


# user manual

Last updated on 06/23/2022

## The Melodyne Help Center and this PDF document

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### Version history

New in Version 5.2 • New in Version 5.1.1 • New in Version 5.1 • New in Version 5.0.2 • New in Version 5.0.1

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Melodyne 4 • Melodyne editor, assistant and essential 2 (singletrack) • Melodyne studio 3 • Ending support for older versions of Melodyne

# Melodyne 5 studio – Quick Start

Melodyne 5 studio gives you direct access to individual notes within your recordings, allowing you to edit their pitch, position, duration and other musical parameters in an intuitive way. The quality of Melodyne's correction of out-of-tune notes is legendary, but you can also introduce melodic variations, create vocal arrangements, quantize audio, improve timing and do many other things with it as well.

Here is a quick and concise guide to getting Melodyne 5 studio up and running.

### Integration

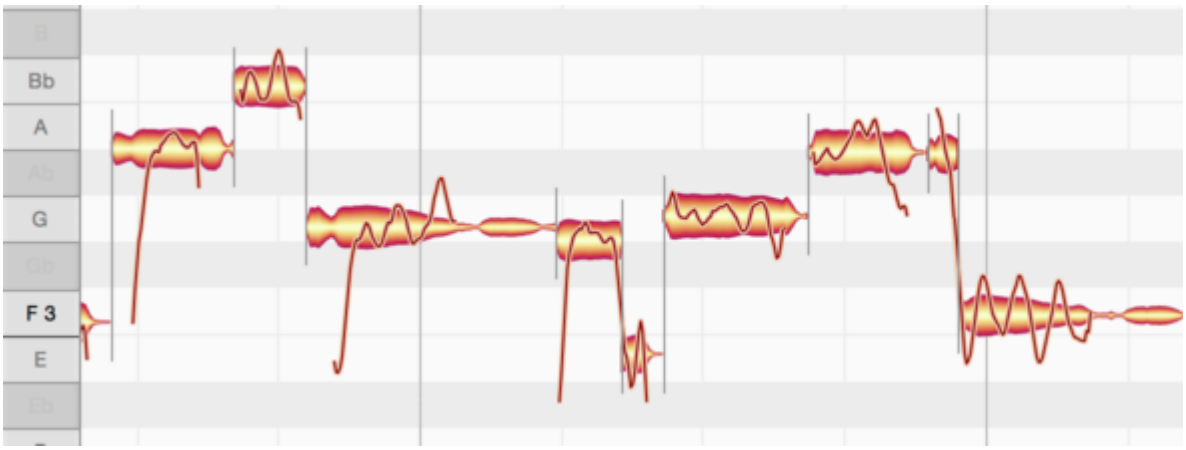
Choose File > Import Audio...; then use the file selector to navigate to the desired audio file, and open it. You can load audio in various uncompressed formats such as WAV and AIFF but also MP3 – or CAF – files as well as Apple Loops.

Melodyne 5 studio is suitable for the editing of lead vocals and monophonic instruments but also for polyphonic instruments such as the piano or the guitar. You can also edit drum and percussion tracks and even entire mixes with it – using functions such as transpose, quantize and time-stretch.

### Checking the algorithm

Melodyne's characteristic blobs represent the notes found in your recording, which you can select, drag and edit using the tools provided. Before you begin, however, there is one thing you must check:

Based on its analysis of the audio material, Melodyne studio will have chosen to use either its Melodic, its Percussive or its Polyphonic algorithm. When the Percussive algorithm is used, all the notes are displayed in a single horizontal line; when the Melodic or Polyphonic algorithms are used, on the other hand, the vertical position of the notes represents their pitch.




If your audio material is not displayed the way you want, you can select a different algorithm from the Algorithm menu. Please note, however, that if you do this, any editing of the track you may already have done using Melodyne will be lost! That is why, you should always make sure that the correct algorithm has been selected before you begin editing.

The detection process in Melodyne is mainly automatic and it delivers consistent results. Since, however, in the case of polyphonic material the issues are more complex and more interpretations are possible than with the other algorithms, it is sometimes necessary to revise the detection – where, say, a prominent overtone is identified as a separate note rather than simply one of the partials of an existing one. All such corrections should be made in Melodyne's *Note Assignment Mode* before you begin your actual editing.

### Editing

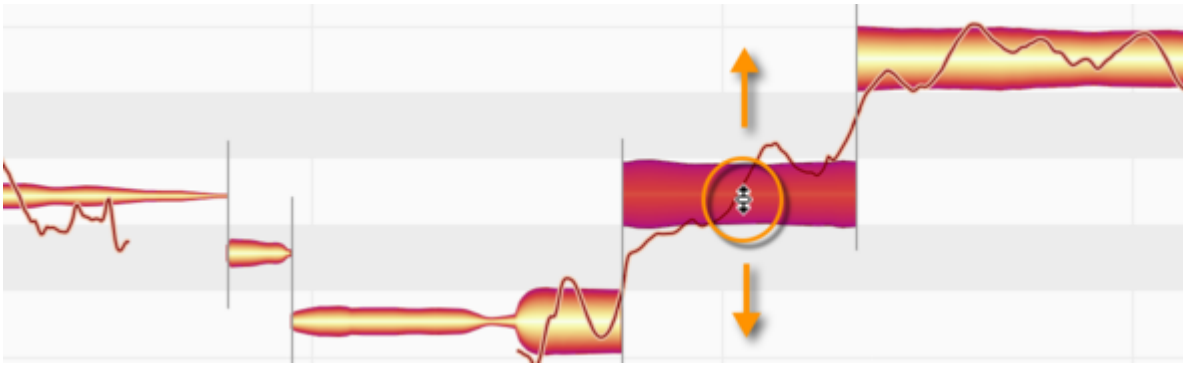
In Melodyne studio, you will often be working with Melodyne's Main Tool, which can be used not only to change the pitch of notes but also their position in time and their duration as well as to split them. With the other tools, you can alter, among other things, the vibrato, amplitude and formant spectrum of notes as well as their internal timing.



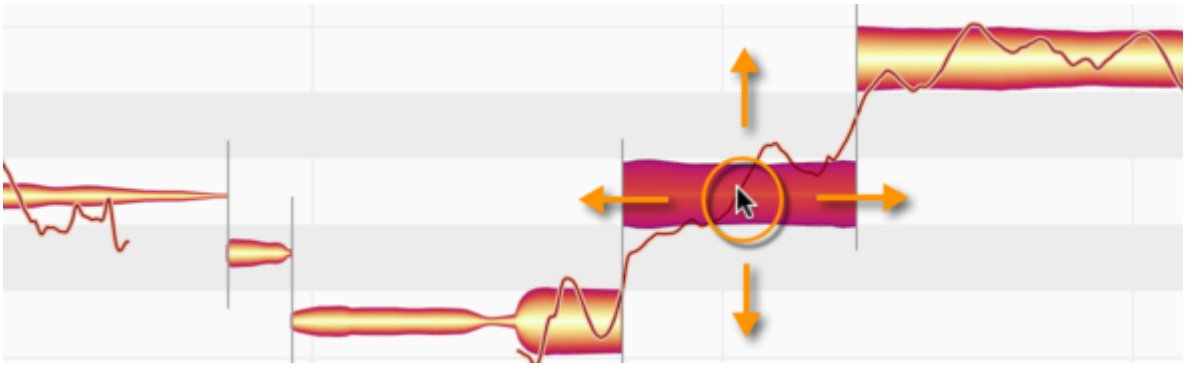
Using the tools, you can edit notes individually or entire selections of notes simultaneously. The Main Tool is used as follows:

**To change the pitch of a note:**
– Click in the middle of the corresponding blob and drag it up or down. The note will move in steps of a semitone.
– If you hold down the Alt key as you drag, the grid will be deactivated and you will be able to move

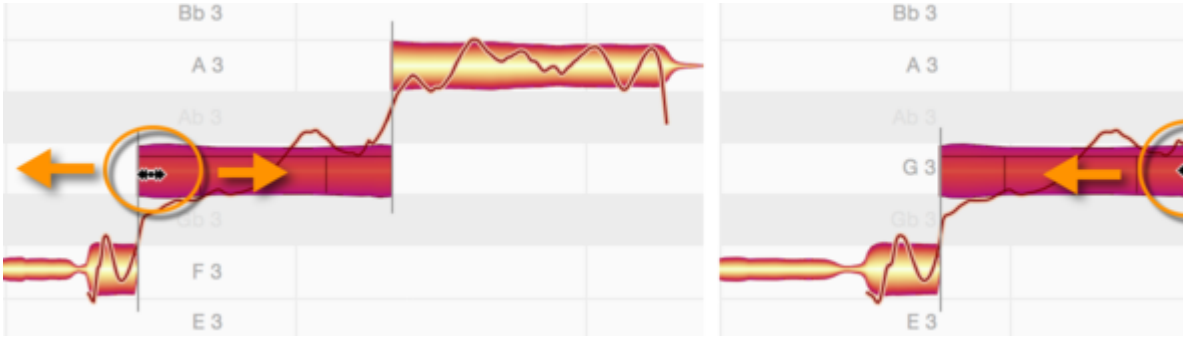
the note by smaller amounts (in steps of a cent).
– If it's the right note but simply out of tune ("off key"), double-click on it and it will snap at once to the intended pitch.



**To change the position in time of a note:**
– Click in the middle of the corresponding blob and drag it to the left or right. When released, the note will snap to the nearest grid line.
– If, however, you hold down the Alt key as you drag, the grid will be deactivated and you will be able to position the note freely.



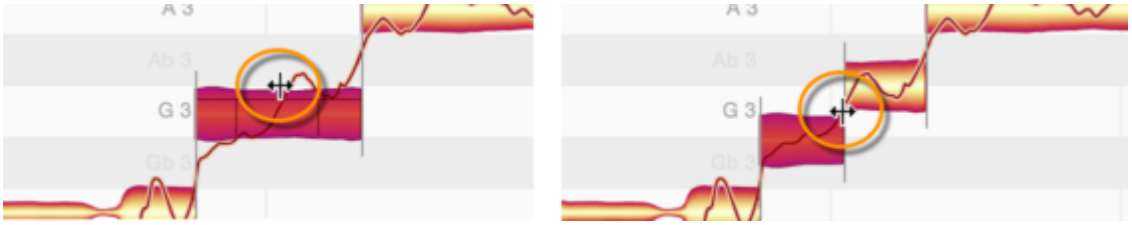
**To change the duration of a note…**
…by making it begin earlier or later: Click the left-hand side of the blob and drag it, respectively, to the left or right.
…by making it end earlier or later: Click the right-hand side of the blob and drag it, respectively, to the left or right.
– If you hold down the Alt key as you drag, this will deactivate the grid, allowing you to position the beginning or end of the note freely.




**To split a note in two:**

– Position the tool at the intended split point – not on but slightly *above* the blob; the appearance of the mouse pointer will then change, and you will be able to split the note with a double click. This can give you greater flexibility when correcting or reshaping notes.

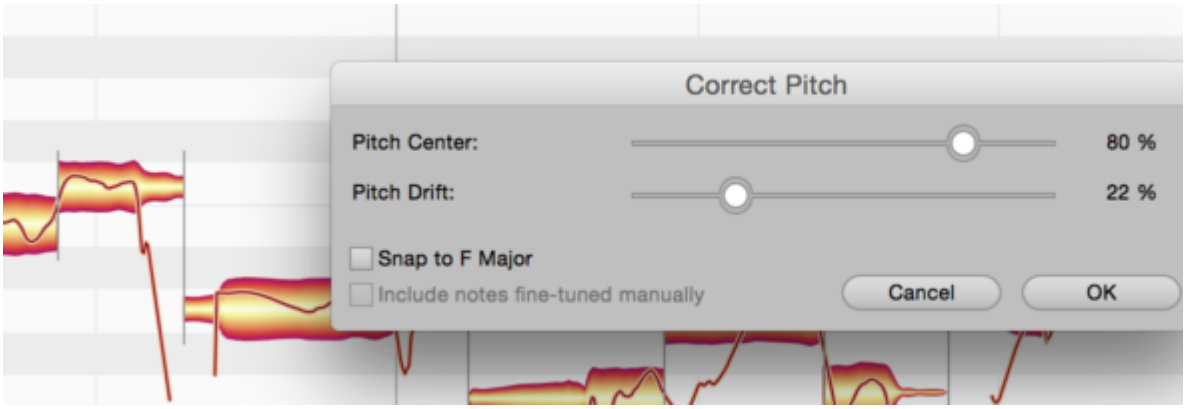
– The note separation that is created can be removed with a double click to reunite the two segments.



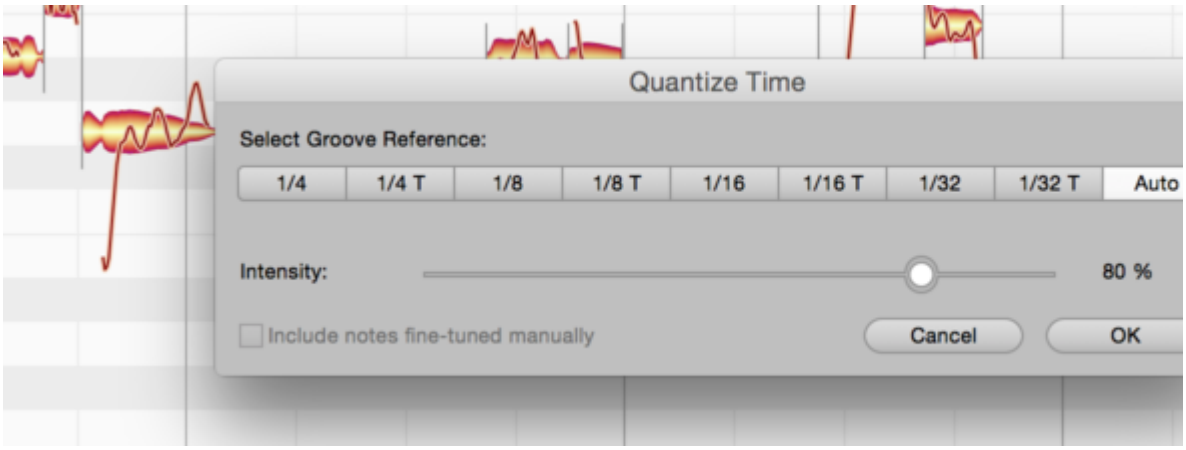

### The macros

Whilst the tools are used primarily to solve specific problems with individual notes, the macros allow you to edit multiple notes and even entire recordings in one go. The macros affect only the notes currently selected, unless none are, in which case they affect all the notes of the current audio file. There are three macros:

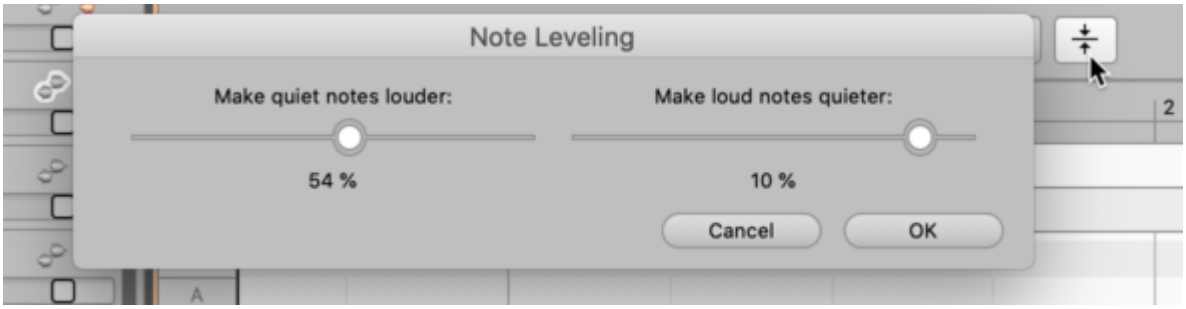
**Correct Pitch,** which moves notes to, or towards (you decide how far), the nearest semitone. How far they move also depends upon how badly out of tune they were to begin with. With the second slider, you can rein in pitch drift within notes.



**Quantize Time** moves notes to or towards (you decide how far) either the intended beat or the nearest line of the selected grid.

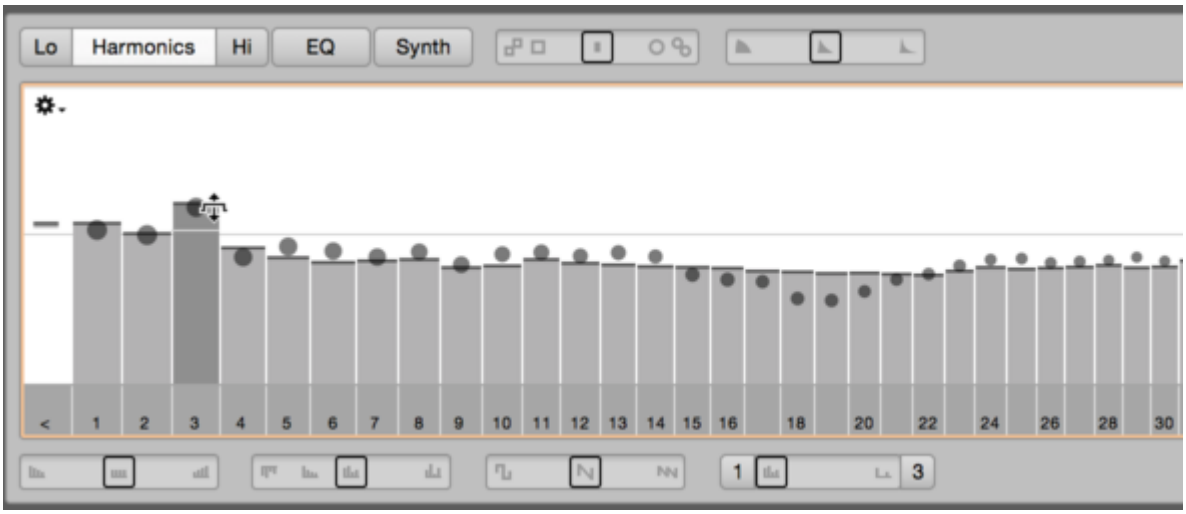



**Note Leveling** allows you to make loud notes quieter, or quiet notes louder, or both. In this way, you can smooth out disparities in volume and give your recordings greater homogeneity. It is also the perfect way to optimize input to any compressor behind Melodyne in the signal chain.



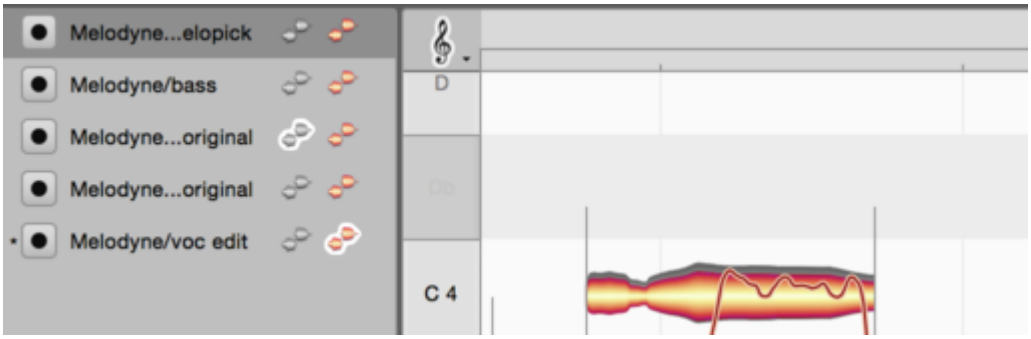

### The Sound Editor

With Melodyne studio, you can edit not only the pitch, timing, phrasing and tempo of your recordings in a unique manner but also their sound. For this, the Sound Editor, which works on the spectral level and offers you far-reaching access to the overtone structure of the notes of each track, is particularly valuable. To open this area of Melodyne's function set, choose "Show Sound Editor" from the Options menu.




### Multitrack editing

In Melodyne studio, you can work with multiple tracks – in both the stand-alone and plug-in implementations. You can move from track to track with the utmost ease, and even see and edit simultaneously notes belonging to different tracks.




In the list, you see the Melodyne instance that is currently open as well as all the other Melodyne instances that you have used on the tracks of the current DAW project. The idea behind this is to allow you to work at all times in a *single* Melodyne plug-in window, whilst being able to see and edit there the contents of *all* your Melodyne instances.

The colored blob icon in the track header is the Edit button, which causes the notes of the track in question to be displayed in the Note Editor. If you click the Edit button or double-click in the track region of another track, its notes will replace those of the first track in the Note Editor. If you hold down the [Cmd] key now and click on the Edit button of another track, the notes of the new track will be *added* to those already displayed in the Note Editor.

### What else should I read?

In this tour we have covered only the points needed to get you off to a fast and successful start with Melodyne. But there’s plenty more to discover and to learn. Take a look at the list of topics on the left: In the Help Center, you will find each of these topics explained in detail as well as a wide range of video tutorials. You can access these any time via Melodyne’s Help menu.

# Melodyne expert tips by Rich Crescenti

Rich Crescenti is a freelance engineer who works as a Melodyne specialist for our American distributors, writes pro audio articles, interviews and reviews, and conducts numerous courses and seminars, having clocked up over 10,000 hours of classroom instruction time. Furthermore, Rich is a real Melodyne power user: watch him in action in the following videos, benefit from his experience, and be inspired! Shown here: Melodyne 5 studio, smaller editions may differ.

### Vocals

### Other instruments

# Reference manual videos

Here you will find all the videos to accompany the Reference manual, sorted by topic. The videos are in English with subtitles in German, French, Spanish and Japanese. Shown here: Melodyne 5 studio, smaller editions may differ.

**Fundamentals and workflow**

**Tools and functions**

**Algorithms and note assignment**

**Tempo**

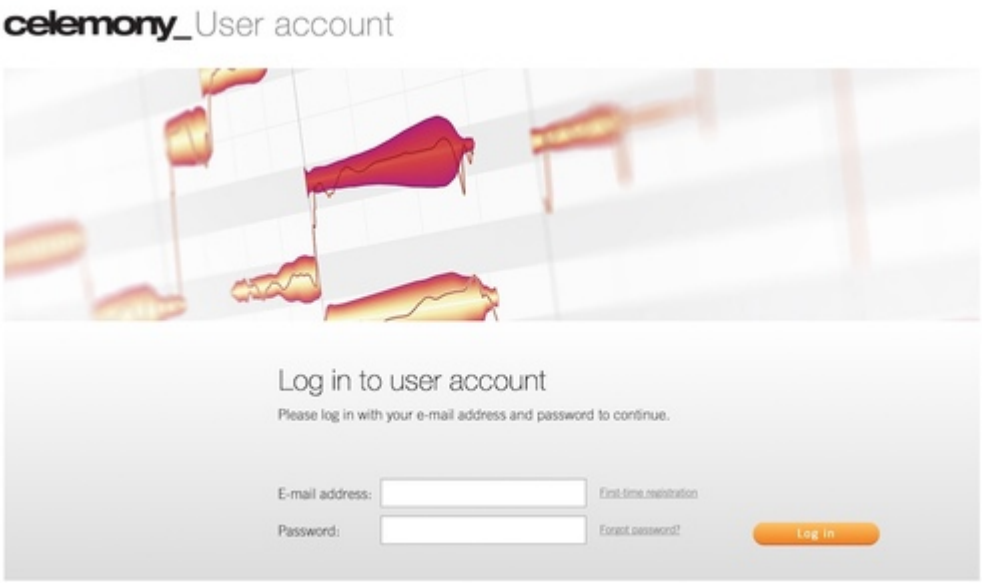
# Installation and activation

From this tour, you will learn all you need to know about installing and activating Melodyne. We begin with the basic procedure and the most important terms before outlining further options and details. From the separate tour “Updates and upgrades”, you can learn how updates and upgrades work and what you need to bear in mind when considering them.

### Procedure and terminology

**Serial number and Melodyne license**: Your serial number is a multi-character string that corresponds to your Melodyne license. If you make the purchase in our web shop, we give you your serial number; if you buy it from a dealer, you will get it from them. If you obtain Melodyne essential as part of a bundle, whoever supplied the bundle will provide the serial number as well.

**Registration and user account**: Your user account is created automatically when you first register a Melodyne license. To do this, simply enter the serial number. When you make the purchase from our web shop, that is part of the procedure. You can then register any further Melodyne licenses via your user account. From your user account, you can manage your Melodyne licenses, choose your newsletter options and download installation programs.




**Installation program**: When you download the installation program (whether for macOS or Windows) from your user account, it installs the latest versions of the stand-alone implementation of Melodyne as well as of all the various plug-ins. The installation program is generally personalized, containing not only your serial number but also information about any other products registered to your user account. This information is stored on your hard disk in a license file and saves you having to enter

your serial number before activating the computer. If you received your installation program as part of a bundle, in that case you may have to type in the serial number provided.

**Activation**: In order to run Melodyne on a particular computer, the computer must first be activated for Melodyne. In the course of this process, Melodyne checks the validity of your license data with our server, so an Internet connection is required. You will be prompted to activate Melodyne the first time you launch the program; this only takes a few clicks. Please note: Unlike the deactivation process (see below), you can only activate a computer from the computer itself, not from your user account.

**Licence, number of activations and workstations**: The standard Melodyne license allows you to use Melodyne on *one* workstation only at a time. However, the license does allow you two activations, the second being an emergency one you can use to activate a substitute computer quickly and easily if, for example, your primary computer breaks down in the middle of a production.

If you wish to use Melodyne simultaneously on two or more workstations, you can purchase further activations, converting your standard license into a team license. If you peform an update or upgrade of your team license for which a charge is made, up to four workstations are included for the same price as a single workstation update or upgrade. For five workstations or more, special purchase discounts and update/upgrade conditions apply. You can find out more about these in our web shop.

### What files are installed and where

The installation program you download from your user account installs the stand-alone implementation of Melodyne as well as all the various plug-ins. In the process, the following files are placed in the following locations:

**Windows 10**

**VST 3:** C:\Program Files\Common Files\VST3\Celemony\Melodyne.vst3

**AAX:** C:\Program Files\Common Files\Avid\Audio\Plug-ins\Melodyne.aaxplugin

**Melodyne stand-alone:** C:\Program Files\Celemony\Melodyne 5\Melodyne.exe

*Note for Windows users: For its audio processing, Melodyne needs to be able to store temporary files on your hard disk and read them. For this purpose, a directory called: C:\Users*\Documents\Celemony\Separations is created. To avoid Windows Defender (virus protection) being invoked every time data is read from this directory – which would slow Melodyne down drastically – an exclusion from Microsoft Defender anti-virus scans is defined for this folder when Melodyne is installed.*

**macOS 10.12 (and later)**

**VST 3:** Macintosh HD/Library/Audio/Plug-Ins/VST3/Melodyne.vst3

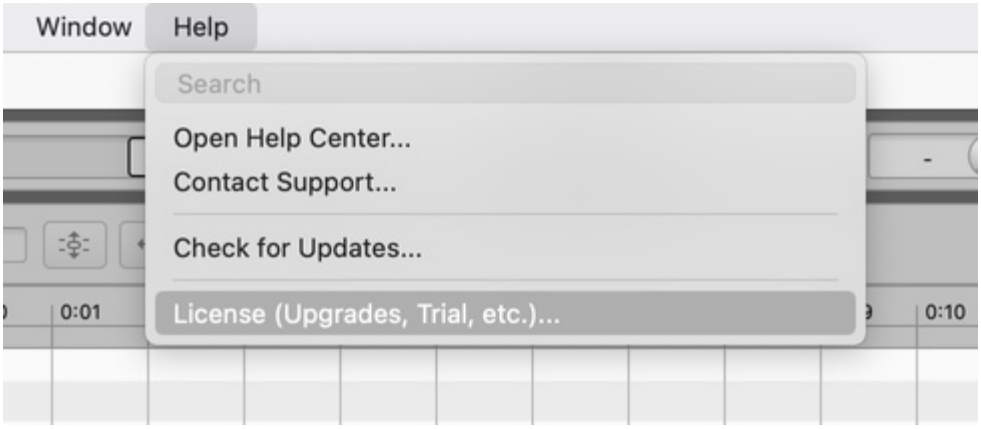
**AAX:** Macintosh HD/Library/Application Support/Avid/Audio/Plug-Ins/Melodyne.aaxplugin

**AU:** Macintosh HD/Library/Audio/Plug-Ins/Components/Melodyne.component

**Melodyne stand-alone:** Macintosh HD/Applications/Melodyne 5/Melodyne.app

### Your user account

You can access your user account via the menu of our website, the following link: www.celemony.com/login or by choosing License from Melodyne's Help menu.



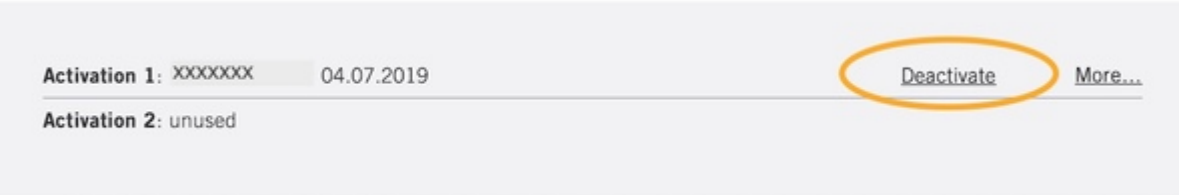

In addition to the latest installation program for your Melodyne and your newsletter preferences, you will find in your user account various options for managing your license. There is the option, for example, of deactivating an activated computer or of transferring an activation to iLok (except with Melodyne essential or in the case described above of the emergency activation).

### Licence options: Deactivate

Any computer that has been activated to run Melodyne can be deactivated. The activation will then be credited to your user account, so that it can be transferred later to a different computer.

This means that if you have no activations left in your user account but wish to use Melodyne on a new computer, you can simply deactivate another computer that is still active, and this will free up an activation to transfer to your new one. You can switch between computers like this as often as you like. The only restriction is the number of computers involved. If you want to switch activations frequently between a fairly large number of computers, we recommend using the iLok USB copy-protection dongle (see next section).

**To deactivate a computer**: Log in to your user account via our website or by choosing "License" from Melodyne's Help menu. If you log in via our website, you must click the "License options" button to get to the page with the "Deactivate" option. If you choose "License" from Melodyne's Help menu, it will take you to this page directly.




Nice to know: The fact that you can deactivate a computer from any other computer (provided you first log in to your user account) is important, as it allows you to retrieve your Melodyne activation from a lost or stolen computer or from one that has broken down. You can only *activate* a computer, on the other hand, from the computer itself and cannot do it through your user account.

### License options: iLok

iLok is a service provided by Pace that we offer as an optional supplement to our computer-based activation system (except in the case of essential, the smallest edition of Melodyne).

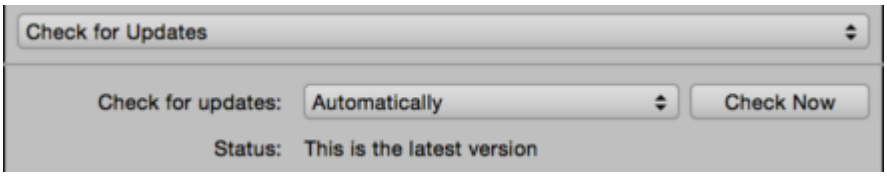
The iLok USB copy-protection dongle is popular because it can store many licenses and be used on different computers. So it allows you to take your Melodyne activation “on the road” with you if you are constantly moving from one computer to the next and want to use Melodyne on each computer in turn.

Pace offers a variety of license-protection solutions. For technical reasons, we only support one of these i.e. activation by means of an iLok USB dongle, which is available from dealers for around 50 US dollars. The two other varieties (computer-based iLok activation and activation via the iLok Cloud) are *not* supported by Melodyne.

If you wish to use iLok, you can transfer your Melodyne activation to your iLok account. Your second Melodyne activation is reserved for our own computer-based activation, as an emergency solution, so to speak, if your iLok is not to hand when needed. Additional activations that you may have purchased for your Melodyne license can also be transferred to iLok. Please note that a Melodyne activation that has been transferred to an iLok account cannot be retrieved. So before transferring an activation, you should make sure you really can, and do wish to, use an iLok USB copy-protection dongle to activate Melodyne.

### Checking for updates

Each time you launch Melodyne, it automatically checks to see whether a newer and better version of the program is available for download. If a new version is available, a page giving you details of it will open in your browser and from this you can download the new version.




If you open the “Check for Updates” page of Melodyne’s “Preferences” dialog, you can opt, if you prefer, to check for updates manually (which is done by clicking the “Check Now” button) rather than have Melodyne do this for you automatically at program launch. We recommend you to leave the default setting (“Automatically”) so that you never miss an important update.

### Selling your license

Naturally it is possible to sell your Melodyne, but to do so you need to contact our support. Since the person you sell it to will require their own user account with their own access data, we will have to remove your serial number from your user account and also cancel any activations you may have transferred to iLok. Only then can the license be transferred to the purchaser.

Please note : Resale of a Melodyne license purchased by credit card from our web shop is not possible within three months of the date of purchase. This is to prevent possible credit card fraud.

### Uninstalling Melodyne

To uninstall Melodyne under macOS, just run the program “Melodyne Uninstaller”, which you will find in the “Melodyne 5” folder within your “Applications” folder. Under Windows, follow the standard procedure for uninstalling applications.

# Updates and upgrades

From this tour, you will learn all about updating and upgrading Melodyne. We explain the installation procedure, the Melodyne license and the activation of the program in the tour “Installation and activation”.

### Terminology: major and minor updates, upgrades

**Minor update:** This is a free update containing bug fixes and perhaps new functions of lesser importance. In this case, although the version number is incremented, its first digit remains the same (e.g. from 5.**0.3** to 5.**1.0**).

**Major update:** This is an update that contains significant new features and is indicated by a change in the first digit of the version number (e.g. from **4**.2.1 to **5**.0.0). These updates are not free of charge. Exception: Melodyne essential, for which even major updates are free of charge.

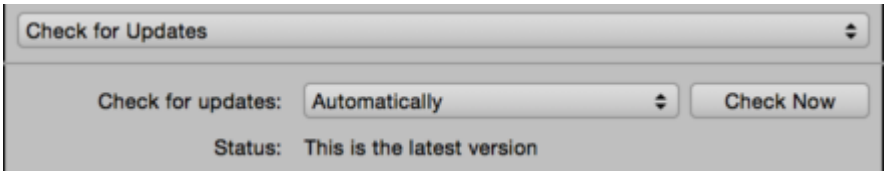
**Upgrade:** This is a change, for which you do have to pay, from a smaller edition of Melodyne to a larger one with more functions (e.g. from Melodyne essential to Melodyne assistant).

An *upgrade* may also contain a major *update*. For example, an upgrade from Melodyne **4 editor** to Melodyne **5 studio**. It is not necessary to update to editor 5 before upgrading to studio 5.

### Checking for updates

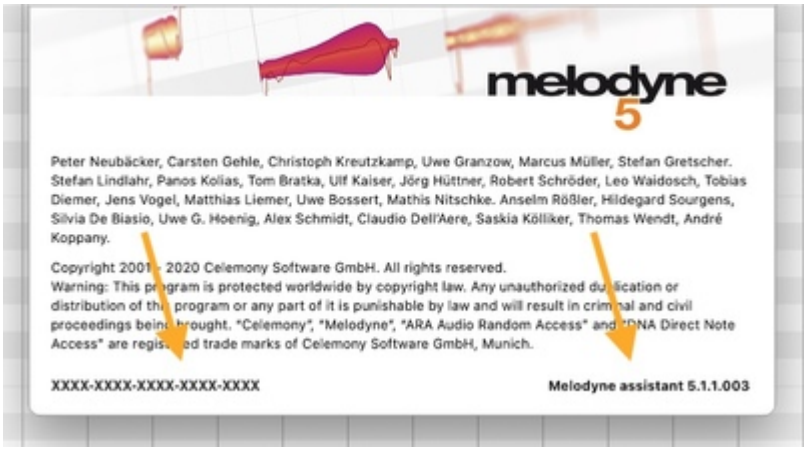
Each time you launch Melodyne, it checks automatically to see whether a new and improved version is available for download. If this is the case, a page will open in your browser giving you details and allowing you to download the new version.

In Melodyne’s Preferences dialog, you will find a page entitled “Check for Updates” where you can switch from automatic checks (the default) to manual checks triggered by clicking the “Check Now” button. We recommend you to leave the default setting (“Automatically”) unchanged, so you never miss an important update.

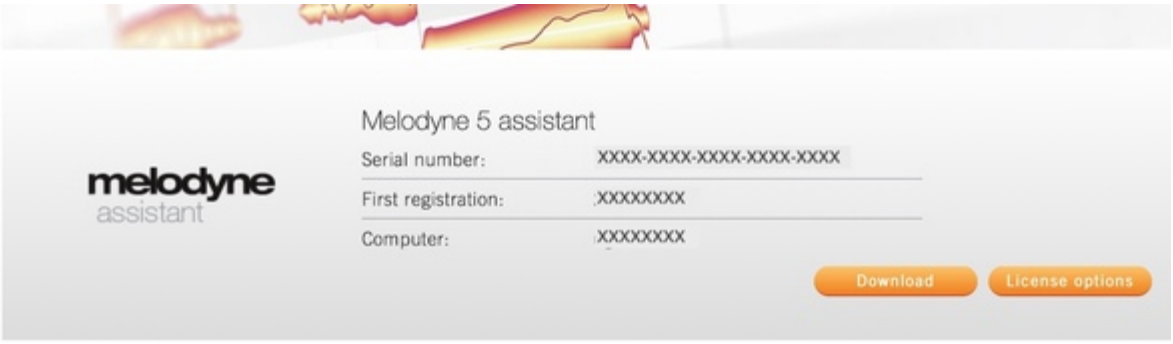


### Information about your edition, version and serial number

To discover which version of which edition you have, as well as your serial number, choose Melodyne > “About Melodyne” from the main menu.




The name of your edition and your serial number are also displayed in your user account. There you will also see which basic version you have (i.e. the first digit of your version number: 4, 5 etc.) but not which specific update is currently installed on your computer (e.g. 5.1.0).




### How updates and upgrades are performed and what the process involves

When you are notified by Melodyne’s Check for Updates function or by newsletter that an update for your Melodyne is available, you will always be provided with a download link for the corresponding installation program. If you learn of an update in some other way or if you have **purchased an upgrade**, you will find the installation program in your user account.

Every update or upgrade requires you to install the latest version of Melodyne. In the case of a free-of-charge *minor* update, that’s all there is to it. In the case of a *major* update or an upgrade, on the other hand, you will be given a new license and at the same time your old one will expire. This also means that your old serial number will be replaced by a new one. So Melodyne may also need to be reactivated after the update or upgrade.

When you are reactivating the program after a major update or an upgrade, your old activations will no longer count, because along with your new license you will receive new activations.

A tip about updates: If you are running Melodyne on more than one computer, a major update is liable to involve many changes to the program, some of which may also affect the sound. For this reason, you will probably not want to update Melodyne on the production computer until the projects you are working on there are complete, but you may still want to try out the new version on your laptop. This is not a problem: if you buy an update from Melodyne 4 to Melodyne 5, your activations for Melodyne 4 will not be removed immediately but only after the installation of Melodyne 5. You can update Melodyne on one of the computers and continue to run Melodyne 4 on the other for a transitional period.

### iLok when updating or upgrading

With iLok, too, a distinction has to be made between (on the one hand) a *minor* update and (on the other) a *major* update or an upgrade. In the case of a minor update, you don't need to do anything; your iLok USB dongle will continue to work.

With a **major update or an upgrade**, however, you receive a new license, so in both these cases your iLok license must be updated. If you are using iLok, we transfer your new licence automatically to your iLok account, where it replaces the old one.

**At this point, action from you is required:** To run your new Melodyne, you must then transfer your new Melodyne license from your iLok account to your iLok USB dongle.

### Compatibility after an update or upgrade

An update will give you new features and possibilities, but will remain compatible with your existing projects. Please note, however, that we are talking here about *upward* compatibility only: You will be able to open projects saved by your old version of Melodyne in your new one, but you will not be able to open projects saved with your new version of Melodyne in your old one.

In the case of massive leaps, however, such as from Version 1 to Version 5, there will naturally be major differences, as the pace of development at Celemony is unrelenting. New processing methods and bug fixes, as well as new and improved functions, all find expression in higher sound quality – or, to put it in neutral terms, acoustic differences. For this reason, you are advised in case of doubt not to perform this type of major update while you are still working on a project.

Different *editions* of the program are also compatible, provided they have the same version numbers. You can, for instance, open a project created by Melodyne editor Version 5.0.1 in Melodyne essential Version 5.0.1 or even in Melodyne player (a non-activated Melodyne) Version 5.0.1. Everything will sound exactly as it did when it was saved by Melodyne editor, even if some or all of the functions you used to perform the edits in Melodyne editor are not available in Melodyne essential or player.

The reason is that Melodyne editions differ from one another not in the technology they use but in the range of functions they provide. Since Melodyne essential offers fewer functions than Melodyne editor, you will be limited to these when performing any further editing in Melodyne essential of a Melodyne editor project, and no further editing of it at all will be possible using Melodyne player. A wider range of functions, on the other hand, would be available to you if you opened the same editor project in the more powerful Melodyne studio.

### Parallel operation of old and new versions after an update or upgrade

This is impossible for technical reasons: DAWs recognize the Melodyne plug-in by its identifier, and this does not change when the product is upgraded or updated. The advantage is that this allows you to update or upgrade Melodyne in the middle of a project and continue working seamlessly. It does mean, however, that you cannot run your old and new versions of Melodyne in parallel inside the same DAW, as they would need to use the same identifier and no DAW will allow the same identifier to be used more than once.

### Going back to your old Melodyne

After a major update or upgrade, it is usually not possible to go back to the version or edition of Melodyne you were using previously. However, if serious problems or incompatibilities arise in your system after an update or upgrade, please contact our support. We're sure to find a solution.

### What upgrades are available and what benefits do they bring

You can upgrade from any edition of Melodyne to any of the larger editions – even directly from the smallest, Melodyne essential, to the largest, Melodyne studio.

You will find an overview of all updates and upgrades in our web shop. Under "More Info...", you can discover which key functions and features not offered by your current edition the upgrade will bring you.

You will find a table comparing the various editions here.

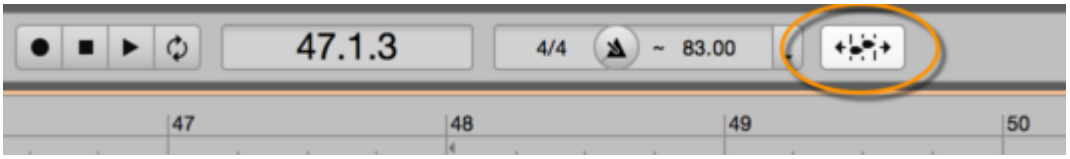
# Loading and saving audio

In this tour, you will learn how to open audio files and export audio from the stand-alone implementation of Melodyne.

Please note: The amount of memory Melodyne requires depends partly upon the length of the files you are transferring to it or loading but mainly upon the number of notes they contain: the more notes a file contains, the longer the detection process takes and the more memory it requires. This makes it difficult to formulate a concrete rule, but, in general: with files longer than an hour, the detection process is generally slow; files longer than two hours, however, may be impossible to load or transfer at all, due to shortage of memory. In such cases, please divide the file up and transfer or load only the segments that you actually wish to edit in Melodyne.

### Tempo adjustment when audio files are loaded

When an audio file is opened, Melodyne detects not only the notes it contains but also the musical tempo. Whether this tempo information is used to adjust the tempo of the file depends upon the status of the Auto Stretch switch in the transport bar.



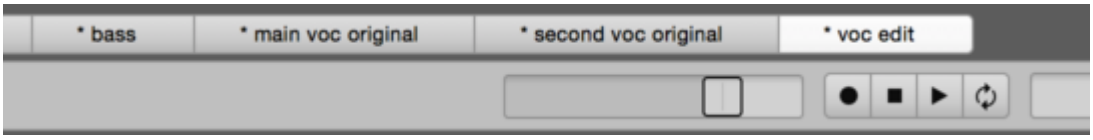

For details, see the tour “Tempo detection and Auto Stretch”.

### Loading files from the menu

Choose File > Import Audio...; then use the file selector to navigate to the desired audio file, and open it.

You can load audio in various uncompressed formats such as WAV and AIFF but also MP3 – or CAF – files as well as Apple Loops. In Melodyne studio you can select and open more than one file at a time; the files will be assigned to separate tracks and begin at the first bar of your project.

Alternatively, you can load audio files by choosing File > Open from the menu bar. In this case, if you select more than one audio file, a separate project (with its own tab above the transport bar) will be created for each file.



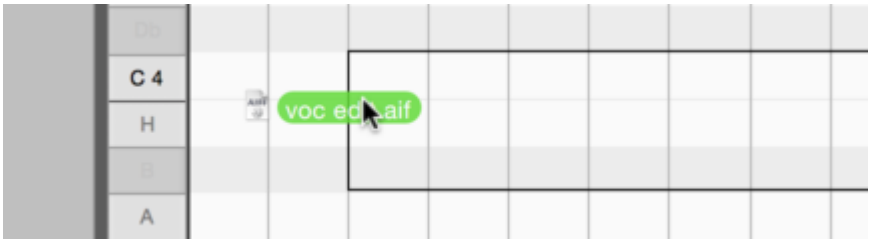
### Loading files by drag ‘n’ drop

You can load files into Melodyne by drag ‘n’ drop from the following locations:

- your operating system’s file manager (e.g. Finder or Explorer)
- Melodyne’s File Browser (which displays folders on your hard disk – see below)
- Melodyne’s Project Browser (which shows the audio files the project is already using) For the drag ‘n’ drop procedure, there are two possible drop zones:
- the track pane: you can drag one or more audio files onto existing tracks or into the grey area beneath the tracks. Each file is assigned to a track; if necessary, Melodyne creates new tracks to accommodate them. The files come to rest wherever in the timeline they are dropped.
- the Note Editor: you can only drag one file at a time into the Note Editor. It makes no difference whether or not the track displayed in the Note Editor already contains audio. The file comes to rest wherever in the timeline it is dropped. When dropping audio files into Melodyne, they will snap to the grid if it is active. You must therefore deactivate it if you wish to position the files freely, i.e. without the grid influencing the result.

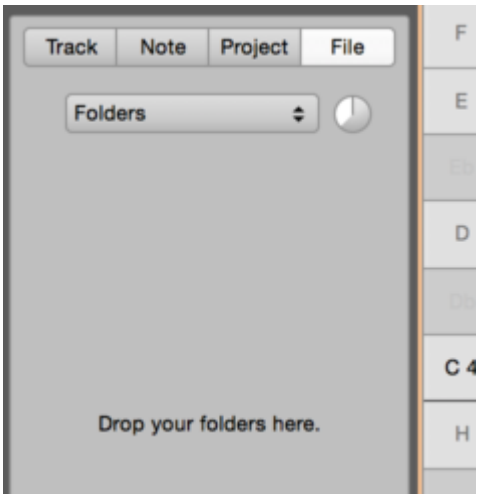
Tip: It is not only audio files but also Melodyne project files (MPD files) that can be dragged and dropped at a desired point in the timeline, in which case Melodyne imports into the current project all the contents of the MPD file.

Whenever you use the drag ‘n’ drop procedure, pay attention to the status of the Auto Stretch switch, as this determines whether or not the imported file adopts the tempo of the project.



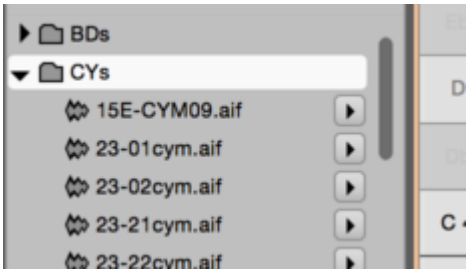

### The File Browser

The File Browser can be displayed in the Info pane and offers you a user-friendly way of accessing audio file folders you use often.




Initially, the File Browser is empty. Drag the folders you wish to include from your computer's file manager (e.g. Finder or Explorer) into the empty grey pane.

You can drag to the File Browser folders from different storage devices and different hierarchical levels within your file structure. In the Browser itself, all the folders appear at the same level in the form of a simple list. To the left of each entry is a small triangle that can be used to expand the folder in question. In this way, you can navigate down through the hierarchy of folders.




Any time you double-click on a folder, you "plunge into it", so to speak, and the rest of the directory structure in the File Browser is hidden. The pop-up button at the top of the browser displays the path of the current folder and allows you to 'resurface' (i.e. return to the highest level) and regain access to the hidden folders.

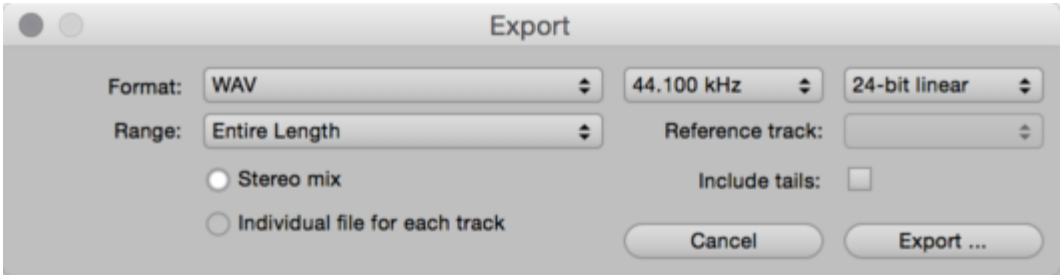



Audio files are displayed in the file browser with one of two symbols: a colored blob or a grey waveform. Those marked with a colored blob already contain tempo- or note-detection information and require no further analysis, so they will load especially quickly. Files marked with a gray waveform contain no such information.

To the right of each audio file, you will see a Play button to allow you to preview (or ‘audition’) its contents. The volume button for this preview function is to the right of the pop-up button displaying the folder name or level.

### Saving audio: the Export window

To save audio material in the form of an audio file on your hard disk, choose File > Export... from the menu bar. This opens the Export dialog, in which you will find a variety of options.




From the top line, you select the file format, the sample rate and the bit resolution of the file(s) to be exported. (Exporting MIDI is dealt with in separate tours). From the second line, you select the scope (in time) of the material to be exported. With the radio buttons below, you determine whether a stereo mix of the tracks should be created or a separate file for each track. Whether the material is exported in mono or stereo depends upon the number of channels in the original files. Simply mute the tracks you do not wish to export. Muted tracks are not included in the stereo mix and no file is created for a muted track. The Solo buttons have the opposite effect: If one or more tracks are switched solo, only this or these tracks will be exported.

For the Range (i.e. the temporal scope), the following options are available:

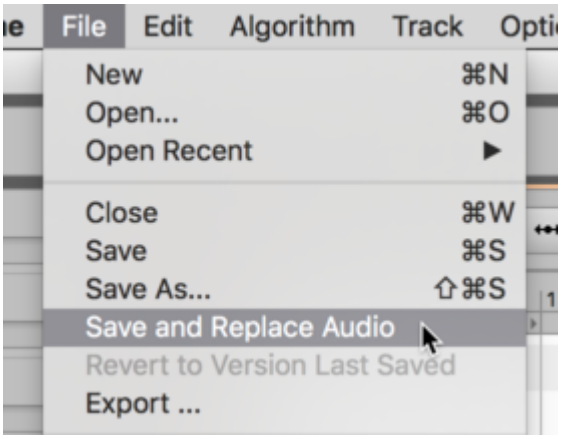
- Entire Length: everything from the beginning of the first track to the end of the last.
- Cycle Range Only: only the segment of the timeline between the cycle locators.
- Range of Reference Track: The export in this case is limited in time to the scope of the ‘Reference Track’ selected using the pop-up button to the right.
- Start of Reference Track to End: The export begins, as before, at the point in the timeline that coincides with the start of the reference track, but in this case it continues to the end of the last track in the arrangement.
- Individual Range for Each Track: a separate file will be created for each track, covering in each case the entire scope of the track in question. No stereo mix can be created if this option is chosen.

The “Include tails” box should be checked in cases where, for example, you have chosen Cycle Range Only but some notes in the selection overlap the end of the range. Selecting this option extends the range slightly so that the tails of notes are not chopped off and the decay is preserved.

Click the Export button to begin the export with the selected options. A file selector will open so that you can choose the storage location.

### The ‘Replace Audio’ command

The ‘Replace Audio’ command in the File menu allows you to save an audio file edited in Melodyne under its original name without recourse to the Export dialog. The original file is then replaced by the version edited in Melodyne, but at the same time Melodyne also saves the original file, adding “orig” to the filename. Access to the unedited original remains possible, therefore, at any time, as it has not been deleted but simply renamed.




Saving with “Replace Audio” is primarily useful when you define Melodyne in your DAW as the external sample editor: at the push of a button inside the DAW, you can then open a file for editing in Melodyne, whereby saving it subsequently with “Replace Audio” ensures that the file is “given back” to the DAW automatically. This is because the DAW uses the name of the file to identify and access it, and since Melodyne is no longer changing the name, saving the edited file in Melodyne with “Replace Audio” makes it instantly available to the DAW.

The advantage of defining Melodyne as a sample editor in your DAW (as opposed to using it as a plug-in), is that the transfer process, which with long files can be time-consuming, is replaced by a swifter load operation. The disadvantage is that you cannot hear your editing in the context of the arrangement and cannot make the audio file available once more to the DAW without “freezing” it. This is different from working with the Melodyne plug-in, which you can leave open until the final mix, making further changes at any time and hearing them in the context of the DAW arrangement.

The replacing of audio files and the saving of Melodyne project files are processes that influence one another. Suppose, for example, you have opened a file from the DAW in Melodyne and performed some editing, but think you might wish to revise this later. In this case, you should save your editing in a Melodyne project file (suffix “.mpd”). This .mpd file initially references the audio file provided by the DAW.

If you wanted at this stage to give the edited audio file back to the DAW, the “Replace Audio” command, if it were available, would have unintended consequences, because Melodyne’s .mpd file would be referencing the newly edited version of the audio file not the original. This would mean that if in the course of further editing you tried to restore a note you had previously deleted, you would discover that this was impossible, as the note would no longer be present in the file. To avoid this problem, when replacing an audio file, Melodyne changes the reference in the .mpd file – whenever one has been created – from a reference not to the *edited* audio file but to the original (i.e. to the file with “orig” added to its name) before saving the .mpd file again. This is why the “Replace Audio” command disappears from the File menu whenever an .mpd file is created and “Save and Replace Audio” appears there instead.

This solution allows you, on the one hand, immediate access to the edited audio file in the DAW, and on the other, the freedom to undo, or make further, changes at any time in Melodyne simply by loading the .mpd file, as this retains access to the original.

Please note: The “Replace Audio” command is only available for WAV or AIF files. With compressed audio formats, such as .mp3 or .caf, you cannot overwrite the original; instead you must create a new WAV or AIF file using the “Export” command from the File menu.

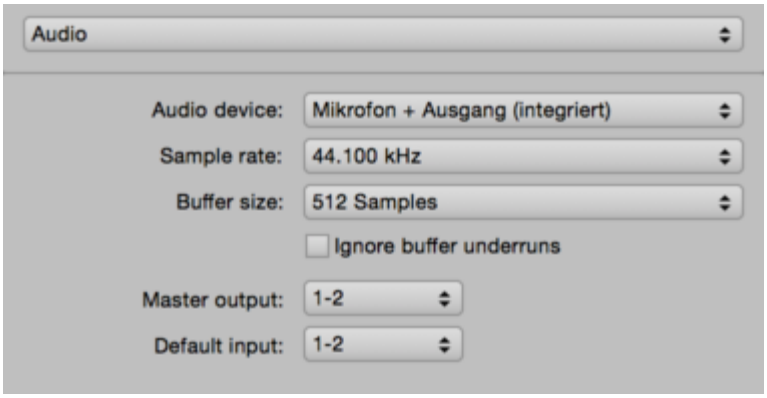
When saving, the commands “Replace Audio” and “Save and Replace Audio” use the name of the *track* on which the audio file is open in Melodyne, which in turn is determined by the audio file opened. We point this out because it has two consequences: firstly, it means you can add other samples to the track in question and arrange them freely in Melodyne without the eventual filename used by the “(Save and ) Replace Audio” function changing. Secondly, it means that if you rename the track in Melodyne, this will alter the filename used by “(Save and) Replace Audio”. So if you wish to use the “Replace Audio” or “Save and Replace Audio” commands in the manner we have just described, remember not to rename the track.

# Recording audio

In this tour you will learn how to record audio with the stand-alone implementation of Melodyne and what has to be borne in mind when doing so.

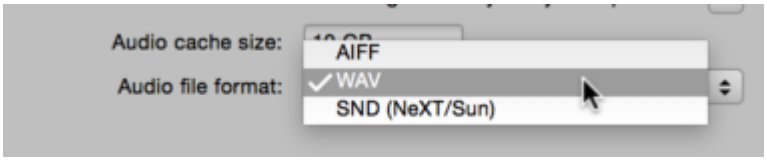
### Audio and recording preferences

Before recording for the first time in the stand-alone implementation of Melodyne, you should open the Preferences property sheet to examine, and if necessary change, the audio and recording settings.
To open the Preferences property sheet, choose Program (macOS) or File (Windows) followed in each case by Preferences..



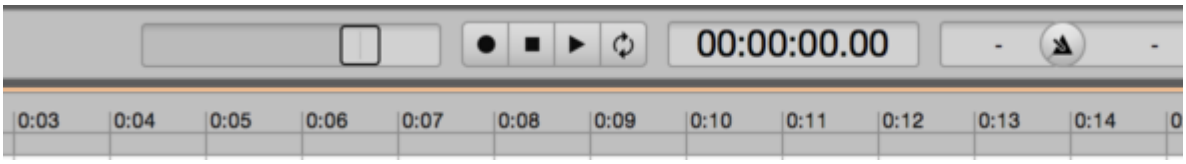

On the Audio page, you will see the general audio settings. If you have already loaded, played back and edited files with Melodyne and everything functioned, you can just leave the existing settings. (On the Mac, the internal Core Audio hardware is used by default; under Windows, the ASIO driver of your audio hardware should be selected).

On the Recording page, you can select a file format for your recordings, such as WAV or AIFF.




### Handling the tempo and the metronome

Before you begin the first recording in a new Melodyne project, you should devote some thought to the matter of tempo. In a new document, the tempo and time signature fields are initially empty; instead of a value in each case, a simple dash (“–”) is displayed. The Time Ruler, initially, is calibrated in seconds. At this stage, then, there is no musical tempo.




You now have two choices: you can either enter the tempo manually and record in time to a metronome click or begin recording with the tempo field still empty, allowing Melodyne to detect the tempo automatically.

To enter the tempo manually, proceed as follows (the default values, unless others are entered by hand, are 120 BPM for the tempo, 4/4 for the time signature, and quarter note (crotchet) intervals for the Time Grid):

- Enter the desired value in beats per minute (BPM) in the tempo field
- Enter the desired values for the numerator and denominator of the time signature (e.g. 6/8)
- Enter a musical note value instead of seconds in the menu for the Time Grid
- Click on the icon between the time signature and tempo fields in the transport bar to activate the metronome. * Opening the Tempo Editor When you choose this procedure, Melodyne assumes that you intend the tempo to be constant, so any fluctuations in tempo will be revealed by a discrepancy between the position of the blobs and that of the grid lines. The fact that you have opted for a constant tempo will be indicated by an equals sign (“=”) before the tempo in the transport bar.

To activate the metronome, click on the icon between the time signature and the tempo in the transport bar. To make the click quieter or louder, click on the same (metronome) icon and drag downwards or upwards without releasing the mouse button.

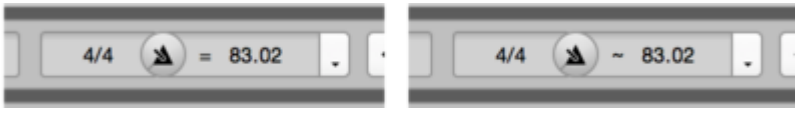



If you are used to working with DAWs, you may be more comfortable setting the tempo manually and recording to a click. Since Melodyne is extremely good at detecting the tempo, however, it is in many cases easier and more practical simply to allow Melodyne’s tempo detection routines to determine the tempo for you.

- Instead of initializing the tempo, time signature and Time Grid values manually, as just described, begin recording with the tempo and time signature fields empty. Now you no longer need a click to listen to as you record because Melodyne will detect the tempo and tempo fluctuations within the recording and adjust the grid lines and subsequent click accordingly. Instead of entering a numerical value for the tempo, in other words, you are determining the tempo through your performance.

This will result in any fluctuations in tempo within the performance being considered deliberate and the tempo being interpreted as variable. The value in the tempo field will therefore be constantly changing in the course of playback, and the mesh of the Time Grid will expand or contract

accordingly (i.e. distance between grid lines will increase or decrease) as the tempo changes. The fact that the tempo is variable is indicated by the presence of a tilde (“~”) before the value in the tempo field.



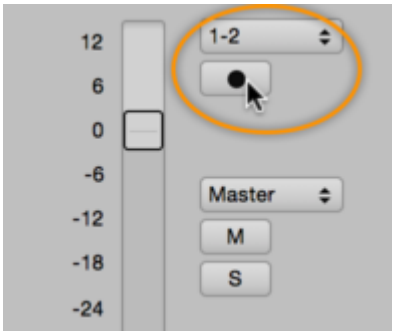

### Enabling, starting and stopping recording

You can record on one or more tracks whether or not they already contain audio. In the latter case, where the recording overlaps the existing material, the latter will be overwritten. To begin recording, proceed as follows:

- Select the input of your audio hardware in the Track Inspector of the track(s) upon which you intend to record as well as the output through which the track should be played. All the physical inputs and outputs are available for selection. The Master Output, as defined in the Preferences property sheet, is of particular importance in that its level is governed by the master volume fader in the transport bar. As a rule, you should define as the Master Output, the one that supplies your monitoring system.

The default input is also defined using the Preferences property sheet.

- Record enable (or ‘arm’) the track using the button below. Alternatively, you will find a record enable button for each track in the track header pane.




- Move the playback cursor to a point just to the left of that at which you intend to begin recording. This will give you a cue.
- Click on the record button in the transport bar, to activate Melodyne’s record mode.
- Begin the actual recording by clicking the play button and commence recording.




The cycle range can also be used during a recording to play back a specific segment of the track repeatedly. The recording, however, ignores the cycle and appears on your track as though the cycle were inactive.

