IMPORTANT !
 Numbered endings must be “closed out” with an **end alt repeat** barline otherwise the playback engine won’t know where the final sequence ends. Not all printed publication include this symbol.

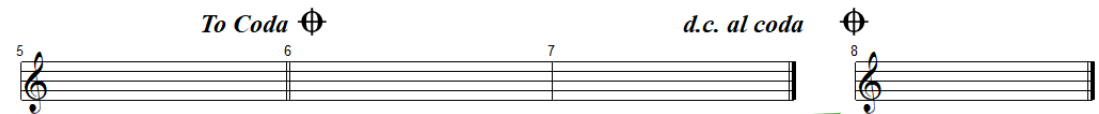
4 Working with jumps, segnos and codas

It's common in printed music to have sections that leap between measures, even pages. These "jumps" use a kind of shorthand (e.g. *d.c.al segno*, *d.c.al fine*, *d.s.al fine*, *d.c.al coda*, *d.s. al coda*, *da capo*, *dal segno*, *Segno*, *Finale*, *Coda*, *To Coda*). Jump symbols are found in the **Barlines & Repeats** category of the **Symbol Selection** window. SmartScore will respond properly to jumps during playback provided they are entered properly. It's important that the "threads" that link jump symbols together are logically connected so they don't end up creating a "bowl of spaghetti".

- Jump symbols are attributes of barlines. You insert them by clicking on the barline where the jump either starts or finishes.



- Jump symbols can be relocated to avoid collisions. Hold the **Shift button** down, click into the green handle below the symbol and drag to reposition.



5 Creating a "coda fragment"

To split a system and create a "coda fragment", follow these steps:

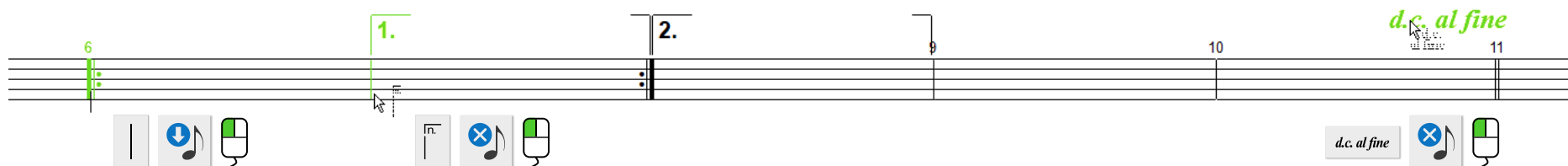
- Select the properties tool (**ESC** key) and click on the bar line where you want to split the system.
- In the **Barline Properties** dialog, select "Split Systems" then push **OK**.

5 Tips for deleting repeat symbols

Deleting barlines represented by numbered endings should be done carefully so as not to mess up their underlying logic. Numbered ending barlines do not delete like “normal” barlines. When deleted, they revert to single, non-numbered barlines. Left and right repeat barline do delete normally.

Deleting barlines at the END of a system creates a special problem. Deleting a barline at the end of a system will cause the last measure of the system to roll over to the next system. So if a barline at the end of a system needs to be deleted do the following:

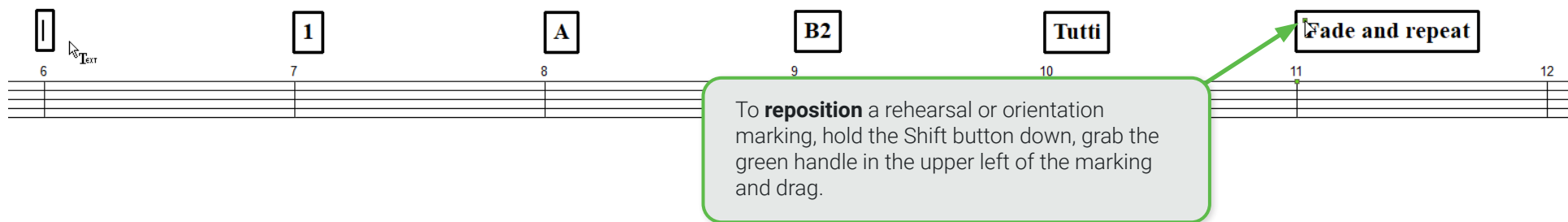
- Insert a single barline just to the left of an ending barline. Go ahead and delete the ending barline. Notice the new barline moves to the end of the system and the last measure will remain in place and not roll over.



Rehearsal and orientation markings

You can use create an unlimited number and type of rehearsal / orientation markings. They are automatically bordered by a frame when they are created and can be easily repositioned.

1. Select the **Rehearsal mark** button from **Text & Tools** in the **Symbols Selector**. 1
2. Click where you want the rehearsal mark to appear. A frame with a text entry cursor appears.
3. Enter the text you wish to appear inside the frame. Click outside the frame when finished.



The Properties tool



This tool reveals practically everything!

The Properties tool is the go-to tool for examining and editing all the underlying details and playback properties for nearly every symbol in your score: staff systems, bar lines, notes, rests, time and key signatures, dynamics and tempo information, legatos, arpeggios, trills, you name it. To activate, hit the **Esc** key or push the **Properties** button in the toolbar.

Here's an example of some objects you can inspect and change with the Properties tool. Each selection will offer up a unique and editable dialog box.

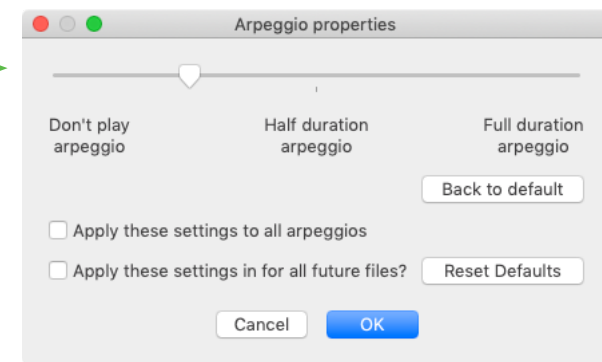
Open Staff Properties

Clicking inside the green triangle on the left of every staff opens the Staff Properties window. There you can control staff line visibility or transform the part to tablature (TAB) notation.

How to call up properties dialog windows for any given symbol

1. Hit the **ESC** button on your computer keyboard.
2. Position your mouse over the symbol you wish to examine and click on it.
3. A properties window unique to that symbol will open. All editable values, playback features and functions appear in the dialog box.

Click on an Arpeggio to open the **Arpeggio properties**.



SmartScore's Secret Weapon: The Properties Tool

Playback values for nearly every notation symbol can be edited on a one-time or permanent basis with a single click of the Properties Tool. Variable sliders make changing values intuitive. Don't like the effect? Simply restore to the default and try again.



Clicking on this notation symbol ...  opens this dialog window

- | | |
|---|---|
| <ul style="list-style-type: none"> • Notes • Rests / Fermatas • Multi-measure rests • Dynamic markings • Hairpins (Cresc. & Decresc.) • Tempo markings (Allegro, Lento, etc.) • Tempo modifiers (rit., ascel., etc.) • Trills, turns and mordents • Arpeggios • Slurs (Legatos) • Metronome inserts • Time signatures • Key signatures • Barlines and repeat signs • Staff Properties (green triangle) • Chord symbols and guitar fret diagrams • Triplets and other tuplets | <ul style="list-style-type: none"> • General Properties • General Properties • Multi-measure Rest Properties • Dynamic Marking Properties • Hairpin Properties • Tempo Properties • Accelerando-, Decelerando Properties • Trill Properties • Arpeggio Properties • Legato Properties • Tempo Properties • Time Signature Properties • Key Signature Properties • Barline Properties • Staff Properties • Guitar Chord Properties • Triplet Properties |
|---|---|



Change multiple note values with one click

Using the **Selector Tool**, (**ESC** key), select a range of notes. With the **Properties Tool**, click on any note and change its value. All highlighted notes will become updated.

Cut, Copy, Paste and Duplicate

For copying, cutting and pasting individual notation objects, entire measures and even larger music areas always use the selection tool. When using the tool, carefully consider what you are copying and how or where you want to use the material again.



1 Copy and cut individual notation objects or notes from a measure.

1. Activate the **Select tool** ("O" key).
2. Click and drag a frame around the elements or notes you want to copy or cut. Selected object will become highlighted.
3. **Cmd + C** copies the selected objects. **Cmd + X** cuts them out.

The image shows a musical score with three staves. Above the staves are two guitar chord diagrams: E_{min}7 and D. The piano part is on the bottom two staves. A blue dashed selection box is drawn around a group of notes in the right hand of the piano part. Above the piano part, a dashed box with a mouse cursor icon indicates the selection tool is active.

2 Copy and cut multiple measures or whole sections.

1. Activate the **Select tool** ("O" key).
2. **Right-click** over the range of measures and/or parts. Selected measures will highlight **BLUE**.
3. **Cmd + C** copies the selected objects. **Cmd + X** cuts them out.

The image shows the same musical score as the previous image. A large blue selection box is drawn around the entire piano part across measures 52, 53, and 54. Above the piano part, a dashed box with a mouse cursor icon indicates the selection tool is active.

3 Paste copied objects

1. To insert the copied material into empty measures, hold down **Cmd + V** (or **Edit > Paste**), position your cursor where you want the material inserted and click to paste.
2. To replace existing notation with the copied material, hold down **Cmd + R** (or **Edit > Insert / Replace**) and click to paste.
3. **Cmd + V** pastes material and **Cmd + R** replaces material. A **Paste options** dialog box will open. Select the options you wish to apply to the new material, merge, insert before/after bar line or replace existing bar lines.

The screenshot shows a music score with a cursor positioned at measure 53. A green box highlights the cursor tip, which is a small icon of a document with a cursor. A callout box titled "Cursor tip" explains that holding Cmd + V or Cmd + R down will display this glyph onto the cursor to indicate the position where copied material will be inserted.

Below the callout box is a "Paste options dialog" box with the following options:

- Merge with existing bars
- Insert new bars
- Paste before the barline
- Paste after barline
- Replace existing bars
- Show this dialog before each paste

Buttons for "OK" and "Cancel" are also visible.

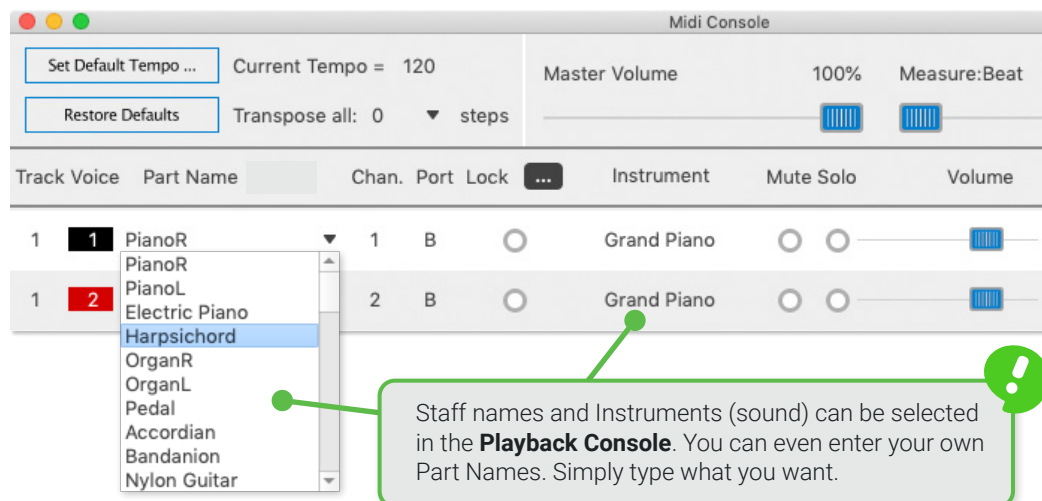
Parts & Instruments

Working with Instruments (Playback Console)


Following recognition, SmartScore automatically assigns a default instrument name and its associated MIDI sound to each part of the system. Each Instrument name and sound can be changed inside the **Playback Console**.

1 Changing instrument names and associated MIDI sounds

1. Open the **Playback Console** (Cmd + 9).
2. Select the desired Part Name and Instrument (sound). You can control how part names are displayed by going to this menu item: **View > Show > Part Names**.

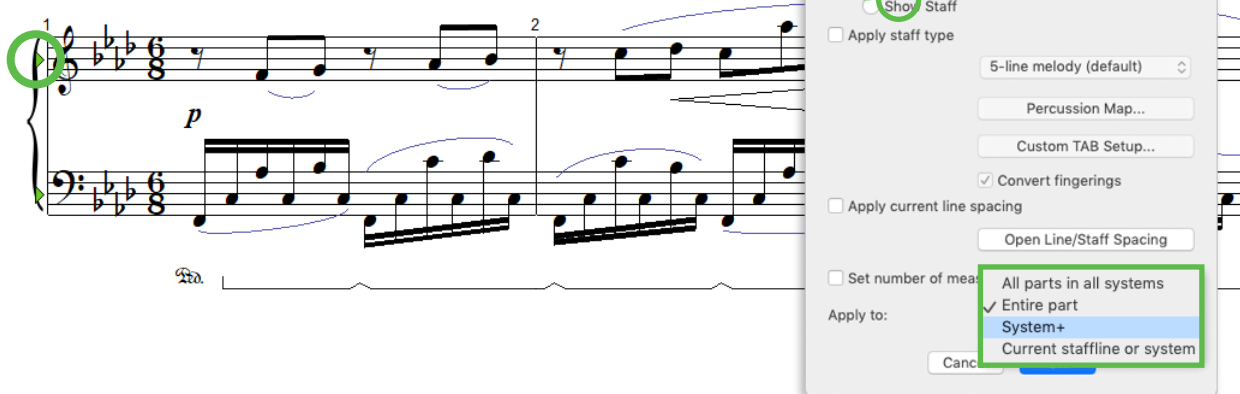


2 Permanently removing a part

1. Activate the **Properties tool** (ESC key). 
2. Right-click into the part you wish to delete.
3. Select **Staff / Part > Remove** from the **Score Properties** menu.

3 Hiding a part

1. Activate the **Properties tool** (ESC key) then click into the green triangle to the left of the part you wish to make invisible. The **Staff Properties** dialog box will open.
2. Check the **Visibility** box and select **Hide Staff** under Part name.
3. In the **Apply to:** area, select the range of the score that the part is to be kept hidden.



