



# Introduction

PDFtoMusic is a groundbreaking and unique program that converts Adobe PDF music sheets into editable music scores.

From an Adobe PDF file **created by any music notation program**, PDFtoMusic can play the piece, sing the lyrics and export this piece to miscellaneous file formats: MIDI, Myr, BMP, WAV, AIFF and MusicXML for the Pro version.

What can I use it for?

How does PDFtoMusic work?

What are the differences between the "Pro" and "Standard" version?

## What can I use it for?

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Usages for PDFtoMusic are numerous. First, on the Internet, many dedicated sites provide large collections of free musical PDF files.

PDFtoMusic will let you play them, or convert them into a music file format that you'll be able to modify by using your usual music notation software. Thus, PDFtoMusic gives you access to a wide library of public domain score sheets that you can play or edit.

Also, there are many music notation programs, and only a few manage compatible exchange file formats. PDFtoMusic solves this issue. You just have, from your program, to generate a PDF file (see next chapter), read it with PDFtoMusic and convert it into format that can be read by another application, for instance, Myr or MIDI format (or MusicXML for the Pro version).

PDFtoMusic becomes then a bridge between your miscellaneous music programs.

For instance: your choir master only uses "Music Architect 2000", that can only save files in its own, proprietary format. You just have to ask him for a PDF file for the score, and by using PDFtoMusic, you'll get a score that can be edited in Harmony Assistant.

If you own the Pro version of PDFtoMusic, you can also export into MusicXML exchange format, from Recordare. The Music XML file format is currently supported by a number of notation applications, including Finale and Sibelius.

## How does PDFtoMusic work?

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PDFtoMusic analyzes the content of Adobe PDF files. It collects all the graphical information that it can process: fonts, lines, miscellaneous graphic objects. From these graphical items, PDFtoMusic will infer the music score to be played.

Note : some PDF files (albeit rare) embed only a single picture for the whole score, instead of a collection of simple graphic objects. This kind of PDF file has probably been generated from a scanned paper sheet. PDFtoMusic can't extract and process elementary graphical items in such cases, and reports that such a document cannot be processed.

To convert a PDF file, select "File>Open" in PDFtoMusic and select a PDF file on your hard drive. PDFtoMusic will load it, and start automatically to process and display it.

If PDFtoMusic makes a mistake while processing the document, you will be able to fix this mistake manually. It is described in the corrections section of this manual.

PDFtoMusic can export the result automatically each time a PDF file is processed, and open this result in the program of your choice.

## What are the differences between the "Pro" and "Standard" version?

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The "Pro version" includes options and features that are not present in the "Standard" version:

- **Batch file export**, to convert in only one operation all PDF files from a folder and its subfolders.
- **"Expert" mode** to manually override individual default processing settings in order to have more precise control.
- **Export in MusicXML format** in order to preserve the score sheet layout when importing into one of the numerous programs that support this

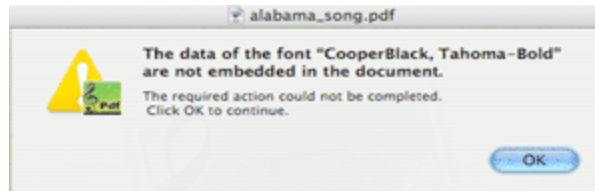
format.

# How do I generate a PDF file from any software?

PDFtoMusic is able to convert a PDF document with such a high level of accuracy because it analyses the actual font characters which are embedded in the PDF document.

When asking for generating a PDF document, you must ask for the **character fonts** to be **embedded into the PDF document**. Generally, it's the default setting.

If PDFtoMusic detects a font that is not embedded in the document, an alert will be displayed:



meaning that the rendering could be different from expected.

Here is how to create a PDF file, depending on your system kind:

With Windows

With Mac OS X

With Mac OS 9

With Linux

## With Windows

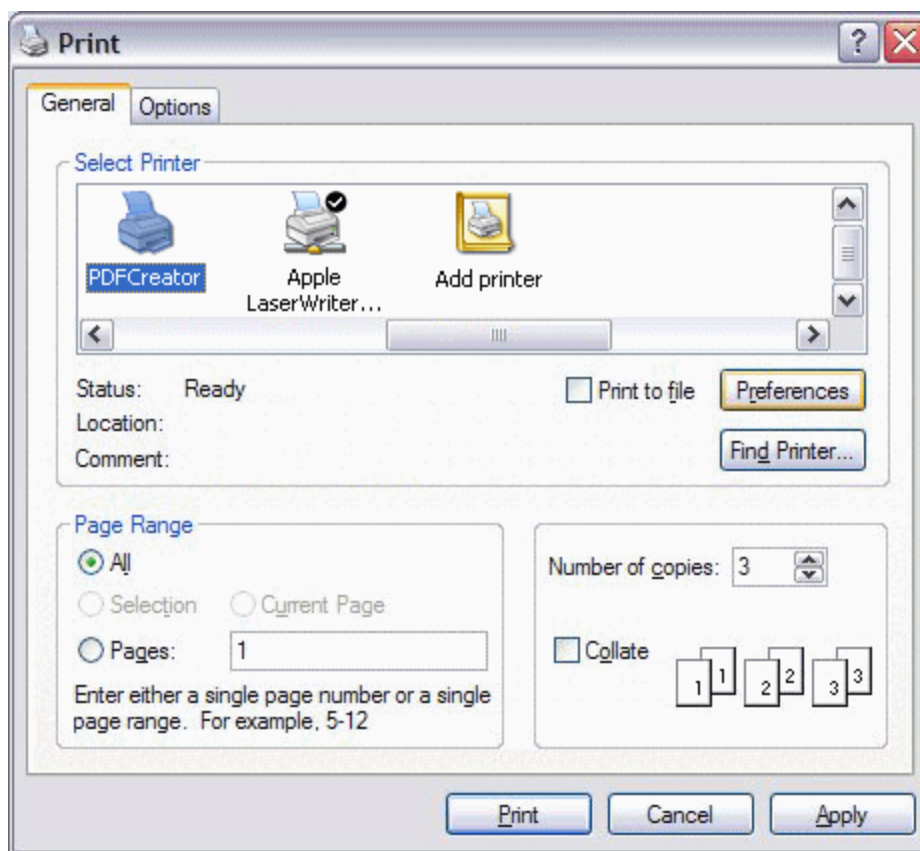
To create PDF files from any music software (or any other application) under Windows, you must install a small program beforehand. This program can be either a freeware, like DoPDF, PrimoPDF, PDFCreator, a shareware, like PDF995, or a commercial software package like the tools of the Adobe suite.

*Note : Be careful, some freeware programs like **PDFCreator**, **CutePDF** ou **Bullzip PDF Printer** install unwanted adware toolbars in your Web browser. It's highly recommended to disable installation of these toolbars when possible, or to use any other adware-free alternative.*

All these programs behave like a new printer for your computer.

When "printing" a document to it, a file name is asked, and the printing result is actually saved in PDF format.

When printing from any program, you will then find a new entry in the printer selector that appears:



Select the printer (here "PDFCreator") then click "Print".

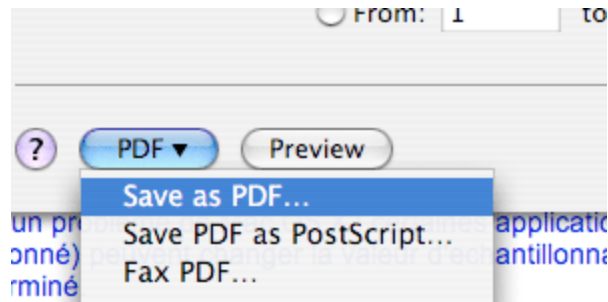
You'll then get a window for entering optional information about the PDF file to be created (Title, date, author...), then a file selector for specifying the name and location of this file.

The PDF file that matches what you asked for being printed is then generated, and can be opened by PDFtoMusic.

You can then either send this file by e-mail to somebody else, or process it with PDFtoMusic to convert it into the file format you need.

## With Mac OS X

With a Macintosh under Mac OS X, it's quite easy to generate a PDF file from any program, by using the print dialog box. Once the file is loaded into the software, select "File>Print". The printer selector opens, and you can select here the page range to be printed. In the bottom part of this box, you'll see a "PDF" or "Save as PDF" button.



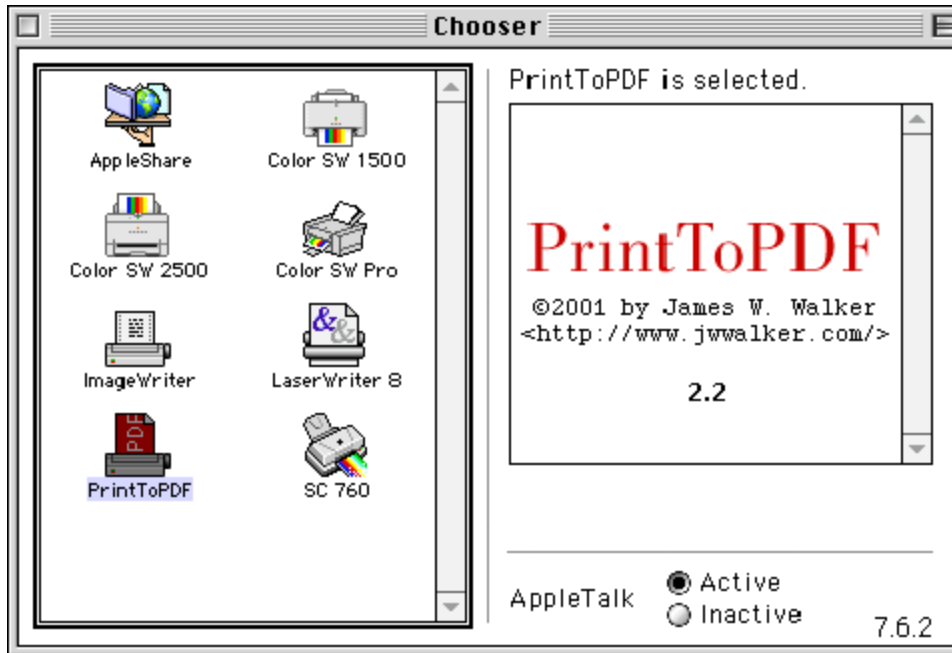
Click it, select a name for the file and save it. The Adobe PDF document is created on your hard disk at the required location.

You can then either send this file by e-mail to somebody else, or process it with PDFtoMusic to convert it into the file format you need.

## With Mac OS 9

To create PDF files from any music software under Mac OS 9, you must install a small program beforehand in the system "Extensions folder", like Acrobat PDFWriter or PrintToPdf.

Select the Chooser from the Apple menu, and click on the program icon:



Then close the Chooser. (The AppleTalk setting is irrelevant in this case.)

All these programs behave like a new printer for your computer.

When "printing" a document to it, enter a file name, and the printing result is actually saved in PDF format.

A PDF file of your score is then generated which can be opened by PDFtoMusic.

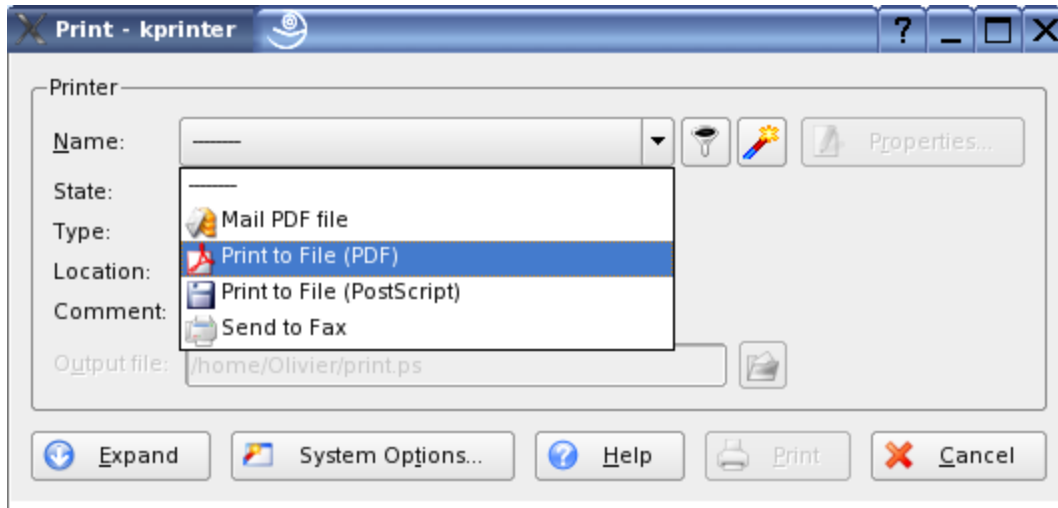
You can then either send this file by e-mail to somebody else, or process it with PDFtoMusic to convert it into the file format you need.

# With Linux

Generating a PDF file from any program under Linux needs to use a special printer driver that saves the graphic commands into a file instead of actually printing them on paper.

You can then either send this file by e-mail to somebody else, or process it with PDFtoMusic to convert it into the file format you need.

With KDE, the "kprinter" command (KDEPrint package) includes an option to generate a PDF file:



If this option is not included in your distribution, you'll probably need to use cups-pdf.

To install it under **Ubuntu**, please refer to this document:

<http://ubuntu.wordpress.com/2006/03/23/print-to-pdf-using-cups-pdf/>

To install it under another distribution, please read:

<http://www.physik.uni-wuerzburg.de/~vrbehr/cups-pdf/download.shtml>

## General application menu

The General application menu is called "PDFtoMusic" on the Macintosh, and "?" on the PC.

### About...

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Display information about PDFtoMusic: its version and the sound database currently used for playing music. You'll also see whether the program is registered or if you are using a trial version.

For any question about PDFtoMusic, please provide this information to technical support along with your questions about PDFtoMusic.

### Documentation

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Opens this manual.

### Internet

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#### Go to our Website

Connects to the Myriad website

#### Go to the discussion forum

This forum is a place where you can discuss with other users, and where the authors of the program regularly weight in. It is designed to host discussion about general topics. For specific issues, it's recommended to send a problem report directly to the authors through the following menu option.

#### Send us an e-mail

You'll send a report directly to the authors, in order to ask a technical question.

WARNING: please be sure to provide a valid e-mail address, otherwise you won't get an answer from us!

When sending an e-mail to the authors through this option, all the necessary information about your hardware and software us automatically included, so you don't have to repeat them in your message.

It is possible, and even recommended, to attach a file that will illustrate your query.

#### Search for a score

You will search PDF files on the Internet using Kooplet.

### Language

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Program language selection. This submenu allows you to select the language of the user interface.

### Ordering

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You are connected to the our online store, from where you can order our products.

Please consider that the playback quality of PDFtoMusic, as well as the audio file export (WAV, AIFF, MP3) can be drastically improved by using GOLD 2 sound base.

### Input my registration code

---

This option is active only if your copy of the program is not registered yet. To do it, enter your personal details, as well as the personal license number that you received after your purchase. This operation has to be done only once.

### Unregister the program

---

This option is active only if your copy of the program is registered. It wipes out the registration information. You have to do this when you sell your computer, or if you are using a computer other than yours.

Note: this is important, because you are personally responsible for keeping the information related to your license confidential.

## "File" menu

### Open

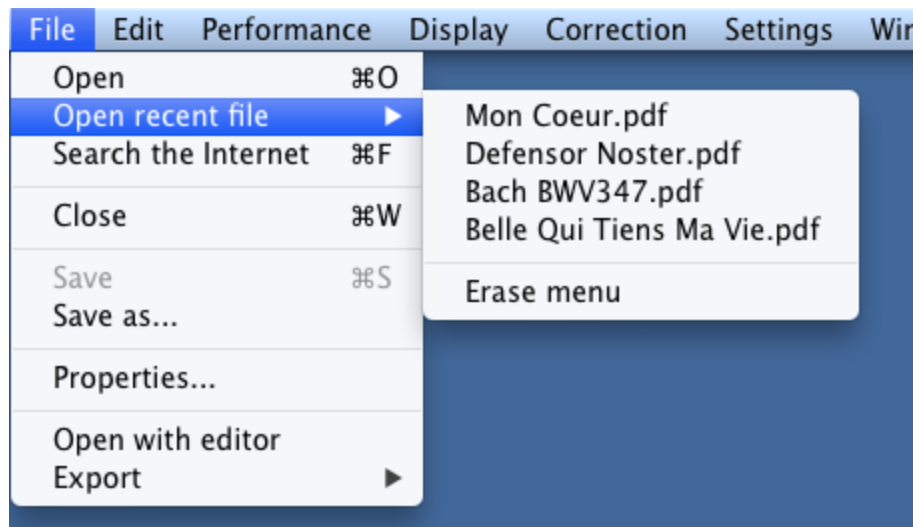
---

Opens the window for selecting a PDF file from your hard disk. The file will be loaded and analyzed. Icons show the computation progress. You can cancel the operation at any point by either closing the document window, or by hitting the Esc key. You are then asked for confirming the process cancellation.

### Open recent file

---

In this menu, PDFtoMusic shows the 32 last loaded PDF files. The last item in this menu erases this list.



### Search the Internet

---

You will search PDF files on the Internet using Kooplet.

### Close

---

Closes the frontmost document. If you applied changes to the document that have not been saved yet, you are asked for a confirmation.

### Save

---

This submenu is active only if changes have been applied to the frontmost document.

Changes you made to the PDF document are saved, either in the PDF file itself, or in a separate file (depending on your settings in "Settings > Preferences", "Document" section)

### Save as

---

Saves the PDF document under another name, embedding the changes you applied to it.

It enables you, for instance, to save a separate version of the PDF document that includes your amendments, while keeping the original version unaltered.

It is the only way to store your amendments into a PDF file when the setting for "Store Corrections to PDF file" is unchecked in General Document Preferences.

See this chapter for more details.

### Properties

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Provide various informations about the PDF file : creator, date, embeded fonts, etc.

## Open with editor

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The frontmost document is exported (in the file format defined in PDFtoMusic preferences) and opened with the related program.

## Open PDF file with editor

---

The PDF file is opened with the editor defined in PDFtoMusic preferences.

## Export

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Exports the frontmost document in any of the available file formats.  
You can select the page(s) to be exported, as well as the parts.  
Please refer to the file format description chapter for more information.

## Printer setup (MacOS only)

---

Setup for printing : paper size, printer, etc.

## Print

---

The PDF file will be printed.

## "Edit" Menu

### Undo

---

When a change (amendment) has been applied to the document, you can undo this operation. The 6 last operations can be undone.

### Select all

---

Select all objects. Any change applied to a selected object will be applied also to the other selected objects.

### Deselect all

---

Deselect all.

### Immediate reprocess mode

---

When this option is active, amendments made to the document will trigger an immediate reprocessing. When inactive, you'll be able to run manually start reprocessing at your convenience.

### Reprocess now

---

If immediate reprocess mode is switched off and amendments have been made to the document, this option reprocesses the document.

### Delete changes on selected objects

---

Delete changes (amendments) that have been applied to the currently selected music symbols and objects

### Delete all changes

---

Delete all the changes (amendments) that have been applied to music symbols and instruments of the document.

Note: changes about the way fonts are handled are not altered by these two last operations.

## "Performance" Menu

### Play

---

Plays the whole score or the currently selected part.

To select a measure: click on the measure.

To extend the selection: shift+click on the measure ending the selection

To delete the selection: click in the selection

To select a part until the end: delete the selection then shift+click on the part and the measure chosen

To select all the parts until the end: delete the selection then shift + double click on the chosen measure

### Pause

---

Stops music performance, that can be restarted at this point later.

### Stop

---

Stops music performance. A new start will play the score from the beginning again.

### Volume

---

Enables to set up the sound overall volume

### Tempo

---

Enables to set up the tempo (performance speed) of the music

### Force played measures

---

You will define the measures to play. This can be single measures like "8,10,11,13,14,6" or group of measures like "2-12" where measure 2 to 12 will be played.

Measure or group of measure currently edited is show on the document.

### Loop

---

While playing allow to repeat the document or the selected area.

### Virtual Singer

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Enables to decide whether you want the lyrics sung by Virtual Singer or played by an instrument.

### Number of measures before music start

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These measures before the music start with the metronome. Metronome state is ignored.

## "Display mode" menu

### Drawer

---

This option is active only when the document is longer than one page.

Activates/deactivates the drawer related to the document. The drawer shows the document pages as thumbnails. You can jump to any page by selecting its thumbnail in the drawer.

The number of errors found by PDFtoMusic on this page is also displayed over the thumbnail

Note: you can ask for the drawer to be opened automatically when a new document is loaded, by selecting the matching option in the general preferences, "Document" section.

### Scroll mode

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When this mode is active, the miscellaneous systems (staff groups) are not displayed on top of each other, like in a real music sheet, by one besides the other, as a virtual "ribbon".

### Recognition result

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When this mode is active, PDFtoMusic displays the symbols it recognized over the regular PDF drawing. These miscellaneous symbols are displayed in color:

- notes and rests : dark blue
- clef, key and time signature: light blue
- etc.

### Measure numbers

---

Displays measures numbers. If a measure is never played, its number is displayed in grey. This can occur when a repeat symbol is incorrectly written or wrongly analysed. You can fix this by forcing the played measures list in Performance menu.

### Horizontal pages

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Pages are displayed side by side, by group of two.  
This mode can be defined as default in the global settings.

### Actual size

---

Resets the document display scale to 100%

### Double size

---

Resets the document display scale to 200%

### Full width

---

Adjusts the document display scale so that its width fits the window.

### Full page

---

Adjusts the document window size so that it occupies as many space as possible on screen.

### Zoom in

---

Increases the document display scale.

## Zoom out

---

Decreases the document display scale.

## Go to measure...

---

Shows the measure of the given index.

## Page -

---

Shows previous page

## Page +

---

Shows next page

## "Computation" menu

You will setup the way objects are handled.

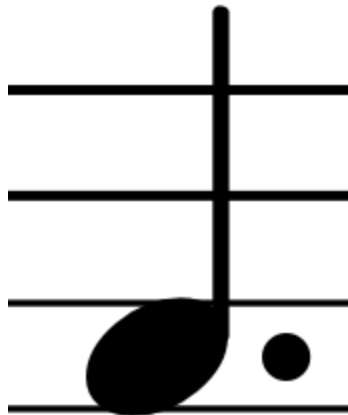
If no PDF document is open when you change a setting in this menu, it will apply to all future opened documents, otherwise it will apply to the frontmost document.

In some cases, changing a calculation setting for a document will need its total or partial recomputation.

### Score>Allow special lines

---

Some PDF draw note stems with rounded lines :



Some programs draw staff lines using characters mixed with standard lines.

Some programs draw dots using small rounded lines.

When this mode is enabled, these lines will be processed.

### Score>Allow thin beams

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Some PDF draw beams with thin lines :



When this mode is enabled, these lines will be processed.

### Score>Allow ledger lines

---

Ledger lines are used to determinate note pitches when the symbol is outside the staff lines. If there is no ledger lines, notes will be lost. In this case disable this option.

### Score>Allow bracket to create groups

---

Normally, staves groups are notated with braces. Is this mode is active, bracket also create groups.

## Score>Allow modern notations

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This option is still experimental. It aims to enable specific algorithms to handle special cases.



Processing of time signature located above the staff.

## Score>Allow ancient notations (pro version only)

---

In ancient notation we found accidental below or above note like here :



## Score>Allow figured bass (pro version only)

---

In this type of notation, the chords of the bass are written in a simplified way: a note gives the fundamental, numbers and symbols specify inversions and alterations of degrees.