By clicking on the record button in the transport bar as the playback proceeds, you can punch in and out (i.e. toggle record mode on and off). This affects all tracks. To toggle record mode on and off for individual tracks, use the appropriate record enable buttons in the track header pane. When you halt the playback in Melodyne, all recording ceases.

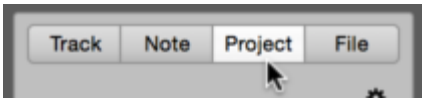
You can discard a poor recording simply by choosing Undo. You can listen to a recording even while the detection process is underway and cancel if you wish.

# The Project Browser

The Project Browser shows you all the audio files used by each project and helps you manage them and locate missing files.

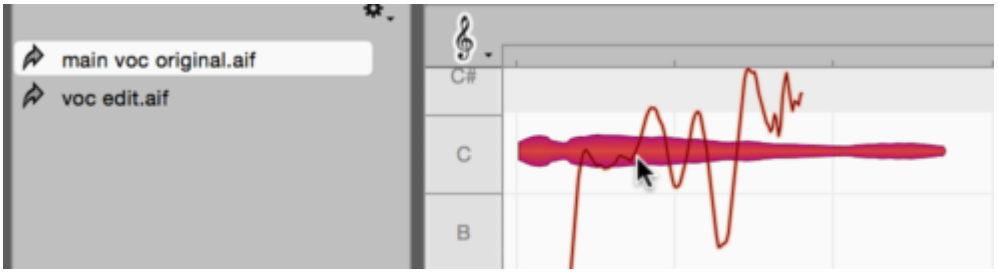
### Opening the Project Browser

Both the stand-alone implementation and the plug-in possess a Project Browser. In each case, this is opened by clicking the “Project” tab in Melodyne’s info pane.



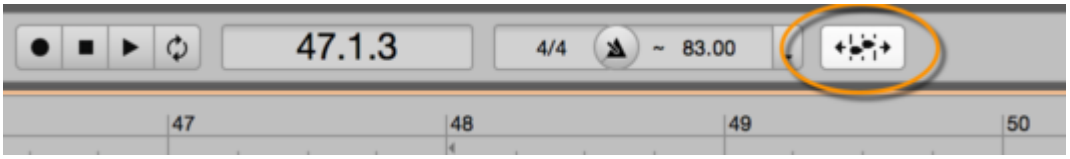

### The Project Browser in the stand-alone implementation

In the stand-alone implementation of Melodyne, the Project Browser displays all the audio files that you have integrated into the project – whether via the File menu, by dragging and dropping, or by recording. If you click a blob in the Note Editor, the Project Browser will highlight the audio file to which the note in question belongs.




You can drag and drop files from the Project Browser into the project in the same way as from the File Browser. You might do this, for example, when you wish to use the same file in several different places within the project.

Please note that the Auto Stretch Switch also governs the dragging of files from the Project Browser: if Auto Stretch is switched on, the tempo of the file will be adjusted to that of the project; if it is switched off, the inserted file will retain its original tempo.



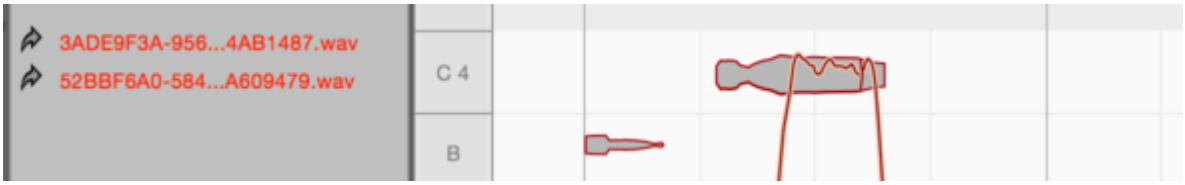
### Unused and missing audio files

In both the stand-alone implementation and the plug-in, audio files are color-coded in the browser as follows:

- Black: The file is present and being used by the project
- Gray: The file is present but not in use (e.g. because you have deleted from the project all the notes it contains)
- Red: The file is needed but unavailable

The reason unused files are retained in the Project Browser rather than being deleted automatically is that this allows you to undo the delete operation, which would otherwise be impossible.

If Melodyne cannot find one of the files it needs to use – either because it has been deleted or because it was not moved to a new computer along with the other project files – the missing file will be shown in red in the Project Browser. The notes belonging to such a file are shown in gray with a red outline in the Note Editor and are muted during playback.




### Commands in the drop-down and context menus

The drop-down menu opened by the cog icon in the Project Browser as well as the context menu in the same browser offer the following commands, some of which are designed to facilitate the assignment of missing files.

**Set Path for Transfers...** (only in the plug-in): This allows you to specify where the transfer files should be stored, as is explained above.

**Show in Finder/Explorer:** If you choose this command after right-clicking on a file in the Project Browser, a Finder/Explorer window will open showing you the location of the file.

**Copy File(s):** This copies the selected file(s) onto the clipboard. This might be useful, for example, if you have passed on to another user a project missing one or more of the requisite transfer files; by selecting the missing file(s) in the Project Browser, choosing Copy File(s) and then pasting the contents of the clipboard onto a hard disk or other storage medium, you can remedy the error swiftly without having to hunt around for the missing file(s).

**Copy Path for File(s):** This copies as text to the clipboard the path of the selected files. This is useful if you need to send someone a list of missing files.

**Find Missing Files:** This opens a file selection window that allows you to locate the missing file on your hard disk and “show” it to Melodyne.

It is advisable to save your project after reassigning files, in order to store the updated references.

**Copy External Files to Project Folder** (only in the stand-alone implementation): This command results in all the files that you have imported into your project from different locations on your hard disk, whether via the File menu or by drag ‘n’ drop, being copied into the audio folder of your Melodyne project. This folder, which is created when your Melodyne project is first saved, is on the same level in the file hierarchy, and bears the same name, as the MPD file of the project, but with the suffix “_Audio”. It is advisable to save your DAW project after executing this command, in order to store the updated references.

**Delete Unused Files in Project Folder:** If you are certain that you will have no further need for files marked as unused in the Project Browser, this command allows you to delete them and liberate space on your hard disk.

The last two commands in the context menu allow you to specify whether the files in the Project Browser should be displayed in alphabetical order or according to status (missing, used, unused).

# Project documents

In the stand-alone implementation of Melodyne, you store your projects as MPD documents. You can open and work on several projects at the same time.

### Opening a project document

As soon as you launch the stand-alone implementation of Melodyne, a new empty project is created. To load an existing project, choose File > Open from the menu bar. The Open Recent command offers you swift access to the documents opened most recently.

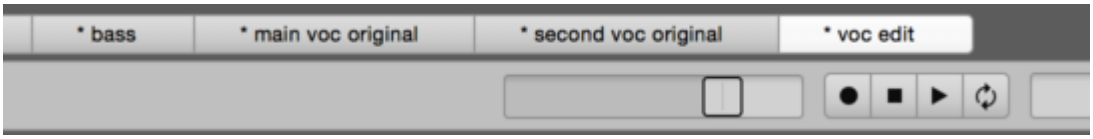
Melodyne's project documents have the suffix ".mpd".




### Creating a new project document and switching between projects

Choose File > New to create a new empty project.

Melodyne allows you to work on several projects at the same time. It is therefore unnecessary to close the current project before opening another or creating a new one. Each open project is represented by a tab just below the menu bar at the top left of the screen. Tabs are only displayed when more than one project is open.




To switch to another project, simply click on the corresponding tab.

### Closing and saving projects

To close a project, either choose File > Close or use the keyboard shortcut [Command]+W. Provided more than one project is open at the time, you can also close a project by clicking on the 'x' symbol to

the left of the project name on the tab. If a project contains unsaved changes, an asterisk is displayed beside the project name on the tab.

If you attempt to close a project containing unsaved changes, you will be offered the choice of saving your changes and closing the project (Save), closing the project without saving your changes (Discard) or returning to the open project (Cancel). The same dialog box is displayed whenever you attempt to quit Melodyne while a document with unsaved changes is open.

With the commands Save and Save As... in the File menu, you can save a project at any time, under its existing name or a new name, respectively.

The command Revert to Version Last Saved has the effect of restoring a project to the state it was in when last saved i.e. of discarding all the changes you have made in the interim.

### The audio folder of a project

When you save a project for the first time, as well as the project's MPD file, Melodyne creates at the same level in the directory hierarchy, a folder for the project's audio files. This has the same name as the project but with the suffix "_Audio".

All the recordings you have made within the project and all the samples you have imported using the Project Browser are stored in this folder.

If you wish to archive a project or pass it on to another user, you must archive or pass on not only its MPD file but also this audio folder.

### Copying audio from one open project to another

Whenever more than one project is open in Melodyne, you can copy individual notes or an entire audio source from one project to another. Simply select the audio material, copy it, switch projects, and paste.

It is also possible to drag an audio file from the Project Browser of one project to the tab of another. As you drag the file over the tab, pause to allow Melodyne time to switch projects, before dropping the file at the desired location within the destination project.

### Importing projects

You can import the contents of one project into the current project by dragging its MPD file from your computer's Finder/Explorer or Melodyne's File Browser.

If you select several MPD files in Melodyne's Open dialog, these will be loaded simultaneously as separate projects, each with its own tab.

# Playback, navigation, zooming

This tour will give you an overview of the functions Melodyne offers for navigation and the playing back of audio.

### Controlling playback using the keyboard and transport bar

The plug-in implementation of Melodyne is integrated into the DAW and keeps perfectly in step with its playback. When you reposition the DAW, this information is conveyed to Melodyne, which mirrors the new position. As soon as the DAW starts, Melodyne also starts. It is not possible to start, stop or reposition the DAW's playback cursor from within Melodyne.

With the stand-alone implementation of Melodyne, you start and stop the playback using the buttons in the transport bar at the top or by pressing the space bar. If you hold the [Alt] key at the same time, playback will be confined to the current selection.




You can also control playback in Melodyne Stand-Alone using the numeric keypad of your computer. The shortcuts can be selected from the Preferences dialog, the default settings being as follows:

- Playback/Pause [space bar]: Stop or Start playback from the current position of the playback cursor
- Start [Enter] when stopped: Commence playback from the current position of the playback cursor
- Start [Enter] during playback: Jump to, and continue playback from, the last starting point
- Stop [0 on the numeric keypad] during playback: Stop and jump to the last starting point
- Stop [0 on the numeric keypad] twice in succession: Jump to the beginning of the project

In both the stand-alone and plug-in implementations of Melodyne, the arrow keys on the keyboard can be used to step through the blobs. When playback is stopped, the blob currently selected will sound.

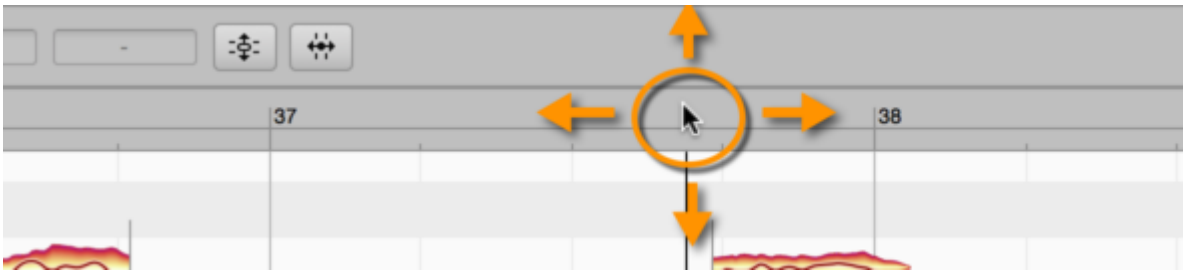
Before you can play back the blobs in this way in the stand-alone implementation of Melodyne, it may be necessary to click once in the Note Editor so that it has focus. It is the focus that determines to which part of the user interface any shortcuts you use apply. The pane with focus at any given moment is the one enclosed in a thin orange frame.

Please note that you can define a wide variety of keyboard shortcuts – including new playback shortcuts – using Melodyne's Preferences dialog. If for any reason you are not satisfied with the default shortcuts, you can redefine them at will.

### Controlling playback, scrubbing and zooming using the Time Ruler

The following playback functions are available in both the stand-alone and plug-in implementations of Melodyne – in the Melodyne plug-in, however, only when the DAW is stopped; as soon as it starts again, Melodyne plug-in resumes its shadowing of the DAW as described earlier.

Double-click in the Melodyne Time Ruler (or directly in the background of the Note Editor) to commence playback from the position in question. If you hold down the [Alt] key as you double-click in the Time Ruler, playback will be confined to the current selection.




If you double-click again in the Time Ruler while the playback is in progress, the playback will stop and the playback cursor will move to the point clicked.

A single click in the Time Ruler moves the playback cursor to the point clicked. If you do this while playback is in progress, instead of halting, playback skips to the position clicked and continues from there. If you do it while playback is halted, the playback cursor moves to the position clicked but playback remains halted and only resumes if you double-click in the Time Ruler.

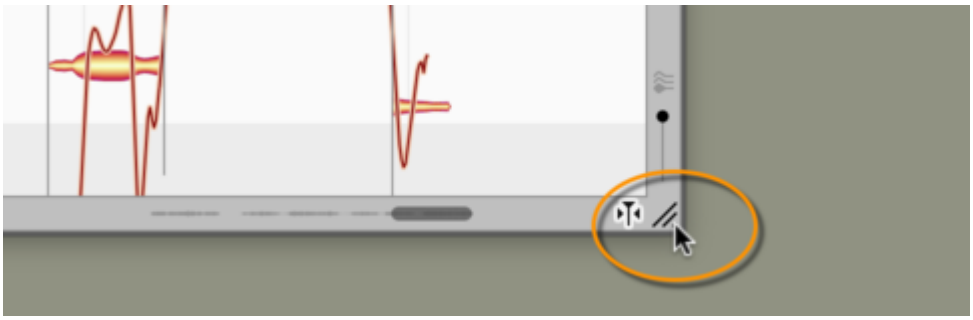
When playback is halted, you can scrub through the audio material by clicking and dragging in the Time Ruler.

By dragging upwards or downwards, you can zoom the display at the current position. Scrubbing and zooming can be used in combination, allowing you to navigate and position the cursor intuitively, setting the zoom factor at the same time.

Please note: In Melodyne studio, when you start playback or scrubbing via the Time Ruler of the Note Editor, it is the Editing Mix Fader (near the right-hand end of the toolbar) that determines what you hear; if the fader button is moved all the way to the left, you will hear only the notes corresponding to the colored blobs in the Note Editor. As the fader button is moved back towards the center, the gray blobs, which are only displayed for reference, will become gradually louder. Finally, with the fader button moved all the way to the right, you will hear all Melodyne tracks, including those not currently displayed in the Note Editor.

### Resizing the window

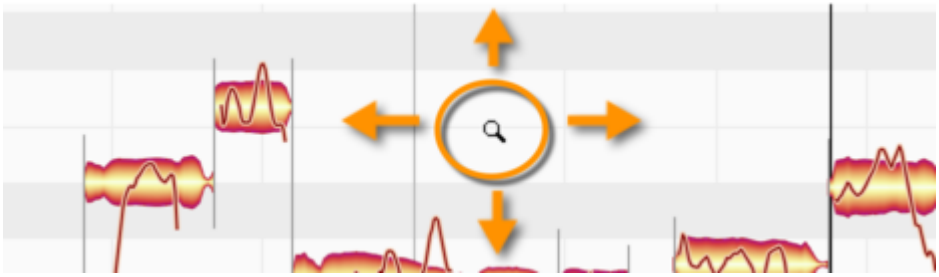
To change the size of the window, click and drag the bottom right-hand corner. The procedure is the same for both the stand-alone and plug-in implementations of Melodyne.



### Scrolling and zooming in the Note Editor

Select the Scroll Tool (the hand icon) from beneath the main tool or hold down the [Command] and [Shift] keys to move the display area with the mouse.

Select the Zoom Tool (the magnifying glass) from beneath the Main Tool or press [Command]+[Alt] to zoom the display with the mouse. You can zoom horizontally and vertically at the same time – with different levels of intensity in each case.

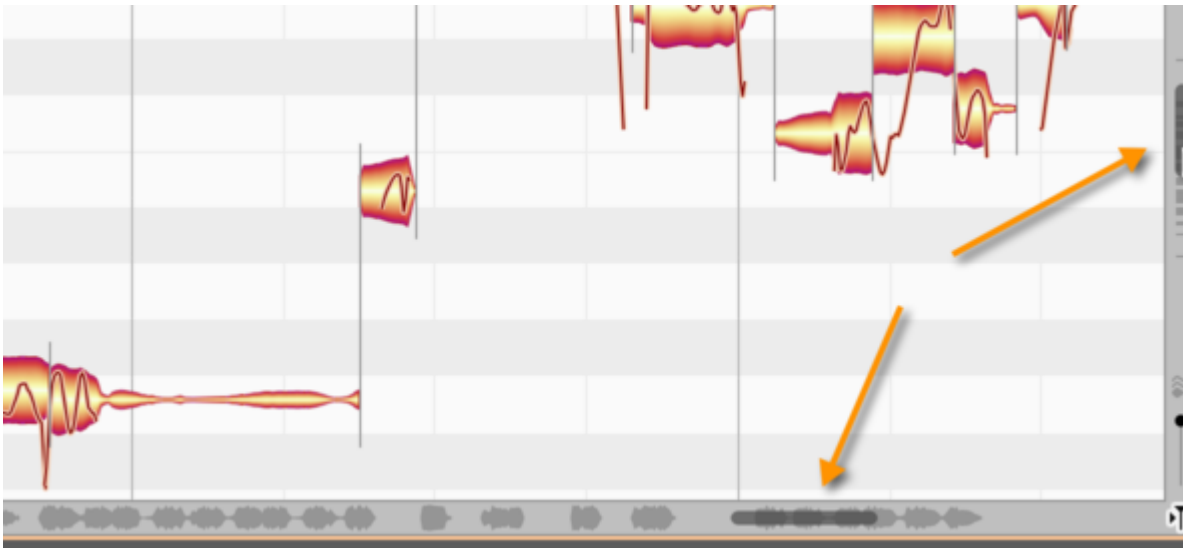


[Command]+[Shift]+double-click zooms in on one blob or several (if several are selected). A corresponding double-click in the editing background returns you to the previous zoom level.

If your hardware supports the corresponding functions, you can also scroll and zoom with the mouse and trackpad:

- The mouse wheel and swiping with two fingers on the trackpad can be used for horizontal and vertical scrolling.
- Pinching with two fingers on the trackpad zooms the display simultaneously on the horizontal and vertical planes.

Drag the horizontal or vertical scrollers (i.e. the scroll boxes or ‘thumbs’) to move the display. The horizontal scroller contains a miniaturized image of the contents as an orientation aid.

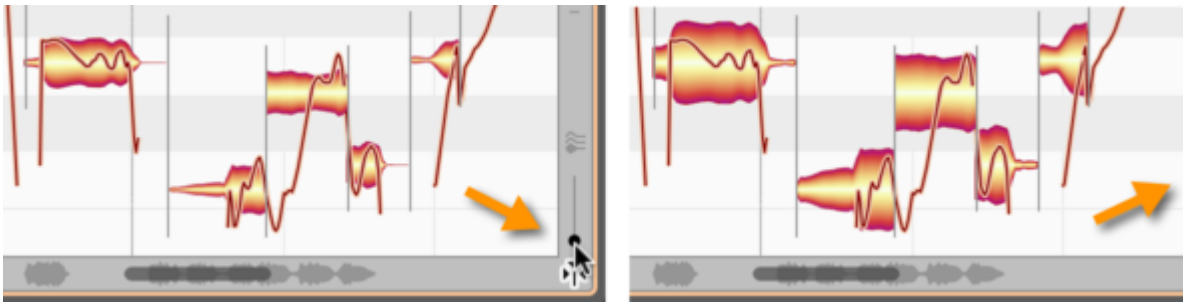


Drag the ends of the scroller to zoom the display.

If you are editing a particularly long audio file, you may find the reduced size of the scroller makes it difficult to achieve the desired zoom resolution. In that case, you can zoom in further by holding down the [Command] and [Alt] keys whilst dragging in the edit pane or else by dragging vertically in the Time Ruler.

If you pull one end of the horizontal or vertical slider as far as it will go and hold it, you can increase the vertical or horizontal size of the area displayed. This can be useful in the plug-in, for example, when you have only transferred the first three bars (measures) of your material but wish to insert something at bar 20.

Double-click in the center of the scroller to zoom in or out just enough to ensure that all the blobs are displayed. If cycle mode is active, double-clicking on the horizontal scroller zooms the display just enough to ensure that the entire contents of the cycle range are visible.

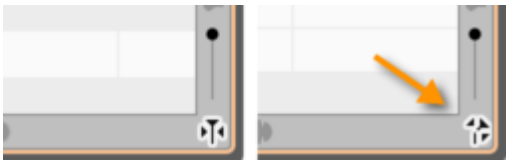


Use the slider in the bottom right-hand corner near the Note Editor to alter the height of the blobs. This does not alter their volume. Your likely motive will be to obtain a clearer view of material containing a lot of particularly quiet or particularly loud notes.

**A note about automatic scrolling in the Note Editor**
If you have selected one or several notes, Melodyne assumes that you wish to see and edit them, and exercises the requisite restraint by deactivating the auto-scroll function temporarily. Only when you deselect the notes (for example, by clicking in the background of the Note Editor) and restart the playback does the display resume its pursuit of the playback cursor.

Similarly, if you move the horizontal scroller so far during playback that the playback cursor actually disappears from the screen, automatic scrolling will be deactivated. Stopping and restarting in this case will reactivate the auto-scroll function.

If automatic scrolling has temporarily been deactivated, the auto-scroll icon in the bottom right-hand corner of the Note Editor takes the form shown here.



## Navigation and zoom functions

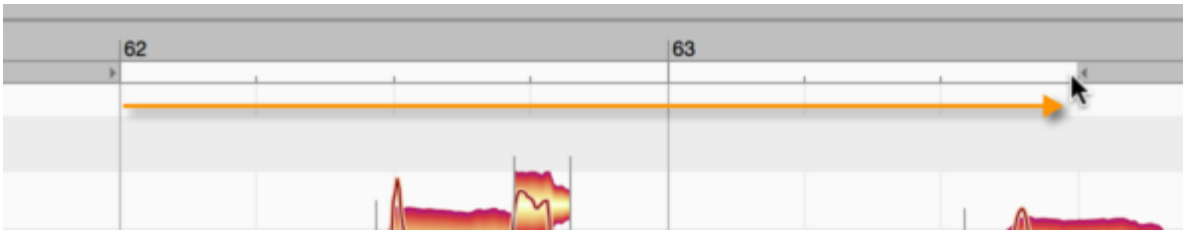
- To resize the window (also in Plugin), drag the bottom right corner
- Hold down the [Command]+[Shift] keys and drag the editing background of the Note Editor to move the area displayed
- Use the mouse wheel to scroll up and down or else (holding the [Shift] key) left and right
- A two-finger swipe on the trackpad can be used to scroll the display
- A two-finger pinch on the trackpad can be used to zoom the display.
- [Command]+[Alt]+drag in the Note Editor serves to zoom the display horizontally and/or vertically
- Drag vertically in the Time Ruler to zoom in on the area indicated
- Press [Command]+[Alt] and use the mouse wheel to zoom both axes simultaneously
- Press [Command]+[Alt] and double-click to zoom in on a blob or the current selection of blobs
- Press [Command]+[Alt] and double-click in the editing background to restore the previous zoom setting
- Drag the scrollers to move the display horizontally or vertically
- Drag the ends of the scroller to zoom the display horizontally or vertically
- Pull the left- or right-hand ends of the horizontal slider as far as they will go to increase the length of the section displayed (important in the plug-in e.g. when you have only transferred the first four bars and  are able to navigate only in this area but wish to insert something at bar 20)
- Double-click the scrollers to zoom in or out horizontally or vertically until all notes are displayed
- The slider in the bottom right-hand corner governs the height of the blobs

# Cycle mode

In Melodyne's cycle mode, a selected passage is repeated endlessly.

### Defining the cycle range

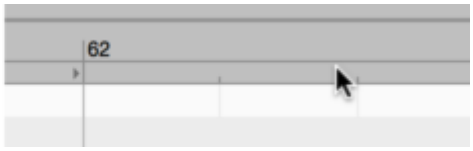
To define a cycle range, click and drag in the lower part of the Time Ruler. If, as you do so, you hold down the [Alt] key, the Time Grid will be ignored, allowing you to position the start and end points (which we call the "cycle locators") freely.




### Switching cycle mode on and off

Double-click on the cycle range in the narrow strip immediately below the Time Ruler to toggle cycle mode on and off. When cycle mode is active, the cycle range is shown in dark grey



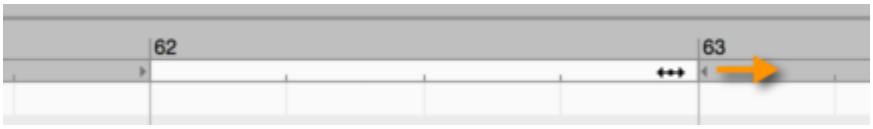

In the stand-alone implementation of Melodyne, you can also switch cycle mode on and off from the transport bar.




It is also possible by choosing File > Preferences > Shortcuts to define a keyboard shortcut for toggling cycle mode on and off.

### Changing the length of, and moving, the cycle range

Drag the right- or left-hand locators to alter the length of the cycle range. If, as you do so, you hold down the [Alt] key, the Time Grid will be ignored, allowing you to position the locators freely.




Drag the middle of the cycle range to move it ‘en bloc’ to the left or right. If, as you do so, you hold down the [Alt] key, the Time Grid will be ignored.




If you [Shift]+click near either of the cycle locators, it will move to the designated position. If, as you do so, you hold down the [Alt] key, the Time Grid will be ignored.

### Defining the cycle range using a blob selection

To move the cycle locators to the beginning and end of the current blob selection (snapping to the grid) hold the [Shift] key and double-click anywhere in the cycle range. If you hold the [Alt] key as well as the [Shift] key as you do this, instead of snapping to the grid, the locators will be placed at the beginning of the first, and end of the last, blob in the selection.

# Display and other options

Melodyne offers for the user interface and working in the Note Editor various options that allow you to adapt the appearance and behavior of the program to your tastes.

### Showing and hiding elements of the user interface

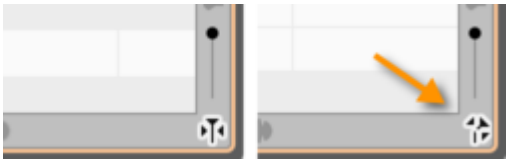
Melodyne's user interface can be adapted to a variety of different work situations and demands. You will find the means of doing so in the Options menu as well as the interface itself.




The illustration shows which icons in the user interface of the stand-alone implementation of Melodyne correspond to which items in the Options menu.

- Show Tracks (A): Shows/Hides the track pane, reducing the height of the Note Editor to make room. If the info pane is displayed on the left, the track headers will remain visible even if the track pane itself is currently hidden.

- Show Note Editor (B): Shows/Hides the Note Editor as well as the info pane on the left and adjusts the height of the Track and track header panes accordingly.
- Show Sound Editor (C): Shows/Hides the Sound Editor beneath the Note Editor.
- Note Editor (D): Various options for the Note Editor that are described in detail below.
- Scale Editor (E): Shows/Hides successively one, two or all three panes of the Scale Editor window.
- Pitch Grid (F): Offers the choice between various options for the Pitch Grid.
- Time Grid (G): Offers the choice between various options for the Time Grid.
- Show Info Pane (H): Hides the info pane or shows it on the left and/or on the right (full height /top half only/bottom half only) of the screen.
- Show Tempo Editor (I): Closes the Tempo Editor or opens it in either edit or assign mode.
- Auto-Scroll Tracks (J): When this option is activated, the display in the track pane follows the playback cursor.
- With the “Keys” (K) and “Chords” (L) switches, you can show or hide the Key and/or Chord tracks.
- Automatic Scroll in the Note Editor (M): When this option is selected, the display in the Note Editor follows the playback cursor.



A note about automatic scrolling in the Note Editor: If you have selected one or several notes, Melodyne assumes that you wish to see and edit them, and exercises the requisite restraint by deactivating the auto-scroll function temporarily. Only when you deselect the notes (for example, by clicking in the background of the Note Editor) and restart the playback does the display resume its pursuit of the playback cursor.

Similarly, if you move the horizontal scroller so far during playback that the playback cursor actually disappears from the screen, automatic scrolling will be deactivated. Stopping and restarting in this case will reactivate the auto-scroll function.

If automatic scrolling has temporarily been deactivated, the auto-scroll icon in the bottom right-hand corner of the Note Editor takes the form shown here.

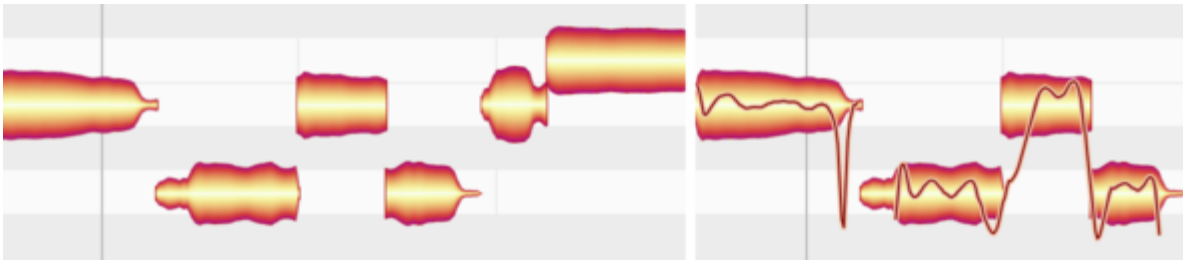
All the options described below relate to the Note Editor and are found by choosing Options > Note Editor Options from the main menu or by clicking the cog icon in the top right-hand corner of the Note Editor.

Please note that these options can be selected independently for Edit and Note Assignment modes.

### Show Pitch Curve

If you check the option Show Pitch Curve, a thin line tracing the exact pitch of the tone at each instant will be superimposed on the corresponding blob.

On the left, you can see the ‘naked’ blobs (with none of the Note Editor display options selected) and on the right, the same blobs with the Show Pitch Curve option checked.

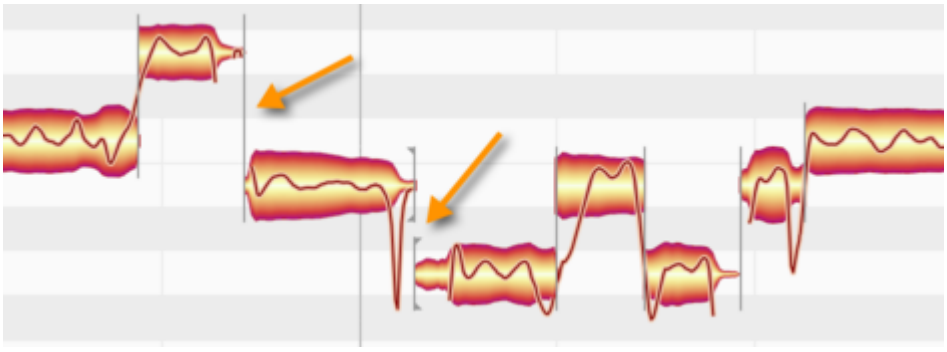


Regardless of whether or not this option is checked, the pitch curve will be displayed whenever the Pitch Tool is selected.

### Show Note Separations

If you select the option Show Note Separations, gray vertical lines appear at the beginnings and endings of notes indicating their limits or separations.

Note Separations are either shown as lines (soft separations between connected notes) or thin brackets (hard separations).

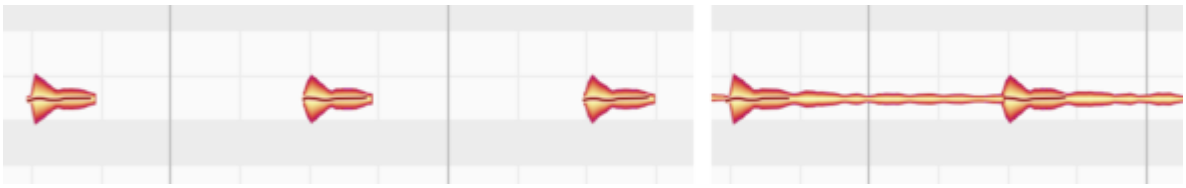


Note separations are always displayed when the independent Note Separation Tool is in use, regardless of whether or not the menu entry is checked.

### Show Note Tails

In the detection and display of notes, Melodyne editor draws a distinction between the notes themselves and their tails – notes being the events of musical relevance and tails depicting the non-musically-determined fading-away of the sound. The share of the reverberation ascribed to a given

tone, for example, is reflected in its tail. The Show Note Tails option allows you to decide whether the reverberative phase of notes should be displayed or hidden. This is likely to depend upon whether you prefer to concentrate upon their musical or their acoustic aspects.

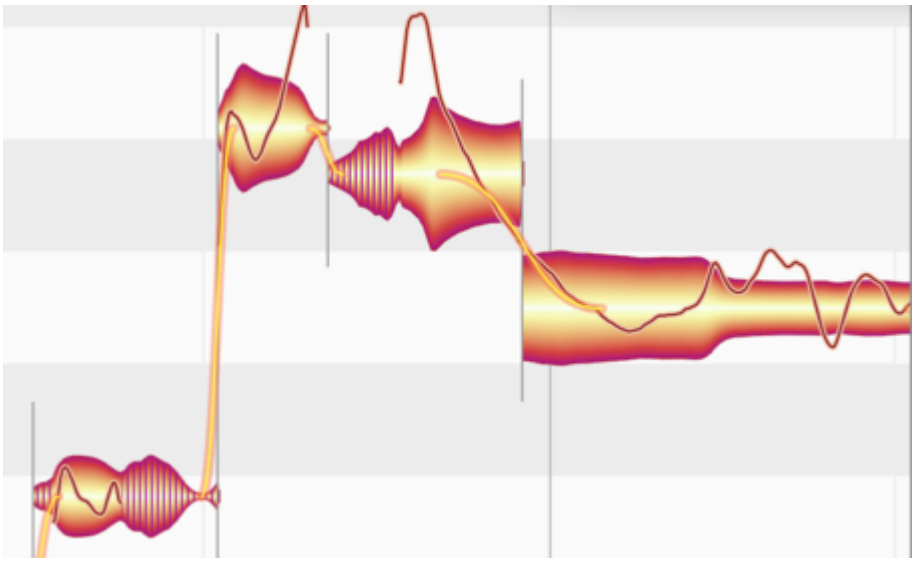


If the tail is not displayed, the end of the musically relevant part of the note provides the handle you can drag with the Time Tool to make the note longer or shorter. Any reverberation present will in this case automatically be governed by the changes made. This display option serves to provide a clearer overview of the intended musical events.

If the note tail is displayed (assuming it has one), it is this that provides the handle for the Time Tool. Show Note Tails is the option most suitable when what is sought is as authentic a picture as possible of the sounds actually heard – including any reverberation present.

### Displaying sibilants

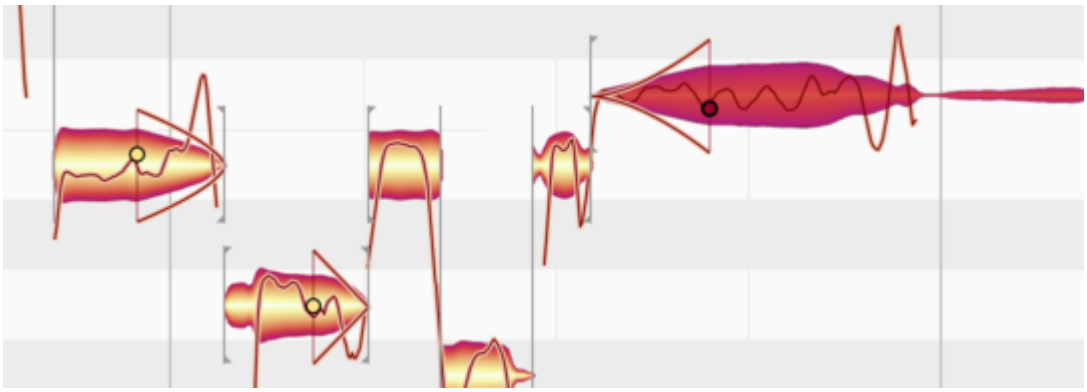
If you check the option “Show Sibilants”, the presence of sibilants (usually “s” sounds or breath noise) is indicated by hatching.



When the Sibilant Balance Tool is selected in normal edit mode, or the Sibilant Range Tool is selected in Note Assignment Mode, the sibilants are invariably displayed, whether this option is checked or cleared.

### Displaying fades

If the “Show Fades” option is checked, the control elements belonging to the Fade Tool are displayed beside any notes you have previously edited using the Fade Tool.

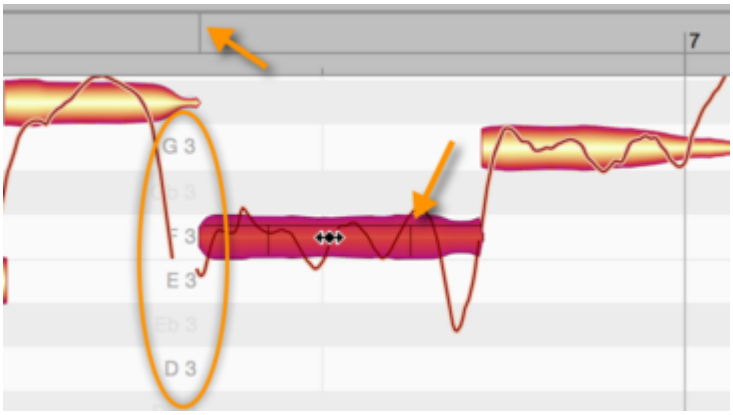


When the Fade Tool is selected in normal edit mode, the control elements in question are invariably displayed, whether this option is checked or cleared.

### Show Blob Info

With the option Show Blob Info, you can elect to show or hide a variety of display elements designed to facilitate working with individual notes.

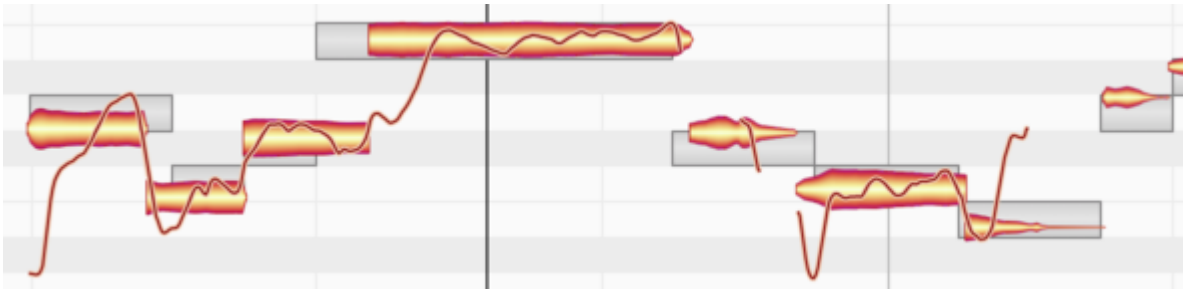
The most striking of these elements is the Local Pitch Ruler that appears directly in front of any note over which you move the mouse pointer. Within the blob itself, thin lines mark the drag zones for the context-sensitive tools.




If you drag a blob when the Show Blob Info option is checked, a vertical line also appears in the Time Ruler aligned with the exact start of the note. This makes more precise positioning possible.

### Show Intended Notes

If you check the option Show Intended Notes, gray frames appear around each blob.

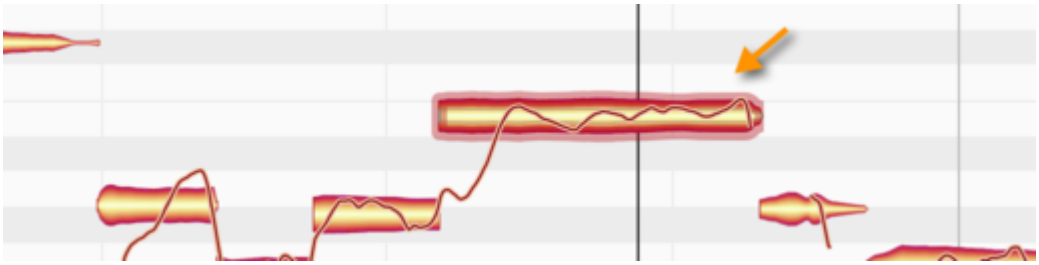


These invariably lie directly on the semitone and coincide exactly with a gridline. They represent, in other words, Melodyne's assumptions (based on its own analysis of the audio) as to the intended pitch of the note and its intended position within the measure or bar. These assumptions generally turn out to be correct, but are not inevitably so. They are to be thought of as suggestions.

The frames also display the positions in pitch and time towards which the notes in question will gravitate if partial quantization is applied to them with the macros, which are also the positions they will snap to if you double-click on them with the Time Tool or Pitch Tool.

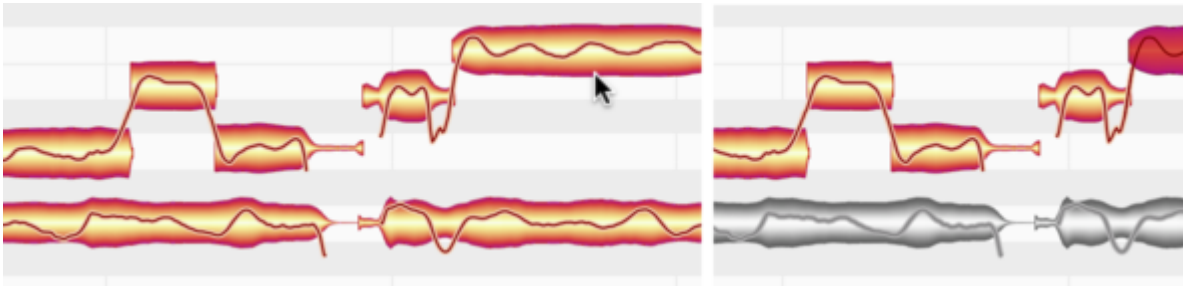
### Highlight Notes During Playback

With this option, you can select whether or not you would like your eye to be drawn to the note currently playing back. Highlighting is mainly useful when the screen is thick with notes.



### Highlight Track Affiliation

This option gives you a better overview of which notes belong to which tracks when multiple tracks are being displayed simultaneously in the Note Editor: When the option is checked and you click on a note with a tool, all notes belonging to tracks other than that of the note selected will be displayed in grey for as long as you hold down the mouse key. This lets you see at once which notes do, and which do not, belong to the same track as the note selected.



### Monitor When Editing Blobs

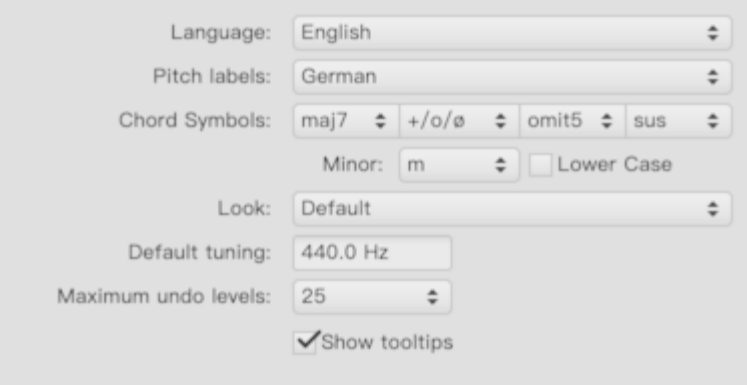
When you shift the pitch of blobs in the Note Editor with this option selected, Melodyne plays for the purpose of orientation the sound of the note at the position originally clicked. You can turn this acoustic feedback on or off.

# Preferences and keyboard shortcuts

From the Preferences property sheet, you can select fundamental options governing the modus operandi of Melodyne as well as define a number of keyboard shortcuts.

### Opening the window and user interface settings

In the plug-in implementation of Melodyne, you open the Preferences property sheet from the Settings menu; in the stand-alone implementation, choose Preferences from the program (macOS) or File (Windows) menu. The settings available in the stand-alone implementation differ slightly from those offered by the plug-in.




The following user interface options, however, are available in both implementations of Melodyne. Any changes you make in either implementation apply to both.

- Language: Determines the language of the user interface.
- Pitch labels: Determines which system is used to name the notes – i.e. (descending chromatically) English (C, B, Bb etc.), German (C, H, B etc.) or Latin (Do, Si, Sib etc.).
- Chord spelling: Here you can choose the spelling convention used on the Chord Track.
- Appearance: Here you can select between different contrast settings for the user interface.
- Default tuning: Determines the default frequency of the reference pitch A4 for newly created documents.
- Maximum undo levels: Melodyne allows you to undo up to 100 actions. The default value, however, is 25. You can, if you wish, increase this value, which will consume more RAM, or you may prefer to reduce it, if memory is running short.
- Show tooltips: Once you are thoroughly familiar with Melodyne, you may prefer to hide the tooltips, i.e. the explanatory text that appears as you move the cursor over the various icons and other elements of the user interface.

### Audio and recording preferences

In both the stand-alone implementation and the plug-in, you will find the following two options:

- Audio cache: Shows the location on your hard disk of the audio cache Melodyne requires for internal processing.
- Audio cache size: Determines the maximum size of this cache.

The audio cache is used to store files Melodyne needs temporarily for its work. The size of the files generated depends on the audio files being processed as well as upon the algorithm Melodyne is using for the detection.

If these files are deleted and the Melodyne project that created and was using them is later opened again, they have to be recreated, which, obviously, means it takes a little longer to open the project. If, on the other hand, the files are still available, Melodyne will just carry on using them as before.

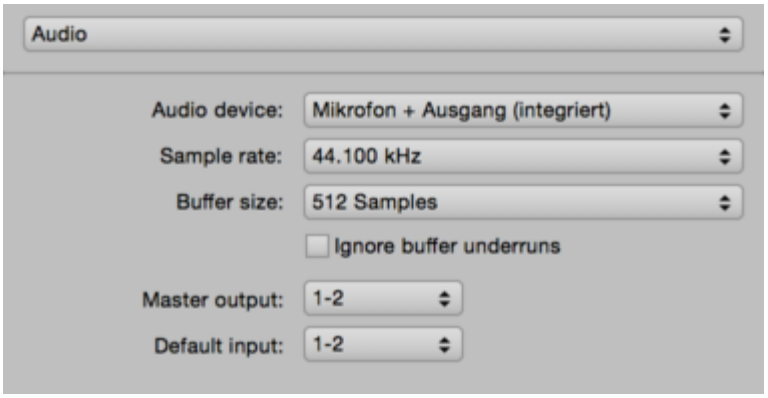
You can adjust the size of the cache. If, when the program is next opened, the cache is full, Melodyne frees up space automatically for fresh data.

Please note: The location of the audio cache is predetermined and cannot be altered:
*Windows:*C:\Users\USERNAME\Documents\Celemony\Separations.
**macOS:**/Users/USERNAME/Library/Caches/com.celemony.Melodyne/Separations

The following option is only found in the plug-in:

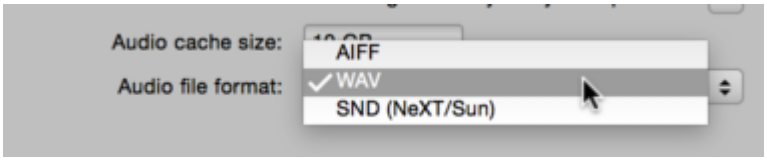



- Detect audio after transfer: When this option is selected, the detection (analysis) of the audio material does not begin until the transfer is complete, thereby reducing the CPU load during the transfer. Select this option if your computer is not especially powerful and there are indications during the transfer that its resources are becoming overstretched (e.g. clicks, drop outs, extreme slowing-down of the system).



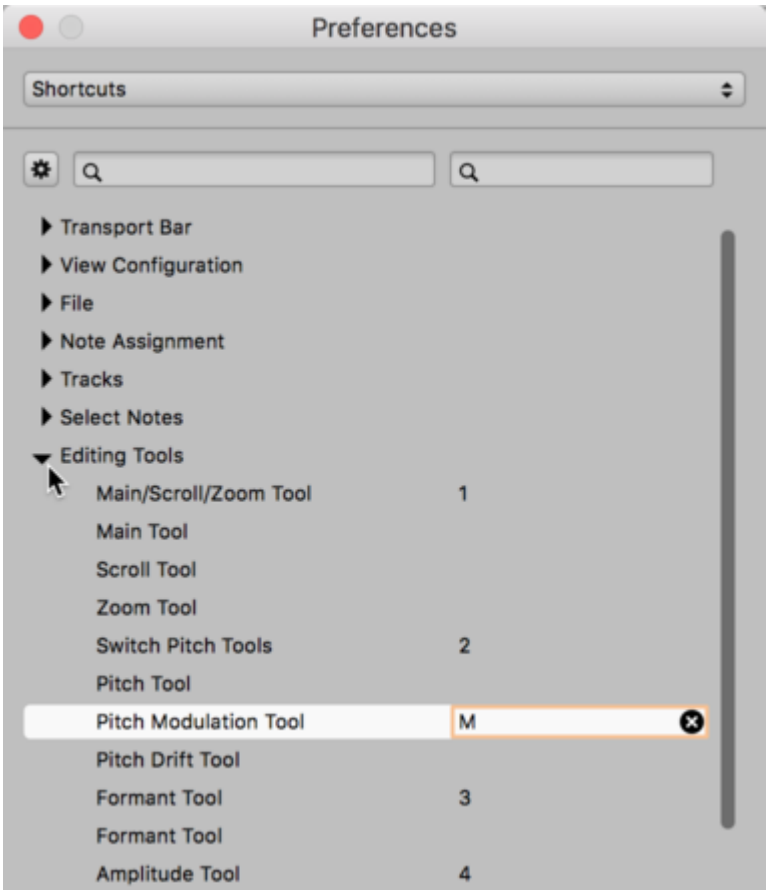

The Audio and Recording pages of the Preferences property sheet display the following additional options:

- Audio device: allows you to select an audio driver or the audio hardware driven by it.
- Sample rate: determines the sample rate used by Melodyne.
- Buffer size: determines the size of the buffer used for audio editing. The smaller the value, the lower the latency but the greater the load on the CPU.
- Ignore buffer underruns: If Melodyne Stand-Alone is running on a slow computer where the possibility of an overload (and an ensuing click or dropout) exists, by checking this box, you inform Melodyne that you consider the former to be the lesser of the two evils – the point being that audio hardware is often very sensitive to dropouts and can even in such cases cause the entire computer to crash. Check the box if ever this happens. Such occurrences are very rare, however, and most users can safely ignore this option.
- Master output: selects the main output for Melodyne stand-alone. The level at this output is controlled by the Master Volume control in the transport bar. If your audio hardware only offers one output, this is automatically the Master output
- Default input: selects the main input for Melodyne Stand-Alone. If your audio hardware only offers one input, this is automatically the Default input.
- Audio file format: determines the file format used by Melodyne to store recordings. The most commonly used formats are WAV and AIFF.



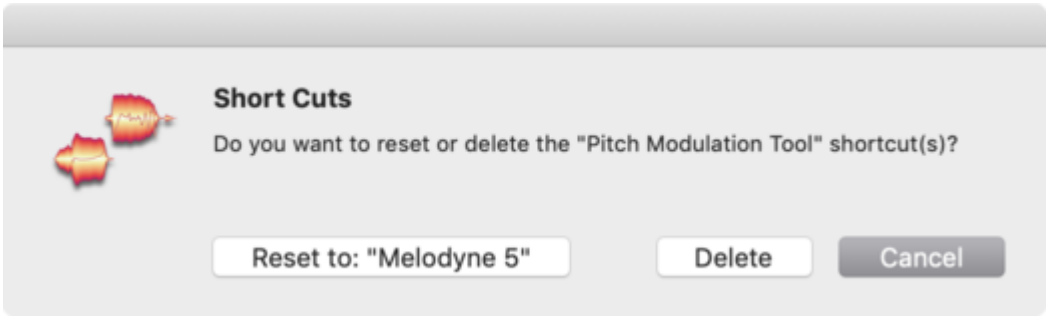

### Shortcuts

From the “Shortcuts” page, you can assign keyboard shortcuts to a large number of Melodyne functions and commands. The functions and commands in question are grouped according to category; click on the triangle alongside a given category to see a list of all the functions it includes. The following screenshot, for example, shows all the commands associated with the editing tools.




Click on a command (“Pitch Modulation Tool” in our example) and then press the key or key combination you wish to assign to it. Melodyne will remember your choice, so any time you press the key or combination in question, this will activate the Pitch Modulation Tool. Repeat the procedure for as many commands as you like.

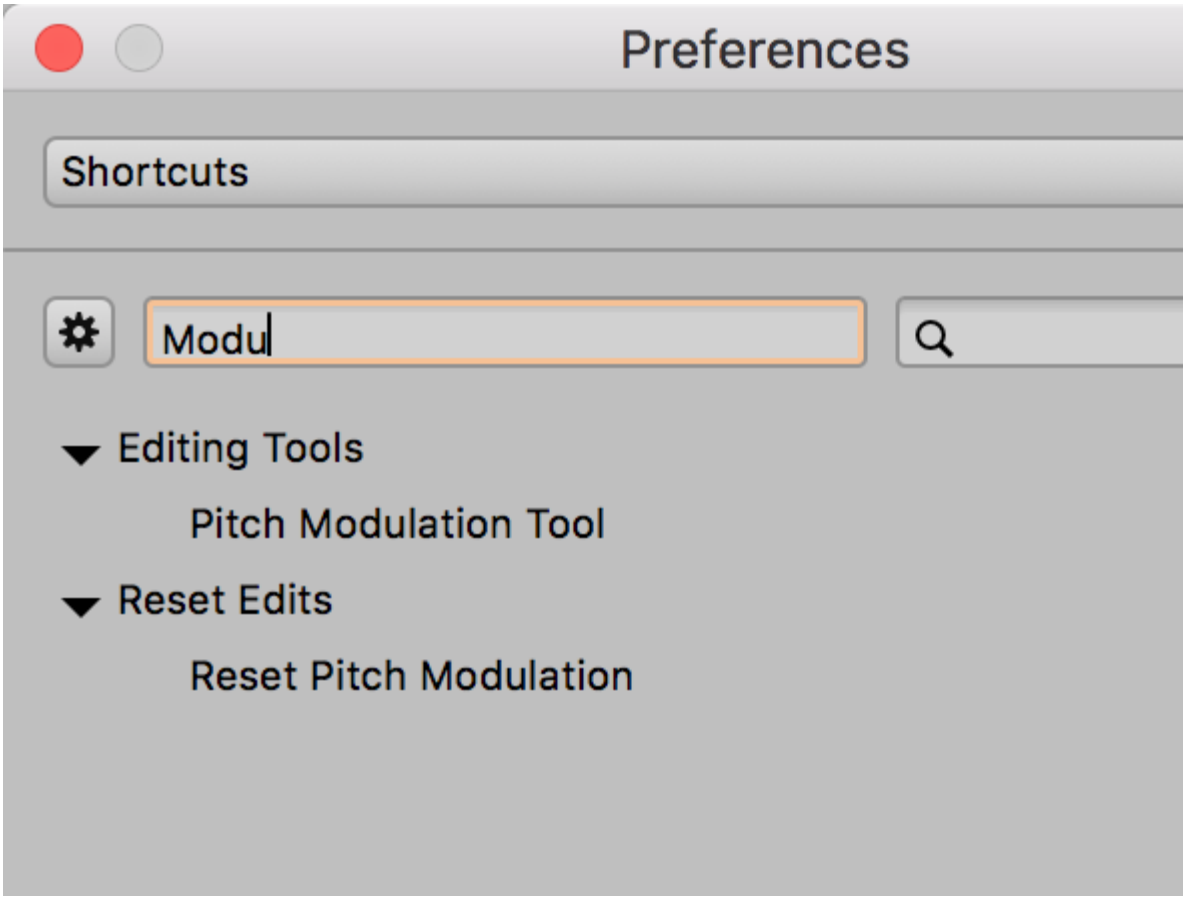
To the right of each key combination assigned, you will see an “x”. If you click on this, you can choose one of the following functions:




- “Delete”: This cancels the assignment, so it will no longer be possible to invoke the command in question using a shortcut.

- “Melodyne 5”: This restores the default shortcut for the command in question. (In the case of many commands – namely those for which there *is* no default shortcut – choosing “Melodyne 5” here will have the same effect as choosing “Delete”).

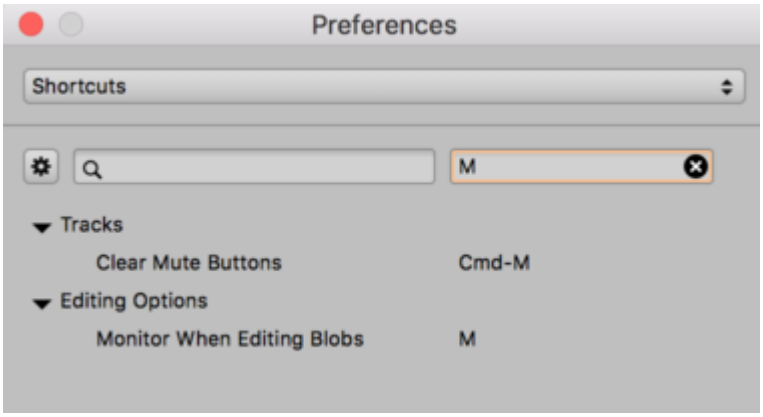
As an alternative to opening and closing the categories and scrolling through list of commands, you can find the command you’re looking for by typing in the *left-hand* search box. This rapidly narrows the choice and can save time. You don’t have to type the entire name of the command; just typing “Modulation”, for instance, throws up two search results:




If you change your mind, just click on the “x” in the left-hand search box and the original list will be restored in its entirety.

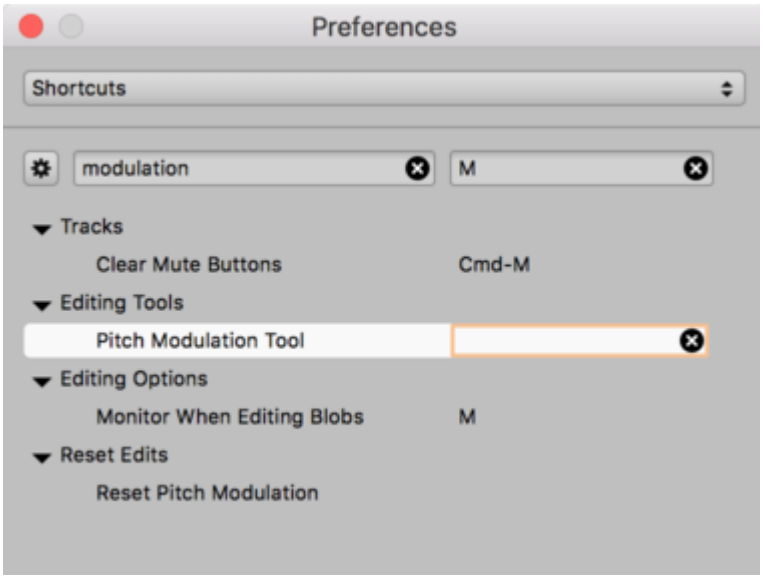
As well as searching by command or function name, you can search for the keys or key combinations already assigned; you do this using the *right-hand* search box. Here, too, an incomplete entry can yield multiple search results, which is very helpful in practice.

For example, suppose you wish to assign a keyboard shortcut to the command that activates the Pitch Modulation Tool. In that case, [M] (i.e. the “M” key on its own, standing here for ‘modulation’) would appear to be the obvious choice; or, if that key’s already taken, perhaps [Shift][M] or [Cmd][M]. To find out, just type “m” in the right-hand search box, and you will see what your options are:



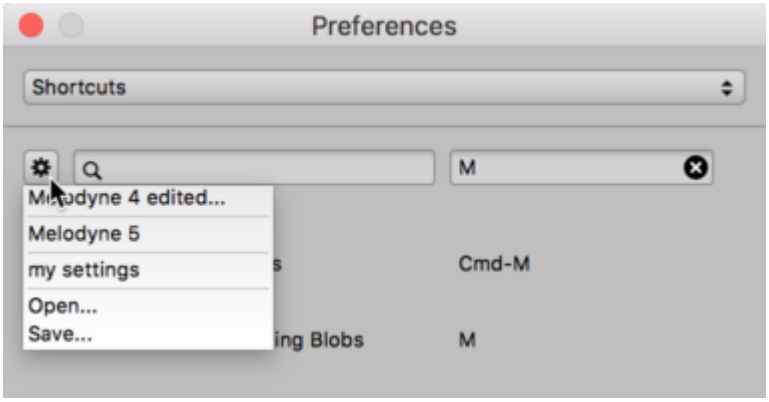

[M] on its own, as you see, has already been assigned, but the combinations [Alt][M] and [Shift][M] are still available.

You could also combine both fields, like this, for example:




This makes it child’s play to find a suitable shortcut. And, naturally, in our example, you could still opt for [M], even though it’s assigned by default to another function; it appears in your filtered list to make it easy for you to reassign it, if you choose to do so.

You can save your preferred shortcut assignments as a set and also load custom-designed sets, such as those recommended for particular DAWs. To manage all such sets, use the gear/cog menu at the top left.




- "… edited": This shows you which set of shortcuts you are currently using. If it says "Cubase", for example, and nothing more, this means that the set of shortcuts currently loaded is the one designed for the Steinberg DAW of that name and that you have not yet modified it in any way. If, on the other hand, it said "Cubase (edited)", this would indicate that, after loading the set designed for Cubase, you had made certain changes of your own. In such cases, you might wish to save the set under a new name (see below).
- "Melodyne 5": Click here to load the factory default shortcuts for *all* commands and functions. If you do this, any unsaved assignments of your own will be lost.
- "Open" and "Save": These commands allow you to load an existing set of shortcuts or save the changes you have made to the hard disk. By saving your preferred shortcut assignments, you can take them with you when you change studio and load them into Melodyne there.