Re-linking parts (optimized scores)

Printed scores may not show all parts in all systems. Parts can appear then disappear from system to system. When SmartScore recognizes these “optimized” scores, it may incorrectly assign parts to staff lines in successive systems because the order in which the parts appear may change from system to system.

Should your recognized score contain such optimized systems, you can easily re-link incorrectly identified staff lines to their correct parts using SmartScore’s **Re-link parts** tool.

1 Re-linking staff lines to their correct part names.

1. Position your cursor over the system whose parts names are not correctly assigned and hold down **Cmd + L**. This will open the **Re-link Parts** dialog. The dialog is also accessible by right-clicking anywhere inside a system and selecting “Part Linking” from the **Score Properties** pop up menu. **Part Linking** is also found under the **Edit** menu.
2. The Part name list displays all possible parts. Uncheck staff lines that are not properly assigned and re-link part names to their correct staff lines (in top-down order).
3. Click **Apply** to apply the change to the current system. Click Next System to re-link parts of the following system if necessary. Click **OK** when all successive systems are correctly re-linked to their respective parts.

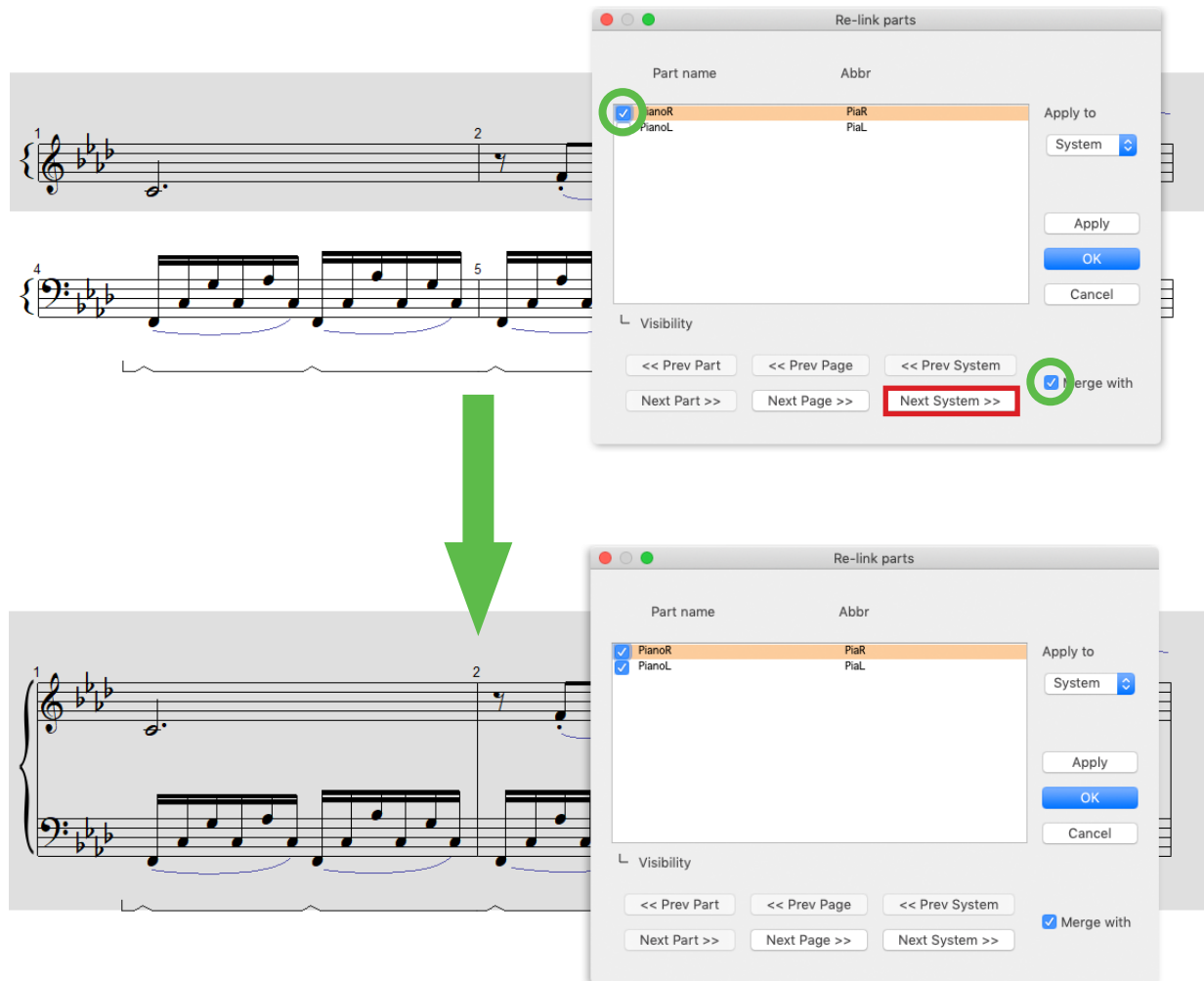
You can easily identify which part names are assigned to staff lines in the score by selecting **Part Names & Abbreviations** under **View > Show** menu. Part names and abbreviations are also displayed when you open the **Re-link parts** dialog box.

These buttons allow you to navigate forwards and backwards without having to close the Re-link parts dialog box.

2 Merging disconnected parts (Broken system brackets)

During recognition, SmartScore determines which staff lines should be joined into systems by looking at the continuous, connecting bracket along the left side of the score. If system brackets are broken or missing (due to hole punches or incorrect positioning of the page during scanning), then some staff lines may become disconnected from their systems and will appear to “float” by themselves. This may happen well into a score. And if you had spent time editing up to that point, it would be a shame not to be able to correct it immediately rather than having to go back, fix the missing bracket in the **Image Editor**, re-recognize the score and begin editing all over again. Fortunately, we have a tool that will prevent all that ...

1. Position your cursor over the disconnected part (or parts) and hold down **Cmd + L** to open the **Re-link parts** dialog box.
2. A check will appear next to the part name that SmartScore “thinks” belongs to that staff line. If it’s not correct, uncheck it and check the correct part name that should be applied.
3. Check the **Merge with** box.
4. Click on **Next System >>** if it’s located above the connecting system or **<< Previous system** if it belongs with the system above.
5. Repeat until all broken systems are rejoined together. Then push **OK**.



Controlling the layout

You can change spacing between systems and staves including staff line width on a one-to-one basis or by applying changes globally. There are several methods and strategies you can use to make sure your finished score is attractive and properly laid out. Let's look at some of the tools available ...

The screenshot shows a music score for "Fly Me to the Moon" in a software interface. A horizontal ruler at the top is marked from 1 to 25. On the left, a vertical ruler is marked from 1 to 14. A vertical line is drawn at measure 5, with a callout box labeled "System indent tab (left)". A similar vertical line is at measure 18, with a callout box labeled "System indent tab (right)". On the left side, a vertical toolbar contains several icons, with a callout box labeled "Part name/Abbreviation tab" pointing to the first icon. A mouse cursor is positioned over a note in the first system, with a callout box containing an exclamation mark icon and the text: "With **Properties Tool** activated (from the **Note Editor** toolbar or by hitting the **Esc** key), several spacing tabs along the vertical and horizontal ruler will appear. These tabs control only the **active** staff line and system where your cursor is located. But as you will see, changes made to one system can be applied to some or all other staff lines and systems in the score ...". The score itself shows two systems of music for piano, with lyrics "Fly me to the moon and let me" under the second system. Chord symbols like Bmin7, Emin7, G/A, A7b9, D6, and F#7 are visible above the notes.

- Vertical Spacing Tabs:**
- ┆ **Score Header** vertical spacing tab. (If one was created with **EDIT > Score Header**)
 - ┆ **System header** spacing tab
 - ▮ **Staff** spacing tab
 - ▮ **Staff line** distance tab

Apply spacing changes made in one system to all systems

Changes to line, staff and system distances made on one staff can be applied to all or some of the remaining staves in the score.

1. Make your changes to a single staff line in the ENF view using the spacing tabs as described on [Page 57](#).
2. Position your cursor inside the staff you wish to use as a spacing template and right-click (or chose **EDIT > Score Properties**). In the **Score Properties** menu, select **Staff/Line Spacing**.
3. If necessary, manually change **Top distance**, **Bottom distance** and **Line distance** values in the appropriate spin boxes.
4. To apply changes globally or to successive pages, click into the **Copy settings to:** pull-down menu and choose **All Systems** or **Next Systems**.
5. Push **Copy** to apply the change.

NOTE: If you're not satisfied with how the changes look, hit **Undo**.



Part Name	& Abbr	Top distance	Bottom distance	Line distance
1. Flute	Flu	8.60	2.4	0.46
2. PianoR	PiaR	2.4	2.0	0.46
3. PianoL	PiaL	2.0	2.4	0.46

System spacing: 0.00

System Top offset: 0.00

Copy settings to: All systems

Copy

Cancel OK

<< Prev Part << Prev Page << Prev System

Next Part >> Next Page >> Next System >>

Navigation

Use these buttons to navigate from system to system or page to page.

Copy

This copies changes made to the all or some of the systems that you choose.

Reformatting your score

The **Format Score** dialog is a powerful tool that allows you to automatically adjust the layout of your score by **re-scaling** the music so it fits nicely within the document's default page size and orientation. Remember that SmartScore maps to the **scanned image** during recognition, which is usually smaller than the actual page size of the original score. Applying scaling in the **Format Score** dialog gives your document a finished look. The **Fit to Page** function is particularly useful because it performs rescaling of your score automatically with just one click. Additionally, you can make global changes to all the systems of document; such as specifying the number of measures per system, resetting system spacing and indents.

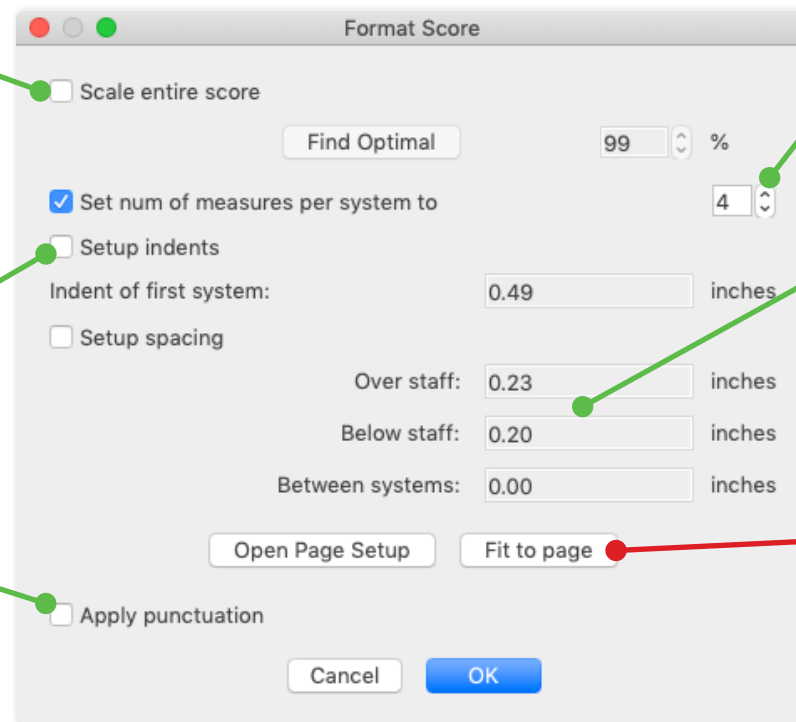
Where is the Format Score dialog found?

- Choose **EDIT > Format score**.

Manual re-scaling:
Check the box, **Scale entire score**. Push the **Find Optimal** button. SmartScore will calculate the amount to up-size or down-size the score. Accept or adjust the percentage amount shown in the readout. Push **OK** to apply the format change.

This sets the initial indent of the first system.

Checking this box will automatically apply **Auto-spacing** to each measure of the score. **NOTE:** This action may cause systems to roll over to the next page.



Applying **number of measures per system** will assign the number you select to each system in the score. If you want to adjust the number of measures per system to just one system or to a limited range of systems, use the **Staff Properties** dialog (see [Page 63](#)).

Reset system spacing parameters here. Selected values will apply to all systems of the score. More flexible staff and system spacing options are found in the **Score Properties > Line/staff spacing** dialog.

Fit to page will automatically calculate optimum resizing of the score to fit nicely within the default margins, page size and orientation.

Playback

Besides simply hearing your scanned music play, you can also enjoy numerous useful and enjoyable playback tools that SmartScore provides. Among these are a complete MIDI sequencing environment, MIDI-to-notation functionality, automatic drum track and drum pattern library, juke box and more. Let's dig in.