## Score>Allow figured bass (pro version only)

---

In this type of notation, the chords of the bass are written in a simplified way: a note gives the fundamental, numbers and symbols specify inversions and alterations of degrees.



## Score>Allow tempi

---

If tempo changes are incorrectly found in your document try to disable this option.

## Score>Allow dynamics

---

If dynamics are incorrectly found in your document try to disable this option.

## Score>Allow fermata

---

If fermata are incorrectly found in your document try to disable this option.

## Score>Allow automatic break adjustment

---

Some PDF include several lyric lines related to the staff with incorrect break symbols (repeats, jumps, endings). When this mode is enabled, PDFtoMusic tries to create breaks symbols in order to match the actual number of repeats.

## Score>

## Allow big images

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Eliminates images that are too large and can disrupt visualization. By default, all images which are larger than 25% of the page. On PDFtoMusicPRO this threshold is adjustable in the "Images" tab of the expert mode.

## Staves>Allow multi-voices staves

---

If PDFtoMusic considers that one or several staves in the document are made of several voices and you are sure of the opposite, you can deactivate this processing mode.

If dynamics are incorrectly found in your document try to disable this option.

## Staves>Allow left and right hand fusion

---

Groups of two staves joined by a brace are merged into one part. If not active, this allows you, for example, to export the left hand and the right hand separately.

## Staves>Allow splitting of merged singers

### (version Pro uniquement)

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In some choral scores, several singers are written on the same staff.  
For example:



## Notes and Rests>Allow grace notes

---

If little notes are processed as graces, disable this option.

## Notes and Rests>Allow enhanced chords

---

Two notes horizontally very close to each other can be considered as belonging to the same chord (there are sometimes chords in which the notes are not perfectly aligned). This option enables you to deactivate this mode.

## Notes & Rests>Allow tuplets

---

In some scores, a digit appears near the note to indicate the fingering. In some cases, PDFtoMusic interprets this fingering text as tuplets (triplets, etc). If there are no tuplets in the piece, deactivate this option to prevent PDFtoMusic from searching for tuplets in the score.

If you deactivate this option, PDFtoMusic will no longer search for tuplets in the score.

## Texts>Allow lyrics

---

If some textual informations, near the staff are recognized as lyrics, and the document don't include lyrics, you can disable them with this option.

## Texts>Allow shared lyrics

---

In some vocal pieces (for instance, Barbershop scores), when several performers sing the same lyrics, only one lyric line is written:

The image shows a musical score snippet for a chorus. It features two staves: Tenor Lead (top) and Bari Bass (bottom). The key signature has three flats (B-flat, E-flat, A-flat) and the time signature is common time (C). The lyrics are "You're a grand old flag, yo". The Tenor Lead staff has a treble clef and a soprano clef (8). The Bari Bass staff has a bass clef. The lyrics are shared between both staves, with the words "You're", "a", "grand", "old", "flag," and "yo" positioned between the two staves. The word "Chorus" is written above the first measure. There are first and second endings indicated by "1" and "2" above the notes in the second measure.

When this mode is active, PDFtoMusic will assign the lyric line to both staves.

## Texts>Allow chords name

---

In some cases, the lyrics line can be constituted by chords names, for example when the singer sing "La La La La". Invalide this option to ignore chords name processing and add the texts to lyric line and not chord line.

## Texts>Allow complex typography in chord names

---

In some case, chord names are written using miscellaneous fonts, size, or vertical shifts. Activate this option to got a more flexible chord names recognition.

## Texts>Allow fingering

---

If PDFtoMusic recognizes tuplets as fingering notation (this generally provides a bar duration error), you can deactivate fingering seeking for the whole document.

## Texts>Allow group names

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If group names are incorrectly found in your document try to disable this option.

## Texts>Allow footers

---

If footers are incorrectly found in your document try to disable this option.

## Staff matching over systems

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With this option, you can change the way the software follows automatically a staff across systems (see "Staves and Systems" above)

The most complex levels are usually more accurate, but could slow down significantly the whole process (up to several dozens of seconds per page)

The different possible levels are:

- Very Simple: Dedicated to scores in which empty staves are not omitted
- Simple: For simple cases (e.g. a few instruments disappear after the intro). It's the default value when the software has just been installed.
- Quite Complex: Some staves disappear and others appear frequently on the score, and the previous level makes mistakes
- Complex: Score difficult to read, with many staves disappearing while other appear. To be used when all the previous levels fail.

## High resolution

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When a document is made of many tiny staves, some inaccuracy errors can occur in the vertical positioning of notes and rests.

Switching to high resolution increases the precision (and the computation time). You can define that all documents will be loaded in high resolution from the general preferences.

## Reset to default settings

---

This applies to all settings from "Allow multi-voice staves" to "High-definition".

• If no PDF document is open and this option is inactive, then all default calculation settings are already identical to the factory's.

This option is active when at least one default setting has been changed.

Differences are displayed in bold, and you can reset them all to factory settings either by selecting this option, or manually, one by one.

• If at least one PDF document is open and this option is inactive, then the settings for the frontmost document are already identical to those by default.

This option is active when at least one setting has been changed for this document.

Differences are displayed in bold, and you can reset them all to default settings either by selecting this option, or manually, one by one.

## "Correction" menu

As any other system based on computer recognition, PDFtoMusic is not infallible, and can make some mistakes, more or less important depending on the quality of the document. You can intervene on the recognition result and apply amendments. These changes can be saved so that they are preserved when loading the document again.

PDFtoMusic offers two ways of saving these amendments.

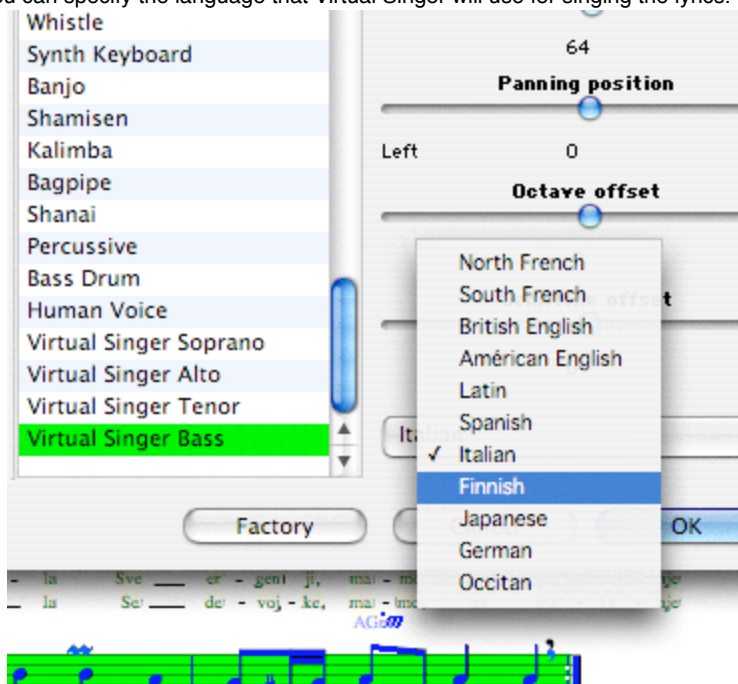
In a general way, when using PDFtoMusic, always start by listening to the result through the "Performance > Play" menu option. If you hear any mistake, this mistake will probably be also present in the exported file. So it's highly recommended to fix it with the available tools, the "Correction" menu being one of them.

## Instrument

For each staff found in the document, PDFtoMusic shows the related instrument. You can change this instrument as well as its volume, panning position, octave shift and semitone shift.

Through the semitone shift you can specify that an instrument in the score is a transposing instrument. For instance, a staff written for a clarinet is usually notated as a Bb transposing instrument (its semitone offset is -1) and an alto Sax as a Eb transposing instrument (its semitone offset is -9).

If the instrument is human voice, you can specify the language that Virtual Singer will use for singing the lyrics.



A check box activates globally the "surround" effect. This effect increases the panning separation of the miscellaneous instruments, for all the documents.

## Staves and systems

When a line is full on page, music notation makes the whole set of staves restart at the next line. Each group of staves that are played together from left to right on page is called a system. There can be several systems on each page.

In order to save space, staves that don't play across a system are frequently not displayed in this system.

This can lead to tricky situations, where it becomes difficult to know which staves are part of the next system, and which staves aren't. For instance, if an instrument doesn't play in a system and is hidden starts to play at the next system, while another instrument stops playing, the number of staves in the two systems can be the same, while the staves aren't. In this case, only the staff name, its clef, or other indicators enable to understand the score structure.

PDFtoMusic includes specific algorithms that "follow" staff lines from a system to another. The "Staves and Systems" mode lets you change the way staff lines are connected together.

A description is provided here.

## Areas

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In this mode, you can define excluding or including areas.  
These areas apply to character or line objects

- If at least one inclusion area is present on the page, all objects located outside any inclusion area are ignored
- Any object located in an exclusion area is ignored

This can be useful, for instance, if a group of characters is not well managed and troubles the recognition.  
To add an area, click and drag.

To delete an area, right-click it then select "Delete" in the contextual menu

In the same menu, you can define what page range the area applies to.

Areas are saved along with the amendments made to the document. The "Edit > Delete all changes" menu option therefore also deletes all areas.

## Fonts

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A PDF document includes graphic objects (frames, lines, etc) as well as characters extracted from a font. Those characters can be either letters and digits, or music symbols.

PDFtoMusic has some manual font recognition settings that can help correct mistakes, which are described here.

## "Settings" menu

This menu enables you to set up the PDFtoMusic behaviour. Don't hesitate to explore the numerous options carefully. These can prove to be very useful.

### Preferences

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Opens the general preference window. You can adjust from here the way the PDFtoMusic interface will react. The miscellaneous options are arranged in sections.

A complete description of each section is provided here.

### Toolbar

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Enables to customise the icons in the documents toolbar. This is functionally identical to right-click the toolbar then select "Setup".

## Menu "Fenêtres"

Ce menu vous permet d' ouvrir, de fermer les palettes d'outil. D'accéder aux fenêtres des documents ouverts.

### Table de mixage

---

Ouvre la table de mixage.

### Clavier virtuel

---

Ouvre le clavier virtuel.

### Suivi des paroles

---

Ouvre le suivi des paroles.

# The document window

PDFtoMusic displays Adobe PDF files as documents. Several documents can be loaded simultaneously.

General points  
Toolbar  
Drawer  
Saving files

## General points

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While loading and processing a PDF file, analysis progress is shown through icons. You can cancel the processing at any point by hitting the "Esc" key or by closing the window.

Once the analysis is complete, the PDF drawing is displayed in a document window.

Two symbols can be displayed in the title bar:

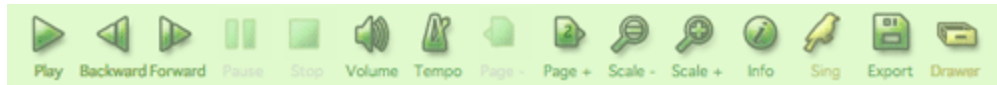


They respectively mean that calculation parameters have been changed compared to the default values and that corrections (addition of area, change of instrument, etc.) have been applied to the document.

## Toolbar

---

The toolbar in the upper part of this window enables you to play music, navigate within the score, pause and restart playback and adjust volume or tempo (playback speed).



Tips:

- To quickly start or stop playback, use the space bar.
- To activate "loop mode", use the "\*" key
- To fast forward, use the "+" key
- To fast backward, use the "-" key
- To pause music, use the "=" key
- Page up and Page down keys to change page

If the document contains several pages, the following icons enable you to switch to the previous or next page. You can also use the vertical scrollbar to move through the whole document.

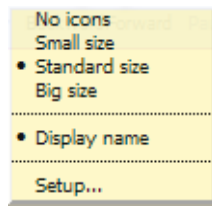
The next icons change the display scale of the document.

The "info" icon displays information about the document. These details are extracted from the PDF file: title, document author, creation date, as well as the character fonts embedded in this document.

If the Adobe PDF document include lyrics, the "bird" icon is present. Click this icon to activate the virtual singer before starting playback. This default setting can be changed in Preferences, "Document" section.

The "export" icon exports the music piece in the current format specified in general preferences, "Export" section. But you can also select another format from the file selector, by typing in the matching extension. For instance, to export in Wave format, end the filename with ".WAV". You can cancel the export at any time by hitting the Esc key.

Right-clicking (or Shift + click) on the toolbar changes its appearance.



The "Setup..." option enables to customise the toolbar icon list according to your needs.

## Drawer

If your document contains several pages, the last icon opens and closes the drawer. A drawer is a secondary window, linked to the main one, that shows a general preview of the document. Click a thumbnail to jump directly to the selected page.

If errors have been found, a warning sign is displayed, specifying the number of errors detected on this page.



## Saving files

When amendments have been applied to the document, as for instance a change in the instruments, volume, or music symbols recognition, you can save these changes so that they will be preserved when loading the file again later. PDFtoMusic lets you choose between two modes that can be set up from general preferences.

### 1- Save changes in the Adobe PDF file itself

(When *Settings > Preferences > Document > Store corrections in PDF file* is checked)

Data is preserved in the Adobe PDF file. A backup copy of this file is performed. This doesn't affect the way this PDF file is displayed by other programs.

The advantage to this mode is that, when you send the file to somebody else, your changes are carried along.

### 2- Save changes in a separate file

(When *Settings > Preferences > Document > Store corrections in PDF file* is not checked)

The original Adobe PDF file is not modified, and the data are stored in a separate file, created in the "Correction" subfolder of your user file space.

Please note that, in this mode, you can still generate a PDF file in which your amendments are embedded by using the "File > Save as..." menu option.

# Preferences

This dialog box enables to set up the PDFtoMusic behaviour. Don't hesitate to explore carefully the numerous options. It can prove to be very useful.

## Quick Links

- Starting
- Document
- Alerts
- Export
- Glyphs

## Starting

---

### Load documents automatically at startup

If ticked, when the application is started, documents that were open during the last session are automatically reloaded. It's possible to cancel the processing at any time, either by closing the window, or by hitting the Esc key. You'll then be asked for confirming cancellation.

### Open file selector at startup

When ticked, if no document is loaded when the application starts, the file selector will automatically open, so that you can select a file to be loaded.

### Detect new program versions

If ticked, you will be automatically alerted when a new version of the program is available.

## Document

---

### Store corrections in PDF file

When ticked, the amendments you could have applied to the PDF file are stored within the file itself. When not ticked, they are saved into a separate file, located in the "Corrections" folder of your user folder.

Note: see the chapter about the miscellaneous file saving modes.

### Make a backup copy of the original PDF file

If changes are stored in the PDF file itself, you can also ask for a backup copy .bak.pdf to be created at the same level as the original PDF file. It is even recommended.

### Open drawer automatically

When ticked, the drawer will be automatically open if the document contains more than one page.

### Open full screen

When ticked the document window will extend over the whole screen when loaded.

### Activate Virtual Singer automatically

You can specify whether Virtual Singer is automatically activated when a document is loaded.

### Activate MyrSynth automatically

If ticked, when possible, instruments will play using MyrSynth, our high-quality physical modeling synthesizer.

### Display recognition results

When ticked, the recognition results will be displayed when the document is loaded.

Note: you can activate/deactivate this display through the "Display" menu.

### Warn when embedded fonts are missing

Some PDF files do not embed the font drawing for the characters they use. PDFtoMusic can warn you when such a case occurs.

### Full path in document title

If ticked, the complete path to the PDF file will be displayed in the document window title.

### Play music automatically

Music will start playing as soon as the PDF file has been processed

### At the end of the process

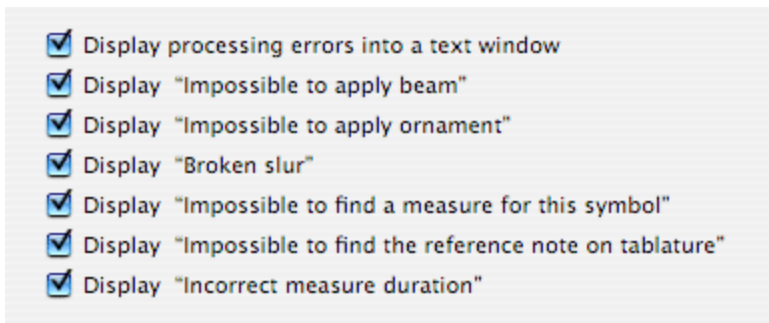
In this drop-down menu, select the sound that will be played when the PDF file has been processed.

#### **Apply corrections** drop-down menu

Defines the default settings for the "Correction" menu options when a new PDF file is processed. Each of them can be activated/deactivated on a per-document basis through the menu.

## Alerts

---



### **Display processing errors into a text window**

When PDFtoMusic detects an error when processing the document, it will display a small icon over the document itself representing each item you have ticked in the Alerts panel of general preferences.

In parallel, PDFtoMusic can create a list of all errors encountered as text in a special window (pink background). Right-clicking this window opens a contextual menu for erasing, saving or printing the window content.

The following items enable you to mask some errors (these errors are still present but no longer displayed). Here are the descriptions of the miscellaneous processing errors

#### **Display "Impossible to apply beam"**

PDFtoMusic recognized a character that looks like a beam, but couldn't find any music symbol close enough.

#### **Display "Impossible to apply ornament"**

PDFtoMusic located a character that looks like a note ornament, but couldn't find a note close enough.

#### **Display "Broken slur"**

PDFtoMusic recognized the shape of a slur (possibly a tie), but either it could find the source note for this slur but not the target note, or it could find the target note but not the source. It therefore can't apply the slur.

#### **Display "Impossible to find a measure for this symbol"**

PDFtoMusic recognized a musical character in the document, but could not relate it to any measure (bar) area. It can happen for instance for some time signature indicators that are put as a reminder at the beginning of a line.

#### **Display "Impossible to find the reference note on tablature"**

When the document shows tablatures for fretted instruments, PDFtoMusic estimates the duration of notes written on the tablature by seeking for the matching note in the regular staff. If PDFtoMusic can't find this reference note, it generates this error.

#### **Display "Incorrect measure duration"**

When several staves are present in a single system (staff group), PDFtoMusic checks that the duration of each bar is consistent. If PDFtoMusic detects a difference in measure duration, this error is generated. It can occur in the following situations:

- . PDFtoMusic made a previous miscalculation either when extracting the symbol duration, or when locating chords within the measure (especially when notes in chord are not on the same vertical line)

- . There is an error in the source score's notation. This may depend on a number of factors, including the overall accuracy of the source program used to create the PDF.

In some cases, PDFtoMusic can consider two notes that are horizontally close together to be in chord, instead of considering that they are consecutive.

By un-checking the various options in the "Correction" menu, you can deactivate the display of specific types of errors that cause "Incorrect measure duration" warnings.

## Export

---

The export settings don't affect batch processing, which uses its own options.

When loading a PDF file, PDFtoMusic analyzes it automatically. It can then export it immediately in any of the available formats, and open this resulting document in an external application. The following options are available in the Export tab of the Preferences:

#### **Export all opened files automatically**

This check box activates/deactivates the automatic export.

"to folder..."

If automatic export is activated, use this option to select the path to the folder where the resulting documents will be stored.

The "Change" button enables you to select another (file) path.

"File format"

This pop-up menu lets you select the export format to be used (Cf appendix about format description)

#### **Don't export page setup**

When this option is active, measure size, space between staves, page breaks, objects related to pages are not exported. Number of measure by line is set to 4. This mode is automatically enabled when we ask to export a reduced number of parts.

#### **Open automatically exported files**

When this option is active, each exported document will be opened automatically by the program of your choice (it supposes that the selected software is capable of reading this kind of file).

The "Edit" button enables you to select the application that will be used for opening each of the export file formats.

The "Delete" button lets you specify that you don't want this format to be processed.

## **Glyphs**

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PDFtoMusic uses optical recognition algorithms on music fonts to determine the meaning of each symbol.

#### **Store glyphs into a cache**

When this option is ticked, symbols that have already been encountered at least once will be processed more quickly.

However, activating this option can lead to a bigger memory consumption.

#### **Erase font cache at exit**

When this option is *not* ticked, glyphs are preserved from one session to another.

Deactivating this option can lead to a bigger memory consumption.

Note: the glyph cache is located in the preference folder:

"Myriad Preferences/PDFtoMusic/GlyphesData". Please do not apply any action to this folder while PDFtoMusic is running.

# Kooplet

## Introduction

---

Kooplet is a search engine specialized in music scores.

From a note pattern Kooplet will display a list of documents from the Internet that contain this pattern.

Processed file formats are those containing all necessary information to provide an editable score. For instance, digital audio formats (wav,aiff,mp3,etc) are ignored.

Kooplet will provide links to files in **Myr, PDF, Mu3, Mus, XML, MXL, Abc, Etf, Tef, Nwc, Enc, Tab, Mid, Kar, Mod, S3m, Cmf, Sty, Rhp, Etf, Gp5, Gp4, Gp3** or **Gtp** format.

PDF files can be converted by PDFtoMusic or PDFtoMusic Pro, the others can be imported directly in Harmony Assistant.

By clicking the "Play" button below the search result area, you'll be able to hear the note pattern in its context.

Three search modes are available. Search mode can be selected from the first icon in the toolbar:

- Search for pitch, regardless of the rhythm
- Search for rhythm, regardless of the pitch
- Search for both pitch and rhythm

It is also possible to search music score files for text, as well in the titles or comments as in the lyrics.

If a text **and** a music pattern are entered, result documents match both the text **and** the pattern.

Contrarily to other generic search engines, Kooplet extracts information from within the music file content.

Documents are not stored on the Kooplet servers but remain on the site where they have been found. Therefore, when downloading or viewing a document, you will read it directly from the original site that hosts it.

## The toolbar

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The toolbar changes according to the selected search mode, or whether you insert notes or rests, etc.

From left to right, you can find:

- Search mode selection
- Start and stop pattern playback
- Delete the whole pattern
- Pattern input from the microphone (experimental)
- Sharp mode for note input
- Note/Rest input mode
- Symbol duration
- Dot mode

## Tips

---

You can add symbols by clicking the virtual keyboard.

If you click the keyboard or the staff with the Shift key down, you hear the note without inserting any symbol.

If you click a symbol with the Alt key down, it is deleted.

If notes are selected in the frontmost document before Kooplet is activated, these note will be used as search pattern.

## Advanced search

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When searching for a text, if you write the words between quotes, search will be performed on these words in this order. Without quotes, it will be performed on these words in any order.

For instance, if a score contains **lemon tree**, it will match the **tree lemon** search, but not "**tree lemon**" between quote marks.

If you write a minus symbol before a word, this will have to be absent from the document text.

For instance, if you search for **Ave Maria -Gounod**, matching files will contain the words Ave and Maria, but not the word Gounod.

The "Setup" button set up the search broadness.

# Amendments

No recognition algorithm can be 100% reliable. In the event you encounter translation errors, PDFtoMusic offers some tools to help you fix them.