When you use the Save function, Melodyne suggests you store your shortcuts in the following folder:

macOS:
/Users/Shared/Library/Application Support/Celemony/Shortcuts/Melodyne5

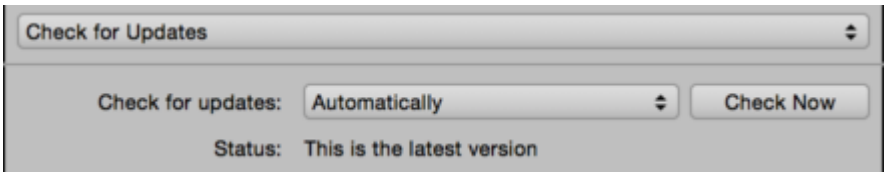
Windows:
C:\ProgrammData\CelemonySoftwareGmbH\Shortcuts\Melodyne5

The advantage of storing your shortcuts in the folder suggested (give them a name such as "MyShortcuts") is that they will then appear in the list and be readily to hand at all times.

If, on the other hand, you're travelling to a different studio where you will be working on a different computer, you should simply ignore the folder suggested and save your shortcuts to some other location, such as a USB stick or your Dropbox folder.

### Check for Updates

On this page, you can determine whether Melodyne checks for updates automatically or manually i.e. only when you click the 'Check Now' button, which you can do at any time.


Check for Updates
Check for updates:
Automatically
Check Now
Status:
This is the latest version

# Audio characteristics and algorithms

For the display and editing of different types of audio material, Melodyne employs different algorithms. Here, we outline which algorithms are available and for which types of audio material each is used.

### The detection process

Melodyne analyzes the audio material to find the notes it contains and offer them to you for editing. We call this process “detection”.

In the course of the detection process, Melodyne itself takes a view as to what kind of material it is confronted with and decides which algorithm to use for the display and playback of the notes. You can tell which algorithm is selected at any given time by the check mark in the Algorithm menu as well as by the blobs in the Note Editor. Please bear in mind, however, that the detection process – in particular in the case of polyphonic audio material – cannot, for reasons that have to do with immutable principles, always deliver perfect results. Since a musically correct analysis of the recorded material is the most important precondition for efficient editing and convincing acoustic results, we recommend you to check the results of the detection systematically and make whatever corrections in Note Assignment Mode are necessary.

#### A brief overview: Which algorithm for which type of material?

To obtain the most suitable and detailed editing possibilities, for the following sound sources, the following algorithms are generally used:

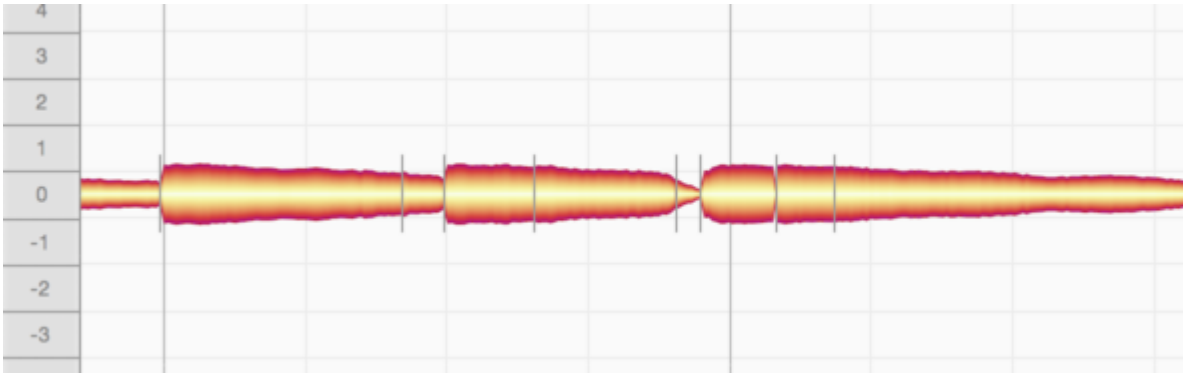
- Singing, speech, saxophone, flute, monophonic bass etc.: **"Melodic"**
- Drum and percussion sounds or loops, and other percussive sounds with no significant pitched components: **"Percussive"**
- 808-kicks and -toms, tabla and similar percussive sounds with a pitched component: **"Percussive Pitched"**
- Pianos, strings, organs, guitars and other instruments capable of sounding more than one note at a time, where you wish to edit individual notes: **"Polyphonic Decay"** or **"Polyphonic Sustain"** (depending upon their sound or the playing techniques employed e.g. in the case of strings: *pizzicato* or *legato*)
- Rhythm guitars (funky guitars or distorted riffs and similar sounds), where you only wish to time-stretch or transpose them and no access to individual notes is required: **"Universal"**

- Loops featuring multiple instruments, or complete mixes, that you wish to time-stretch, quantize or transpose: **"Universal"**
- Experimental sound design (regardless of the original sound source): potentially any algorithm with extreme settings but primarily **"Polyphonic Decay"** or **"Polyphonic Sustain"**

### The Universal algorithm

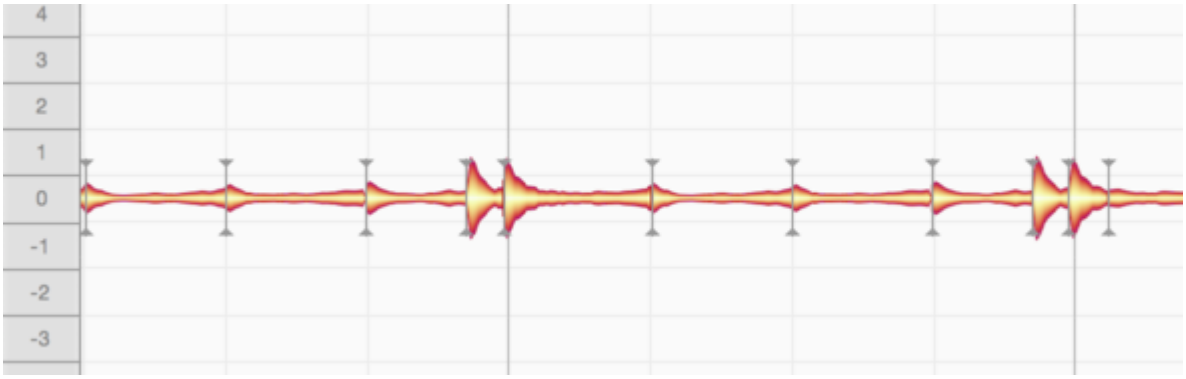
The Universal algorithm is particularly suitable for complex signals containing both percussive and tonal elements. If, for example, you wish to alter the pitch, timing or tempo of an entire piece of music, this algorithm will deliver the best sound quality.

The Universal algorithm, like the Percussive one, displays all the detected notes at the same pitch. The Pitch Ruler displays no note names, merely relative values for the semitones, and the scale functions are deactivated. The Universal algorithm completes the detection process very quickly and also consumes far fewer resources than the Polyphonic algorithm. It represents a good choice, therefore for recordings of individual instruments of all kinds that you intend simply to speed up, slow down or transpose. Tracks, in other words, for which you do not need bells and whistles such as DNA or Melodyne's scale functions. Please note that with files that have been detected using the Universal Algorithm, the Attack Speed Tool cannot be used. Attack speed handles will therefore not be displayed for the corresponding blobs and the Attack Speed field in the Note Inspector will be grayed out. Please note that "Universal" is never used automatically for the detection; it must be selected manually if required.

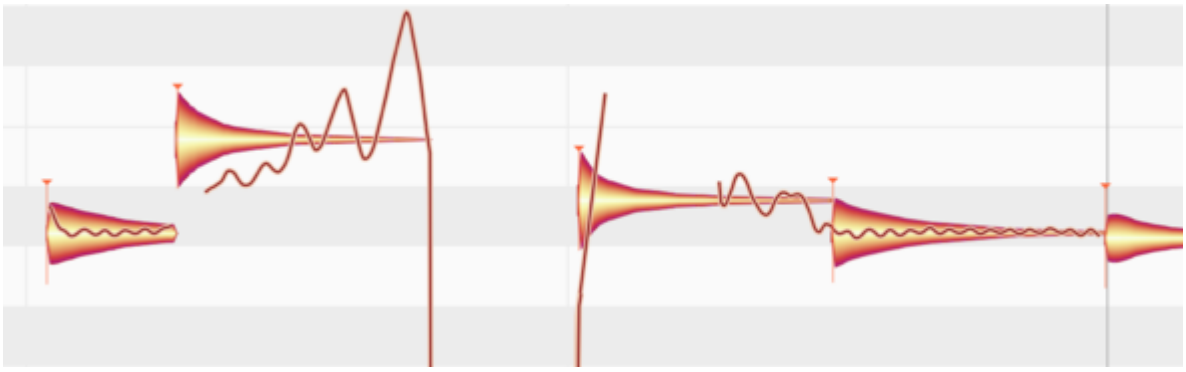



### The "Percussive" algorithms

The **"Percussive"** algorithms are suitable for recordings of drums and other percussion instruments but also noise and atmospheric effects as well as other material in which Melodyne cannot detect any clear pitch in the sounds. In this case, successive drum strokes (for example) are distinguished, but they are all displayed at the same pitch. The blobs can still be raised or lowered, however the Pitch Ruler does not display the names of any notes but simply relative values in semitones. The scale functions are deactivated.




Some percussion instruments, however, *do* have what can be understood as a melodic capability, in that many of their sounds have a perceived pitch. Certain 808 kick drums, for example, are clearly tuned to the bass. The berimbau, too, for all the percussive character of its sound, plays recognizable melodies – as does the tabla. It is for such instruments – instruments that are in fact percussive yet still somehow also melodic – that the **"Percussive Pitched"** algorithm is intended. Here the detected sounds are separated and assigned to individual pitches. This makes it easy to adjust the tuning of an 808 kick drum, berimbau or tabla to the piece of music in question.



Whilst the Percussive and Universal algorithms are similar in terms of the way the blobs are handled and displayed – just as the Percussive Pitched and Melodic algorithms seem similar at first sight – the two percussive algorithms in fact operate in a different way internally from their optical “twins”, as they are optimized for various aspects of percussive sounds and consequently deliver their most convincing sound quality when dealing with material of a predominantly percussive nature. When dealing with non-percussive sources, however, such as the human voice, guitars, pianos and so forth, they are at a distinct disadvantage compared with the other algorithms, which are optimized for sounds with a distinct pitch.

In case of doubt – with instruments seeming to fall (or perhaps alternate) between the stools “percussive” and “melodic” – the best policy is to try each algorithm in turn.

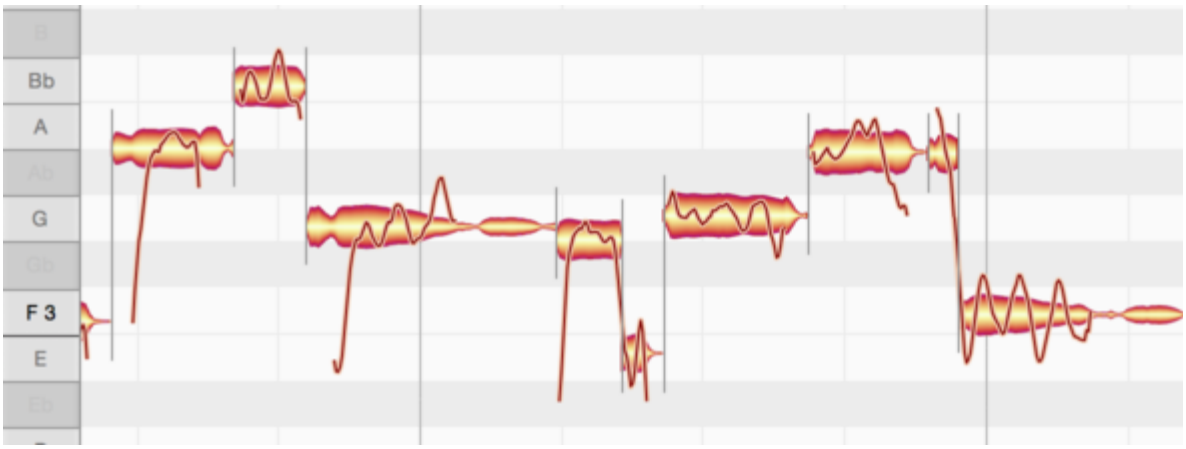
Another distinctive feature of the “Percussive Pitched” algorithm, which it shares only with the “Melodic” algorithm, is that Melodyne is able here to detect, display and permit the editing of sibilants. With the “Melodic” algorithm, however, this happens automatically, whereas with the “Percussive

Pitched” algorithm, sibilant control is by default switched off. To switch it on, go to Note Assignment Mode and check “Sibilant Handling” in the Algorithm Inspector. You can learn more about this here.

### The Melodic algorithm

Melodic material is monophonic, by which we mean it is such that only one note is ever sounding at any given instant. Please bear in mind, however, that reverberation can cause notes to overlap even in monophonic material, creating, in effect, a kind of polyphony. If melodic material is to be edited in Melodyne, therefore, you should aim for as clean and “dry” (reverberation-free) a recording as possible.

The blobs representing notes in melodic material are displayed at different pitches. Whether the blobs are isolated or joined to other blobs depends on the way they were played or sung: staccato or legato.




The “Melodic” algorithm is predestined for lead vocal tracks, as these are invariably monophonic; for there to be polyphony, there would have to be at least two singers. Furthermore, this algorithm takes into account the sibilants invariably heard in vocal parts. In the term ‘sibilants’, Melodyne includes not only consonants and digraphs such as “s” and “ch”, but also word fragments like “k” and “t” as well as the sound of the vocalist inhaling or exhaling between words.

Such sounds, which Melodyne identifies automatically and displays hatched, share one peculiarity in nature: There is no way singers can give them a particular pitch, so they remain unaffected by melodic changes. This behavior is preserved perfectly by Melodyne’s “Melodic” algorithm: Sibilants remain unaltered even when the word or syllable to which they belong is shifted upwards or downwards in pitch.

Let’s say the word is “sweet”, and we move the blob that represents the note in question upwards or downwards. Whilst the entire note will appear to move, acoustically this will not be the case as the “S” at the beginning and the “T” at the end will sound exactly the same after the pitch shift as they did before; only the “wee” in the middle will change pitch – in the direction, and by the amount, of the blob movement.

When editing timing, too, you will notice that the sibilants (indicated by the hatching) are never unnaturally squeezed or stretched.

This intelligent treatment of sibilants is vital to achieving natural-sounding correction of intonation and timing. Melodyne even takes into account the borderline cases that occur in nature, where sibilants and pitched components are heard simultaneously (rather than successively, as was the case earlier with the word “sweet”).

In Note Assignment Mode, you can edit the results of the detection and (if need be) alter the length of the sibilants detected or deactivate sibilant detection for an audio file in the Algorithm Inspector.

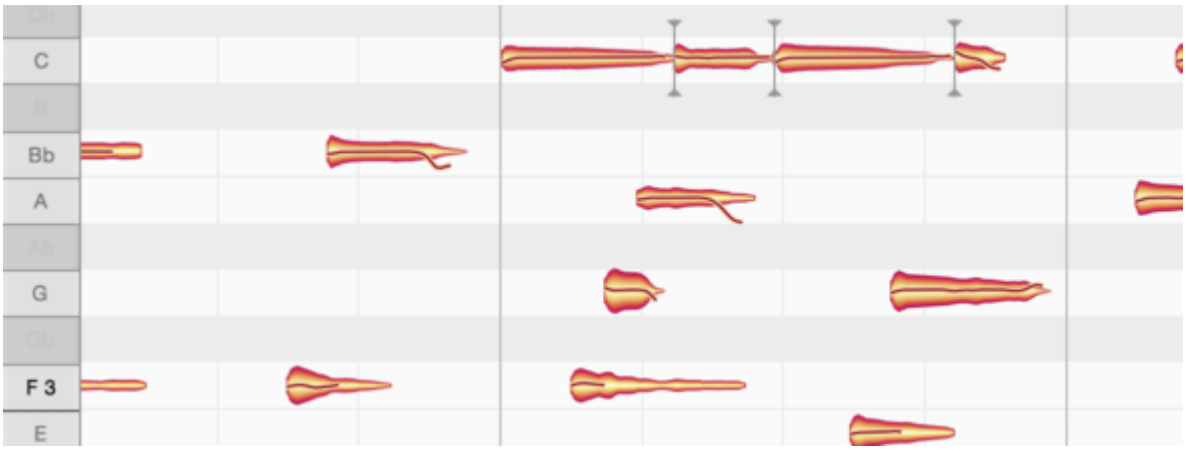
### The “Polyphonic” algorithms

In Melodyne, thanks to DNA Direct Note Access, notes can be detected and edited within recordings even of polyphonic instruments such as the piano or guitar – including the individual notes of which chords are composed. When the Polyphonic algorithm is used, the blobs are displayed in a similar manner to those of monophonic material, with the obvious difference that the blobs are stacked vertically (at their respective pitches) whenever a chord or harmonic interval sounds.

There are two versions of the Polyphonic algorithm.

- **Polyphonic Sustain** is suitable for a wide range of polyphonic audio material in which the start of each note does not differ significantly from the rest, as is the case with string instruments played legato and organ music.
- **Polyphonic Decay** is a variation of that algorithm designed for instruments or playing techniques where the start of each note is markedly different from what follows, examples being string instruments played pizzicato, guitars and pianos.

Please note that DNA is intended for polyphonic instruments recorded *singly*, as it separates notes by pitch – not by instrument. This means that if you were to record two different instruments on the same track, whenever they played the same note, a ‘single’ blob would appear (representing the combined sound of both instruments) rather than a separate blob for each instrument playing the note.




### Switching algorithms

You can at any time select a different algorithm to that chosen automatically for you by Melodyne. You might want to do this, for example, if you find that the material has not been interpreted in a way that suits your editing needs. To do this, while playback is halted, select the algorithm you prefer from the Algorithm menu. Melodyne will reinterpret the material in the light of your choice and adjust the display accordingly.

Note: when you do this, any editing of the same track performed prior to switching algorithms, including any copying of notes, will be lost (copied notes on other tracks are retained) . The right time to decide which algorithm you wish to use, therefore, is before you begin editing.

In the plug-in implementation of Melodyne, the choice of algorithm applies per transfer, whereas in the stand-alone implementation and an ARA DAW, it applies per audio file in the document being edited – collectively, we describe all such material as ‘audio sources’. Before you can change the algorithm applied to a particular audio source, you must first select one or more notes belonging exclusively to it. If you have selected no notes, or notes from two different audio sources, the Algorithm menu will be grayed out. In such cases, reduce your selection to notes belonging to one audio source only and it will be possible to switch algorithms.

A special feature of the stand-alone implementation: When you switch algorithms, triggering a fresh detection, Melodyne looks at the status of the Auto Stretch switch: if the Auto Stretch function is activated, once the new detection is complete, the tempo of the file will also be adjusted: if Auto Stretch is not selected, the original tempo of the file will be retained.

NB: There is some audio material that cannot be detected using the polyphonic algorithms because it contains too few tonal components. If in the case of such material you have chosen one of the polyphonic algorithms as the default (see below), the polyphonic detection process will be interrupted and a fresh detection of the material using the Percussive Algorithm, which is better suited to it, will commence. If you wish in such cases, when this detection is complete, you can still switch to Universal or Melodic.

### Automatic or manual algorithm selection

By default, Melodyne makes its own determination, based on the characteristics of the sound, as to which is the best algorithm to apply, distinguishing between these types of material:

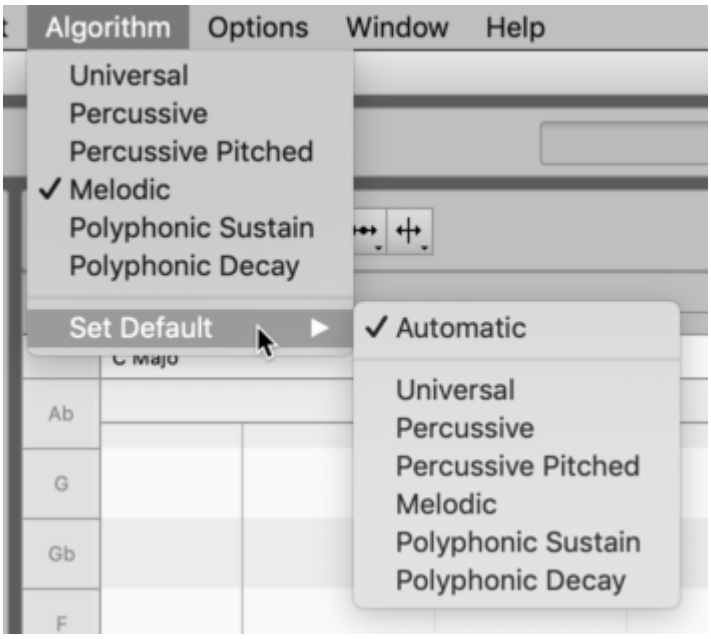
- Percussive material, in which case the “Percussive” algorithm is selected.
- Monophonic melodic material, in which case the “Melodic” algorithm is selected.
- Polyphonic material, in which case, depending upon the audio material, either the “Polyphonic Decay” or the “Polyphonic Sustain” algorithm is selected.

If, however, in an instance of the plug-in implementation of Melodyne or on a track of the stand-alone implementation material has already been detected, when new material is transferred to that instance or a new file dragged into the track of the stand-alone implementation, Melodyne will use the same algorithm for the new material as it used for the old – even if Automatic is selected.

Overruling the Automatic setting in this way is designed to ensure maximum consistency in the detection and avoid all risk of one of the transfers from a vocal track suddenly being interpreted as percussive. If, however, you have altered the algorithm of a transfer or file manually, the automation kicks in again afterwards, and no further attention is paid in the case of further transfers or files to already detected material.

This rule only applies when Automatic is preselected as the algorithm and it does not apply when, in the stand-alone implementation of Melodyne, you first drag a file into the document for which you have already saved additional information regarding the algorithm and note detection. (From Note Assignment mode in the stand-alone implementation of Melodyne, it is possible to store this type of assignment data in an audio file.)

By setting a different default via the Algorithm menu, you can prevent Melodyne selecting an algorithm automatically for the detection. This can be useful if, for example, you regularly want to edit particular files using the Percussive algorithm but Melodyne, each time they are opened, is interpreting the material as polyphonic. By preselecting the Percussive algorithm in such cases you can save time, as you will no longer have to wait needlessly as Melodyne performs its polyphonic analysis, only to discard the results moments later when you manually select the Percussive algorithm.




Do not forget, however, when you no longer need to impose your choice of algorithm on Melodyne, to restore Automatic as the default setting. Otherwise, since Melodyne remembers your default selection even after you have quit the program, you might be surprised to discover when the program is next launched that your vocals have been interpreted as percussive.

You will find further tips on working with these algorithms in the Melodyne Training section.

# Note Assignment Mode

Since Melodyne invariably conducts an analysis (we call it “detection”) of the audio material before you can do any editing, the correctness or otherwise of this analysis has a considerable influence upon how well you are able subsequently to work with the material and how authentic the results of your editing will sound. For this reason it is important to check whether Melodyne has identified the notes within your material accurately and if necessary correct any mistakes. This where Melodyne’s Note Assignment Mode comes in.

### What editing the detection involves

When you are working in Note Assignment Mode, none of the changes you make has any audible effect on the notes themselves. All you are doing is ensuring that the notes that are displayed do actually correspond to those that were played or sung. In other words, you are bringing what you see into line with what you hear. In the process, you are working at all times on the display of the original recording and, with it, so to speak, on the basis for all musical changes made later with Melodyne. The sounder the basis, the better the eventual sound of your edits.

The fact that it is sensible and necessary to check and edit the detection and, with it, the interpretation of the audio material may seem tiresome at first sight. But it brings with it enormous advantages, for there are often several possible interpretations of the audio material, and which is the correct one in a given acoustic and musical context is for you, ultimately, to decide.

But don’t worry. The detection process in Melodyne is mainly automatic and delivers logically coherent results. How much there is to edit in this mode depends upon the algorithm used and the audio material in question. With a dry recording of a single vocalist, for example, you will very rarely encounter problems. It may happen from time to time that a note is detected in the wrong octave, in which case, if you later transpose it, it will sound unnatural. Correcting the detection in such cases is a task swiftly accomplished. The same goes for percussive material, where it is generally only necessary to introduce or remove the occasional note separation.

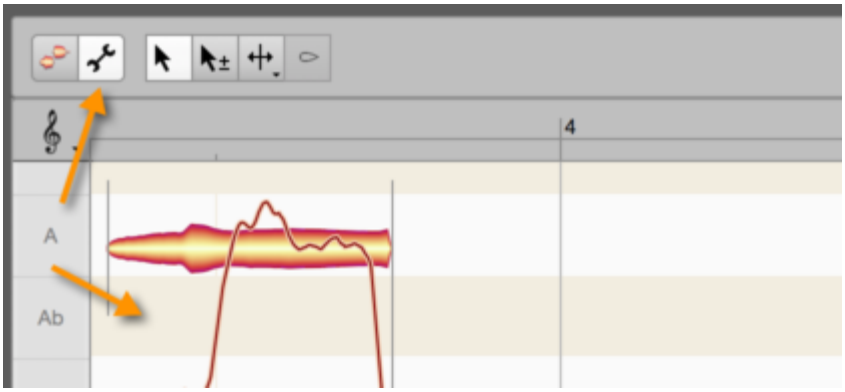
It is the detection of polyphonic material, naturally, that requires the most fine-tuning in Note Assignment Mode. Here the issues are more complex, and plausible interpretations more abundant, than with the other algorithms; though, once again, the amount of editing required is chiefly dependent upon the nature of the audio material. Thanks to their clear overtone structure, notes played on a xylophone, for example, are far easier to detect accurately than any found on a distorted guitar track. This is because, in the latter case, the array of overtones is more complex, and assigning them to the correct notes (i.e. to the fundamentals to which they belong) is more difficult. With such signals, it can also happen that a particularly prominent overtone is mistaken for a fundamental i.e. it

is interpreted as a note in its own right, when in fact it is merely the by-product of a lower note. If this mistake is not corrected and you later shift the pitch of the overtone only (leaving that of the fundamental unchanged), the two components will clash and sound unnatural.

The overtone example illustrates clearly why in certain cases Melodyne cannot have 100% confidence in its decisions, why it cannot always know with certainty which notes were and were not played. In Note Assignment Mode, therefore, the object is to establish an exact, one-to-one correspondence between the notes displayed and those that were actually played. The payoff comes later, when you begin editing, as the Note Editor then will display only the correct notes and your editing will deliver the most authentic-sounding results possible.

### What is edited and where

Like the choice of algorithm, Note Assignment Mode applies invariably to all the notes of i) a particular audio file, ii) a particular recording, or iii) a particular transferred segment – we will use the term “audio source” to cover all three. When the Note Editor contains notes from different audio sources, begin by selecting a note belonging to the source the detection of which you plan to edit.




Now click the wrench (spanner) icon next to the toolbox of the Note Editor to activate Note Assignment Mode. The background in the Note Editor changes color to show that you are no longer in normal Edit Mode but have switched to Note Assignment Mode. In Note Assignment Mode, what you see and hear is the original state of the audio source; any editing you may have performed on it previously is ignored here.

Any time you click on the blob icon (to the left of the wrench), you will leave Note Assignment Mode and return to Edit Mode. There you will hear once again the results of any editing you performed before switching to Note Assignment Mode. This only applies, however, if you have not changed algorithm in Note Assignment Mode, as any change of algorithm triggers a fresh analysis, and any time you trigger a fresh analysis – any time, in other words, the detection process is repeated – all editing that has been performed on the notes previously is lost.

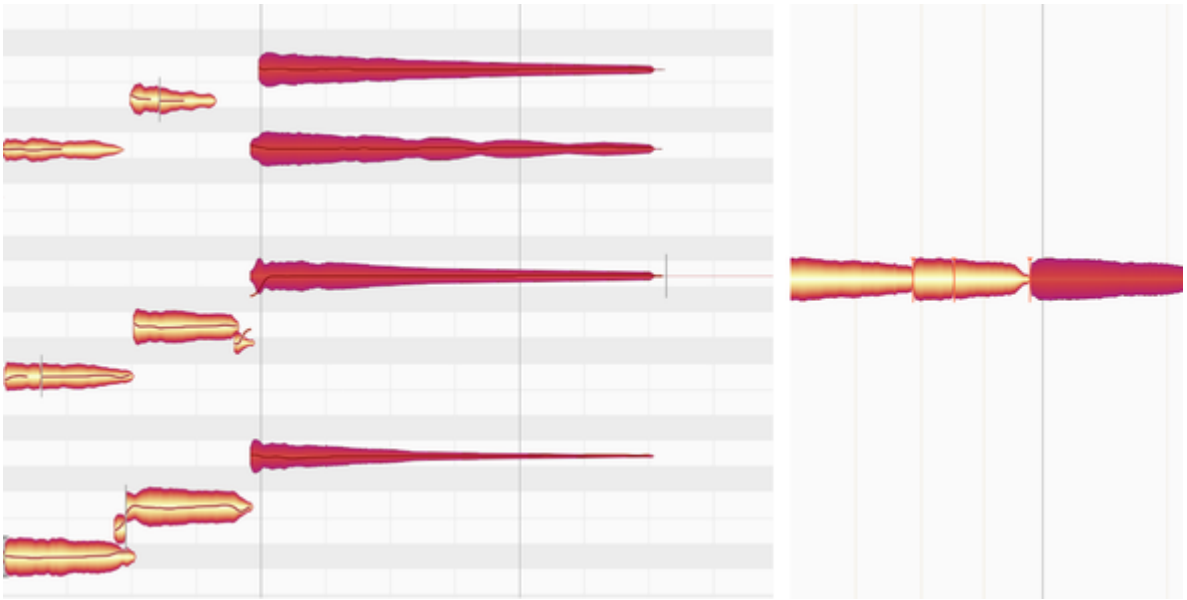
### Various types of notes

A Melodyne “blob” represents a note, but Melodyne distinguishes between several types of note, and it is important – especially when you are working in Note Assignment Mode – to understand the difference between them. They are:

- active notes
- inactive/potential notes
- silent notes.

Most blobs represent **active notes**. These are what Melodyne, having carefully analyzed the recording, believes to have been the notes (i.e. the fundamentals) that were actually played or sung. Active notes correspond to the notes that would be displayed on the sheet music: here a D, here an F#, here another D or an A etc. As well as a definite pitch, active notes have a definite length; and naturally, you can alter these and other characteristics of the notes in Melodyne.

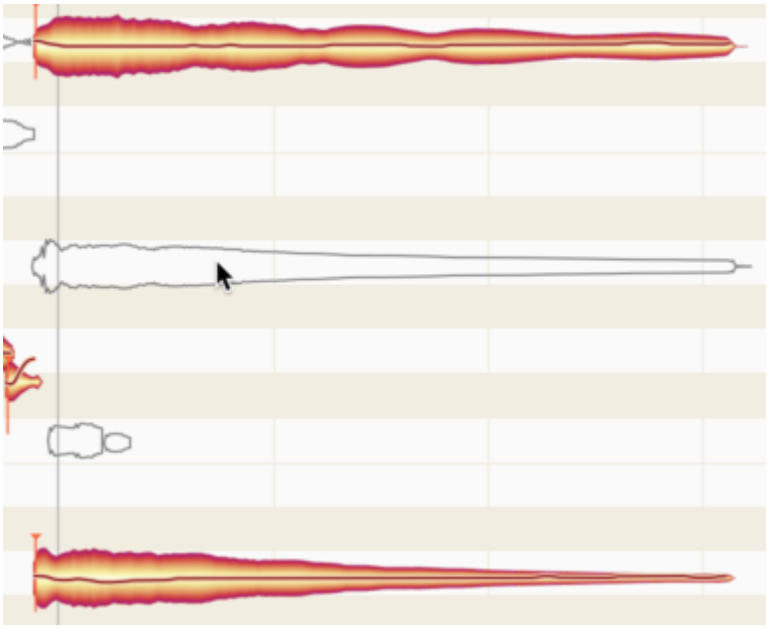
When the Melodic algorithm is used, only one note can ever be active at a time; that is because this algorithm is the one designed for monophonic sound sources (the human voice, say, or an instrument such as the clarinet or trumpet that is only capable of playing one note at a time). With the polyphonic algorithms, which are designed for instruments like the piano or the guitar that are capable of playing chords, or multiple melodic lines simultaneously, two or more notes can be active at the same time, with a separate blob assigned to each. When the audio material has been analyzed using the Percussive or Universal algorithms, however, all the notes of a chord are represented by a *single* blob. So it is better, with these two algorithms, to think of a blob as representing a “slice of time” rather than a musical note. To illustrate the difference, here we see a guitar chord detected (on the left) using the Polyphonic algorithm, and (on the right) using the Percussive one:



From the blobs on the left, you can see exactly which notes comprise the chord. From the “time-slice blob” provided by the Universal algorithm, on the other hand, it is impossible to tell which, or even how many, notes comprise the chord.

In terms of their editability using the tools, there is not a great deal of difference between the ordinary blobs provided by the Polyphonic algorithm and the Universal algorithm’s time-slice blobs – except, that is, when it comes to editing chords: When represented by a time-slice blob, a chord can only be transposed *en bloc*; so a chord of F major, for example, could become G major or A major. In other words, the intervals *between* the various notes that make up the chord cannot be changed because all the notes hidden behind the (single) time-slice blob move exactly the same distance when the chord is shifted upwards or downwards. With the Polyphonic algorithm on the other hand, a separate blob is assigned to each of the notes that make up the chord and you can move each blob individually – perhaps in a different direction and/or by a different amount to the blobs above or below it. In this way you can turn an F major into an F minor – or any other chord you like.

Melodyne’s **potential notes** form our next category.



Represented by outlines (or “hollow silhouettes”), they lie at pitches where Melodyne thought about drawing a regular, solid blob, but decided in the end to place this somewhere else, leaving the silhouette as a hint at to what might be a possible alternative for that particular note.

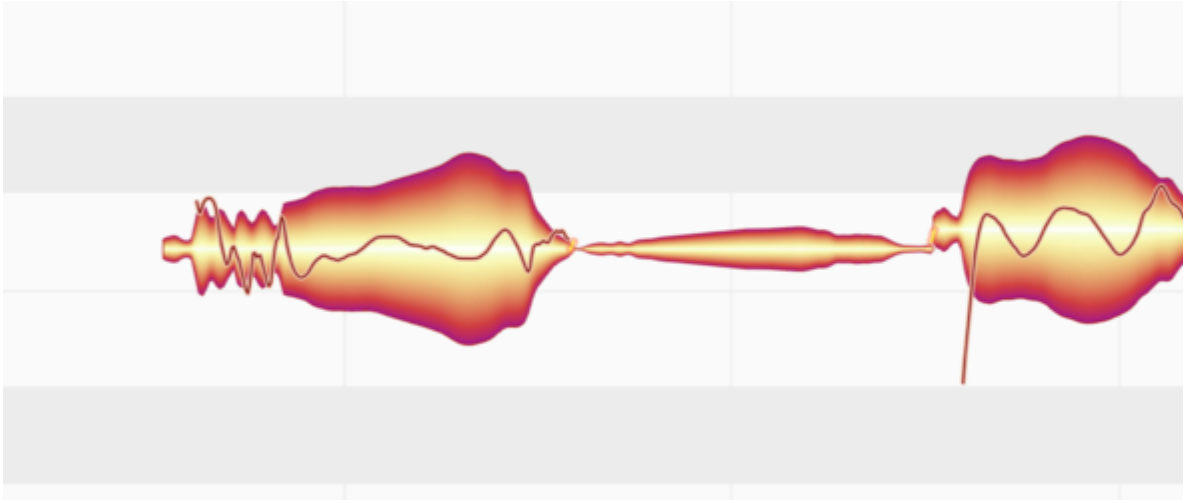
So you might consider turning this potential note into a regular note. This, you can only do in Note Assignment Mode, so it is only in Note Assignment Mode that you will ever see a hollow silhouette. Once you return to normal edit mode, only solid blobs (representing the active notes) appear in the display. It should be added that potential notes are only ever encountered with the Melodic or Polyphonic algorithms.

Finally, there are what Melodyne calls **silent notes**. These can be seen in both Note Assignment and normal Edit Mode, regardless of which algorithm is used to detect the material. A silent note appears wherever there is a break between two notes; it corresponds, therefore, to a rest or pause in the score.

Like a rest, then, it has a definite length but no pitch, so you cannot transpose silent notes. Their length, however, will change if the notes that precede them are shortened or lengthened, or if the notes that follow them are moved forwards or backwards in time, in the same way that an eighth note (quaver) rest in the score would become a sixteenth note (semiquaver) rest if the preceding note were lengthened, or the following note moved forward, by the same amount.

Silent notes are not in fact *entirely* silent, because even during breaks between normal notes the recording continues, picking up things like the hiss of the microphone preamp or the hum of the guitar amp, but they are generally far quieter than the notes around them.

Here we see three notes: an active note, followed by a silent one, followed by another active one:



This illustrates the two significant visual characteristics of the silent note: i) it has no Pitch Curve; and ii) it is always placed level with the note to the left of it; if you shift the latter up or down, the silent note moves with it, but the change is purely visual; whatever sounds the silent note represents remain unaltered.

It is when you come to use the tools in Note Assignment Mode that a clear understanding of the nature and behavior of the various types of note found in Melodyne will pay the greatest dividends. That is the subject of the next tour. You will also learn there how to transform silent notes into normal ones – as well as silhouettes into solid blobs and vice versa, thereby activating and deactivating, respectively, the corresponding notes.

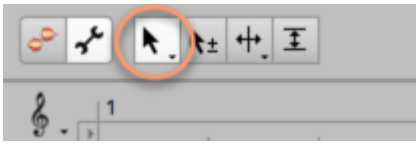
# Tools for note assignment

### The Main Tool in Note Assignment Mode

In Note Assignment Mode, the toolbox contains tools with functions other than those used in normal Edit mode. The most important difference is this: In Note Assignment Mode, the tools have no direct or immediate impact on the sound of the notes; their object, rather, is to bring the detected and displayed notes as closely as possible into line with the actual music. This makes it possible subsequently to edit the material more efficiently and obtain optimal acoustic results.

Which tools are available depends upon the algorithm, as, to a lesser extent, do their functions.

As is the case in normal editing mode, the Main Tool in Note Assignment Mode combines a number of the most important functions of the other tools, so as to allow you to perform a variety of common tasks without having to change tools.

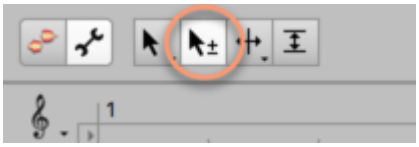


- In the lower part of a blob, the Main Tool functions as the *Activation Tool*.
- In the upper part of a blob, the Main Tool functions as the *Note Separation Tool*.

We will deal with each of these in turn.

### The Activation Tool

The Activation Tool has no function when the Percussive and Universal algorithms are selected. What follows, therefore, only applies when either the Melodic, the Percussive Pitched or one of the Polyphonic algorithms is selected.



If you move the Activation Tool over a blob, its overtone series will be displayed in the background. This enables you to see at a glance which of the blobs above it coincide in pitch with the partials of the note selected.

In addition to the normal solid blobs used in Melodyne to represent notes, you may see hollow blobs of which only the outlines or “silhouettes” are visible. These represent what we call “potential notes”

and lie at pitches where Melodyne considered drawing a regular, solid blob, but decided instead to place this at a different pitch, leaving the silhouette as a hint that this might be a possible alternative for that particular note.

So you might consider turning this potential note into a regular note. This you can only do in Note Assignment Mode, so it is only in Note Assignment Mode that you will ever see a blob silhouette. Once you return to normal edit mode, only solid blobs (representing the active notes) appear in the display. It should be added that potential notes are only ever encountered when the Melodic or Polyphonic algorithms are employed.

In the case of polyphonic instruments, these inactive/potential notes play a particularly important role, because Melodyne may occasionally mistake for a note that was actually played what was in fact merely a particularly prominent overtone of some other note and, as a result, display it as a solid blob. Since your objective in Note Assignment Mode is to ensure that only the 'fundamentals' (the notes that were actually played or sung) are represented by solid blobs, your first task in such a case will be to replace that solid blob with a silhouette – i.e. to deactivate the note in question.

The opposite situation can also arise: If a note is played very quietly, Melodyne may mistake it for the overtone of some lower note, in which case it will not display it as a solid blob but as a silhouette. In this case, you will need to replace that silhouette with a solid blob – i.e. activate the note in question.

**Double-click on a silhouette** and it will be replaced by a solid blob, indicating that the note in question has been activated.

**Double-click on a solid blob** and it will be replaced by a silhouette, indicating that the note in question has been deactivated. Each time a note is deactivated in this way, the spectral energy that was originally assigned to it is distributed between the remaining (active) notes sounding at that time. So when you deactivate an overtone that has mistakenly been displayed as one of the notes played, its spectral energy will be correctly reassigned to the note to which it properly belongs.

Of course, if you deactivate all the blobs corresponding to notes sounding at a given moment in time, Melodyne has no note to reassign their spectral energy to, so in place of the deactivated blobs it creates a silent note. The same principle applies when there is only one note sounding. Such is always the case when either the Melodic or the Percussive Pitched algorithm is used; but even with the polyphonic algorithms, in a melodic passage (in which no more than a single note is ever sounding at a time), any note you deactivate will automatically be replaced by a silent note.

Deactivating all the notes, or the only note, sounding at a given instant (leading to the creation of a silent note) only makes sense, of course, if the instrument in question is meant to be silent at that time (e.g. where there's a rest in the score). Silent notes – what distinguishes them, how they arise in nature, and how they behave in normal edit mode – are described in greater detail here.

**Dragging blobs with the Activation Tool**

A double-click is the gesture you will use most often when working with the Activation Tool. It is also

possible, however, to drag blobs with it, as a means of persuading Melodyne to move the focus of its search to a different area. Particularly with material in which pitches are unclear, a new note can (in theory) be assigned to almost any pitch in this way, provided Melodyne finds something there. This is especially true when the option “Robust Pitch Curve” has been activated in the Algorithm Inspector.

In the case of the polyphonic algorithms, you have to drag a blob about an octave downwards to trigger the search for a new pitch. The new note will then in all probability appear an octave below the previous one.

If Melodyne finds a plausible destination for the note in the area to which you have dragged it, the blob will snap to it; otherwise, it will fall back to its original position. Melodyne only considers certain pitches to be plausible. This is one of the strengths of Melodyne: It brings to its analysis of the audio material real musical intelligence, and does not therefore automatically ascribe every cluster of spectral energy to the presence of a separate note. So, having eliminated all the pitches at which the note played could not possibly lie, Melodyne is left with a handful of candidates it considers “plausible” and invites you to choose between them.

**Alt-dragging with the Activation Tool**
With polyphonic material, however, you can tell Melodyne what it should, and should not, consider a plausible pitch. If, for instance, all attempts to drag the blob to the desired pitch have failed (because Melodyne does not consider the pitch in question to be plausible), just hold down the [Alt] key and drag the blob to the target pitch yourself. This allows you to “force” the blob to a position with a straight pitch curve.
If you hold down the [ALT[ key, you can drag blobs in either direction – upwards or downwards – even with the polyphonic algorithm.

**Recalculation of the pitch center**
When you move notes with the Activation Tool, a fresh search for the Pitch Curve within the note is conducted automatically, but this only occurs when one of the monophonic algorithms is selected.

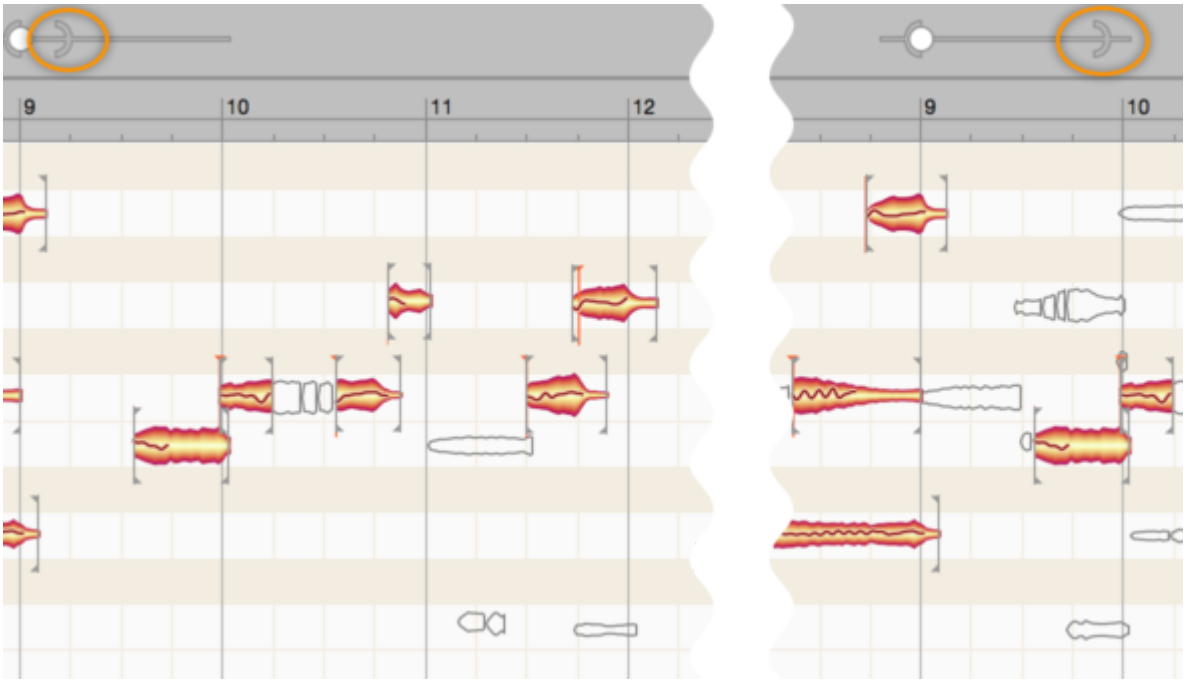
While conducting the new search, Melodyne also recalculates the pitch center of the note. It does this even if you have only moved the blob a very short distance before returning it almost immediately to its original position. You can also trigger a fresh search for the Pitch Curve and a recalculation of the pitch center by holding down the [Alt] key and double-clicking – for instance, after activating or deactivating the option “Robust Pitch Curve” in the Algorithm Inspector.

This is particularly useful when you are importing a file from an older version of Melodyne, as the technology Melodyne 5 uses to determine the pitch center of notes is greatly superior to that of earlier versions. After the recalculation (most swiftly triggered by holding down the [Alt] key and double-clicking), the blobs will be realigned slightly on the vertical access – some higher, some lower than before – with the results representing the musical content better than those of earlier versions of the program. This provides for better results – especially when you are quantizing pitch by double-clicking or using the Correct Pitch macro in normal edit mode.

If, on the other hand, the original detection was performed by Melodyne 5 itself, recalculating the pitch centers will change nothing, as the results – already optimal – will be no different the second time. The only circumstance in which [ALT]-double-clicking in Note Assignment Mode makes a difference is when the option “Robust Pitch Curve” is checked in the Algorithm Inspector. This option is discussed in greater detail here.

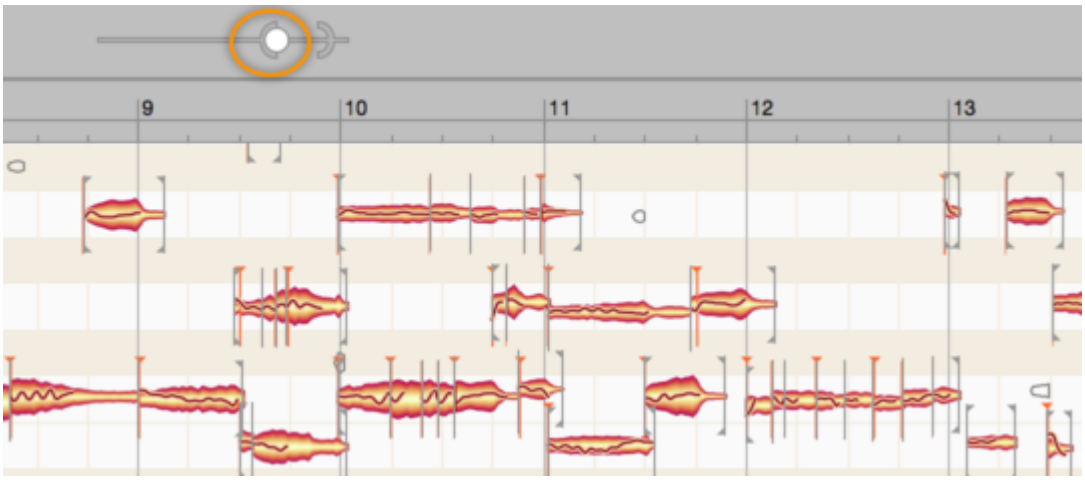
### The slider and the Energy Image

When you are editing the detection of polyphonic audio material and have selected the Main or Activation tools, you will see a slider next to the toolbox. This allows you to determine the number of potential notes to be displayed and how many actual notes are derived from them.




If you move the right-hand indicator (the “Parenthesis”) in the slider to the left, fewer potential notes will be displayed. If you drag it to the right, more potential notes will appear. Choose a setting that ensures that only as many potential notes are displayed as you may conceivably wish to activate in the course of the subsequent editing. That will give you a clearer overview.

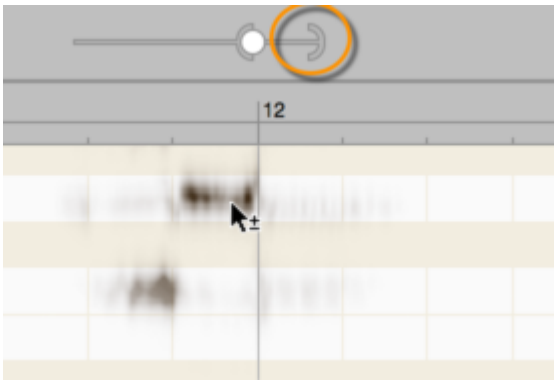
Now drag the left-hand indicator (the “Ball”) from side to side. As you drag it to the left, you reduce the probability of the potential notes displayed becoming active notes, thereby reducing the number of active notes. As you drag it to the right, you increase that probability, thereby creating more active notes from the potential notes displayed.




There can never be more active than potential notes, so the Ball can never pass through the Parenthesis but merely pushes it to the right when it wants to go further, thereby causing additional potential notes to be displayed and activated simultaneously. Adjust the two indicators until the number of active notes displayed is as close as you can get to the number of notes that were actually played. Then proceed to the manual correction of individual notes.

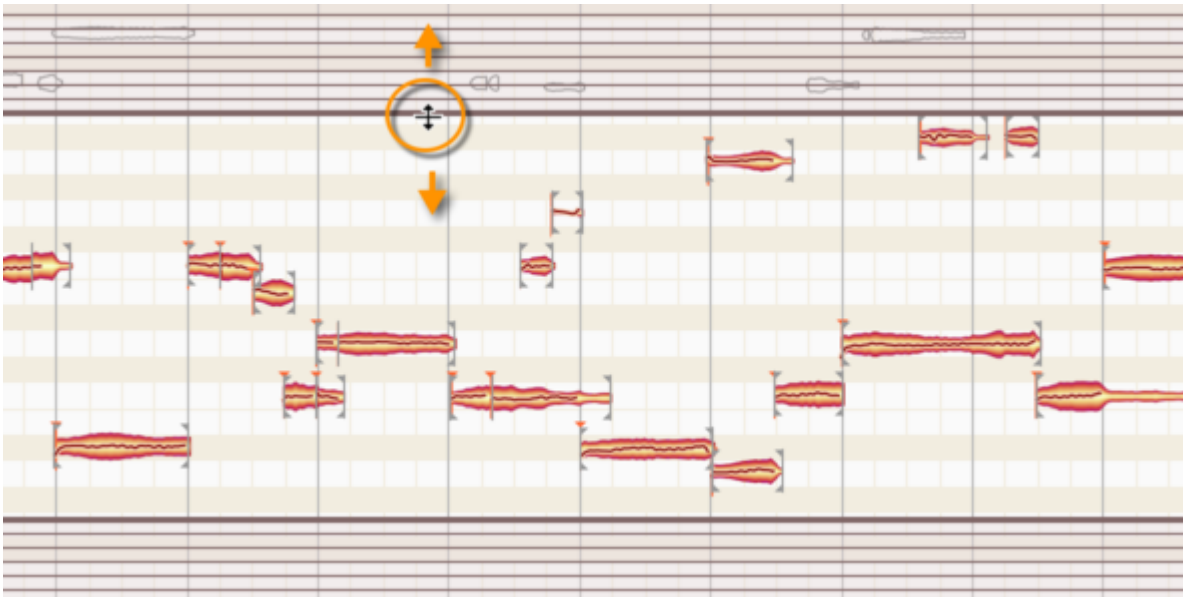
Tip: If you move the indicator a long way, Melodyne is required to do a great deal of processing, which is why it can take a moment to display the results. You can reduce this delay by opening the Algorithm Inspector and, under the heading “Separate Audio”, clearing the checkmark next to “Auto”. This speeds up the display, but if you wish then to hear the result of the redistribution of the signal components between the notes, you have to click on the flashing “Now” button or activate the “Auto” option once more.

Now and then, it can happen that a note that can be heard in the material is not detected as an active note, and, even with the Parenthesis at its maximum setting, is not even shown as a potential note. If that happens, move the Parenthesis fully to the right (to its maximum setting) and then move the mouse pointer over the position in the Note Editor where the missing note ought to be. Around the mouse pointer, in the form of an “energy image”, notes will now appear that were detected neither as active nor as potential notes. When you have identified the missing note in this way, double-click on it to transform it into an active note. Thereafter, by subsequent double-clicking, you can toggle the status of these notes between “potential” and “active” just like that of any others.




### The Venetian Blinds

With instruments in particular that generate powerful overtones, it can happen that over a wide range notes are detected that you perfectly well know are far higher (or lower) than any that were actually played. In such cases, the Venetian Blinds come in handy; if you can't see them at the top or bottom of the editing area, scroll upwards or downwards until you can.

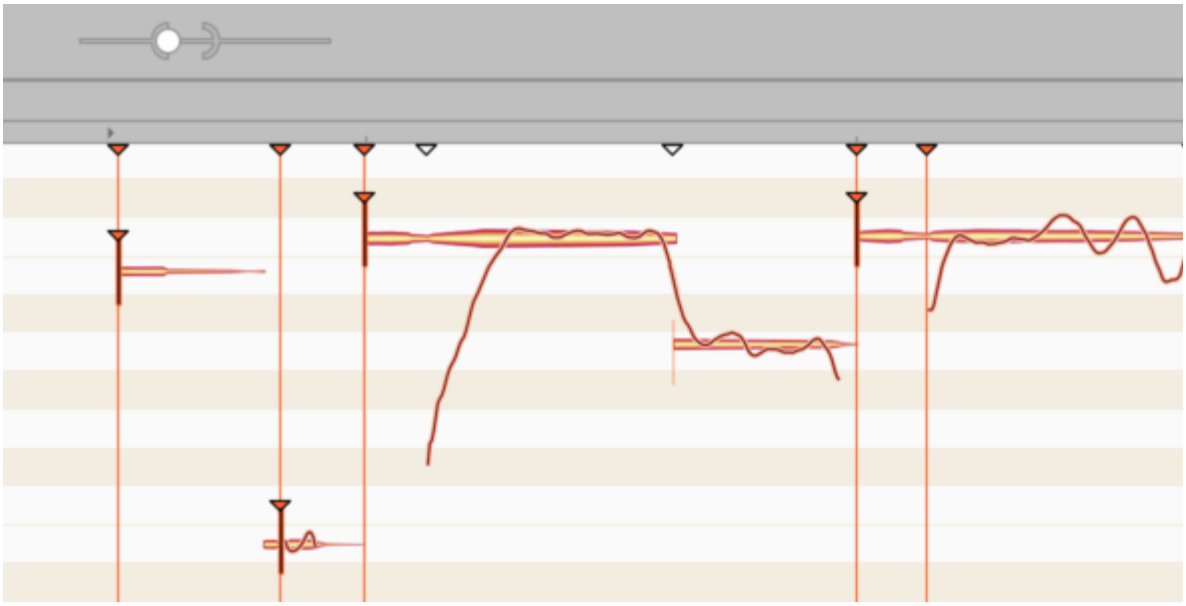


You can raise or lower the top blind by dragging its thick bottom edge and do the same with the top edge of the bottom blind, in this way delimiting the range within which Melodyne assigns notes. All notes partially concealed by the Venetian Blinds are automatically deactivated unless they have previously been activated by hand. You can still "reach through" the Venetian Blinds, however, to turn notes on or off. The Venetian Blinds provide a useful first approximation that you can later correct by activating and deactivating notes singly by hand.

### Starting point lines and designated starting points

If, in Note Assignment Mode, you select one of the separation tools, vertical lines appear in the Note Editor. At the same time, a slider with two indicators appears next to the toolbox.

We call the vertical lines “starting point lines”. Rising in parallel from their respective blobs to the Time Ruler, they show the *musical starting points* that Melodyne has identified in the audio file. A “designated starting point” is indicated by a short vertical line (a “vertical”) topped by an inverted triangle and is invariably found near the start of a blob (though not necessarily at its leftmost extremity); when active, it indicates what, for the purposes of timing, Melodyne considers to be the effective musical starting point of the note. The musical starting point may, but does not necessarily have to, be aligned with the separator at the beginning of the note. Think of a brass instrument, for example, where each note is often heralded by a certain amount of wind noise. This noise also belongs to the note, so it falls to the right of the note separator. What is relevant from the standpoint of timing, however – as is the case also with quantization – is the moment when the sound really unfolds and the pitch first becomes discernible; *that* is the timing-critical moment, and it is that later instant that is designated the musical starting point. If Melodyne is unable to pinpoint the musical starting point of a note, no starting point line is displayed and the note has no designated starting point. For the purposes of quantization, the leftmost extremity of the note is then considered to be the starting point.

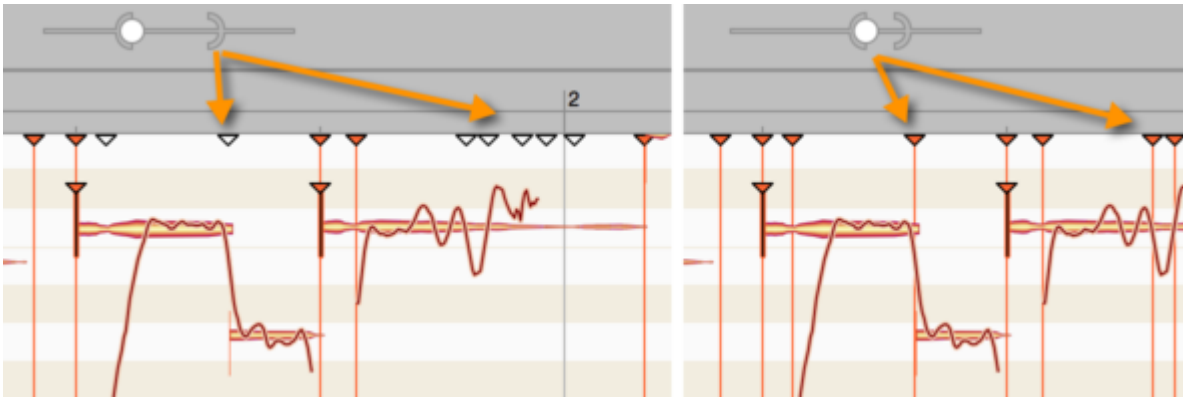


Each of the longer, starting point lines also culminates in an inverted triangular indicator, which you will see just below the Time Ruler. This indicator can be solid, in which case the corresponding starting point line is visible and active; or it can be hollow, in which case the line is invisible: we call it in this case a “potential” or “inactive” starting point line. An inactive starting point line invariably coincides with the beginning of a note. For the note in question, however, Melodyne has been unable to discern with sufficient confidence a musically relevant starting point; it is for this reason that the

starting point line is only a potential one and that no vertical (no designated starting point indicator) is displayed at the blob.

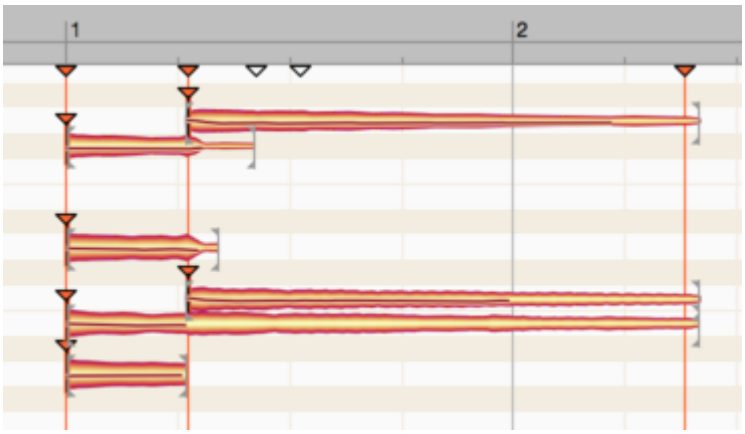
The two slider indicators, the Parenthesis and the Ball, govern, respectively, how sensitive Melodyne is to the presence of potential starting points and how willing it is to activate them, the result being reflected in turn by the total number of triangles displayed and the percentage of these that are solid red. As you move the Parenthesis gradually to the right, more and more hollow triangles (indicating the presence of “potential” starting points) appear beneath the Time Ruler; this reflects Melodyne’s increasing sensitivity that is allowing it to divine more and more points in the material at which a starting point *might* reside – “might” because the lines that are added remain invisible and do not (yet) have any effect upon the blobs.

You can alter this, however, with the slider’s second indicator: the Ball. As you move the Ball to the right, more and more of the previously invisible, “potential” starting point lines will become active; and directly below them, at the level of the blobs, designated starting points will appear at the same time.




You can activate a potential starting point line by double-clicking on the hollow triangular indicator beneath the Time Ruler and, conversely, deactivate an active line by double-clicking on the corresponding solid triangle. Double-clicking in a free place in the ruler generates a new starting point line.

By dragging its indicator, it is possible to move a starting point line forwards or backwards in time; this, however, will seldom be necessary, as Melodyne almost invariably identifies the ideal position. You may still wish, though, to do some fine-tuning. If, for the purposes of experiment, you move a starting point line from left to right, you will notice that as soon as you pass over the start of a blob, a vertical appears complete with inverted triangle (indicating the presence of a designated starting point) that follows the line for a while before disappearing as soon as the note begins to decay, as, clearly, it would be futile to look any further for the musical starting point.




Starting point lines exhibit a kind of “magnetic” property seen not only when you move them but also when separating notes and designating starting points manually.