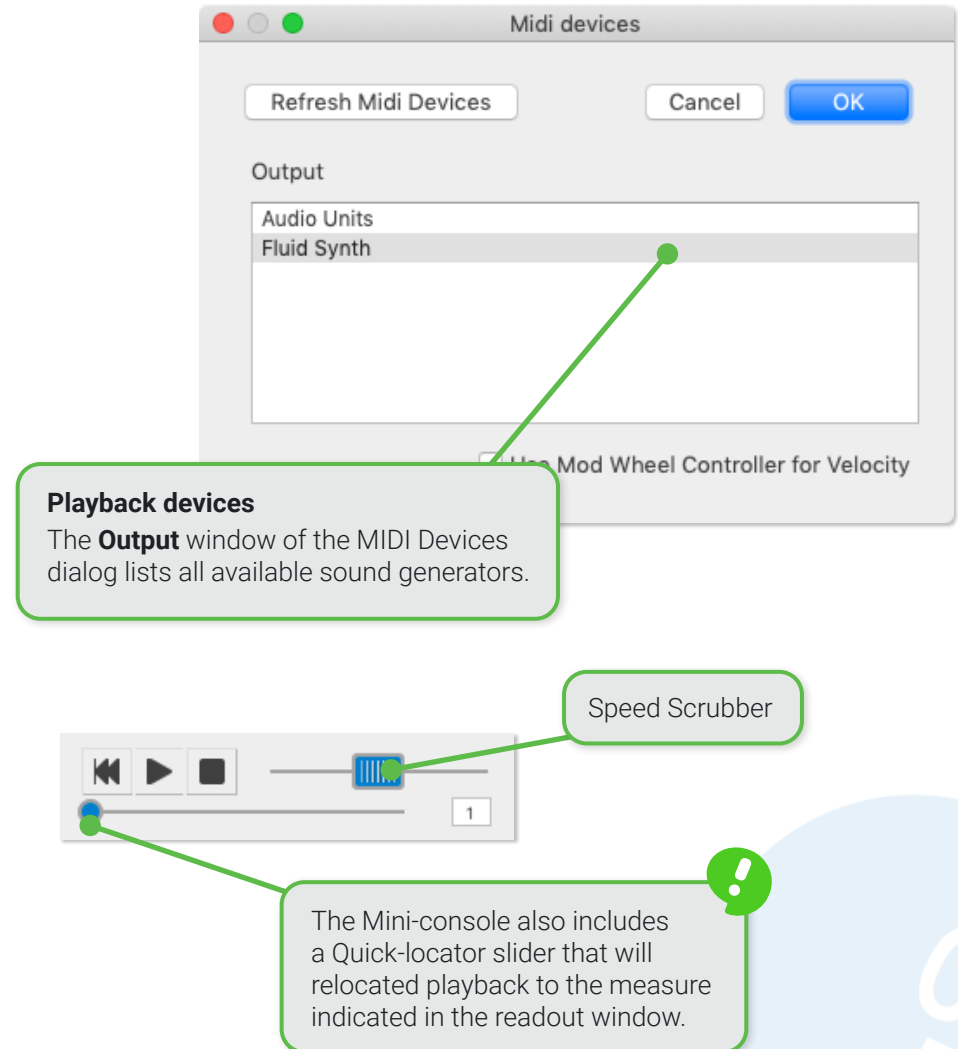
Setting up MIDI Playback

SmartScore is already set up for high-quality playback of your recognized or imported music files. Default playback is via the **FluidSynth-SoundFont**. You can change playback sound fonts as follows:

1. From the **Playback menu** select **MIDI Devices**.
2. The **Output** window displays all available MIDI sound-generators, including Microsoft Wavetable module. **FluidSynth SoundFont** pre-selected.

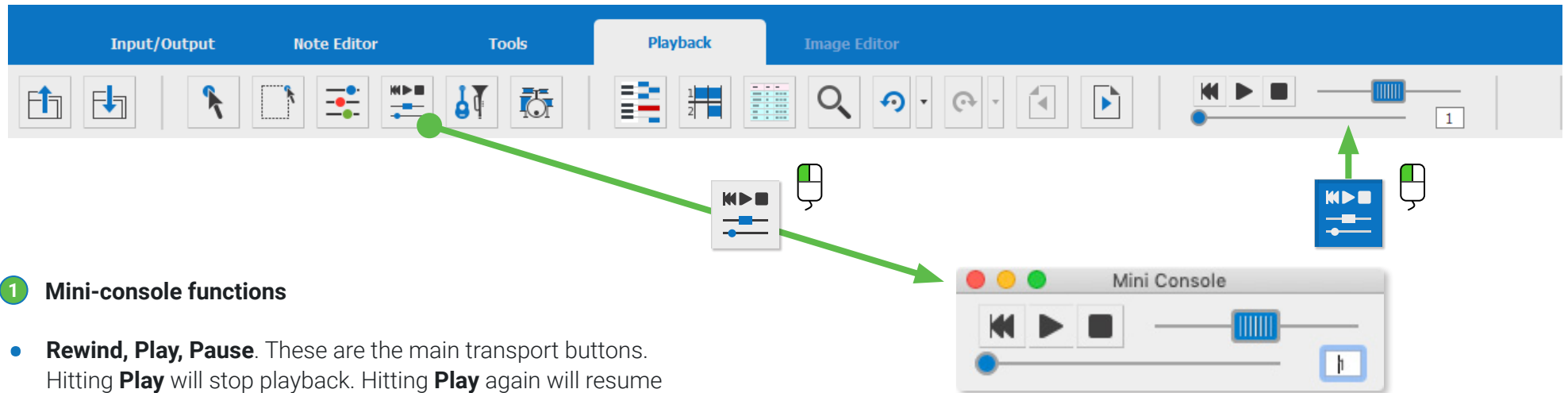
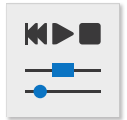
Transport Controls

- Hitting the **Comma** key automatically brings you to the **Playback** tab.
- Press the **Spacebar** on your keyboard to start and stop playback.
- The **Mini Console** has controls for **Play, Stop, Rewind** as well as a spring-loaded **Speed Scrubber** that gradually speeds up or slows down playback.
- The main Playback Console (**Playback > Playback Console**) also contains the basic playback transport controls as well and default tempo.



The Mini-console

The Mini-console is a floating playback tool that contains useful playback controls in a neat little package. Following recognition, it will automatically appear in the upper left corner of the window. You can relocate it by dragging to another place on the screen. If you click the Mini-console icon button in the Playback tab, the Mini-console will return its nesting place on the far right of the toolbar.



1 Mini-console functions

- **Rewind, Play, Pause.** These are the main transport buttons. Hitting **Play** will stop playback. Hitting **Play** again will resume playback from the same place in the score. Hitting **Pause** will stop playback. Hitting it again will restart playback from the beginning.
- **Spring-loaded tempo scrubber.** Dragging this slider to the right or to the left will increase or decrease playback speed depending on how far you drag the scrubber. Releasing your left mouse button will cause the spring-loaded scrubber to snap back to null position.
- **Measure Finder.** Dragging the round **Measure Finder** slider will relocate playback to the position displayed in the small readout window. When Play is pushed, the ENF display will automatically relocate to the selected measure and resume following the music.

2 Controlling how the Mini-console behaves

- By default, the **Mini-console** will appear in the upper left corner. To change its position, drag the **Mini-console** anywhere to reposition it where you want.
- To return the **Mini-console** back to its nesting place on the toolbar, click the Mini-console icon button again.
- If you prefer that the **Mini-console** should remain nested in the Toolbar after Recognition or when you create a new file, you can change that default by checking: EDIT > Program Preferences > User Interface > Playback > "Do not open floating Mini Console after new file is created."

SmartScore's Playback Console

The **Playback Console** acts a virtual mixer allowing you to assign instrument sounds to parts and voices of the recognized score.

Open the **Playback Console** from the icon button shown here. It is found on the toolbars of the **Note Editor, Tools and Playback** tabs. It can also be launched using **Cmd + 9** shortcut keys.



Tempo
Default tempo for the entire score is set here. It can also be set from the **EDIT > Tempo** menu. **NOTE:** Keep in mind that any Tempo marking in the score will over-ride the default Tempo set here.

Measure Finder
Use this slider to relocate playback to the **Measure** and **Beat** displayed in th readout.

Play
Push to play. Push again to stop.

Transpose playback
Select any number of steps, up or down to transpose playback. **NOTE:** This does **NOT** transpose the key signature in the notation.

Part Names List
Each part (each staff line of the system) is assigned an Instrument (Part Name) automatically out of recognition. You can choose a new part name by clicking into the named field and even rename the part simply by typing in a new name.

MIDI Instrument
You can change the default MIDI instrument assigned to the part by clicking into its name field and selecting one of a 128 MIDI instruments.

Mute / Solo
You can mute or solo a single part (MIDI Track) with either of these buttons

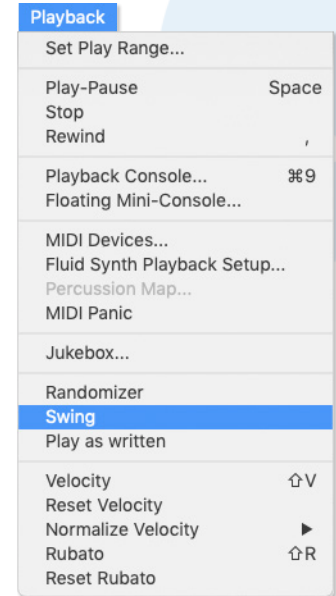
Transpose Part/Track playback
Select any number of steps, up or down to transpose playback of the selected part. **NOTE:** This does **NOT** affect the notation or key signature. It simply changes the pitch of the MIDI instrument.

Keyboard-Tip: **Cmd** **9**

Track	Voice	Part Name	Chan.	Port	Lock	Instrument	Mute	Solo	Volume	Balance	Transp.
1	1	Flute	1	C	<input type="radio"/>	Flute	<input type="radio"/>	<input type="radio"/>	100	0	0
1	2	Clarinet (Bb)	2	C	<input type="radio"/>	Flute	<input type="radio"/>	<input type="radio"/>	100	0	0
2	1	Bass Clarinet (Bb)	3	C	<input type="radio"/>	Stereo Grand	<input type="radio"/>	<input type="radio"/>	100	0	0
2	2	Bassoon	4	C	<input type="radio"/>	Stereo Grand	<input type="radio"/>	<input type="radio"/>	100	0	0
3	1	Contrabassoon	7	C	<input type="radio"/>	Stereo Grand	<input type="radio"/>	<input type="radio"/>	100	0	0
3	2	Horn (G)	8	C	<input type="radio"/>	Stereo Grand	<input type="radio"/>	<input type="radio"/>	100	0	0
		Horn (A)									
		Trumpet (Eb)									
		Trumpet in B									
		PianoL									

More Playback Options

SmartScore provides many tools that control and enhance playback of your scanned music. Many are found under the **Playback menu**. Others may be found with the **Properties** tool or in preferences under **FILE menu**.



1 Swing playback

- To apply swing effect to beamed notes, select **Swing** under the **Playback** menu. When Swing is activated, beamed pairs will play the first beat as a dotted note. Uncheck **Playback > Swing** to deactivate swing effect.

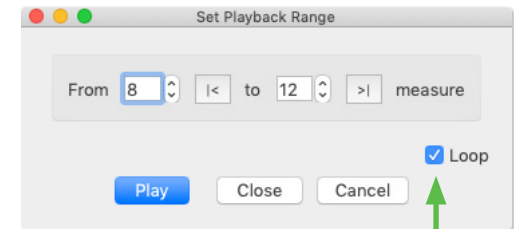
2 Random variations

- To apply subtle but random variations of tempo and loudness, select **Randomize** under the **Playback** menu. **NOTE:** You can adjust the amount of randomness applied to tempo and loudness from the **EDIT > Document Preferences**.

3 Define Playback Range and Loop

You may want to set a defined range of more than a few measures. Here's how ...

- Select **Playback > Set Playback Range** sub-menu. In the dialog box, set the start and ending measures. Hit the spacebar key or push the **Play** button. You can close the dialog box at any time but the playback range will remain fixed to where you set it. Push **Cancel** to clear the range and return to normal full-score playback mode.



Activate this function to play the range of measures as a **Loop**.

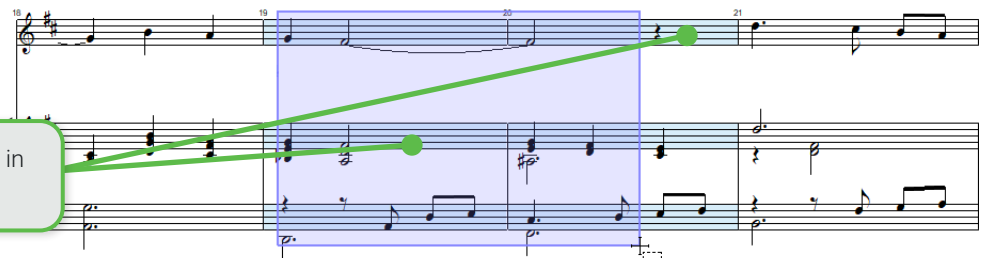
4 Play back selected measures

You may want to hear only a few measures at time. Here's how ...

- With your right mouse button down, draw a box around the measures you wish to isolate. They will turn **BLUE**. Only those measures will play back.



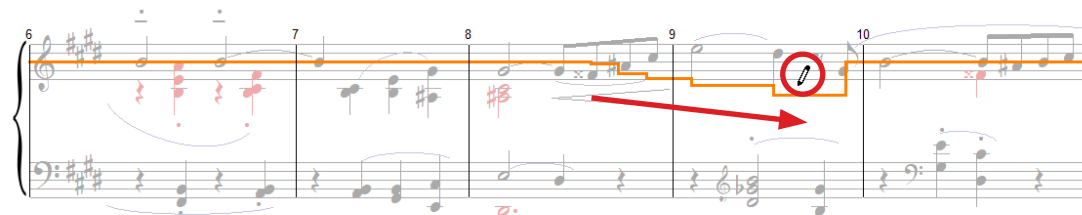
Only measures highlighted in blue will play back.



5 Rubato Controller

Rubato is an expressive shaping of the tempo of the music. Its subtle shifts of time emulate human performance and is also known as phrasing. The Rubato Controller allows you to draw curves over the music to create small tempo shifts.

1. In the **Playback** menu, select **Rubato** (**Shift + R**). Use your cursor and draw an up/down curve over a range of notes.
2. The range that tempo will change the default tempo -15% slower to +15% faster depending on the amplitude of the curves.
3. To exit Rubato mode, select **SHIFT + R** again.

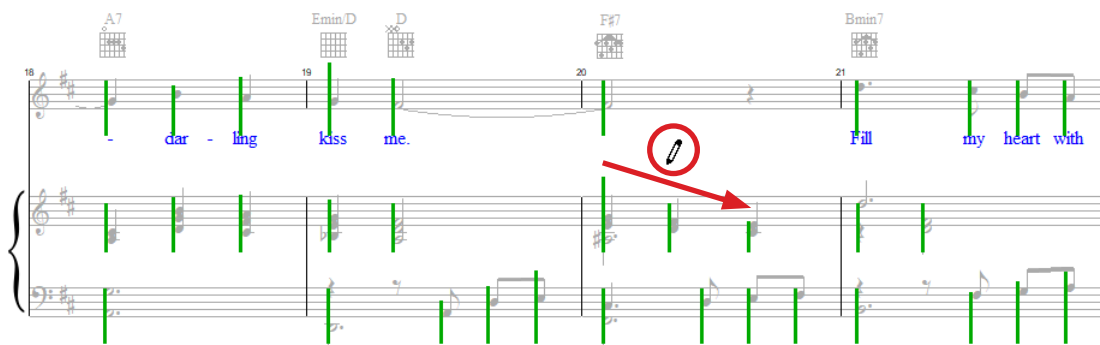


To zero-out all Rubato Controller changes, select **Playback > Reset Rubato**.