Fonts  
Symbols  
Staves and systems

## Fonts

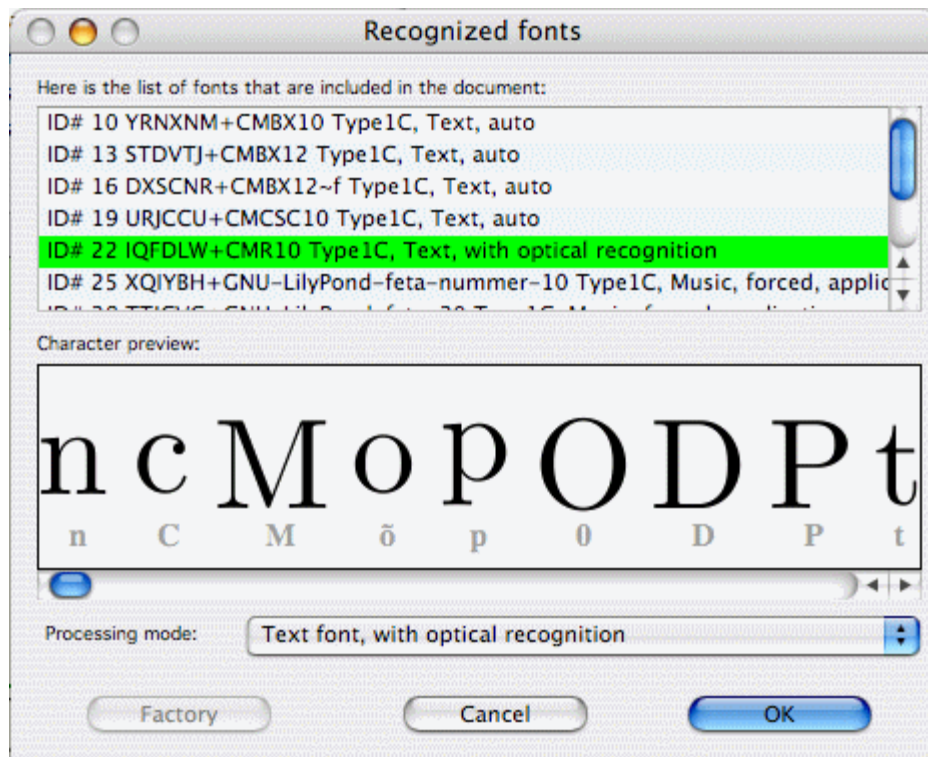
PDFtoMusic extracts character fonts from the PDF document, in order to "read" the music sheet. However, when a PDF document is created, fonts are not stored as is in the file, but transformed. First, to shrink the file size, only used characters are embedded. The name of the font is also often encoded. Moreover, no clue is provided that would enable PDFtoMusic to distinguish it without fail.

Some portions of text can be written with a default font (Times, Courier, ...), directly managed by the PDF format. In such cases, the font is not included in the PDF file and won't appear in the recognized font list.

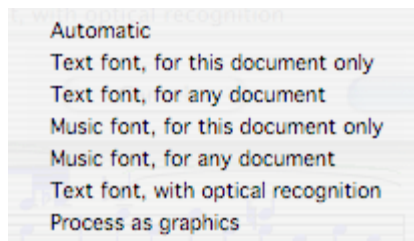
In a first step, PDFtoMusic tries to extract a consistent font name, and searches for it in its known font name database. If the name is found, the font is considered as "forced, application". You can't change this status.

If the first step gets nowhere, PDFtoMusic applies dedicated algorithms to distinguish between text and music fonts. Fonts are then marked as "Text, auto", or "Music, auto". You can change this status through the "Correction > Fonts" menu option and, for instance, change a text font to music font.

Tip: double-clicking a character on the PDF document opens this window with the matching font selected.



This change can be limited to the document or applied to all documents.



If limited to the document, only the current document will be affected by this change.

If applied to all documents, each time the font name will be found again in a PDF file, its state will be forced. Of course, this option has to be used wisely. You therefore create your own database of the fonts that are the most frequently found.

To reset the font name bases, open this box with the Command key held down.

Please note that these changes can be stored in the PDF document, and kept from one use of this file to another, or if you send the document to another user.

In this last case, the font name database of the recipient won't be altered.

Once fonts have been marked as music or text, they are processed accordingly by PDFtoMusic.

Music fonts are optically analyzed, character by character, in order to guess the meaning of each of them.

For text fonts, the operation is a bit different. PDFtoMusic uses first the Unicode data from the PDF file. In most of the cases, the result is consistent. However, some PDF files don't provide accurate Unicode data. It's rather easy to realize: recognized text is completely different from the original one.

Here is for instance what you see in PDFtoMusic:

Prélude N°3  
BWV 848

And once the result is loaded in a music notation software:

3UpOXGH1?  
%:9

It is usually sufficient to correct this to uncheck "Unicode Compliant", unicode data will no longer be used.

You can also give full priority to Unicode by checking 'Strict Unicode '

PDFtoMusic offers also a solution to this problem by making "Text font, with optical recognition" editable. Once a font is marked as such, if it appears that there are errors in the default optical recognition (some characters are very close to each other: l and 1, O and 0, etc), you can remap the associated keystroke for any character. To do so, click on the character preview, and then press the key on your keyboard which you would like associated with that particular character symbol. From this point, the result of the recognition is changed.

The characters you modify appear in a different color on the preview.

Amendments to the recognition are stored in a database, so that when a strictly identical character is found later in another document, it will be amended automatically. PDFtoMusic "learns" in order to ease your work.

To input a Unicode character which can't be entered directly from your keyboard, like for instance, Greek or Hebrew, let the command key (Apple key on MacOS, Ctrl key on Windows) depressed, while entering the Unicode value of the character (in hexadecimal).

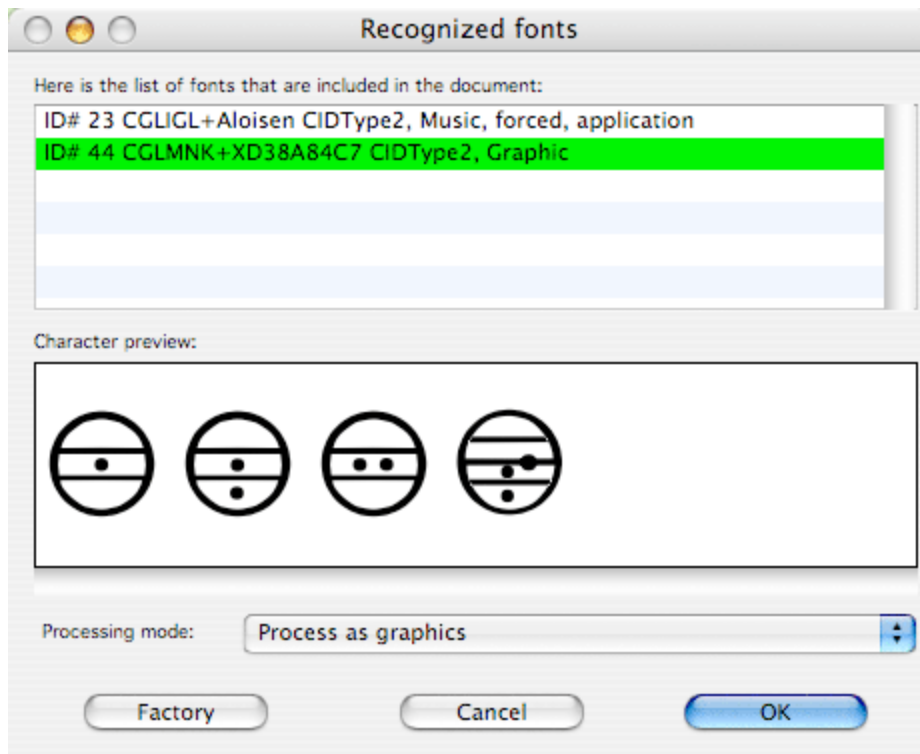
For instance, Command+0394 will define the capital greek delta.

A summary of Unicode values can be found here: <http://www.ssec.wisc.edu/~tomw/java/unicode.html>

Finally, some fonts don't include either music symbols or digits and letters, but graphics. Examples of this would be accordion register indicators, guitar chord diagrams, embellishments, etc.

In these cases, you can specify that the font has to be processed as graphics.

The miscellaneous characters of this font will then be considered to be graphics, and exported accordingly in the result file.

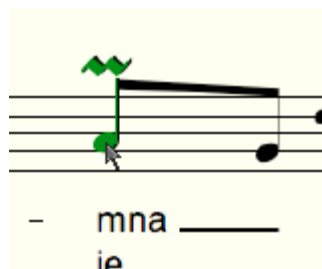


Once imported into Harmony Assistant, it gives:



## Symbol correction

When moving the mouse pointer over a music symbol, its color changes:



Right-clicking opens the contextual menu related to this object.



In this menu, you can change the object settings. This is very useful, for example, when PDFtoMusic interprets a particular object incorrectly. The red cross remove the object from the PDFtoMusic processing. The green cross restore the object initial state.

To select several objects, apply a right click outside any object and define the area. All objects in this area will be selected. To add several objects to the existing selection, do the same with Alt key pressed. To remove several objects to the existing selection, do the same with Command key pressed.

You can select all objects from the Edit menu.

All change applied to a selected object will be applied to all selected objects with the same kind.

## Staves and systems

A music score is made of several pages. Each page shows staff lines, joined in systems by a vertical line on the left. There can be therefore several systems in each page.

When a performer doesn't play anything during several bars, the matching staff is often omitted in the system. PDFtoMusic applies complex algorithms to "follow" staves from one system to another, and bring the parts together. You can amend this result through "Correction > Staves and systems".

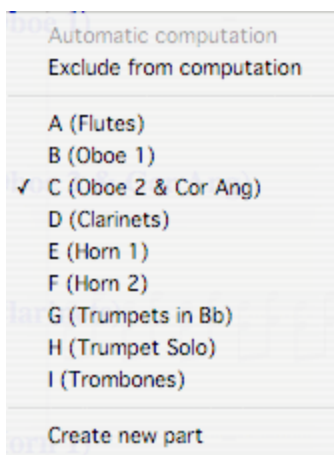
In this mode, the score is displayed in gray, while systems are shown as a blue vertical bar and numbered: S1, S2, etc.

Between each system, a **glue tube** enables you to merge systems. Between each staff, a **pair of scissors** enables you to split the system.

Click the icon to apply the operation.

If you need to apply the same operation to the whole page, the whole document, or to the same place on all pages, right-click the icon and select the operation mode from the contextual menu.

Each part is marked with a letter, possibly followed by its name between brackets. If you applied a change, the part name is displayed in green. Clicking the blue arrow in the staff opens the contextual menu for relating the staff to the part:

**- Automatic computation:**

Cancels an applied change, so that the link between staff and part is computed by PDFtoMusic again.

**- Exclude from computation:**

The staff will be ignored. It enables you to remove a staff for computation, so that it isn't exported.

**- Part list:**

Choose in this list the part to which the staff has to be related.

**- Create new part:**

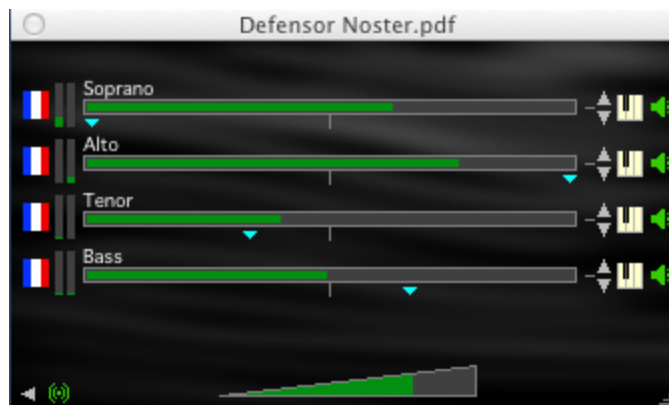
Creates a new part and relates the staff to it.

If the error you fix has occurred on all pages, right-clicking the staff name opens a contextual menu, enabling to apply the staves arrangement of the current page to all the other pages of the document.

# The mixer

You can open the mixer from the Windows menu.

The mixer show the play state of the frontmost document.



For each part we found :

1. The singer language (if the part has related lyrics). You can click on the flag to change it.  
Right click to change all languages.
2. The current sound level. It can vary according to the general volume, the panning and the dynamics.
3. The volume and the panning. You can change them.
4. The octave shift.
5. An icon to change the related instrument.
6. An icon to mute the part. Right click mute all the other parts.

At window bottom :

1. An icon to reset all values.
2. Surround enabling.
3. General volume.

# Virtual Keyboard

Virtual keyboard can be opened from the Windows menu.

During music playback, played notes are highlighted.



You can select:

1. Which part matches left hand, which one is right hand
2. Key color for left and right hand .
3. Number of octaves to display.
4. First octave to display.

## Annotations

Annotations are graphic enrichments that can be added to PDF documents with PDFtoMusic PRO. They are displayed over the PDF, with a customisable transparency level. Annotation palette can be switched on from the Windows menu.



# Virtual Singer

## Introduction

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**Virtual Singer** is an **additional module** for PDFtoMusic / PDFtoMusic Pro, but also our score editors Melody Assistant or Harmony Assistant and our player Melody Player.

Virtual Singer will make your computer **sing**: it will **generate human voices** for staves with lyrics.

Virtual Singer can be configured according to your needs, by modifying **timbre**, **intonation**, and **kind of voice** (man, woman, tenor, soprano, etc.). Furthermore, **several different voices**, in **different languages**, will be able to sing at the same time.

Virtual Singer can also sing "La-La-La", follow the shaped-notes nomenclature (solmization), sing the note names, or even automatically generate Jazz Scat.

The current version of Virtual Singer includes the following languages: Northern French, Southern French, UK English, US English, Latin, Spanish, Italian, Finnish, German, Occitan, Japanese (Romaji), but also Bulgarian, Catalan, Slavon (liturgical slavic language), Czech, Dutch, Esperanto, Basque (Euskadi), Greek, Hebrew, Hungarian, Macedonian, Portuguese, Romani (Gypsy), Romanian, Serbian/Croatian/Bosnian, Turkish and Vietnamese

## Installation

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Virtual Singer installs automatically along new versions of our programs, available on our web site: [www.myriad-online.com](http://www.myriad-online.com).

## License

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During evaluation of the add-on, each time the application is launched, you will only be able to process a certain number of sung parts. When this number is reached, Virtual Singer becomes "voiceless".

You can then either purchase a license for Virtual Singer (Order submenu) or quit the program and run it again to continue to try Virtual Singer.



# Virtual Singer

## Voice technical background Generalities

The human voice is amazingly complex, and the Virtual Singer software does not pretend to replace it, but only to approximate it as closely as possible. We will describe here the basic concepts required to better understand how Virtual Singer works.

A human voice can be characterized as follows:

- The **timbre** (the voice "fingerprint"), which differentiates one person from another because it depends on each person's vocal tract.
- The **effects**, related to the singing technique.

These settings can be adjusted to approximate a given voice as closely as possible.

### Voice

Singing follows the same rules as speaking. The same fundamental principles can be applied to both of them.

The **lungs** generate an air stream, which goes through the vocal chords.

**Vocal chords** are twin infoldings of mucous membrane, positioned at the base of the larynx, which act as a vibrator or "reed".

The vibration frequency is controlled by the singer in order to produce the required note pitch.

This original sound is then shaped by a set of **cavities** which form the **vocal tract** (mouth, nasal fossae...).

The singer **controls** the opening and capacity of these cavities to produce **resonances**, and in doing so, modifies the sound emitted by the vocal folds.

## Speech and Language

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Speech is an acoustic way of communication. It is a **convention** shared by people speaking the same language.

Each language has its own characteristics, and uses a limited number of sounds (about thirty) called "**phonemes**". These phonemes are then grouped to become a syllable, a word, a sentence...

Some phonemes are common to several languages, because most spoken languages come from the same origin. In addition, the range of possible phonemes is also limited by physical constraints of the vocal tract.

## Phonemes

---

We won't be using the standard acoustic classification of phonemes used by phoneticians. For a more in-depth discussion, see one of the various specialized texts on the subject.

Here are the basic groups of phonemes as used in Virtual Singer:

- **vowels** use the vocal chords, are weakly sounded, and can be stretched ad lib. They are the essential component of the sung voice.  
Some languages (like English) use vowel groups called diphthongs, which "slide" from one vowel sound to another (like in "pie", "though"...).
- **voiced consonants** are consonants which use the vocal chords. They are stretchable (Z => Zzzzz). These consonants also use the resonances of nasal cavities (M, N...) or a sound generated by the air stream (Z, J, V...).
- **unvoiced consonants** are stretchable and use only turbulence generated by the air stream, but not the vocal chords. These consonants have no pitch (CH, F, S...).
- **plosive consonants** are **brief**, unstretchable sounds, voiced (G, D, B..) or not (K, T, P...).

## Phoneme pronunciation

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**Question:** What is the difference between singing and speaking?

While speaking, the **frequency** (note pitch) produced by the vocal chords only **varies a little**. It allows the speaker to provide the **intonation** (prosody) of the sentence. In singing, the frequency produced by the vocal chords follows a **melody** and is no longer related to the intonation.

The main characteristic of the sung voice is the **stretching** of some phonemes over time. Since some syllables must be extended more than others, the singer stretches the more easily and artistically stretchable phonemes, i.e. the **vowels**, whose sound is closest to that of a musical instrument.



# Virtual Singer

## Voice technical background Sung voice synthesis

In voice synthesis, for speech as well as for singing, three main methods can be used:

- vocal tract simulation,
- connection of recorded elements,
- formant synthesis.

### Vocal tract simulation

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Historically, this is the **oldest method**. The very first speech synthesis was designed for a mechanical automaton, using a collection of tubes and valves to simulate a vocal tract. The computer models of this process haven't given a convincing result to date, because of its extreme complexity.

### Connection of recorded elements

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A singer or a speaker is digitally **recorded**, in order to store the whole set of **phonemes** (or groups of phonemes). Then these samples are connected in sequence to rebuild the voice. **Complex algorithms** are used to alter the recorded phonemes and make them follow the vocal intonation (prosody).

This method provides excellent results for standard speech. However, the algorithms are **poorly adapted** to generating a singing voice, because of the much wider frequency ranges. Another drawback of this method is the need for **very large** voice description files. To define another voice, it is necessary to record another speaker/singer. Furthermore, the **whole set of phonemes** for **each language** must be recorded separately. To create multilingual software, it is thus necessary to record several different speakers/singers, and to store these samples in a huge file, often several megabytes in size.

### Formant synthesis

---

This synthesis is based on the analysis of vocal **sound**. Acousticians have determined that vocal tract resonances amplify a small number of frequency ranges, related to the spoken phoneme. These frequency ranges have been called "**formants**". A formant is characterized by its **frequency** (pitch), its **bandwidth** (width of frequency range) and its **energy** (strength).



**Note:** In electronics or computing, a formant can be simulated by a **resonant bandpass filter**.

In the early 1960s, the first devices used electronic filters to generate recognizable phonemes. Acousticians then realized that only **three to six formants** are sufficient to generate a phoneme with acceptable quality. The advantage of this method is that only a small amount of data is required to generate a phoneme, and it is far easier to modify these data slightly to produce another voice timbre. However, the result is generally less realistic than with recorded speech elements.

**This third method is used in Virtual Singer.**



# Virtual Singer

## Voice synthesis settings

### Virtual Singer palette

When Virtual Singer is installed, the **Windows** menu gives access to its **palette**. The Virtual Singer palette shows the **number** of singers as well as the **language** used by each of them.

In the Virtual Singer palette, several objects represent the actions you can perform:

**Activate and deactivate** Virtual Singer: the colored light in the upper left corner shows the status of Virtual Singer. A click on the bulb toggles this status. When Virtual Singer is activated, staves with lyrics are sung.

When Virtual Singer is activated, a **stage** is displayed, on which each **character** represents a sung staff. Since our programs can manage several sung staves within a single document, there may be several characters on the stage.

Character **location** on the stage shows:

- **laterally**, the voice panning (right or left location in the stereophonic space)
- by its **depth**, the voice's volume

Under each character, the **name of the related staff** and a **flag** indicating its language are displayed. You can mix staves of different languages in the same document. We have already seen that is even possible to change languages within a single lyrics staff.

Double-clicking on the character opens the simple settings window. A right-click (Shift+click on the Macintosh) on the character opens a pop-up menu which allows you to:

- **Activate** or deactivate this singer
- **Edit** the singer's icon
- **Select** the singer's icon from a predefined list.

A click on the flag allows you to change the singer's language.

#### Tuning the computing mode

To compute a sung staff, Virtual Singer creates an invisible digital audio track, and stores all the voice data in it.

This computation is quite complex and may take a few tens of seconds.

The computing mode slider lets you select whether this work must be **completed before the music starts** (0% value) or whether a large part of this job can be performed **while music is playing** (100%).

This setting depends strongly on your computer. Select its value for optimal performance.

If the number of sung staves is **too large** or your computer is **not fast enough**, it won't have time to perform voice computation while the music is playing. You will hear **breaks** in the sung part. In that case, **decrease** the value of computing mode, to require that more of it be finished before the music begins to play.

In Harmony/Melody Assistant, when a Shape-note staff is included in a document, a little icon with the sharp symbol appears on the Virtual Singer palette. Click on this symbol to toggle whether accidentals are sung.



# Virtual Singer

## Voice synthesis settings

### Basic settings

Double-clicking on the singer's icon in the Virtual Singer palette opens the pre-defined voice selection window. In this dialog box, you can **select another voice** from the list and apply an **octave shift**.

You can also **define a new voice** and save it in a file.

Send us by e-mail any interesting voices you create, and we'll make them available to other users.

Using "Edit timbre" and "Edit effects" buttons, this window also lets you access the advanced voice settings.

The **octave shift** lets you change the octave of the sung part without modifying the musical symbols on the staff.

The **"Try"** button makes the program sing a simple sentence with the selected voice.

The **"Play/Stop"** button starts to play the frontmost document with the selected voice.

The **choir size** slider lets you specify that the voice will actually be composed of several choir members singing in unison. A value of 1 means this voice is a soloist. To improve the effect produced by this kind of choir, you can apply a reverberation effect to the staff



**Note:** Changes made to the voice settings will only be applied the next time music is started.



# Virtual Singer

## Voice synthesis settings

### Effects settings

To be able to control the advanced settings effectively, you should understand the concepts of phoneme and formant (refer to the chapters on Voice technical background).

- **weak and strong velocity:**

When a syllable is sung, the main phoneme is stretched (stretchable vowel), and most of the power is applied to this phoneme. The strong velocity setting gives the volume to be applied to this strong phoneme, and the weak velocity gives the volume to be applied to the other, weaker ones.

- **velocity ratio:**

Notes of the sung staff include **velocity** values (output power). The velocity ratio defines the **proportion** in which singing takes these values into account.

- **pitch attack:**

A singer can start singing a note slightly lower than the pitch at which it is written. This can be tuned by the frequency attack. This parameter is given in tenths of a tone. A negative value (which is generally the case) means the syllable starts lower than the actual note pitch.

- **time shift:**

This is the maximum amount of time, in milliseconds, between the time a syllable is sung and the time it should be. It simulates the imprecision of a singer in time.

- **min rest duration:**

In order to avoid an abrupt cut-off in the voice each time a brief rest is encountered, this parameter allows you to define the minimum duration (in 100ths of second) required for a rest to be applied. Rests shorter than this will not be taken into account in the singing voice.

- **choir detuning:**

When the singer's voice is defined as a choir (see Basic settings), this parameter sets the maximum imprecision of each choir member. A high value enhances the crowd effect, but makes the voices less accurate.

- **jitter:**

This is a random variation around a theoretical value. It is defined by a maximum value (jitter power) and a variation speed.

- **F0 jitter** (fundamental frequency):

This gives a quavering voice, i.e. a small, fast, random variation of the frequency sung.

- **formant jitter** on formant #1 (F1), formant #2 (F2), formant #3 (F3):

This changes the voice timbre while the note is sung (the singer changes his mouth shape slightly).

- **volume jitter**

This produces "unintentional" volume variations while a note is sung.

All of these parameters help to make the voice sound more natural.