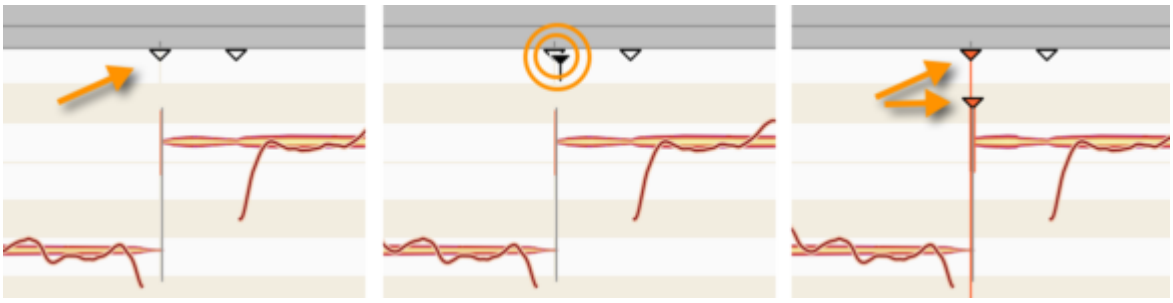
### The Note Separation Tool and the Separation Type Tool

The Note Separation Tool and the Separation Type Tool (directly below it in the toolbar) are available with all algorithms and function in the same way as their counterparts in Edit Mode. You can set or remove note separations by double-clicking and also move them along the time axis. With the Separation Type Tool, you can toggle between hard and soft separations.




By contrast with normal editing mode: In Note Assignment Mode, the separation tools are not used to reshape the music but to edit the analysis or “detection”. The object is to ensure that the blobs represent as accurately as possible the actual music. Also, edits performed in Note Assignment Mode on chords are implemented, thanks to the magnetic quality of the starting point line, with sample accuracy. In normal Edit mode, this is not possible. Tip: To provide two or more notes of differing pitch with a soft separation, you can select “Convert Selection to Connected Sequence” from the context menu (see below).

Since the placing of note separations and the editing of starting points often go hand in hand, you can also edit starting points with the Note Separation Tool. Simply move the pointer into the vicinity of the triangular starting point markers near the Time Ruler and it changes appearance to resemble the Starting Point Tool.



It is possible at any time to deactivate a designated starting point (i.e. withdraw the designation). A new starting point can only be designated if an active starting point line is present in a plausible place i.e. the left-hand end of a blob. Look for a moment at the starting point indicators: In the relevant place, a hollow triangle (indicating the presence of a potential starting point) will probably already be displayed. Double-click on the triangle to activate the starting point line.

If no potential starting point line has been identified at the desired position, using the slider near the toolbox you can cause additional potential starting point lines to appear: to do this, simply move the right-hand control element (the Parenthesis) further to the right.

Alternatively, by double-clicking on an empty area of the ruler at the level of the starting point markers, you can create a new starting point line and drag it into position with the mouse. If, in the case of polyphonic material, a chord appears at the corresponding position, the action will affect all chord members. When, with the Melodic, Percussive or Universal algorithms selected, you activate a potential starting point line or create a new starting point line, a note separation is automatically inserted near a note at the position in question.

Tip: When editing starting point lines, if ever you have the feeling that somewhere a note starting point exists but that it is not indicated even by a potential starting point line, scrubbing in the relevant area often makes it to easier to locate the exact position. At the position in question, a rather loud noise component will be audible. Where the noise is loudest, release the mouse button and double-click to place a starting point line.

**The context menu:** When you select one of the note separation tools, a context menu appears in the Note Editor in which you will find the following commands:

- Convert Selection to Connected Sequence: With this command, you can convert a selection comprising two or more adjacent notes between which there are hard separations into a connected sequence with soft separations. This is also possible with notes differing in pitch and allows you gather together melodic lines to make more coherent editing possible later.
- Separate Note: This command separates a note automatically at a point determined by Melodyne. It is useful when you need to make precise cuts in a vocal passage and isolate sibilants or breathing noise prior to editing using the tools.

- Reseparate Notes at Starting Point Lines: This command splits the selected notes at all active starting point lines passing through them. It offers you, therefore, a convenient way of inserting separations at the same point in multiple notes simultaneously, while removing any superfluous separations found elsewhere.
- Separate Notes as Trill: The effect of this command is to slice a selection of one or more notes into smaller segments determined by the instantaneous pitch of each note. This is done by inserting note separations into the slopes of the pitch curve as it rises and falls, thereby turning each ‘hill’ and each ‘valley’ of a vibrato into a separate note.

Please note that the fluctuations in the Pitch Curve must be fairly pronounced for the “Separate Notes as Trill” function to have any effect and that it is only available when the Melodic algorithm is active, being grayed out in every other case. If you wish to assign a shortcut to the command “Separate Notes as Trill”, this can be done using the Preferences dialog.

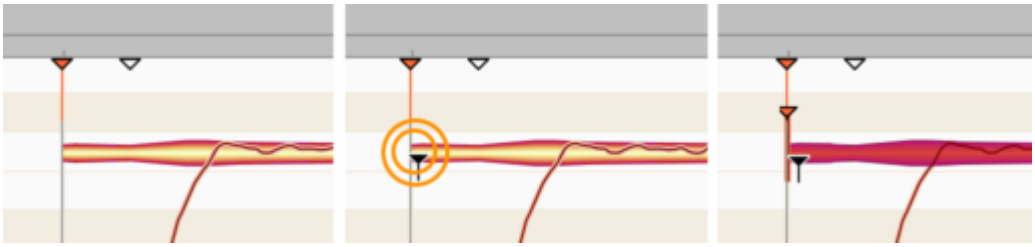
- Reset Separations Based on the Selected Grid: This command separates the notes at obvious starting points as well as at suitable positions on the selected Time Grid. This command is available with the Melodic, Percussive and Universal algorithms.

### The Starting Point Tool

The Starting Point Tool is the second sub-tool of the Note Separation Tool.




It is available with all algorithms and is used to designate or undesignate starting points manually by double-clicking. This tool function is also available in Note Assignment Mode by checking the corresponding option in the Note Inspector. A designated starting point is indicated by a vertical (i.e. a short vertical line) with a red triangle on top located at or near the leftmost extremity of the blob.

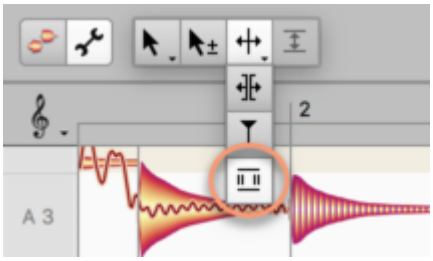


By moving the Starting Point Tool in the region of the starting point markers beneath the Time Ruler, you can also edit these with the Starting Point Tool. As a rule, however, you will generally use the Note Separation Tool for this purpose, as described above.

### The Sibilant Range Tool

Melodyne defines as “sibilants” all components of the sound that have no detectable pitch curve. In the case of vocals, these include not only fricative consonants and digraphs such as “s”, “z”, “ch” and “zh”, but also other unvoiced consonants such as “k” and “t” as well as the sound of the vocalist inhaling or exhaling between words. When the various pitch tools are used, these components are treated differently from the pitched components – a policy that leads to particularly good and natural-sounding results when editing vocal tracks. For Melodyne to detect the presence of sibilants, either the Melodic or Percussive Pitched algorithm must be active.

Sibilants are detected, and their extent ascertained, automatically; but, if need be, you can overrule Melodyne and move the start and end points of sibilants at will. This is done in Note Assignment Mode using the Sibilant Range Tool.




When this tool is selected, the range of the sibilants detected by Melodyne is represented on the display by hatching. A sibilant might lie at the beginning and/or end of a note, but never in the middle. The tool has the following functions:

- Click and drag the edge of the hatched area to extend or shorten the range of the sibilant in question.
- Double-click on the hatching to remove it. (This instructs Melodyne to treat the sibilant in question the same way it treats all other components of the sound, which would allow you to apply radical pitch shifting to a “S”, for example, as a special effect). If multiple blobs are selected at the time of the double-click, all their sibilants will be declassified in the same way.
- Double-click on a note without any hatching (or from which the hatching has been removed): this instructs Melodyne to search the note for sibilants. Depending upon the note, one of the following states will result:

- Melodyne will find a sibilant at the beginning and/or end of the note and display its extent through hatching. Sometimes the entire blob will be hatched (e.g. in the case of breath noise). It makes no

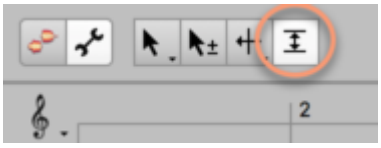
difference in the case where exactly in the blob you click; towards the beginning, towards the end, the result is the same. This case in fact only occurs if you have previously declassified any sibilants it contains by double-clicking. Melodyne will then rediscover the sibilants when you double-click a second time.

- If the note represented by the blob is in fact sibilant-free (i.e. it contains no sound components that Melodyne regards as sibilants), but you wish it to be treated as though it did contain them, the effect of the double-click is to create a sibilant range at the point clicked. To be more exact: if you double-click with the tool on the front half of the blob, the sibilant range will extend from the start of the blob to the point clicked. If you double-click in the second half of the blob (i.e. right of center), the range will extend from the point clicked to the end of the blob. You can also do both: create a sibilant range at the start of the blob and then another at the end, or vice versa.

Tip: To check the boundaries of the hatched area acoustically, use the “Sibilant” preview control in the Algorithm Inspector. With the control at the extreme right setting, you will hear only the hatched area of the note; at the left extreme, you will hear only the part of the blob without the hatching.

### The Energy Share Tool

This tool is only available with the Polyphonic Sustain and Polyphonic Decay algorithms. It regulates the distribution of particular sound components among notes sounding simultaneously.



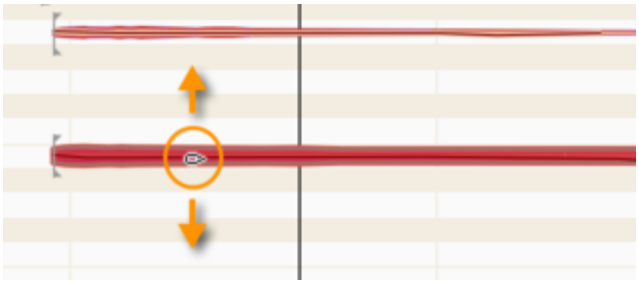

In the case of chords or certain harmonic intervals (e.g. an octave), the same overtone might be shared by two or more fundamentals, so Melodyne is obliged to share it out among the notes concerned. It may be that the resulting distribution is not to your liking, in which case you can exert a healing influence: By assigning more energy to one fundamental (at the expense of the others), you enrich its harmonic content, giving it, generally, a brighter sound with greater penetration. Conversely, you can deprive a fundamental of some of its energy (to the benefit of the others). In this way, you can adjust the tone color of the various notes to achieve the ideal balance.

Please note that this tool, by its very nature, only has any effect when two or more notes sounding simultaneously have been detected in polyphonic material and one of them is being edited. Furthermore, only as much energy can be shared as is actually present at the place in question and available to the blob in question. With this tool, you are therefore to some extent entering a desired value. How and to what extent it can be attained depends upon the realities of the audio material.

In the extreme case, the tool does ... nothing. If you have two notes sounding simultaneously, for example, the higher of which does not appear in the overtone series of the lower (you can see

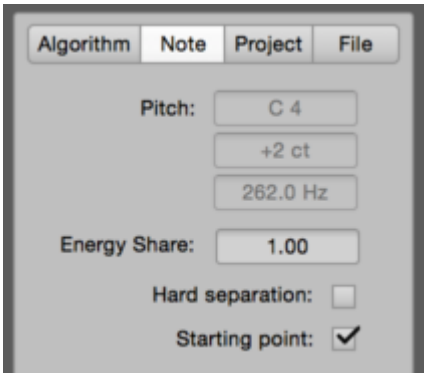
whether or not this is the case by using the Activation Tool to display the overtone series), then these two notes have no shared energy that could be reassigned using the Energy Assignment Tool. In such cases, therefore, the tool has no effect whatsoever, whether visual or acoustic.

Click with this tool on a blob and drag upwards to increase its allocation of energy or downwards to reduce it.



### The Note Inspector

As is the case in normal edit mode, the Note Inspector in Note Assignment Mode governs the selected notes – only here, different parameters are on view.




**Pitch:** The three fields correspond to those in edit mode and display i) the nearest note of the chromatic scale, ii) the deviation (if any) in cents from it, and iii) the equivalent frequency in hertz. It is not possible to input values into these fields but their content is updated whenever a blob is assigned to a different pitch (e.g. to correct an octave error).

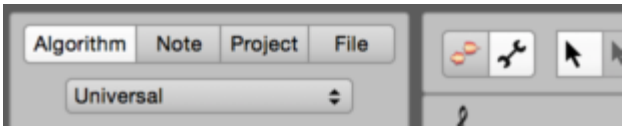
**Energy share:** The inspector field reflects the changes made with the Energy Share Tool as well as allowing you to enter values directly.
**Hard separation:** The status of this field is determined either by changes made with the Separation Type Tool or by checking/clearing the box. You can only check this box if there is currently a soft separation between the selected note and an adjacent one.

**Starting Point:** The status of this field is determined either by changes made with the Starting Point Tool or by checking/clearing the box. Here, just as with the corresponding tool, you can attach the selected note to a starting point line or detach it from it.

# The Algorithm Inspector

The Algorithm Inspector in Note Assignment Mode offers you a number of options that allow you to adjust and optimize the way the selected algorithm operates to suit the audio material to be edited.

Whenever Note Assignment Mode is active, the Algorithm Inspector is available in the info pane.

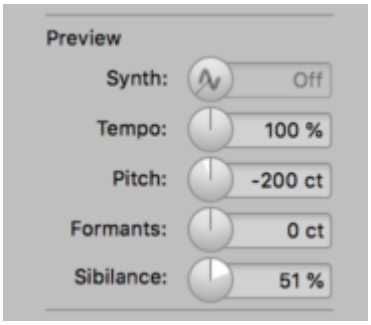



**Algorithm:** The pop-up button at the top shows the current algorithm. With the menu displayed, you can select a different algorithm from the list, thereby triggering a fresh analysis. Warning: Any time you switch algorithms, all editing previously performed on the audio source in question is lost! For this reason, you should make a habit of checking to make sure the best algorithm has been selected and, if this is not the case, choosing a more suitable one *before* you begin correcting the analysis or editing notes.

Tip: In the stand-alone implementation of Melodyne, it is possible, prior to switching algorithms, to save the assignment file of the audio source (see below) and, if not satisfied with the new algorithm, reload it. In this case, the previous algorithm – and, with it, all your previous editing of the detection – will be restored; but *only* of the detection; any normal editing of the notes you may have performed in edit mode will, even in this case, be lost. This is an inevitable consequence of switching algorithms.

### The Preview parameters

In the Preview section, you will find the following important options to assist you with the editing of the detection and the fine-tuning of the algorithm parameters.




**Synth:** The objective in Note Assignment Mode is to ensure that the notes displayed really do match the notes intended and played. Since, however, in Note Assignment Mode you are listening to the full original sound of the audio file you plan to edit and editing of the blobs has no audible effect, determining whether notes have been correctly detected is generally only possible on a visual basis.

This is where the Monitoring Synth comes in: Using a synthetic tone generator, the Monitoring Synth plays the blobs exactly as they appear, thereby providing you with acoustic as well as visual feedback. You can toggle the synth on and off by clicking on the “Z” icon; click and drag upwards or downwards to control the volume. The Monitoring Synth is not available when the Percussive or Universal algorithms are selected.

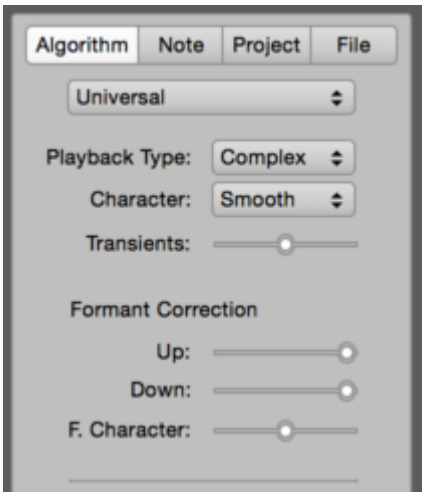
**Tempo, Pitch and Formants:** With these three controls, you can “simulate” changes to the corresponding parameters in order to examine their effect upon the current algorithm settings. Example: you have changed the formant character in the Algorithm Inspector. This change, however, has no effect until you shift the formants in normal edit mode, as in Note Assignment Mode you always hear the original state of the audio source. You would have, therefore, to leave Note Assignment Mode, shift the formants by way of experiment in normal edit mode, and then return to Note Assignment Mode if you felt any further adjustment to the formant character was necessary. The preview controls make such a procedure unnecessary: simply turn the formant control, and you can begin at once experimenting with the character slider without ever leaving Note Assignment Mode. The tempo and pitch controls operate much the same way. The values of all three preview controls only apply temporarily and are reset each time you leave Note Assignment Mode.

NB: When the synth is in use, the controls for pitch and formants are grayed out, as they cannot be used simultaneously.

**Sibilance:** With this control, you can simulate the effects of the Sibilant Balance Tool. This is useful when your intention is to modify a sibilant range in Note Assignment Mode, as it allows you to hear exactly where the sibilant in question begins and ends. With the Sibilant Preview Control slider at its rightmost extreme, you hear only the sibilant; at its leftmost extreme, it is the other way around: you hear everything *except* the sibilant areas. If you then notice that a sibilant is still sounding in a pitched zone, or pitched components in a sibilant zone, you know that the boundaries of the sibilant range are not perfectly drawn.

### The Algorithm parameters

The other parameters in the Algorithm Inspector relate to the behavior of the algorithm, allowing you to fine-tune it for the entire audio source.




**Playback Type:** Melodyne applies two different processes for the playback of audio. The Melodic Algorithm employs as standard the playback type “Tonal”, whilst the other algorithms favor “Complex”. These choices are generally the best in practice but you can override them here if you wish.

The difference is most noticeable when time stretching is performed (and also when notes are transposed upwards): material with clearly recognisable pitches generally sounds better with the “Tonal” option. For material in which the pitch of notes is not clear and where noise components are more in evidence better results are generally obtained with “Complex”. Experimenting with the two playback types is therefore most useful when material falls between these two stools. Experiment with the tempo and pitch preview controls to see which playback type is best suited to your needs. Please note, however, that if “Tonal” is selected, the Character, Transients and Formant Character parameters described below are no longer available and therefore grayed out.

Tip: For the playback type “Tonal”, a variation called “Tonal (high)” is also available. If you are working with sopranos or very high-pitched melodic instruments (such as piccolos), instead of “Tonal”, you should try out the variant “Tonal (high)”, as this could enhance the sound quality. Voices or instruments with normal registers, however, are less well served by “Tonal (high)”, so its use in such cases is best avoided.

**Character:** This is a another pop-up button and allows you to select between a smoother and a crisper playback. If “Crisp” is selected, Melodyne uses a smaller processing window that allows fast acoustic movements in the signal to be reproduced more clearly. This setting is therefore best for percussive sounds and others with many fast tone changes. To soft, sustained sounds, however, the crisper setting can introduce a certain restlessness. To avoid this, opt for “Smooth” which employs a larger processing window and is therefore more suitable for the reproduction of smoother, more gradual tonal transitions.

**Transients:** This parameter is only available when the Universal and Percussive algorithms are in use. It determines how the transients in the signal should be handled during playback. With the slider

fully to the right (the default position in the case of the Percussive algorithm), the transients are clearer and more acute. As the slider is moved to the left, the transients become softer. By default, with the Universal algorithm selected, the slider is in the middle. Experiment to see which setting delivers the best sound with your own material.

**Formant Correction Up/Down:** Whenever you transpose a note in Melodyne, the formants are automatically corrected to avoid, in the case of vocals, the dreaded “Mickey Mouse” effect. Or, in technical terms, whenever you transpose a note a whole tone upwards, Melodyne automatically corrects the resulting formants by shifting them back down a tone, in this way preserving the original timbre. In the case of the human voice, this is generally what is wanted, but with an acoustic guitar perhaps not: With many sounds, it can add charm if the formants are transposed in parallel with the fundamentals – i.e. not automatically corrected.

The Formants Up and Down sliders are provided, therefore, to allow you to determine the degree of the automatic formant correction – independently for upward and downward transpositions. With the slider all the way to the right, the full 100% formant correction is applied; fully to the left, no automatic formant correction at all is applied. When you return to normal edit mode, you will only hear the effect of these parameters if you shift, or have shifted, the formants of one or more notes in the Note Editor. To simulate and test their effect in Note Assignment Mode, use the pitch controller in the preview section of the Algorithm Inspector. If the current value for this is positive, you will be able to preview the effect of the Up slider; if the current value is negative, you will hear the effect of the Down slider.

**F(ormant) Character:** When formants are shifted, this slider alters their weighting in the frequency range and therefore alters the sound of the shifted formants. Experiment to see with which setting your material is best reproduced. This parameter has no audible effect when you return to normal edit mode unless and until notes have been transposed in the Note Editor. To simulate and test its effect in Note Assignment Mode, use the formant control in the preview section of the Algorithm Inspector.

The Formant Center parameter is only relevant to the algorithms Universal and Percussive, as the blobs are not sorted by pitch when either of these two algorithms are active, and the formant center is therefore not determined automatically. Not only with the Melodic and Polyphonic but also with the Percussive Pitched algorithm, the formant center is derived from the pitches themselves, so this control is grayed out when any of these algorithms is selected.

### Sibilant Handling, Robust Pitch Curve, Separate Audio

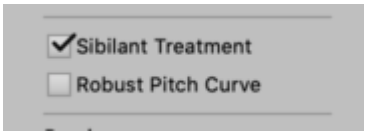
**Sibilant Handling** The Melodic algorithm detects the presence in a recording of what we define broadly as “sibilants”. Included here along with fricative consonants and digraphs like “s”, “z”, “sh” and “zh”, and certain other word fragments such as “t” and “k”, is breath noise, such as the sound of a vocalist inhaling or exhaling between words. Melodyne 5 treats these differently from all other components of the sound when you begin to make pitch or timing adjustments, and the editing sounds more natural as a result. If you prefer, you can decline to give sibilants this special treatment by clearing the checkmark next to “Sibilant Handling”.

For vocals, Sibilant Handling is without question ideal; whether that is equally true of monophonic instruments varies enormously from case to case. If with a bass guitar, for example, the attack noise is marked as sibilant, you should listen critically to the results when you first change the melody or timing, and decide whether or not they are to your liking. If not, clear the checkmark next to “Sibilant Handling”.

By default, Sibilant Handling is always switched on when the Melodic algorithm is selected, whereas with the Percussive Pitched algorithm it is by default switched off. With the other algorithms, the corresponding functions are unavailable, so the option is grayed out.

Note: When you open older projects (from the time before Melodyne 5), you will find that the Sibilant Handling option on their vocal tracks is not checked. The reason for this is that you may already have perfected the vocals, in which case we assume you’ll want your project to sound exactly the same as it did before. If so, leave the Sibilant Handling option switched off.

If, on the other hand, you want the project in question to enjoy the benefits of Melodyne 5’s new functions, you should activate Sibilant Handling. Your older vocal tracks will then most likely sound better at once, and you will enjoy greater creative freedom in other areas besides.




**Robust pitch curves:** With the algorithms “Melodic” and “Percussive Pitched”, Melodyne detects the Pitch Curve in very high resolution. This is especially advantageous in the case of vocals, as there is then particularly detailed control over all aspects of the intonation, and the pitch tools are able to deliver optimal sound quality.

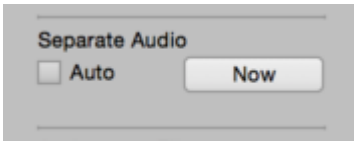
With certain recordings, however, this high resolution can be counterproductive. This is particularly the case with instruments that were in fact played monophonically but where sub-optimal recording conditions (resulting for example, from obtrusive room resonances) or the physical composition of their resonance chambers gives rise to what we might call “technical” polyphony.
Examples of this might be the electric upright bass or frequency modulated synthesizer sounds – sometimes, even, the human voice, when, for example, a (usually male) rock singer wrings deep throaty sounds from his voice.
In such cases the pitch tools (at least, when heavy use is made of them) deliver artifacts, and it is then that switching to a “robust pitch curve” makes sense.

The simple act of switching to a robust pitch curve initially results in no detectable change, but as soon as a note is edited with one of the tools in Note Assignment Mode, Melodyne searches afresh for the pitch curve of this note (and of this note only) and delivers then, when this option is checked, a simpler, more stable, more *robust* curve.

The simplest command to trigger this type of renewed search for the pitch curve, but which otherwise changes nothing, is a [Alt]+double-click with the first assignment tool.

The Polyphonic, Universal and Percussive algorithms have robust curves by default, so with these algorithms the option is grayed out.

**Separate Audio:** When you are editing the detection of an audio source, Melodyne sometimes has a great deal of processing to perform in the background and large volumes of data to move in and out of its cache. The option Separate Audio gives you control over this behavior. If the Auto box is checked, with each change you make, Melodyne performs all the requisite calculations immediately. The advantage? Whenever you use the preview controls to test your algorithm settings, Melodyne accesses the latest data, and everything sounds exactly as it would in normal edit mode. The disadvantage? Melodyne sometimes needs to introduce a processing pause during which the progress indicator appears and your work is interrupted.




Since you do not always need the preview controls, you have the option of changing this behavior by clearing the Auto checkbox. In the case of certain editing actions, the requisite calculations are then not performed immediately but only when you click the Now button or leave Note Assignment Mode. The advantage of this is that your workflow is not interrupted. The disadvantage is that the preview controls in such situations cannot access the latest data and therefore do not always reflect the changes you have made. Should there be a discrepancy between the previous data and the current state, the Now button will flash to warn you. If you then click on it, Melodyne will perform all the outstanding calculations and update the totality of the data.

### Save/Load Assignment Data

Melodyne can, if requested, store in the audio file assignment data such as: which algorithm was used for the source; how its parameters were set; and whether, and in what way, the detection was edited. As well as these aspects of note assignment, the assignment file also contains all the tempo information in Melodyne's possession regarding the audio source; information that you may already perhaps have refined in Tempo Assignment Mode.

Melodyne can write all this assignment data into the audio file. It is then available whenever you reuse the audio file – in a different project with Melodyne stand-alone, for instance, or in a new song in an ARA DAW. In other words, it suffices to edit the note- and tempo-detection, and also the algorithm parameters, a single time, and the state of your editing will automatically be available once again when you reuse the file.

*The following advice only applies to Melodyne studio:*
Bear in mind that Melodyne does not save this assignment data automatically; you must instruct it to do so. You do this from the cog menu next to the name of the audio file at the bottom of the Algorithm Inspector:

- Save: Writes the current state of the note- and tempo-detection into the audio file.
- Load: Restores the state of the note- and tempo-detection data last saved.
- Remove: Removes previously saved assignment data from the file.

**Loading note assignment data by menu command**
*Note: The following function is available when Melodyne studio, editor or assistant are running in ARA mode. When Melodyne is running as a transfer plug-in or in stand-alone mode, it is only available in Melodyne studio.*

If you click on the cog wheel at the bottom of the inspector, you will see the command: “Load from Compatible File”. This allows you to apply the detection data of another audio file to the current file. For this to happen, two conditions must be satisfied:

- The file must be exactly the same length as the current target file.
- The file must be present on another track in the current song. It is not enough for it simply to be on the hard disk; it must have been imported from there into the song.

Now, suppose there is a playing error that you wish to correct on all three tracks simultaneously. For the correction to be phase-locked and optimal sound quality to be preserved, all three tracks must be accessing exactly the same detection file. This is where the command “Load from Compatible File” comes in. The full procedure is then as follows:

- Examine the track GTR_DI in Note Assignment Mode and optimize the detection if necessary.
- Now open the file GTR_SM57 in Note Assignment Mode and choose the command “Load from Compatible File”. A list will appear with two entries: GTR_DI and GTR_U87. Select the track you have just optimized: GTR_DI. Now you will see exactly the same detection for the SM57 signal as for the DI signal.
- Next follow the same procedure for the GTR_U87 track, assigning the DI detection file to this track as well.
- Finally, exit Note Assignment Mode and you will be able to optimize the guitar performance on all three tracks simultaneously in normal Edit Mode.

The reason we strongly recommend you to begin by optimizing the detection of the DI signal rather than that of either of the microphones is this: the polyphonic detection of the DI signal is usually right first time, so adopting this approach will require less work on your part in Note Assignment Mode. The microphones, on the other hand, depending on your amp settings and any pedal boards you may be using, tend to capture a distorted signal which takes considerably longer to optimize. By using the trick we have just described (substituting the detection data of the DI track for those of each of the microphone tracks), you will obtain the best-sounding results in the shortest possible time.

### A note on compatibility with Melodyne 4

Prior to Version 5, assignment data was not stored directly in the audio file but in a separate file with the suffix “mdd”. If along with the audio file there is the corresponding .mdd file created by Melodyne 4, Melodyne loads the assignment data it contains. Subsequently, the various commands function as follows:

- Save: Stores the current state of the note- and tempo-detection data in the audio file (rather than in an .mdd file).
- Load: If, as yet, no assignment data has been saved in the audio file itself, Melodyne loads the data from the .mdd file.
- Remove: Deletes the .mdd file.

If the audio file as yet contains no assignment data but there is no .mdd file either, the Load and Delete commands are grayed out.

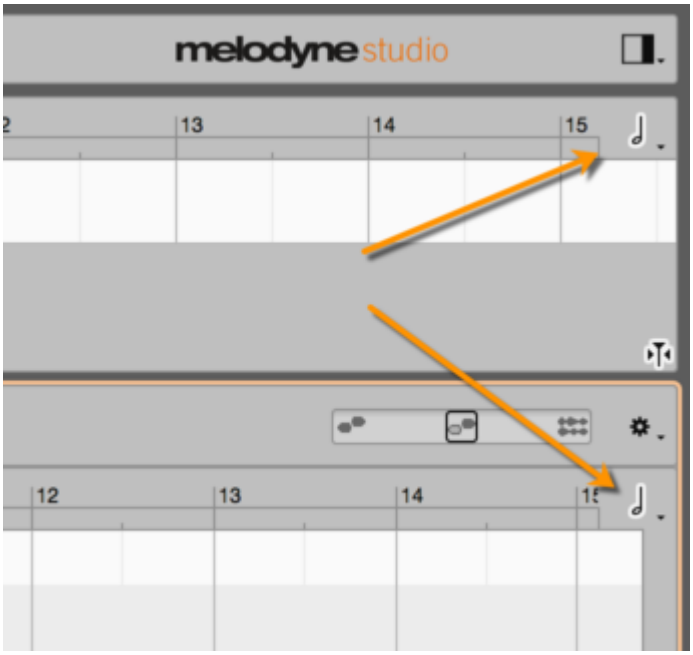
# The Time Grid

The Time Grid slices up the time axis at regular intervals to provide a clearer temporal overview. It can also have the function, however, of causing content as it is moved to snap to the nearest grid line, thereby making it easier to position notes exactly on the beat. For the spacing of the grid (i.e. the distance between adjacent grid lines), you can choose between Seconds and any of a variety of note values (half note, quarter note etc.).

### Activating and setting the Time Grid

There is a time axis and a Time Grid in both the track pane and the Note Editor. In the track pane, the grid affects the moving and insertion of track content by drag and drop, whereas in the Note Editor, it is the movement and dragging and dropping of notes that is affected.

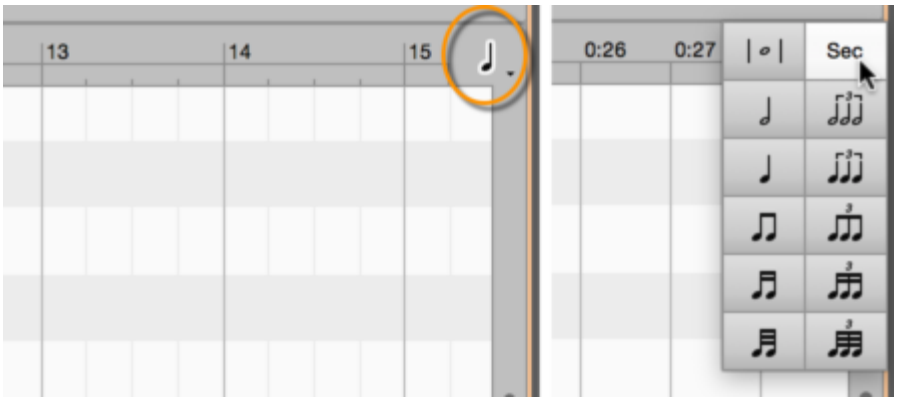
In both panes, it is possible to alter the spacing of the Time Grid. Since the two grids, however, are linked and at all times identical, it does not matter which you select in order to adjust the grid width. The sole reason for the grid appearing in both panes is to ensure it remains accessible when either pane is hidden.



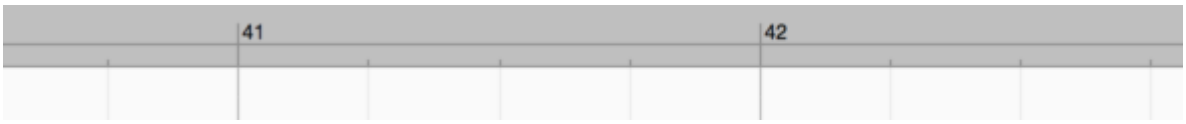

To adjust the Time Grid, either choose Options > Time Grid from the main menu or click the note icon (at the top right of the Note Editor) to open the pop-up menu shown here.

Clicking on the note icon activates or deactivates the grid; you can also define a keyboard shortcut for this command from the Shortcuts page of the Preferences dialog. If you click the note value or the arrow alongside it and hold down the mouse button, the grid menu pops up.

This allows you to the set the interval between grid lines to any of a variety of regular or triplet note values or else to Seconds.

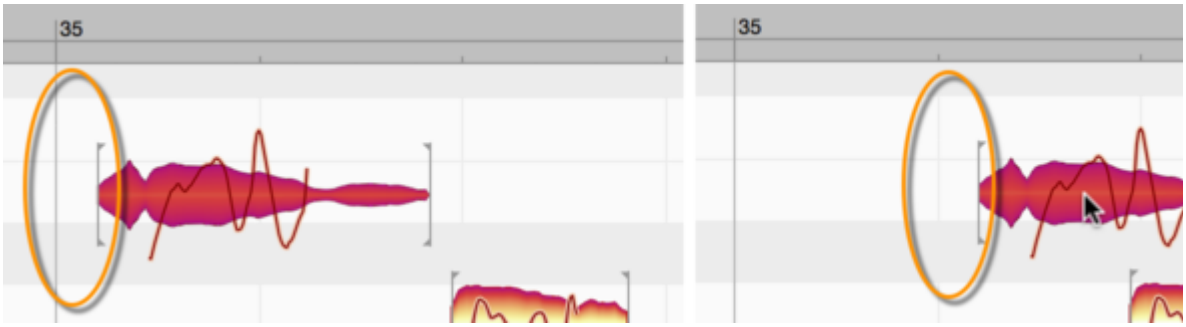



The time axis is then graduated at intervals equivalent to the note value selected. If you have chosen a small note value (such as 1/16) and then zoom the display outwards, at a certain point it will become impossible to display all the grid lines; the grid value selected, however, will remain active.




### Moving notes when the grid is active

When the Time Grid is active and Seconds is not checked, notes moved from one beat to another will end up the same distance from the new beat as they were from the old one. In other words, whilst the grid does influence their position, they don't snap exactly to the nearest grid line unless they were on a grid line to begin with. The note depicted below, for example, sounds slightly after the first beat of the bar.




If, while the grid is active, this is moved to the second beat, there, too, it will sound slightly after the beat – the offset in the two cases being identical.

Even if the grid is active, you can still adjust the position of a note (or a selection of notes) independently of the grid by holding down the [Alt] key as you move it.

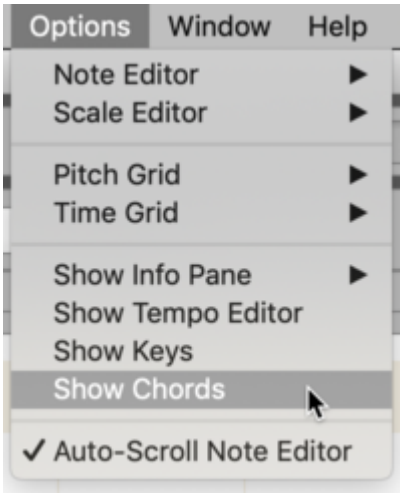
# Chord recognition and the Chord Track

Melodyne is capable of recognizing the chords and detecting changes of key (or ‘tonality’) in your recordings. Here you will find all you need to know about Melodyne’s Chord and Key tracks.

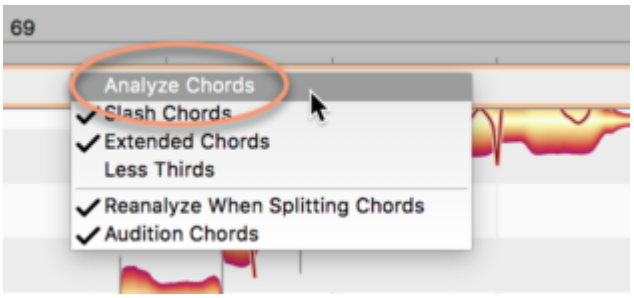
### Triggering the harmonic analysis

To get Melodyne to identify the chords, proceed as follows:

- Open the recording of a polyphonic instrument (e.g. piano or guitar). In Melodyne studio, you can open multiple tracks simultaneously in the Note Editor (e.g. guitar and bass) so the harmonic analysis can take all of them into account.
- Display the Chord Track (and the Key Track too, if you wish) by checking the relevant entries in the Options menu. Alternatively, you can click on the icons beneath the Time Grid Settings menu in the top right-hand corner of the Note Editor.




- Right-click in the Chord Track and select “Analyze Chords” from the context menu. You will then see a ‘lead sheet’ of your recording.



Please note: Before optimal results can be obtained from the chord recognition function, the detected tempo must be correct; otherwise the chord symbols may be aligned with the wrong beats. Melodyne detects the tempo automatically when you load an audio file. If the musical material is particularly complex, it may be useful to further optimize the tempo detection.
We explain how to do this here.

You can repeat the “Analyze Chords” command at any time to update the analysis.
You might do this, for example, after recording a new guitar part containing different chords.

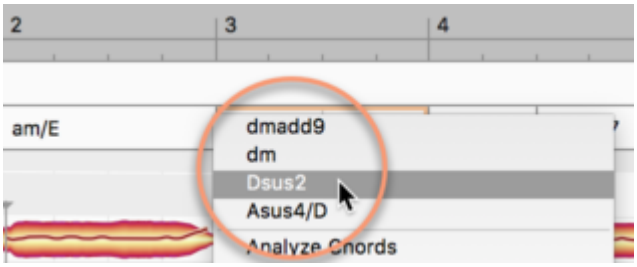
- If it’s only certain chords that need to be reexamined, select the chords in question in the Chord Track and choose “Analyze Chords”.
- To select two or more chords, use the Shift and Cmd keys.
- If you click on one chord and then press Cmd+A, all the chords will be selected.

Note: The chord analysis is invariably based on all the notes in selected areas of the Chord Track. It is not possible to influence the analysis by selecting or deselecting individual blobs. That would in any case make no sense from a musical point of view, as the less information taken into account, the less accurately the chords displayed would reflect the overall musical content of the recording.

There could, however, be cases – if you were analyzing the chords of a complete mix, for example – when certain blobs (attributable to the kick drum, say, or the cymbals) might lead to confusion. The solution in such cases is to the copy the audio file to a new track, delete the offending blobs, and trigger a fresh chord analysis based on that track only.

### Selecting between alternative designations

The context (right-click) menu of the Chord Track suggests alternatives for the chords detected:




These, we must stress, are *not* compositional suggestions, as in “here you could also play this chord”. The alternatives suggested are simply alternative interpretations of the audio material.

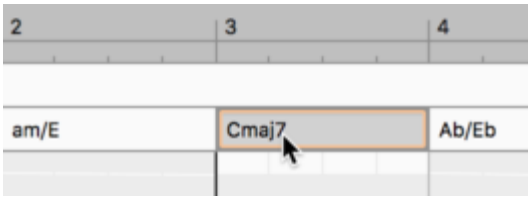
A chord made up of the notes C, E, G and A, for example, could be interpreted as either C6 or Am7. Both interpretations are legitimate, but which is the more apt might depend on the degree to which the various notes are emphasized; Does the highest note sound loudly and clearly, for instance, or is it barely perceptible? The most appropriate interpretation might depend also on the surrounding

chords or the prevailing key (or ‘tonality’) of the passage in question. These are questions of content but also of taste that are best left for you, the user, to answer. For this reason, Melodyne offers you all plausible interpretations and lets you choose between them.

Of course, in the case of very basic chords, there will be fewer alternatives and in some cases only one. If the chord, for example, consists of three notes: C, E and G, this can only sensibly be interpreted as “C Major”.

### Entering chords manually

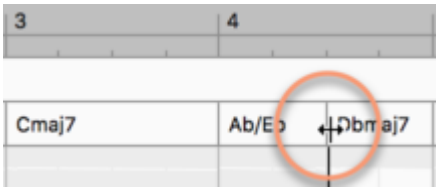
Independently of the results of the chord detection, you can also fill in the Chord Track manually, by typing in the names of the chords or standard chord symbols.
To do this, select an existing chord (a frame will appear, highlighting the chord selected) and type in text in the normal way:




In areas of the Chord Track where no chord symbols are displayed, you can enter them simply by double-clicking in the appropriate places and typing them in.

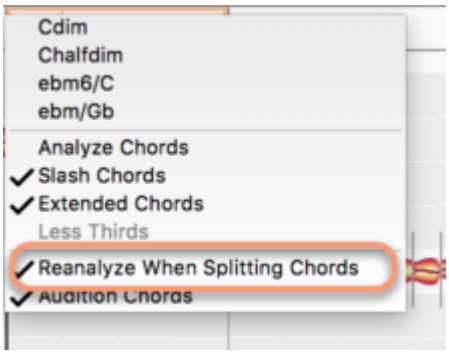
Melodyne accepts all the standard conventions for denoting chords.
For “F minor”, for example, you can spell the chord in any of the following ways: “Fminor”, “Fmin”, “Fm” or “F-” (with the “F” in upper or lower case). By default, Melodyne prefers the set language.

You can eliminate specific chord changes by moving the cursor over the borders between chords (the cursor than changes its shape) and then double-clicking.




Conversely, you can insert additional chord changes by double-clicking on an existing chord. By default when you are inserting or moving chords, they snap to the nearest quarter note (crotchet) on the grid. By holding down the Alt key, however, you can temporarily increase the resolution of the grid and in this way reach intermediate destinations, an eighth or a sixteenth note to either side.

In the context (right-click) menu of the Chord Track, you can decide whether when you introduce a new chord change, a fresh anlysis of the newly created chord halves should take place:




### Keyboard shortcuts for editing the chords

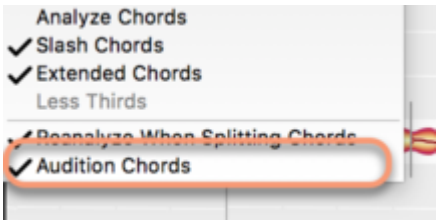
The following shortcuts, which are the same as those used for the selection and editing of blobs in the Note Editor, allow you more swiftly to enter and edit the chords to be displayed. If you wish, you can change the shortcut assignments in the Preferences dialog.

- Shift-click and Cmd-click: Extend the chord selection
- [Left/Right Arrow]: Select previous/next chord
- Shift+[Left/Right Arrow]: Extend selection to include previous/next chord
- [Up/Down Arrow]: Switch between alternate chord designations (as described above)
- Cmd+[Up/Down Arrow]: Shift the chord up or down diatonically i.e. using only the notes of the current scale, so major intervals are replaced where necessary with minor ones and vice versa to suit the key. For example, if the key is A minor and the chord selected is C major. After pressing Cmd+[Up Arrow], this will become D minor (not D major, which is not found in the key of A minor). If, on the other hand, the key were E minor, selecting a C major followed by Cmd+[Up Arrow] would produce D major. In this case, the quality of the chord (e.g. the type of triad) would not change.
- Shift Cmd[Up/Down Arrow]: Transpose the chord chromatically upwards without regard to the key. So C major becomes C# major, followed by D major, then D# major etc. So the quality of the chord does not change: major chords remain major, minor chords remain minor.

By editing the Chord Track in this way, you are not (initially) changing the recorded music. However, such changes to the Chord Track will make a difference when you come to edit the notes, if you select “Chord” or “Chord Scale” as the Pitch Grid.

### Auditioning chords

In the Context (right-click) menu of the Chord Track, you will find an option to audition the chords:




If this option is activated, as you step through the chords with the arrow keys or alter them through text input or using the keyboard shortcuts, you will hear the chords in question played with a guitar sample.

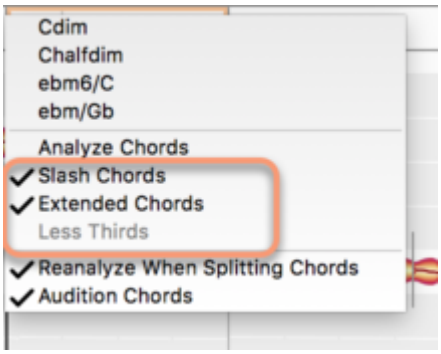
### Chord symbol conventions

Melodyne's Preferences dialog allows you to choose the chord symbol conventions used in the Chord Track. There are various conventions in common use and Melodyne is familiar with all of them. Some musicians, for example, write "Cm" to indicate a chord of C minor, whilst others prefer "C-" or "c-".




Even though you may have chosen a particular format (e.g. "c-") for the display, you can still use a different convention (e.g. "Cm") to input the data; Melodyne will simply translate "Cm" into "c-" for you. This is particularly useful if you have opted for a convention that involves special characters that are awkward to type in. In the Preferences dialog, you could specify, for example, that a chord of F major with a major seventh should be displayed as "F#7", but use a format that is easier to type (such as "F maj 7") when entering chords in the Chord Track.

As well as choosing a naming convention for the display, you can also influence the complexity of the chords. For certain musical genres, you may prefer to make the lead sheet easier to read. The context (right-click) menu of the Chord Track offers the following options:



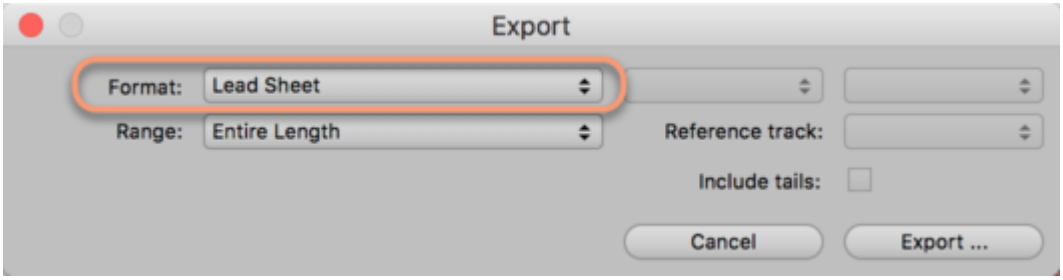

**Slash Chords**
If the guitarist is playing a chord of C major, for example, but the note sounding in the bass is not C but G, then – even though this does not change the chord (since the note G does appear in the chord of C major) – you may still feel it is important for the notation to take account of this fact using the familiar “slash chord” notation: C/G (i.e. C major with a G in the bass).
If you check this option, this convention will be used throughout the track.

**Expanded chords**
If you check this option, Melodyne finds expanded chords (such as those common in jazz). If the option is cleared, a simpler description will be preferred. For example, if the chord in question is C Major but a D is sounding at the same time. D is the ninth of a C major chord, so an exact description of the chord would be “Cadd9”. In this case, though, it would be a perfectly legitimate simplification to just write “C major” in the lead sheet. This would in any case have no effect (initially) upon the music itself. Whether or not this option is checked could have implications, but only on the manner in which you edit notes later on. (The editing of the notes in the chord context is dealt with in the next tour).

**Less Thirds**
Melodyne adds thirds in the course of the chord detection even when none were played, which is usually very helpful. But in the blues genre, for example, the musicians often omit thirds on purpose and in such cases the addition of thirds is undesirable. If you check this option, the added thirds are hidden. Thirds that were actually played, however, remain unaffected and are always shown. If no added thirds are present, this option is grayed out.

### MIDI export of the chords as a lead sheet

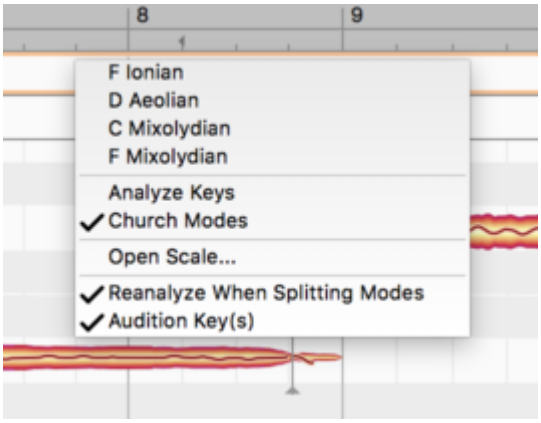
In the Export dialog, you can select the option “Lead Sheet” in order to save a MIDI file in which the chord sequence of your song is displayed in the form of the corresponding MIDI notes.




Typical applications: Transferring the chords to a notation program, or loading the MIDI file into your DAW as the starting point for the addition of synthesizer or sampler tracks.

### The Key Track and key changes

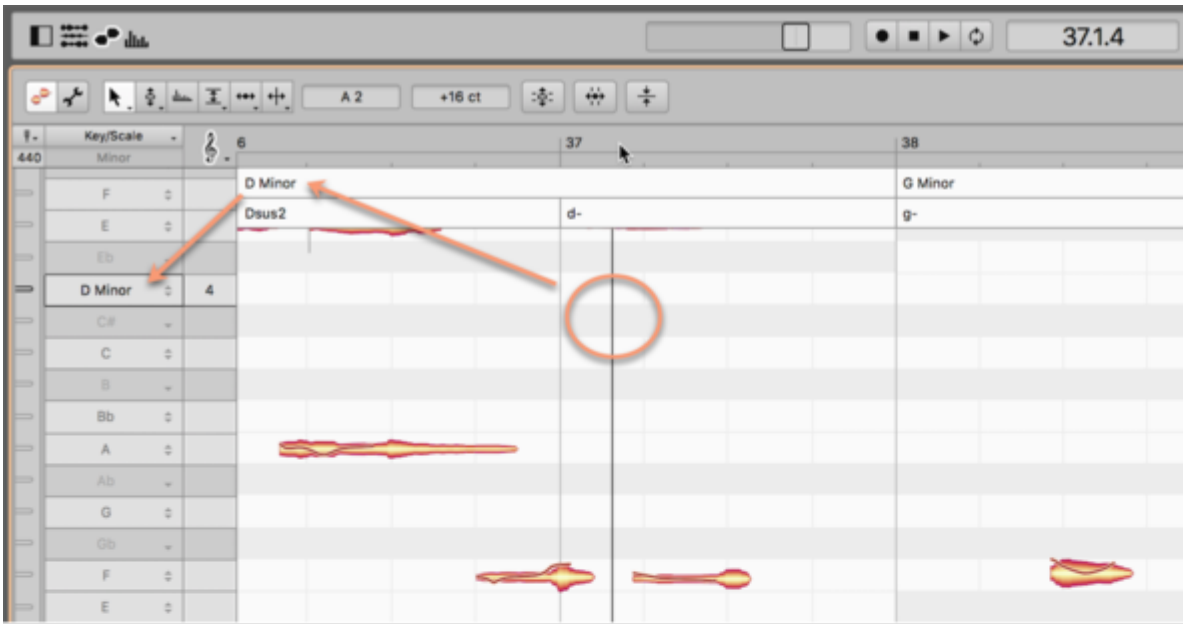
The methodology for editing the Key Track is basically the same as that just described for the Chord Track.
The only real difference is that the context (right-click) menu has fewer entries:

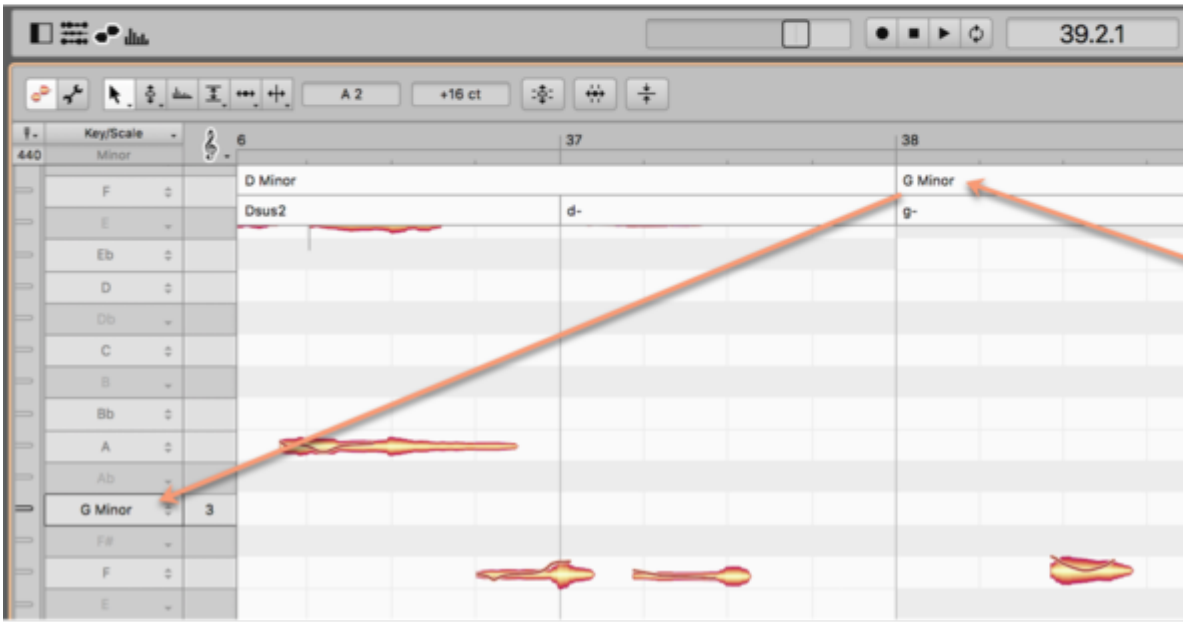



- The upper area offers you alternatives to the detected key.
- Analyze Key: This triggers a new detection of the key.
- Church Modes: Uses the church modes (Dorian, Phrygian etc.)
- Open Scale: Opens a separate window to let you select a key.
- Conduct New Analysis after Slicing Modes: By double-clicking in the Key Track, you can slice an existing segment in two, or merge two segments. This option determines whether or not a fresh analysis of the key of the segment or segments involved should be carried out automatically whenever you slice or merge segments in this way.

### The Key Track and the Scale Ruler

The Scale Ruler (the left-hand margin of the Note Editor) invariably displays a key, for which numerous variations are possible. If your song contains key changes, which scale is displayed will depend upon the playback position:



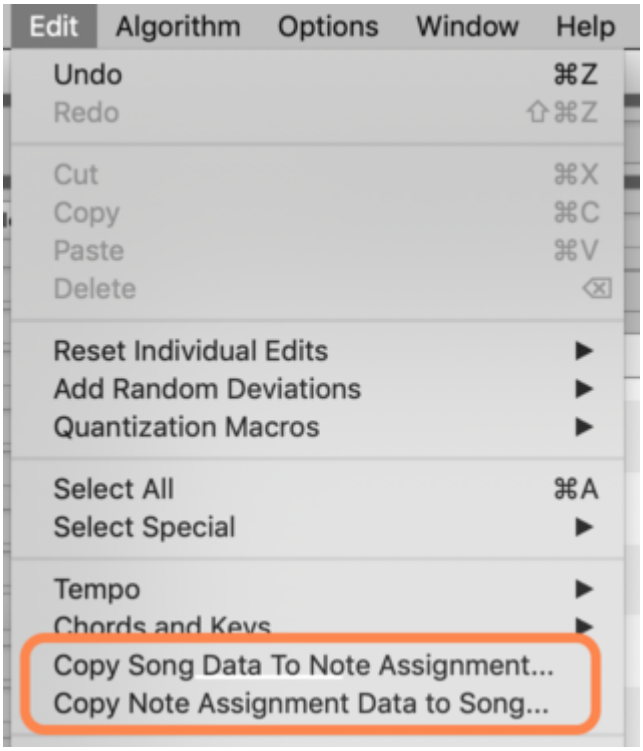




### Chords and keys in Note Assignment Mode

In Note Assignment Mode, you do not see a shared Chord Track for the entire song, as is the case in normal Edit Mode, but only the chords played by the instrument you are examining.

If, in Note Assignment Mode, you make changes to the blobs using the Activation Tool and subsequently trigger a new analysis, the chords may change.

For this reason, we speak in the one case of “project chords” that relate to the entire song and in the other of “file chords”, which are only visible in Note Assignment Mode and relate only to the instrument in question. In the Edit menu, you will find commands that allow you to replace file chords with project chords, and vice versa.




It is the same with the keys: The song has a common Key Track (“Project Scale”), whereas what you see in Note Assignment Mode in each case is the current “File Scale”.

# The Pitch Grid

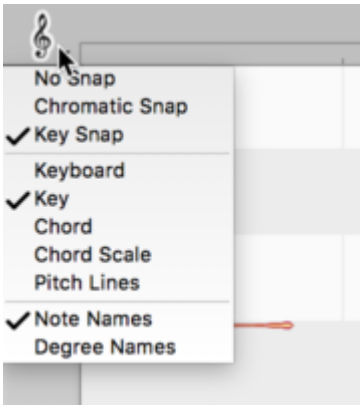
You can shift the pitch of notes in Melodyne either continuously or in discrete steps using the grid. When the grid is active, notes can only be moved to such pitches as the snap mode selected at the time will allow.

### The functions of the Pitch Ruler and access to the Pitch Grid

You can change the options relating to the Pitch Grid either from the sub-menu of the same name under Options in the main menu or by clicking the clef icon directly above the Pitch Ruler.

Clicking on the Clef icon toggles the grid on and off. When the grid is deactivated, you can slide notes continuously upwards or downwards in pitch. Only faint lines in this case separate the notes in the Pitch Ruler.

If you click on the Clef icon (or the little arrow next to it) while holding down the mouse key, the menu containing the grid options drops down.




### The Pitch Grid and the background in the Note Editor

The Pitch Grid, when activated, causes notes to snap to particular pitches as you drag and release them. The white horizontal beams beneath the blobs in the Note Editor represent the pitches allowed by the currently selected grid. The gray beams represent pitches that are not included in the current grid and that the blobs therefore spring over as they are moved.

When you double-click on a blob with the Main Tool or the Pitch Tool, it will snap to the center of the nearest white lane – so whether it was perfectly in tune or slightly offset from its previous pitch, its offset from its new pitch will be zero. Thus, as well as moving notes to more suitable pitches, a simple double-click perfects their intonation at the same time.

If, on the other hand, you hold down the [Alt] key as you double-click, if a blob was offset 10 cents (say) from its previous pitch, it will be offset from its new pitch by the same amount. In other words, even though the blob may move to a different pitch, its “degree of imperfection” (in terms of intonation) will be preserved – such deviations are, after all, often musically desirable and used intentionally in order, for instance, to obtain a warmer, richer tone.

For the Pitch Grid and the background to the blobs in the Note Editor, the following options are available:

**Pitch Grid**

- No Snap: The Grid is deactivated and notes can be shifted continuously up or down in pitch.
- Chromatic Snap: Notes snap to the nearest note of the chromatic scale.
- Key Snap or Chord Snap: Notes snap to the grid currently selected as the display background in the Note Editor.

**Pitch Background**

- Keyboard: The background in the Note Editor mimics the pattern of black and white keys on the piano keyboard – only in this case, the pitches produced by the black keys are shown in gray. When the grid is active, these pitches are inaccessible, so you are effectively locked into C Major – which is fine if the song happens to be in that key but not much use otherwise.
- Key: Now the notes of the current key or tonality are displayed in white and notes foreign to the key in grey. Again, when the grid is active, only the white beams are accessible. If there is a change of key in the course of the song, the pattern of white and gray beams will change accordingly.
- Chord: Now the background pattern changes from chord to chord, with white beams representing chord members and notes foreign to the current chord shown in gray. So in the case of chords based on simple triads (C Major, F minor etc.), only three notes per octave will be available. In the case of more complex chords, more pitches will be available – four per octave in the case of a major seventh chord, for example.
- Chord Scale: With this option, once again seven white beams per octave are displayed. Unlike the case, however, when “Key” was selected, these are not the notes of the current key, but instead form a scale that reflects the current chord.

A brief explanation: It is perfectly possible, in jazz for example, for chords to be used that do not fit the key, without the listener immediately interpreting this as a key change. For example: You are in C major, and the chord played is D major, which does not actually fit the key. If the option “Chord Scale”

is selected, for this one chord a black-and-white pattern will be displayed corresponding to the notes that fit the chord played within the key. So, in our example, F# would be a legitimate tone and would be shown in place of F.

- Pitch lines: When this option is selected, a ruled line appears in what was previously the center of each beam, and the beams are no longer displayed. The pitch lines invariably reflect the key – including any key changes – but not the chords; bold lines indicate the pitch of notes belonging to the key; that of notes foreign to it are denoted by thin lines. This display mode is useful when you are correcting intonation errors, as the lines show the exact pitches to aim for.

**Pitch Labels**
Here you can choose whether the names of the notes (C, D, E etc.) or degrees of the scale (I, II, III etc.) are shown on the Pitch Ruler.

**A practical example**
You are perhaps wondering what earthly purpose is served by all these options. An example may make things clearer. Let’s suppose you want to import a guitar part from your loop library and adapt it to the current song. Here’s how it’s done:

- First create a chord track (either by applying the chord recognition function to the instruments you already have or by typing in the chords).
- Now activate Scale Snap
- As the Pitch Background, choose "Chord"
- Insert the guitar part from your library and select all its notes (shortcut: [Cmd]+A)
- Then double-click any of the selected notes

Now the imported guitar part will follow the chords of the song. You may perhaps want to shift one or two of the chords upwards or downwards along the Chord Grid to obtain inversions.