6 Velocity Controller

While dynamic markings and symbols are recognized and applied to playback, sometimes more dynamic nuance is desirable. Here is a clever feature in SmartScore that allows you to make subtle changes to note velocities (loudness) while working on page in the ENF notation view.

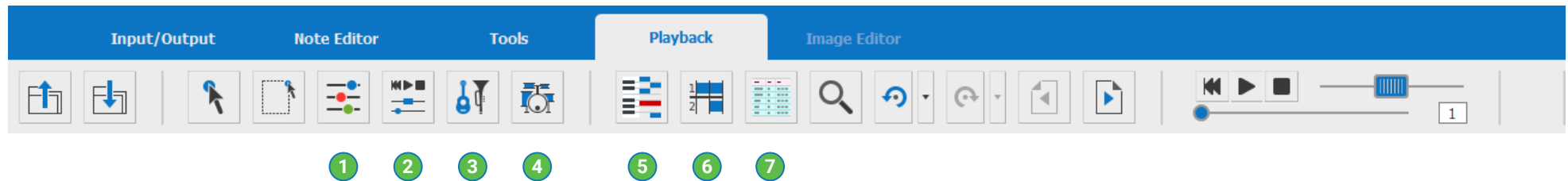
1. In the **Playback** menu, select **Velocity Controller** (or use the shortcut, **Shift + V**). You will notice notes on the page will display green, vertical lines. These represent the relative velocity of each note.
2. With your cursor, drag the “pencil” glyph through the lines of the notes in such a way to make gentle (or abrupt) transitions in loudness.
3. To exit Velocity mode, select **SHIFT + V** again.
4. NOTE: You will find a similar velocity controller in the Piano Roll window of the MIDI Editor (see [Page 75](#)).



Should you get carried away and find you made changes too extreme, you can reduce the overall effect by selecting **Playback > Normalize Velocity** and choosing the amount you want to reduce the effect (by percentage). If you wish to cancel all changes to Velocity Controller, select **Playback > Normalize Velocity**.

The Playback Toolbar

The toolbar in the **Playback** contains the most important functions and dialogs for playback. They are accessible from these buttons:



- 1 **Open Playback Console:** Open and control MIDI instruments assigned to parts and to contrapuntal voices (see [Page 62](#)).
- 2 **Toggle Mini-Console: On** = Float the **Mini-console** inside the main window. **Off** = Put it back into the toolbar (see [Page 61](#)).
- 3 **Insert Program Change:** Insert a new MIDI instrument at any point in the measure for any part / staff line.
- 4 **Activate Drum Pattern:** Select one or more pre-set drum grooves to accompany your score. If you're feeling creative, lay down your own drum track and add it to the Drum Track library (see [Page 66](#)).
- 5 **Piano Roll View:** Click here to select a track (staff) and open it in the familiar "Piano Roll" environment where you can edit pitches, durations and even MIDI Velocity values graphically (see [Page 75](#)).
- 6 **MIDI Overview:** View all MIDI tracks simultaneously (see [Page 80](#)).
- 7 **Event List:** Display and edit MIDI events for the conductor's track (0) or any selected track (staff line) in your score. Voice, Time, Duration, Pitch and Velocity values are all displayed and editable (see [Page 82](#)).

Drums and Percussion

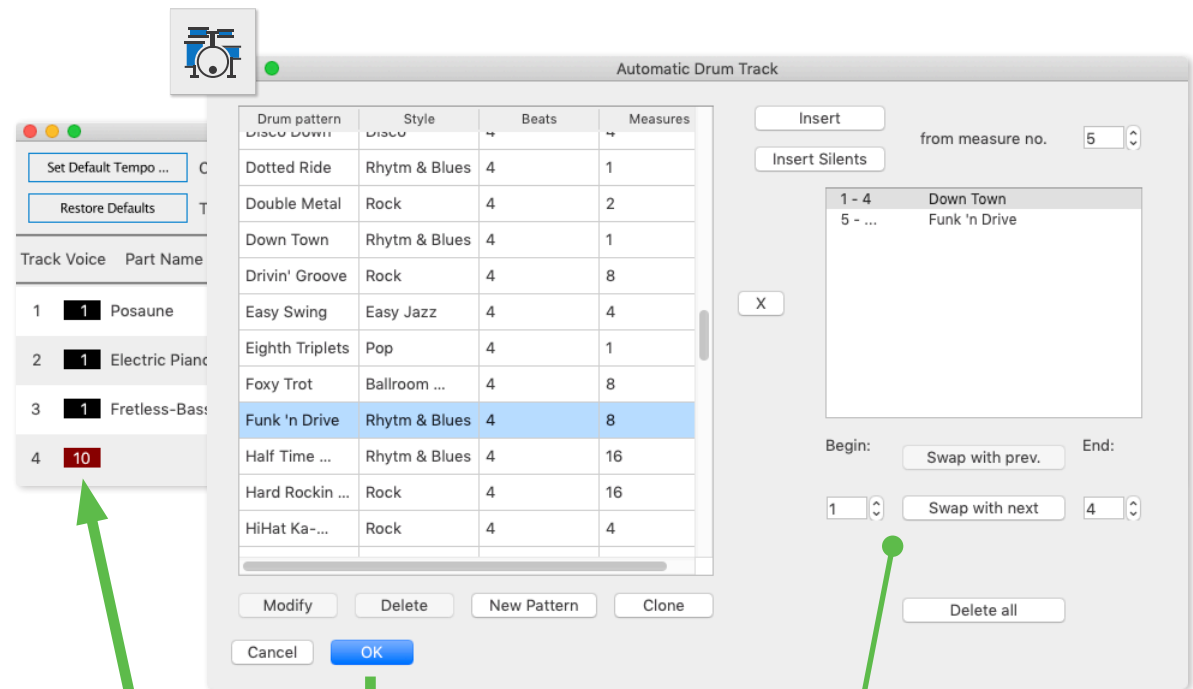
One very cool feature in SmartScore is the ability to add a rhythm accompaniment to your score during playback. This is done by assigning one or more pre-set “grooves” or patterns from the drum track library. You can also create your own rhythm loops and add them to the library as well.

During recognition, Smartscore will attempt to correctly “read” percussion parts (usually containing less than the usual 5 staff lines) whose “clef” is normally a rectangular box. Should a percussion staff become recognized as a “normal” 5-line notation staff, you will be able to transform it to a percussion part containing a variable number of staff lines where each line and space is assigned a unique drum sound by means of a fully-editable **Drum map**.

1 Add an automatic drum track to playback

1. Click the **Automatic Drum Track** button in the toolbar of the **Playback** tab or choose **EDIT > Automatic Drum Track** sub-menu.
2. Select a drum pattern from the preset list of grooves then select a beginning measure for the loop and push **Insert**. **NOTE:** Pay attention to the beats per measure. They should match the numerator of the time signature.
3. To add another pattern, select the groove from the list, set the starting point in the **from measure no.** spin box then push **Insert** again.
4. Grooves will continue to cycle until another pattern is inserted or until the groove is silenced. To silence drum playback, select the starting measure and push **Insert Silence**.
5. When your drum patterns are arranged to your satisfaction, push **OK**. A new MIDI track will automatically be created.

NOTE: The **Automatic Drum Track** is a “virtual” tool. It does not affect the notation of your score. It is entirely separate from ENF percussion parts.



Applying selected patterns will create a new MIDI track automatically assigned to Channel 10, the channel exclusively used for drums sounds.

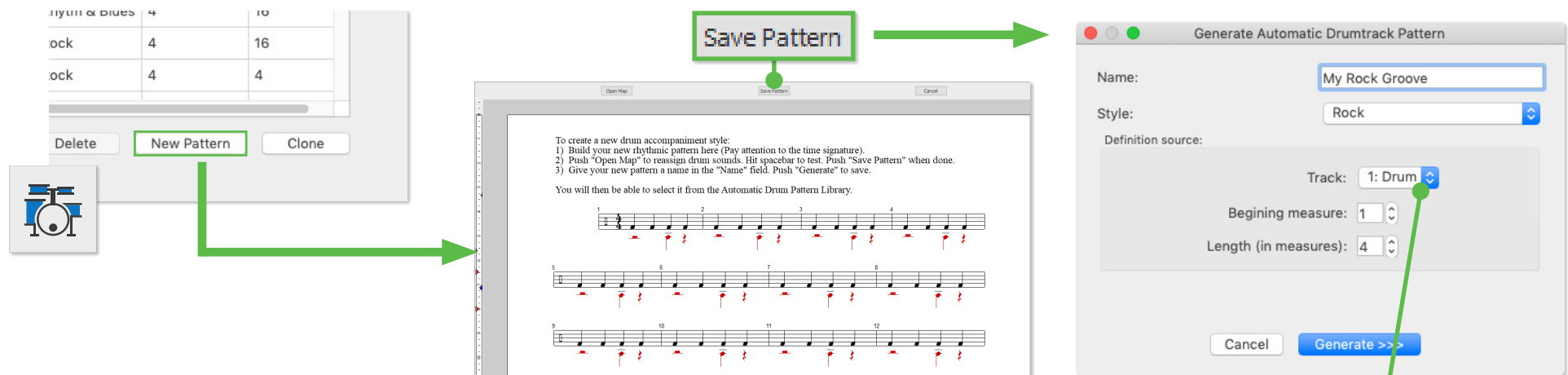
Sort and organize

Reorganize grooves by swapping and resorting patterns as you go.

2 Creating your own custom drum track

Don't care for any of our preset drum tracks? You can create your own drum patterns and save them to the master drum track library. Here's how:

1. Select the **Drum Track** button in **Playback** toolbar. In the **Automatic Drum Track** dialog box, click the **New Pattern** button.
2. Notate your pattern in the percussion staff template. Drum kit assignments are preset according to the **Drum Map** which can be opened and edited by pushing the **Drum Map** button above the template.
3. When finished, click on the **Save Pattern** button.
4. In the **Generate Automatic Drumtrack Pattern** dialog box, write in a name, assign a style from the pulldown menu. You can also adjust the beginning measure, MIDI track and total length for the pattern. Then click on **Generate >>>**. Your self-recorded drum rhythm will then be added to the drum library and can be accessed at any time from a SmartScore document via the Automatic Drum Track dialog box.



! Import a drum pattern from a MIDI file

So many options ... If you have or can create a standard Type 1 MIDI file which contains a drum track on **Channel 10**, you will be able to extract that drum track and save to the drum track library: Select the menu item, **Edit> Create Automatic Drum Rhythm**. In the Generate Automatic Drumtrack Pattern window, make sure you select the track assigned to Channel 10 (Drums). You will see the Playback Console as a reference.

Select the MIDI track that contains the drum rhythm (**MIDI channel 10**).

3 Changing note head shapes

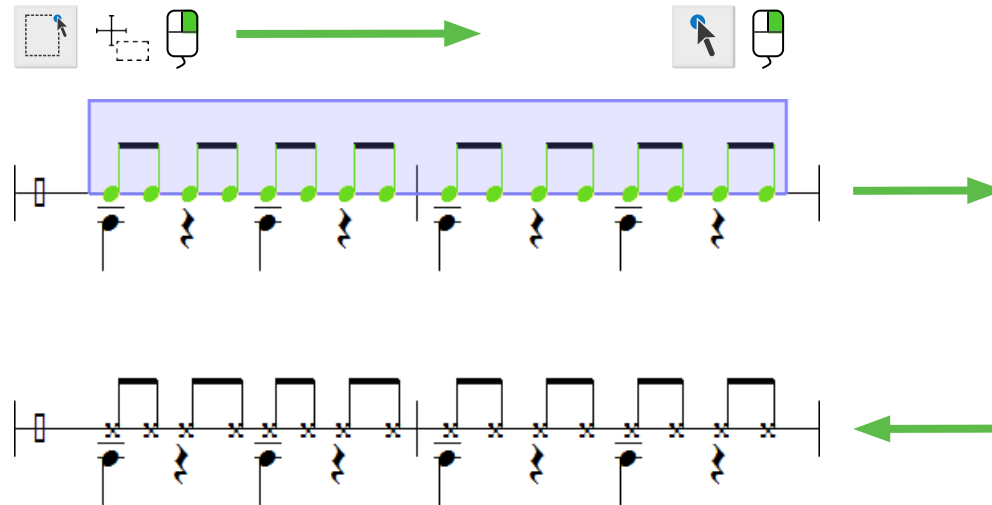
While recognition of “non-standard” note heads is currently not possible, you are able to change the shape of note heads to one of several common “Shaped note” (Sacred harp) note heads.

1. Select the **Properties tool (ESC key)** and click on any given note head.

OR ...

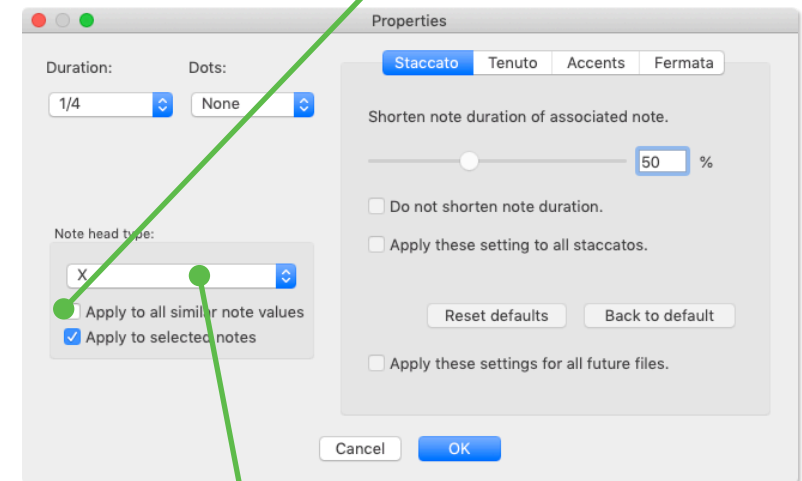
Activate the **Selector tool (“O” key)** and drag a box around the note whose note heads you wish to change to another shape. Then select the **Properties tool (ESC)**, and click on any of the highlighted notes.

2. In the **Note Properties** dialog box, choose a note head shape from the **Note head type** pull-down menu.
3. Click **OK**. All highlighted notes will inherit the selected note head shape.



Apply to all similar notes

You can also apply the new note head shape to all other notes in the score having the same note value. Check the box here before applying **OK**.