- **Drift** can be applied to the fundamental frequency (F0) or to the volume.

This is a way to smoothly change from one value to another. Because of its physical nature, the vocal tract evolves from one value to another by a deformation. Drift can be adjusted with its upward ratio, its downward ratio, its minimum value and its maximum value.

- **upward and downward ratios**

Drift begins after a note ends. Its duration is expressed as a percentage of the next note's duration. If the value increases (changing from a weak note to a strong one, or from a low-pitched note to a high-pitched one), the upward ratio is used. If the value decreases, the downward ratio is used.

- **minimum and maximum duration**

In order to avoid a duration that is too short or too, you can impose minimum and maximum limits on the drift duration, in hundredths of second.

- **Vibrato** affects the fundamental frequency (F0)

It is a slow, regular variation of the fundamental frequency.

Note that this should not be confused with F0 jitter, which is a fast, random variation.

- **minimal frequency**

is the base frequency of the vibrato oscillation (in tenths of Hertz). Vibrato commonly ranges from 50 to 70 tenths of Hertz.

- **frequency ratio**

lets you increase the vibrato speed when a high-pitched note is sung. Its value is the number of semitones above A4 (440 Hz) needed to increase the vibrato frequency by 1 Hz. For example, with a minimal frequency of 60 (6 Hz) and a frequency ratio of 12

semitones (one octave), an A4 will be sung with a 6 Hz vibrato, and an A5 with a 7 Hz vibrato...

- **delay**  
is the delay before the vibrato actually starts. It is given in hundredths of second.
- **rise time**  
is the time during which the vibrato power increases smoothly before reaching its maximum value. It is expressed in hundredths of second.
- **vibrato depth**  
is its maximum amplitude (depth) in hundredths of a tone.
- **frequency ratio**  
lets you increase the vibrato depth when a high-pitched note is sung. Its value is the number of semitones above A4 (440 Hz) needed to increase the vibrato depth by one semitone. For example, with a depth of 20 (1/5 of a tone) and a frequency ratio of 12 semitones (one octave), an A4 will be sung with a depth of 1/5 of a tone, and an A5 with a depth of one semitone+1/5 of tone...



# Virtual Singer

## Voice synthesis settings

### Timbre settings

To be able to control the advanced settings effectively, you should understand the concepts of phoneme and formant (refer to the chapters on Voice technical background).

This window allows you to modify the singer's **voice timbre**.

- **A set of sliders**

lets you shift the **frequency range** of each **formant**. A value below 100% shifts the formant toward the low-pitched frequencies, a value above 100% toward the high-pitched ones.

- **Bass/Treble**

is a filter to increase the bass and treble frequencies of the voice output.

- **Gain**

The above settings can soften the overall power of voice output. The gain slider allows you to compensate for this artifact.

- **Advanced settings button**

The above settings modify all phonemes globally. It is also possible to change the rendering of each phoneme individually. As you may notice, each singer has his own personal accent, his own way of pronouncing certain phonemes. It is therefore possible to refine a voice by replacing one or several phonemes with user-defined ones.



# Virtual Singer

## Editing Phonemes



**Very important:** This chapter refers to advanced concepts of **digital signal processing**. Some knowledge of acoustics and digital signal processing will be needed to make use of it.

We saw earlier that **phonemes** are considered the basic acoustic elements for the spoken or sung voice (see the chapters on "Voice technical background").

**Virtual Singer** uses complex algorithms in order to synthesize these phonemes.

This kind of synthesis, called **formants** synthesis, uses original internal algorithms, inspired mainly by the writings of **D. Klatt**, as well as other informational sources.

The algorithm has been designed and refined following our own research into the reproduction of the sung voice.

While editing the voice timbre, an "Advanced" button opens the dialog box for defining the individual phonemes. Changes made in this window only modify the current singer's voice. Other voices will remain unchanged.

### A few technical details

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**Question:** How does Virtual Singer generate a phoneme?

An **excitation** digital signal (historically called a "glottal source") is generated, depending on the power and fundamental frequency of the phoneme to be sung. This signal is composed of a parabolic half-period, followed by a silent half-period (glottal stop). The first **harmonic** (the fundamental frequency), the second harmonic (twice the fundamental frequency), and the third harmonic (triple the fundamental frequency) are then amplified, in order to approximate as nearly as possible the aural rendering of a sung vocal source. This source is then amplified to a greater or lesser degree, according to the **voicing** value.

Then the processing is divided into two parts:

**Cascade** processing: a noise, called **aspiration** noise, is added to the excitation source. This signal is then processed by a **serial filter sequence** (cascade), each filter corresponding to a **formant**.

**Parallel** processing: a noise, called **frication** noise, is added to the excitation source. The first order derivative of this signal is then processed by a **parallel filter set**, each filter corresponding to a **formant**. The amplitude of each formant is processed, in order to increase or decrease the respective influence of each formant in the output signal.

The results of the two processes listed above are then added, and modulated if necessary by a low-frequency (20 Hz) oscillator to simulate a **rolling** effect (as in Spanish "R"s).

After applying the output gain and treble/bass setting, the output signal is finally complete.

In concrete terms, this algorithm has major implications on how a phoneme is processed:

- The **amplitude** for each formant is only processed by the **parallel** portion of the processing algorithm. Thus, even if a formant amplitude is set to zero, this formant will still have an effect on the resulting signal, because of its action in the **cascade** processing.
- **Aspiration noise** passes through the **cascade** filter set. It is then highly distorted by the phoneme's formants, and its output is a more filtered (softer) noise, which can be used to simulate the effects of breath, generated at the far back of the vocal tract.
- The first order derivative of the **frication noise** passes through the **parallel** filter set. It gives a more high-pitched noise, which can be used to simulate the sibilant, whistling noises made by the front part of the mouth.

### Fragments

---

The basic phonetic element is the **phoneme**. But we have seen that some complex phonemes, such as diphthongs, can be made up of **several successive states**.

Because of this, we must define the notion of a **fragment**, which represents a "static" state within a phoneme. Thus, a **phoneme** can be made of one or several fragments.

The list on the left of this window displays the complete list of **all fragments** needed to pronounce **any phoneme in any language**. Fragments displayed in **bold** are used by the current language.



**Important Note:** In this window, you can change the pronunciation of one or several fragments. These changes are **only applied** to the singer currently being edited. Modifying a fragment in this window will only alter pronunciation for this singer, not the others.

Once a fragment is modified, it is displayed in color in the list. When selecting a modified fragment, it is possible to restore its default values by

clicking the **Original** button below the list.

In the right part of this window, several graphical objects allow you to modify the fragment data.

In the topmost part of the window, a pop-up menu shows the **fragment type**:

**Vowel** means this fragment can be stretched when the syllable it is included into is extended in time.

If the syllable does not include any vowels, Virtual Singer will try to stretch **transitional vowel** fragments.

In the absence of either of those two types, **vocalized consonant** fragments will be stretched, and then **unvocalized consonants**.

The fragment **duration** can be changed through a slider.

This value is the **natural** time for the fragment. If this fragment is stretched, its duration will be increased.



**Note:** When a value is changed graphically (through a slider, for example), its digital value appears in a frame on the bottom right of the window.

## Static part of a fragment

These are the set of values used to define the **static part** of the fragment, i.e. the portion that is independent of any transitions to or from adjacent fragments. These parameters can be modified using the large graphical area in the right part of the window.

**Formants** are displayed as **triangles** of colored lines. For each formant, the **center frequency** (in Hertz), **Amplitude** (dB) and **bandwidth** (width of the triangle's base, in Hz) can be changed. A set of checkboxes below this graphic allows you to activate or deactivate each formant in the parallel part of the voice generator.



**Note:** As explained above, even if a formant is deactivated, and is no longer displayed on the graphics, its **frequency** and **bandwidth** are still used in the **cascade** part of the voice generator.

On the right, a set of vertical sliders allows you to change the levels of **voicing** (av), **rolling** (Rl), **aspiration** (asp) and **frication** (af).



**Tip:** While editing a formant **middle frequency** or **bandwidth** graphically, two vertical lines are displayed. They show the upper and lower bounds for the parameter being modified, for that formant, among all the phonemes in the list. This helps you avoid setting the parameter to too "exotic" a value.

## Fragment transition curves

During a spoken or sung part, the transition from one fragment to another is not instantaneous: the next fragment starts to be said before the previous one is completely finished. This smooth transition between fragments is called **coarticulation**.

For **each parameter** (formant frequency, amplitude, bandwidth and various levels), the graphic area on the bottom of the window lets you define its transition curve over time. The parameter whose curve is displayed is circled in red in the upper area.

On the transition curve, by convention, the previous value of the parameter is represented by the lowest value on the graph's vertical axis. The static value for the currently selected fragment (selected in the upper graphics) is represented by the highest value on the axis.



**Note:** this is a schematic display, not directly related to the effective or relative values of the parameter described.

The parameter's **transition** from its previous value to the current static value is displayed as **two segments**:

The **first segment** on the left, whose duration is "stolen" from the previous fragment's time. This segment will make the parameter evolve from the previous fragment's static value to an intermediate value, defined by the two vertical sliders to the left of the curve.

The **ratio** slider (Ra) lets you select the **importance** of the previous parameter value relative to that of the current fragment's static value (the value to be reached during the transition).

For example: a 0% ratio sets the intermediate value to the value to be reached.

A 100% ratio sets the intermediate value to the previous parameter value.

A 50% ratio sets the intermediate value to the average of the previous and current values.

The starting **offset** (Od) allows you to add a fixed amount to the intermediate value.

For example: with a ratio (Ra) of 50%, and an offset (Od) of 100, intermediate value is equal to 100 + the average of the previous and current values.

On the curve, the **second segment** gives the transition time between the intermediate value and the value to be reached (the static value of this parameter for the current fragment). This time is "stolen" from the current fragment.

**Symmetrically**, the two segments on the right, with a corresponding pair of sliders, allow you to define the transition from the current static value to the static value of the next fragment.

A transition curve can be defined **from** the previous fragment's static value, as well as **to** the next fragment's static value.

Which transition curve segments are used depends on which fragment has a higher **priority**. If the current fragment has a higher priority than the previous one, its "transition from previous" segments will be used, instead of the previous fragment's "transition to next" segments. Priority is given by the order of the fragment in the fragment list: the **higher** in the list, the **greater** the priority.

Example:

If the list only includes three fragments, "a, b, c" in that order, and the syllable to be sung is "babc", the following transitions will be made for each fragment parameter:

- **static value** of fragment "b",
- **transition** to the value of fragment "a", using the two first segments of the "a" transition curve (because "a" has a greater priority than "b"),

- **static value** of fragment "a",
- **transition** to the value of fragment "c", using the two last segments of the "a" transition curve (because "a" has a greater priority than "c"),
- **static value** of fragment "c",
- **transition** to the value of fragment "b", using the two last segments of the "b" transition curve (because "b" has a greater priority than "c"),
- **static value** of fragment "b".

## Action buttons

---

These buttons, located in the bottom-right corner of the window, perform several actions:

### Try button

You can try the modified fragment by typing a simple sentence in the corresponding frame, then clicking the button. Then, a **list of fragments** used to pronounce the sentence is displayed. The symbols > and < between the fragment names give the relative priority of each fragment compared to the adjacent ones.

Note: whenever you select a fragment in the fragment list, a sample word for that fragment will be inserted in the text area.

### Language pop-up menu

When another language has been selected, fragments used in that language appear in **bold** in the fragment list.

### Copy/Paste buttons

These buttons allow you to copy all of the parameters and transition curves of a fragment, in order to paste them on another fragment.

# RealSinger

## Introduction

### What is RealSinger?

---

RealSinger is a Virtual Singer extension that allows you to use more realistic voices to sing lyrics.

The method for generating synthesized voices is different from that used by the regular Virtual Singer.

Virtual Singer's voice generation algorithms, as described in the Technical background chapter, use completely artificial voices, produced with the **Formant synthesis** method.

RealSinger algorithms are based on recordings of real human voice elements. These voice samples are then processed to extract the voicing parameters for each phoneme. This unique process enables us to get around the biggest problem with the usual **Recorded elements connection** method: by keeping only the voicing information, data files for describing and storing a voice are extremely short (usually less than 1 Mb for a full voice in one language), and the voice can be re-synthesized at any pitch without noticeable distortion.

### How does it work?

---

To be able to sing using a new voice, RealSinger needs a recorded sample of each phoneme of a given language, spoken (or sung) by the same speaker (or singer). It then processes all these sound samples and extracts the voicing parameters for each phoneme. The voicing parameter data can then be either embedded in the document file itself, or saved into a separate file to be re-used later in another piece.

To generate a voice following the lyrics and melody, specialized algorithms are used to process pitch changes and to simulate coarticulation (smooth transitions between two consecutive phonemes).

### How do I use RealSinger voices?

---

RealSinger voices are selected in the same way as regular Virtual Singer voices. They are marked by an **RS** icon in the voice list.

Simply select one of these voices in the voice list to have a staff sung by RealSinger.

For more information about how to have a staff sung by Virtual Singer or RealSinger, please read the appropriate chapters.

You can record your own voice to build a new RealSinger voice file. The following chapters explain how to record, and how to adjust settings for this new voice.

RealSinger provides more realistic sung voices, but the computing time is longer, and the voices can be less versatile (best within a smaller pitch range). Therefore, it is generally best to use a standard Virtual Singer voice while creating a sung piece, and only select and adjust the RealSinger voice at the very end, once the piece is completed.

# RealSinger






## Your First Real Singer Voice

To learn how Real Singer works, let's quickly create a new Real Singer voice, for Latin songs. Why Latin? This language has few distinct sounds, so you'll be able to record quickly. Also, there are a number of public-domain Latin hymns that you can use to test the voice.

### What you need

You must be able to record your own voice to your computer's hard drive. The simplest (not necessarily best) method is to use a microphone of the kind designed to connect directly to your computer's sound card input. However, microphones for professional audio usually must be pre-amplified before your sound card can record the signal. Or, you can use an external recording device, and send its line-out or headphone signal (never the loudspeaker signal!) to your computer's sound card line-in. You can even do the recording with another computer, then transfer the digital audio files. But for now, we will assume that you are recording your live voice directly to your computer.

### Let's record!

-  When you are ready to record, find a quiet area at a quiet time.
-  - On Melody/Harmony: create a new, very simple document with just one staff. To the left of the staff is a set of icons, shown here. Click the black triangle  to open the staff-specific menu, and choose "staff with lyrics." If the Virtual Singer stage does not open automatically,
-  - On PDFtoMusic / PDFtoMusic Pro: load a PDF file that includes lyrics in latin, e.g. "Ave Maria" in the "PDFtoMusicDemos" folder
-  Then select the Virtual Singer palette in the "Windows" menu.

The Virtual Singer palette is a stage, shown here in reduced size. Standing on the stage is the picture of your singer, and underneath his picture is a question mark. Click the question mark, and choose "**Latin**" from the available languages. The question mark changes to an icon. Then double-click the singer. In a few moments, a dialog box appears. Click "**Real Singer**".



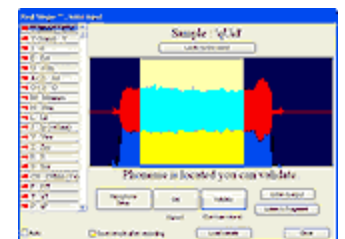
A new dialog box appears. Since you will be recording live, click "**record**." Be quiet while Real Singer measures the background noise. If it is too loud, try again. After Real Singer measures the background noise, it asks you to say "aah" for several seconds. It is measuring your natural speaking pitch, so that you can listen to sample words at that pitch.



If Real Singer insists that there is too much noise, but you don't know why, possible solutions are discussed in advanced recording techniques. For now, you can bypass this noise measurement by choosing "**set**" instead of "record." If you do that, then the next dialog box allows you to manually choose the frequency at which words will be presented. A range of 90-130Hz is comfortable for most men, double that for most women.

The Real Singer recording palette will appear. At the left are a list of words that you must record. Real Singer will offer you the words in order, unless you un-check the "**automatic**" box. You can save an audio file of each recorded word by checking that option. At top is the current word. If you wish to hear it without recording, click "listen to the word." When you wish to record the word, click "**get**." Real Singer will play the word, then you will repeat it. Try to imitate what you hear. If your voice is too loud or too soft, get the word again.

If your voice is OK, Real Singer will process the sound and identify the phoneme. The first Latin word is "quid," and Real Singer is looking for a drawn-out "u" sound. At the right is a reduced-scale image showing what Real Singer found for a sample recording. The bright area in the middle is the identified sound. The dark curtains at left and right block off the "q-" and "-id" portions.



The vowel corresponding to English "ee" sound is unusual. In Latin (and in some other languages), Real Singer uses the word "si" for this phoneme. In English, it appears in the word "ease." Many speakers pronounce this vowel with the lips horizontal, as if they are smiling. But good singers produce the vowel with the lips rounded, as they do for other vowels. If you can, record the "ee" sound with rounded, pursed lips, similar to the German u-umlaut. If you record the "ee" sound with a smiling face, it will sound shrill when sung at higher pitches.



Sometimes, Real Singer cannot find the phoneme, or locates it incorrectly. You can move the "curtains" by dragging them with the mouse cursor. You can play back the whole recorded word, or just the selected portion. *It is important to choose phonemes carefully - these are the building blocks used to construct all other words!*

More information about how to adjust the selection range is found in the "Adjusting phoneme selection range" chapter. When you are satisfied, click "**validate**" to add the processed phoneme to the Real Singer voice.

After you validate a word, its appearance on the word list changes. You know which words you have validated, and which ones remain. If you are not using automatic recording, you can choose words in any order, or re-record words that have already been validated. If necessary, you can save incomplete results, and finish the list at some other time. You can even leave some words un-recorded, and Real Singer will use synthesized sound from the Virtual Singer database as substitutes (not recommended). *For best sound quality, you should record all of the words, in a single session, so that your own voice is consistent from one word to another.* After you have finished recording your voice, **close** Real Singer to return to the Virtual Singer dialog box.



By default, Virtual Singer assumes that your voice is male, and that you will use it for notes on the Treble staff. Therefore the sound will play one octave lower than the notes are written. If you are female, or if you are going to use this voice on the Bass staff or with Treble-8vb, then set the **octave shift** to zero. You can also change the singer's stage appearance, if you wish.

While the Virtual Singer dialog box is open, click **"Add To List"** Give your voice a name and save it. Then move it in the Real Singer Latin voices folder that you created by right-click. This name identifies the voice file, not the character shown on stage. The saved voice file can be used by any singer of the same language, in any other documents. The stage character always has the name of the staff he sings, rather than the name of the voice file he uses.

Click **OK** to close the Virtual Singer dialog box. You are now back in your music document, with the stage still showing. **Save** your document, even though it does not have any music.

## Using your new Real Singer voice

---

Open the sample Latin song **"Exultate"** in "VirtualSinger/Demos/Latin" subfolder. There are two singers, "Ron Real" and "Vic Virtual." Double-click the image of "Ron" to open Virtual Singer. Ron starts as the default male Virtual Singer, but you will change his voice. In the menu of voices, find the Real Singer voice file that you just created (remember, you put it in the Latin folder). Virtual Singer may tell you that this change will lose the previous setup. Confirm, then click OK to return to the stage.

"Vic" sings with the default male Virtual Singer voice. Leave "Vic" that way, unless you are female and want "Vic" to sing with a female voice. If so, double-click "Vic," and select "Soprano." This voice is not in the Latin folder, but Virtual Singer is multi-lingual. Confirm the change of setup, and click OK to return to the Virtual Singer stage and music.

**Save the file (save as) with a different name.** Now, play the music. Real Singer must pre-calculate the voices, so there will be a delay. "Ron" and "Vic" will sing together in harmony, with "Ron" the higher voice. You can mute one voice or the other, if you wish.

Most likely, your "Ron" voice is rough. Double-click "Ron" to open Virtual Singer, then click **"Edit voice."** A new dialog box appears. Under **"timbre,"** choose a value near 30 for each of glottal and opening. Re-play it, and hear the difference in "Ron's" voice.



If you save the music, it will retain the changes made to "Ron" for this music only, without changing the voice file you recorded. If you want the changed voice to be available to other music, within Virtual Singer you can "save preset" to a new voice file. Don't try to use "Ron" to sing English, or any language other than Latin. He doesn't understand it, because you did not record most of the phonemes needed to make words in another language.

When you play your Real Singer voice, you may notice that some phonemes are too loud, or too soft, relative to the others. If a phoneme is not consistent with others, you will hear the same problem each time the phoneme is used. To fix this problem, open the Virtual Singer palette, double-click on the singer, and choose "edit voice," then the "advanced" tab. Choose "edit phonemes." Find the offending phoneme in the list at the left, and select it. On the right you will see several vertical sliding controls. The rightmost two control the phoneme volume at start and peak. Move these up or down, as needed. Play your music again. When you are satisfied with the relative volume of the phonemes, save the voice preset. There are numerous other phoneme adjustments available.

**Congratulations on creating your first Real Singer voice!** The rest of this Real Singer documentation describes ways to improve your voice recording, ways to improve the precision of the voice fragments, and ways to use Real Singer adjustments to improve the recorded voice.

# RealSinger

## Adjusting phoneme selection range

After you record each word, the program tries to locate a particular phoneme in this word (the one written in capitals in the sample word), and to remove the rest of the word. Sometimes it succeeds, sometimes not. You can keep the program selection as it is, or find your own. Sometimes your ear is better than the program's mathematical analysis, so it is recommended that you find your own selection range in the recorded sample, even if the computed result appears correct.

Below is a list of the various kinds of phonemes you might be asked to record, and what area the program expects to be selected before validating.

### Obturation

---

When saying a voiced plosive consonant (G, B, D), just before this consonant is spoken, the mouth shuts completely, and the voice sound is muffled during a short period of time. But this period is not completely silent: while the mouth is closed, air continues to go out from the lungs and the vocal chords continue to vibrate. Air pressure increases in the closed mouth until the lips open again, and the consonant is emitted with a strong power (which is why these phonemes are called plosives).

Obturation is the portion spoken with a closed mouth that you can view on the sound graph: a soft period surrounded by stronger phonemes.

#### Note for German:

In German, voiced plosive consonants cannot be located at the end of a word: they are said as their unvoiced equivalent (G->K, B->P, D->T).



However, here you will need to pronounce a voiced consonant at the end of the word. To make it easier, imagine that there is a very short vowel after the plosive. For example, if you are asked to record a syllable written "caB", pronounce it as "caB(e)" with a very short ending "e".

### Transitional vowels (trans)

---

Usually these vowels are used only in a short form (never elongated). You will have to pronounce the target word a little bit differently than in "real life," and elongate these vowels. When setting the selection range bounds, be careful to hear only this vowel, not the one that follows.

### "Static" vowels

---

These are called "static" because their phonetic value does not vary over time when pronounced.

You can select only a short portion of the vowel if you wish. Select a section in which the timbre you hear seems correct, and the pitch and power variation is not too significant. The shorter the section you select, the smaller the resulting voice file will be.



#### Note for German:

In German, there are "long" and "short" versions of vowels. However, in order to enable the software to analyze enough data for "short" vowels, you will have to prolong these vowels at least half a second, even if that is not how they are supposed to sound in German.

### Diphthong first part (diphth) - Only in English -

---

A diphthong is a vowel that changes over time when pronounced. You will have here to prolong the first part of the diphthong and make it sound like a static vowel. Select a portion of this static sound.