With this procedure, of course, you may find occasionally that two notes that were different in the original guitar part end up on the same pitch. This is bound to happen where, for example, in the original recording, there’s a major seventh chord (which is made out of 4 notes) but a simple major or minor chord (consisting of 3 notes) in the current song. Such problems, however, are easily solved: just select one of the two notes and drag it by hand to a “free” white note. Or you could switch the display background from “Scale Notes” to “Chord Scale” to obtain a wider choice of suitable notes.

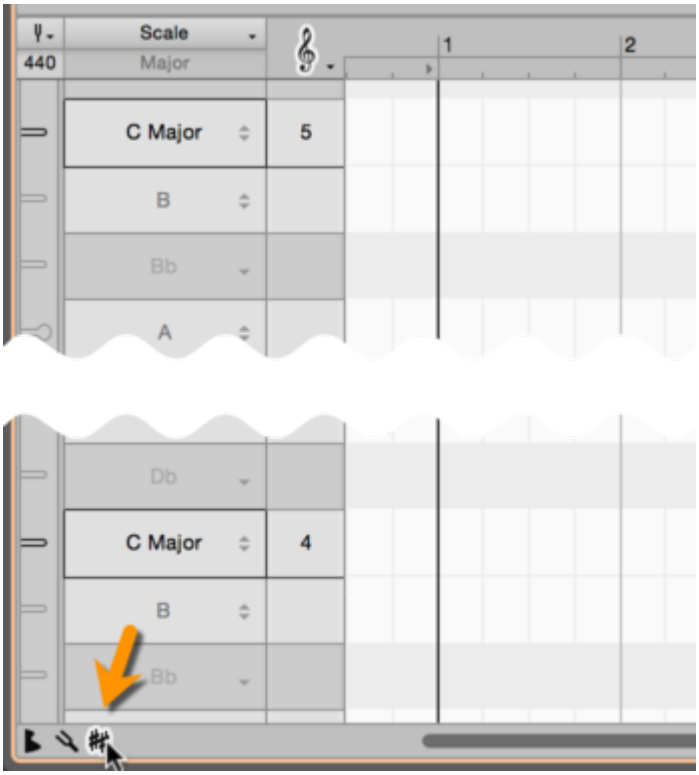
When you are dealing with vocal parts, on the other hand, you will hardly ever find the “Chord” setting useful – it would limit the voice to too few notes (often only 3 or perhaps 4 per chord). Choose instead “Chord Scale”, which will allow you greater flexibility when working with melodies. Where, on the other hand, you have multiple vocal tracks comprised of little more than “Ooh” or “Aah” sounds that you are using to provide layers of harmony, then “Chord” might be the most useful setting.

Once you have finished composing the melodic line and begin to address the finer points of intonation, switch the display background to Pitch Lines. This is because the lines – which represent

perfect intonation – provide a clearer indication of which notes are out tune (and by how much) than that provided by the (far broader) beams.

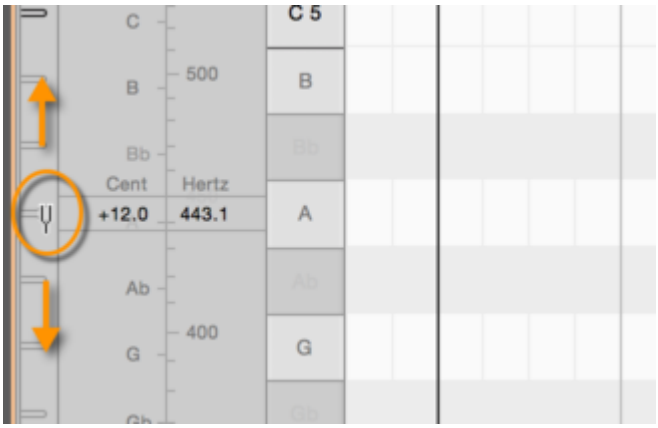
### The Scale Ruler and the Reference Pitch Ruler

To select a scale for the Pitch Grid yourself or change other settings, click the rightmost icon (the two sharp signs) beneath the Pitch Ruler. Two new columns will appear to the left of it.

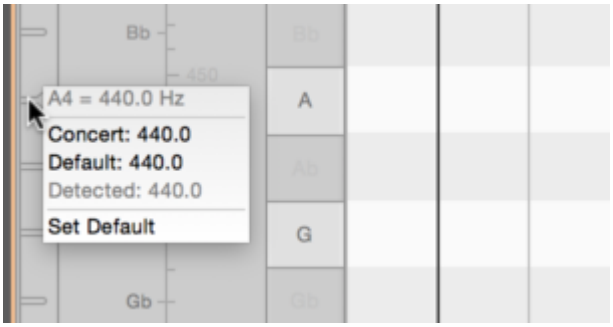



### Adjusting the master tuning

The narrow column on the very left is the Reference Pitch Ruler. Drag in either direction the mark alongside any note – A4, for example – and the Frequency Ruler appears, which you can consult as you fine-tune the note in question and, with it, of course, all the other notes of the scale. What you are doing here is adjusting the master tuning for the entire Pitch Grid. A tip: increase the vertical zoom factor, as this will make it easier for you to locate the value you want.

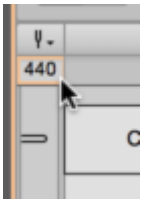



By right-clicking any of the marks on the ruler, you can open a small context menu. This offers a number of pointers to help you bring the Pitch Grid swiftly into line with a particular tuning:




- At the top, you will see the current frequency of the note selected.
- Concert: bases the tuning on modern standard concert pitch (where A4 = 440 Hz).
- Default: bases the tuning on the frequency currently assigned to A4 in the Preferences dialog.
- Detected: bases the tuning on Melodyne's analysis of the music being edited – the original tuning.
- Set as Default: tells Melodyne to use the current value as the default tuning for new documents and adjusts the value in the Preferences dialog accordingly.

The various settings for A4, incidentally, can be found quickly by clicking the tuning fork icon at the top of the Reference Pitch Ruler. By typing into the box immediately below this icon, you can assign to A4 any frequency you like.



### Selecting the tonic and scale variety

The wider ruler next to the Reference Pitch Ruler is the Scale Ruler. Here you can select the ‘tonic’ (i. e. the first degree or keynote) of the scale as well as its mode or type. First click on the note you wish to use as the tonic. The following menu opens:




Related scales: in the top part of the menu, you will find a varying number of scales preceded by a “=” sign. These are scales that correspond to the current scale but are differently named. Please note that when you select a related scale from this menu, only the main structure of the mode in question is adopted: the scale is simply given a new name and, if applicable, a new tonic. It can be, however, that the exact definition of the related scale in question contains additional secondary degrees or fine-tuning. If you wish to use these, please choose Open Scale... from the scale drop-down menu.

- The current note: in the middle of the submenu, grayed out, you will see the name of the note you have clicked on and which you can now make the tonic.
- Major / Minor: Allows you to select a major or minor scale with the note selected as tonic. To select C Major, for example, click C in the ruler, followed by C Major from the submenu.
- Open Scale... : opens Melodyne’s Scale Window, which offers access to a wide variety of additional scales. This window will be described in the next section.
- Analyzed: this offers you rapid access to two options derived from Melodyne’s analysis of the material: the closest major or minor scales and an exact microtonal scale.
- Notes Reflect Scale Changes: normally when you change the scale, Melodyne adjusts the Pitch Grid but does not change the notes themselves unless you double-click on them first, in

which case they will snap to the grid. If, however, you wish the notes to adjust automatically to any change of scale, select either Tuning or Tuning and Mode. Then any changes will take effect immediately and you will hear them at once during playback.

- Play Scale: plays the current scale. When this function is active, the loudspeaker icon appears above the Scale Ruler. By clicking on this icon, you can deactivate the function without needing to access a menu.
- Apply Dynamic Just Tuning: fine-tunes the selected notes applying the principles of just intonation to ensure that pure intervals result.

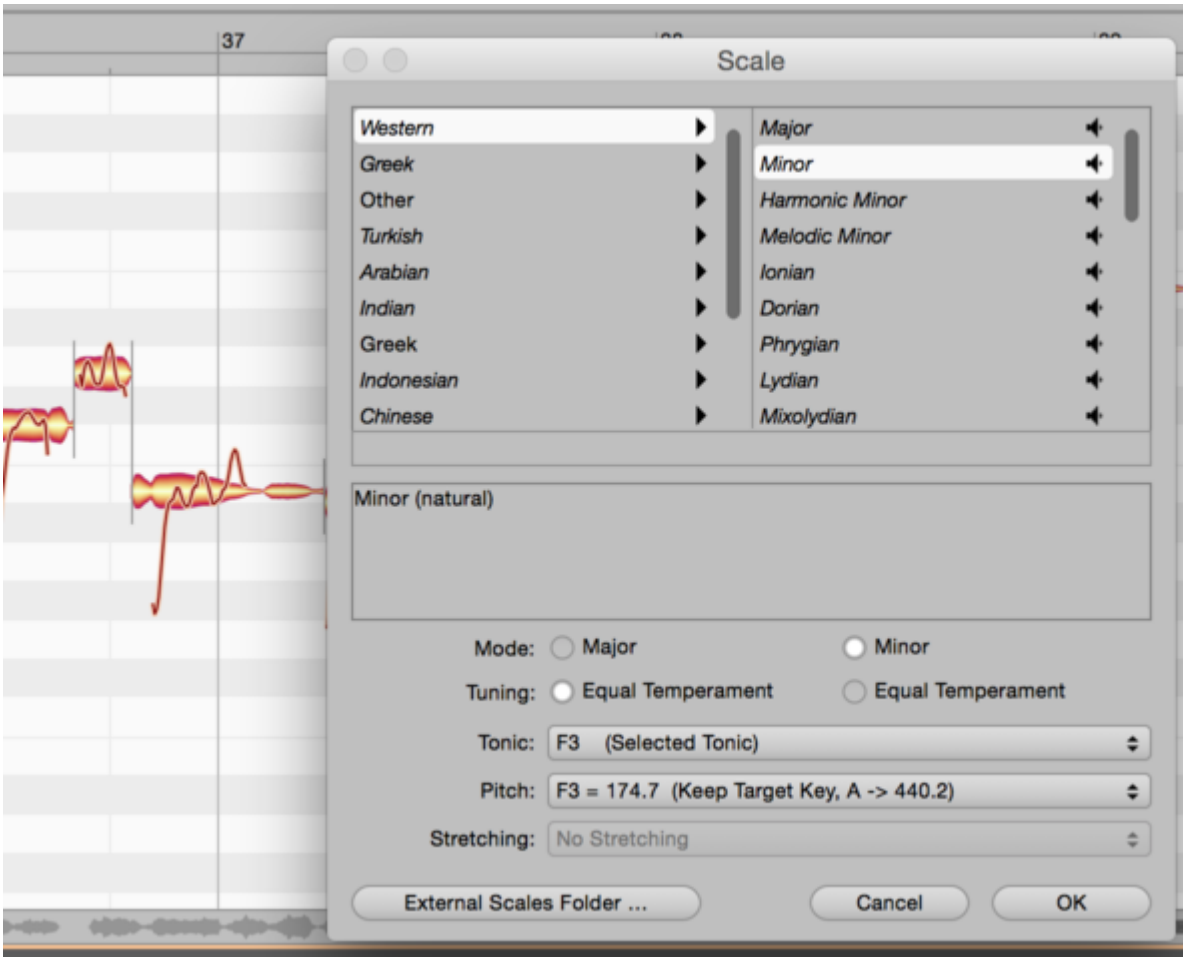
**Dynamic just tuning:** Dynamic just tuning eliminates the slight dissonances and resulting interference (or 'beating') between notes that come with equal temperament. By this means a smoother sound can be obtained, as is demonstrated, for instance, by real orchestras. We speak of "dynamic" just intonation because not only are the intervals pure but the pitches are also shifted minutely to ensure that the chord member most affected by the just intonation is as near in pitch as possible to its counterpart in equal temperament. Example: Melodyne shifts a justly tuned chord of C major (C ± 0 ct, E – 13 ct, G +2 ct) six cents up, so that the E is not too far removed from its even temperament counterpart. Furthermore, this fine-tuning of notes is not static but governed by the current harmonic context. So in the time dimension, too, it is dynamic, to ensure that at each instant optimal tuning is obtained. Dynamic just tuning is particularly effective and pleasing to the ear in a multi-track context, as it's when you select notes from multiple (or all) tracks and apply just intonation to them that its benefits are most apparent.

**Tip: Initialize the key prior to the transfer/load:** In the case of monophonic or polyphonic audio material, Melodyne also recognizes the key of the music. With short melodic phrases, however, the key chosen is often not the one intended, simply because too few notes are available for a correct appraisal. To prevent this happening, you can set the key using the Scale Ruler of an empty instance of the plug-in or an empty document (if using the stand-alone implementation of the program) *before* the transfer or loading of an audio file. To do this, simply click on the desired keynote in the Scale Ruler and select the desired scale from the context menu. Melodyne will then retain this initialized value, regardless of its own subsequent analysis.

### The Scale Window

Melodyne's Scale Window offers a multitude of scales you can select, listen to, and make use of. To access this window, choose "Open Scale" from the context menu of the Scale Ruler.

The selected scale applies to all instances of the Melodyne plug-in. In the stand-alone implementation of Melodyne studio, it also applies to all the tracks of the current document.




To open the Scale Window, select Open Scale from the context menu of the Scale Ruler.

Now choose a category from the left-hand pane followed by the desired scale from the pane on the right. Click the loudspeaker icon to the right of each entry to hear the scale selected.

If you have activated the option Notes Follow Scale Changes, during playback you will hear immediately the effect of applying the scale selected to your audio material. The window allows you to try out (or ‘audition’) different scales quickly and easily. If you wish to adopt the changes, exit the window with OK; otherwise click Cancel.

From the lower pane of the window, you can select between the parameters of your existing scale and those of the scale selected in the Scale Window.

- Mode and Tuning: you can adopt either the parameters of your existing scale (on the left) or of the scale currently selected in the Scale Window (on the right).
- Tonic: you can choose between the selected tonic or the tonic from the preset.
- Pitch: here you can choose between current tuning, the pitch from the preset or various standard tunings.

- Stretching: here you can select whether or not stretched tuning should be applied to the scale.
- External Scales Folder...: this button allows you to open a folder containing scale definitions in Scala format (filename extension “.scl”) which will then appear as an additional category in the Scale Window.

On the Internet, you will find at http://www.huygens-fokker.org/microtonality/scales.html a collection of over 4,000 Scala files that you can copy to any part of your hard disk and audition and try out in this way using Melodyne.

You can also load scale definitions created in Melodyne studio (filename extension ‘.mts’) with this button.

### Saving a scale

The Scale Window allows you to experiment swiftly and easily with a large number of scales as well as combine elements of your existing scale with those of the presets in the Scale Window. In the process, you are bound to hit upon interesting combinations that you will want to save and use again later. The command “Save Scale As...” allows you to do just that: store your own scale presets so that you can access them later in the Scale Window. For this purpose, it opens a window that looks very like that of the Scale Window and offers you the following options.

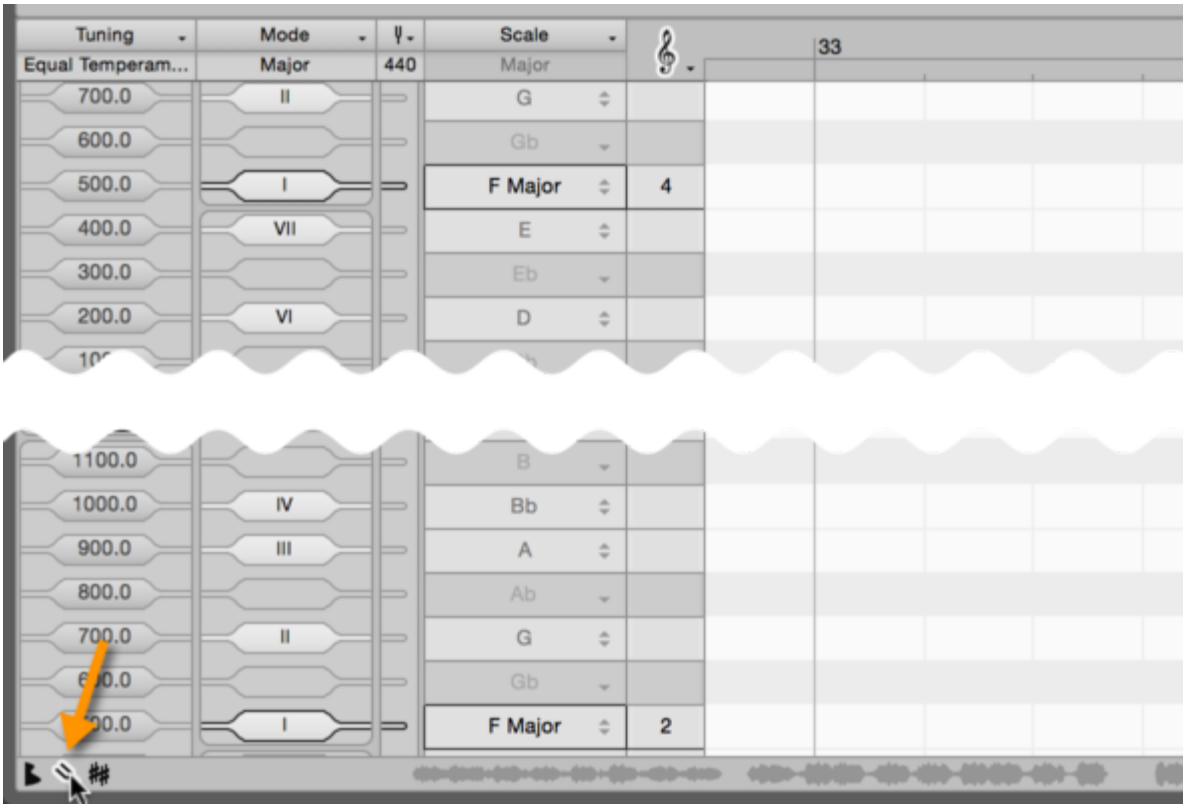
- Name: here you can enter a name for your scale.
- Category: select the category under which you wish the scale to be filed. Click New Folder to create a new category.
- In the text field below, you can enter a comment to be stored along with the scale.
- In the lower part of the window, you can assign names to the mode and tuning. All aspects of a scale are invariably stored along with it. By placing ticks (checkmarks) here, however, you can specify which aspects of the scale are considered relevant when it is opened subsequently.

# Editing scales

In the extended scale area, which opens to the left of the Pitch Ruler, you will find the functions for the editing of scales and creation of new scales.

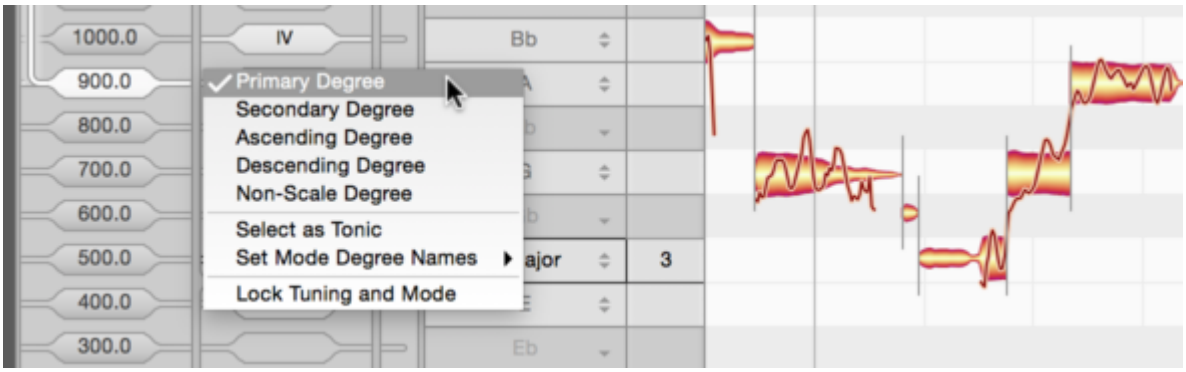
### Displaying the extended scale area

Click on the tuning fork icon beneath the Pitch Ruler to open the extended scale area. To the left of the Scale and Reference Pitch Rulers, two further rulers will appear: the Mode Ruler and the Tuning Ruler.

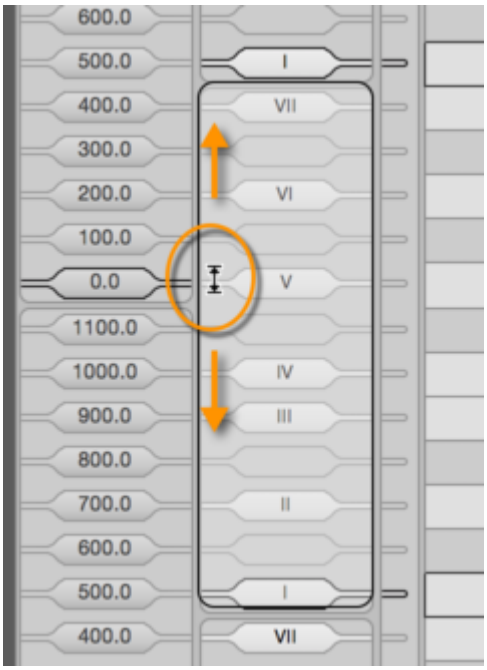



### Editing modes

The Mode Ruler allows you to define the degrees of your scale – the mode degrees – and their use. When you right-click on a degree in the Mode Ruler, a context menu appears, allowing you to assign to the degree in question any of the following designations:

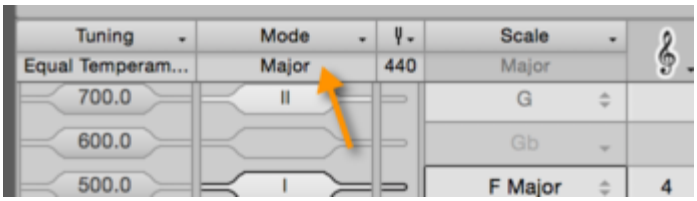



- Primary Degree: a degree always used in the scale.
- Secondary Degree: a degree that can be, but is not necessarily, used in the scale.
- Ascending Degree: a degree only used when ascending the scale.
- Descending Degree: a degree only used when descending the scale. A simple example of a scale in which different notes are used depending upon whether you are ascending or descending is the melodic minor.
- Non-Scale Degree: a degree made available by the tuning system but not employed by the scale. Non-scale degrees are grayed out in the ruler.
- Set as Tonic: tells Melodyne to regard the selected note as the first note (or “tonic”) of the scale. The tonic is indicated by a black outline.
- Set Mode Degree Names: allows you to choose whether the degrees of the scale are indicated by Roman numerals, solmization or their Indian designations. After double-clicking on a degree, however, you can type in any designation you prefer.
- Lock Tuning and Mode: By placing the mouse pointer alongside the degree indicator in the mode menu and dragging upwards or downwards, you can transpose the mode. Normally the transposition is performed without regard to the tuning of the mode.




In the case of a scale exhibiting unequal temperament – one, in other words in which adjacent degrees are separated by varying numbers of cents – a crude transposition of the mode, however, would disturb the ratios between the various degrees of the scale. Whenever this outcome is threatened, the “Lock Tuning and Mode” function is activated automatically so that the degrees of the scale move *en bloc* and the intervals between the degrees are preserved. If you prefer, however, you can activate or deactivate this function manually.

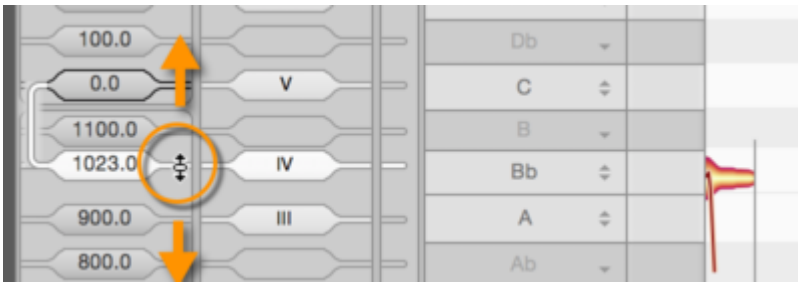
The text box at the top of the Mode Ruler (below the word “Mode”) allows you to assign a name to your scale.




### Editing intervals

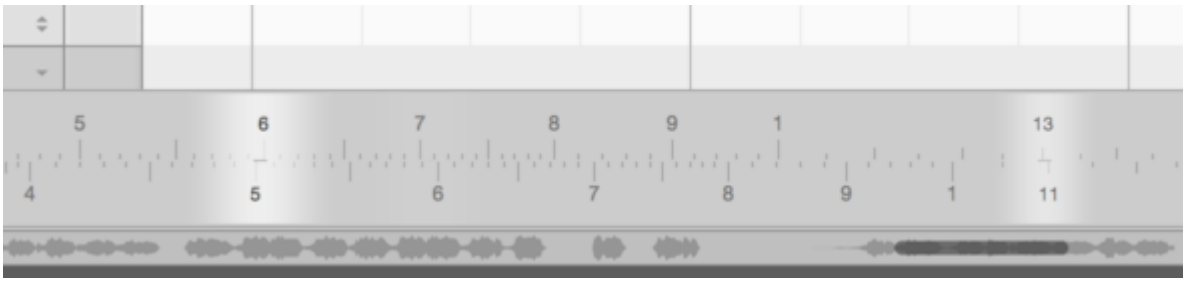
The degrees of a scale are defined by a tuning system whereby each degree is a specific distance from the tuning root. This distance is described as an “interval”. The tuning therefore says nothing about the absolute pitch but simply expresses the ratios between the various degrees of the scale.

In the Tuning Ruler, you can see these intervals displayed in cents and can edit them. Just drag an interval upwards or downwards with the mouse to alter its tuning.




### Intervals displayed as frequency ratios

Alternatively, you can define an interval as a frequency ratio. The interval of an octave, for example, is formed by the ratio 1:2. This is the function of the Ratio Ruler, which appears at the bottom of the screen when you click on an interval. Melodyne displays there the frequency ratios that are most relevant: i.e. the ones lying closest to the selected interval.

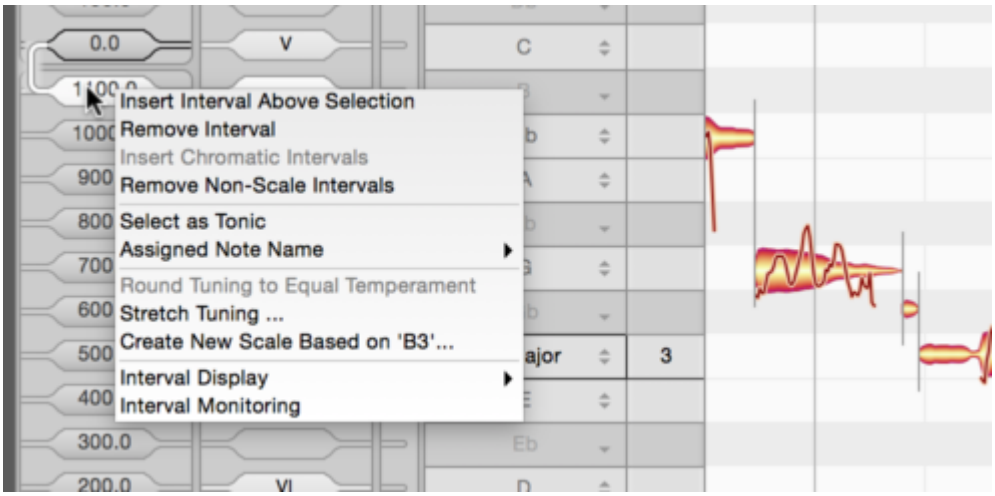



The brighter the highlighting, the closer the ratio to the selected interval. If you double-click on one of the ratios suggested, the Ratio Ruler engages and the cent display of the interval in question is updated to reflect your choice.

By dragging the upper half of the ruler, you can set any ratio you want. To move the entire ruler, drag the lower half. If you check the box marked “All” in the Ratio Ruler, Melodyne will no longer preselect ratios for you but simply display all possible ratios that approximate to the current interval.

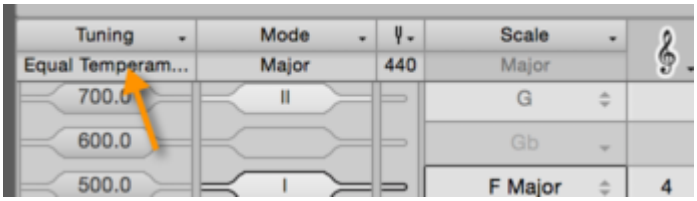
### Defining intervals

Right-clicking on any interval in the Tuning Ruler opens the following context menu:




- Insert Interval Above Selection: inserts an interval above the interval selected.
- Remove Interval: removes the selected interval.
- Insert Chromatic Intervals: supplements the existing intervals chromatically through the addition of further intervals.
- Remove Non-Scale Intervals: removes all intervals foreign to the scale.
- Set as Tuning Root: makes the selected interval the point from which the intervals are calculated.
- Assigned Note Name: any new interval initially takes the name of the nearest note. Musically, however, it may be preferable to assign the name of the note above or below it, so this entry allows you to select an alternative name.
- Round Tuning to Equal Temperament: rounds all intervals to comply with equal temperament.
- Stretch Tuning: opens a window that allows you to apply stretched tuning to your scale (more on this below).
- Create New Scale Based On ...: opens a window that allows you to create from scratch a new scale (more on this below).
- Interval Display: This allows you to make the selected interval the display reference for your tuning system, deactivate the cyclic interval display, and select between cents, hertz and Turkish commas (=1/53 octave) as display units. These options only affect the display of the intervals and have no effect on their tuning.
- Interval Monitoring: if this option is checked, as you alter an interval you can hear the results.

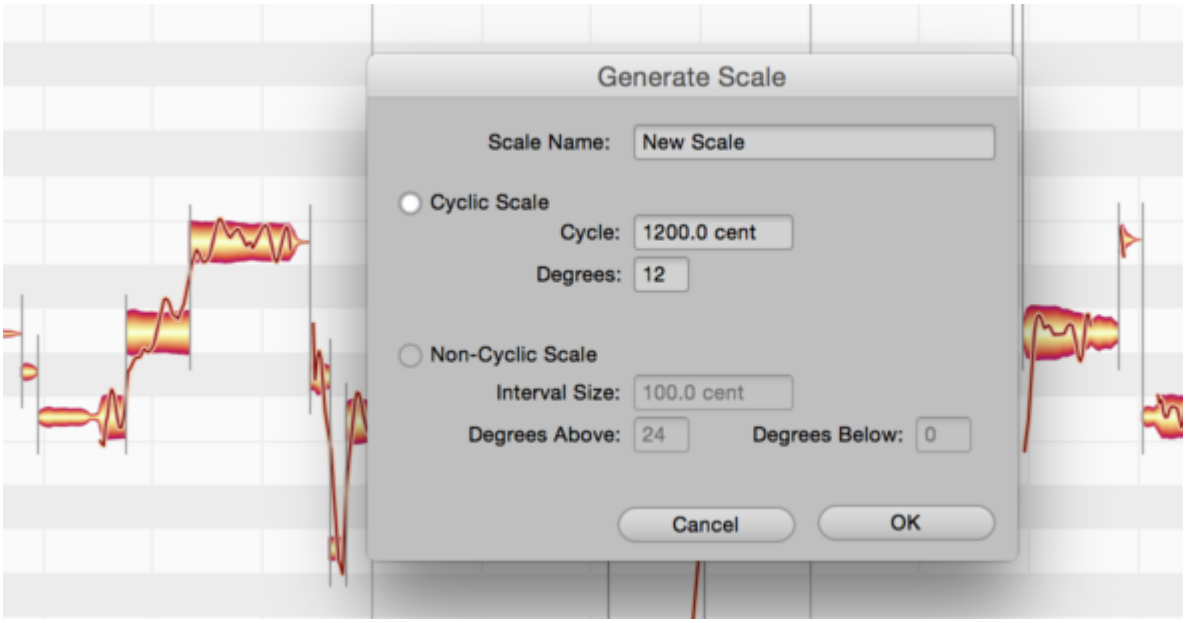
The text box at the top of the Tuning Ruler (below the word “Tuning”) allows you to enter a name for the tuning system of your scale.



Tip: If you hold down the Shift key and click between two intervals, you can insert a new interval at the position of the mouse cursor. Hold down the Shift key and double-click on an existing interval to delete it.

### Creating your own scales

To create a scale from scratch, right-click on an interval in the Tuning Ruler and select “Create New Scale Based on ...” from the context menu. A new window opens offering you the choice initially between a cyclic and non-cyclic scale.




- Cyclic Scale: If you opt for a cyclic scale, you can specify the size in cents of the cycle and the number of degrees of which it is composed. For a scale that repeats every octave, for example, the cycle size would be 1200 cents. Tip: you can also enter the cycle size as a ratio: e.g. “2/1” for an octave cycle.
- Non-Cyclic Scale: Enter the size of the intervals between adjacent notes and the number of degrees above and below the selected tonic.
- Scale Name: Enter the name of your scale in the text box provided.
- If you exit with OK, Melodyne will generate a scale in accordance with your specifications and this will become the new scale grid for the current document. Exit with Cancel to revert to the current scale.

### Working with stretch tuning

On upright and grand pianos, the higher registers are generally sharpened slightly and the lower registers flattened; the tuning, in other words, is “stretched”. If you were now to work in Melodyne with

equal temperament, the desired stretch tuning would be lost. To avoid this, select Stretch Tuning ... from the context menu of the Tuning Ruler and a window will open allowing you to define the stretch curve.




By double-clicking on the graph, you can create handles with which you can drag the curve to obtain the desired characteristic. Double-click on a handle to remove it.

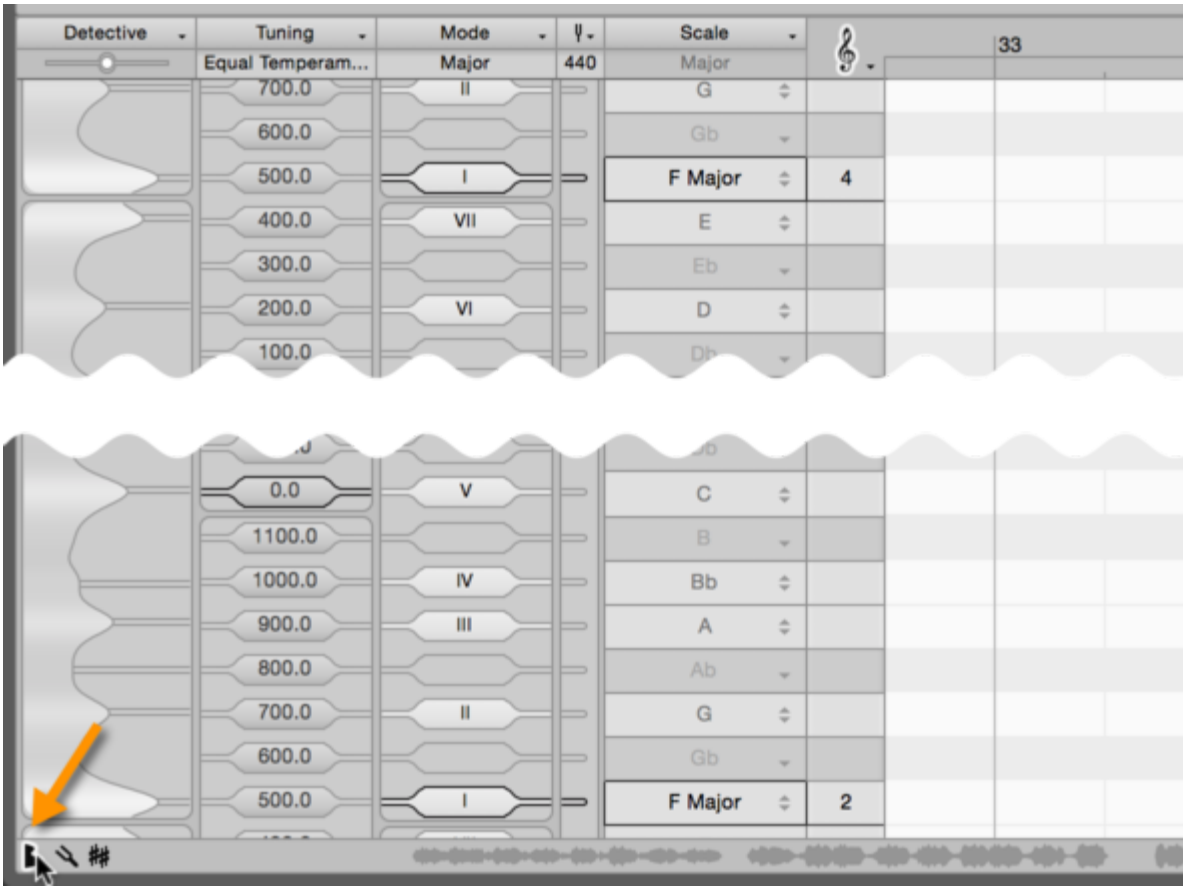
- Standard Stretching: if you click this button, Melodyne will generate a typical stretch curve, which you can then further adjust should you so desire.
- Reset Stretching: restores the curve to its starting position.
- Pitch Range: defines the maximum deviation and therefore the vertical range of the curve.
- Exit with OK to implement the stretch curve you have defined or with Cancel to discard your changes.

# Identifying scales

The Scale Detective analyzes the intervals found in the audio material and their implications for the mode of the scale. The result is a scale grid that reflects the music analyzed. You can edit, save and apply the extracted scale to other material, and in this way transmit the special character of one recording to another.

### Showing the Scale Detective and adjusting its sensitivity

Click on the leftmost of the three icons beneath the Pitch Ruler. The “drawer” to the left of the Pitch Ruler is now fully open.



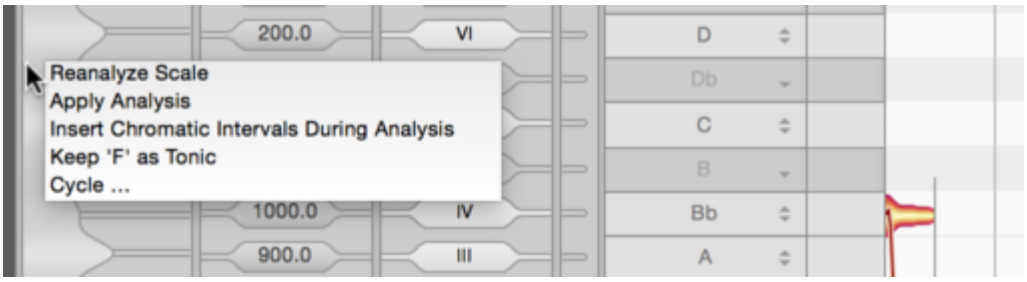

A new column headed “Detective” appears at the extreme left of the screen displaying the results of the analysis. The “mountains” lying on their sides in the Scale Detective represent the intervals detected: the higher the mountain, the more importance is attached by Melodyne to the role of the interval in question in the mode of the scale.

The slider at the top of the Scale Detective governs the sensitivity of the analysis and, with it, the number of intervals detected and displayed. The intervals displayed should correspond as closely as possible to the intervals actually played. Adjust the sensitivity until only as many intervals are displayed as the scale in your view contains.

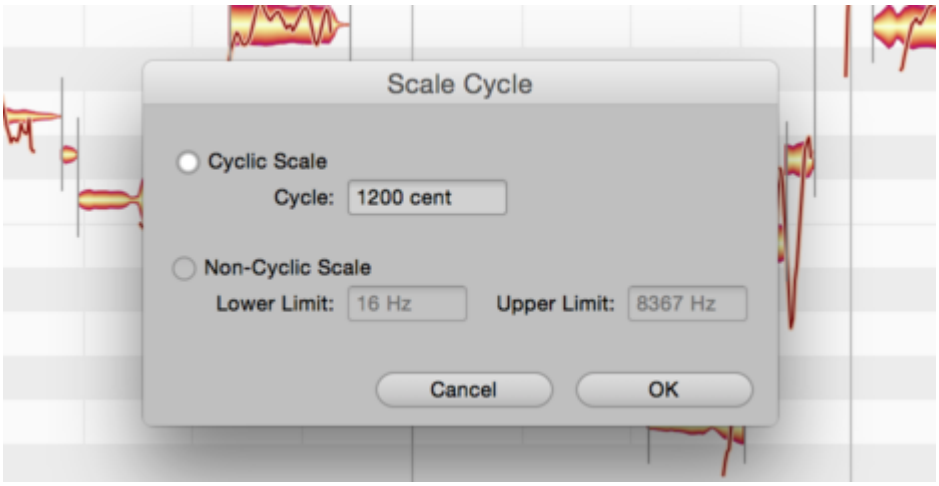
The analysis will take into consideration only the notes selected, unless no notes are selected, in which case all will be considered.

### Scale detection options

A right-click in the Scale Detective opens the following context menu:




- Reanalyze Scale: This command requires the Scale Detective to conduct a fresh analysis of the scale. The analysis will take into consideration only the notes selected, unless no notes are selected, in which case all will be considered.
- Apply Analysis: If this option is selected, the results of the analysis will invariably be applied directly to the current scale grid.
- Analysis Inserts Chromatic Intervals: If this option is selected, the intervals analyzed are supplemented chromatically by others, which are then regarded as intervals foreign to the scale (or “non-scale degrees”).
- Keep ... as Tonic: If you click and drag the Scale Detective vertically, you can alter the tonic upon which the analysis of the audio material is based. When you do so, this option is selected automatically. The next analysis will then be based upon the tonic you have selected rather than the one indicated by Melodyne’s current analysis of the material.
- Scale Cycle: opens a dialog box that allows you to choose between a cyclic or non-cyclic analysis.




- Cyclic Scale: selects a cyclical scale analysis. You can enter the size of the cycle in cents or as a ratio: e.g. “2/1” for a scale that repeats every octave.
- Non-Cyclic Scale: selects a non-cyclic scale analysis the upper and lower limits of which in hertz (Hz) you are free to choose. The analysis will then consider only notes lying within the range specified.
- When you exit the Scale Cycle dialog with OK, a fresh analysis of the material will be conducted at once, based upon your new settings. If, on the other hand, you select Cancel, Melodyne will revert to the existing analysis.

### Applying the detected scale.

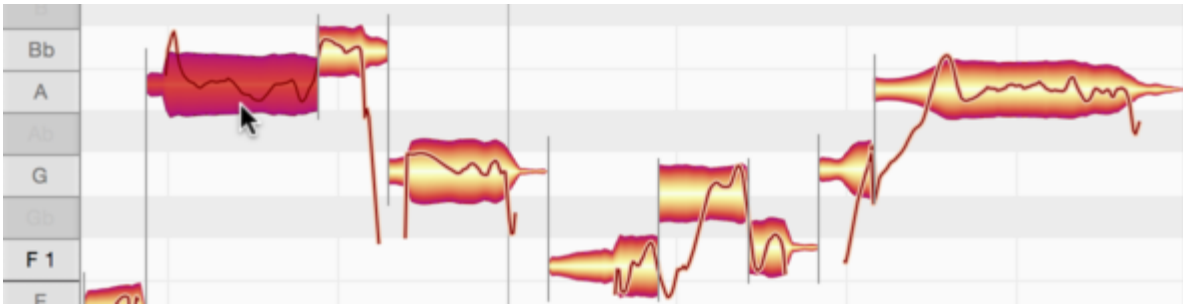
To apply the detected scale to the current scale grid, check the option Apply Analysis in the context menu of the Scale Detective. You can then edit, save and apply to other material your new scale just like any other.

# Selecting notes

In this tour, you will learn which techniques you can use to select notes in Melodyne prior to editing them.

### Standard selection techniques

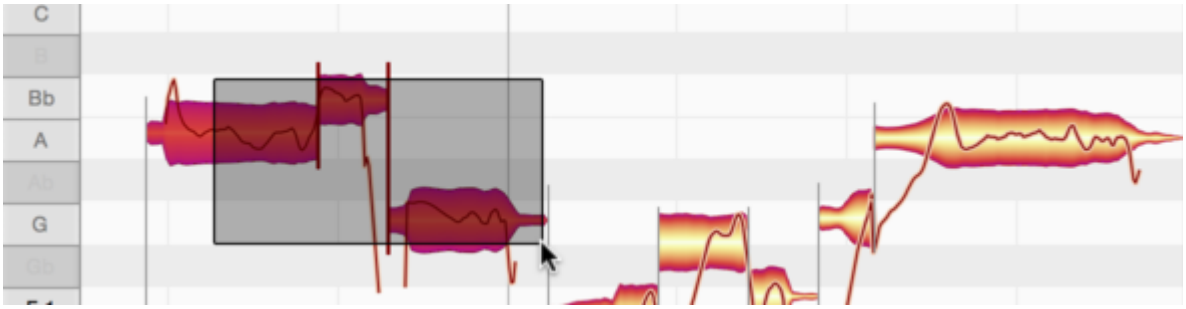
Click a note in the Note Editor to select it. Selected notes are more boldly colored.




[Command]-click additional notes to add them to the selection.

[Command]-clicking a selected note removes it from the selection.

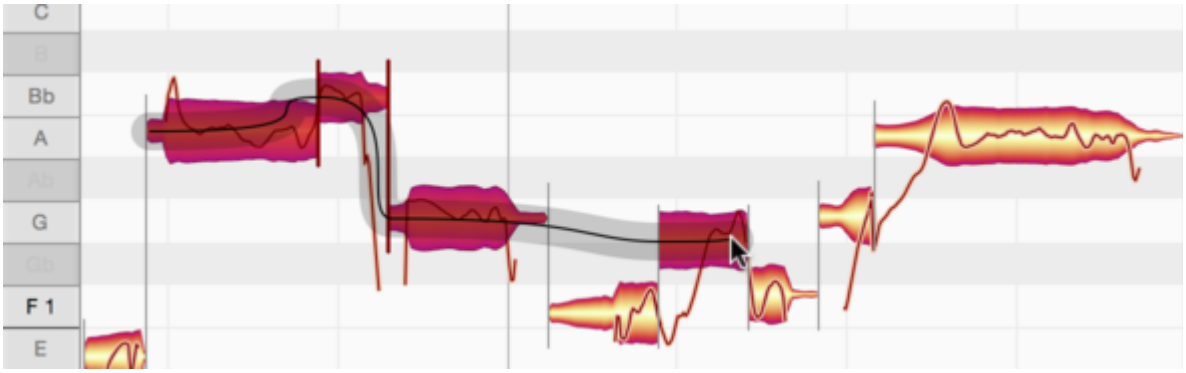
Another way of selecting multiple blobs is to lasso them by clicking the background in one corner of the desired selection and then dragging the pointer to the corner diagonally opposite. This is sometimes called rubber-banding. If you hold down the [Command] key, you can add a further rubber-band selection to the existing one. You can also add individual notes to the selection (or remove them from it) by [Command]-clicking.



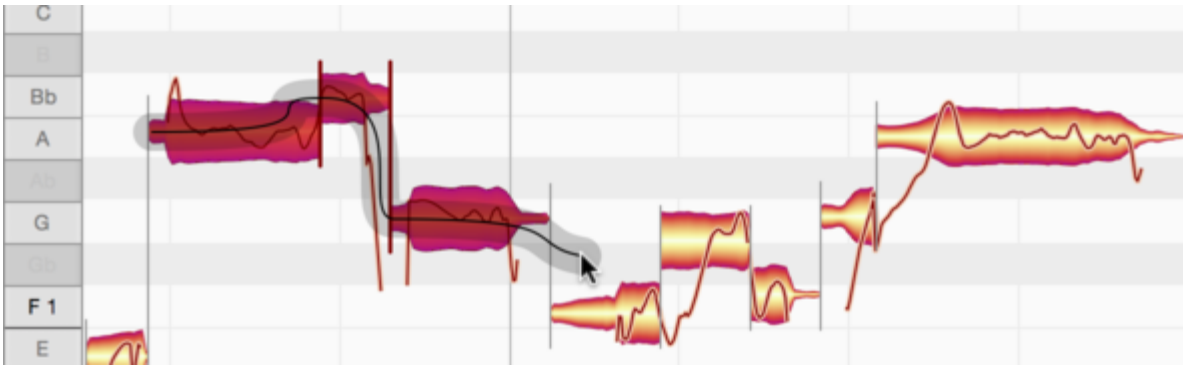

To select a passage (i.e. a series of notes), click the first note of the series and then [Shift]-click the last (or vice versa).

### Snake selection

If you press the [Shift] key, click a note and then move the mouse pointer away, Melodyne's snake selection mode is activated.  You can now add notes to the selection by painting over them with the snake.

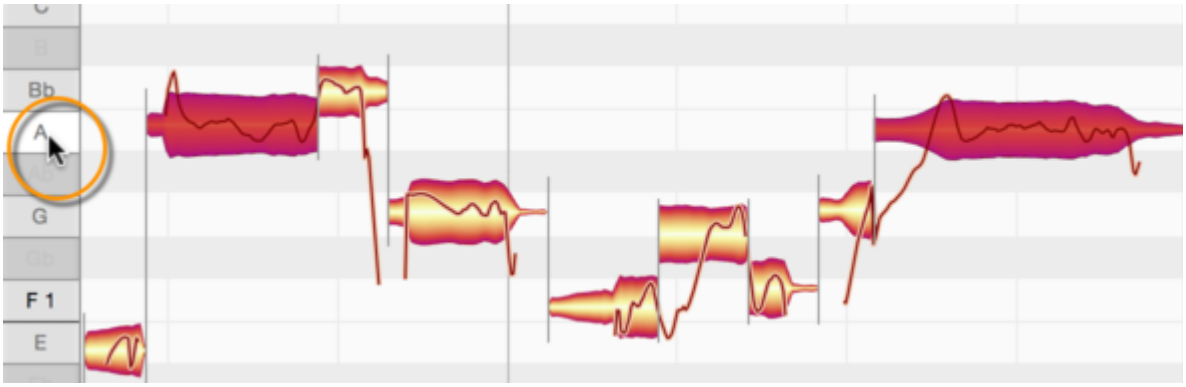



If you move the mouse (and thereby the snake) backwards again, you can remove notes previously painted over from the selection.




### Selection using the Pitch Ruler

Click a note in the Pitch Ruler to select notes of the corresponding pitch.

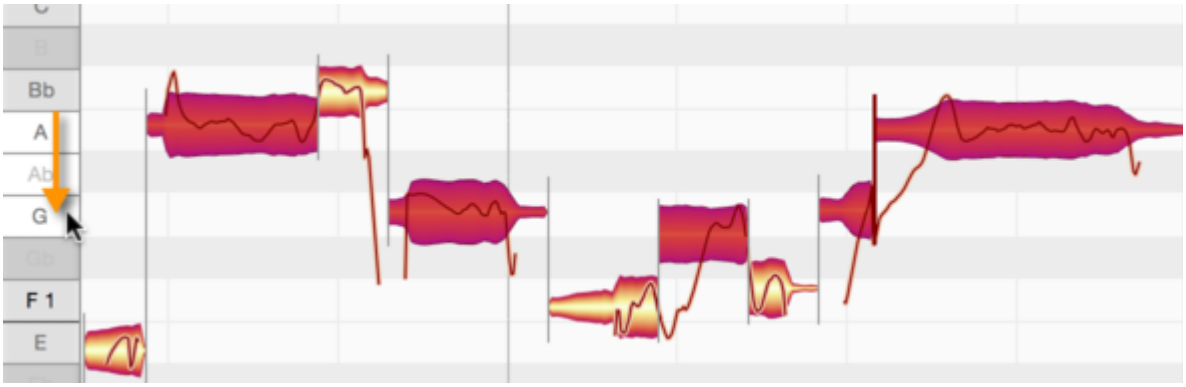



If cycle mode is active, the selection only affects such notes if they lie within the cycle range.

By [Command]-clicking other notes in the Pitch Ruler, you can add them to the selection and later remove them by the same means.

If you double-click, as opposed to single-clicking, a note in the Pitch Ruler, you will select the same note in all octaves rather than simply that single instance of the note.

Click and drag in the Pitch Ruler to select a range of notes.




By using the [Command] key in the Pitch Ruler, you can remove from the selection a range of notes or individual notes. Here too, if a cycle is active, only notes within the cycle range will be selected.

### Selection commands in the menu

In the Edit menu and the context menu of the Note Editor, you will find the command Select All and the Select Special sub-menu, which contains a number of more sophisticated options.

The command Restore Last Selection reverses the last selection step, thereby restoring the selection that was active beforehand. This is useful if you are in the process of performing a complex selection and accidentally shoot astray, causing the selection to disappear. By clicking Restore Last Selection, you can retrieve it.

The command Invert Note Selection deselects all selected notes and selects all notes that were previously not selected. The commands that follow are similarly self-explanatory, allowing you to select all the notes that follow, all notes of the same pitch, all notes of the same pitch in all octaves, and so on.

The command Select Fifths Above and Below in All Octaves selects tones a fifth above and below the selected tones in all octaves. All the Select commands in the second subdivision of the menu operate on the cycle zone only if cycle mode is active.

The two commands that follow, Select Same Beat in All Bars and Select Notes Between Locators, are also self-explanatory. The last command in the list, Rotate and Select Hidden Notes is designed to help out when you have notes that overlap or completely cover others. It does so by switching the

display from layer to layer, selecting at each successive layer the newly revealed note, so that you can see it more easily and drag it.

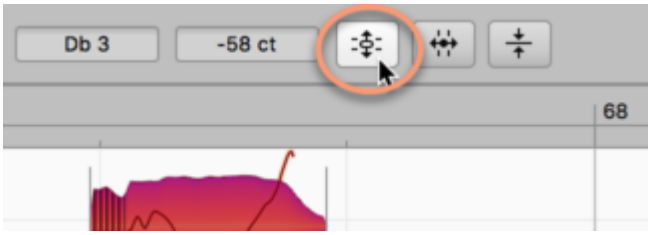
# Correct Pitch Macro

The Correct Pitch Macro is used to rectify poor intonation quickly and intelligently and rein in any undue wavering in pitch.

### Opening and using the macro

Select the notes you wish to edit. If no notes are selected, macro editing will by default affect all notes.

To open the macro, choose Edit > Quantization Macros > Correct Pitch or click on this button at the top of the Note Editor.

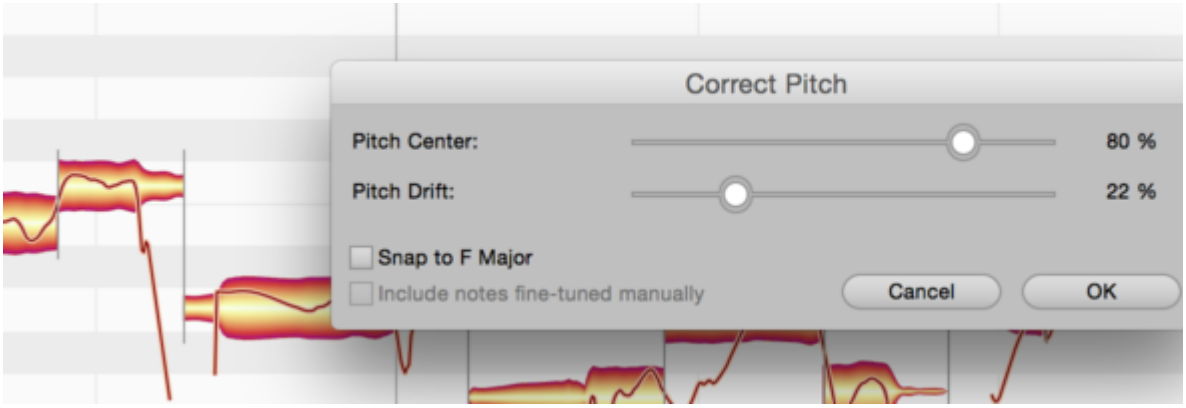



Here, with the upper slider, you can apply a degree of correction ranging in intensity from 0% (no influence) to 100% (full power) to the pitch center of the notes selected. By default, such notes are moved towards, or to, the nearest semitone:

If you prefer, however, you can have the notes snap to the nearest degree of the current scale or (if chords have already been defined) to the nearest member of the current chord; in either of these cases, check the option “Snap to Chord Scale”.
Depending upon the position of the intensity slider, the notes will then snap all, or part of, the way to the corresponding pitches.

The macro works in a musically intelligent manner: At lower settings it affects only those notes that are wildly out of tune, leaving untouched those that are already quite close to the intended pitch. As the slider is moved further towards the right, however, even those notes are influenced, and to an increasing degree, until at 100% all the selected notes are exactly in tune.

The pitch center, which the macro adjusts automatically, is the same parameter that is modified when pitch correction is performed manually using the Pitch Tool.




With the lower slider, you can progressively reduce the amount of pitch drift exhibited by the notes in question. By “pitch drift”, we mean the kind of slow wavering in pitch that is symptomatic of poor technique. More rapid fluctuations in pitch, such as pitch modulation or vibrato, remain unaffected.

You can modify both correction parameters in real time as the audio plays back; and hear, but also see (by the movement of the blobs in the Note Editor, the effect of different settings.

If you have already fine-tuned some notes using the Pitch Tool, Melodyne will assume you are satisfied with the results; this means that, by default, if you now open the Correct Pitch Macro with no notes selected and begin making changes, only the other notes will be affected. By default, in other words, notes that have been tuned manually are not affected by the macro. If you wish the pitch of these too to be affected by the macro, check ‘Include notes fine-tuned manually’. The option is grayed out, of course, as being of no relevance, if no manual editing of intonation has been performed.

### Closing the macro and correction values when it is reopened

Exit with OK to keep your changes or Cancel to discard them. Naturally the fact that you have used the Correct Pitch Macro in no way precludes your fine-tuning notes at any time subsequently by hand.

If you select a note that has already been edited using the macro and then open the macro again, the settings previously applied to it will be displayed; the macro remembers, in other words, the parameters previously applied to each note. If the current selection includes notes to which different settings have been applied, when it is opened the minimum and maximum values for each parameter will be displayed.

Even after exiting with OK, you can still reverse the effects of the macro editing by using the undo function.

### The Correct Pitch macro and sibilants

When the algorithm Melodic (the usual choice for vocals) is selected, Melodyne detects and marks what it defines broadly as “sibilants”. In the case of vocals, these include not only fricative consonants and digraphs such as “s”, “z”, “ch” and “zh”, but also word fragments like “k” and “t”, as well as the sound of the vocalist inhaling or exhaling between words. Whilst such sibilants do move upwards or downwards in the display under the effects of the macro, acoustically they remain unaltered.

By transposing only the pitched components of the sound in this way, the macro is able to maintain optimum sound quality throughout; to alter the frequency of sibilants would sound unnatural. But if, as a special effect, you ever do wish to apply pitch shifting to sibilants, this can be done manually using the Pitch Tool, as is described in detail here.

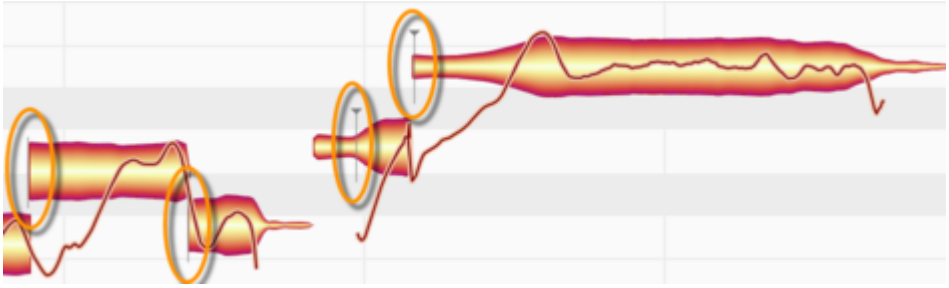
# Quantize Time Macro

In this tour, you will learn how to work with the Quantize Time Macro, which makes it possible to correct the timing of notes swiftly and effortlessly.

### Quantizing timing: What is moved and where to?

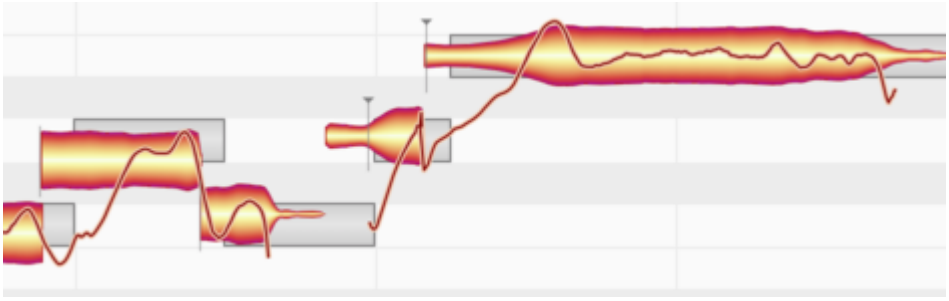
Before examining the operation of the Quantize Time Macro, we should clarify a few basic concepts and relationships.

To understand these better, let's begin by selecting the Time Tool. When this is active, a note separation (indicated by a vertical dash) or the musical starting point of the note (indicated by a vertical dash with a triangle) appears near the start of each blob.



Now check Show Intended Notes in the Options > Note Editor sub-menu, which can also be accessed via the cog icon in the top right-hand corner of the Note Editor.

Gray boxes now enclose each blob.



When it first analyzes the material, Melodyne calculates for each note two parameters of relevance to the process of time correction.

The first is the intended musical beat of the note; this is indicated by the start of the gray frame enclosing the blob. As you can see, the start of the frame invariably coincides with a grid line.

The second is the either beginning or the musical starting point of the note, represented, respectively, by a note separation or a vertical dash with a triangle. The latter will not necessarily be aligned with the left-hand extremity of the blob. Think of a brass instrument, for example, where each actual note is often heralded by a certain amount of wind noise. Admittedly this noise belongs to the note, but from the standpoint of timing what is of relevance is the moment the sound really unfolds and the pitch first becomes discernible; that is the timing-critical moment.

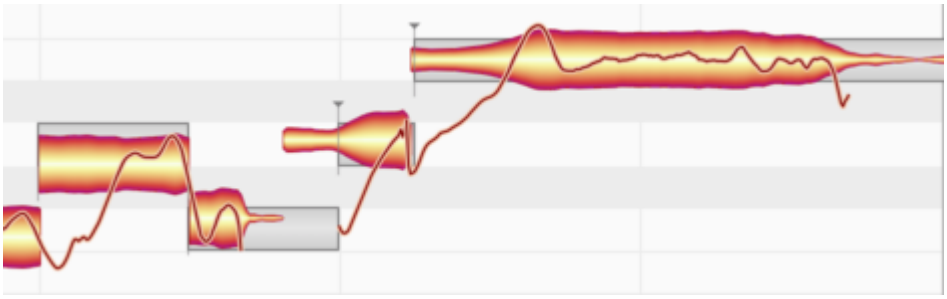
If you quantize notes with the Quantize Time Macro, the musical starting point of each note (if one has been determined; if not, the beginning of the note) will move towards the left-hand side of its gray frame. The quantization intensity slider determines whether it goes all of the way, or only part of the way, to the beat assigned it.