Select the desired note head shape from this pull-down menu.

The MIDI Editor

When you hear your music playing back after recognition, you are hearing MIDI “events” firing off one at a time. Each MIDI event represents a note (or and inserted effect) and contains digital values for things like pitch, duration, volume (velocity), channel number, voice number, etc. MIDI is the playback engine that runs “under the hood” in SmartScore’s ENF notation view.

SmartScore’s MIDI Editor contains three windows each displaying a different level of detail from the “big picture” (**Overview**) to the level of a given part (or MIDI track) as seen in the **Piano Roll** down to the level of individual note events displaying each note’s various parameters numerically (**Event List**).

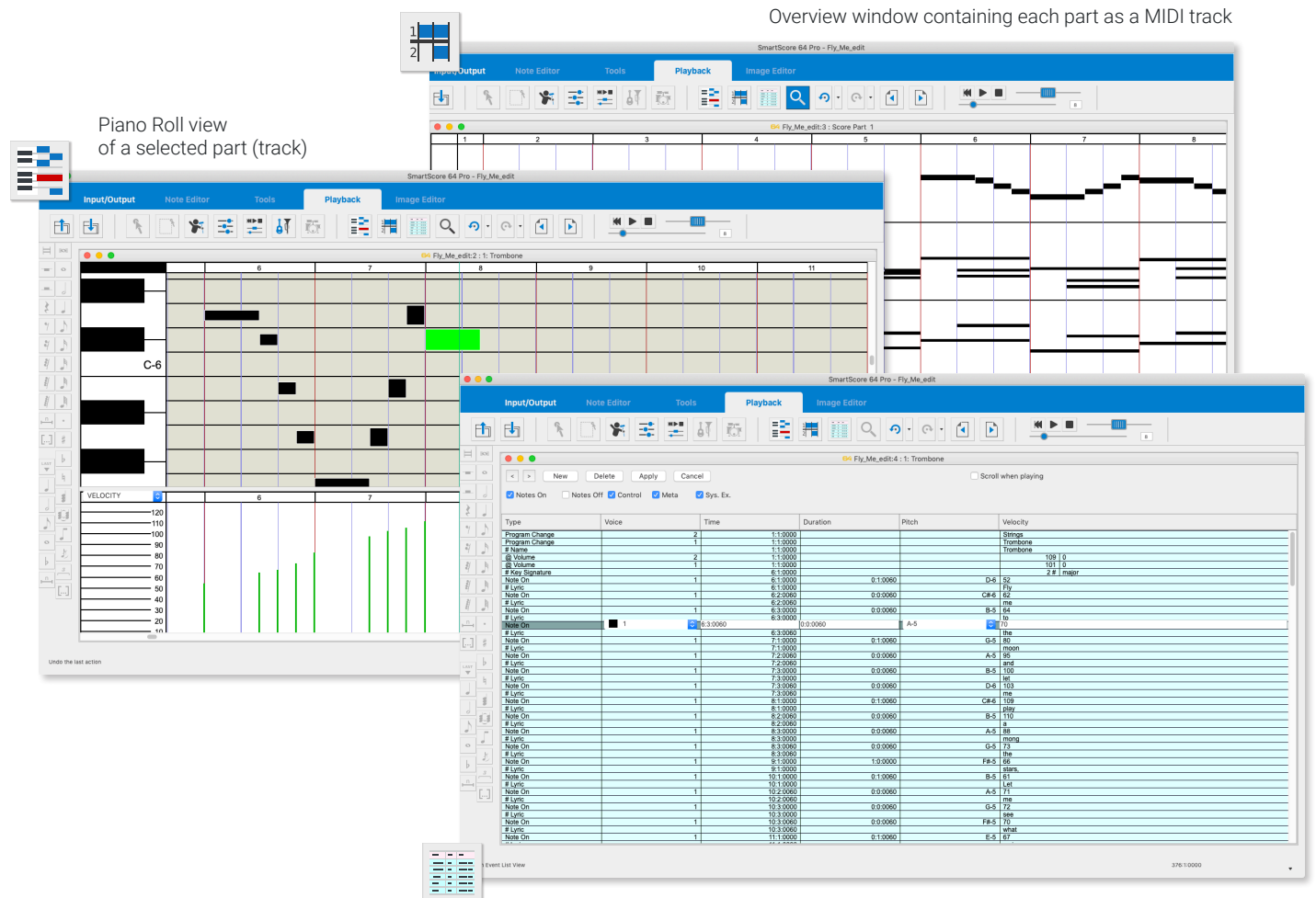


What is the MIDI Editor good for?

SmartScore’s MIDI Editor allows you to visualize every detail of your music. In the Piano Roll view, each note is displayed graphically. You can adjust note pitches, note widths (velocity) and note lengths (duration) as well as make smooth volume swells easily with your mouse in the velocity graph.

The Event List displays fully-editable parameters such as Duration, Pitch and Voice Number for each note event. Changes made in the MIDI Editor are directly applied to playback.

Furthermore, if your changes affect how the notation ought to appear, those changes will automatically be applied when you return to the ENF editor window.



Overview window containing each part as a MIDI track

Piano Roll view of a selected part (track)

The Event List view of a selected part (track).

Viewing an active ENF document in the MIDI Editor

You can view underlying MIDI data at any time by clicking on the **Playback** tab and selecting one of three MIDI view buttons found inside the active toolbar ...

- Choose either the **Piano-Roll** ① view button, the **Overview** ② button or the **Event List** ③ button. If you select either **Piano Roll** or **Event List**, a dialog will appear asking you to choose which part (staff line) you wish to view as a **MIDI track**.
- You may also call up any of these MIDI environments from the **View** menu.

The screenshot shows the SmartScore 64 MIDI Editor interface. The main window is split vertically. The left pane displays the ENF score for 'Fly Me to the Moon' by Bart Howard, showing musical notation for piano and bass. The right pane displays the MIDI data for '1: Trombone', showing a piano roll with notes and a velocity graph below it. A 'MIDI Views' dialog box is open, showing 'Type: Piano roll' and 'Track: 1: Trombone'. Three numbered callouts (1, 2, 3) point to the Piano-Roll, Overview, and Event List buttons in the toolbar. A green arrow points from the 'MIDI Views' dialog to the 'Piano roll' button in the toolbar.

Tip: To view ENF and MIDI view windows side-by-side, choose **Window > Split Screen > Vertical** menu selection.

Using the MIDI Editor



ENF-MIDI-ENF: Two-way Transparency ...

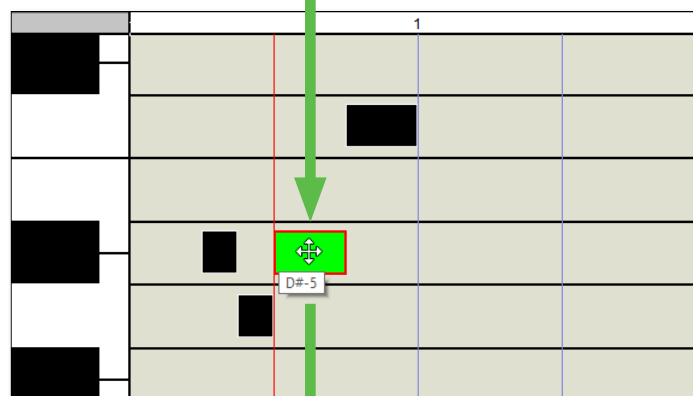
Following **Recognition**, the ENF notation pane is loaded FULL of MIDI data. Changes you make to notes, articulations and dynamics automatically update the underlying MIDI data. All that goes on under-the-hood ...

Changes made in a **MIDI View** window, (to velocity, note pitch, durations, etc.) directly affects playback. That's true. At the same time, changes made in a **MIDI View** window will **ALSO** update the ENF graphical display. When you return to ENF view, changes you made will be apparent in the notation.

1



ENF view



Piano Roll



1 Scaling the MIDI Views (Zoom)

- In Piano Roll or Overview window, select the **Zoom** tool from **MIDI toolbar**. Click the left mouse button to zoom in. Click the right mouse button to zoom out.

2 MIDI Options menu

Whenever you select one of the MIDI views, an additional menu selection, **Options**, will automatically appear. **MIDI Options** menu includes a number of MIDI-specific functions.

3 Music playback in MIDI views

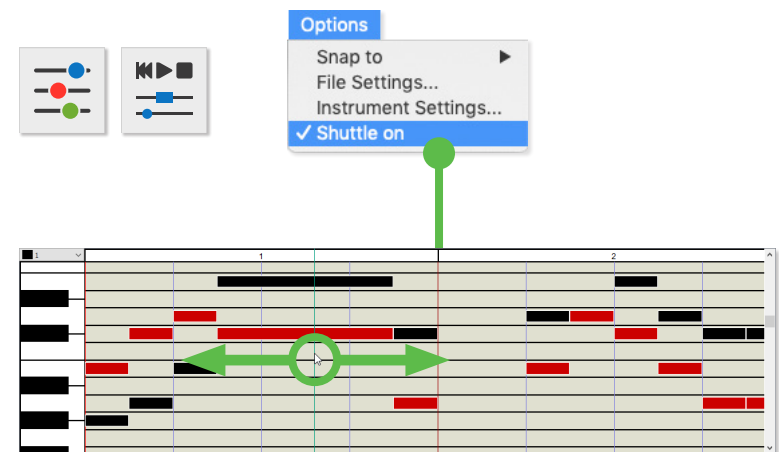
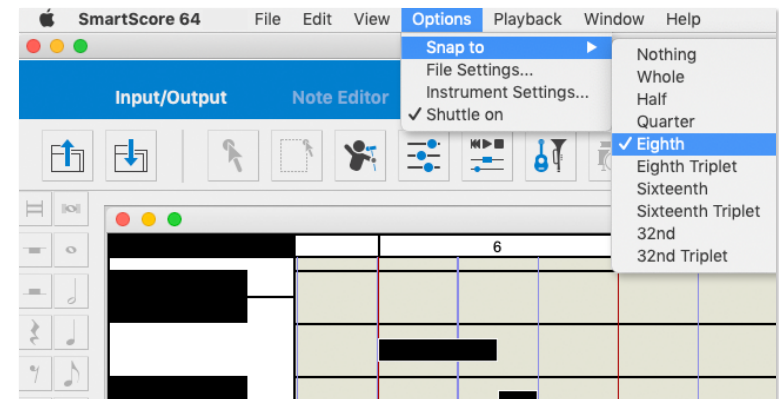
Playback in the MIDI environment is similar to the ENF editor. You can use the **Playback Console**, **Mini-console** and **spacebar** controls as usual. But you also have a “scrubber” feature that lets you shuttle your mouse back and forth at any speed, playing back slowly or quickly, even **backwards** allowing you to easily pinpoint trouble spots.

- To activate the scrubber, go to the **Options** menu and click the **Shuttle on** sub-menu.
- Position your cursor inside the piano roll event area where you wish to scrub the music.
- Left-click and drag to the right to advance playback. Drag to the left to hear notes played backwards.

4 Navigating from one MIDI track to another

The **MIDI Overview** window displays all MIDI tracks at once. But the **Piano Roll** and **Event List** views show only one MIDI track at a time. Here’s how to navigate from one track to the other...

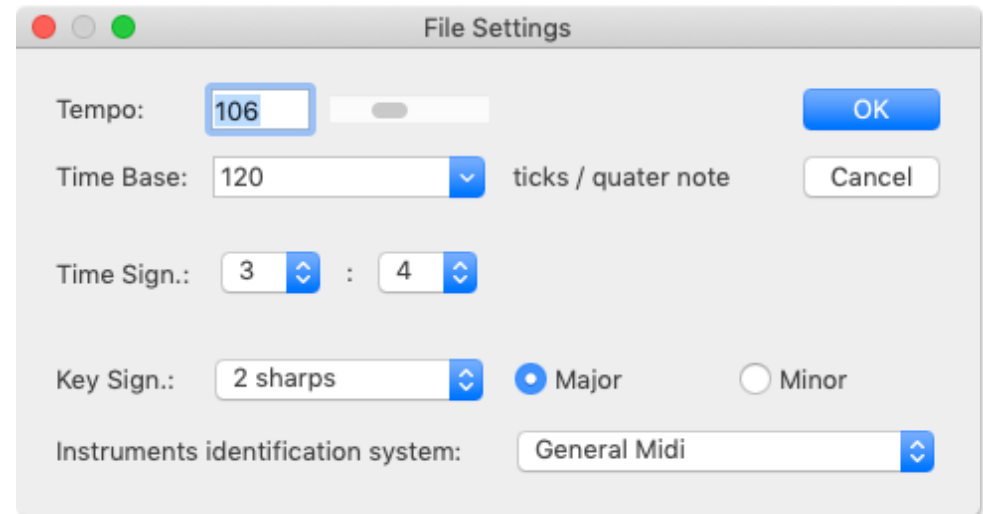
- Click the **Back** or **Next** buttons in the toolbar.
- Alternately, select the **Left** or **Right** carets inside the **Piano Roll** or **Event List** window.



5 MIDI File Settings

Each MIDI file has the central information in its file header, such as playback tempo, time base (ticks per quarter note), information on the time signature and key and finally the sound table used (e.g. General MIDI).

This information can be found in the **File Settings** dialog box and can be changed and applied to the current file. Changes will not be applied globally to other MIDI files. Basically, the default settings in this window are fixed but can be altered on a file-by-file basis.



Importing and Converting MIDI Files

You can import any standard MIDI file (Type 1 or Type 0) into SmartScore and it will appear in the Overview window where it can be played back. If you wish to convert the MIDI file to standard musical notation

1 Importing a MIDI file

1. Select **FILE > Open**.
2. The keyboard **Cmd + O** will also open a file browser.
3. Browse to a MIDI file on your computer then double-click to select it.



Import MIDI file: Task Window icon

Look for this icon if you want to import a MIDI file from there.