### Full diphthong (full dipht.) - Only in English -

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Here, you will have to record the full diphthong, spoken quite briefly. Be careful not to drop the volume or pitch down at the end of the diphthong (imagine you have to say another word just after this one). You must select the whole diphthong. Articulate well but do not prolong the sound too much, or the resulting voice file size will increase...

### Stretchable consonants

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These consonants can be stretched. (M,N,L,S,F...). Imitate the sample, and as for the static vowels, select a portion in which the volume stays more or less constant.

### Plosive unvoiced consonants (T,P,K)

---

These consonants are preceded by a short period of "glottal stop," a silent phase. Emphasize the consonant itself and make it sound louder than it should be in normal speech. Then adjust the selection range so that it starts just after the glottal stop, and ends after the consonant and its aspiration noise are finished.

## **Plosive voiced consonants (D,B,G)**

---

These consonants are preceded by a short period of "obturation" (see above). Emphasize the consonant itself and make it sound louder that it should be in normal speech. Then adjust the selection range so that it starts just after the glottal stop, and ends after the consonant and its aspiration noise are finished. See the special note for German users in the "Obturation" topic.

## **Aspiration (hhh)**

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This is the sound when the singer recovers his breath. Breathe in quite quickly (less than 1 second) without any lip sound: open your mouth before starting recording, then breathe in as if you were surprised. Adjust the selection range so that it includes the whole sound (with a brief period of silence after the sound).

# RealSinger

## Factors to be considered when recording for Real Singer

### Noise factors

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#### Environmental noise

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If a passing noise interferes with your recording, simply re-record it. If you have companions, suggest that they go elsewhere, since their small movements may escape your attention but still be heard in the recording. Yes, your friend sitting behind you is giggling while you are trying to record...

#### A.C. hum

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Depending on your country, alternating current (AC) hum has a frequency of 60Hz or 50Hz, with overtones throughout the vocal range, particularly at 180Hz (150Hz). At right is the spectrum of AC hum from a noisy setup. It is very important to reduce AC hum, since it is difficult to remove this noise without distorting your voice.



If you use a laptop computer, the simplest way to reduce AC hum is to use battery power, and have no peripheral devices connected. If you do use peripherals, the cables should be disconnected at the computer when power is off, not left dangling from the computer.

When a preamplifier (or tape deck) and a computer are connected, and when both of them use AC power, the amount of hum depends on how the power cords are plugged in. The loudest hum is produced when the two devices are plugged into different wall sockets. If one device has an AC auxiliary outlet, plug the second device into it, rather than to the wall. Or, plug both devices into a single extension cord. If the power plugs are not polarized (that is, if they can be inserted into the outlet with prongs reversed), try reversing the prongs.



Some microphones will pick up a lot of AC hum when you touch them. If that happens, mount the mike on an insulating stand, instead of holding it. If you do not have a mike stand, try taping the mike to a wooden stick, held vertical by taping it to the back of a chair. Pay careful attention to this. Just because a microphone can be held in the hand, does not mean that it should be held. If you use a headset microphone, see if AC hum is reduced when you remove the headset.

Be sure that your microphone cable does not run near any power cords. There may be power lines underneath your floor, so try moving the microphone cable. The same applies to the cord between computer and preamp or tape deck, if you are using one. It is especially important to stay away from motor-driven devices, including ceiling fans.

#### Machine sounds

---

If you see a noise spectrum like the one above, but the fundamental frequency of your AC is not the first peak, then the source of noise is probably a motor-driven appliance. Machine sounds are common. You have learned to ignore your refrigerator, heating, ventilation, computer fans, and ticking clocks. But if they are present, they will be included in your voice recording. Consider turning off machines - but don't forget to turn them back on again! If you have a lot of noise distributed evenly across the spectrum, it may be caused by air rushing through a ventilation system.

#### System noise

---

Some noise is caused by the electrical properties of your system. If this noise is small, Real Singer can analyze it and reduce its effect. But if the system noise is too large, you will have to try a different recording method.

If your computer's sound card is poor, it will detect electrical noise from the surrounding circuitry and include it in your recording. This is especially true if you are using a microphone connected directly to the computer's microphone input. If you have eliminated all other possible noise sources and still have too much unexplained noise, this may be the culprit. Try recording your voice to a tape deck, or using a pre-amplifier, so that you can feed the preamp line-out to your computer's sound card line-in, instead of to the microphone jack. Remember that external recording equipment usually requires a different kind of microphone than the kind used directly by computers.

If you are using a tape deck, it is better to use high-bias or metal tapes and noise reduction. Do not use automatic gain control. Do not use a microphone "built in" to the recorder.

### Sound quality factors

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#### Equalization

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The human voice contains important frequency components across a broad range. The fundamental pitch of sung notes is below 500Hz (even lower for the male voice), with important overtones at higher frequencies. The range around 2-6KHz contains frequencies that add color and definition to the voice, especially during some consonants and transitions.

Be sure that your microphone has a smooth frequency response across this spectrum. If the mike is normally sensitive only to low frequencies, but has an artificial boost for the highest frequencies, then your recorded voice will sound too bright. Some computer mikes intended for speech recognition (conversion of words to text) may have such an artificial frequency response. But as long as the mike responds adequately across the


vocal range, it is not necessary to have a level (flat) frequency response, since Real Singer includes an equalizer.

## Saturation and clipping

Saturation and clipping occur when an input signal is too large. This can occur at the microphone, or at any stage of signal processing.

If your voice is too loud, the microphone will distort the sound, even if the electrical output from the mike is within the acceptable range. Computer microphones often have a low dynamic range, meaning that there is not much difference between the softest sounds they can detect above the noise, and the loudest sounds they can accept without distortion. When recording to Real Singer, it is important to keep your voice at uniform loudness. This is especially true if you are using a computer microphone.

Professional audio microphones have a much greater range of loudness that they can accept without distortion. But the range of electrical signals produced is also large. This kind of microphone is used with a preamplifier (or tape deck, acting as preamp). Be sure to pay attention to the VU or other signal amplitude meter. It is OK to briefly exceed a limit if the sound is in an unimportant part of a word, far from the phoneme that you are trying to validate.

 Do not use automatic gain control (AGC) for recording to Real Singer. The distortions introduced by AGC are likely to be greater than the distortions removed. It is better to move away from the microphone, or manually adjust volume controls. Portable tape recorders, and office-style voice recorders, usually use AGC. Avoid using these devices, if you can.

If you are transferring a signal into your computer from a preamp or tape deck, be sure to use the correct jacks. Never take a signal from a jack intended to directly drive loudspeakers. The best connection is line-out to line-in.

If you are using an audio editor to apply digital filters to a pre-recorded waveform, be sure that the filter does not clip your sound.

## Special problems

### Difficult sounds

Some consonants are difficult to record, because they are soft and create a lot of breath wind. In English, these are f, h, s, and th (thin). You will need to place your mouth close to the microphone, but not allow the breath wind to touch it. It helps to feel the air stream coming from your mouth when you make these sounds, to ensure that the mike is correctly placed.


Some other consonants are difficult to record, because they are abrupt. In English, these are b, d, hard g (go), k, and p. These sounds have a moment of high intensity that quickly tapers to a short sound. If spoken too loudly, the intense part will saturate or clip. If spoken too softly, the tapered part will not be detected. Or, if you naturally speak these consonants softly, Real Singer may decide that your voice is "too loud" based on the part of the recorded word leading up to the consonant. Resist the temptation to speak these in an un-natural manner, to "help" Real Singer find them. If you do that, Real Singer will find an un-natural sound!

If you are having difficulty producing a satisfactory recording of these consonants, or if you would generally like to change what Real Singer hears from you, then pre-record your voice and use an audio editor. You can reduce the amplitude of an unnecessary part of a word that is "too loud," so that a necessary, softer part can be accepted. But it is usually not advisable to edit the volume in the portion of sound that contains the desired phoneme, because that will interfere with noise-removal processing.

### Using an audio editor

An audio editor is a program that will open an audio file, change its contents, and export the result to a new audio file. One such program is the free Audacity (Windows or Macintosh) available from sourceforge.net. In addition to opening and exporting WAV files, it can open and export Vorbis OGG files. These files can be used by Real Singer in place of a live voice.

With an audio editor, you can: (1) Import a lengthy recording or several words, and slice it into individual words. (2) Adjust the volume or equalization. (3) Inspect sounds for the presence of sudden noise events. (4) Apply special effects (not recommended for Real Singer).

 With an audio editor, you can help find sources of noise by looking at noise amplitude and spectra. The most valuable use is to inspect the recording waveforms for the presence of saturation and clipping. For this reason, it is a good idea to pre-test your method of recording, inspect its results with an audio editor, and make any necessary changes to your setup. Then Real Singer will have good quality sound to use for your voice.

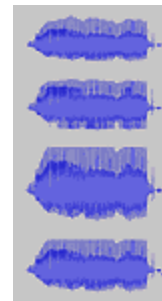
Saturation occurs when an increase in sound power produces less than the proportional increase in recorded signal power. Saturation is often desirable; it is certainly better than clipping. But in Real Singer, it is better to avoid saturation, because the recorded tone will be used in soft and loud passages. If you look at sample recordings of your voice with an audio editor, and see that the recorded amplitude is always about the same during both loud and soft parts of your speech, then you may have saturation. (Or, you may be a master at keeping your voice at an even level!) Try recording at lower volume, or move the microphone slightly farther from your mouth. Be sure that automatic gain control is not in use. Avoid saturation in, or near, any part of the word that will be used for the phoneme.

At right are some images (at reduced size) from an audio editor. The top image shows a waveform that has been properly recorded. Even though Virtual Singer plays a sample word with very uniform amplitude, the live human voice varies in amplitude. These irregularities can be seen in the envelope of the waveform.

The second image is the same sound, recorded with saturation. Notice how the irregularities of the envelope have been smoothed. Examining the spectra would show that certain frequencies are more prominent in the the waveform with saturation than in the unsaturated wave.

The third image shows clipping, in this case caused by too large an electrical signal at the sound card input. Notice how the envelope has been flattened (flattening may be symmetrical or asymmetrical).

The fourth image also shows clipping, even though the recorded waveform has lower amplitude than before. In this case, the clipping occurred at the microphone, because the sound was too loud. The electrical signal was reduced by the sound card volume control. However, once a wave is clipped, it cannot be un-clipped.





At left is a composite image of two spectra, for the same word recorded by two different microphones. Areas of concern are marked with an asterisk. One of the microphones (purple spectrum) shows excessive response in the second overtone (third harmonic), which is one characteristic of saturation. Also, that microphone shows excessive response in the high frequency range - probably due to artificial enhancement - which makes the sound bright and harsh. This microphone was intended for computer speech recognition. The other microphone was a pre-amplified dynamic type, normally used for audio recording. It had a more satisfactory sound quality (green spectrum).

# RealSinger

## Adjusting phonemes

Once all the phonemes have been recorded, you can play the sample tune.  
Some phonemes will almost certainly not be what you expected, and will need adjustment.

### How to find a bad phoneme

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- Double-click the singer in the Virtual Singer palette
- Click "Edit voice"
- Select the "Advanced" thumb index, and click "Edit fragments"
- Type in the word that is mispronounced in the "Text" field, and click try.
- The list of phonemes that constitutes this word is displayed. Locate the one that needs adjustment and select it in the list on the left.

### Adjusting a phoneme

---

Several problems can make a phoneme sound wrong.

If the phoneme **timbre** (tone or sound) does not match the expected result, we recommend that you record it again, by selecting the phoneme in the list on the left, then clicking **Record**.

If the problem comes from the phoneme **power** (volume), i.e. the phoneme is too soft or too loud in the sample word, there is no need to record it again. You can adjust the starting and ending power using the Vst (volume start) and VMa (volume maximum) sliders on the left of the phoneme spectrum display.

Other adjustments can also be performed, but they require a deeper knowledge of the internal operation of RealSinger. Therefore, they are reserved to experienced users:

Two sliders control the coarticulation time:

Dtd is the transition duration from the previous phoneme

Dtf is the transition duration to the next phoneme

# RealSinger

## Technical background



**Note:** This page is only a brief overview of the methods used by RealSinger to produce a voice.

It is not necessary to read this chapter to use RealSinger. This chapter is intended to answer technical questions some users might have about the internal algorithms, and is not needed to use the product.

## Introduction

To synthesize a realistic singing voice, the first idea that comes to the mind of the programmer is to use a collection of recorded phonemes to generate the voice.

Three problems quickly become apparent:

1. The algorithm used must be able to generate the phoneme at any pitch (fundamental frequency). Recording every phoneme at all possible pitches is not feasible, because it would lead to a long and complex recording process, as well as huge voice files.
2. The algorithm must be able to elongate, or stretch, the phoneme to any duration.
3. The algorithm must be able to generate a smooth transition from one phoneme to another, in order to simulate the coarticulation phenomenon (the next phoneme starts to be heard before the current one is completely terminated).

A solution can be found for each of these problems in the published computer literature.

Efficient algorithms have been developed to solve problems 1 and 2. They process the recorded sample's digital data directly, allowing the programmer to change its frequency (pitch) as well as its duration. These algorithms are used in most popular sound editors to change the pitch and speed of a sound file independently. They are also used successfully in speech synthesis, because speech frequency (pitch) variations are quite small.

However, in the case of the sung voice, these algorithms cannot be used, because they are not efficient when the pitch shift is too large. The result is not "wrong" as such, but the voice is distorted, just as when playing a magnetic tape at too high a speed (chipmunk voice).

For problem 3, a common solution is to record not only the individual phonemes of a language, but all possible combinations of two or three phonemes (diphonemes/triphonemes). This system stores the coarticulation effect and makes the synthesized voice more realistic. However, here again, the recording process is quite difficult and extensive, sometimes requiring several hours of work for the speaker or singer. The resulting voice file is often quite large (several megabytes).

RealSinger uses original algorithms to solve all three of these problems at the same time, by manipulating **frequency spectra**.

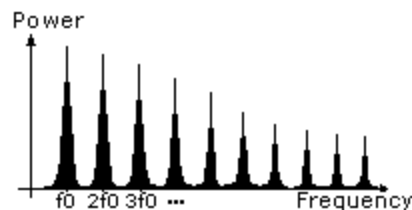
Some speech synthesizers have tried to use voice frequency spectra to generate voice in the past.

However, this method proved to be difficult to implement, because recreating a signal from a processed spectrum using an inverse Fast Fourier Transform (IFFT) requires that the "phase" values be reajusted properly. If they are not properly adjusted, consecutive pieces of signal won't join and an unwanted background noise will be heard.

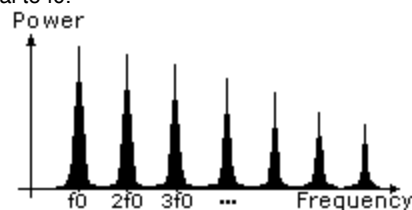
## Voice spectrum

In speech or song, the glottal source waveform (the sound produced by vocal chords when excited by the air stream from the lungs) is a combination of harmonics (frequency multiples of the fundamental frequency  $f_0$ ).

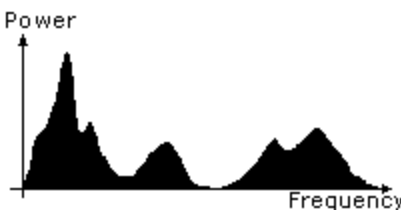
On a power/frequency graph, this glottal source sound looks like a comb, with each tooth of the comb located at a frequency that is a multiple of the fundamental  $f_0$ :



When the voice pitch increases, the fundamental frequency  $f_0$  shifts to the right (higher frequency), and the frequency offset between two consecutive harmonics increases too, to remain equal to  $f_0$ .



In passing through the vocal tract, some frequencies are enhanced by cavity resonances, and others are softened. The result is that certain harmonics are loud, and others are softer. This vocal tract spectrum depends on the phoneme being said or sung, and is more or less unchanged when frequency (pitch) increases or decreases.



The convolution of these two spectra (glottal source and vocal tract) gives the resulting spectrum, in which the listener can determine both the phoneme (what is said) and the pitch (sung note).

## RealSinger basics

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The aim of RealSinger is, for each phoneme of a given language, to apply a deconvolution to the recorded signal in order to separate the glottal source and vocal tract spectra. Then it stores only the vocal tract spectrum, and will apply a generated glottal source to this spectrum to simulate the original recorded phoneme being sung at any pitch.

### Learning process

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- The speaker is asked to pronounce a word for each phoneme of the chosen language.
- Each word is recorded as regular sound data.
- Then, the phoneme is isolated within the word and the signal is cropped to keep only this part.
- An average frequency spectrum of the sound is computed.
- This spectrum is deconvoluted to delete the glottal source influence, and keep only the vocal tract resonator frequency curve.
- This pseudo-spectrum is stored (less than 100 floating-point values for each phoneme).
- For time-varying phonemes like plosives, several pseudo-spectra are stored to keep information about changes in the spectrum.

This algorithm enables RealSinger to store only a few values for each phoneme, which means very short voice files (less than 40 Kb once compressed).

### Generating the voice

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- For each phoneme to be sung, the matching pseudo-spectrum is extracted. In transitional sections between two phonemes, both pseudo-spectra are distorted, then merged together, to simulate the coarticulation process.
- A synthetic glottal source is generated, at the required pitch. The glottal source spectrum can be easily modified to change the overall voice timbre (for equalization or for applying various vocoder effects).
- This source is re-convoluted with the phoneme pseudo-spectrum.
- The spectrum is then processed by a phase-free inverse transform to generate regular sound data.

This algorithm simulates coarticulation effects. Therefore it is not necessary to record the whole set of diphonemes or triphonemes. Only pure phonemes are required.



Myriad HQ logo design by Gaël Martin

Myriad HQ is an additional module for our music products. It brings an enhanced audio quality, new option for digital output, and high-quality sounds, generated by external plug-ins (VSTi) or by "MyrSynth-Guitar", our pinched string instrument generator

## Trial vs registered version

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The Myriad HQ module can be used free of charge in trial mode. All its features are then functional, but the module disables itself after some time in the session.

To continue trying it, you just have to quit the program then run it again.

If you are convinced by the tryout, you can then purchase a license for 30 euros (or US\$37). You'll receive a personal registration code that unlocks the Myriad HQ limitations.

To disable Myriad HQ use "Configuration>Myriad HQ>Enabled"

## Control Panel

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To activate or deactivate each component of Myriad HQ, open its palette in the "Windows" menu.

In this palette, a set of buttons will let you switch each component on or off:

- The "General" button activate or deactivate all the components at once
- "Digital high definition": hi-quality output and export
- "High definition post-processing": improve d score sound post-processing
- "Multi-channel output": to manage more than 2 loudspeakers (5.1, 7.1, etc)
- "MyrSynth-Guitar instruments": Sounds for guitars and other pinched string instruments
- "External instrument modules": use of VSTi plug-ins



# Myriad HQ

## Digital High-Definition

Myriad HQ logo design by Gaël Martin

To store a sound digitally, the computer gets the value of air pressure on the microphone membrane, thousands of times per seconds. This list of values (samples) makes the digital sound, that can be stored, processed by mathematical operations, or replayed by the reverse process.

Quality of a digital sound is therefore defined by two values:

- Its sample rate, which is the number of samples per second
- The sample "depth", in bits, which is the accuracy of each value, the number of different values each sample can take

The "Audio CD" quality is: 44100 Hz sample rate (44100 samples per second) in 16 bits, i.e.  $2^{16} = 65536$  possible values. Our products manage this quality without the Myriad HQ module.

With the Myriad HQ module, it's possible to use up to:

- 96000 Hz sample rate, more than the double, for a finer mesh, thus better high-pitched sounds, a better sound dynamic, and a decrease of noise ratio.
- 32 bits deep samples, 65000 times more accurate than an audio CD, to avoid metallic tones (aliasing) and get a better accuracy in quite sounds

These quality improvements can be applied to:

- The digital output, on which you listen to your score
- Uncompressed digital export (WAV) to process your audio data in another application
- Digital input from microphone or line in
- Digital tracks in your document, that can be mixed together of with regular music staves

Please be careful however, data in top quality are 4.35 times bigger than classic data



# Myriad HQ

## Multichannel output

Myriad HQ logo design by Gaël Martin

Audio output channels represent the loudspeaker on which sound is played.

A single loudspeaker (one channel) is a mono output

Two loudspeakers (two channels) is a stereo output. The sound, different on the right and on the left, enables the listener to locate the sound position from right to left

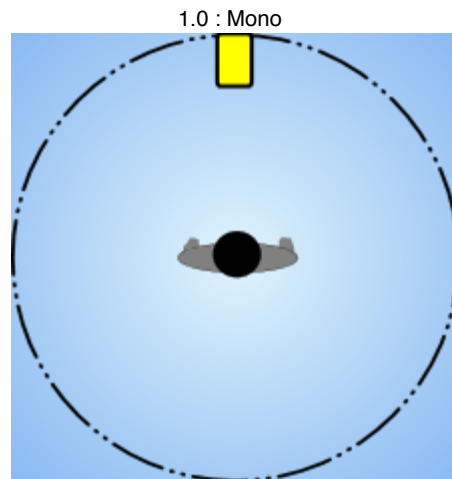
More channels can make the sound surround the listener, or make enhance basses  
In Myriad HQ, you can select up to 8 channels for the sound output.

This is set up through "Configuration > Digital output configuration"

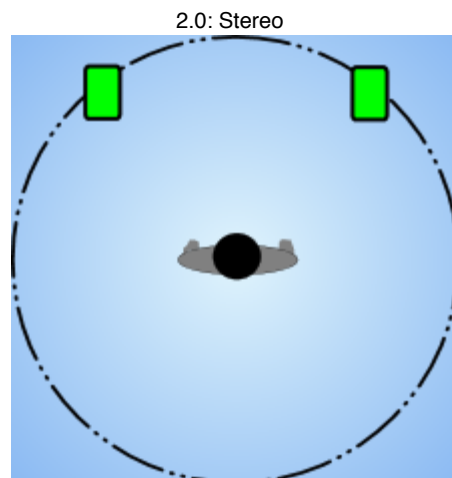
In instrument settings, in addition to the stereo position, a "fader" button appears, letting you select the instrument position on the front/back axis.

Here are the diagrams for the most common channel configuration. Please note that Myriad HQ goes even further, by enabling to define a custom set of loudspeaker, thus a setup that doesn't appear in this list.