There are also notes for which no starting point is displayed. Such is the case with notes – and not only the human voice but almost all instruments too are capable of producing them – with an attack so drawn out that it is impossible to find an instant of which you can say with any confidence “this is where the note really begins”. It still begins somewhere, of course, so Melodyne treats the onset of the sound – the start of the long attack phase, in other words – as the musical starting point and moves that to (or towards) the quantization target – i.e. the beginning of the frame.

In determining, or seeking to determine, the musical starting point of each note, Melodyne conducts a careful analysis of the audio material and in most cases its determination is musically correct. Any time you disagree, though, you can enter Note Assignment Mode and define some other instant within the life of the note as its musical starting point.

The Melodic algorithm requires separate mention because when it is active, Melodyne locates and marks what it calls “sibilants”. In the term “sibilants”, Melodyne includes not only fricative consonants and digraphs such as “s”, “z”, “ch” and “zh”, but also word fragments like “k” and “t” as well as the sound of the vocalist inhaling or exhaling between words. Whenever such a sound coincides with the start of a blob, the musical starting point identified by Melodyne always comes later. This produces more sensible results when quantization is applied than would be the case if the sibilant itself were regarded as the musical starting point of the note.

Another way of changing the way sibilants are handled by the Quantize Time macro is to use the Separation Tool to slice the note in two at the point where the sibilant ends; so an “s”, for example, at the beginning of a word, would get a blob all to itself. Since an unvoiced “s” can have no musical starting point, the left-hand extent of this blob (i.e. the onset of the sound itself) would then be regarded as the critical moment for the purposes of quantization.



A note about time quantization in polyphonic audio material: With polyphonic material, as well as anchors with triangles, there are anchors without them. Notes the anchors of which have no triangle are in a temporal relationship with another note with a triangle and are therefore treated differently during quantization. If you play a C on the piano and immediately afterwards an E, the C can also contain starting transients belonging to the E. The C here gets a marker with a triangle; the E, one without. To move these two notes for no good reason by different amounts during quantization might not make much sense musically and could even produce tonal artifacts.

The following rules therefore apply: If during quantization both notes are selected, the note with the triangle and that without it will move towards the marker by exactly the same amount. There is here, in other words, a master-slave relationship. If you have only selected the note with the triangle marker, only this will be quantized. If you have only selected the note without the triangle marker, no quantization will take place. The same goes for a multiple selection. Naturally, you can move all and any of the notes manually if you are not satisfied with the way they sound together.

In the case of chords, it is the selection that determines the quantization behavior: If the Notes of the chord are selected individually, one after the other, and quantized, they behave as described above, moving individually towards the grid lines. In this way, for instance, you can ensure that the notes of a strummed chord on the guitar (which sound in quick succession) end up sounding simultaneously – an effect impossible technically for a player to realize but one that might be musically desirable.

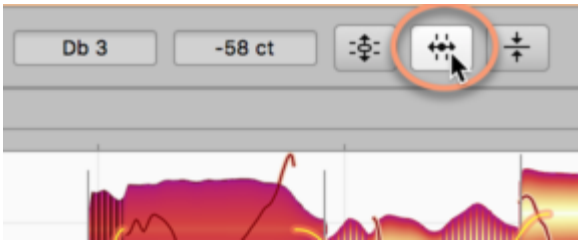
If, on the other, prior to quantization, you select all the notes of the chord, each will travel the same distance. The internal timing of the chord – in our guitar example, the intervals of time separating the start of successive notes, and therefore the authenticity of the effect – will be preserved. The chord, after quantization, will sound exactly as it did before; the difference being, of course, that it will no longer sound ‘too soon’ or ‘too late’.

The value by which all the notes are moved forward or backwards in time is determined by the note lying closest to the mathematical mean between the first and last note of the chord. In the case of a six-string guitar chord, this is generally the note sounding on the third or fourth string. If you want the sounding of some other string to coincide with the grid line, of course, you can always give the whole chord a little shove.

### Opening the Quantize Time Macro and setting the parameters

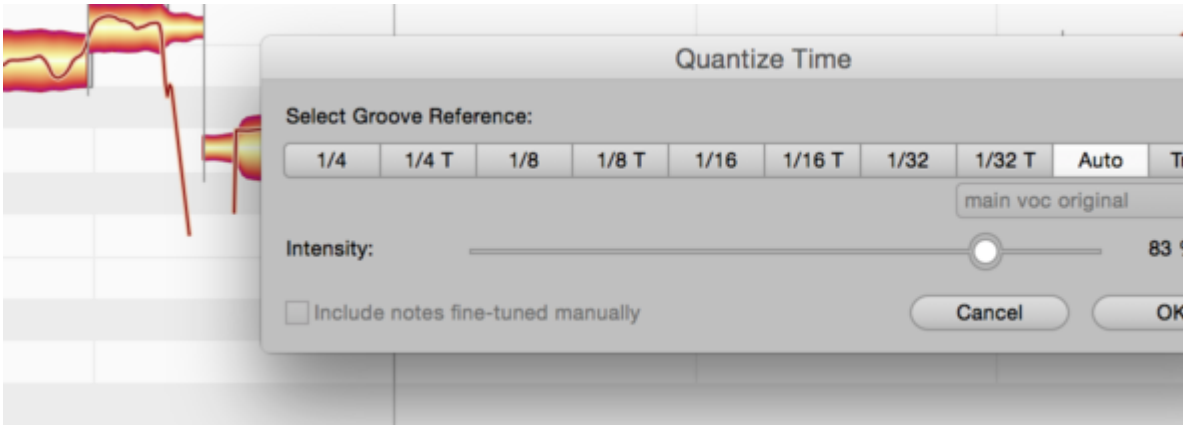
Select the notes you wish to edit. If no notes are selected, macro editing will by default affect all notes.

To open the Quantize Time Macro, choose Edit > Quantization Macros > Quantize Time or click the Quantize Time icon (illustrated here) to the right of the toolbar in the Note Editor.




First, the Groove Reference (if any) that will govern the time correction must be selected.

If Auto is selected, the target (or ultimate destination) of any quantization will be the left-hand edge of the gray frame, as already described. This is invariably aligned with the grid line that represents the beat to which Melodyne, in the course of its analysis, assigned the note. (On the whole, the system functions very well; but it can happen that Melodyne gets it wrong, and that after quantization you have to move the note manually to the preceding or following beat.) By selecting Auto, in other words, you are telling the Quantize Time Macro to move notes to (or towards) the beats assigned them by Melodyne based on its own analysis of the material.




If you choose Track, you can use another track or instance of Melodyne Plugin as a quantization reference. Select the desired track or instance in the flip menu above the buttons. The notes of the selected track will then supply the grid to which the notes or the track currently being edited will be quantized; or, to be more precise, the quantization targets would be determined by the grey frames of the reference track. With the other buttons, you can select the target grid for the quantization. The ‘T’ next to the note values stands for the corresponding triplet. If you select 1/4 as the Groove Reference, to give one example, the grey frames will move to the nearest quarter-note (or ‘crotchet’) and this will then become the ultimate destination for any quantization.

Note that the time correction macro works differently from, and in a more musical fashion than, the quantization typically offered by MIDI sequencers. Instead of simply causing all notes to snap to the selected grid, it edits the points of rhythmic emphasis of the selected notes. If, for example, you take a passage containing successions of sixteenth notes (semiquavers) and quantize it to quarter notes (crotchets), the beginning of each succession of sixteenth notes will be moved to the nearest quarter note. The timing of the semiquavers within the sequence, however, remains unaltered. If you wish to tidy that up as well, you can do so in a second pass, taking each semiquaver sequence in turn and using sixteenth notes as the quantization factor.

The Intensity slider determines what percentage of the distance to this ultimate destination the notes will travel in the course of quantization. If you select 0%, for example, they'll not budge; 50%, and they'll go half way; 100%, and they'll travel the full distance, ending up precisely on the beat. You can modify both the Groove Reference and the Intensity of the quantization in real time as the audio plays back; and hear, but also see (from the movement of the blobs in the Note Editor), the effect of different settings.

If you have already finely adjusted the position of notes using the Timing Tool, Melodyne will assume you are satisfied with the results; this means that, by default, if you now open the Quantize Time Macro with no notes selected and begin making changes, all notes will be affected except these. If you wish the position of these too to be affected by the macro, check 'Include notes fine-tuned manually'. The option is grayed out, of course, as being of no relevance, if no manual editing of note positions has been performed.

### Closing the macro and correction values on reopening

Exit with OK to keep your changes or Cancel to discard them. Naturally, the fact that you have used the Quantize Time Macro in no way precludes your moving notes at any time subsequently by hand.

If you select a note that has already been edited using the macro and then open the macro again, the settings previously applied to it will be displayed; the macro remembers, in other words, the parameters previously applied to each note. If the current selection includes notes to which different settings have been applied, a mean value for each parameter will be displayed.  Please note: An exception to this rule occurs if you have used another track as a groove reference. In that case, when you open the macro again, the value displayed for the notes will be '0%'. Even after exiting with OK, you can still reverse the effects of the macro editing by using the undo function.

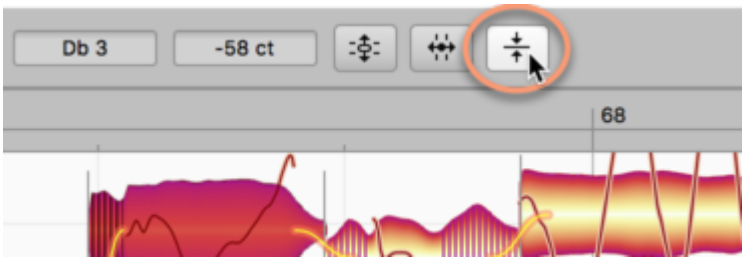
# The Leveling Macro

The Leveling Macro serves to reduce or eliminate excessive volume differentials between the notes on a track. It can be used to make quiet notes louder, or loud notes quieter, or both – until, in the extreme case, no dynamic variation remains.

### Opening and setting the Leveling Macro

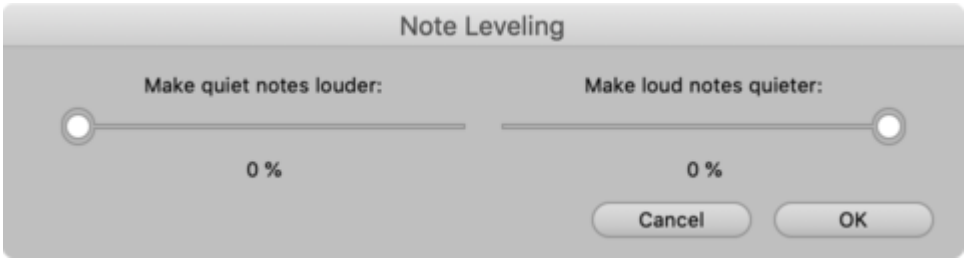
First select the notes you wish to edit. If no notes are selected, the macro will govern all the notes on the track.

Now open the Leveling Macro either from the Edit menu or by clicking on the icon shown here above the Note Editor.

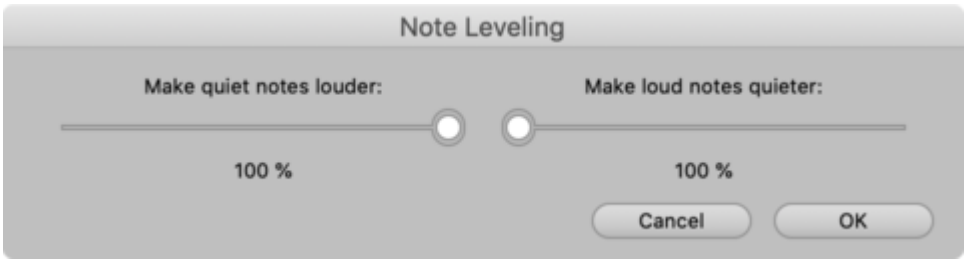



The macro offers you two converging sliders. The left-hand slider, as you move it from left to right, makes the quiet notes louder; the right-hand slider, as you move it from right to left, makes the loud notes quieter.

When you first open the macro, their positions are as follows;




If you apply maximum leveling, they will then look like this:



### The Mean Amplitude

Coming from the left (quiet) and right (loud), the two sliders as they converge shepherd the blobs towards the Mean Amplitude in the center. This value is derived from an analysis of the notes you selected before opening the macro. It is therefore based upon the musical content and cannot be adjusted manually.

When you use the macro, you will notice that any given note will respond either to one slider or to the other. The reason is obvious: a given note's amplitude in the original audio file cannot be less *and* greater than the Mean Amplitude. Note also that since the ultimate extent of each slider is the Mean Amplitude (a line that neither can cross), a note that was originally quieter than the Mean Amplitude can never pass above it; and a note that was originally louder than the Mean Amplitude can never pass below it.

A further observation: You may notice that certain blobs, representing very quiet sounds that are also of very short duration, do not respond to the macro at all. This is deliberate, as Melodyne initially assumes the blobs in question represent (extraneous) noise, which if boosted by the left-hand slider of the macro would become even more obtrusive. Naturally, you can edit such sounds freely by hand using the Amplitude Tool.

If you have adjusted the volume of any of the selected notes manually using the Amplitude Tool before opening the macro, it is the adjusted rather than the original values that will be considered when calculating the mean amplitude. It is from the most recently set amplitude of the manually adjusted notes that any movement towards the centre will begin as the leveling takes effect. If you do not wish a manually adjusted note to be affected by the leveling, simply exclude it from the selection before opening the macro.

Of course, if you only select one note prior to opening the macro, neither slider will have any effect, as in that case the mean amplitude of the selection and the amplitude of the selected note will be identical.

### Closing the macro and correction values when it is subsequently re-opened

Exit the macro with “OK” to keep your work or with “Cancel” to return to the status quo ante. Obviously, you can apply further adjustments later to the volume of the notes in question with the Amplitude Tool whether you exit with “OK” or “Cancel”.

Furthermore, even if you exit with “OK”, you can still use the Undo function to nullify the effects of the macro. Another way of doing this is to right-click (with the Amplitude Tool selected) and choose “Reset Amplitudes” from the context menu.

If you select a note the amplitude of which has already been affected by the macro and then open the macro again, the percentage shown in the macro window may differ from that displayed on the

previous occasion. This is likely to be the case if the other notes selected are different on each occasion, as the mean amplitudes of the two selections will almost certainly differ and, with them, the percentage values displayed.

# Main Tool

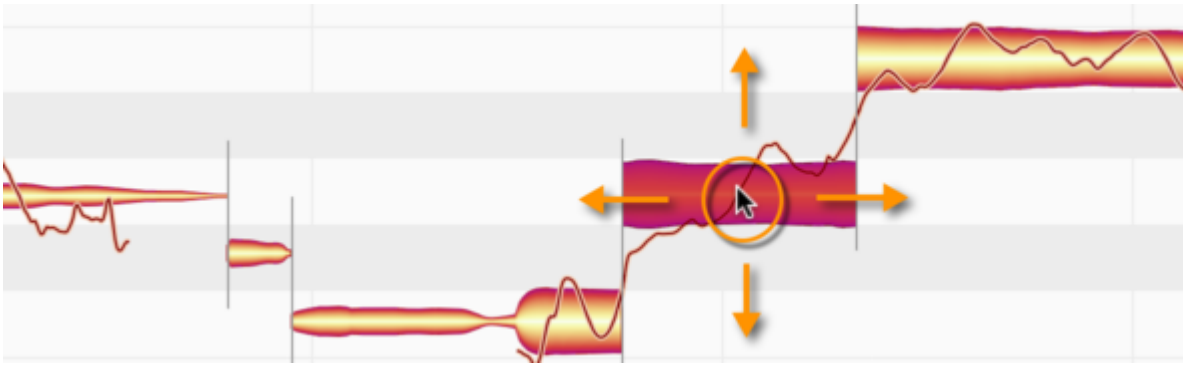
Melodyne's Main Tool is context-sensitive, its exact function at any given moment depending upon its position relative to the selected blob. It has no unique functions but simply offers a different mode of access to functions it shares with the more specialized tools for editing pitch, timing and note separations, combining them in such a way that you can perform the most essential editing tasks without ever having to change tools.

### Modifying the pitch and timing of notes

Select the Main Tool (denoted by an arrow) from either the toolbox or the context menu of the Note Editor or by pressing the [F1] key of your computer keyboard. (If you wish to assign a different shortcut to this tool, you may do so after choosing Melodyne > Preferences > Shortcuts > Editing Tools from the main menu.)



With the Main Tool, move the arrow to a point near the center of a blob and press and hold the mouse button as you drag it upwards or downwards (to alter its pitch) or left or right (to move it forwards or backwards in time). It is the initial movement (whether vertical or horizontal) that decides whether the pitch or timing of the note is altered. Before changing axis, you must first release the note. If you hold down the [Alt] key as you drag the note, the Pitch Grid or Time Grid, even if active, will temporarily be ignored, allowing you to position the note exactly where you want it.



While you are dragging a note up or down, you will hear the frozen sound of the note at the point where you clicked. If, whilst dragging, you move the mouse to the right or left, you can put other parts of the note under the acoustic microscope. If you do not wish to monitor pitch changes in this way, uncheck the option Monitor When Editing Blobs in the Options > Note Editor sub-menu, which can also be accessed via the cog icon in the top right-hand corner of the Note Editor.

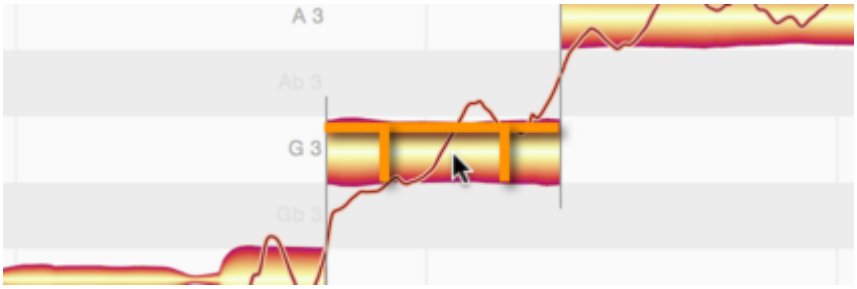
If you double-click with the Main Tool on the middle part of a note (or one of a selection of notes), you quantize the note(s) in question to the nearest pitch allowed by the current Pitch Grid.

The blob not only jumps to a different note altogether (e.g. from E to F, if E is not allowed by the active Pitch Grid), but also loses any fine offset it may have had from its previous pitch. In other words, it snaps precisely to the target pitch, the offset being then 0 cents.
This gives you a quick and easy way of correcting the intonation.

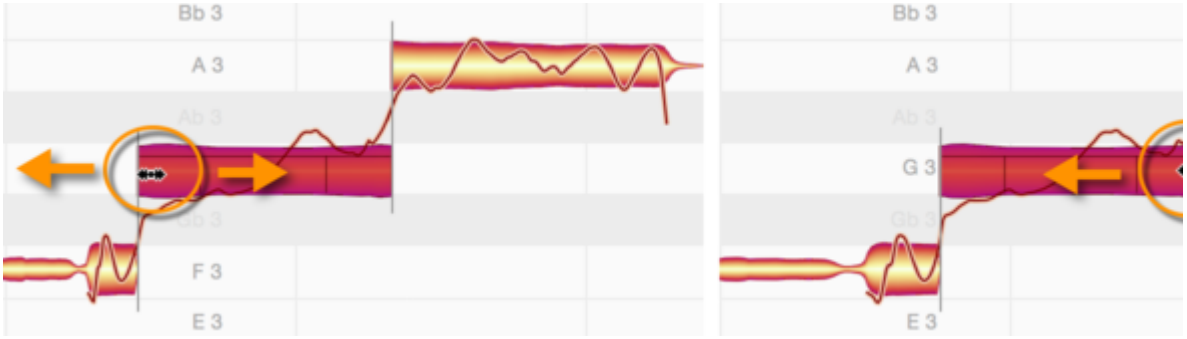
However, if correcting the intonation is not what interest you here and your aim is simply to make the notes fit new chords, hold down the [Alt] key as you double-click. Then the note will jump, as you intend, to the nearest note in the chord, but retain its previous offset, creating interference effects that are sometimes desirable.

### Modifying note lengths

Open the Note Editor Options menu and check Show Blob Info. Zoom in on a few individual blobs, so that you can study them more closely. Now, as you move the mouse pointer over a blob, thin lines appear indicating the zones in which the Main Tool performs particular functions. For illustrative purposes, the lines here have been drawn more boldly than in the program itself. The central area you already know about. This has to be distinguished from the front, back and upper regions of the blob. As you move the mouse pointer from one of these regions to another, it changes its appearance to emulate whichever of the more specialized tools is most appropriate to that zone – adopting its functions at the same time.



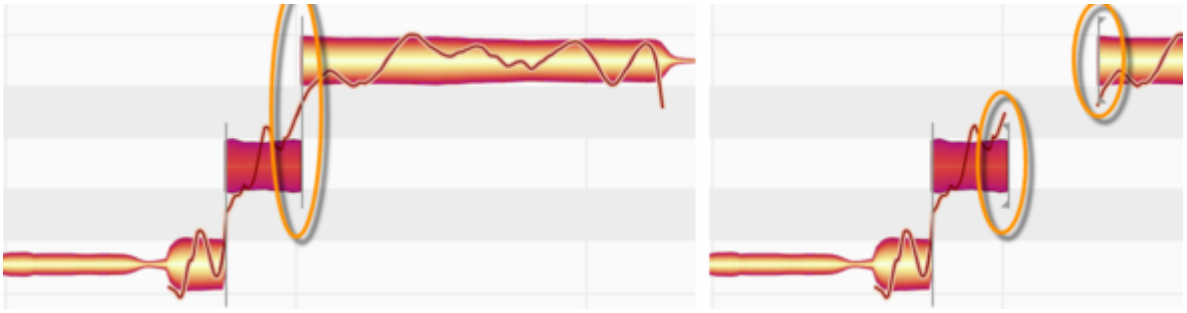

Drag the front part of a note to the right or left. Hold down the [Alt] key as you do so if you wish to override an active time grid. Now only the beginning of the note moves; the end remains anchored, so the note is either being stretched or compressed.




In the same way, you can move only the rightmost part of the blob (corresponding to the end of the note).

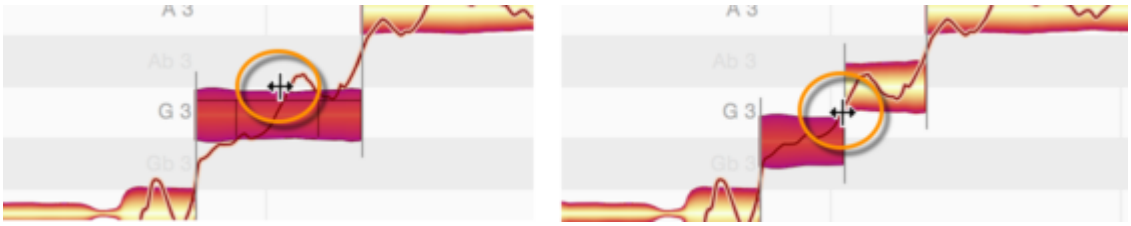
Notice that as you move the beginning or end of a note in this way, the preceding or following note, if adjacent, is also either stretched or compressed by the same amount to avoid either the two notes overlapping or white space (silence) appearing between them. This type of relationship exists whenever a pitch transition between consecutive notes has been detected. By moving the adjacent note as well, Melodyne ensures that discontinuities are avoided and the musicality of the phrasing is preserved.

If this behavior is not what you want, you can change the ‘soft’ separation between the notes into a ‘hard’ one using the Separation Type Tool. Instead of the separation line, a bracket will then appear between the two notes to indicate that no further connection exists between them. You will find the Separation Type Tool beneath the Note Separation Tool in the toolbar.



### Editing note separations

If you move the mouse pointer to the upper part of a note (above the horizontal line), the Main Tool adopts the appearance, and emulates the functions, of the Note Separation Tool. If you double-click now, you can create a note separation – i.e. slice the note in two.




Don’t be surprised if the two notes that result move apart in pitch: this is because a new tonal center is calculated for each of the newly created notes, and that may differ from the tonal center they shared when they were one note. In such cases, each therefore moves to a new vertical position based on its newly calculated pitch center.

You can move an existing note separation horizontally with the Note Separation Tool. Before you begin, choose Options > Note Editor Options and check Show Note Separations.

You can double-click a note separation to remove it.

If you select several notes and move a note separation, the note separations of the other selected notes will also be moved. If you double-click one of the note separations to remove it, those of the other selected notes will also be removed.

If you have selected several notes that overlap, you can simultaneously insert a note separation at the same point in all of them, as well as move or remove one.

# Pitch Tool

The Pitch Tool edits the central emphasis of the pitch of each note. This is the ‘pitch center’ note parameter that can also be edited using Melodyne’s Main Tool.

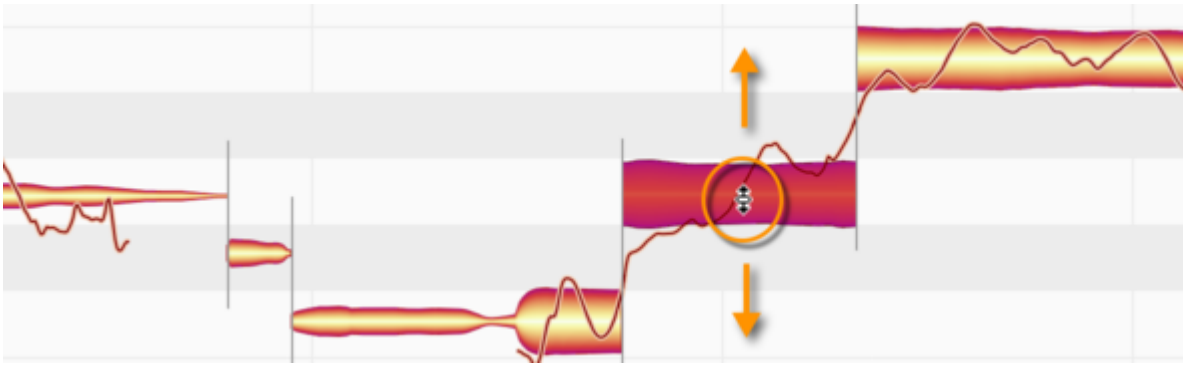
### Shifting the pitch center

Select the Pitch Tool from either the toolbox or the context menu of the Note Editor or by pressing the [F2] key of your computer keyboard. (If you wish to assign a different shortcut to this tool, you may do so after choosing Melodyne > Preferences > Shortcuts > Editing Tools from the main menu.)

The Pitch Tool is the topmost of the three pitch editing tools. It is responsible for the pitch center of each note, which can be thought of as its center of gravity. Melodyne allows you to edit the pitch center of notes independently of any modulation or drifting in pitch they exhibit. Press the [F2] key twice and three times in quick succession to select, respectively, the first and second sub-tools of the Pitch Tool. From the Preferences dialog, you can also, if you wish, define separate keyboard shortcuts for all three tools.



Drag a note up or down with the Pitch Tool to alter its pitch. If the note is one of several selected, all the notes in the selection will move up or down en bloc.



Depending whether No Snap, Chromatic Snap, Key Snap or Chord Snap is selected for the Pitch Grid, notes can either be moved freely or will snap to the nearest semitone, the nearest note of the selected scale or the nearest note of the prevailing chord.

Hold down the [Alt] key as you move notes if you wish the selected grid to be ignored; this will allow you to position the note freely.

### Monitoring pitch shifts

As you move a note in pitch, you will hear the “frozen” sound of the note at the position clicked. By moving the mouse to the left or right while doing so, you can put other parts of the note under the acoustic microscope. If you do not wish to monitor pitch changes in this way, clear the option Monitor When Editing Blobs in the Options > Note Editor sub-menu, which can also be accessed via the cog icon in the top right-hand corner of the Note Editor.

If the note in question is part of a chord, you have the additional option of hearing the entire chord – and, with it, the changing harmonic context – as you drag the note up or down. To do this, once you have begun dragging the note, press and hold down the [Cmd] key. This is useful when you are creating or improving vocal harmonies by pitch-shifting notes within multiple tracks, as it allows you to hear and evaluate each new chord as it is created.

### Editing pitch with the inspectors

As an alternative to editing the selected notes with the Pitch Tool, you can enter the desired value for the note and the deviation in cents from equal temperament in the inspector near the toolbar or the Note Inspector. The Note Inspector also allows you to determine the frequency in hertz of the note or notes selected. In each case you can increase or decrease the current value by clicking in the relevant box and dragging the arrow upwards or downwards.

When typing values into the Pitch field, you can enter either absolute values (C3, D4 etc.) or relative ones (+2, -1, etc.).

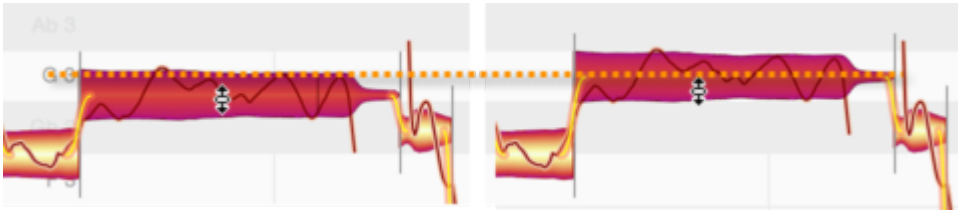



If you have selected several notes that differ in pitch, three hyphens are displayed in the boxes – followed, as you click in the box and drag, by values describing the extent of the relative change.




### Correcting pitch with a double click

You can tell that a note is sharp or flat from the fact that it doesn’t lie plumb in the middle of any of the horizontal lanes in the editing display. These represent the notes of the chromatic scale, the note in question, in each case, being indicated by the vertical Pitch Ruler to the left of the Note Editor. If, with Chromatic Snap activated, you double-click the offending note with the Pitch Tool or Main Tool, it – and any other notes selected at the same time – will “snap to the grid”, which means they will move instantly to the very center of their respective lanes. The “fine offset” of the notes in question will then be 0 cents; in other words, they will be perfectly in tune.



If, however, instead of Chromatic Snap, Scale Snap or Chord Snap are activated, as well as setting their fine offsets to zero, a double-click may actually cause the notes in question to change lanes.

If, for example, as is shown here, Chord Snap is active and you double-click on an E, it could move to F if there is no E in the prevailing chord, as would be the case, for example, if that chord were F minor. In addition, the offset from the target note (in this case F) would be 0 cents, so the new note would be perfectly in tune.

If you are not interested in correcting the intonation, however, but simply in eliminating a clash between the note in question and the chosen chord, hold down the [Alt] key as you double-click. It will then snap to the nearest chord tone, as is your intention, but its offset from the destination pitch will be the same is its offset from the pitch it came from; this is sometimes desirable, as minor imperfections of this kind can contribute towards the creation of rich and vibrant chorus effects.

When you are editing pitch, the blob simply serves as a “handle”; what you should concentrate on is the Pitch Curve within the blob. For the auditory impression – if what you are seeking to avoid is the jarring effect of poor intonation – what is essential is for the “right” part of each note to reside at the “right” pitch.

The fine offset displayed in the Note Inspector, which serves as the basis for any intonation correction resulting from a double click, is based on the path traced by the Pitch Curve throughout the entire duration of the note. Here Melodyne takes a great many musical criteria into consideration – among them, the fact that the central part of a note, as a rule, plays a more decisive role in the listener’s perception of pitch than its beginning or end. The Inspector is, in effect, offering a recommendation, which you accept whenever you drag a note with the [Alt] key pressed or double-click on it.

In principle, you can rely on this; once you’ve double-clicked on a note, it will be in tune.

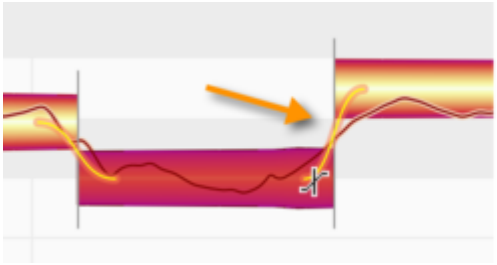
In addition – and this depends ultimately upon genre-determined listening habits or perhaps simply your own taste – you may wish to slice up a problematic note by inserting additional note separations and then double-click on the newly created note fragments. The smaller the fragments, the closer you will get to intonational perfection, though the emotional impact of the performance may suffer in consequence.

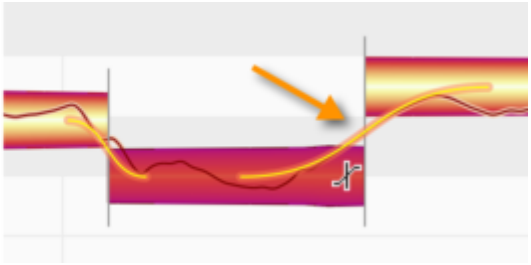
To learn more about the various tuning strategies available – and their application to vocal tracks in particular – and for suggestions as to how the sometimes conflicting demands of perfect intonation and emotional richness can best be reconciled, visit the “Training” section in our Help Center.

### Pitch transitions

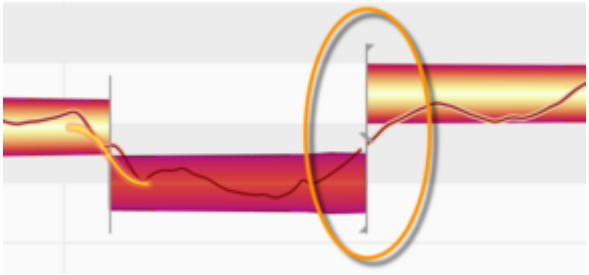
When one note follows another and a tonal relationship between the pair has been detected, the pitch curve is drawn through them, and in the area between them a thick orange line is displayed that represents the pitch transition.

If you position the Pitch Tool over the rear part of a note, click and drag vertically, you can make the pitch transition steeper or less steep.





Pitch transitions only exist between adjacent notes between which there is a soft separation. By clicking on a soft separation with the Separation Type Tool (the sub-tool of the Note Separation Tool), you can transform it into a hard separation, thereby deactivating all association between the two notes and with it the pitch transition.



### Resetting individual edits and introducing random deviations

In the Edit > Reset Individual Edits > Pitch cascading menu, you will find a variety of commands that can be used to reverse the effects of particular types of pitch editing, thereby restoring specific aspects of the notes selected to their original state. The commands apply only to the current selection and are grayed out whenever no editing of the type in question has yet been applied to the notes concerned. Note that these commands operate entirely independently of the normal undo function!

With the commands in the Edit > Add Random Deviations sub-menu, you can randomly alter the pitch of the notes currently selected – introducing either slight, moderate or drastic deviations from the original intonation. You can also employ the commands several times in succession to intensify the effect. These commands are useful when, for example, you've doubled a track in order to obtain a fuller or 'fatter' sound. By introducing random deviations, so that the copy is no longer identical to the

original, you can simulate more realistically the effect of two performers playing or singing in unison. All these commands affect only the selected notes and are therefore grayed out if no notes are selected.

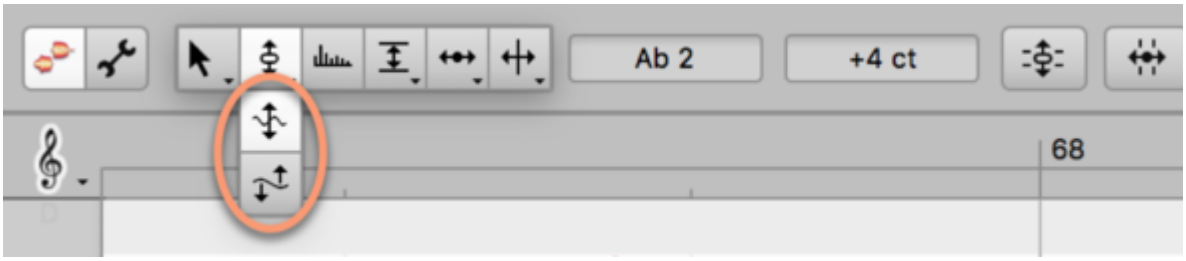
# Pitch modulation and drift

The term ‘pitch modulation’ covers rapid and usually intentional variations in pitch such as trills or vibrato. ‘Pitch drift’ is our term for slow fluctuations in pitch of the kind that are usually unintentional and symptomatic of poor technique. You will find the tools for editing these parameters beneath the Pitch Tool in the toolbar.

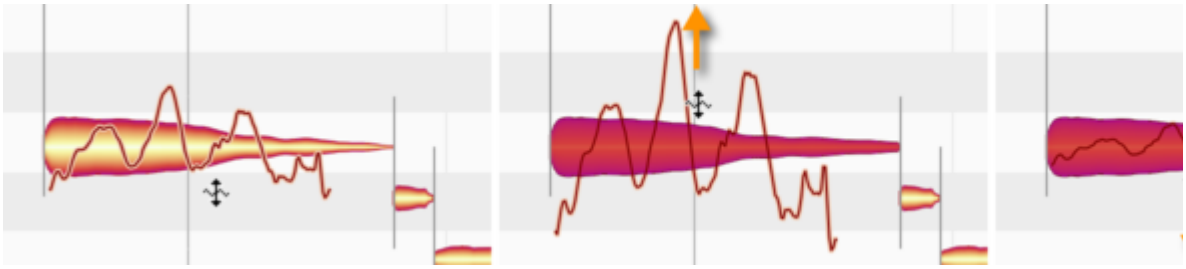
### Editing pitch modulation and drift

Select the Pitch Modulation or the Pitch Drift Tool from either the toolbox or the context menu of the Note Editor or by pressing the [F2] key of your computer keyboard.

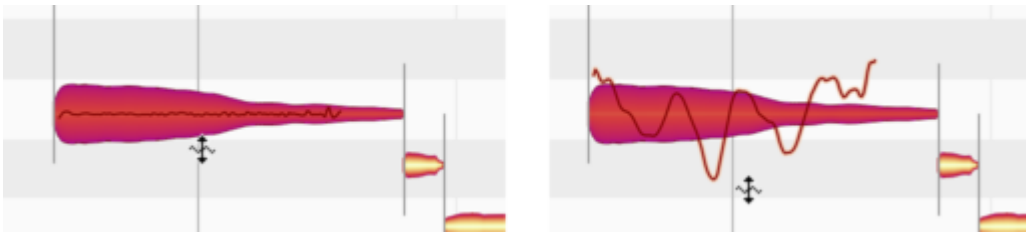
The Pitch Modulation Tool is the first, and the Pitch Drift Tool the second, sub-tool of the Pitch Tool. Press the [F2] key twice in quick succession to select the former and three times in quick succession for the latter. (If you wish to assign a different shortcut to this tool, you may do so after choosing Melodyne > Preferences > Shortcuts > Editing Tools from the main menu.) There, if you wish, you can also define separate keyboard shortcuts for all three tools.




With the tool selected, click on a note and – without releasing the mouse button – drag up or down. The note edited could be part of a multiple selection, in which case you will be editing all the selected notes simultaneously. Watch as the pitch curve changes shape.



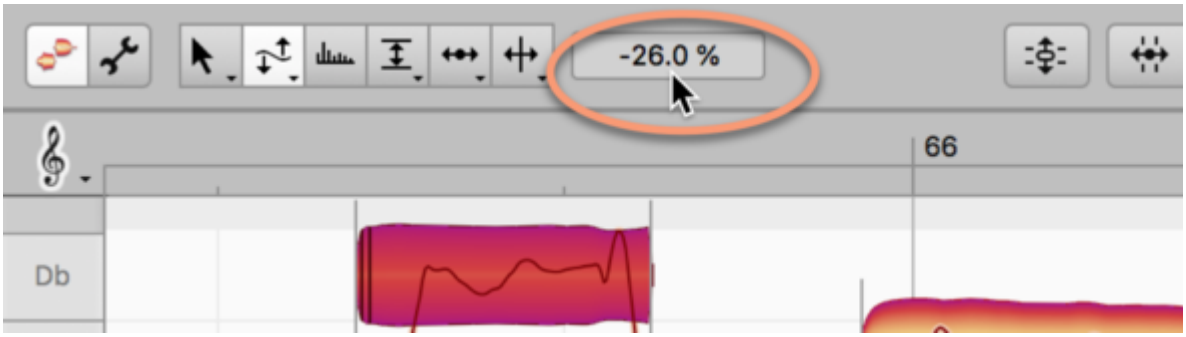
Drag far enough downwards and the modulation or drift are reduced to zero and then inverted.



If you double-click a note with the Pitch Modulation Tool or the Pitch Drift Tool, you will restore the pitch modulation or drift of the original recording, assuming you've changed it, otherwise eliminate it altogether. Subsequent double-clicking toggles between the original modulation or drift and none. If you eliminate altogether both the modulation and the drift, you will get an unnaturally flat monotone that can be suitable for effects.

### The inspector for pitch modulation and drift

As an alternative to editing selected notes with these tools, you can enter the desired values in the inspector alongside the toolbar or in the Note Inspector. Drag the existing value to change it or double-click on it and type in the value desired.




With the Pitch Modulation Tool or the Pitch Drift Tool selected, the inspector displays values in percentage terms. 100% represents in this case the original modulation or drift, 0% a straight line, and -100% the same curve inverted with its axis unchanged. If you have selected several notes with different values, a dash is displayed in the box – followed, as you click in the box and drag, by values describing the extent of the relative change.

### The Reset commands

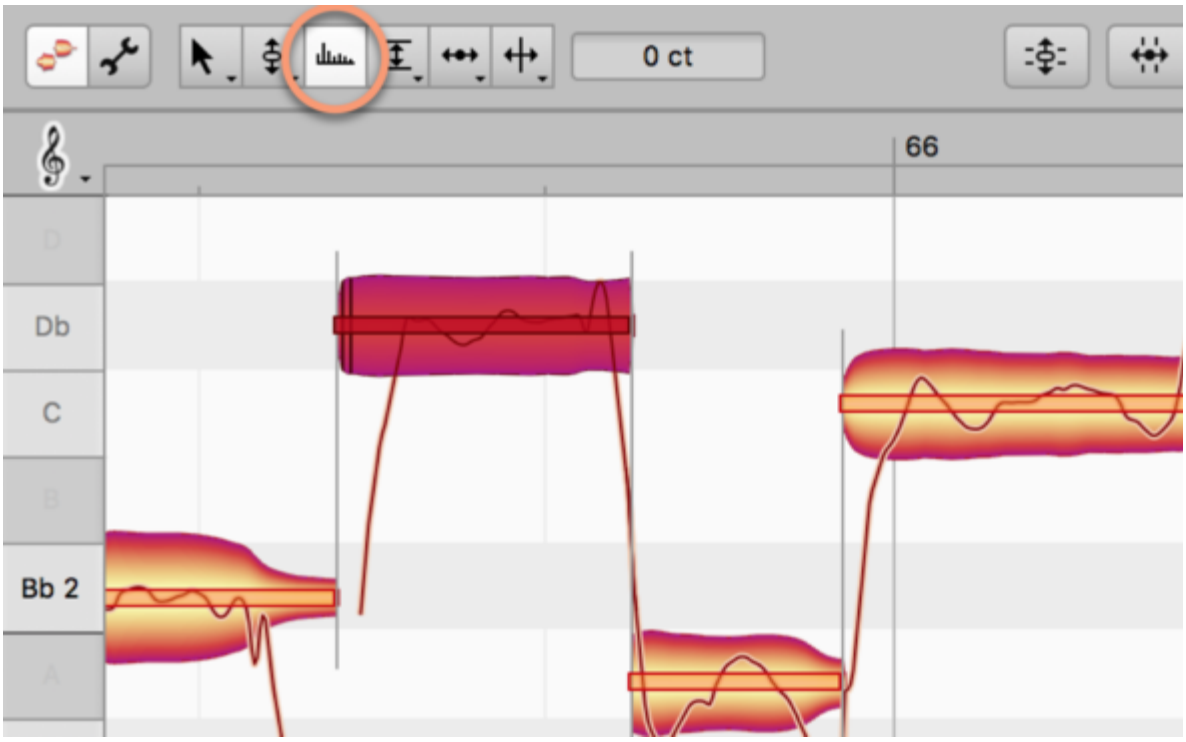
In the Edit > Reset Individual Edits > Pitch cascading menu, you will find a variety of commands that can be used to reverse the effects of particular types of pitch editing, thereby restoring the notes selected in specific respects to their original state. These commands relate always to the current selection and are grayed out if no editing of the type in question has been applied to the selected notes. Note that these commands operate independently of the normal undo function.

# Formant Tool

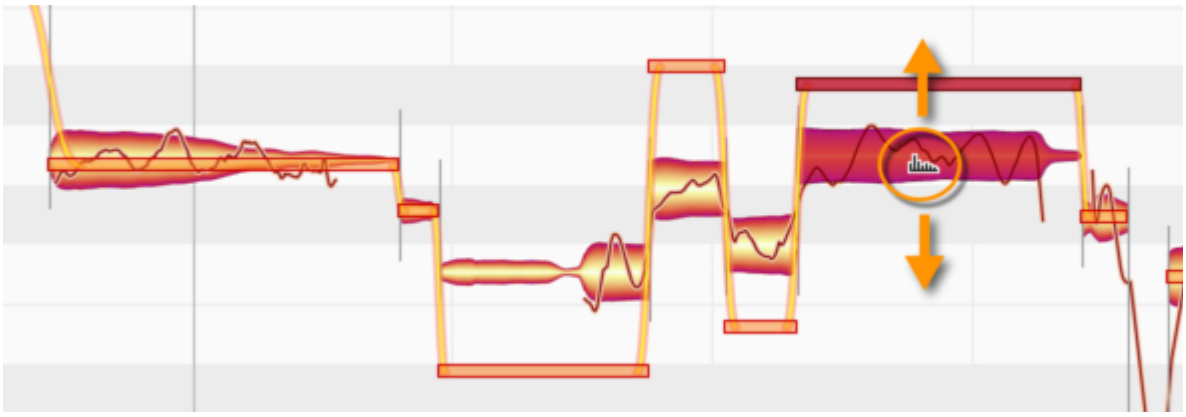
Formants are areas of emphasis or attenuation in the frequency spectrum of a sound that are independent of the pitch of the fundamental note but are found always in the same frequency ranges. They are characteristic of the tone color or ‘timbre’ of each sound source, and interesting effects can be produced by shifting them, such as making a man’s voice sound like that of a woman, and vice versa.

### Shifting formants

Select the Formant Tool from either the toolbox or the context menu of the Note Editor or by pressing the [F3] key of your computer keyboard. (If you wish to assign a different shortcut to this tool, you may do so after choosing Melodyne > Preferences > Shortcuts > Editing Tools from the main menu.) A beam appears over the blobs indicating the extent (if any) to which the formants have been transposed from their original pitches.



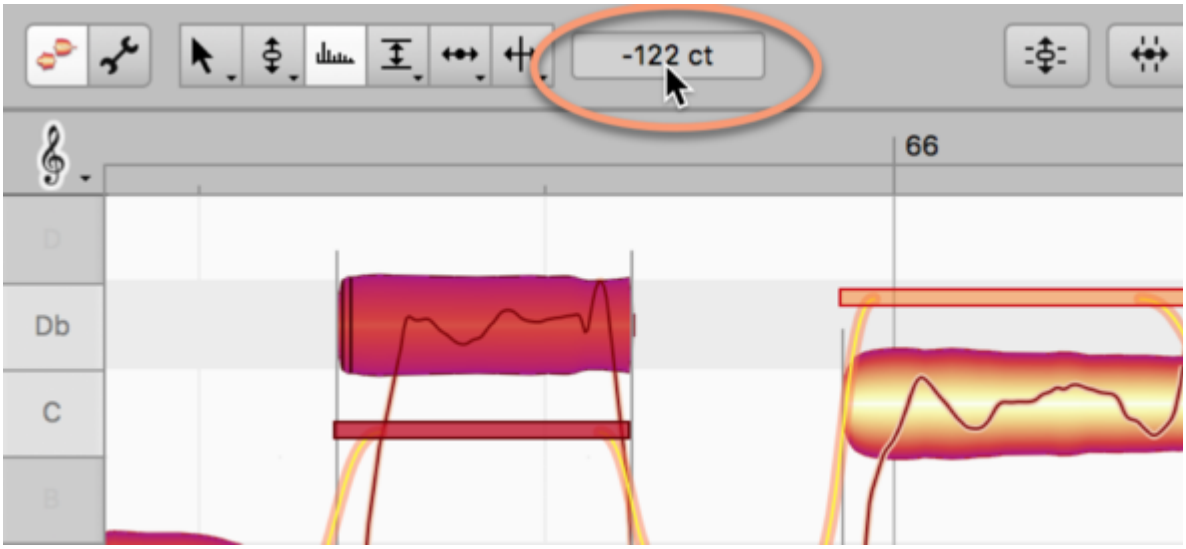

With the tool selected, click on a note and – without releasing the mouse button – drag the mouse up or down. As you do so, the formants will be transposed upwards or downwards, the degree and direction of the movement being indicated by a corresponding vertical movement of the beam.



The beams indicate the distance in cents (100 cents = 1 semitone) by which the formants have been transposed upwards or downwards. You can shift the formants a few cents (for the finest of nuances) or several thousand (for a drastic denaturing of the sound). Double-clicking on a note with the Formant Tool restores its formants (as well as those of any other notes selected) to their original pitches.

### The inspector for the formants

As an alternative to editing selected notes with the tool, you can enter the desired values in the inspector, which you will find alongside the toolbox or in the Note Inspector. Drag the existing value to change it, or double-click on it and type in the value desired.

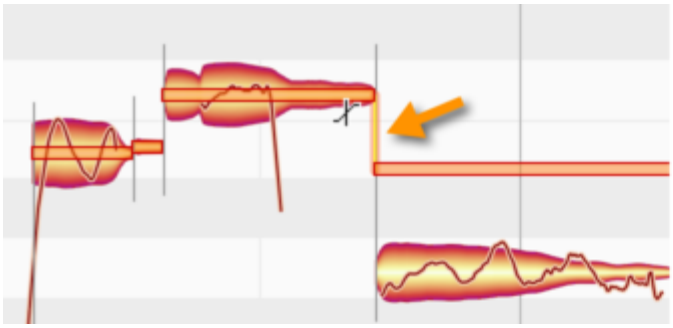


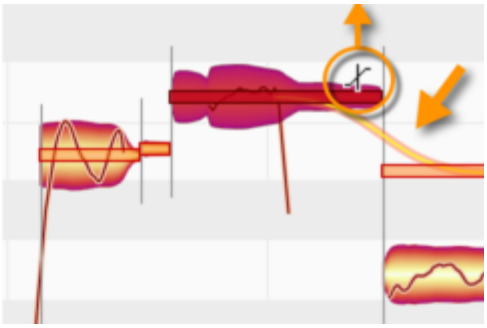

If you have selected several notes that differ in the amount of formant shifting that has been applied to them, a dash is displayed – followed, as you click in the box and drag, by values describing the extent of the relative change.

### Formant transitions

A thick orange line appears between the formant beams of adjacent notes as soon as you shift the formants of one note more, or in a different direction, than those of the other. This line represents the formant transition between the two notes.

If you move the Formant Tool to the end of the first note, it changes into the Formant Transitions Tool. Dragging vertically with this tool governs the speed of the formant transition, which is indicated by the steepness of the connecting line.





Formant transitions only exist in the case of adjacent notes between which there is a soft note separation. If you transform this into a hard note separation by double-clicking with the Note Separation Type Tool (the sub-tool of the Note Separation Tool), all association between the notes will be severed and the formant transition between them deactivated.

### The Reset commands

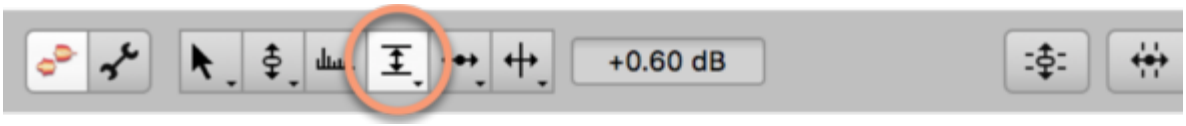
In the Edit > Reset Individual Edits > Formants cascading menu, you will find a pair of commands that can be used to reverse the effects of any shifting of formants or editing of formant transitions you may have performed, thereby restoring the notes selected in these respects to their original state. These commands relate always to the current selection and are grayed out if no editing of the type in question has been applied to the selected notes. Note that these commands operate independently of the normal undo function!

# Amplitude Tool

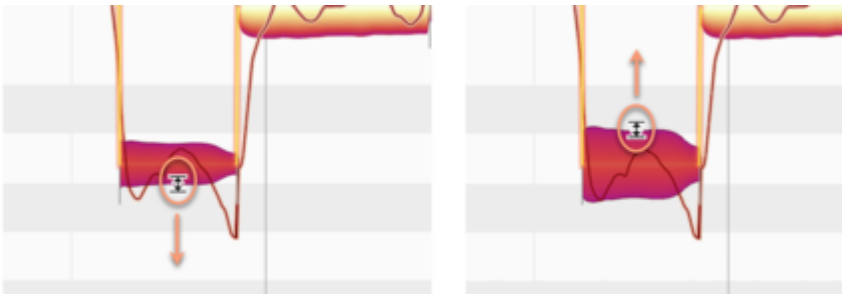
The Amplitude Tool allows you to adjust the amplitude (i.e. volume) of the selected notes, edit the amplitude transitions between them, and mute them.

### Editing amplitude

Select the Amplitude Tool from either the toolbox or the context menu of the Note Editor or by pressing the [F4] key of your computer keyboard. (If you wish to assign a different shortcut to this tool, you may do so after choosing Melodyne > Preferences > Shortcuts > Editing Tools from the main menu.)



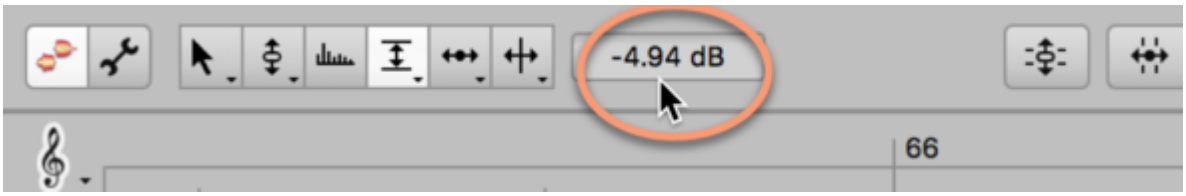

With the tool selected, click on a note (or one of several notes selected) and – without releasing the button – drag the mouse up or down. The vertical depth of the blobs will increase or decease as the notes they represent get louder or softer.



The gearing of the amplitude adjustment is dependent upon the vertical zoom resolution. Press and hold the [Alt] key, to switch to smaller increments for finer adjustment.

### Editing amplitude using the inspectors

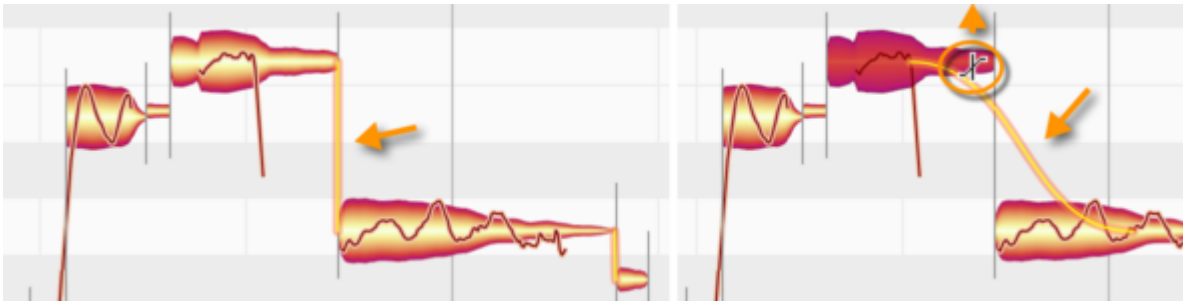
As an alternative to editing selected notes with the Amplitude Tool, you can enter the desired values in the inspector to the right of the toolbar or the Note Inspector. Drag the existing value to change it or double-click on it and type in the value desired. Press and hold the [Alt] key, to switch to smaller increments for finer adjustment.




If you have selected several notes to which different amplitude adjustment has been applied, a dash is displayed in the box – followed, as you click in the box and drag, by values describing the extent of the relative change.

### Amplitude transitions

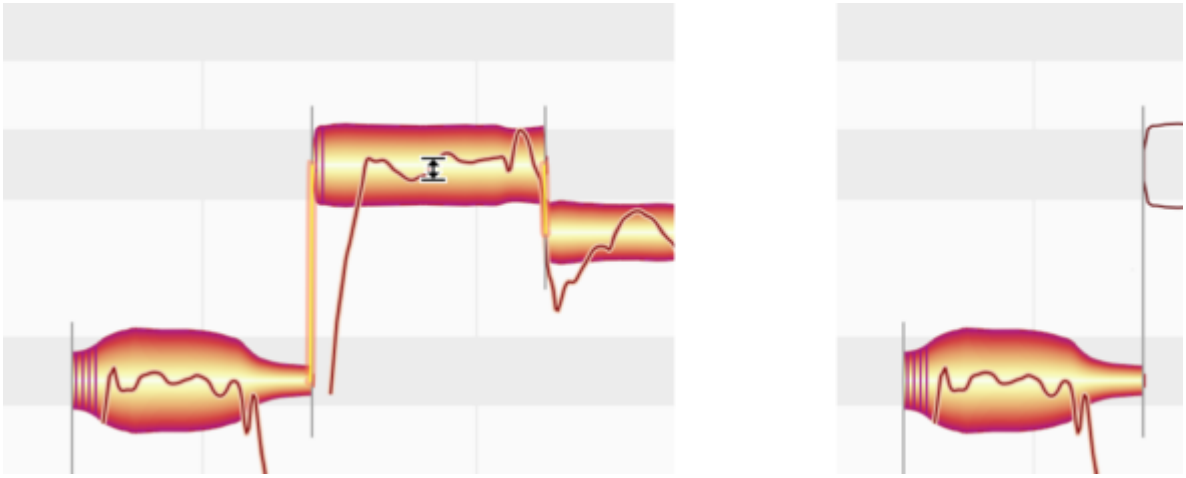
A thick orange line appears between connected notes as soon as you change the amplitude of one note more, or in a different direction, than that of the other. This line represents the amplitude transition between the two notes. If you move the Amplitude Tool to the end of the first note, it changes into the Amplitude Transitions Tool. Dragging vertically with this tool governs the speed of the amplitude transition, which is indicated by the steepness of the connecting line.



Amplitude transitions only exist in the case of connected notes between which there is a soft note separation. If you double-click on the separation with the Separation Type Tool (which you will find beneath the Note Separation Tool in the toolbar), you turn the soft note separation into a hard one, thereby disconnecting the two notes and deactivating the amplitude transition.

### Muting notes

Double-clicking with the Amplitude Tool on one or more selected notes mutes them. Only the outline of the blobs is now shown, to indicate that the notes in question have been muted, but you can still select and edit them. A further double-click unmutes the muted notes.



In the Note Inspector, you will find a button marked Note Off for this function. Click once on the button to mute the selected notes. Clicking them a second time unmutes them.

### The reset commands

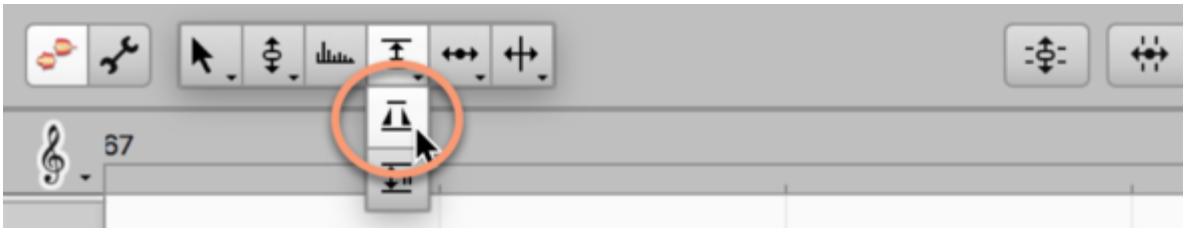
In the Edit > Reset Individual Edits > Amplitude cascading menu, you will find two commands that can be used to reverse the effects of the two types of amplitude editing we have just described (thereby restoring the notes selected in certain respects to their original state) as well as the Unmute command, which is self-explanatory. These commands relate always to the current selection and are grayed out if no editing of the type in question has been applied to the selected notes. Note that these commands operate independently of the normal undo function.

# Tools for fades and sibilant balance

Beneath the Amplitude Tool, there are further tools offering still greater control over volume ratios within a track.

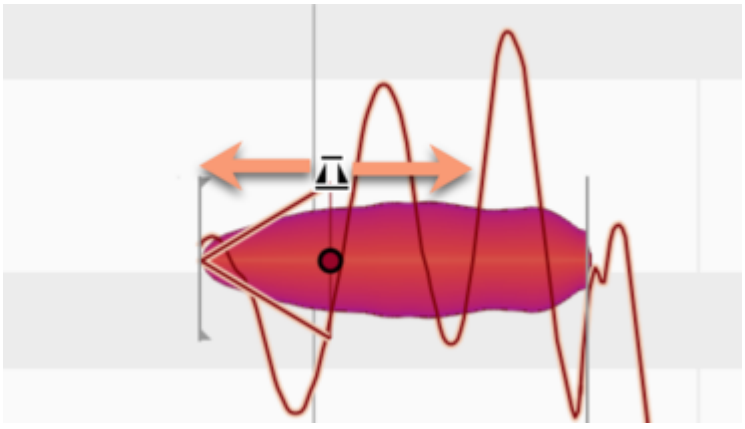
### The Fade Tool: Fade-in and fade-out on notes

Activate the Fade Tool from either the toolbar or the context menu of the Note Editor or by pressing the [F4] key on your computer keyboard twice in quick succession. If you would prefer to use some other keyboard combination to activate this tool, you can easily define an alternative from the Shortcuts page of the Preferences dialog.




Using the Fade Tool, you can implement a fade-in at the beginning of a note and – quite independently – a fade-out at the end.