2 Converting MIDI files into notation

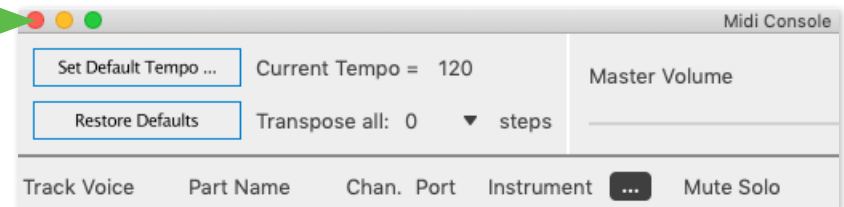
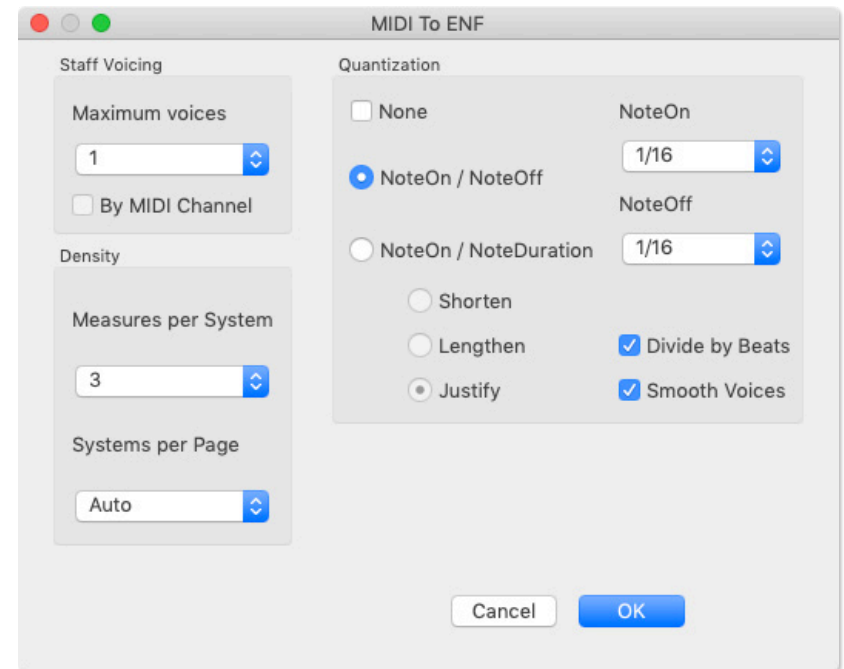
1. With a MIDI file open in **Overview** or another MIDI view, select **Edit > Convert MIDI to ENF** (ENF being SmartScore's file format).
Or simply close the Playback Console by pushing this button here

2. The **MIDI to ENF** dialog will open. Here you can apply options prior to conversion. SmartScore converts MIDI tracks to individual parts which will appear as staff lines connected by a bracket to a system.

3. By default, contrapuntal voices are not differentiated. If desired, set the maximum number of contrapuntal voices you wish to differentiate using the **Maximum voices** pull-down menu. Each voice will be assigned a unique MIDI Channel and given an unique color.

NOTE: Calculating polyphonic voices from a MIDI file is a tricky deal since MIDI has no contrapuntal intelligence. Trying to extract more than 2 voices per track will most likely result in something less than desirable ... but you can always try. If necessary, you can go back and try again with a lesser number of voices.

4. Select the **Measures per System** you wish to have in each system.
5. In the **Quantization** section of the dialog, set the NoteOn and NoteOff value to the **smallest note value** present in the file. If you set the note value higher, you may wind up with more notes than you bargained for.
6. Click **OK** and the MIDI file will convert to a SmartScore .ENF file and appear as notation in the Note Editor window



Is your MIDI file “quantized” ? It should be if you want it to look right...

MIDI files can be created “freely” with no attention paid to the internal MIDI time clock or time signature. Such “free-form” files may sound OK when played, but they lack internal timing constraints. Quantized MIDI files conform to strict rhythmic structures necessary to convert to music notation such as time signature and “number of ticks per note event”. SmartScore will properly convert only quantized MIDI files.

The Piano Roll View

The Piano Roll view is a familiar display in most MIDI sequencers. Colored “events” populate the grid wherever a note occurs; its length being equal to its duration in time. Pitch is represented along the vertical axis matching the white or black keys on the keyboard to the left. Horizontally, measures (red vertical lines) are demarcated by beats (black vertical lines). Playback is marked by a green line that moves from left to right as the music plays.

The image shows a MIDI Piano Roll editor interface. On the left is a keyboard with pitch labels C-6 and C-5. The main area is a grid with notes represented by horizontal bars. A 'Note On' dialog box is open, showing fields for Voice (1), Time (4:1:0000), Duration (0:2:0075), Pitch (G#-5), and Velocity (85). Below the grid is a Velocity Controller with a vertical scale from 0 to 120 and green markers for each note. A green line indicates the current playback position.

MIDI Note Event
The properties of a MIDI note (start time, duration, voice membership, pitch, velocity) can be edited individually by double-clicking on the event. You can also move, lengthen or shorten the MIDI note event with the mouse.

MIDI Track Selector
Use these buttons to switch between tracks in Piano and Event List views.

Measure
The horizontal timeline is divided into bars and beats (here a 4/4 bar).

Pitch
The keyboard shows the pitch of the event.

Quarter note on F# and in Voice #2 (red color).
This event spans a full beat (quarter note) at F# 5 and belongs to the secondary voice since it is red in color.

Velocity Controller
In the lower half of the Piano Roll display, you can access a number of MIDI controllers including Velocity Controller.

Smoothing velocity transitions with your mouse
Transitioning from loud to soft or soft to loud can be smoothed out in the Velocity Controller by clicking and dragging with your mouse along the green markers that represent the volume for each note event.

Working in the Piano Roll environment

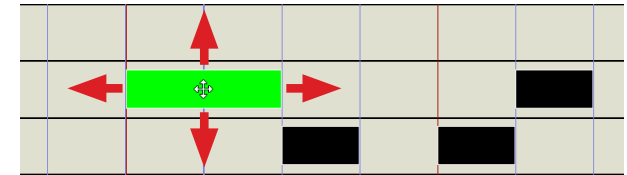
1 Editing, inserting and deleting MIDI note events

- **To change pitch** of a note event, click and drag up or down. When pitch shifted, the note will sound the new pitch.
- **To change the duration** of a note event, position your cursor over its left or right edge. When a double arrow appears, drag horizontally to extend or decrease the event according to how much you want its duration value to increase or decrease.
- **To increase the velocity** (volume) of a note event, click the top or bottom edge of the event and drag the edge to increase or decrease its velocity (volume).
- **To insert a new note event**, position your cursor over the data point you want the new note to appear and **right-click**.
- **To delete an note event**, click on a note so it highlights then hit the **Delete** key or select **EDIT > Delete**.
- **To examine the properties of any MIDI note event**, double-click on the event. This will open the **Note On** dialog revealing the internal data assigned to the event. You may edit the various data fields if necessary.

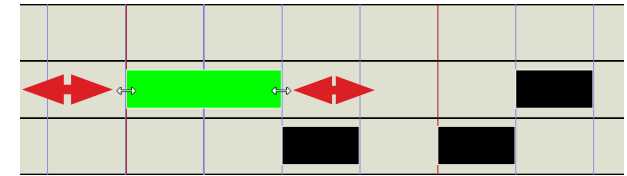
Limiting the duration of note events to a precise value

In order for MIDI note events to properly translate to standard notation values in the ENF view, you should set the "Snap to" note no lower than the smallest note value you want to appear. This value is set under the sub-menu selection, **Option > Snap to**.

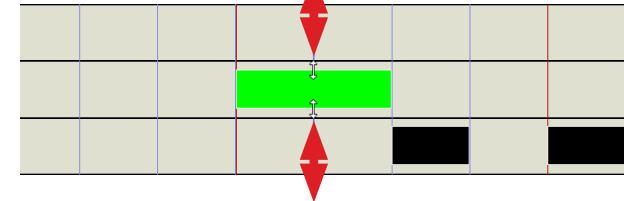
Pitch and position



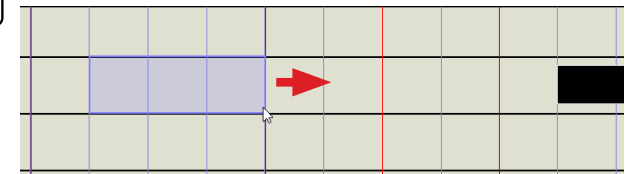
Note-on / Note-off (duration)



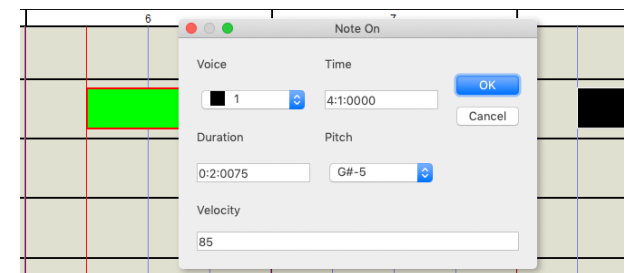
Velocity (loudness)



Insert MIDI Note Event

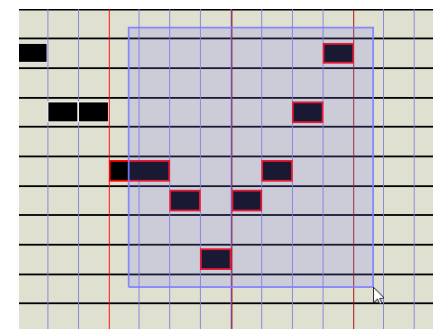


Note On dialog

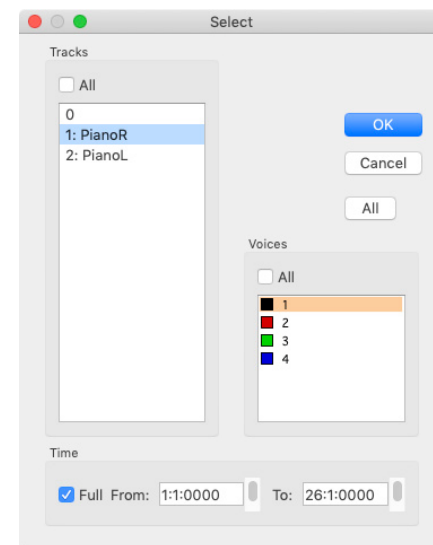


2 Selecting MIDI note events

- To select a single note event, simply click on it.
- Several note events can be “gang” selected by holding down the left mouse button and dragging a box around those you wish to select.

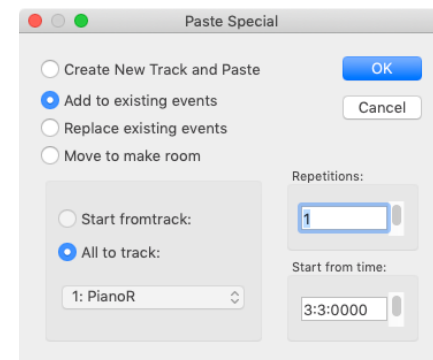


- To select all note events in the track, hold down **Cmd + A** or choose **EDIT > Select All** sub-menu.
- To select a specific region or to select one or more contrapuntal voice, choose **EDIT > Select** sub-menu. There you can define a range by measure and beat and/or identify exactly which voice or voices you wish to select.



3 Cut, Copy and Paste selected MIDI note events

- To “cut” and remove selected events from the track, hold down **Cmd + X** or select **EDIT > Cut** sub-menu. Event data will be held in the clipboard for pasting.
- To “copy” selected events without removing them from the track, hold down **Cmd + C** or select **EDIT > Copy** sub-menu. Event data will be held in the clipboard for pasting.
- To “paste” cut or copied events, hold down **Cmd + V** or select **EDIT > Paste** sub-menu. Events will insert exactly where they originated.
- To paste cut or copied events to a location, select **EDIT > Paste Special**. You will be able choose exactly which measure, beat and tick you wish to drop the events as well as whether to replace, add or push out of the way any overlapping events.



4 Graphical MIDI Controllers

In the Piano Roll view, below the event grid is the **Controller Window**. It serves to directly draw controller values and trends (e.g. velocity, modulation, volume, panorama, etc.) for the displayed track.

1. Select the desired controller type from the pop-up list on the left edge of the controller window.
2. Move the mouse pointer into the controller window. Select the type of controller you wish to apply. Use your mouse to draw graphical changes along the horizontal axis. Changes you make will be heard the next time playback starts.

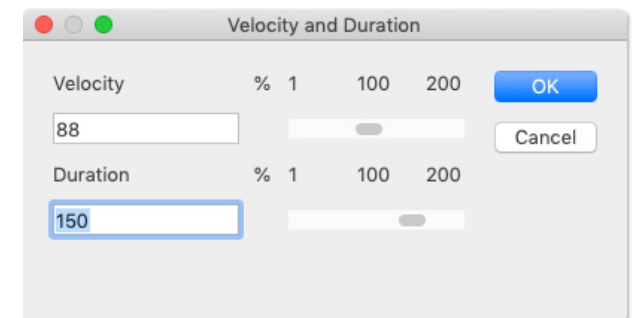
Controller Effect Selection
Select the effect controller you wish to apply. For example, Velocity (0 - 127).

MIDI note events and velocity value
The greater the velocity value of a MIDI note event, the stronger its bar is shown in the piano roll view.

Controller Graphs
Vertical green lines in the controller window represent the velocity level of each event. Click, hold the mouse button down and drag above or in the line to change their lengths and thereby, their velocity values.
Other types of controllers appear orange in color as a horizontal line and can also be edited with the mouse.

5 Adjust Velocity and Duration of selected notes inside one window

1. With one or more events selected, choose **EDIT > Velocity / Duration** to edit the velocity and / or the duration and all at the same time.
2. Use the sliders or the entry fields Velocity and Duration to enter a percentage value for the velocity or length change. If you change the duration of the selected note events e.g. For example, if you want to double, set the duration to 200%.



6 Inserting Instrument Changes (MIDI Program Change)

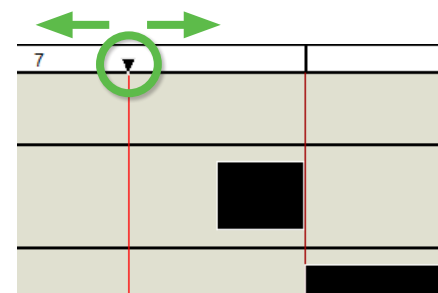
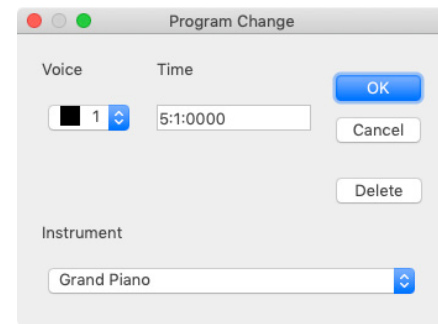
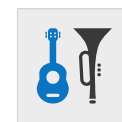
You are able to insert a change of instrument sounds in the Piano Roll using the same tool available in the Playback tab of the ENF notation view. (In MIDI-talk, it's called **Program Change**)

NOTE: Double-check that **Options > Shuttle on** is activated. Playback will follow wherever you click.