### 1 channel

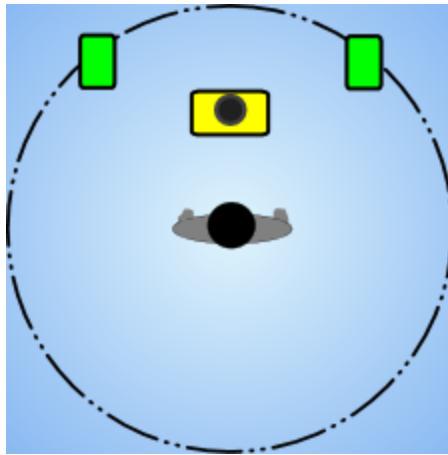


### 2 channels

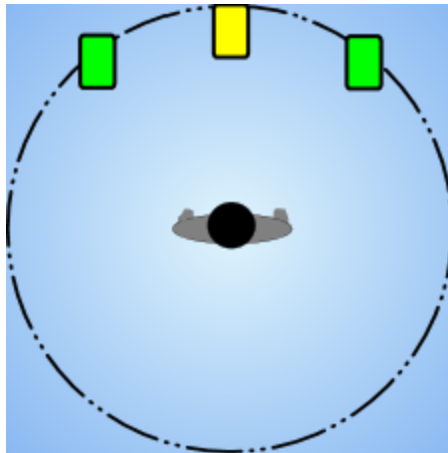


### 3 channels

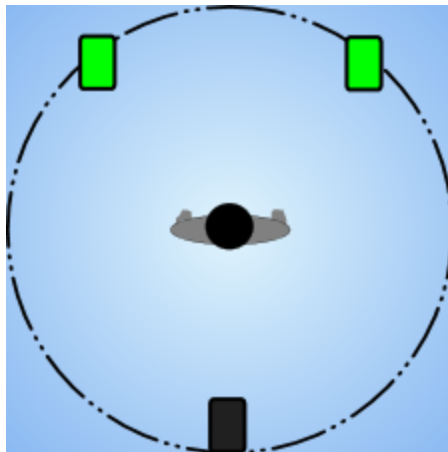
2.1 : Stereo + subwoofer



3.0 : stereo

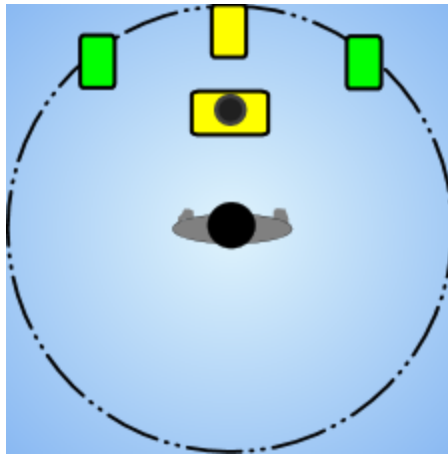


3.0 : Surround

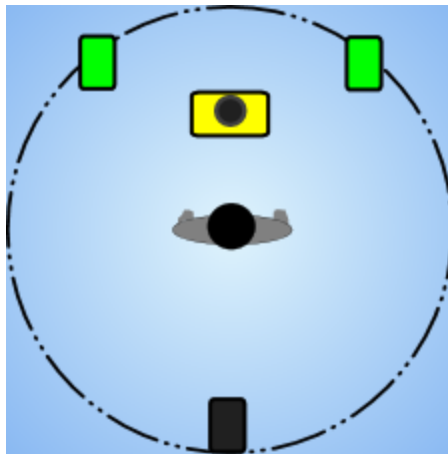


4 channels

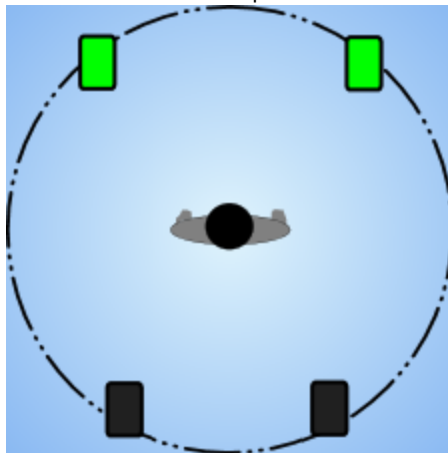
3.1 : Stereo+subwoofer



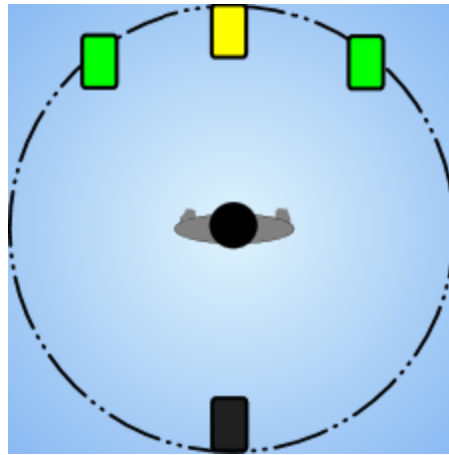
3.1 : Surround + subwoofer



4.0 : Quadriphonic

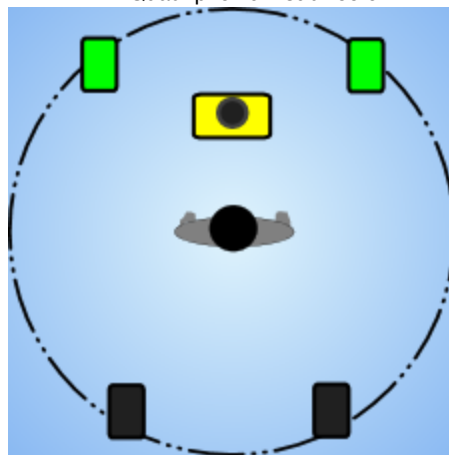


4.0 : Surround

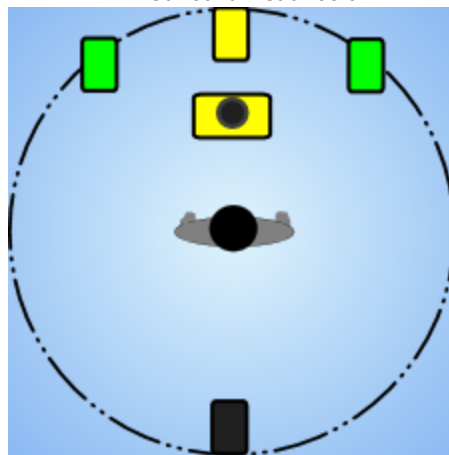


5 channels

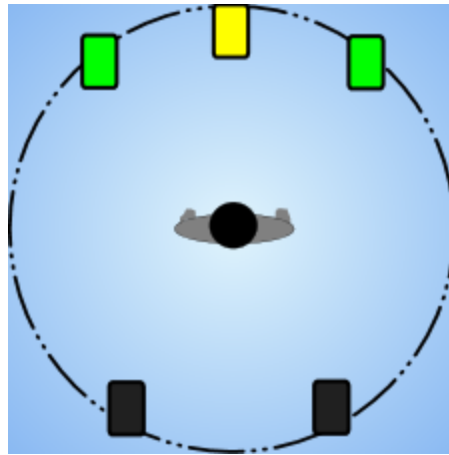
4.1 : Quadriphonic + subwoofer



4.1 : Surround + subwoofer

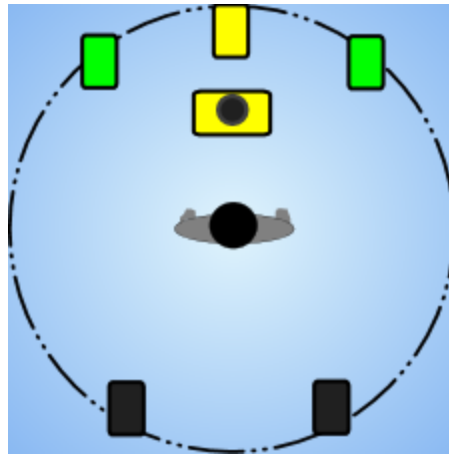


5.0 : "rear"

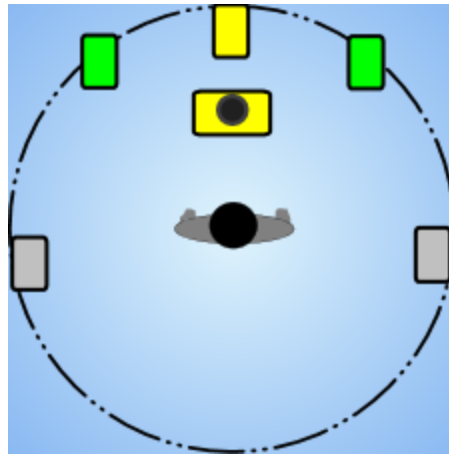


6 channels

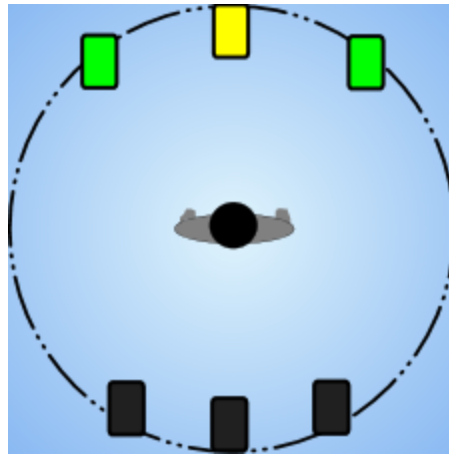
5.1 : "rear" + subwoofer



5.1 : "side" + subwoofer

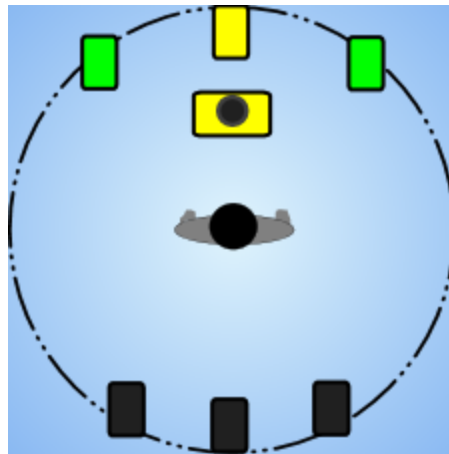


6.0 : "rear"

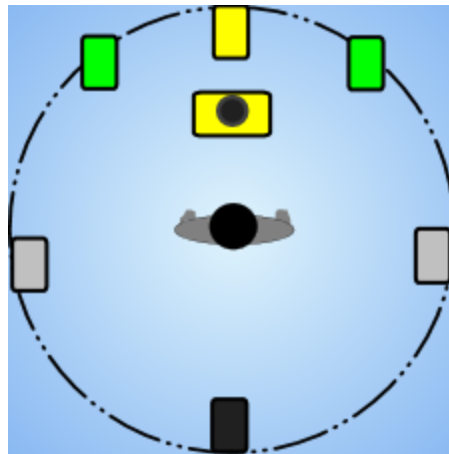


7 channels

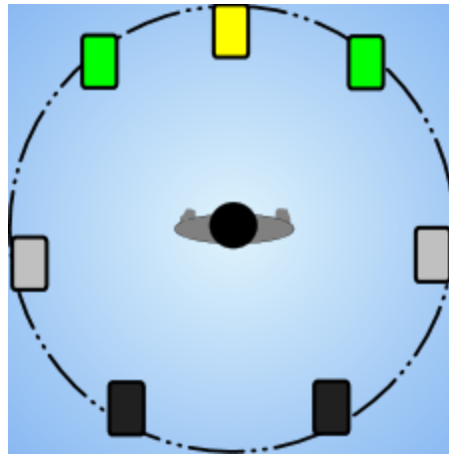
6.1 : "rear" + subwoofer



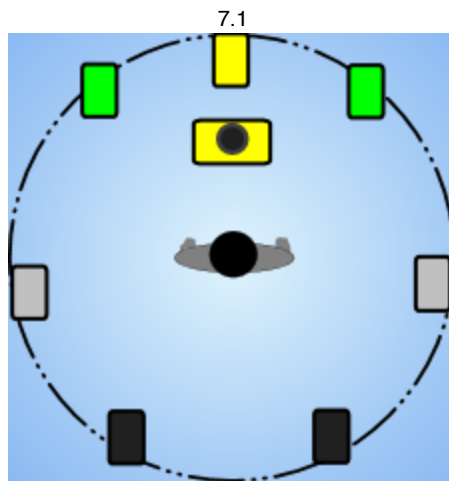
6.1 : "side" + subwoofer



7.0



8 channels





# Myriad HQ

## Digital post-processing

Myriad HQ logo design by Gaël Martin

Some digital effects can be applied to your score sound, just before its data are sent to the loudspeakers, the headphone or exported as a digital audio file.

These digital effects can be set up from "Score > Global digital effects", and are improved by the Myriad HD module.

Currently, a multi-band equalizer will let you finely adjust the final sound output, by amplifying or dampening some frequency ranges.



## What is it?

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**Myrsynth-Guitar** is part of the Myriad HQ module. It's a physical synthesis of pinched string instruments.

Unlike a sound base, in which recordings of a real instrument playing notes at different pitches are reassembled to play the score, physical synthesis calculate the sound data depending on the instrument physical parameters and the performer technique.

A digital equivalent of the physical instrument (body, strings) is built in memory, then the virtual strings are pinched and the vibrations transmitted to the miscellaneous elements through mathematic formulas. The result of these calculations is then picked up by virtual microphones, and the sound can be heard.

## What instruments, what playing technique?

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**Myrsynth-Guitar** can simulate most of the instruments with pinched single-strings (no double strings) : Guitar, bass, luth, banjo, ukulele, etc, mounted with metal and/or nylon strings.

Most of the playing techniques are managed, including natural & artificial harmonics, hammering, slap, slide & bend, muted notes, etc  
The whole range of flamenco "golpe" can also be played (hit on the instrument body with the thumb, fingers or palm)

**Myrsynth-Guitar** automatically computes the strumming direction, and can slightly arpeggiate chords. It can also put stress on rythm beat, simulate the sliding of fingers on strings, or let the string continue sounding after the end of the written note, for an even more stunning realism.

## Instrument and play mode selection

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In the instrument selection box ("Staves > Edit related instrument" menu option) the "MyrSynth virtual instrument" type can be selected in the pop-up menu.

When selected, you then get two lists.

On the left, the list of available MyrSynth instruments. They are sorted by category, and by sub-category for guitars.

In real life, it would be several instruments on their stand, you can pick one to play.

The "Tuning" button under the list lets you choose another tuning for this instrument.

During playback, if some notes cannot be played (for example because out of the instrument pitch range), they will play a "golpe" (body hit) instead.

On the right, the play mode list. This will be the way this instrument is played. You can select the plectrum, decide whether you play softly or heavily, follow exactly what is written or play with more emotion, etc.

In a general way, "clean" play modes follow the written score : note duration and power, struck chords, no finger sliding noise. On the opposite, "noisy" play modes" are more humanised, but less faithful to the score

## Automatic selection when importing and loading

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The program can, when a score is imported or loaded, automatically select the more appropriate MyrSynth instrument, when it exists.  
This can be set up through "Options > Myriad HQ > MyrSynth setup

In the list on the left "standard" instruments that can be used in the score

Tick "Display all" to see them all, otherwise you'll only see those for which the matching with MyrSynth has already been defined.

On the right, the Myrsynth instrument selector, as well as its play mode.

This match will be applied, and Myrsynth instruments will replace "standard" ones, according to the selected option at the bottom of the box:

Cette correspondance pourra être prise en compte, et des instruments MyrSynth sélectionnés

"Imports" are files in a foreign format (MIDI, Karaoke, Finale, MusicXML...)

"Old files" are score files that have been saved with a version of Melody/Harmony prior to the first version of MyrSynth

## Special case: forced matching of the output type

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In the global setup, "Load" section, output kind of all instruments of a loaded file can be forced.

In particular, the user can decide that all instruments of a loaded score will automatically play to digital output, even if they were set as using another kind of output (e.g. MIDI) by the author

What must be done, in this case, when an instrument in the loaded score uses a MyrSynth instrument?

Will it be kept as is by the program, or changed to a standard (sound base) instrument?

This depends on the settings in the MyrSynth setup box (see previous chapter). If the automatic choice for Myrsynth has been selected for any kind of file, then the MyrSynth instruments will be kept. Otherwise, they will be changed by an instrument that uses a sound base.

# What's new ?

## Version 2.0.0 / May - June 2024

This major version introduces important new features, including a restructuring of part of the interface, faster and more reliable score tracking with "Intuitive Mode," a drastic improvement in figured bass processing, the recognition and management of movements, and most notably, the ability to publish PDFs in the MUSL space.

### PDFtoMusic / PDFtoMusic Pro 2.0.0d, June 3, 2024

#### Fixes

1. Better finding of single line staves
2. Fixed help alerts on calculation
3. Correction of the application versioning, which could mistakenly alert about the presence of a new version.

### PDFtoMusic / PDFtoMusic Pro 2.0.0c, May 22, 2024

#### Fixes

1. Video export
2. Potential issues in certain graphic operations
3. Windows: Display issues on some older versions of Windows

### PDFtoMusic / PDFtoMusic Pro 2.0.0, May 14, 2024

#### New features

1. New layout for the calculation configuration menu
2. Specific handling of staves with sung voices during track export
3. PRO: Ability to set the default Virtual Singer voice by range
4. Option to set all parts to be played on the piano by default upon loading
5. Option to exclude fermatas
6. Option to ignore footers
7. PRO: Optional color representation of different human voices grouped on the same staff
8. Ability to save and reload calculation configurations
9. PRO: PDF publication in the MUSL space
10. Addition of two icons in the window bar: Manage and Go to MUSL
11. Concept of movements
12. Renaming of movements
13. Extraction and export of movements into separate files
14. Export of movements in MyrWeb
15. User fine-tuning of the naming format for separate movement files
16. Visualization of movements in the drawer

#### Improvements

1. Special handling of clefs that could be considered an empty measure
2. New algorithm to locate the figured bass staff
3. Better distinction between figured bass notation and lyrics
4. Improved association of the instrument with figured bass
5. Ability to set a default instrument for figured bass
6. Better determination of the expected singer's range via the number
7. Addition of Baritone, Mezzo-soprano, and Contralto ranges
8. New algorithm for merging text into paragraphs
9. Handling of PDFs that display the staff name above the staff
10. Transfer of the cut to the mixing table
11. Management of encrypted PDF files
12. Display of the time position
13. Splitting of staves into multiple voices
14. Improved handling of double stems
15. Enhanced search for notes in a chord when they are graphically shifted to avoid overlapping heads
16. Handling of PDFs with lines drawn using curves
17. Consideration of notes in a chord with a shifted head
18. Consideration of voice and instrument changes from the mixing table and Virtual Singer palette

19. PRO: In batch export, ability to use the default calculation mode
20. PRO: Display of the measure interval per page in the drawer
21. Coexistence of multi-voice staves and ranges
22. Detection and management of unison notes with different durations, represented with side-by-side heads
23. Improved algorithm for eliminating the first empty staff
24. Implementation of a mechanism allowing the substitution of a Unicode character with multiple characters (some fonts draw multiple characters in one)
25. Refinement of the algorithm for joining symmetrical slurs in mirror image
26. Improved tracking of staves from one system to another with faster recursive calculations for complex cases
27. For ergonomic compatibility with other software: Command (Mac) or Ctrl (Windows) + mouse wheel in the score display area zooms in or out, as was already the case with the shift key
28. Management of rotated characters
29. Handling of the special case: hyphen and melisma on the same syllable
30. Drastic improvement in extracting Title, Composer, and Remarks by working on paragraphs rather than sentences
31. Management of figured bass parameters in expert mode
32. Display in the title of two indicators: Calculation parameters changed from default, Corrections applied to the document
33. Improved display of icon texts

## Corrections

1. Crash in the time position palette when closing a document
2. Volume changes in the mixing table
3. Unexpected opening of the Virtual Singer box when correcting instruments
4. Crash when closing a document after modifying an instrument
5. Calculation parameters in batch export
6. Consistency of part names between instrument correction and export
7. Index of the displayed page in the file selector for PDFs
8. Error in handling certain fonts
9. Crash when closing the application with the temporal position palette open
10. Management of shared lyrics in multi-staff parts
11. Determination of lyrics in parts with multiple staves
12. Crash in managing font names in databases
13. Crash in "Factory" mode of instrument correction
14. Display of the result in the case of mirrored slurs
15. Correction of composite barline localization
16. Crash fix in the mixing table

## Version 1.7.6 / July-August 2023

**PDFtoMusic / PDFtoMusic Pro 1.7.6d - August 3, 2023**

### Corrections

1. Drawing of some horizontal lines
2. Key display on virtual keyboard.

**PDFtoMusic / PDFtoMusic Pro 1.7.6c - July 19, 2023**

### Corrections

1. Crash when sending some emails (especially for requesting a 64-bit license extension)
2. MacOS: Selection color issue in editable fields.

**PDFtoMusic / PDFtoMusic Pro 1.7.6 - July 12, 2023**

### New features

1. Algorithm for merging accented characters drawn in two parts.
2. When exporting tracks, it is now possible to process voice parts specifically in order to create a separate file for each voice, highlighting the main voice. This can be achieved by either reducing the sound level of other singers (while keeping the orchestration unchanged) or by placing the main voice on the right and all other voices on the left in the stereo position.  
This feature is especially useful for choirmasters who can easily generate practice tracks for their singers.

### Improvements

1. The mode for excluding oversized images from processing has been extended to filled rectangles.

2. Improved handling of legato.
3. Enhanced management of rests in chords.
4. When displaying the key signature on a system with two staves, the key signature now appears on both staves.
5. Separate track export is now available in batch export, allowing the creation of a customized set of tracks from a list of PDF files.
6. To avoid a series of dialog boxes, the digital export format is no longer prompted every time but can be selected via a button.
7. Ability to define the default Unicode mode of operation: new "Fonts" tab in the preferences.