For the former, click with the tool at the left-hand end of a note, hold the mouse button and drag to the left or right. As you do this, a triangular handle will appear, the length of which changes as you move the mouse.



At the same time, the shape of the blob will change, indicating a corresponding change in its loudness contour.

As an alternative to clicking, holding the mouse button and dragging, you can create a new fade by double-clicking. If you double-click on the first half of a note, you will create a fade-in. To create a fade-out, double-click on the second half of the note.

As soon as a fade-in is created, any soft separation between the note in question and the preceding note will be replaced by a hard separation. With a fade-out, a hard separation will be inserted between the note that fades out and the one that follows.

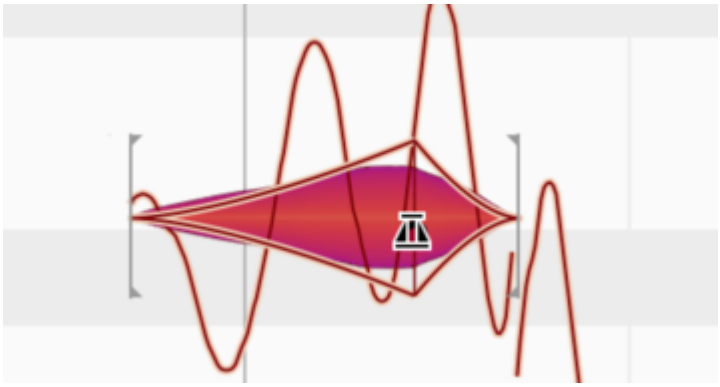
If you double-click on a fade, it is removed and the blob regains its original dynamic contour. An alternative method of restoring the original dynamic contour of a note is by a right-clicking and choosing “Discard Fades” from the context menu. Whichever method you choose, please note that whilst this removes the fade, the hard separation remains in place. To replace this with the original soft separation, you must use the Separation Type Tool.

You can also select and apply fades to multiple notes simultaneously and adjust them simultaneously as well.

To change the length or curve of a fade, proceed as follows:

- To change the length, click on the fade in question and drag to the left or right.
- To change the curve, click on the curve and drag upwards or downwards.

If you drag the end of a fade-in so far to the right that you reach the start of any fade-out that may have been applied to the note, you can still carry on dragging; all that will happen is that the fade-in will be extended and the fade-out shortened accordingly.
You can also make a fade-out longer by extending it leftwards, but in this case no further than the point where it meets any fade-in that may be present.



It is not possible for a fade-in and a fade-out to overlap.

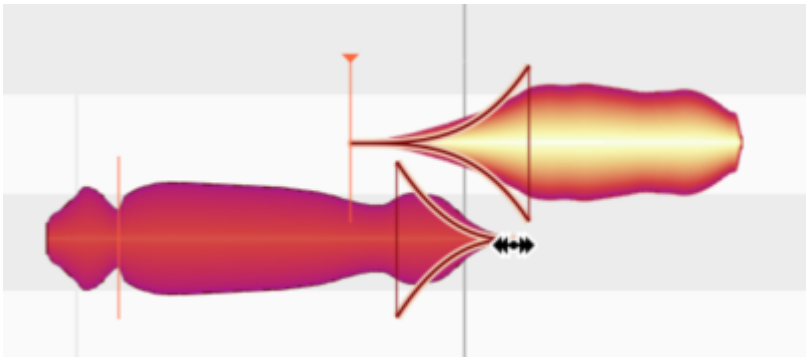
### Fades in conjunction with other tools

The length of a fade is not defined in milliseconds but tied to the position (set by you) within the note. So if, for example, a note with a fade-out is later lengthened using the Time Tool, the fade-out will be

lengthened by the same amount. This gives rise to considerably more musical possibilities – particularly in combination with the other tools – than those afforded by the fixed fades offered by DAWs for regions or clips.

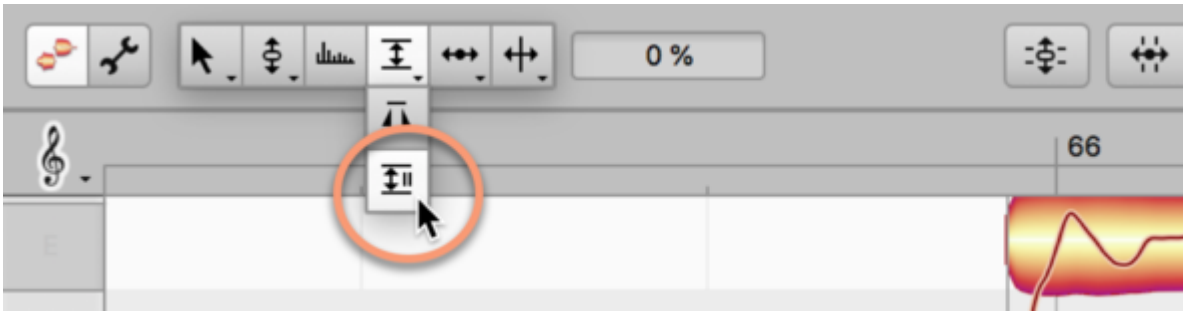
A further example: fade-outs continue, naturally, until the end of the note. If, however, towards the end of a note there is some unwelcome noise on the track, and you wish the fade out to end before this, you can split the note using the Note Separation Tool, delete (or mute) the part of the note to the right of the separation and then apply a new fade out to the part of the note that remains.

As a result of the placing of a fade, a hard separation will automatically be inserted between the note in question and the one that follows. It is therefore easy to create an overlap with the Time Tool between previously adjacent notes and then – using the Fade Tool – create a very musical crossfade between them.



### The Sibilant Balance Tool: The management of sibilants and breath noise

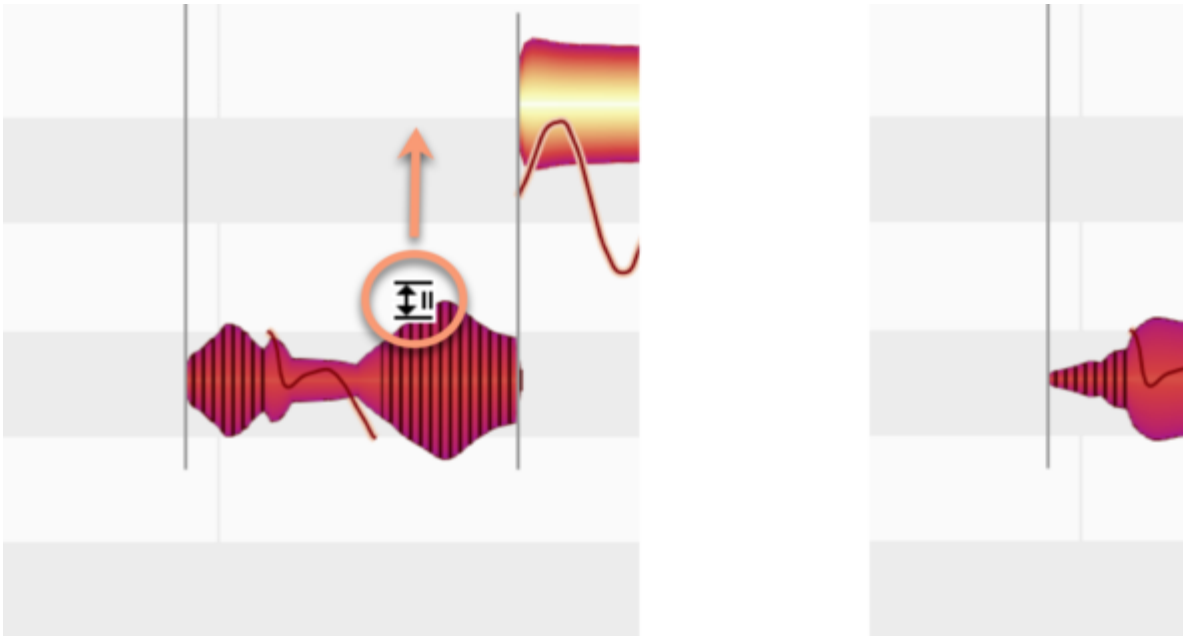
Select the Sibilant Balance Tool from either the tool bar or the context menu of the Note Editor or by pressing the [F4] key on your computer keyboard three times in quick succession. If you would prefer to use some other keyboard combination to activate this tool, you can easily define an alternative from the Shortcuts page of the Preferences dialog.




With the Sibilant Balance Tool, you can control the loudness of the sibilants relative to the other components of the sound. It is only available with the algorithms Melodic or Percussive Pitched; with all other algorithms it is grayed out.

In the case of vocal tracks, Melodyne regards as sibilants not only “s” and “ch” sounds, but also certain other word fragments such as “k” and “t” as well as the sound of the singer inhaling or exhaling between words: those components of the sound, in other words, that lack a definite pitch. Broadly speaking, and if we include instrument tracks, Melodyne regards as sibilants all parts of the signal that consist essentially of noise.

If you drag upwards (positive values) from a note or selection of notes with the Sibilant Balance Tool, you reduce the volume of the pitched components of the sound. If you drag downwards (negative values), it is the sibilants that become quieter.



At the two extreme settings in the case of vocals, you will either hear sibilants and breath noise only (if you drag upwards) or only the pitched components of the sound (if you drag in the other direction). This would admittedly create the impression of a pronounced lisp, but there are certain applications in which such extreme settings make sense (see below).

Double-clicking with the Sibilant Balance Tool sets the parameter to -100%, which is equivalent to maximum attenuation (i.e. muting) of the sibilants; a second double-click, resets the parameter to 0%, thereby restoring the note to its original state.

Please note that in speech or singing it is not the case – from a technical standpoint – that the sound at any given instant is invariably *either* sibilant *or* pitched; sometimes it is a little of both – i.e. the overall sound is a blend of pitched and unpitched components. Fortunately, the Sibilant Balance Tool operates in a way that takes this into account, governing only the noise components of the sound. Such an approach makes eminently good sense musically – fortunately *without* compromising the intuitiveness of the software, as you still see only one blob per note, not two.

### Uses for the Sibilant Balance Tool

When individual sibilants become obtrusive (which is more often a problem with some singers than with others – though a poorly designed or adjusted signal chain at the recording stage could be the real culprit), you would ordinarily turn to a de-esser. But adjusting the controls of a de-esser can be tricky, as de-essers invariably act upon the entire signal. This can have a negative influence even upon sibilants that were perfectly OK; furthermore, the pitched components of the sound necessarily feel their influence as well. The Sibilant Balance Tool (with values somewhere between -40% and -10%) takes considerably less time to set up, operates with far greater precision, and also, at the end of the day, delivers acoustically superior results.

In the case of backing vocals or when double-tracking, you could even use settings of around -80%. Heard on their own, the voices affected might appear to lisp, but when the lead vocals are restored to the mix, the overall result is a much tidier sonic image in which – at the ends of words in particular – there is far less of the usual fluttering. This fluttering is most often the main problem with double-tracking, and it becomes even more obtrusive when you apply delays and reverb to the various voices – as you must, in fact, to ensure they sit right in the mix. Very few mouse-clicks are now needed to bring these commonly encountered mixing problems under control; all you have to do, basically, is select all the notes of the backing vocals, then set the sibilant balance to somewhere like -80%.

And a further tip for sound design and mixing: Begin by duplicating the vocal track. On one track, set the sibilant balance to -100% (in which case you will no longer hear any sibilants or breath noise) and on the other track, set the same parameter to +100% (so, on this track, only the sibilants and breath noise will be audible). Now set the same volume level for both tracks in the mixer, so initially you have exactly the same signal as before – only split between two tracks. This leaves you free to make intensive use of the effects chain (delays, reverbs etc.) on the sibilant-free track, and only sparing use – or none whatsoever – on the track containing the sibilants.

Note: Melodyne detects automatically the exact location and length of each sibilant. This means that with the vast majority of vocal tracks, you will no longer need to give the matter any thought; your only concern now will be to find the ideal balance between the pitched and unpitched components of the sound using the Sibilant Balance Tool. Nonetheless, in exceptional cases or for experiments in sound design (and not only with vocals), you may wish, on occasion, to adjust the results of the sibilant detection. To do this, enter Note Assignment Mode and select the Sibilant Range Tool, the use of which is described in detail here.

# Timing Tool

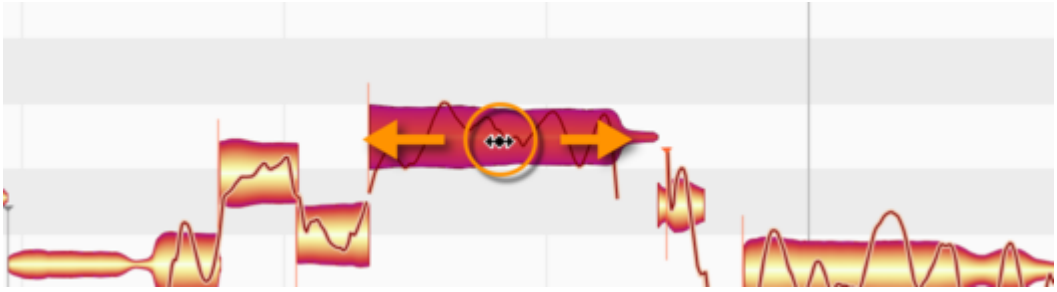
The Timing Tool allows you to edit the horizontal position and length of notes with or without quantization.

### Modifying the position and length of notes

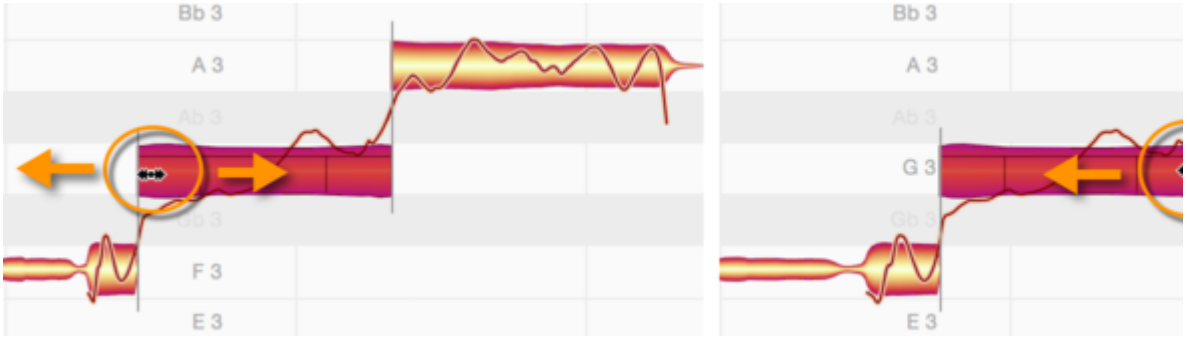
Select the Time Tool from either the toolbox or the context menu of the Note Editor or by pressing the [F5] key of your computer keyboard. Press the [F5] key twice or three times in quick succession to select, respectively, the first or second sub-tools of the Time Tool. (If you wish to assign a different shortcut to this tool, you may do so after choosing Melodyne > Preferences > Shortcuts > Editing Tools from the main menu.) There, if you wish, you can also define separate keyboard shortcuts for all three tools.



Click the center of a note (or of one of a number of selected notes) and drag it to the left or right to move the entire note (or notes) horizontally. Press and hold the [Alt] key during the movement if you wish the time grid to be temporarily ignored to permit finer adjustment.



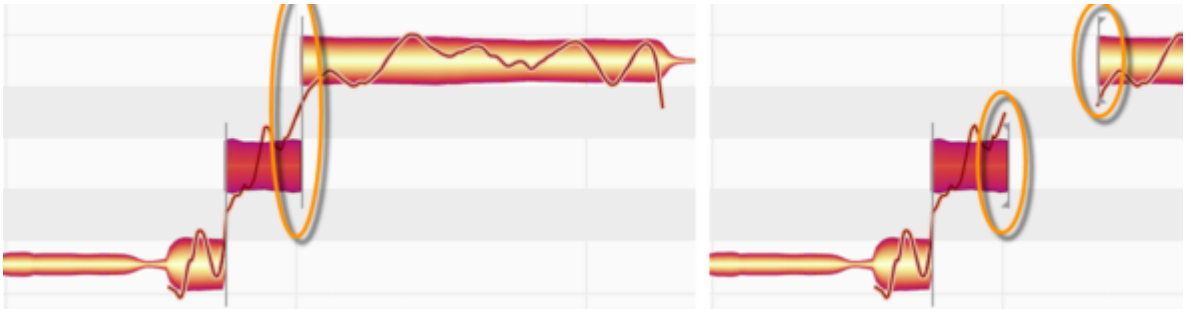
If you only wish to move the beginning of a note but not the end, click on the front part of the note and drag. Depending on the direction of movement, the note will be time-stretched or -compressed. Press and hold the [Alt] key if you wish the Time Grid to be ignored when editing. Stretching and squeezing also acts upon either a single note or a multiple selection of notes according to choice.




In the same way, you can move only the rightmost part of the blob (which corresponds to the end of the note) or selection of blobs to stretch or squeeze the corresponding note or notes.

### Timing changes in the case of connected notes

Notice that as you move the beginning or end of a note in this way, the preceding or following note, if adjacent, is either stretched or compressed by the same amount to avoid either the two notes overlapping or white space (silence) appearing between them. This is invariably the case when one note follows directly on from another and there is a soft note separation between them. By moving the adjacent note as well in this way, Melodyne prevents discontinuities occurring and preserves the musicality of the phrasing.



You can, if you wish, deactivate the connection between consecutive notes by transforming the soft note separation between them into a hard separation. This is done by clicking on it with the Separation Type Tool (which is a sub-tool of the Note Separation Tool).

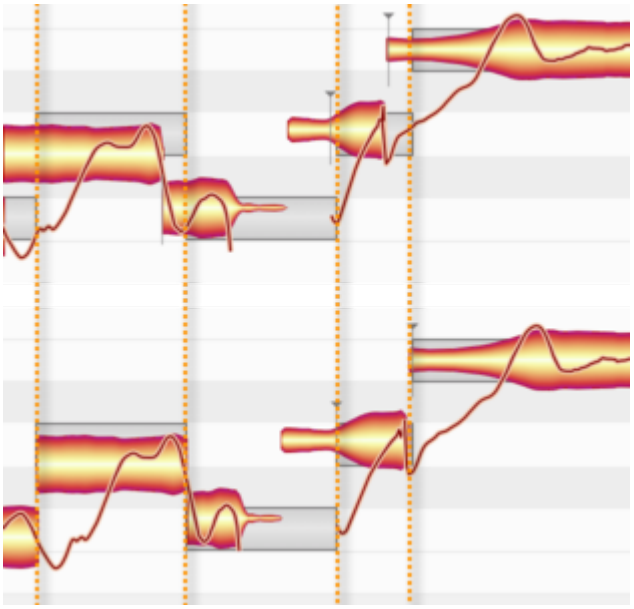
All connection between the two notes will also be forcibly severed if you cut one of the notes and paste it into a different location.

In both cases, when the note separation line between the two notes is replaced by a square bracket, it means that the notes are no longer connected.

If you move one of the two notes far enough from the other using the Timing Tool, the link between them will also “snap”. In this case, however, if you move it back, the original link will be restored – provided the position of the other note has not been moved in the meantime.

### Correcting timing with a double-click

If you double-click with the Time Tool on a note (or one of several selected notes), you quantize this (or these) to what Melodyne, in the course of the detection, considered to be the ‘intended’ note (or notes). To see these (displayed as little gray frames beneath the blobs), choose “Options > Note Editor > Show Intended Notes”.



The gray frames are not necessarily (all) aligned with the grid selected in the Bar Ruler. One intended note, for example, might coincide with a line belonging to the 16th note grid, another with one belonging to an 8th note triplet grid, and so on. The result of double-clicking is therefore more ‘intelligent’ musically (and thus, in practice, more suitable) than simple quantization, say, to 8th notes, with which, if you use a MIDI sequencer, you are perhaps more familiar.

There may be applications, however, in which you might actually prefer rigid quantization to a particular uniform grid. In that case, you can achieve the desired result with the Quantize Time macro, the use of which is described in detail in this tour. You will also learn there how note lengths are adjusted during quantization as well as what options exist for the quantization of chords.

### Adding random deviations

With the commands in the Edit > Add Random Deviations sub-menu, you can randomly alter the timing of the notes currently selected – introducing either slight, moderate or drastic deviations from the original timing. You can also employ the commands several times in succession to intensify the effect. These commands are useful when, for example, you’ve doubled a track in order to obtain a fuller or ‘fatter’ sound. By introducing random deviations, so that the copy is no longer identical to the

original, you can simulate more realistically the effect of two performers playing or singing in unison. All these commands affect only the selected notes and are therefore grayed out if no notes are selected.

### The reset commands

In the Edit > Reset Individual Edits > Time sub-menu, you will find a number of commands that can be used to reverse the effects of whatever editing has been performed on the timing. These commands apply always to the current selection and are grayed out if no editing of the type in question has been performed on the notes selected. Note that these reset commands work quite independently of the normal Undo command.

# Time Handles and Attack Speed

The Time Handle Tool and the Attack Speed Tool are found below the Timing Tool in the toolbar. Their purpose is to allow you to adjust the internal time path and envelope of notes.

### How time handles and the Attack Speed Tool work

Time handles are handles you can affix to particular stages in the evolution of a note and drag sideways in order to advance or retard their attainment. In this way, you can accelerate or slow down particular phases of a note's development in order to fine-tune the musical phrasing.

The Attack Speed Tool also affects the speed at which a note evolves: either by stretching and slowing down its early development phase and thereby accelerating its later development, or vice versa.

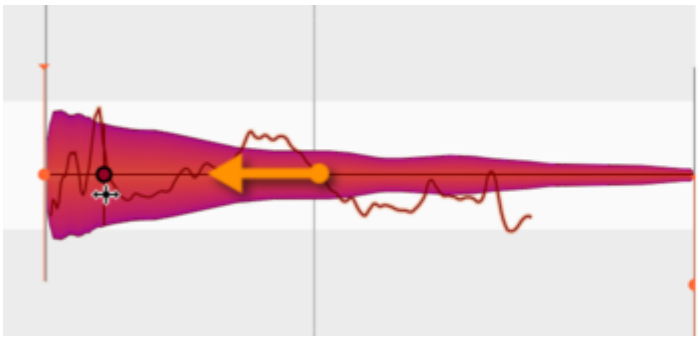
The result is either a slower, softer attack or a faster, harder one. The 'perceived' musical starting point of the note, however, remains unchanged.

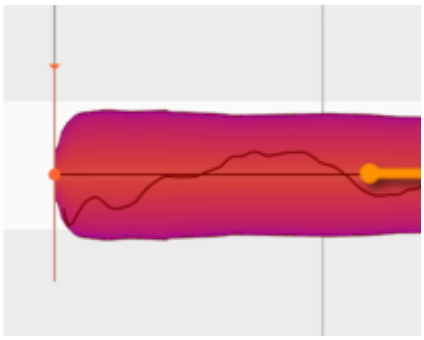
### Modifying the evolution of notes using time handles

The Time Handle Tool is the first of the two sub-tools of the Time Tool. To select it, press the [F5] key twice in quick succession. (If you wish to assign a different shortcut to this tool, you may do so after choosing Melodyne > Preferences > Shortcuts > Editing Tools from the main menu.) There, if you wish, you can also define separate keyboard shortcuts for all three time tools.



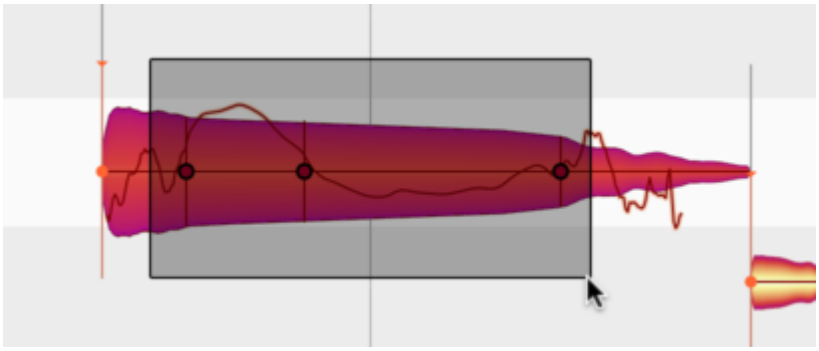
Zoom in on the note you wish to edit, so that you can see it clearly and position the time handles more precisely. Now double-click the point in the note's evolution that you wish to advance or retard. A time handle will appear that you can move forwards or backwards in time by dragging the tool respectively upwards or downwards. Since the overall length of the note remains unchanged, the result is to shorten and accelerate the phase of the note's development lying to one side of the time handle while lengthening and slowing down the phase the other side.





You can attach multiple time handles to a single note, moving each one individually, thereby influencing fine details of the note's evolution. There is no limit to the number of time handles that can be attached to a single note. Melodyne does, however, impose constraints as to how close to one another the handles can be placed. If ever you find you cannot place a time handle exactly where you want it, try a little further along.

If you select multiple time handles using the usual selection techniques, you can move them all en bloc.



Double-clicking on a time handle or a selection of time handles removes them, thereby causing the affected phases of the note to evolve at their original speeds.

By choosing Edit > Reset Individual Edits > Time > Remove Time Handles from the main menu, you can remove the time handles from all the selected notes.

### Changing the attack speed of notes

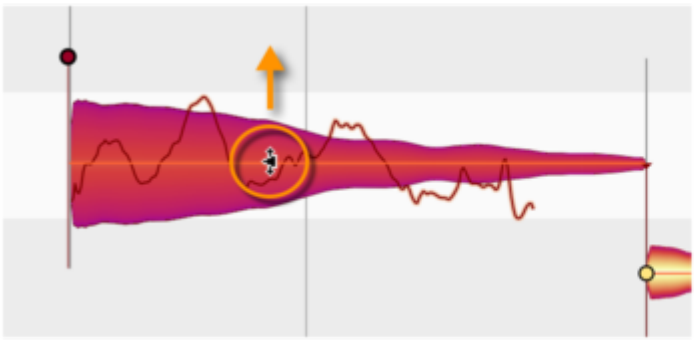
The Attack Speed Tool is the second sub-tool of the Time Tool. To select it, press the [F5] key three times in quick succession. From the Preferences dialog, you can also, if you wish, define a separate keyboard shortcut for this tool.

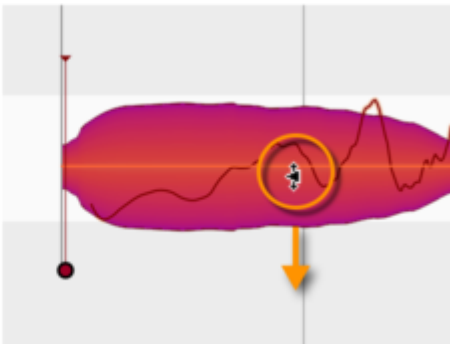
Please note that this tool has no function when the Universal algorithm is selected. You will notice therefore that the corresponding blobs lack handles and that the Attack Speed field in the Note Inspector for these blobs is grayed out.




When you select the Attack Speed Tool, a white dot appears at the start of every note. If you now place the tool anywhere on a note (not necessarily on the dot) and drag vertically, the dot will move up or down.

If you move it upwards, the attack phase of the note will be compressed and play back faster, but the rest of the note correspondingly more slowly. The note will therefore have a harder attack; its peak amplitude will be reached more swiftly.





If you move the point downwards, the opposite will occur. The beginning of the note will be stretched – even beyond its visible starting point – and will play back more slowly, the rest, however, increasingly rapidly. The attack will therefore be softer. Note that the position of the musical start of the note indicated by the orange anchor is not affected by changes in attack speed. The ‘perceived’ start of the note is therefore independent of the attack speed. The end of the note is in all cases unaffected.

You can vary the attack speed of notes individually, in order to accentuate them. You can also, however, select and modify the attack speeds of multiple notes simultaneously and thereby alter the timbre of an entire phrase.

If you double-click on a note or one of a selection of notes with the Attack Speed Tool, the corresponding parameter will return to its neutral (central) position. The same result can be achieved by choosing Edit > Reset Individual Edits > Time > Reset Attack Speed from the main menu.

### Combining time handles with the Attack Speed Tool

You can combine the use of time handles with that of the Attack Speed Tool. Altering the attack speed in this case will cause the time handles to move, functioning as a kind of timing master. You can therefore shape the evolution of the note to enhance the phrasing before adjusting the overall timing (so that the note starts faster or more slowly) with the Attack Speed Tool.

# Note separation tools

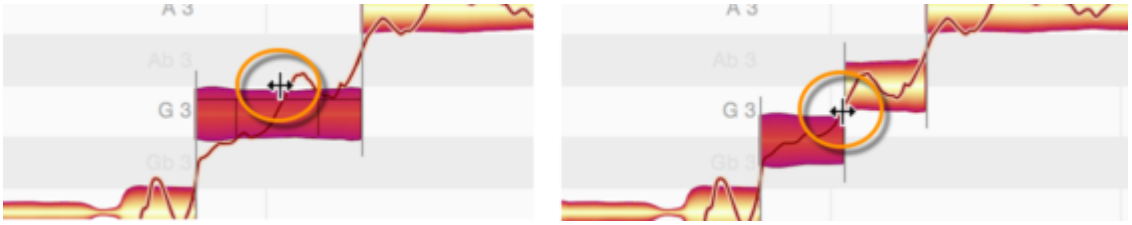
With the Note Separation Tool, you can cut notes as well as removing and moving note separations. With the Separation Type Tool, you can switch between hard and soft separations.

### Inserting, moving and removing note separations

Select the Note Separation Tool from either the toolbox or the context menu of the Note Editor or by pressing the [F6] key of your computer keyboard. (If you wish to assign a different shortcut to this tool, you may do so after choosing Melodyne > Preferences > Shortcuts > Editing Tools from the main menu.)



By double-clicking within a note with the Note Separation Tool, you can introduce a note separation and thereby slice the note in two.




Don’t be surprised if the resulting pair of notes move apart in pitch; this is because as soon as the fission occurs a new tonal center is calculated for each of the newly created notes, and their respective tonal centers may differ from the tonal center the notes shared when they were one. In such cases, each therefore moves to a new vertical position based on its newly calculated pitch center.

You can move an existing note separation horizontally simply by dragging it with the Note Separation Tool.

You can double-click a note separation to remove it.

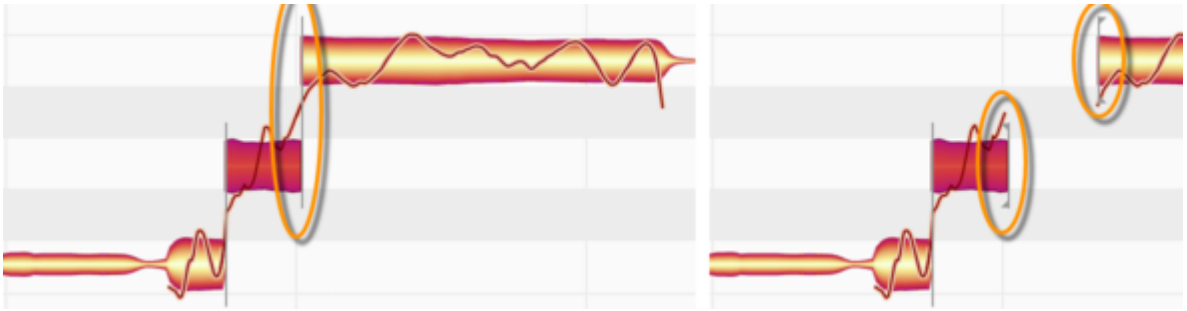
### Editing note separations with multiple notes selected

If you select several notes and move a note separation, the note separations of the other selected notes will also be moved. If you double-click one of the note separations to remove it, the note separations of the other selected notes will also be removed.

If you have selected several notes that overlap, you can insert a note separation in the same place in all of them simultaneously as well as move or remove one.

### Soft and hard note separations

Depending upon the audio material and the algorithm selected, Melodyne places either soft or hard separations between notes. Soft separations only occur between consecutive notes and provide a link between the notes: if the end of the first note is moved, the beginning of the second note moves along with it, to ensure that no gap opens between them. This helps you preserve phrasing when editing.
The connection between notes also plays a role in the pitch, formant and amplitude transitions between notes: such transitions are only possible in the case of connected notes between which a soft separation exists.
In the case of a hard separation, consecutive notes are independent of one another. This means that changing the length of the first note has no affect upon the position of the second. It also means there are no pitch, formant or amplitude transitions between the two notes.
Soft separations are indicated by a thin vertical line between notes, whereas hard separations are denoted by a bracket.



### Switching between hard and soft separations with the Separation Type Tool

The Separation Type Tool is the sub-tool of the Note Separation Tool. It allows you to toggle between hard and soft separations. To select it, press the [F6] key (assigned by default to the note separation tools) twice in quick succession. If you would prefer to use some other key combination, choose Preferences -> Shortcuts -> Editing Tools -> Note Separation Tools and press the keys of your choice. If you wish, you can define separate keyboard shortcuts for each of the two tools.



Double-click on a separation with this tool in order to change its type.

Please note that it is only with certain separations that the option of switching freely between ‘soft’ and ‘hard’ exists.

- Soft separations can always be turned into hard ones.
- Hard separations, however, can only be turned into soft ones if they were soft to begin with and their type has subsequently been changed. An exception to this rule is material detected using the Percussive algorithm; in this case, all separations are initially hard but can be turned into soft ones.

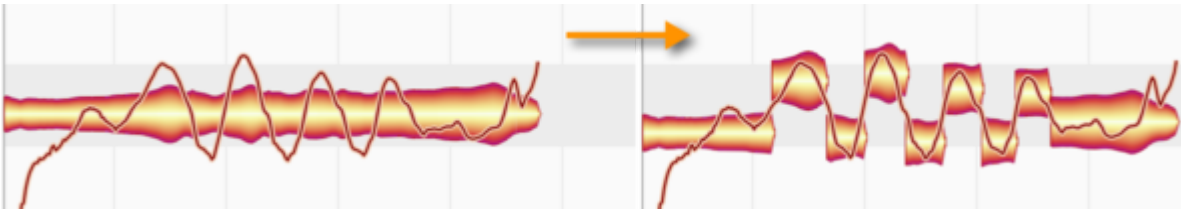
### In the context menu: Separate Note

This command separates notes automatically at a point determined by Melodyne. It can be used, for example, to slice up a vocal passage into small segments in order to prepare the way for extremely detailed editing using the tools.

You will find the “Separate Note” command in the context menu of the Note Separation Tool and on the “Shortcuts” page of the Preferences property sheet, where you can assign a keyboard shortcut to it.

### In the context menu: Separate Notes as Trills

When the Note Separation Tool is selected, you will find the command “Separate Notes as Trills” in the Note Editor’s context menu. The effect of this is to slice a selection of one or more notes into smaller segments determined by the instantaneous pitch of each note. This is done by inserting note separations into the slopes of the pitch curve as it rises and falls, thereby turning each ‘hill’ and each ‘valley’ of a vibrato into a separate note.



The use of this command allows you, for example, to improve the intonation of a trill, by tuning the notes more closely to their intended pitches, or to rein in an unruly vibrato, by applying the Correct Pitch Macro to its upper and lower extents.

Please note that the fluctuations in the Pitch Curve must be fairly pronounced for the “Separate Notes as Trills” function to have any effect and that it is only available when the Melodic algorithm is active, being grayed out in every other case. If you wish to assign a shortcut to the command “Separate Notes as Trills”, this can be done using the Preferences dialog.

### In the context menu: Merge notes

This command is used to merge a *single* note with the one that follows by removing the separation at the end of the note selected.

If more than one note is selected, the command is grayed out.

# The Note Inspector

The Note Inspector in the info pane offers you an overview of the parameters of the selected note(s) and allows you to alter the values.

### The parameters of the Note Inspector

The Note Inspector brings together the inspector fields that are usually displayed near the toolbar when the various tools are in use. It allows you to see all the most important parameters at a glance and even edit them without having to change tools.




In addition to the data included in the inspector fields, the Note Inspector displays the frequency in hertz as well as a button for the muting of notes.

The editable parameters displayed in the Note Inspector are (from top to bottom):

- the pitch of the selected note in semitones, cents and hertz
- the pitch modulation expressed as a percentage
- the pitch drift expressed as a percentage
- the formant shift in cents
- the amplitude in decibels
- the button for muting and unmuting notes
- the attack speed expressed as a percentage
- the sibilant balance

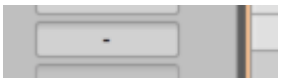
Lower down in the inspector, you can see to which audio file the selected note belongs and which algorithm was used for the detection.

### Entering values and handling multiple selected notes

When only one note is selected in the Note Editor, the Note Inspector displays the concrete values for that note.

As a general rule, you can modify all values either by clicking in their respective fields and dragging the mouse pointer upwards or downwards or by double-clicking in the field and typing in a new value.

In the case of the Pitch field, you can enter either an absolute (C3, D4 etc.) or a relative (+2, -1, etc.) value. In the other fields, it is always the absolute value that is adopted.



If you have selected multiple notes, the Note Inspector will only displays concrete values for parameters if these are shared by all the selected notes. Where values differ, a dash “–” is displayed in the relevant field.

If a dash is displayed, by clicking on it and dragging, you can alter the individual values of all the notes selected by the same amount; in this way, for example, you could transpose an entire selection up two semitones. The Scale Snap function, of course, if activated, will govern the eventual destination of the various notes.

As you drag the values, Melodyne remembers the difference between them. This is even true when certain parameters ‘collide’ with their maximum or minimum values; provided you keep the mouse button pressed and drag then in the opposite direction, the initial difference will be restored. Only if you release the mouse button at the point of collision will the initial difference be forgotten.

Alternatively, with multiple notes selected, you can type in a value that will then be assigned to, and thereafter shared by, all the selected notes (whereupon the dash, of course, will disappear).

An exception here is the pitch, as, if you type in the value “2”, for example, all the selected notes are shifted two semitones upwards. If you wish to assign the same pitch to all the selected notes, type in an absolute value, such as “C2”. If the Percussive or Universal algorithms are selected, of course, this has no effect, as these algorithms only know relative pitch.

# Copying notes

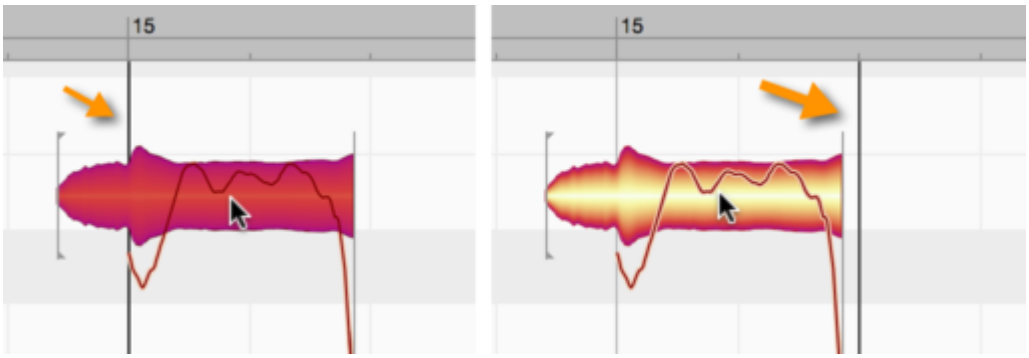
To copy notes in Melodyne, first select the desired notes, then choose Copy from the Edit menu or the context menu of the Note Editor. To insert them, use the Paste command. The following points here need to be noted.

### The selection, cursor and grid when copying

When you copy notes to the clipboard using the Copy command, you will notice that the cursor moves to the start of the selection, or, to be more precise, to the quarter-note (crotchet) on the Time Grid closest to the first note of the selection.

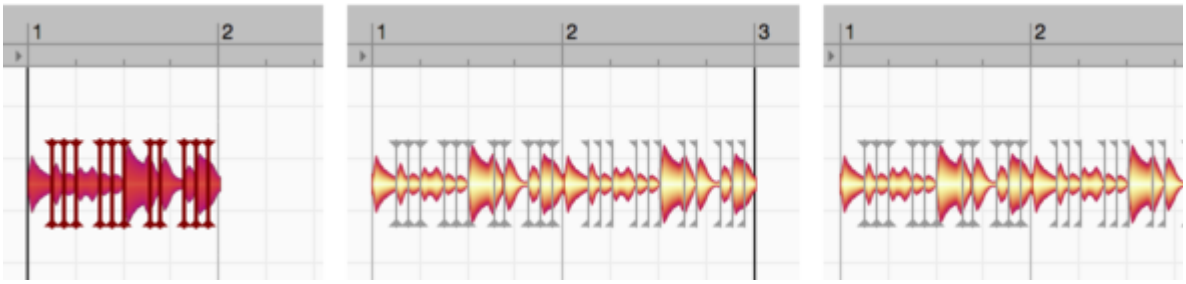
If, with the notes still selected, you use the Paste command, all that appears to happen is that the notes that were selected prior to the paste are now no longer selected and the cursor is now located just after the last of them.

In fact, however, the notes previously selected have been replaced by those on the clipboard. In other words, the notes have been copied onto themselves, with the copies replacing the originals. Admittedly, this may not sound particularly useful, but look at the position of the cursor: it is now aligned with the quarter-note on the Time Grid closest to the last copied note.



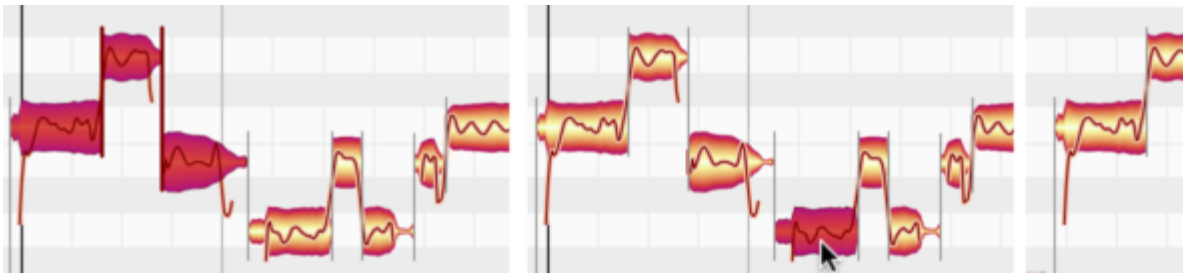

If you now execute a further Paste, the notes on the clipboard will be pasted a second time. This time, however, since no notes were selected, nothing will be replaced. Instead, the newly pasted notes will end up just after those that replaced the originals the first time round.

Their position is now determined by the cursor. And since, after the first paste, this was aligned with a quarter-note on the Time Grid (the first quarter-note after the pasted notes, to be specific), the effect of the second paste is that the original alignment of the notes relative to the gridlines is reproduced exactly, only further along the timeline. This behavior allows you to string together a succession of copies of the same passage, quickly and accurately – in order, for example, to create multiple iterations of a drum loop.

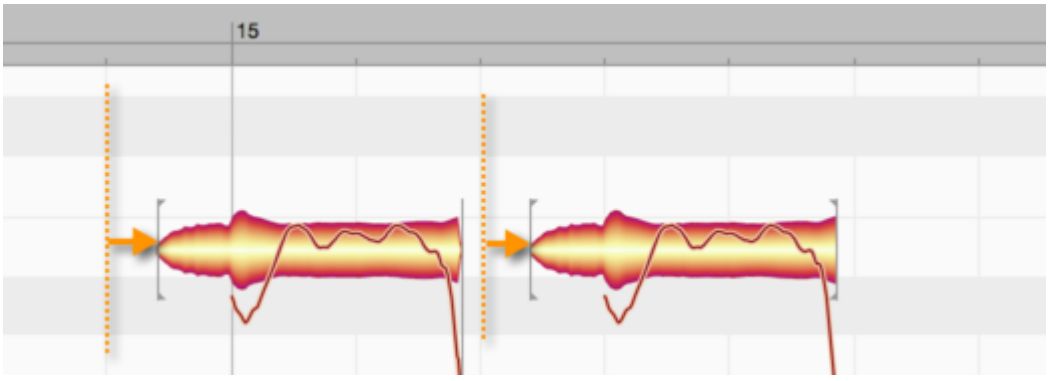



Based on what we have just seen, we can formulate the following rules:

- If any notes are selected when the Paste command is executed, these are replaced by the contents of the clipboard. The pasted notes are stretched or squeezed until they fit exactly the range from the beginning of the first to the end of the last note of the selection. This is illustrated here: on the left are the notes to be copied; in the centre, a single selected note, which serves as the destination of the copy; on the right is the result after the paste is performed: The selected destination note has been replaced and the pasted notes squeezed just enough for them to fit exactly the space it occupied.



- If when the Paste is executed no notes are selected, the cursor determines the point at which the pasted passage begins. The grid settings here play an important role: when copying notes to the clipboard, Melodyne remembers the distance between the first of the copied notes and the nearest grid line. When the paste is repeated at the new cursor position, the offset of the first pasted note to the gridline nearest to *it* will be exactly the same.



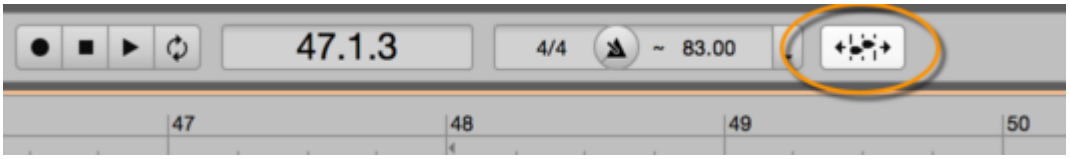

In other words, notes in Melodyne are not copied in such a way that they necessarily coincide with gridlines, because then the subtleties of expression would be lost. Instead, the notes copied retain

their respective offsets to the grid. There is an exception, however, to this rule: if, instead of being calibrated in beats, the grid is calibrated in seconds (i.e. if you have selected “Sec” from the Time Grid Settings drop-down menu to the right of the Time Ruler), then the note (or first of a series of copied notes) will begin exactly at the cursor position, with no offset.

- After each paste, the cursor is moved to the first quarter-note following the most recent paste, making it easy to string together multiple iterations of the same passage. Obviously, if you wish, you can move the cursor by hand to some other point on the Time Ruler and make that, rather than the automatically selected quarter-note, the reference point for the next paste. You might want to do this, for instance, to introduce a pause between iterations.
- The pitch of the copied notes is always the same as that of the originals. This is even true when notes are selected, and therefore replaced, when the paste is performed. The length of the passage selected, in this case, is retained but the original pitch of the notes it contained is not. Of course, after performing the paste you can move the notes by hand to any pitches you like.

### Tempo adjustment when copying: the Auto Stretch Switch

If notes are selected when the paste is performed, the inserted passage will be stretched or squeezed to fill the available space (i.e. that between the beginning of the first selected note and the end of the last) as we have already seen. But how is the tempo of the copied passage treated when the position of the paste is determined instead by the cursor?




If the tempo at the destination of the paste is different from that of the passage from which the notes were copied, it is the status of the Auto Stretch Switch that determines whether the pasted notes adjust to the tempo of the destination or retain their original tempo. If the Auto Stretch Switch is on, they adjust; if it is off, they do not. So unless you want to change the tempo at the cursor position, you should switch Auto Stretch on before performing the paste.

If the tempo of the source is different from that of destination, and the material on the clipboard is adjusted to the new tempo, the pasted version will obviously sound different to the original. If you want to avoid this happening, however, in the stand-alone implementation of Melodyne, you can copy not only the notes but also the tempo (including any sudden or gradual tempo changes within it) from the source to the destination. In this case, it makes no difference which you copy first: the notes or the tempo.

### Copying in a multi-track context (without ARA)

In Melodyne studio you can see, select and edit notes from different tracks at the same time in the Note Editor – and even copy them. Provided after selecting the notes and executing the Copy command, you do not exit the Note Editor before performing the paste, the track assignments of the notes selected will be preserved. If, for example, you select a bar from the bass guitar track and a bar from the lead vocal track and then paste them simultaneously to a different point on the Time Ruler, the notes copied from the bass track will be pasted into the bass track, and those copied from the vocal track will be pasted into the vocal track.

If you wish to paste the copied notes into tracks other than the original ones, before performing the paste you must select the desired destination tracks by clicking the relevant track headers, holding the [Shift] and/or [Command] keys where necessary.

Here, the following rules apply:

- If there are the same number of destination tracks as source tracks, the notes will be copied accordingly; if the source tracks, for example, are numbered 1, 2 and 3 and the destination tracks 4, 5 and 6, the material copied from Track 1 will be pasted into Track 4, that from Track 2 into Track 5 and that from Track 3 into Track 6, as you would expect.
- If the material on the clipboard has been copied from multiple tracks but a single track has been selected as the destination, all the material will be pasted into that one track.
- If the material on the clipboard has been copied from a single track but multiple tracks have been selected as destinations, the same notes will be copied into *all* the destination tracks (duplicating the material, in other words).
- If no sensible correlation can be established between source and destination track(s), the Paste command will be grayed out.

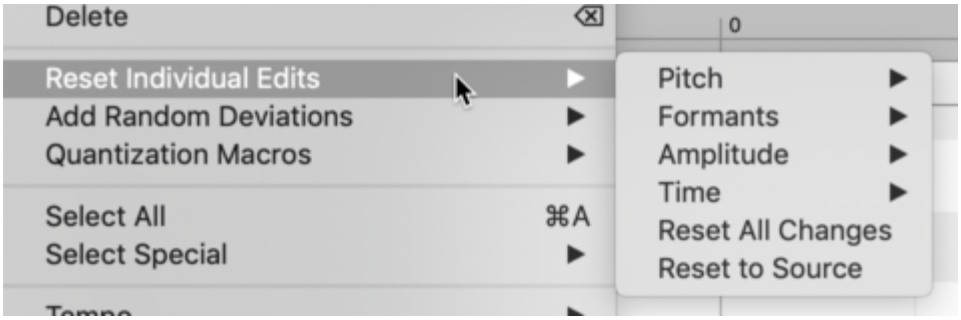
The same rules apply if, instead of choosing Copy after making the selection, you choose Cut.

# The Edit menu

Melodyne's Edit menu includes items that allow you to undo entirely the effects of various types of editing and others that add random deviations to the audio material.

### Restore Original

The "Restore Original" sub-menu contains commands that nullify entirely the effects of various types of editing.
You will also find in the context menu of the Note Editor whichever of these commands are relevant to the tool you are using at the time.




All the commands (except the last one) apply *only to the notes currently selected* and are grayed out if no editing of the type in question has yet been applied to them. Bear in mind that these commands work independently of the normal "Undo" function.

The effect of the following types of editing can be undone entirely via the Restore Original sub-menu:

**Pitch**

- the editing of pitch
- the editing of pitch centers
- the editing of pitch modulation
- the editing of pitch drift
- the editing of pitch transitions

**Formants**

- the editing of formants
- the editing of formant transitions

**Amplitude**

- the editing of amplitude

- the editing of amplitude transitions
- the application of fades
- adjustments to the sibilant balance
- the muting of notes

**Time**

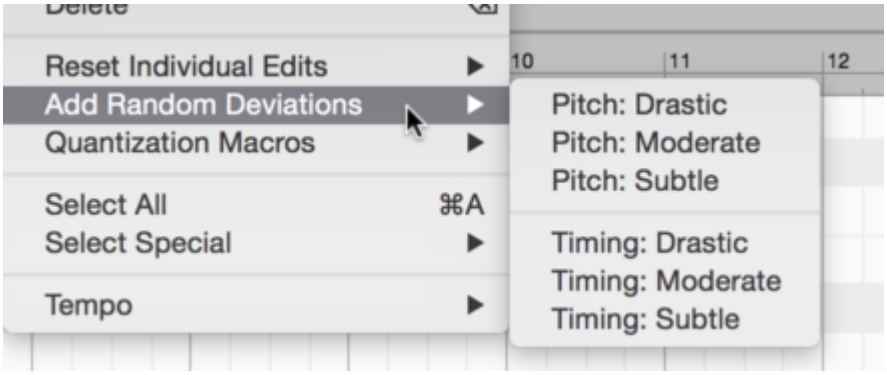
- the editing of timing (position/length of notes)
- the placing of time handles
- the editing of attack speeds

The command “Undo All Changes” undoes entirely the effect of all the types of editing listed above but only applies to the notes currently selected.

The final command, “Undo All Changes to Entire File” has the same effect as “Undo All Changes”, differing only in that it applies even to notes not included in the current selection, thereby restoring the entire file to its original state.

### Adding random deviations

The Add Random Deviations sub-menu varies the pitch or timing of individual notes a) drastically, b) by a moderate amount, or c) in a subtle way; within these various limits, the direction and extent of the deviation is determined randomly.




These functions introduce random variation to either the pitch (i.e. the vertical position) or the timing (i.e. the horizontal position) of the selected notes.

This is particularly useful when you have made one or more copies of a single take but do not wish them to be identical either to one other or to the original – the object being, perhaps, to make a single vocalist sound like a choir. Through the addition of a certain amount of random deviation to each copy, you can obtain more natural-sounding results by ensuring that the synchronization of the individual voices is never improbably perfect and that no two copies exhibit identical fluctuations in pitch.

### Macros

The commands in this sub-menu open Melodyne's various macro dialogs. The same effect can be obtained by clicking their respective icons, which are to the right of the toolbar above the Note Editor.

### Select Special

The effect of the commands in the "Select Special" sub-menu is described in the "Selecting Notes" tour.

### Tempo

The commands in this sub-menu are explained in the Note assignment tour.

### Chords and Keys

These commands can be used to trigger an analysis of the chords and keys encountered in the material.

### Copy commands for the detection data

The detection of tempo, chords and keys in Melodyne studio is conducted on two levels:

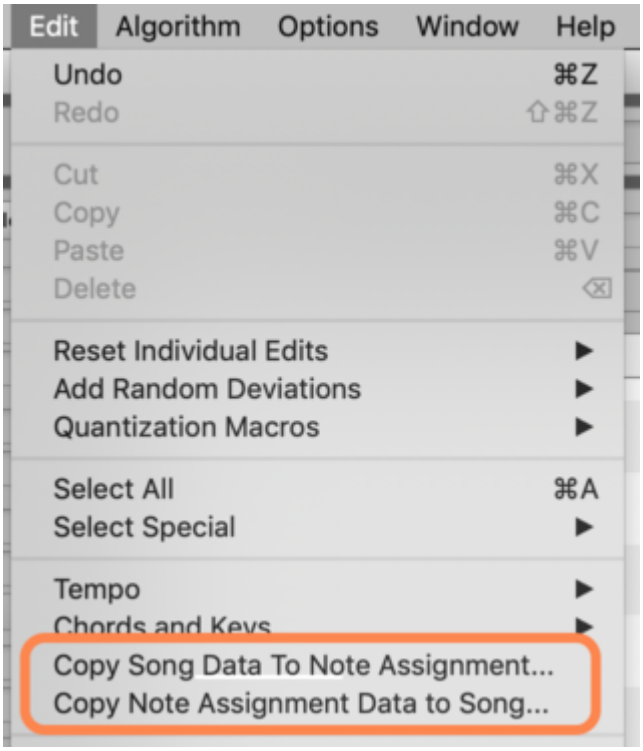
Initially, Melodyne analyses *each individual file* as it is loaded, to detect and identify the notes and tempos it contains; you can then optimize the results of this analysis, which we call the "note assignment data", in Note Assignment Mode. That is the *file* level. A key (or 'tonality') is derived automatically from the notes found in the file.

If, however, you import several files into Melodyne simultaneously – the tracks of a multi-track recording, for example – then the higher *song* level comes into play. Here, Melodyne conducts a second analysis of the tempo, key and chords, based this time on information derived from all the tracks. The drum tracks, for example, will have little to say about the tonality but prove extremely useful when it comes to tracking the tempo. With the vocals, on the other hand, it will be the other way around. Because all the tracks are considered together, the song-level analysis delivers more comprehensive and accurate results.

Now, occasions may arise when you will wish to transfer the results of the more accurate, song-level analysis, to file level – for instance, when you are planning to export one track only, the vocals, to another song. The more accurate the information provided by the track's note assignment data regarding the tempo and tonality of its musical content, the more successful will be its integration into the new song. With the command "Copy Song Data to Note Assignment", you can improve the accuracy of the file's original note assignment data by sharing with it the conclusions drawn from the song-level analysis.

And the opposite case can also arise, when, after satisfying yourself that the file-level analysis is perfect, you will want to share its conclusions as to the tonality and tempo with the entire song. This can be done by choosing “Copy Note Assignment Data to Song”.

To use either of these commands, first make sure the track in question is in the Note Editor and, if more than one track is present there at the time, select one of its notes. Then choose the command you want from the menu. A small dialog will appear, inviting you to specify precisely which of the three types of data (tempos, keys and chords) you do and do not want copied.



# Audio to MIDI

From this tour, you will learn how to save audio notes in Melodyne as MIDI notes.

### About Audio-to-MIDI

Melodyne allows you to export audio notes as MIDI notes. When this is done, a file in Standard MIDI file format is created and saved to your hard disk. This file can then be loaded into your DAW, so you can use it, for instance, to double your vocals with a sound from a software synthesizer.

The MIDI notes are an exact representation of the audio notes in Melodyne. For each audio note, a MIDI note is created with the same position, length and pitch. The velocity of each MIDI note is derived from the amplitude of the audio note it represents.

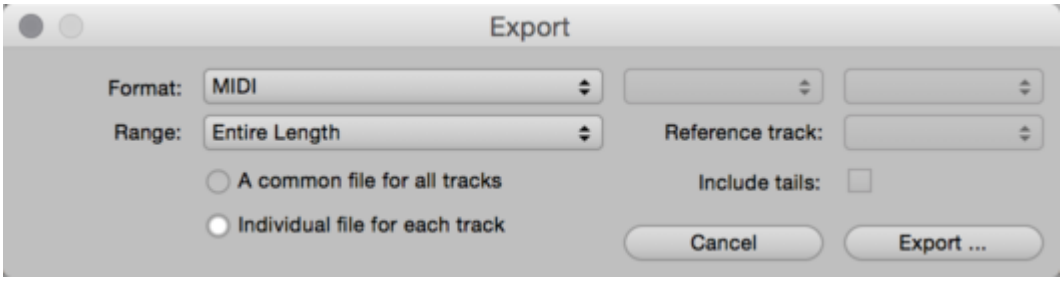
That is equally true whichever algorithm is used, with a few algorithm-specific exceptions: In the case of vocals, breaths are not exported as MIDI notes; and if you save rhythmic material or material edited with the Universal algorithm as MIDI, all the MIDI notes will share the same pitch but take their position, length and amplitude from their audio equivalents in the rhythm track. You can use this technique, for example, to derive from a drum loop a quantization reference for other MIDI tracks in your DAW.

The generation of MIDI notes from audio material offers a wealth of different creative possibilities. Try it out for yourself!

### Saving MIDI from the stand-alone implementation of Melodyne

To save audio material from the stand-alone implementation of Melodyne as a MIDI file on your hard disk, choose File > Export... Mute beforehand the tracks you do not wish to export. Empty or muted tracks are not exported, so much the same effect can be obtained by soloing the tracks you do wish to export.

In the Export window, you will find various options. First using the pop-up button on the left select MIDI in the first line; this will gray out the irrelevant options for exporting audio.



In the second line, select the Range (i.e. the portion of the timeline) you wish to export. The radio buttons below allow you to decide whether all the tracks should share a common MIDI file or whether a separate file should be created for each track.

If you opt for a common MIDI file, a different MIDI channel will be assigned to each track and you can then name the MIDI file. If you opt for a separate MIDI file to be created for each track, the file in each case will be given the same name as the track.
In addition to these individual files, an additional MIDI file is saved containing no notes but simply the tempo map of the song. The name of this file is “<name of the song>.tempo.mid”.

For the range (i.e. the temporal scope), the following options are available:

- Entire Length: Everything from the beginning of the first track to the end of the last.
- Cycle Range Only: only the segment of the timeline between the cycle locators.
- Range of Reference Track: The export will be confined to that segment of the timeline covered by the track you select as the reference track using the pop-up button on the right.
- Start of Reference Track to End of Arrangement: The export begins, as before, at the point in the timeline that coincides with the start of the reference track, but in this case it continues to the end of the last track in the project.
- Individual Range for Each Track: A separate file will be created for each track, covering in each case the entire timeline from the beginning to the end of the track in question. If you select this option, you cannot create a common MIDI file.

The “Include tails” option should be selected when you wish to limit the length of the exported material to the cycle range but certain of its notes have not finished sounding when the end of the range is reached. If you choose “Include tails”, the exported segment will be extended just enough to prevent the tails being chopped off.

Click on Export to begin the MIDI export with the selected options. A file selector will open so that you can choose the storage location.

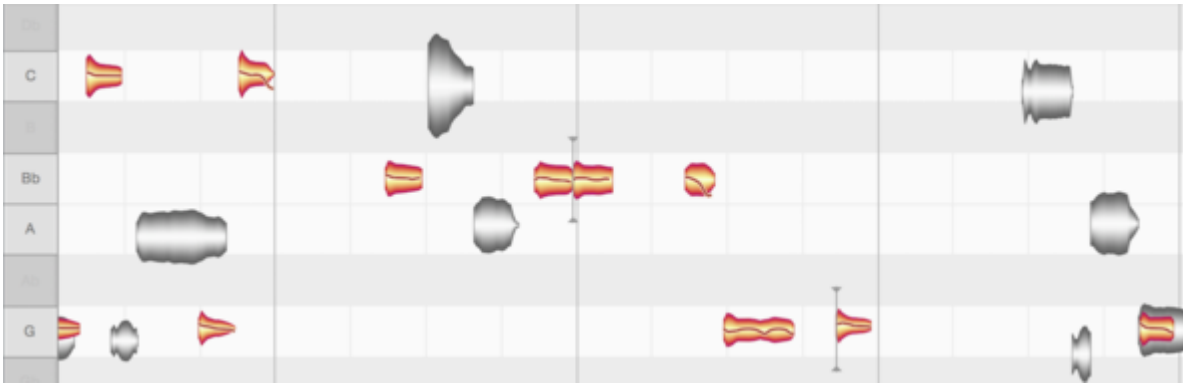
# Multitrack editing

In Melodyne studio, you can work with multiple tracks – in both the stand-alone and plug-in implementations. You can move from track to track with the utmost ease, and even see and edit simultaneously notes belonging to different tracks.

### Multi-tracking in Melodyne

In Melodyne, multi-tracking has a particular meaning, because here you are working not simply with audio files but with notes. For this reason, it is in the Note Editor that Melodyne's multi-tracking comes into its own.