1. Locate where you wish to insert a change of MIDI instrument, then double-click at that point to mark the spot.
2. Push the **Program Change** button in the toolbar or select **EDIT > Program Change** sub-menu.
3. In the **Program Change** dialog box select the **Channel** you wish to apply the change to.

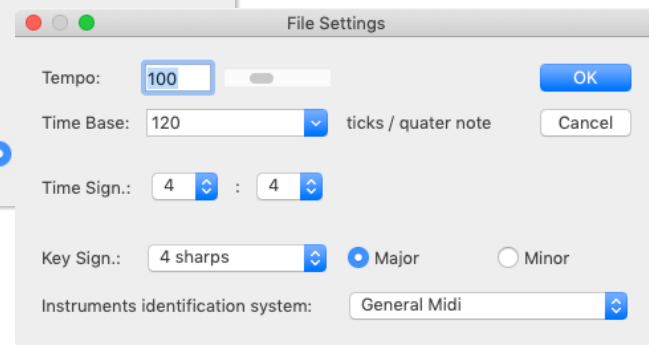
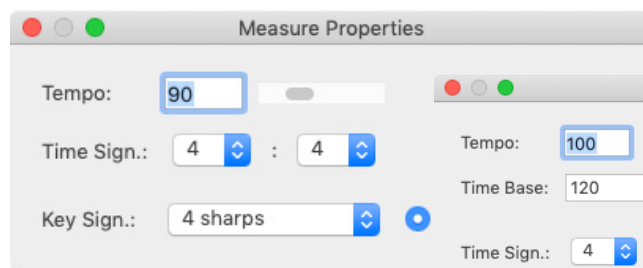
NOTE: Double-check your colors ... if you select a voice that is not present in that track, you will hear no change in the instrument sound. Check that the measure and beat are correctly set in the **Time** call-out and then select your new sound from the MIDI **instrument** pull-down menu.

4. After inserting the program change, you will notice an arrowhead or caret indicating where the change of instrument was inserted. The color of the caret indicates which voice will be affected. Double-clicking the caret will reopen the Program Change dialog box again.
5. If you need to, you can click and drag the caret left or right to reposition the start of the program change.



7 MIDI File Settings and Measure Settings

- Select **Options > File Settings**. In this dialog box, you check that global settings of the file are correct. Of course, you can change them, but be careful ... you probably do not want to override ENF notation settings.
- To open **Measure Settings**, double-click on any measure number along the horizontal timeline.



MIDI Overview

The track overview of the MIDI editor is comparable to the piano roll view. The difference is, here you have an overview of all MIDI tracks instead of just one. As in the Piano Roll view, you can select any MIDI note event, edit its properties, move, lengthen or shorten it and also delete it.

The track overview is particularly suitable for editing entire tracks at a time. So for example, select an entire track and transpose the playback copy or delete the content of the track, or remove entire MIDI tracks from the file and/or add new MIDI tracks.

The screenshot shows the SmartScore 64 MIDI editor interface. The main window displays a score for 'Mozart-Fidelio:2 : Score Part 1' in 4/4 time. The score is divided into measures 5 through 12. Four MIDI tracks are visible, labeled 1 through 4. Track 1 is black, Track 2 is red, Track 3 is blue, and Track 4 is red. A 'Track Properties' dialog box is open over Track 3, showing 'Name: Part 7', 'Transpose: 0', and buttons for 'OK', 'Cancel', 'Piano Roll', 'New Track', 'Event List', and 'Delete Track'. A 'Timeline' callout points to the horizontal axis at the top of the score, which is divided into bars and beats. A 'Select regions' callout points to a blue shaded region in Track 2. A 'Track numbers' callout points to the track numbers on the left side of the interface. Another 'Track numbers' callout points to the 'Track Properties' dialog box.

Track numbers
Left-click on one of the track numbers to select the entire MIDI track for further processing. Double click the number to access this track in the Piano Roll view.

Timeline
The horizontal timeline is divided into bars and beats (here a 4/4 bar).

Select regions
By simply clicking and dragging, you can simultaneously select MIDI note events in one or more tracks for further processing.

Track numbers
Right-click to open the Track Properties dialog.

Major features of the MIDI Overview

Most of the information about editing, selecting, copying, pasting and deleting MIDI note events can be found in the previous section, **Piano Roll** except for track-specific editing functions such as working with controllers and inserting a program change. Here are the unique features of the MIDI **Overview** environment:

1 Select one or more complete tracks

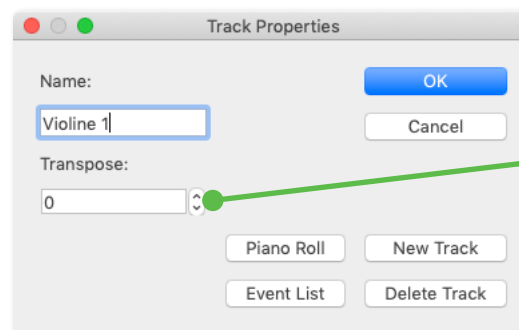
- Left-click on a track number (left) to select the entire track. You can now remove the entire content of the track, delete the entire track or copy the contained MIDI note events (see **Edit menu**).

Left-click here selects the complete track. Right-clicking opens the Track Properties dialog box.

2 The Track Properties dialog box

You can use the Track Properties dialog box to edit the properties of each track. This includes, for example, the name of the track and its transposition interval. The dialog box can also be used to create new tracks or to open the currently selected track in the piano roll or event list view using the corresponding buttons.

- **Right-click** a track number to display the Track Properties dialog box.



Transpose function
Choose an interval to transpose the playback pitch of the track.
NOTE: This action does NOT transpose the notation in the ENF view. It merely transposes the playback pitch by the selected number of half-steps.

The MIDI Event List

The Event List in SmartScore's MIDI editor shows all the MIDI control data contained in the file in a simple event-by-event list in chronological order. This includes **Note On** and **Note Off** commands with the corresponding properties (voice, start time, duration, pitch, velocity), MIDI controller data as well as meta events and sysex commands. MIDI information on program changes, voice names and key and time signatures can also be found in the event list and can be edited individually. To edit a parameter, simply click on a line to select an event, then make the desired data change in one of the columns.

The screenshot shows the MIDI Editor interface with the Event List table. The table has columns for Type, Voice, Time, Duration, Pitch, and Velocity. A callout box points to the 'Input/Output' section, another to the 'Function keys' (New, Delete, Apply, Cancel), a third to the 'Jump to Previous or Next MIDI Track' buttons, a fourth to the 'Display Filter' checkboxes, a fifth to the 'MIDI events and control commands' table, and a sixth to the 'Scroll during playback' checkbox.

Function keys
You can use these buttons to create new MIDI events or to delete selected events from the list.

Jump to Previous or Next MIDI Track
Use these buttons to move from one track to another.

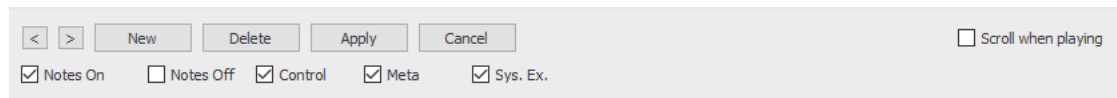
Display Filter
Use these check-boxes to control which MIDI data is displayed.

MIDI events and control commands
Click on a line in the event list. Parameters for this event open up and become active for editing. Double-click in the Type column to open a dialog box listing all the parameters for the given event, within which you are able to make the edits.

Scroll during playback
Activate this check-box so that the event list scrolls vertically during playback.

Type	Voice	Time	Duration	Pitch	Velocity
Program Change	4	1:1:0000		A-5	Grand Piano
Program Change	3	1:1:0000		G#-5	Grand Piano
Program Change	2	1:1:0000		G-5	Grand Piano
Program Change	1	1:1:0000		F#-5	Grand Piano
@ Pan	4	1:1:0000		F-5	114 0
@ Pan	3	1:1:0000		E-5	114 0
@ Pan	2	1:1:0000		D#-5	114 0
@ Pan	1	1:1:0000		D-5	
# Name		1:1:0000		C#-5	PianoR
# Key Signature		1:1:0000		C-5	4 # major
# Lyric		1:1:0000			dolce
Note On	1	1:2:0000		C-5	-4 85
Note On	1	1:2:0000		B-4	-5 85
Note On	1	1:2:0000		A-4	-4 85
Note On	1	1:4:0000	0:2:0000	G#-4	-5 85
Note On	1	1:4:0000		G-4	-5 85
Note On	1	2:2:0000		F#-4	-4 85
Note On	1	2:2:0000		F-4	-5 85
Note On	1	2:2:0000		E-4	-5 85
Note On	1	2:4:0000		D#-4	-4 85
Note On	1	2:4:0000		D-4	-5 85
Note On	1	2:4:0000		C#-4	-4 85
Note On	1	3:2:0000		C-4	-5 85
Note On	1	3:3:0000		B-3	-4 85
Note On	1	3:3:0000		A#-3	-5 85
Note On	1	3:4:0000		A-3	-4 85
Note On	1	3:4:0000		G#-3	-5 85
Note On	1	4:1:0000		G-3	-5 85
Note On	1	4:1:0000	0:2:0060	F#-3	-4 85
Note On	2	4:1:0000		F-3	-4 85
Note On	2	4:2:0000		E-3	-4 85
# Lyric		4:2:0000		D#-3	#
		4:2:0000		D-3	-5 85
		4:2:0000		C#-3	-4 85
		4:2:0000		C-3	&r
		4:2:0000		B-2	-5 85
		4:2:0000		A#-2	-5 85
		4:2:0000		A-2	-4 85
		4:2:0000		G#-2	-5 85
		4:2:0000		G-2	-5 85
		4:2:0000		F#-2	
		4:2:0000		F-2	
		4:2:0000		E-2	

Major features of the Event List



1 Control and presentation

- In order to switch between the tracks of the file in the event list, click on either of the small arrow buttons in the header area or use buttons within the playback toolbar that are used to turn the pages in the ENF view.
- Use the check-boxes to specify which types of events appear in the list and which do not.
- If you want the event list to run during playback, select the Scrolling during playback check-box.
- The other buttons in the header of the event list are used to insert new MIDI events, delete selected events. Confirm or reject changes that you make directly in the list.

2 Edit Events

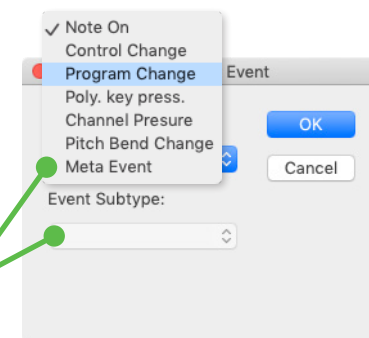
- Click in any field of an event line to edit the parameters of the MIDI event directly in the list. click on the Apply to button to confirm the change made, or ...
- double-click in the field of a MIDI event to open an event-specific dialog box for editing the event parameters.

3 Insert new events

- In the list, click on an event **below** where you want to insert a new MIDI event.
- Click the **New Event** button in the header of the event list. This opens the **Create New Event** dialog box Create new event.
- Select the type of the event from the Event type pull-down menu.
- Click on **OK**. The MIDI event is inserted at the selected position in the event list.
- Click on the inserted event or double-click in its Type field to edit the parameters of the event.

Event extensions

For controller and meta-event types, you can also choose from the event sub-type list. Tempo, key or time signature change are included in the group of meta events.



Supported File Formats

SmartScore is an intermediary file handler converting different input file formats to different output file formats. You can save your SmartScore documents to a number of universal file formats. File formats supported by SmartScore are found under the **FILE** menu and in button form inside the toolbar found in the **Import / Export** tab.



1 ENF file format (*.enf)

ENF is SmartScore's own proprietary notation format. It is the file type created after recognition and is what is editable in SmartScore. Although the original scanned image appears in yellow along with the ENF view in white, it is not part of the ENF format. It is a separate file linked to ENF after recognition.

TIP: If linkage between the original .TIF image and .ENF file is lost, it can be restored from the **VIEW > Associate Image Files** menu.

2 TIFF (*.tif, *.tiff) and PDF (*.pdf) file formats


TIFF is an image file format. If you scan your music using SmartScore's scanning interface, a multi-page .TIF file (known as CCITT Group 4 Fax format) is automatically created and processed. **PDF** is also a multi-page image file format. When you import a PDF file into SmartScore, it is automatically converted to .TIF format since SmartScore can only process .TIF files for recognition.

TIP: If you scan your music outside of SmartScore, you should always scan and save score pages as a PDF file since most scanners do not support multi-page TIF format.

- If you are scanning with your scanner's software, scan at **300 - 400 dpi in Grayscale** (not color or black&white) and save to a **PDF** file in a folder you use exclusively for scanning music. SmartScore remembers the location where you last opened and saved your files to. So keeping everything in one place makes sense.

3 MIDI file format (*.mid)

To create files simply for playback or to edit your SmartScore projects with MIDI sequencing software, save to the MIDI file format (.mid). Choose between two MIDI format types: MIDI Type 0 (One track / many channels) or MIDI Type 1 (many tracks / many channels). We generally recommend using MIDI Type 1, since parts are preserved as tracks and voices are preserved as channels. Nonetheless, many MIDI keyboards only support the Type 0 MIDI format.

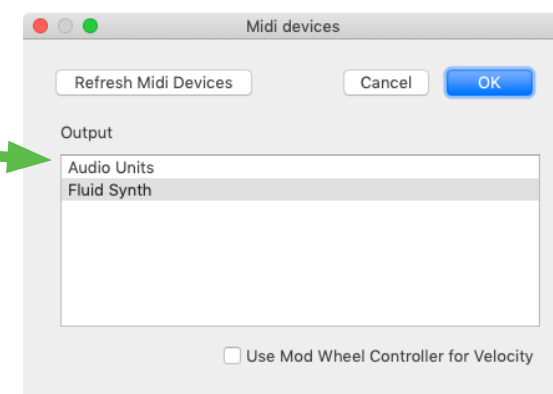
 SmartScore not only saves your scores to MIDI files, it also imports and plays MIDI files in SmartScore's MIDI sequencing environment and also converts quantized (time-stamped) MIDI files into standard notation.