## Fixes

1. Fixed an issue with launching on Mac OS 13.4 with M1 chip.
2. Fixed an intrusive message when manipulating the Myriad HQ palette.
3. Fixed an issue where it was impossible to disable Virtual Singer when the score was empty.
4. Fixed an issue where music would automatically play upon loading documents at application launch.
5. Fixed the positioning of the export configuration dialog box, which was centered on the log window instead of the foremost document.
6. Fixed an issue where the default path for saving or exporting was incorrect for all applications.
7. macOS: Fixed a crash when attempting to export with no documents present

## Version 1.7.5 / August-September 2022

### PDFtoMusic / PDFtoMusic Pro 1.7.5c - September 16, 2022

## New

1. New font option to give full priority to Unicode

## Improvements

1. Windows: management of hi-resolution screens in PDFtoMusic and PDFtoMusic Pro

## Fixes

1. Miscellaneous fixes in file selector
2. Windows: app icon on desktop and in taskbar

### PDFtoMusic / PDFtoMusic Pro 1.7.5 - August 24, 2022

## New

1. New file/folder selection box (still possible to use system boxes).
2. New "Enable ancient notation" option (Pro version) in order, among others, to allow accidentals above the staff. Also enables to exclude rests outside the staff.
3. Setting for seeking chord diagrams in expert mode
4. First version of figured bass management (Pro version)

## Improvements

1. Limit in number of displayed errors on TrueType fonts
2. Displaying glyphs not found in red is now optional
3. Improvement in slurs tracking
4. macOS: better management of application in background when music is playing
5. Adjustment of palette position on startup
6. Deactivating "Correction > Dynamics" menu option also removes crescendo/decrescendo seeking
7. Better finding of guitar chord diagram
8. Management of a special case: « Al coda » followed by the coda symbol
9. Better response of the virtual keyboard.
10. Improvement in recognition of chord names related to diagrams

## Fixes

1. Selection playing when several parts are selected
2. Text editing of an annotation broke the music font
3. Keys remaining pressed on virtual keyboard
4. Windows: verifying that another instance of the application is already running was made after controlling or requesting the serial number
5. Note positioning quality evaluation: separated notes could be considered in chord, or on the opposite chords split to successive notes
6. Removing all changes could crash
7. Crash in mixer

8. Changing font processing management type could make the "Performance" menu disappear
9. Font correction could lead to displayin an empty score
10. Management of maximal distance between the note and its ornament
11. Resetting calculation parameters
12. Wrong management of some fonts (rare) could lead to an incorrect rendering on screen, thus recognition error
13. A bit too enthusiastic recognition of crescendo/decrescendo symbols on very tilted lines
14. Drum sets

## Version 1.7.4 / December 2021

### Improvements

1. Recognition of some slur symbols
2. Better management of slurs drawn through mirror or not
3. Better display of recognition result for mirrored slurs

### Fixes

1. Fixed display of tie symbols in result preview
2. Loop when playing selection range didn't work
3. Saving of the loop state
4. Random problem when starting playback
5. Removal of slurs drawn on top of each other

## Version 1.7.3 / August 5th, 2021

### Improvements

1. Can run in forced Ascii or Unicode mode

### Fixes

1. Fixed problem of symbols drawn as pictures on retina screens
2. Fixed refresh problem on the keyboard palette
3. Fixed problem with Type 1C fonts

## Version 1.7.2 / January 2021

### PDFtoMusic / PDFtoMusic Pro 1.7.2d - January 25th, 2021

### Improvements

1. Following dashes over a measure edge has been improved

### Fixes

1. Digital export applied the forced tempo to the first staff only

### PDFtoMusic / PDFtoMusic Pro 1.7.2c - January 11th, 2021

### Fixes

1. Problem of music performance
2. Problem when playing tremolos
3. Problem when printing : unwanted display of selection area

### PDFtoMusic / PDFtoMusic Pro 1.7.2 - January 5th, 2021

This version provides a complete access to the Virtual Singer voices and MyrSynth instruments settings

## New

1. Complete settings for Virtual Singer voices
2. Virtual Singer palette
3. Virtual Singer settings are saved in MusicXML files
4. Palette for MyrSynth instruments settings
5. Sound base path selection
6. New option for splitting between left and right hand

## Improvements

1. track export now manages tempo changes on all staves
2. Management of the multiband graphic equalizer in sound output settings
3. Scrolling in "scroll" mode
4. Better management of beam complex drawing

## Fixes

1. Problem on RealSinger voices rendering
2. Access to Gold base on Windows
3. Keyboard palette
4. Display of recognition results in scroll mode
5. Possible crash when the % character was present in a word
6. Mismatch in the contextual menu "Correction" of the batch export

## Version 1.7.1 / February 2020

PDFtoMusic / PDFtoMusic Pro 1.7.1d - April 6th, 2020

## Improvements

1. Graphical interface libraries have been updated
2. Interface scale selection

PDFtoMusic / PDFtoMusic Pro 1.7.1c - February 12th, 2020

## Improvements

1. Better management of diacritics in stave names

## Fixes

1. Fixed infinite loop in recognition of some (rare) files
2. Recognition of some Unicode characters
3. macOS: Deactivation of Retina mode

PDFtoMusic / PDFtoMusic Pro 1.7.1 - February 3rd, 2020

## New

1. macOS : system notification at the end of batch processing
2. macOS : management of Retina screens. Can be disabled in global settings, "Screen" tab
3. Magnifier mode for visually impaired ("Screen" tab)

## Improvements

1. Management of complex tempi, e.g when reference note duration is a dotted half note
2. Corrections are now applied before the file is edited through an external software
3. Management of lyrics line containing only one syllable
4. Management of zero-width lines. This is very rare and has been only seen on two pictures on the thousands we own

## Fixes

1. Better management of batch processing when the application is hidden.
2. Windows : problem to run automatically Melody/Harmony Assistant

## **Version 1.7.0 / June 2019 - October 2019**

### **PDFtoMusic / PDFtoMusic Pro 1.7.0j - October 15th 2019**

#### **Improvements**

1. New keyboard shortcuts
2. Recognition of dots drawn with lines is now related to "Authorise special lines"
3. macOS: many cosmetic improvements

#### **Fixes**

1. Performance menu items were not responding properly

### **PDFtoMusic / PDFtoMusic Pro 1.7.0i - August 8th 2019**

#### **Improvements**

1. Clicking the "drawer" (page preview on the right of the window) brings the window to front

#### **Fixes**

1. SVG/Myrweb export displayed some horizontal lines (e.g. beams) in white instead of black

### **PDFtoMusic / PDFtoMusic Pro 1.7.0h - July 31st 2019**

#### **Fixes**

1. Possible crash when processing file without interface (PDFtoMusic Pro in command-line mode or PDFtoMusic launched from Harmony/Melody Assistant)

### **PDFtoMusic / PDFtoMusic Pro 1.7.0g - July 18th 2019**

#### **New**

1. "Time slider" window, to quickly play from any position in the score

#### **Fixes**

1. Fixed overflow in files containing many paths
2. Connection with Harmony for PDF processing

### **PDFtoMusic / PDFtoMusic Pro 1.7.0f - July 9th 2019**

#### **New**

1. New "correction" option to eliminate too big pictures

#### **Fixes**

1. Font viewing on the document in font correction mode
2. Virtual Singer didn't sing some notes well, when another notes with a 0 velocity was overlapping. This is used for creating notes that are starting point of several slurs
3. Windows: fixed installer (in particular the application desktop shortcut icon)

### **PDFtoMusic / PDFtoMusic Pro 1.7.0d - June 21st 2019**

## Fixes

1. Fixed miscellaneous minor graphical problems

## PDFtoMusic / PDFtoMusic Pro 1.7.0c - June 14th 2019

### Fixes

1. Problem when saving default access paths, that could lead to a crash

## PDFtoMusic / PDFtoMusic Pro 1.7.00 - June 12th 2019

### New features

1. First 64-bit version of PDFtoMusic and PDFtoMusic PRO
2. Retina/4K option for big size display.
3. Interface theme selector, transparency.
4. Dark mode

### Improvements

1. Improvement in symbol recognition database
2. Display of symbols deleted by the user has been improved
3. Management of note dots drawn via very short lines with rounded ends.

### Fixes

1. Area selection, when click and drag was made from bottom to top and/or from right to left
2. Deleted symbols calculation could be wrong on PDF files containing EPS (without embedded font)

## Version 1.6.5 / March 7, 2018

### New features

1. Inclusion and exclusion areas ("Correction" menu)
2. Now possible to defer document processing when applying changes ("Edit" menu)

### Improvements

1. Implemented specific processing for PDF files that have been generated from the MyrWeb print option.
2. New icons: reprocessing, areas, e-mail
3. Linux: application window size and position are saved between sessions

### Fixes

1. Fixed name buffer overflow in staves and system correction mode
2. Fixed "deadlock" problem on PDF files with non-standard page size (icon placement)
3. Fixed character size problem in type 3 fonts (drawn using pictures)
4. Fixed side-by-side page display
5. Windows: Fixed potential crash source at startup

## Version 1.6.4 / February 1, 2018

### Improvements

1. Management of the "US-English" language variation in song lyrics
2. Improvement of grace notes recognition
3. Adjustments made to process some files in which note dots were removed by the dust cleaner

### Fixes

1. Selection range playback was sometimes not well managed the first time
2. Playback position marker could show the wrong measure
3. When entering measure list for playback, the bar shown on score wasn't always in sync with the required measure
4. Window choice in "Windows" menu didn't work well in standard (non-pro) version
5. Wrong items in "Windows" menu when the Kooplet search window was open

6. Linux: fixed crash at startup
7. Fixed time signature recognition problem, that could lead to a sudden speed up in playback
8. Fixed inconsistency in note time positions (a note to the right could be inserted before a note to its left)
9. Pro version: Fixed glitches in MusicXML export, especially on 8va & 8vb clef management

## Version 1.6.3 / November 28, 2017

### News

- MyrSynth instruments management, providing an improved sound realism for plucked string instruments when the Myriad HQ module is registered.

In Pro version, Myriad HQ is fully-functional without needing an additional license

- This version is the very first to be available for Linux
- Spanish version of the GUI

### Improvements

1. Better duplicate characters deletion in type 3 fonts
2. Management of Unicode characters in type 3.
3. Improvement in ambitus management
4. Improvement in maverick tempi management
5. Digital output settings in batch export
6. Improvement of selection range playback
7. Default octave shift for Guitars and Basses
8. OCR improvement for some text fonts
9. Improvement of Basque language detection in lyrics

### Fixes and Changes

1. "Enable rounded lines" becomes "Enable special lines"
2. Fixed crash when playing/exporting scores that contains very small images
3. Fixed confusion between ledger lines and tenuto
4. Fixed management of incomplete charset on fonts using a wrong unicode encoding

## Version 1.6.2 / March 8, 2017

The main new feature is the annotation system. It enables a PDF file to be overlaid with text, graphics, boxes or arrows. These annotations can be animated, to appear or disappear at a defined moment when music is playing.

**Annotations can only be created and edited with PDFtoMusic Pro.**

PDFtoMusic (non-pro) will, however, display them.

### News

1. Annotations
2. New option in correction menu to disable grace notes processing
3. New option in correction menu to process chord names written in complex typography
4. If expert settings have been changed, it is shown in configuration menu
5. Changes in general tempo now affect the miscellaneous exports (MusicXML, Myrweb, etc)

### Improvements

1. User name and address can now be specified on command line
2. Windows: new memory management, that lets cross the 1.4GB limit
3. Improved playback for crescendo and decrescendo symbols
4. Improved playback of long melismas
5. Calculation of the played bar array has been optimised. It speeds up the end of document calculation
6. Management of part start symbols, which are now easier to identify
7. Improvement in some instruments detection
8. On Windows, and to a lesser extent on Mac, score drawing has been speeded up. Display and scrolling are faster
9. On MacOS, possible to use CoreText instead of ATSUI to display text. This can be set in global setup, "Glyphs" tab

### Fixes and changes

1. The PDFtoMusic Pro command line (P2MP) no longer enabled program registration
2. Possible crash when resetting corrections and score reload
3. "Modified" state was lost when reloading the score automatically after a change in Corrections
4. Fixed export of some text, that could add extra rest at the end of the bar
5. Possible crash when switching language
6. Possible crash when opening the box for forcing played bar list
7. Fixed barline export problems (e.g. repeat end) when the bar was split by a clef or key change

## Version 1.6.1 / January 12, 2017

### New

1. Full management of GOLD II sound base instruments
2. Possible to try instruments and human voices
3. A progress bar show the status of batch export, and this process can be easily stopped
4. Default processing settings can be selected directly from the interface
5. Changed processing settings are shown in bold in the menu
6. Menu option to quickly get back to default settings

### Improvements

1. More accurate playing position in Myrweb format
2. Better management of key changes on staves that are not displayed on some systems
3. Automatic picking of human voice in SATB scores
4. New management of left/right hand in virtual keyboard. The part for each hand can be selected, and the matching color changed
5. Direct access to help from the palettes
6. Better following of staves across systems, based on their names
7. Option in e-mail contact to attach the current document
8. Better management of grace chords

### Fixes and Changes

1. File extension in automatic export
2. MIDI channels assignation
3. Instrument changes loading
4. "Allow brackets to make groups" option is now saved
5. Windows: Fixed path drawing colors (component were inverted)
6. Fixed antialiasing errors on graphical path drawing
7. Some grace notes could be attached to the wrong note
8. Some grace notes could be incorrectly considered as plain notes
9. Multiple grace notes could be processed in the reverse order
10. New storing algorithm for amendments in the PDF file
11. Lyrics management after measures split by a clef change

## Version 1.6.0 / January 2, 2017

This major version brings several technical improvements in version PRO. For instance, viewable and playable documents can be published on the Internet in HTML format without needing any plug-in to be installed in the browser.

PDFtoMusic can also convert PDF documents to SVG format.

### New features

1. Myrweb export, enabling to publish stand-alone documents with score view and audio. (PRO only)
2. SVG Export (PRO only)
3. Multi-pages SVG Export (PRO only)
4. New display layout option: pages are displayed side by side in pairs, instead of one below the other
5. New music display while playing: Lectern mode (PRO only)
6. New setting for ignoring corrections that have been stored within PDF files
7. New play option: semitone transposition (PRO only)
8. New palette: lyrics monitoring (PRO only)
9. New setting for activating lectern mode or regular mode as default (PRO only)
10. Metronome playback
11. New correction options to ignore tempo changes or dynamics
12. New command to jump to the page that contains a given bar, and show this bar on page.
13. Title, Composer, Remarks are highlighted on page, and can be manually selected.
14. New option to enable group names

### Improvements

1. Complex tempi recognition
2. Improvement of implied tuplets processing
3. Bar number display now manages multi-rest bars
4. Better spotting and processing of crescendi/decrescendi.
5. Title, Composer, Remarks now manages cover sheets. MusicXML export of these items has been improved.
6. Multi-style text management has been improved, as well as stitching of text blocks.
7. Improvement of numbered parts processing.
8. Better staff following
9. "N.C." chords recognition is managed
10. Added new chord types : x2(no3) and xno3 that match xSus2

11. Management of 4, #4, b4 in chord names.
12. Management of bb and ## as a single character in chord names
13. Better language recognition for Virtual Singer
14. Management of local staves written with small notes
15. Management of dots on small notes.
16. Small notes are now properly exported in MusicXML.
17. Management of partially shared lyrics
18. Better management of composite accented characters
19. Recent files menu now displays the whole name
20. Recognition improvement of some fonts
21. Management of words written from right to left

#### Fixes and changes

1. Fixed bar number display in scroll mode. Could occur in parts where first staff was hidden.
2. Fixed scroll bar problem in scroll mode
3. GOLD base wasn't well managed
4. Automatic break symbols management (adding repeat symbols when the number of lyrics line doesn't match what is played) was broked.
5. Icon on desktop (Windows)
6. Management of available tool icons in standard version and problem fix when PRO-specific icons were placed on the toolbar.
7. Semitone shift in instrument correction was ignored for sung voices.

## Version 1.5.1 / September 2015

#### New features and improvements

1. New option in the "Correction" menu : computing without ledger lines
2. New languages for Virtual Singer (\*): Bulgarian, Catalan, Slavon, Czech, Dutch, Esperanto, Basque, Greek, Hebrew, Hungarian, Macedonian, Portuguese, Romani, Romanian, Serbian/Croatian/Bosnian, Turkish et Vietnamese
3. Improvement of voice management within staves
4. Improvement in following parts over multiple systems
5. Recognition of chord names partially written using a music font
6. Improvement in finding and processing tempo changes
7. It's now possible to change a free text to an ending symbol.
8. Detailed information added in the calculation progress bar
9. Improvement in finding and processing Endings, Segno, Coda etc.
10. Clicking a part name in the mixer window shows the page at which this part begins

#### Fixes and changes

1. Fixed a problem of word splitting by a dash, that made the syllable be sent to a random line
2. MusicXML export now uses the standard language nomenclature

(\*) Most of these languages are still being improved. We wish to thank the users who actively help us to adjust them.

## Version 1.5.0 / December 2014

#### New features and improvements

1. Better management of chord targetting, recognition and storage
2. Measure selection in scroll mode
3. Keyboard shortcuts to control music rendering
4. Exported page range selection (PRO only)
5. Signal tone at the end of document computation (several possible tones)
6. Measure number display in scroll mode
7. Management of measure start repeat symbol
8. New option to loop play selection range or the whole piece
9. When displaying the about box, search for an updated version of the application
10. Better management for shapenotes
11. Management of Mensurstrich systems with dotted lines
12. MP3 export, including lyrics
13. Ogg export
14. Improvement of staff connection between pages
15. Direct communication between Melody Assistant, Harmony Assistant and PDFtoMusic
16. crossed circle symbol recognition
17. New selection areas
18. Better management of tuplets on rests
19. Better management of font glyphs out of character map
20. New option to ignore multiple rests
21. Improvement in grouping brace fragments
22. Better targetting of group names
23. Possible to ignore or modify a time signature change

24. First German version
25. First Dutch version
26. New management of PDF with non-embedded fonts
27. Dynamics are better assigned to their staff
28. Management of tuplets with incomplete brackets
29. Clean denial of PDF files that contains large scanned pictures
30. Finding and processing of rehearsal marks
31. Better management of arpeggio symbols
32. Management of staff names written vertically
33. Recognition of circled digits (string number)
34. Better determination of instrument related to a staff in a group (bracket or brace)
35. Better determination of instrument on organ keyboard staves

#### Fixes and changes

1. VirtualSinger voices could be silent when playing a selection range located near the end of the score
2. Possible to change a font from "Music font" to "Text with optical recognition"
3. Possible to force a font to "Music font"
4. Fixed possible confusion between bar numbers and time signature with unknown bottom number
5. Fixed possible confusion between bar numbers and lyrics
6. Fixed key signature change misplacement when empty bars are present
7. Fixed lyrics export in .kar
8. Fixed management of cautionary key signature
9. Fixed confusion between Capo (capodastro - guitar clip) indicator and "Da Capo"
10. Fixed MusicXML saving problem in case of multiple brackets and braces
11. Fixed MusicXML export of imposed measure array
12. Fixed user break
13. Fixed singer language display
14. Fixed management of tremolo on stem
15. Fixed management of broken slurs
16. Fixed path assembly module
17. Fixed preference file conflict between pro and standard version
18. Fixed "Save As" when saving under the original name
19. Some special characters in the embedded font names could trouble the MusicXML export
20. Windows: The document icon in the upper left corner of the window could disappear

## Version 1.4.2 / October 2013

#### News and Improvements

1. In scroll mode, position in the score and automatic scrolling have been implemented
2. Tremolo recognition on single notes
3. Improvement of scores made of a single-line drum staves

#### Fixes and Changes

1. Slurs on two notes not consecutive of same pitch could be incorrectly considered as ties.
2. Fixed some elementary drawings
3. Windows Vista/7/8: Possible crash when sending an e-mail from the program

#### Version 1.4.2c (October 14th 2013 )

#### Improvements

1. Document writing at the end of the recognition process has been speeded up

#### Fixes

1. Fixed glyph management
2. Fixed editing of staff following
3. Some options of the File menu like "Open PDF file w/ editor" remained active even when no document was loaded. This could lead to a crash
4. Fixed possible crash when resizing document window
5. Fixed dynamics position calculation
6. Source files have been processed by a code analyzer. Some minor non-conformities have been found and fixed.

## Version 1.4.1 / July 2013

## News and Improvements

1. PDF files can be printed directly from the program
2. PDF files can be opened with an external editor
3. Better versioning of the OCR database, enabling to update more easily this base alone
4. Dutch version of the GUI

## Fixes and Changes

1. Select an object behind an icon
2. Beam detection
3. Time signature detection
4. Fixed crash when playing after getting a file from a Kooplet text search
5. Processing of staff lines drawn with characters has been reactivated
6. Windows: crash when processing a file that has % characters in its name

## Version 1.4.0 / April 2013

This version brings an enhanced stability, a better symbol recognition, new computing options as well as some user interface improvements. In particular, it's now possible to group objects together and apply changes to all of them at once. Two new floating tools are included : mixer and virtual keyboard. The played measure list can now be forced.

## News and Improvements

1. New floating window: Mixer
2. New floating window: Virtual Keyboard
3. Quick opening of the current document in the score editor of your choice.
4. Page change on Pg Up & Pg Down keyboard keys
5. Specific processing of thin beams ("Correction" menu)
6. Specific processing of note stems drawn using curves ("Correction" menu)
7. Better management of slurs across end of line
8. Lyrics language displayed through a small flag
9. Improvement of language automatic recognition
10. Improvement in text spacing recognition
11. Optional display of file complete path in the window title
12. New setting for playing the score automatically after processing
13. Independant key signature change on staves
14. Corrections are applied to all selected objects of the same type
15. Now possible to select objects through discontinuous selection, exclusion of a selection area, selection of one or several staves
16. Edit menu: delete changes on selected objects
17. Edit menu: select all, deselect all
18. Improvement of Da Capo management and better export
19. Management of 7-shapes Fasola notation
20. Improvement in shape note recognition
21. Improvement of title, composer and remarks recognition
22. Improvement in speed for module: staff following from one system to the next
23. Improvement in speed for module: music symbols optical recognition
24. Improvement in ottava symbols processing
25. Management of fontless documents like the PDF files generated by iWriteMusic
26. Better processing of information written outside the staff area
27. Virtual Singer voices (SATB) are better determined and set
28. Better processing of staff group name
29. A new options enables to display measure numbers and to spot measures that are never played (it's generally due to a mistake in break symbols)
30. Now possible to force the list of measures to play
31. When compressed MusicXML format (.mxl) is used, pictures of the document are now managed in a standard way, and therefore imported by programs that can process such embedded pictures (PDFtoMusic Pro only)
32. Miscellaneous PDF-specific graphic settings are now calculated: stem line width, staff line width, grace note size, etc. These settings are exported in MusicXML (PDFtoMusic Pro only)
33. Shape-note notation management module has been completely rewritten
34. Better management of incomplete measures (anacrusis, upbeats) before or after repeat start and end barlines.
35. Management of staves with different time signatures
36. Management of implied tuplets through rhythmic pattern recognition
37. Improvement of chord diagrams recognition
38. Improvement of lyrics and note association
39. New algorithm for grace note tracking and processing
40. Better management of double-sharp symbols
41. Recognition of a new ornament : staccatissimo.
42. Improvement of C (Tenor) clef spotting
43. Improvement of distinction between key signature and note accidentals.
44. Management of dotted notes with double stem

45. Better processing of stemless notes
46. Better spotting of dotted barlines
47. Management of tempo mark made of several words
48. Better management of arpeggio symbols
49. Better recognition of lyrics language
50. In global setup, default corrections that will be applied when a PDF file is loaded can be selected
51. Better management of numbered parts (endings) at the beginning of a line
52. On documents with several lyric lines, when break symbols are missing or wrong, break symbols can be automatically created to match the number of repeats.
53. New option in the export to create a separate file by part (PDFtoMusic Pro only)

#### Fixes and Changes

1. Relation between file types and opening application
2. Management of TrueType CID type 2 Fonts
3. Fixed crash on corrupted bitmap pictures
4. Fixed crash when a long line of text is considered as the lyrics syllable related to a note
5. Fixed icon positions when settings are reset to default values
6. Chord line management when conflicting with bar numbers
7. Fixed problem when saving instruments
8. Online search for free PDF score files using Kooplet has been improved, and the quantity of indexed files drastically increased.
9. Some combinations of break symbols and numbered parts (endings) could result in an infinite play.
10. Fixed a problem in shared lyrics recognition.

## Version 1.3.1 / May 2012

#### Improvements

1. Better beam handling
2. PDF files are now managed up to version 1.7
3. Better ledger lines management
4. Management of copy/paste protected PDF files
5. New version auto detect
6. Better broken slurs management
7. Better 8va and 8vb management

#### Fixes

1. Recent files menu
2. User's toolbar
3. Mensurstrich notation
4. Dynamics vertical position on one line staves

#### Version 1.3.1d (May 15, 2012 )

#### Improvements

1. Title, Composer, Remarks are extracted from the PDF and exported

#### Fixes

1. Better management of repeat start/end recognized as piece start/end

#### Version 1.3.1c (April 19, 2012 )

#### Fixes

1. Possible crash when playing a score that contains lyrics written in an unknown language
2. Windows: Fixed problem in the memory management library of the PDFtoMusic non-pro version, that could prevent processing of long scores

## Version 1.3.0 / March 2011

#### New

1. The Kooplet music search engine is included, to search the Internet for PDF scores
2. Possible to deactivate the chord name search ("Correction" menu)

## Improvements

1. Position of the play bar in multi-rest bars

## Fixes

1. Rest display
2. Marcato Staccato ornament display
3. Triplet rests in MusicXML export
4. Rests that fill a bar in MusicXML export
5. Rests vertical position

## Version 1.3.0c (March 17, 2011 )

1. Repeat barlines between clef and time signature weren't processed.
2. Fixed toolbar update problem when setting up the icons to display
3. Fixed crash on some files, Windows version

## Version 1.3.0d (March 24, 2011 )

1. Better management of slurs/ties drawn astride a line break
2. Some chords were incorrectly played arpeggiated

## Version 1.2.1 / April-May 2010

### New

1. Management of forced bar numbers
2. Management of incomplete time signatures
3. PDFtoMusic Pro: Command-line access (without GUI)
4. PDFtoMusic Pro: Batch processing: Messages can be saved in a log file
5. PDFtoMusic Pro: Expert mode: Maximum grace note size setting

### Improvements

1. General improvement of musical or alphabetical characters
2. Better management of double barlines
3. Improvement of numbered endings management

### Fixes

1. Page number in the drawer
2. Dots localisation problem
3. On some files, accidentals and grace notes recognition
4. MusicXML export: "<" character in lyrics
5. Space character management

## Version 1.2.1c and 1.2.1d ( May 4th - 6th 2010 )

1. Improvement of music export (any format)
2. Improvement in the way melismas are performed by Virtual Singer
3. Improvement of the arpeggio symbol management
4. PDFtoMusic Pro: MusicXML export: stem sizes of secondary staves of a group (e.g. piano bass staff) weren't properly saved
5. Windows: Packed MusicXML (.mxl) didn't work
6. Windows Vista/7: once the program was installed, the system displayed an alert box saying that the install might not be completed properly
7. Windows Vista/7: The appearance of dialog boxes could not be as expected

## Version 1.2 / April 2009

### New

1. The toolbar can now be customized
2. A folder of sample PDF files is now provided
3. It is now possible to exclude break symbols (segno, coda...) from the processing

## Improvements

1. Better export of grace notes (appoggiaturas) in MusicXML.
2. Better recognition and export of tremolos.
3. Better management of repeat start and end symbols
4. Better management of drum staves, especially on documents that only include such staves.
5. .myr export now manages metronome
6. Verse number in lyrics are now better managed.
7. Better recognition for half notes
8. Crossed grace notes are now located and exported
9. Better management of whole bar rests
10. All actions available from menus can be activated through an icon, and vice versa

## Corrections

1. Fixed performance of some kind of drum staves
2. Fixed a small problem of file compatibility between PDFtoMusic and Melody Player
3. Fixed problem in beam recognition
4. Crash on embedded Adobe Type 1 fonts with composite diacritics.

## Version 1.1 / September 8, 2008

### New

1. Packed MusicXML format (.mxl) is now managed
2. Correction Menu : item to allow bracket to create groups
3. Correction Menu : item to ignore the clefs vertical offset
4. Management of implied tuplets
5. Now possible to export in MusicXML 2.0 format (global setup)

### Improvements

1. Better management of drum staves
2. Opening a PDF file from the desktop doesn't load the last documents
3. Shift + mousewheel changes display scale

### Fixes

1. Confusion between tuplets and part start
2. Chord diagrams management
3. Confusion on drum staves
4. Memory crash when deleting a change made to the document

## Version 1.0.4 / April 24th, 2007

### New

1. A correction can now be applied to a group of symbols.  
Right-click to define a selection area. Symbols in this area appear as selected. Right-click on any symbol in this selection area and select a correction to apply: it will be applied to all the symbols of the same kind in the selection area.

### Improvements

1. Better memory management for page graphic cache. Enables to manage bigger PDF files.

### Fixes

1. Seeking of the staff related to chord diagrams

## Version 1.0.3 / April 3rd, 2007

### Improvements

1. Optimization of processing time
2. Better management for chord name written on shifted lines.
3. Better management of grace notes
4. Accented characters made of two parts
5. Recognition of guitar chord diagrams drawn with an empty grid character and a set of dots
6. Recognition of some key changes

7. Parenthesis around an accidental or a notehead, when drawn with a text font
8. Font OCR database updated.
9. Macintosh: Multi-screen management

#### Fixes

1. Recognition and export of the Aiken FaSoLa notation
2. Management of Adobe Type 1 fonts
3. Applying a change on a document with a guitar chord diagram
4. Recognition of horizontal beams, when overlapping a staff line
5. Problem when a chord name was "Re"
6. PDFtoMusic Pro: empty pictures are no more exported in MusicXML
7. MacTel: keyboard management

## Version 1.0.2 / February 21st, 2007

#### Improvements

1. Possible to change note duration AND add or subtract a dot.
2. Crossed grace notes management
3. New keyboard shortcuts for display scale, 200% scale
4. Dynamics merging ensure that the result is logical, for instance to avoid merging "mf" and "sfz"
5. New full screen and drawer management
6. Font OCR database updated.
7. PDFtoMusic Pro: New setting for the expert mode: maximum beam thickness.

#### Fixes

1. Tenuti recognition
2. Ties within slurs
3. Breve rest recognition
4. Tempi display, edit and export
5. Beamed notes with double stems
6. Stem direction in chords
7. Framed text could interfere with part numbers

## Version 1.0.1 / February 8th, 2007

#### Improvements

1. When defining a new kind of tuplet, it's added to the tuplet value list.
2. .myr files are now packed.
3. "How to create PDF files with Mac OS 9" chapter added to the manual.
4. "How to create PDF files with Linux" chapter added to the manual.
5. Improvement in bar number seeking.
6. Time signature detection has been improved.
7. Improvement of paragraph recognition for free text objects.
8. Font OCR database updated.
9. .myr export: default instruments for the metronome are automatically created.
10. PDFtoMusic Pro: After changing expert mode settings, possible to compute all the open documents again.
11. PDFtoMusic Pro: In batch export, it's now possible to define the amendments to computation settings that will be applied to each and every processed file.
12. PDFtoMusic Pro: When editing expert settings, when at least one item has been changed from the reference value, the matching topic name is highlighted in the list, and the offset from the current value to the reference is also displayed.

#### Fixes

1. Miscellaneous problems in general settings.
2. Problem that could occur when trying to edit or play a non-vector document (scanned page or not a music score)
3. Infinite loop when selecting a user tuplet
4. Exported page selection in other formats than MusicXML
5. Double barlines at end of bar could be not well recognized.
6. File kind detection according to its extension when exporting
7. Chord names and text related to the staff could be not exported in .myr format
8. Output device related to the instrument when exporting in .myr format
9. Alert about bar numbering when applying correction on systems
10. Windows: files with accented characters in their name are now properly managed.
11. Windows : default value of the selector when selecting a folder.
12. PDFtoMusic Pro: dynamic size when exporting in MusicXML format
13. PDFtoMusic Pro: "slash notation" export in MusicXML format

## **Version 1.0.0 / February 1st, 2007**

Very first public version.

# Limits

## Non processed elements

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- Different time signature at the same time position

## Unregistered version

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The unregistered version of PDFtoMusic will only play the first page of a document, and can export only one page at a time.

Explanatory text appears on each exported page processed with the demo version.

# Frequently Asked Questions

Here are some frequently asked questions, along with their answers:

## **PDFtoMusic displays a score but says that the document doesn't include any exploitable music data. Why?**

Some PDF files embed only a single picture for the whole score, instead of a collection of simple graphic objects. This kind of PDF file has probably been generated from a scanned paper sheet. PDFtoMusic can't extract and process elementary graphical items in such cases, and reports that such a document cannot be processed.

## **How to know whether a PDF file can be processed by PDFtoMusic?**

The simplest way is to ask PDFtoMusic to load it. It will then tell you.

Otherwise, open it with Acrobat Reader (or equivalent) and do "Select All". If the PDF file contains exploitable data, the selection range will be fragmented. If the PDF file contains only a scanned picture that can't be processed either the selection range will be empty, or the whole score will be selected as a single block.

## **Why are certain characters specific to a language not recognized?**

You must verify that the unicode information is correct.

Open the PDF with Adobe Acrobat Reader or equivalent.

Select the relevant text, copy.

Paste in a text editor.

If the characters are incorrects, the unicode data in this PDF file is not valid.

## **A password is asked when I load or export the PDF, why ?**

The author of the PDF file had protected his work, contact him to get the password.

# File/Folder selector

Through the selector you can browse your storage space and select files to be loaded or saved. It helps you organising your documents better, thus keeping them safer.

**Files** are documents you can open, modify and save.

At the end of their name, a few characters provide their type. They are called the **extension**

Files are stored in **folders**.

A folder can contain other folders, and so on. This builds a **tree**.

At any time you are viewing a precise position in the tree: it's the **current path**.

The selector contains three major areas as well as some smaller, additional ones  
From left to right we have:

- the shortcut list
- the list of files and folder stores in the current path
- A preview of the selected file in the file list

Can also be found:

- current path display
- up one level
- history browsing
- search field
- name input
- filters on file types

## Area: shortcut list

---

From the shortcut list you quickly access special locations in your storage space

It is displayed as a name or icon list.

Display settings can be changed from the upper button.

You can move in the list through the scroll bar and change its size with the handle.

It is divided in four sections, each section can be opened or closed.

- **Bookmarks:** you can add items in this section by drag & drop of folders or files, from the shortcut list or the file list  
To delete an item, drag it outside the box.  
To erase the whole section, right-click its title.
- **Recent:** it's the list of the last used locations.  
To erase this section, right-click its title.
- **Locations:** it's a list of predefined locations in your storage space: Desktop, Documents, Settings, etc. Display settings can be changed from the upper button.
- **Disks:** it's the list of storage units, removable or not, currently available. If the unit is removable, an icon enables to eject/unmount it.

## Area: files and folders list

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This is the most important section: it shows the file and folder that are present in the current path

They can be displayed as icons or list. This can be selected from the upper button. Items can be sorted by date, size, name, etc. in ascending or descending order.

Clicking an item selects it and displays its preview in a dedicated area.

Clicking a column title changes the sorting, a second click changes the sorting order.

A long click on a column title enables to move the column.

By right-clicking an item, you can :

- change its name: you then enter the new name of the file or folder
- duplicate it: a copy will be made in the same folder
- move to trash bin: the file is not definitively erased, it will be when you empty the trash bin
- show in system: the item is shown in the standard window of your system file browser

- add to shortcuts: the item is added to the list on the left. If it is a folder, it will be opened, if it is a file, the current path will be changed and the file shown in the selector list
- detailed view: a full-screen preview is shown (see the subchapter about this topic)

Here is a list of usable keyboard keys:

Note : Cmd means the "Command" key on macOS and the Ctrl key on Windows and Linux

Esc	Cancel the selection and close the selector
Enter/Return in search mode	Start search
Enter/Return	Validate the selection and close the selector
Cmd +	Increase element size
Cmd -	Decrease element size
Cmd 0	Back to factory settings
Cmd up arrow	Up one level in tree
Cmd A	Select all
Cmd T	Sort by title
Cmd D	Sort by date
Cmd P	Sort by path (search results)
Cmd H	Sort by information
Cmd K	Sort by type
Cmd S	Sort by size
Cmd I	Invert sorting order
Cmd M	Toggle display mode
Cmd N	New folder
Cmd P	Detailed view
Cmd left arrow	Move to start
Cmd right arrow	Move to end
Cmd backspace	Move item to trash bin
Up or left arrow	Move to previous item
down or right arrow	Move to next item
Enter	Enter the folder
S	Run slideshow
0,1,2,3 etc	Change screen
Spacebar (on a PDF)	Next page (macOS only)
Spacebar (on a .myr)	Start/stop music

Note : On macOS you can change the current path by dragging & dropping a folder to the selector

## Area: preview

It shows a preview of the select file or folder in the list in the center.

Area size can be changed with a handle.

Some kind of files are displayed in a special way:

In Harmony/Melody Assistant, music files are viewed and played

On macOS PDF files can be viewed, even if they contain multiple pages

## Area: current path display

Le chemin courant s'affiche de manière détaillée. Un click sur un niveau de l'arborescence se positionne à ce niveau. Les différents sous-dossiers sont également accessibles via le menu contextuel.

Un click long puis déplacement sur les favoris ajoute ce chemin aux favoris.

## Area: search

Made of a small magnifying glass and a text field. Enter the text to search for in file names then click the magnifier to start the search.

Note: on macOS you can chose whether you want to serach using SpotLight or not. With SpotLight, search is made throughout all your disks, the standard search only processes the current path.

## Area: up one level

Goes up one level in the tree

## Area: history

When you change the current path, it is memorised. From the history, you can go back.

N.B.: This is different from going up one level

## Area: name input

When saving a file you will enter its name here.

## Area: filters

Only files whose extension matches the filter can be selected

## Mode: detailed view

It shows a full-screen preview of the file or folder currently selected in the list in the middle

Click the preview to move it, right-click to zoom in on the area.

Here is the list of usable keyboard shortcuts:

Esc	Exit this mode
Cmd +	Increase scale
Cmd -	Decrease scale
Cmd 0	Back to scale one and recenter
Cmd up arrow	Up one level in tree
Cmd T	Sort by title
Cmd D	Sort by date
Cmd P	Sort by path (search results)
Cmd H	Sort by information
Cmd K	Sort by type
Cmd S	Sort by size
Cmd I	Invert sorting order
Cmd left arrow	Move to start
Cmd right arrow	Move to end
Cmd backspace	Move item to trash bin
Up or left arrow	Move to previous item
down or right arrow	Move to next item
Enter	Enter the folder
S	Run slideshow

0,1,2,3 etc	Change screen
Spacebar (on a PDF)	Next page (macOS only)
Spacebar (on a .myr)	Start/stop music

## MODE: SELECT FILE FOR LOADING

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You are going to select the file(s) to be loaded. Only the files that match the filter can be selected. You can change the filter by clicking the filter contextual menu area.

## MODE: SELECT FILE FOR SAVING

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You are going to select a current path and a file name

## MODE: SELECT FOLDER

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Only folders are displayed in this mode. You can define a complete path that will be used by the program

# Appendices

File formats  
Your user folder  
Keyboard shortcuts  
Useful links

## File formats

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PDFtoMusic manages several file formats. Here is an overview of each of them.

### Adobe PDF format (.pdf)

This format has been designed by Adobe, PDF standing for "Portable Document Format". It eases the exchange and distribution of any document. It can store any kind of graphical objects, from text to pictures. It's the groundwork of PDFtoMusic.

PDFtoMusic reads and processes this kind of document, as long as its data contain vector graphics.

### MusicXML format (.xml)

Designed by Recordare, this format is about to become **the** exchange file format for music scores. Based on XML, a text descriptive format, it is now managed by an increasing number of music programs.

In order to open PDFtoMusic to as many people as possible, it has been naturally chosen as the groundwork format for the Pro version of PDFtoMusic.

PDFtoMusic Pro writes this kind of document.

This format is not managed by PDFtoMusic, in its "non Pro" version.

You can use Melody Player to view and listen to list of files of this kind.

### MusicXML compressed format (.mxl)

It is a packed version of the MusicXML format. In fact, this kind of file can be obtained by compressing a MusicXML file as a Zip, then renaming the result file from .zip to .mxl

In the same way, the original MusicXML file can be extracted from the .mxl by renaming it to .zip then unpacking it with any utility that supports this format (for instance, the original unzip program)

Because MusicXML is a descriptive text of the score, these files can be quite large. In order to save bandwidth, either when such files are sent by e-mail or put on a Website, using a .mxl can be useful.

PDFtoMusic Pro writes this kind of document.

This format is not managed by PDFtoMusic, in its "non Pro" version.

You can use Melody Player to view and listen to list of files of this kind.

### Myr format (.myr)

It's a Myriad proprietary format, managed by Melody Assistant and Harmony Assistant. Music-related information is stored as musical objects.

PDFtoMusic writes this kind of document.

You can use Melody Player to view and listen to list of files of this kind.

### MyrWeb format (.myrweb.html)

With this format, anybody can view and hear your score, without having to install anything on their computer or tablet beforehand.

A MyrWeb file can be sent by e-mail, or included directly in a Website without needing any special technical skill.

The dead simple score sharing format *par excellence*.

PDFtoMusic Pro writes this kind of document.

This format is not managed by PDFtoMusic, in its "non Pro" version.

### **Mid format (.mid)**

This format, based on the MIDI exchange standard between electronic music devices (keyboards, synthesizers, expanders, etc) contains a description of the notes that constitute the music pieces, as well as basic information about the score. However, details about the piece graphical appearance, its page layout, note appearance or ornaments are not stored. Albeit very incomplete, and until the use of MusicXML broadens, it remains the standard exchange format for almost all music programs.

PDFtoMusic writes this kind of document.

You can use Melody Player to view and listen to list of files of this kind.

### **Kar format (.kar)**

It's actually a mid format, to which additional commands have been added in order to store lyrics related to a staff. Originally, this format was designed to store Karaoke scores (hence its name).

PDFtoMusic writes this kind of document.

You can use Melody Player to view and listen to list of files of this kind.

### **Wav format (.wav)**

It's a binary audio format. It contains stereo digital audio data. This format is lossless, which means that it can be loaded, changed and saved as many times as needed, without any loss in quality (contrary to MP3 or OGG, for instance).

Initially designed for PC, it is now managed by almost any sound editor or player, or CD burning software. When PDFtoMusic generates this kind of file, it uses the digital sound database that has been installed on your computer. A better quality will be obtained when using the GOLD base.

PDFtoMusic writes this kind of document.

### **AIFF format (.aiff)**

It's a binary audio format. It contains stereo digital audio data. This format is lossless, which means that it can be loaded, changed and saved as many times as needed, without any loss in quality (contrary to MP3 or OGG, for instance).

Initially designed for Macintosh, it is now managed by almost any sound editor or player, or CD burning software. When PDFtoMusic generates this kind of file, it uses the digital sound database that has been installed on your computer. A better quality will be obtained when using the GOLD base.

PDFtoMusic writes this kind of document.

### **Mpeg format (.mp3)**

It's a binary audio format that contains stereo digital audio data. This format is compressed lossless, which means that it is shorter than an uncompressed format (wav,aiff) but can suffer from a slight loss of quality.

When PDFtoMusic generates this kind of file, it uses the digital sound database that has been installed on your computer. A better quality will be obtained when using the GOLD base.

PDFtoMusic writes this kind of document.

### **Vorbis Ogg format (.ogg)**

It's a binary audio format that contains stereo digital audio data. This format is compressed lossless, which means that it is shorter than an uncompressed format (wav,aiff) but can suffer from a slight loss of quality.

When PDFtoMusic generates this kind of file, it uses the digital sound database that has been installed on your computer. A better quality will be obtained when using the GOLD base.

PDFtoMusic writes this kind of document.

### **BMP format (.bmp)**

It's a binary picture format. Data is not stored as graphical object, but as pixels.  
It is managed by almost all the graphic editors.

PDFtoMusic writes this kind of document.

### **Svg format (.svg)**

It's a vector image format. It contains graphical objects in scalable form, enabling to zoom infinitely without loss of precision. These files can be included very easily in Web pages, or be viewed in a Web browser.

PDFtoMusic Pro writes this kind of document.

This format is not managed by PDFtoMusic, in its "non Pro" version.

### **Multi-page svg format (.svg)**

It's an SVG export of all the score pages at once, side by side. Mainly designed to be displayed in a Web page, this format will let Webmasters easily display a multi-page score in a web page area (div)

PDFtoMusic Pro writes this kind of document.

This format is not managed by PDFtoMusic, in its "non Pro" version.

## **Structure of your user folder**

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The user folder contains files that have been created by PDFtoMusic. It is highly recommended to perform backup copies of this folder at regular intervals.

This folder is located in your user document folder, in the "Myriad Documents/PDFtoMusic" subfolder.

The subfolders are:

"Correction" : If you asked for the corrections not to be stored in the PDF document itself, the changes you applied to the documents will be stored here. There will be one correction file for each edited PDF.

"Export": When the result from an imported PDF file is automatically exported, it is stored by default in this folder. You can change this location from the general preferences, "Export" section.

"OCRCorrection": When you amend the result of the character optical recognition, databases are created in this subfolder

## **Keyboard shortcuts**

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Beyond keyboard shortcuts for menu options, some keyboard keys trigger actions:

Spacebar: starts and stops music playback

Down arrow: switches to next page

Up arrow: switches to previous page

Esc: cancels processing of the current file

## **Useful links**

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Here is a list of Web sites where you can download music PDF files:

<http://dirk.meineke.free.fr>

<http://licking-music-archive.org>

<http://www.cpdل.org>

<http://www.solovoces.com>

<http://www.sheetmusicnotes.com>

<http://www.score-on-line.com>

<http://www.oldmusicproject.com>

<http://www.free-scores.org>

<http://www.eythorsson.com>

<http://www.guitarpixel.com>

<http://www.cs.nott.ac.uk/~ef/music/>

[http:// www.mutopiaproject.org](http://www.mutopiaproject.org)  
[http:// www.jazzbank.com](http://www.jazzbank.com)  
[http:// www.evatoller.pp.se](http://www.evatoller.pp.se)  
[http:// www.kantoreiarchiv.de](http://www.kantoreiarchiv.de)

# Problem report

If you encounter specific issues that you can't solve, or if you need something precise that can't be fulfilled by PDFtoMusic, you can contact us, we'll do our best to help you.

## Before all:

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**Ensure** that you actually own the most recent version of the program (see our website).  
If not, download the new version then check whether your problem still occurs.

## How to contact us?

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Either :

- **Send** an e-mail to this address "pdftomusic@myriad-online.com", describing your hardware and software configuration, as well as the problem you encounter, as precisely as possible.  
  
You can also send an e-mail directly from the application, through the "Internet" sub-menu. Please don't hesitate to add a file, as short as possible, that enables us to reproduce the problem
- **Send** a regular post mail to Myriad, 26 rue Michel de Montaigne, F-31200 Toulouse, France. However, if you have access to the Internet, e-mail is recommended.

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The user is fully responsible for the non-distribution of his personal registration number and his registered copy of the software.

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## Order

The application general menu\*, "order" sub-menu, will connect you to our store, from where you can order a PDFtoMusic licence.

Please consider that the playback quality of PDFtoMusic, as well as the audio file export (WAV, AIFF, MP3) can be drastically improved by using GOLD 2 sound base.

*\* Called "?" on Windows, "PDFtoMusic" on Macintosh*

We wish to thank all people who helped us, since May 2006, by their advices and extensive tests.

**MM Aarden, Aguila, Bautista, Belkin, Butin, Faivre, Gershwinou, Good, Groromrom, Herman, Hinchey, Houllemare, De Kloe, Lagarde, LeBow, Le Calonnec, Legall, Lemaire, Machefert, Nappert, Nicou, Oliveira, Puff, Rouquie.**

A special thank to **Franck Aguila** for having designed and drawn the application graphics.

## Virtual Singer

New languages sung by Virtual Singer are the result of the collaboration with several voluntary users.

Most of these languages are based on the work of **Sylvain Machefert** for the Harmony Assistant's "Other languages" script.

Basque : We are looking for people who could help us

Bulgarian : Alexander Sadovski

Catalan : Gil Rossell Duchamps

Slavonic : Sylvain Machefert (We are looking for people who could help us)

Czech : Václav Müller

Dutch : Roeland Bekker

Esperanto : Sylvain Machefert

Greek : Vassili Louziotis , Sylvain Machefert

Hebrew : Michel Levy, Mitchell Martin, Sylvain Machefert

Hungarian : Sylvain Machefert, Macher Tivadar, Mikó Zoltán, Paál Balázs, Peter Velosy, Szabó Norbert

Macedonian : Sylvain Machefert (We are looking for people who could help us)

Portuguese : J F Duran, Antonio Ferreira, Francisco Guerra, Sylvain Machefert, Carlos Pires, A Paulo O Soares, Hallstein Sørås

Romani : Sylvain Machefert (We are looking for people who could help us)

Romanian : Sylvain Machefert, Terolaviu Popescu

Serbian/Croatian/Bosnian: Sylvain Machefert (We are looking for people who could help us)

Turkish : Omer Aslan, Éngin, Aykut Kılıç, Sylvain Machefert, Aydin Yulug,

Vietnamese : Van Binh Luong