- Select **FILE > Save as MIDI** or click the **Save** button in the toolbar from the **Import/Export** tab.
- Choose a MIDI File Type (MIDI Type 1 or MIDI Type 0).
- Browse to your music folder and click **Save**.
- You will be asked if you wish to remove or leave articulations. Articulations affect the duration (on-off data) of notes. In SmartScore, you may have notes that are being offset or truncated by articulations. This may affect how the MIDI file is interpreted by notation programs which rely on strictly quantized events to properly convert to notation.



4 MP3 file format (*.mp3)

You can save playback of any SmartScore ENF document as an .MP3 digital audio file in format. Make sure that **Fluid Synth sound font** is selected in **Playback > MIDI devices menu**.



Try to learn these keyboard shortcuts. It will make your work easier.

Editing

- Quick-Select any symbol
- Properties tool
- Nudge mode (Pitch shift / Drag handles)
- Selector tool
- Insert mode
- Delete mode
- Cluster mode (chord building tool)
- Insert Triplet
- Join selected notes to same event / Disconnect voices
- Split selected 2-note clusters into 2 voices
- Beam selected notes
- Toggle stem direction
- Swap selected note heads
- Unify Key & Time signatures
- Delete selected articulations
- Part Linking tool
- Bracketing tool

Ctrl + Click

ESC key

Shift

O key

C key

X key

Z key

T key

Y key

H key

B key

S key

L key

U key

G key

Cmd + L

Cmd + B

Viewing and Navigating

- Go To... navigate the score
- Scroll down
- Scroll up
- Roll scroll
- Zoom in / Zoom out

Cmd + G

Cmd + Down arrow

Cmd + Up arrow

Up / Down keys

Cmd + Mouse wheel

General functions

- Show Task Window
- New SmartScore ENF document
- Open file
- Save file
- Close files
- Print files
- Undo action
- Redo action

Cmd + Shift + T

Cmd + N

Cmd + O

Cmd + S

Cmd + W

Cmd + P

Cmd + Z

Cmd+ Y



Keep your left index finger positioned on the **C** key (**Insert** mode). Your fingers will naturally fall on the **X**, **Z** and **Cmd** keys.

Tools

- Quick-Select Symbol tool
- Selector Tool
- Insert mode
- Delete mode
- Properties Tool

Copy, Paste, Cut symbols

- Selector tool
- Select all
- Copy
- Cut
- Paste
- Replace
- Delete

Ctrl + Click

O key

C key

X key

ESC key

O key

Cmd + A

Cmd + C

Cmd + X

Cmd + V

Cmd + R

DEL

Notation symbols

- Note value (Whole note thru 128 note) **Number keys 1 - 8**
- Rest value (Whole thru 128) **Shift + Number keys 1 - 6**
- Quarter rest **R key**
- Accidentals (Sharp, Flat, Natural) **Cmd + 1, 2, 3**
- Triplet **T key**
- Chord Cluster tool **Z key**
- Barline tool **I key**
- Crescendo / Decrescendo **Caret (< and >) keys**
- Flip stem direction **S key**
- Swap position (joined voices) **F key**
- Dynamic mark (Piano) **P key**
- Prolongation dot **D key**
- Tie **V key**
- Beaming tool **B key**
- Beaming tool (Left beam, middle and right beam) **A key**



Symbol Selector / Symbol sections

- Symbol Selector: Notes
- Symbol Selector: Accidentals
- Symbol Selector: Rests
- Symbol Selector: Dynamics
- Symbol Selector: Articulations
- Symbol Selector: Tempo
- Symbol Selector: Tuplets
- Symbol Selector: Text & Tools
- Symbol Selector: Key Signatures
- Symbol Selector: Time Signatures
- Symbol Selector: Clefs
- Symbol Selector: Barlines & Repeats

Playback

F1
F2
F3
F4
F5
F6
F7
F8
F9
F10
F11
F12

- Open Playback Console
- Play / Pause
- Rewind
- Velocity (Volume) Controller
- Rubato Controller

Cmd + 9
Spacebar
Comma (,)
Shift + V
Shift + R

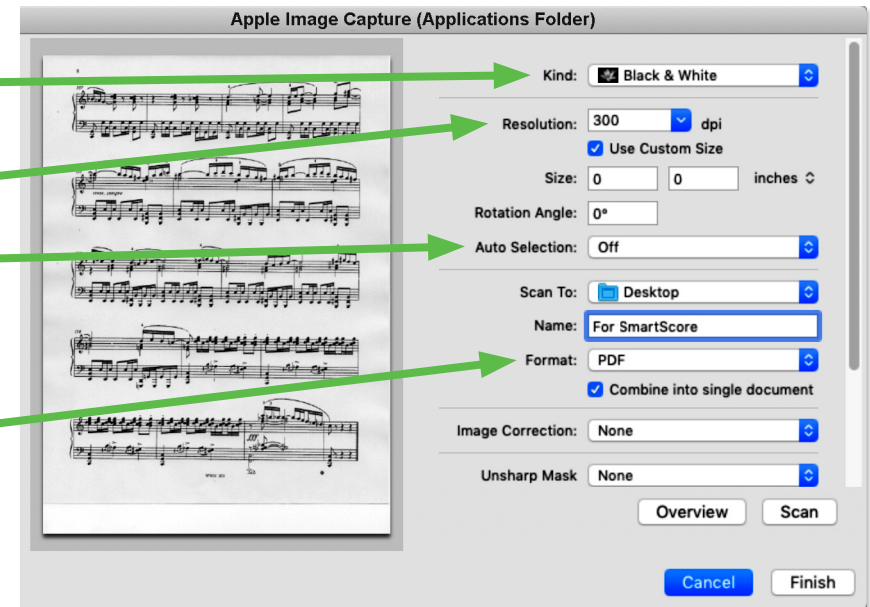
Tips and Troubleshooting

Alternative Scanning Methods

It's always advisable to scan using SmartScore's scanning interface (located inside the Input/Output tab). Besides simple convenience, other advantages include automatic resolution detection, automatic grayscale and multi-page .TIF creation / saving. However, it may not always be possible to scan from inside SmartScore, perhaps your scanner's driver is not available or incompatible with your computer. Perhaps you need to scan with a computer that does not have SmartScore installed. In those cases, you can still create usable scan files for processing with SmartScore ...

1 Scan using Image Capture

1. Open **Apple Image Capture** app located in the **Applications folder**.
2. In the **Kind pull-down**, select **Black & White** (it is actually grayscale!).
3. Set the scanning resolution to **300 DPI** (for music with "normal-sized" print). For miniature or orchestral scores with many parts per system, increase resolution to no more than **500 DPI**.
4. Be sure to set **Auto Selection** to **Off**.
5. Give your score a name and save it to your desktop or to your designated music folder.
6. In the **Format pull-down**, select **PDF**. If you're scanning more than one page, be sure to check the box **Combine into single document**.
7. Scan pages one by one. You should be prompted for each page.
8. Push **Finish**.



Troubleshooting

The following pages provide an overview of possible problems when working with SmartScore and offer suitable solutions. Should you still have problems under control, please contact our support team by email (tech@musitek.com). Be sure to include your scanned .TIF or .PDF files when you do. We're here to help.

Scanning

When attempting to scan, you get the message: **Scanner not ready.**

Your scanner's driver was not installed or needs to be updated.

Visit your scanner manufacturer's website and locate "Download drivers". Download and install the most current scan drivers for your computer.

The driver was not selected in SmartScore.

Go to: **FILE > Scan music > Select scanner.** Find the driver installed for your scanner model and select it. Push **OK** and close.

Your scanner is not connected to your computer or is not on.

Check that your scanner is on and properly connected to your computer.

While scanning with "Auto-resolution" on, you encounter the message, **You should scan this page at xxx DPI. Change or Ignore.**

The scanned image contains staff lines with varying staff widths. Auto-resolution measures staff widths to determine optimum resolution and assumes all staves have roughly the same width.

1. Select **Ignore**
2. Scan again. In the scanning options dialog, uncheck **Auto-resolution**. Set resolution of **300 dpi**. Push **Final scan**.

Auto-resolution may select a non-rounded value such as "320" or "375". Many scanners respond only to preset values (e.g. 300 / 600 dpi) so the resolution sent to the scanner is not recognized.

Scan again. In the scanning options dialog, uncheck **Auto-resolution**. Set resolution of **300 dpi**. Push **Final scan**.

PDF to TIFF Conversion

PDF to TIFF conversion fails when opening a PDF file.

The PDF document is password-protected.

Open the PDF file in Adobe Acrobat or some other PDF reader / editor. Resave the file as .TIF (be sure to turn off RGB and CMYK color management). Otherwise, print out the score and then scan the printed material into SmartScore.

SmartScore reports that the PDF to TIFF conversion is a color PDF.

The PDF document was created as an RGB color file which cannot be processed by SmartScore.

Open the PDF file in Adobe Acrobat or some other PDF reader / editor and print out the score if possible. Then scan the printed material into SmartScore.

Even if the document looks to be black&white, it can still be saved as a color file.

Recognition

An error message appears indicating that the image is in color.

The music was scanned as RGB color.

Rescan using SmartScore's scanning interface or with your scanner's software making sure your settings are **Grayscale** (sometimes called "Document" or "Text") and not color or black&white (1-bit).

Recognition failed message.

The music was scanned at screen resolution (70 to 90 dpi) or too high (600+ dpi).

Open the .TIF file in Photoshop or some other image editing program, change "mode" or "bit depth" from color to Grayscale then resave the file as "Uncompressed .TIF"

The scan was upside-down or sideways.

Open the .TIF file in SmartScore (it will automatically open in the Image Editor). Check the resolution ([View > Image Information](#)). Rescan if necessary.

The music contained front matter (cover, table of contents, etc.)

Use the tools in SmartScore's Image Editor to rotate each page to the correct orientation and/or delete cover, front matter, table of contents and any other non-music material

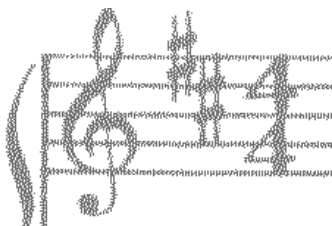
Recognition Results

Poor Recognition quality.

The scan was too light or the original score was faded, with broken or missing note stems and staff lines or was poorly scanned.

Open the .TIF file in SmartScore (it will automatically open in the Image Editor). Examine the image carefully. If you see note stems and staff lines broken and poorly defined, check if the original is poorly printed. Scanning at a darker setting may improve your results. Otherwise, recall the old saying: "Garbage in. Garbage out."

The music was scanned as a half-tone (dithered) image.



Zoom in closely into the .TIF pane (in yellow). Look for the tell-tale signs of half-tone / dithering: what should be solid areas of black are made up of many tiny black dots.

Delete the file. It is unusable. Rescan using SmartScore's scanning interface or your scanner's software making sure you select "Grayscale" (or "Document" or "Text"). Dithered images are always black&white (1-bit).

The sheet music is handwritten, containing handwriting-like musical character sets ("jazz fonts" or, is not standard notation (e.g. shaped notes / sacred harp).

If the manuscript resembles printed notation, then you may have reasonably good recognition results and you won't have to enter notes in one-by-one.

Problems occurred during scanning.

If pages were skewed or crooked, use the Deskew tool in SmartScore's Image Editor to straighten it.

Staves (parts) that ought to belong together become detached and appear as separate systems.

If binder hole punches penetrated system brackets or if the original music had faded lines and brackets were broken, staff lines will become unlinked.

Either draw lines to restore brackets in the Image Editor and recognize again. Or, if already recognized, rejoin broken systems using the **Part Linking** tool (**Cmd + L**) in the note editor.

Recognition Results

Page xx failed to recognize. message during recognition, but successfully created an .ENF file.

SmartScore may ignore a page that it can't recognize. It's best to make a note of the offending page, locate the problem and then correct it.

If you locate the offending page, you need only scan that page again and save it as a .TIF file. Select **Begin Recognition** in SmartScore. In the **List of Files** window, REMOVE the bad page. Then push **Add files to list** button, locate your rescanned page and select to add it to the list. Use either the **Move up** or **Move down** button to shuffle it into its rightful place. Then push **Begin Recognition**. SmartScore will ask if you want to overwrite the existing .TIF file. Push **Yes**.

Part of the scanned music was cut off.

Scan again making sure the music (not the page itself) is fully inside the glass scanning area.

Size of the original music exceeded the size of the scanner.

Consider using a scanner with a large scan area (e.g. Legal size scanner - 11" x 14").

Or use a copy machine to reduce the size of the image onto paper that will allow the full image of the music to be scanned on an 8" x 11" scanner.

Barlines were not recognized and dropped or else appeared where they should be.

Page was skewed (twisted) when scanned.

Use the Deskew tool in SmartScore's Image Editor to straighten the image.

Light leaked onto one of the edges of the page during scanning creating a long black mass along the edge of the image.

Rescan the page making sure there is sufficient pressure on spine of the book or original score that light from the scan bar does not leak onto the image.

You will not have to rescan all the pages, just the one offending page. Save it as a .TIF file and in the **Begin Recognition** window, push **Add to List** then **Move up** or **Move down** to slide it into place.

Playback

Playback pauses at the end of a measure.

Pickup and Closeout measures are common at the beginning and sometimes at the end of every system.

For a single measure, use the **Properties Tool (Esc key)** and click on the beginning barline. In **Barline Properties**, select **Play as written**.

Playback pauses at the end of ALL measures.

The time signature is probably incorrect.

Check time signatures. Change time signature to the correct value as necessary.

Playback appears to go faster or slower than the default Tempo set in the Playback Console.

Look for a Tempo marking (e.g. **Allegro**, **Moderato** or **Andante**) in the body of the music. If recognized, Tempo markings will apply a new tempo value to playback.

If necessary, you can alter the tempo value of any Tempo marking. Use the **Selector Tool (ESC key)** and click on any Tempo marking. In **Tempo Properties** dialog, change the tempo value.

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