Consider the case where you have one track containing vocals and a second track with a guitar accompaniment. As soon as you switch the vocal track to edit mode, the notes of which it is composed appear in the Note Editor. Now, if you switch the guitar track to reference mode, its notes, too, are displayed in the Note Editor. The guitar blobs in this case are gray and can neither be selected nor edited. They are simply displayed for the purpose of orientation in the background to the vocal notes. This makes following the melody child's play.




What happens if, while you are editing the vocal track, you notice something on the guitar track that you would like to alter? No problem. Just switch the guitar track to edit mode or double-click one of the gray blobs and immediately the two tracks will swap roles: it will be the guitar blobs that are colored and capable of being edited while the vocal blobs are displayed in gray in the background.

And you can change tracks on the fly like this while working with any number of reference tracks. This makes it very easy for you to edit your audio material in the desired context not only acoustically but also visually. In this, you are supported by intelligent monitoring that allows you to control the volume ratios between the edited track, the reference tracks and all other tracks. Whenever you break off editing one track to edit another, the volume mix adjusts automatically.

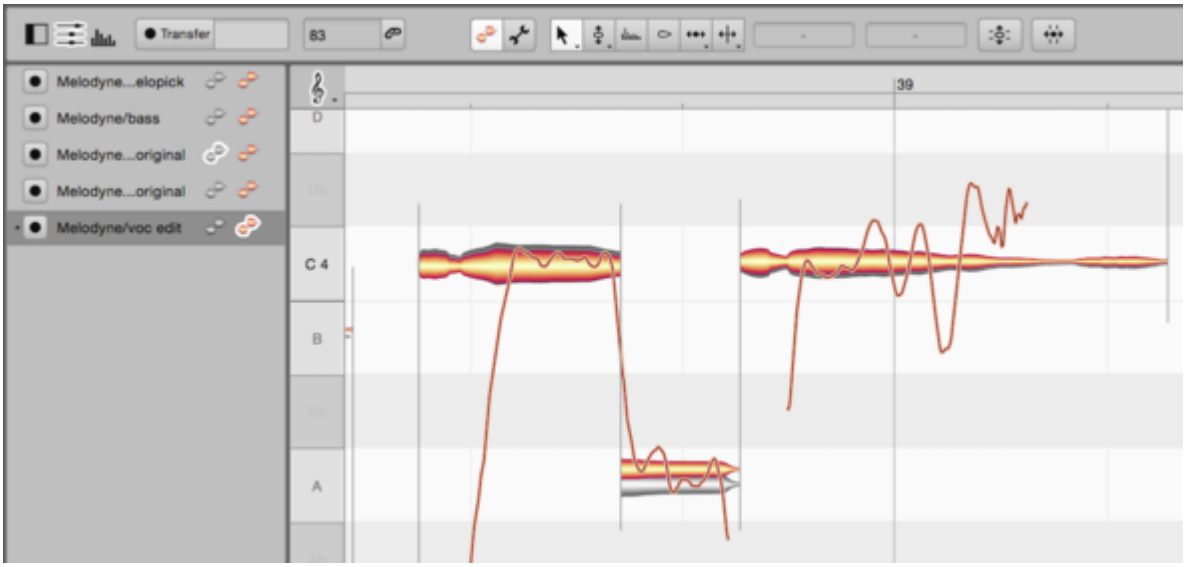
But these are by no means all Melodyne's multi-tracking capabilities: If you wish, you can even switch several tracks to edit mode at the same time, selecting, editing, deleting and copying notes across tracks. This is the case in both the stand-alone and plug-in implementations of Melodyne.

In the following sections, we will set out in detail the concepts underlying multi-tracking in Melodyne and show how to take full advantage of the possibilities it affords.

### Differences between the stand-alone and plug-in implementations

When Melodyne is running as a stand-alone application, multiple tracks are displayed in much the same way as in most DAWs: There is a list of track headers in the left-hand pane, with the audio files belonging to each track to the right of them.

In the plug-in implementation of Melodyne, multi-tracking is implemented as a collaboration between the DAW and the various instances of Melodyne. There, too, there is a list of headers on the left. In it, you will see which instance of the Melodyne plug-in is currently open, as well as any others inserted in the tracks of the current project. The idea behind this is to allow you to work at all times in *one* Melodyne plug-in window only, whilst being able to see and edit the contents of *all* instances.

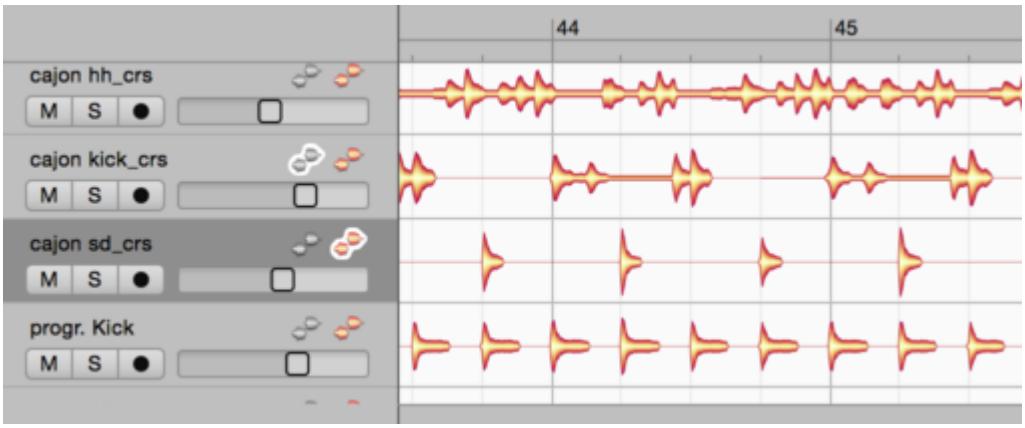



In the plug-in, there is no track pane containing audio material, since the audio material is already present on the tracks of the DAW. All you see, then, is the list of instances and the Note Editor.

### The track headers

**In the stand-alone implementation:** Each track header displays the name of the track and a volume fader along with mute, solo and record enable buttons. The solo function is only ever active in the

track whose solo button was clicked most recently. Hold down the [Command] key to solo multiple tracks. You can rename the track via the Track menu, the context menu in the track header pane, or the Track Inspector, which is described in the next section.




The colored blob icon in the track header is the edit button, which causes the notes to be displayed in the Note Editor. Double-clicking on the contents of a track in the track pane has the same effect. If you click the edit button or double-click in the track region of another track, its notes will replace those of the first track in the Note Editor.

If you hold down the [Command] key now and click on the edit button of another track, the notes of this track too will be displayed as colored blobs in the Note Editor. You will then be able, if you wish, to select and edit the notes of *both* tracks simultaneously. Proceed in the same way to add the contents of further tracks to the Note Editor. Clicking on an edit button that it is already active removes the contents of the respective track from the Note Editor.

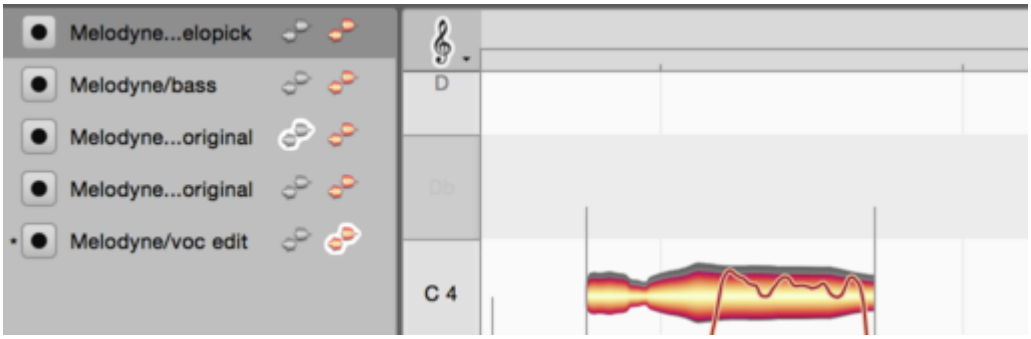
The gray blob icon in the header is the reference button that causes the notes of a track to be displayed in the Note Editor for reference purposes only. The resulting gray blobs can neither be selected nor edited. They are there in this case solely for purposes of orientation– for instance, to facilitate adjustments in pitch or timing. By clicking on further reference buttons, you can add the contents of further tracks to the Note Editor – again, purely for reference purposes – and remove them in the same way.

If you switch a reference track to edit mode – either by clicking its edit button in the track header or by double-clicking one of the gray blobs currently displayed for reference – the gray track will turn orange and the track that was previously orange, gray. Putting it another way: the two tracks will swap roles.

Right-clicking in the header opens a context menu offering the same commands as the main Track menu.

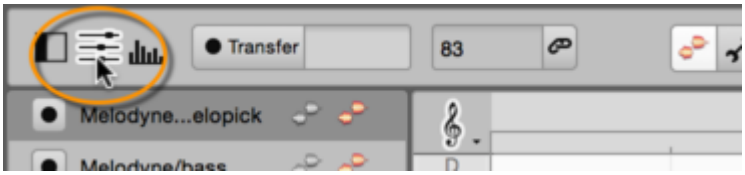
You can change the order in which tracks appear by dragging the track headers upwards or downwards as desired.

**In the plug-in:** You see a header for every instance of Melodyne that you have opened in your project. There are no mute or solo buttons and no volume fader in the header, as these functions are already provided by your DAW. Instead you will see a Transfer button for every instance, and you can transfer-enable as many instances as you like swiftly from a single plug-in window.




The edit and reference buttons work in exactly the same way as in the stand-alone implementation and determine which contents in the Note Editor are available for editing and which displayed purely for reference. You can switch freely between the contents of the instances and, as in the stand-alone implementation, edit the contents of multiple instances simultaneously – e. g. by selecting and copying across tracks. All the time you can be working in the same Melodyne window; there is no need to switch to the window of another instance or open a second window. A small star on the left near the track title shows you, for the purpose of orientation, to which Melodyne instance the window in which you are working at any given moment belongs.

To leave more room for the info pane or Note Editor, you can hide the header pane in the plug-in by clicking the corresponding symbol, and show it again in the same way.




In the stand-alone implementation and with certain DAWs, you can rename tracks by right-clicking on the track header and choosing Rename Track from the context menu.

You will find this option grayed out, however, if your DAW is one that passes on track names to Melodyne, as the correct name will then already be displayed in the track header.

Similarly, with certain DAWS, as in the stand-alone implementation, you can change the order in which the tracks are displayed by dragging the track headers upwards or downwards.

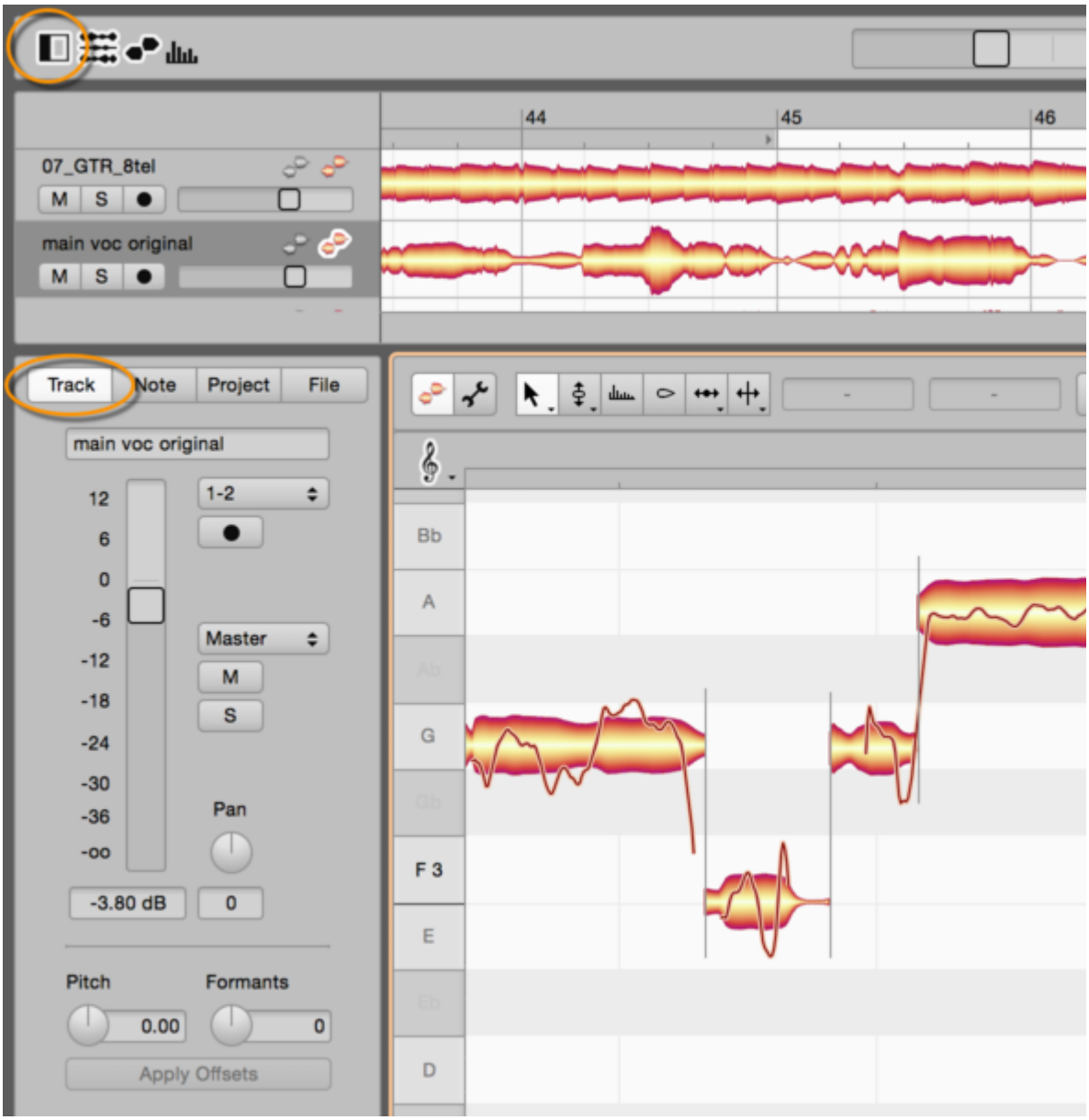
This option, again, is grayed out if your DAW has passed on to Melodyne the order of tracks, as they will then already be displayed in the correct order.

### The Track Inspector in the stand-alone implementation

The info pane of the stand-alone implementation offers access to the Track Inspector.

The Track Inspector has the same settings as the track header plus a few additional parameters:

- The title field: This can be used to rename the track.
- The volume fader: This corresponds to the fader in the track header. A text box below the fader allows you to set the volume by typing in a new value or clicking on and dragging the existing one.
- The Pan pot: To move the track in question to the left or right in the stereo field, click the knob and drag downwards or upwards respectively or else type in a value.
- Mute, solo and record enable buttons: These work in exactly the same way as their counterparts in the track header.
- Pop-up buttons for selecting the track’s input (for recording) and output. If you are working with a multi-channel audio interface, you can use these to select the inputs and outputs for your tracks.




The Pitch and Formants knobs offer you a quick way of shifting the pitch or formants of the entire track. Initially, any changes you make here are merely ‘superficial’ and are not reflected by the blobs in the Note Editor. If you want to adopt them as actual edits, click the Apply Offsets button below. The pitch of the notes and/or their formants will then be shifted in line with your settings and the changes will be reflected in the blobs.

When the offsets are applied and made permanent, the pitch or formant shifts in question will sound better than they did when they were superficial and temporary. For this reason, you should use the Pitch and Formant knobs simply to find suitable values quickly, but then apply them, so that the shifting in question can be properly implemented. Once their values have been applied, both knobs revert to their zero positions.

You can reset all the above-mentioned parameters to their default values by [Command] double-clicking their respective fields in the inspector.



The Track Inspector refers to one or several selected tracks. The control elements act upon all selected tracks simultaneously.

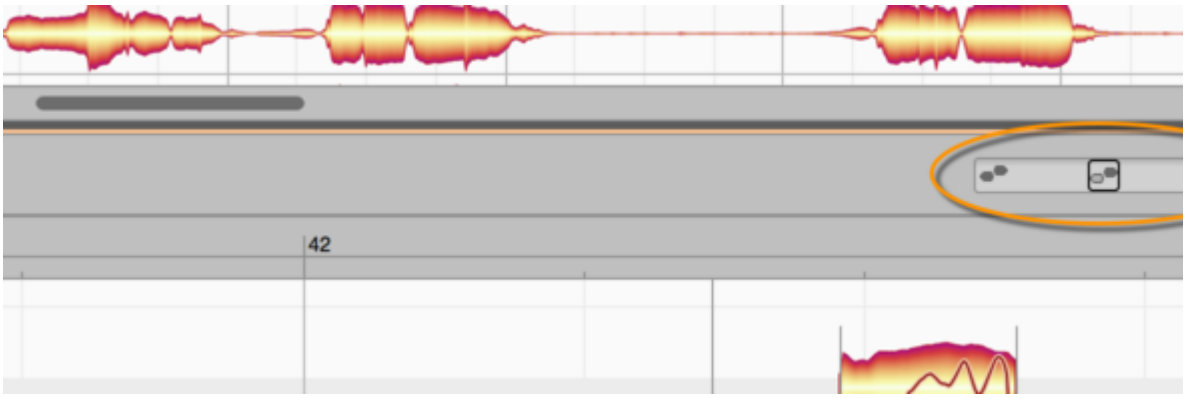
Where two or more selected tracks have different values for the same parameter, a dash is displayed in the corresponding field. When these values are increased or decreased using the mouse, the ratios between tracks are maintained, the changes being relative. This is so even if, without releasing the mouse button, you touch on the upper or lower limits of the range before returning to some intermediate value. Only if you release the mouse button at the top or bottom of the range and then resume dragging, do the values of the selected tracks become uniform.

It is different if you type in the values. In this case, the value entered is adopted by all the selected tracks. If, for instance, in the volume field you enter “+2”, the volume of all the selected tracks will be set to +2 dB.

### The Editing Mix Fader

When you are editing the notes of several tracks simultaneously in the Note Editor, the Editing Mix Fader is of great assistance. Our intention here was to provide you with the acoustic equivalent of focusing visually on particular blobs: when you are editing a track, you want to be able to concentrate entirely upon that track and not be distracted by others. Visually, that is easy to accomplish: You simply select one or two tracks to edit, show perhaps two or three others tracks in the Note Editor for reference, and hide the rest.

Acoustically, a similar focus is difficult to achieve. Naturally, you could solo the tracks being edited, but then you would lose the very reference that could best help you assess the intonation and timing of the tracks being edited. Ideally in this situation you would be able to employ an alternative mix: the track being edited would be the loudest; the tracks shown as reference would be somewhat quieter, and other tracks, quieter still or completely inaudible. You could accomplish this, of course, with the volume controls of the individual tracks, but the Editing Mix Fader makes it far easier.




If you move the Editing Mix Fader all the way to the left, you will hear only the track or tracks currently activated for editing in the Note Editor – in other words, the ones with the orange blobs. As you move the fader button gradually towards the center, the gray blobs displayed for reference will gradually become louder, until at the center position the colored and gray blobs will be equally loud. As you now move the button from the center position towards the right, the remaining tracks – i. e. those included in the arrangement but not displayed in the Note Editor – will gradually fade in.

In this way, you can quickly and easily arrive at the ideal acoustic balance between the notes displayed for editing, those displayed for reference, and the rest of the arrangement.
Please note that the soloing and muting of tracks also effects the mix: Tracks that are displayed for reference or editing in the Note Editor but switched to mute (either directly or because another track has been soloed) are nonetheless audible when the Editing Mix Fader is between the extreme left and the center of its range. However, as the button is moved from the center towards the extreme right of its range (causing tracks not displayed in the Note Editor to become audible), the tracks switched to mute are faded out, so the soloing of tracks once again functions normally.

As soon as you shift the focus from the Note Editor to the track pane by clicking in the latter, you will hear the entire arrangement once again; this is equivalent to the rightmost setting of the Editing Mix Fader. If you then click a further time in the Note Editor, the volume ratios will once again be determined by the Editing Mix Fader.

In the plug-in, the fader works on the same principle but with one small difference; If you start the DAW playback, the balance between all the tracks will be determined exclusively by the DAW's own mixer. The Editing Mix Fader only intervenes when the DAW is stopped and you start local playback in Melodyne.

In this case, again, with the button hard left, only the colored blobs will be heard, the gray ones fading in gradually as you move towards the center, and the remaining tracks entering and becoming gradually louder as the button moves ever further to the right. The term 'remaining tracks' here, however, includes only those tracks the contents of which have been transferred to Melodyne. To hear literally *all* the tracks, unless all have been transferred, you must start the playback from within DAW.

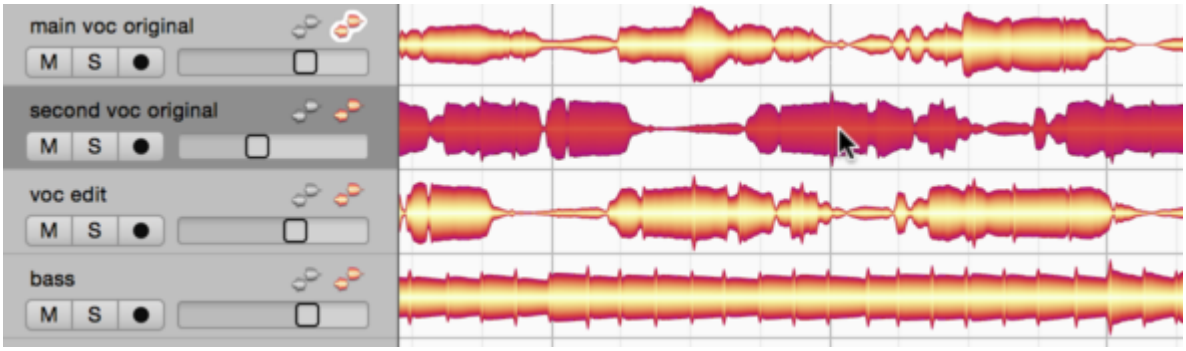
The Editing Mix Fader is only operative when the focus is in the Note Editor – i. e. when the Note Editor is the pane clicked most recently. The pane with focus at any given moment is the one delineated by a thin orange frame.

### The track pane and working with tracks in the stand-alone implementation

To the right of the track headers is the Melodyne's track pane, in which the audio files are displayed. Audio files can be opened, dragged and dropped onto the tracks, or recorded directly to them.

A track can contain multiple audio files without Melodyne displaying them as separate regions, clips, segments or the like: On each track, regardless of the number of audio files it comprises, a single waveform is used to display the contents. This is because Melodyne adopts a *note-based* approach, and you perform typical actions such as transposing or copying segments within a track by selecting and editing in the Note Editor the notes of which they are composed, not by manipulating the segments as such.

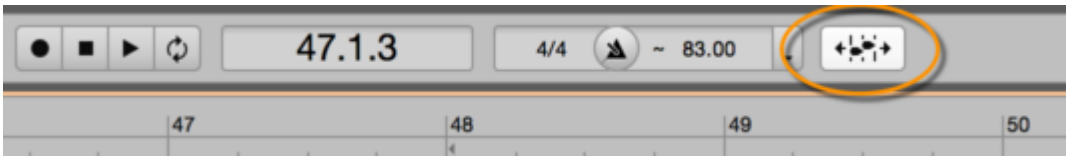
The most you can do on the track itself is move its entire contents en bloc. To do this, simply drag the waveform to the left or right. When you release the mouse button, the contents of the track will snap to the selected grid (if active) or else remain where you have dropped them.




There are several ways of transferring audio files to the tracks:

- One is the Import Audio command in the File menu, which is suitable if the audio file is already on your hard disk. A new track will be created and the file positioned at the beginning of the track.
- Another is to drag an audio file from Melodyne's file browser or the finder or explorer of your computer and drop it in the empty region beneath the existing tracks or onto to one of the latter. In the former case, a new track will be created; in the latter, the new file will be mixed with the existing content. In either case, the grid can be used to assist in the exact positioning of the file. If you wish the start of the file to coincide with the beginning of the track, drop it instead on the track header.
- A third is to record the audio. To do this, select the desired input of your audio interface from the track's inspector, record enable the track and then commence recording using Melodyne's transport controls.

Please note that when importing a file, whether from the menu or by drag ‘n’ drop, it is the Auto Stretch button in the Transport pane that determines whether or not the tempo of the new material is adjusted to match the existing content.




If Auto Stretch is active, Melodyne adapts the tempo of the file to that of your project, including any sudden or gradual tempo changes found therein. If Auto Stretch is not active, the tempo of the original source project will be retained; no change will be made, in other words, to the original tempo.

You will find further information on this subject in the tours dealing with tempo detection and tempo editing.

To select a track, either click on its waveform in the track pane or on the header of the track in question. To select multiple tracks, hold down the [Command] or [Shift] keys as you do so. With the [Shift] key, all tracks between the first and the most recently clicked will be included in the selection.

The Track menu, like the context menu in the track header pane, contains the following items:

- New Track: creates a new (empty) track.
- Rename Track: allows you to enter a new name for the track in question.
- Merge Tracks: where two or more tracks are selected and this command executed, the contents of all the selected tracks will be mixed down to a single track, this being whichever of the selected tracks appears first in the track list.
- Duplicate Track: creates a copy of the selected track or tracks, placing in each case the copy beneath the original.
- Delete Track: deletes the selected track or tracks.
- Split Track by Source Files: in certain respects the opposite of Merge Tracks. If a track contains more than one audio file or recording, or if notes from different audio files have been copied to it, this command has the effect of splitting the track and creating for each of the various audio sources a separate new track.
- Split Track by Selection: This command also splits the selected track(s) but on the basis of the notes currently selected in the Note Editor. Example: You select in the Note Editor all instances of Middle C (C4) in a recording and choose this command. Result: All Middle C’s are removed from the original track to a new one.

### Copying between documents, tracks and instances

You can copy notes in Melodyne freely between documents, tracks and instances. To copy notes from a track in the stand-alone implementation of Melodyne or an instance of the plug-in to another track or instance respectively, proceed as follows:

- Select the desired notes and choose Copy.
- Select the destination track or instance respectively by clicking its header.
- Position the playback cursor by clicking in the Time Ruler and choose Paste.

To copy notes in the stand-alone implementation from one project to another, proceed as follows:

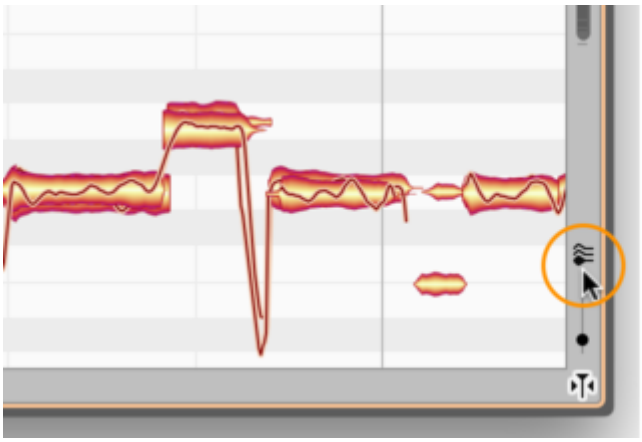
- Select the desired notes and choose Copy.
- Switch to the destination project and select the desired track e. g. by clicking in its track header.
- Position the cursor by clicking in the Time Ruler and choose Paste.

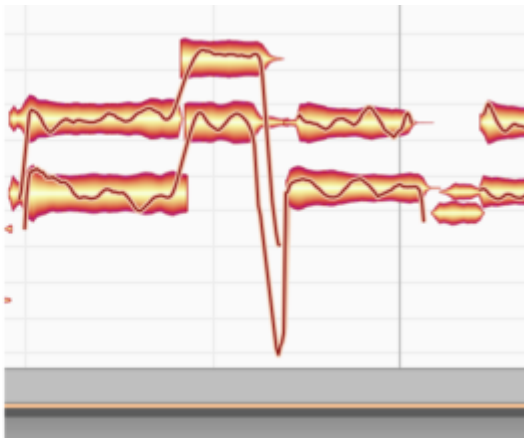
You will find further information about copying in the tour entitled “Copying notes”.

### "Spread Unison Tracks"

When you are displaying several tracks simultaneously in the Note Editor, before long you may find certain notes overlapping, making it more difficult to see and edit the material. The switch shown here, which you will find near the bottom right-hand corner of the Note Editor, can be of assistance in such cases. What it does is separate and spread vertically the various tracks shown in the Note Editor – causing them to fan out, in other words – which makes it easier to see and select notes of the same pitch on different tracks. This obviously has no effect upon the actual pitch of the notes in question; only upon the way they are displayed. Since the Pitch Ruler provides only an approximate guide to the pitch of the notes when the tracks are fanned out in this way, the grey and white stripes in the background of the Note Editor (imitating the keyboard of a piano) disappear.

The Spread Unison Tracks switch can only be activated when several tracks are being displayed simultaneously in the Note Editor and their notes overlap.





# The Sound Editor

With Melodyne, you can edit not only the pitch, timing, phrasing and tempo of your recordings in a unique manner but also their sound. The bandwidth extends from subtle tonal adjustments and coloring to applications of a highly experimental nature. All these possibilities can be found in Melodyne's Sound Editor, which you will get to know in this tour.

The Sound Editor works on the spectral level and offers you extensive access to the overtone structure of the notes. In combination with Melodyne's other functions, you can obtain results with it that no other tool offers.

Working with the Sound Editor requires no special knowledge. This tour and a willingness to experiment are all you need. If you do wish to learn more about the theoretical basis, however, one good place to start might be this article in Wikipedia.

### Opening the Sound Editor

Melodyne's Sound Editor has its own pane, which you can open by clicking the button shown here or by choosing Show Sound Editor from the Options menu.



The Sound Editor is track-based: To open one or more tracks in the Sound Editor, select them in the track header pane. As you edit multiple tracks simultaneously in the Sound Editor, the starting parameters of each track are varied by the same amounts.

The Sound Editor can only be used with tracks the notes of which have been detected using the Melodic or Polyphonic algorithms.

Technical note: When a track is being displayed or edited in the Sound Editor, Melodyne employs internally the playback type "Tonal" – even if "Complex" was selected in Note Assignment Mode. This may cause notes whose timing or pitch have been edited to sound slightly different when the Sound Editor is active on a track.

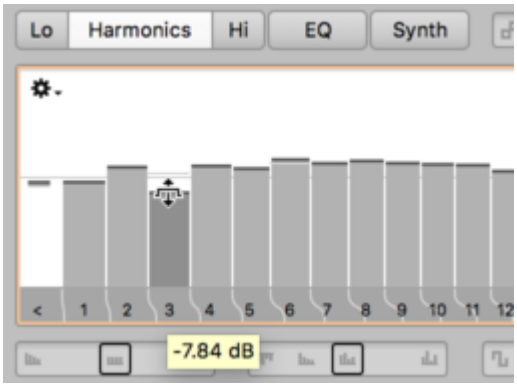
Tip: If you wish to edit audio material for which the Universal or Percussive algorithms were used in the detection process, you must first switch to one of the other algorithm, which will trigger a fresh analysis of the material.

### The Sound Editor in Track Mode and Clip Mode

The Sound Editor in the case of ARA integration works – as in the stand-alone implementation – on a *per track* basis. So if you are working in Track Mode and the track in question comprises multiple clips, any changes made in the Sound Editor will affect all the clips in the same way. If, for example, you have lowered the third overtone by 10 dB, this setting will be applied to all clips on the track.

If, however, you now switch to Clip Mode and raise the third overtone of the selected clip by 4 dB, the resulting value for the overtone in question in the selected clip will be the sum of the two adjustments – i.e. -6 dB – whereas in the other clips the third overtone will still be at -10 dB. By this means, you can apply different settings to different clips.

If you now switch back to Track Mode, you will see displayed in the Sound Editor a value somewhere between -10 and -6 dB for the overtone in question. This is a display compromise: an average of all the clips concerned.




By the same token, the other Sound Editor controls may also display approximate values if you keep switching to Clip Mode to adjust the parameters of individual clips. This is, as we have said, a compromise; but if ever it does lead to confusion, just give greater credence to your ears than to your eyes.

The behavior described occurs whenever all of the clips on a given track are derived from a different recording. Where some, but not all, of the clips on a given track are derived from the same recording, the behavior is somewhat different: now any changes to the Sound Editor settings of one such clip will apply only to those clips that are derived from the same recording.

For example: supposing you have assembled a vocal track from four different takes using the comping technique described above, and suppose further that one of the takes has a slightly different tone quality (because it was recorded, perhaps, on a different day, when the voice in question had a duller sound). Now it is only necessary with the Sound Editor to add brightness to one clip derived from the duller-sounding take and *all* clips derived from that take will benefit.

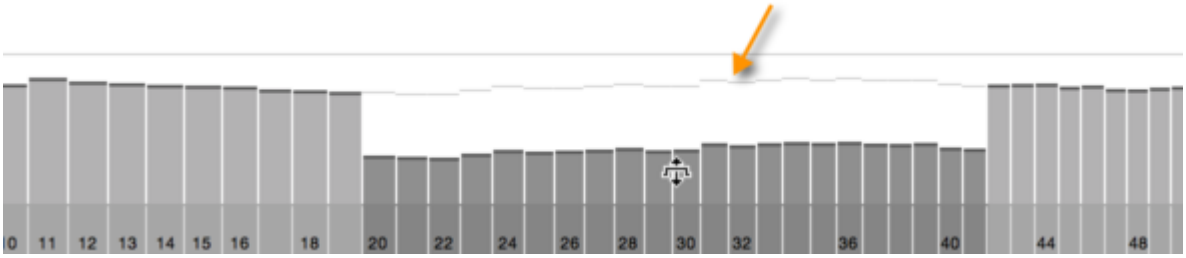
### The mean spectrum

Before we examine the functions of the Sound Editor in detail, there is one term has to be explained, as it runs like a thread through them all: the “mean spectrum”.

Once it has detected the notes of which an audio track is composed, Melodyne conducts a spectral analysis to determine which harmonic partials (from now on, we’ll call them “harmonics”) each note contains and how loud in each case these are. When the analysis is complete, Melodyne has an “acoustic fingerprint” (in spectral form) of each note. After averaging the spectra of all notes on the track, Melodyne obtains what we call the “mean spectrum” of the entire track.

The starting point for any spectral adjustments you effect using the Sound Editor is the mean spectrum of the track in question, which we can think of as the average timbre (or “tone color”) of its notes. For the purpose of orientation, the mean spectrum is displayed in the form of a thin line that remains stationary as you resize the columns or redraw the curve in the various working areas of the Sound Editor.

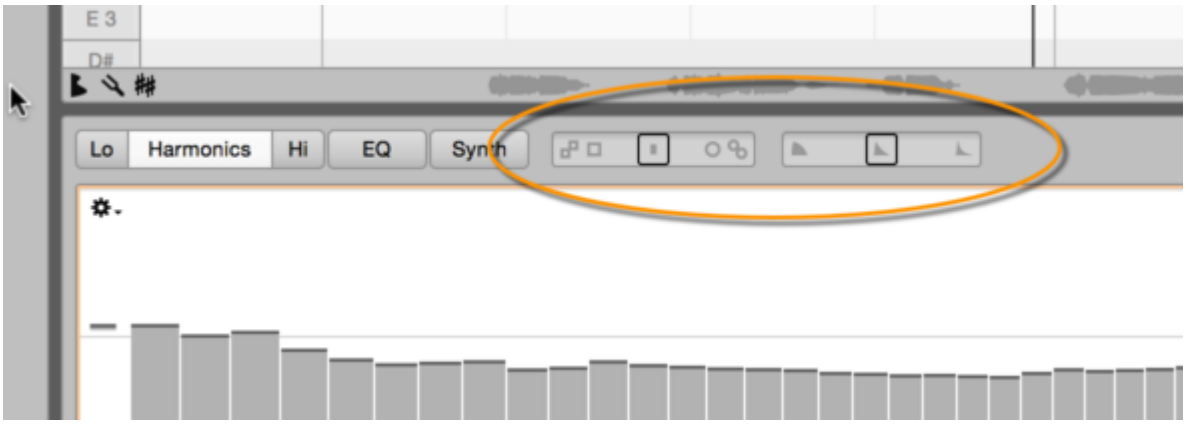
If multiple tracks are selected when you open the Sound Editor, it is the mean spectrum of them all that is displayed and forms the basis for editing.




### Emphasis and Dynamics

The Emphasis and Dynamics sliders offer you a simple but effective way of influencing the tone color and amplitude of the track. They work independently of the other elements of the Sound Editor and have no effect upon their displays. It is sometimes worth opening the Sound Editor just to use either or both of these controls.

In case you haven’t already done so, check the option Show Tooltips on the User Interface page of the Preferences dialog, so that the names of the various control elements pop up as you pass the mouse over them.




**Emphasis:** As you move this slider from its neutral midpoint towards the right, any differences between the spectra of the notes actually sounding and the mean spectrum are increased. This makes their peculiarities more pronounced, as wherever their spectra departs from the mean spectrum, the difference is progressively exaggerated, in the manner of a caricature.

Moving the slider to the left has the opposite effect, assimilating the spectra of the notes in question ever more closely to the mean. In this way, their peculiarities gradually disappear, making the timbre throughout the track more uniform.

The Emphasis slider offers an outstanding means of raising the profile of certain sources within the mix and helping them cut through, whilst making others less obtrusive so that they blend in better – in each case, *without* changing their volume.

Please note that the Emphasis slider has a very wide range in each direction (± 200 %) making it also a powerful tool for generating effects. Valuable results can be obtained, however, depending upon the material, with far smaller values. We recommend, therefore, that you operate this particular control with a light touch. Holding down the [Alt] key as you move the slider will make it easier to increment /decrement the parameter one per cent at a time.

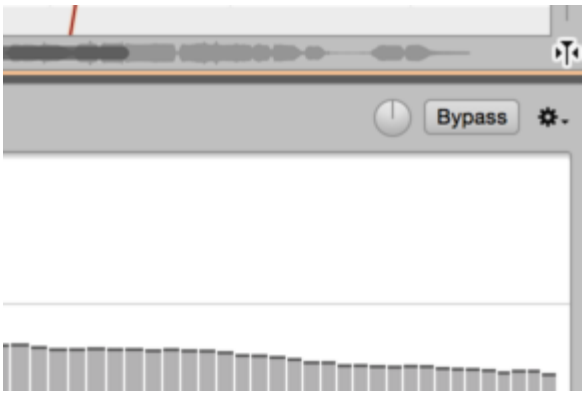
**Dynamics:** This slider influences the amplitude of the notes – specifically, their internal dynamics. As you move the slider to the right, the quieter parts of each note become quieter still; as you move it to the left, they become louder. In other words, moving the slider to the right exaggerates any fluctuations in amplitude within each note, whereas moving it to the left smoothes them out.

If you apply the Dynamics slider to a piano recording, for example, you can make the notes decay more rapidly (for a staccato effect) by moving the slider to the right, whereas moving the slider to the left gives them a longer decay, lending the passage in question more of a legato feel. Given the way it operates, the Dynamics slider obviously has no effect on notes with a uniform amplitude – with the same envelope, in other words, as an organ – other than, at most, to make them somewhat louder.

Tip: With polyphonic material, moving the Dynamics slider to the left can cause notes to overlap that didn't do so originally, which, if there was scant headroom to begin with, can lead to the distortion threshold being crossed. This is easily avoided, however, by giving the Gain knob (described in the next section) a slight twist anticlockwise.

### Bypass, Gain and the global Sound Editor menu

In the top right-hand corner of the Sound Editor, you will find a bypass switch that deactivates the Sound Editor altogether, so that what you hear is the unedited track signal. Use this switch for a quick comparison between the sounds of the edited and unedited signals.




Since editing the spectrum can involve dramatic changes in level, Melodyne automatically compensates, to ensure that the output level remains approximately the same. On rare occasions, however, you may find either that the distortion threshold is being crossed or that the output level is too low, in which case you can adjust the level manually using the gain control.

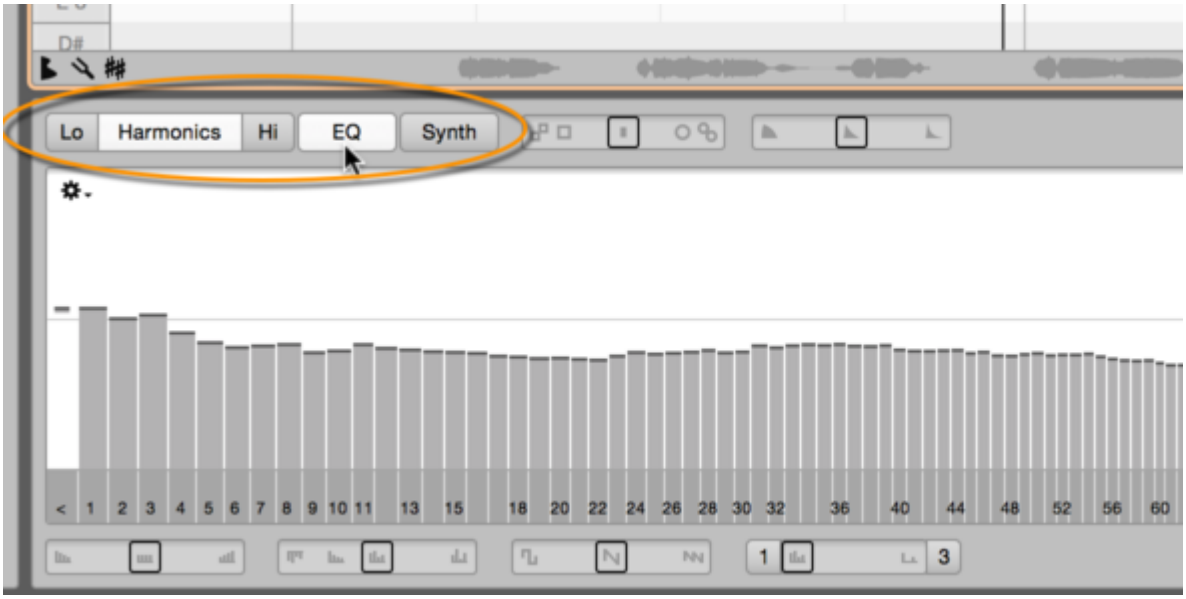
The drop-down menu contains three commands: Reset All governs all the working areas of the Sound Editor, returning it to the state it was in when first opened for the track in question. Similarly, Copy Settings copies the settings of *all* the working areas of the open Sound Editor, which you can then apply to another track using the command below: Paste Settings.

Please note that the Copy Settings command does not copy the mean spectrum of the source track; only the relative adjustments you have made to it – to make a particular harmonic louder or quieter, for instance. When the settings are pasted, therefore, the same offsets are applied to the mean spectrum of the destination track. The eventual level of the harmonic in question therefore depends partly upon how loud it was to begin with and only partly on the editing of the same harmonic in the source track that you have copied over (along with the other settings).

### The working areas

Using the tabs, you can switch between the various working areas of the Sound Editor. If you hold down the [Command] key at the same time, you can open several working areas side by side,

provided there is enough space. To close one of multiple open working areas, [Command]-click in the same way on its tab.




Each of these working areas contains a central display and, beneath it, a number of sliders. Before going into the details, let's take a quick look at the various working areas.

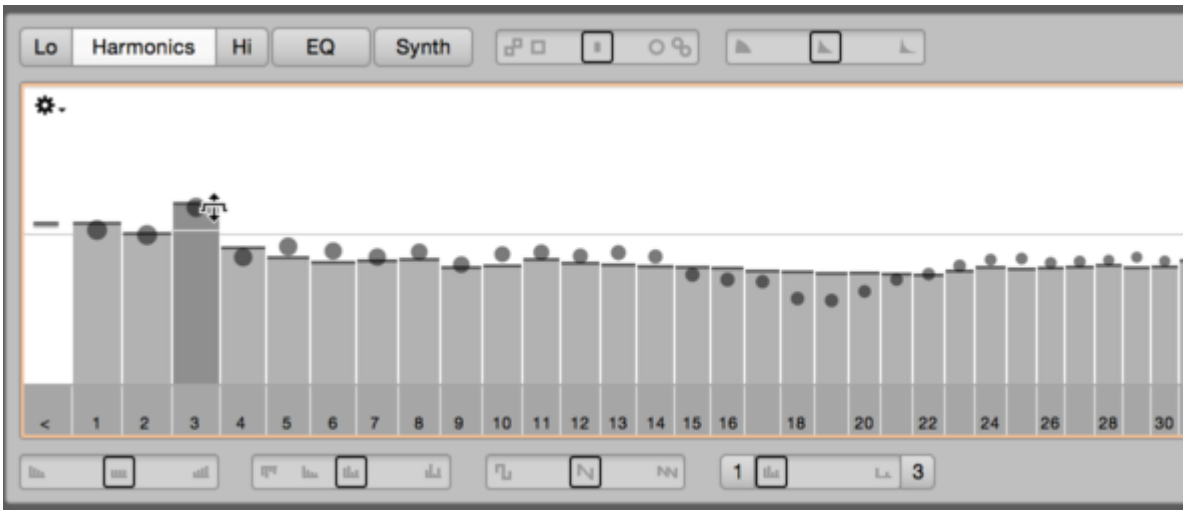
**Harmonics, Lo and Hi:** These three working areas allow you to intervene directly in the overtone structure of the notes. They are laid out identically, Harmonics being of central importance as it governs all the notes. Lo and Hi merely allow you, if you wish, to make further adjustments to the harmonics of the notes whose fundamentals lie in the lower and upper halves (respectively) of the track's register.

**EQ:** This is a graphic equalizer in which the frequency spectrum is sliced up into bands one semitone wide. The important difference between the EQ and the Harmonics, Lo and Hi working areas is that the latter govern the levels of the overtones of the notes (the frequencies of which depend upon the pitch of their respective fundamentals), whereas the EQ acts upon fixed frequency bands like a conventional graphic EQ.

**Synth:** This working area contains three envelopes that govern (respectively) the influence over the lifetime of each note of whatever changes you have made to the spectrum, the gliding upwards or downwards of formants, and internal changes in amplitude. Here you will also find two sliders that govern the resynthesis in the Sound Editor.

### The Harmonics, Hi and Lo working areas

The Harmonics area displays and allows you to edit the harmonic spectrum of the notes of the selected track.



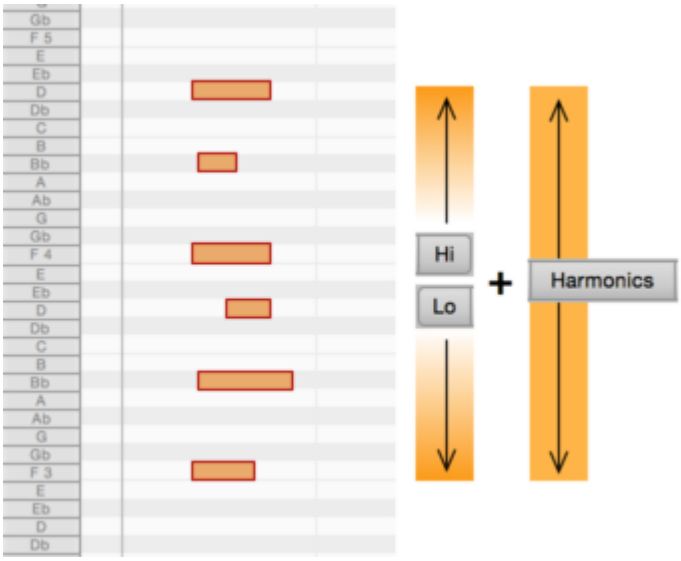

The bar chart dominating the pane may remind you of a filter bank or one of those plug-ins that allow spectral filtering. It differs, however, from such filters in one important respect: The spectrum here relates to the individual notes – i.e. the pitch of the fundamentals; this is only possible because Melodyne is able to recognize the notes heard on the track.

This means that when you increase or decrease the height of the third bar, for example, you are not altering the level of a fixed band of the frequency spectrum but that of the third harmonic of all the notes, the frequency of which, obviously, varies from note to note.

You are editing the sound, so to speak, at the source, exercising a very direct influence upon the timbre. The harmonics bars therefore have far more in common with the oscillators of an additive synthesizer or the drawbars of an organ than with the bands of an equalizer. They reflect and determine the relative amplitude of the harmonics – including that of the fundamental, which is the first harmonic – of all the notes on the track. The possibilities they afford for the shaping of the timbre are at once subtle and far-reaching.

The starting point for any editing is the mean spectrum of the entire track, which Melodyne has determined from its prior analysis. The balls that bounce up and down as the track plays back reflect the instantaneous level of the harmonics in question. You will notice that these are constantly crossing and recrossing the mean value indicated and determined by the top of the bar. When you increase or decrease the height of a bar, the original level of the harmonic in question in the mean spectrum remains visible, being indicated by a thin line.

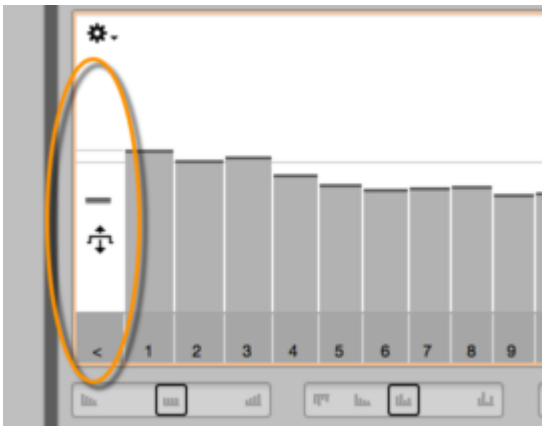
The Lo and Hi working areas complement the Harmonics area. All three areas are active simultaneously and their effect is cumulative. The Lo and Hi working areas offer exactly the same function sets as the Harmonics area but affect only the harmonics of notes lying in the lower and upper halves, respectively, of the register of the track in question, the halfway point being determined by Melodyne automatically. The settings for the two regions morph into one another in the crossover zone to ensure a smooth transition in timbre.




Example: You have a piano track on which the high notes are perfect but the low notes sound a little dull. If you tried making the lower notes and the midrange brighter using a conventional equalizer, the high notes would then be too bright. With the Sound Editor, no such problem occurs; you can edit the harmonic spectrum of the low notes in the Lo working area without this influencing the high notes – with, at the same time, quite different settings in the Hi working area governing the high notes without these affecting the bass. The settings in the Harmonics working area remain active, offering you complementary control over all the notes.

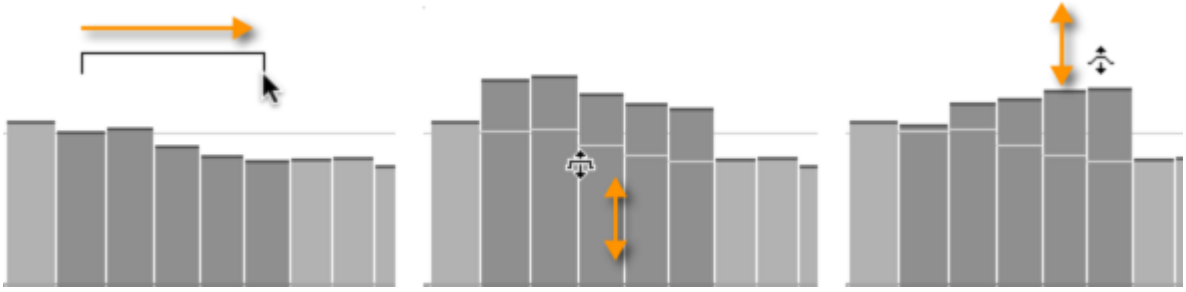
### The harmonics bars and how to use them

The bars or columns in the Harmonics, Lo and Hi working areas represent the harmonic partials of the notes; they have nothing to do, obviously, with bars in the metrical sense (as in “the chorus is 8 bars long”). The bar marked “1” represents the first harmonic (the fundamental), and the bars to its right marked “2”, “3”, “4”, represent the second, third and fourth harmonics, the frequencies of which are (respectively) 2, 3 and 4 times that of the fundamental – and so on as you carry on up. The leftmost bar, marked “<”, influences the level of all frequencies below that of the fundamental. With many sources, pulling this bar down can make the sound cleaner.




To adjust the height of the bars, proceed as follows:

- Drag the top of a bar upwards or downwards to alter its height (and the level of the corresponding harmonic).
- For finer adjustments, hold down the [Alt] key as you do so.
- Drag horizontally in the white zone above the bars to make a range selection.
- To adjust the height of all the bars within the selection by the same amount, drag upwards or downwards in the medium-dark area (not the darkest band at the bottom) within the selection. If, on the other hand, you drag from a point just above the selection (where the mouse pointer changes shape), the bar closest to the pointer will move the greatest distance and those further away progressively less.
- [Shift]-click to select (or deselect) non-adjacent bars.
- Double-click a bar to select all octaves of the corresponding harmonic.
- To restore a harmonic or selection of harmonics to their original levels in the mean spectrum, [Command]-click the bar or selection in question.



The local pull-down menus of the Harmonics, Lo and Hi working areas contain the following commands, which affect all the harmonics bars of their respective displays.



- Reset Spectrum: This restores the harmonics bars in the working area in question to their original positions, reflecting the mean spectrum.
- Copy Spectrum: This copes the spectrum of the selected area, so that it can be copied into another area or track. The copying of spectra can create interesting coloring and morphing-like effects. As the copy is performed, the current Contour setting is factored into the copied spectrum, whereas the values of the other macro sliders are simply copied and the formant settings ignored.
- Paste Spectrum: This command works in conjunction with the Copy Spectrum command described above, the result being to paste the copied spectrum into the currently selected working area (Harmonics, Hi or Lo) of the track being edited. You can copy and paste between tracks in the same document or from one document to another. As the paste is performed, the Contour parameter of the destination track is reset, so its entire range is available for future editing.
- Clear Spectrum: This is like pulling down all the faders of a mixer: the result is silence, which can be a good place to start if you wish to create a new timbre from scratch.
- Shuffle Spectrum: This sets all the harmonics to random levels.
- Show All Harmonics: You have the choice of displaying all the harmonics (however high) or only the lowest and most important ones, the bars of which will then be wider and easier to manipulate. When the highest harmonics are not being displayed but a selection includes the rightmost bar that *is* visible, all the harmonics above it that are excluded from the display are nonetheless included in the selection and edited accordingly.

### The Harmonics, Lo and Hi macro controls

Each of these three working areas offers the same four sliders. These are macro controls that govern the level of the various harmonics, and their effects are immediately reflected by the display. [Command]-clicking on any of the macro controls resets it to its neutral position. This removes any influence it previously had on the level of the harmonics and height of the harmonics bars but any changes you may have made manually (i.e. other than with the macro) remain effective.

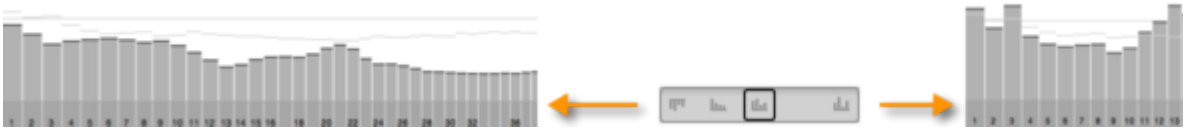



**Brilliance:** When you move this slider to the right, the level of the higher harmonics is raised, making the sound brighter. Moving it to the left makes the higher harmonics quieter and the sound duller.



**Contour:** Moving this slider to the right increases any difference in height between neighboring bars, making the peaks higher and the troughs deeper, and generally sharpening the contours of the display. Moving the slider subsequently to the left has the opposite effect, restoring gradually the

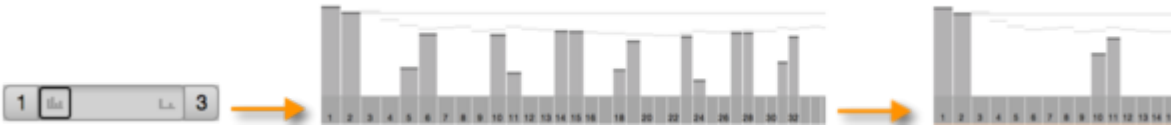
original contours as it moves back towards the middle, before flattening them out as it moves further to the left.



**Odd/Even:** This gradually fades out the odd-numbered harmonics (when moved to the right) or even-numbered ones (when moved to the left). In the former case, the octaves are steadily reinforced, whereas in the latter, the source takes on a progressively hollower, clarinet-like sound.



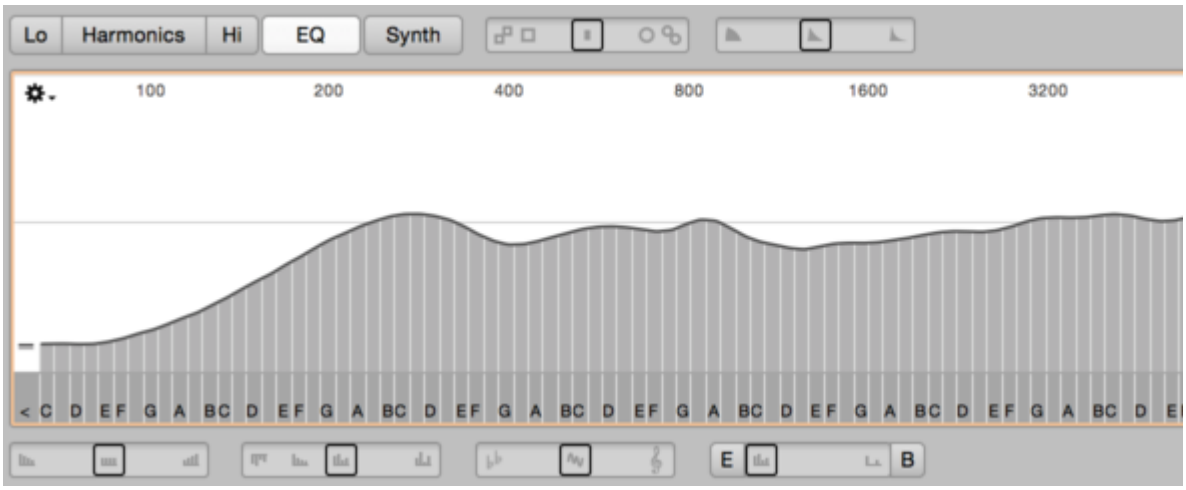
**Comb:** This slider thins out the harmonic spectrum, creating increasingly weird effects, with the display resembling a comb losing its teeth. The buttons to each side of the slider allow you to slide the comb sideways (without removing further teeth) and this, too, has a dramatic effect upon the sound. If the slider is left in the central position, the effect of clicking the button to its right is to eliminate one by one the lowest harmonics from the spectrum.




You can combine freely use the four sliders with that of the bars representing the harmonics; this gives you an abundance of sound design options.

### The EQ working area

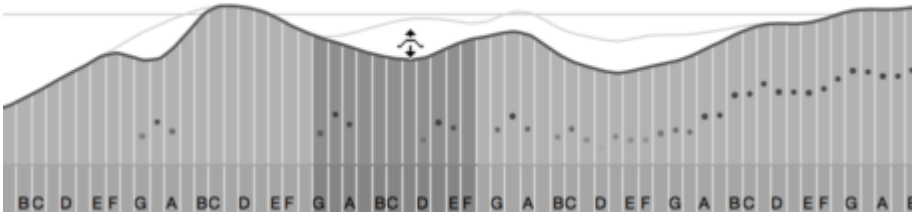
This working area contains a graphic equalizer that – in the usual way – operates upon fixed bands of the frequency spectrum. The equalizer divides the frequency spectrum into bands a semitone wide and is calibrated with the note names at the bottom.




Since the equalizer operates on fixed frequency bands within the audio spectrum, it offers a quite different approach to the shaping of sounds than that offered by the Harmonics, Lo and Hi working areas, in which the bars represent the various harmonics. All four working areas can be used at the same time.

The starting point for any editing using the equalizer is the mean spectrum of the track being edited, which is referenced here to the entire audio spectrum. If the track contains a large number of high or very bright-sounding notes, the right-hand end of the EQ curve will naturally be more elevated or “mountainous” than if it did not.

When you reshape the curve, the original mean spectrum remains visible in the form of a thin line. During playback, the instantaneous spectrum is indicated by balls that cross and recross the current curve as they bounce up and down.



To avoid confusion between the EQ working area and the other, harmonics-based ones, the current levels of the individual bands are indicated here by a curve rather than horizontal lines. The same techniques, however, are used to adjust the level of the various frequency bands as to adjust the height of the harmonics bars in the other windows, so if you have not already read the section there explaining how to select and drag the bars, please do so now.

The equalizer employs as a basis the notes that have been detected in the track being edited. This means that a note in the audio material that has not been correctly identified will not be assigned to,

or governed by, the correct EQ band. If a note in polyphonic material is not detected, its contribution to the overall sound will be wrongly attributed either to a lower or to a higher note.

In the former case, its energy will be distributed among the overtones of the lower note and will only be visible as such in the EQ spectrum. If it is attributed to a higher note, on the other hand, it will end up in the lowest band of the equalizer: the one marked “<”. This collects all frequency components lying beneath the fundamentals of the detected notes or that cannot be assigned to any note. To hear what signal components of the track are gathered in the “<” band, you can clear (i.e. set to zero) all the other bands before lifting this one.

Examine and if necessary edit in Note Assignment Mode the detection, activating all notes that have not been detected so that these too can be correctly handled by the equalizer.



In the local drop-down menu you will find the following commands for the EQ spectrum:

- Reset Spectrum: This restores the original mean spectrum.
- Copy Spectrum: This copies the current EQ spectrum so that it can be pasted into another track. As the copy is performed, the current Contour setting is factored into the copied spectrum, whereas the values of the other macro sliders are simply copied and the formant settings ignored.
- Paste Spectrum: This command works in conjunction with the Copy Spectrum command described above, the result being to paste the copied EQ spectrum into the EQ working area of the track being edited. You can copy and paste between tracks in the same document or from one document to another. As the paste is performed, the Contour parameter of the destination track is reset, so its entire range is available for future editing.
- Paste Spectrum: This command works in conjunction with the Copy command ( [Ctrl]-C ) also found in the Edit menu and the context menu of the Note Editor. If you select and copy in the Note Editor a blob (or a selection of blobs on the same track), you can paste the spectrum of the blob in question (or the mean spectrum of the blobs selected) into the EQ working area. The copied spectrum is then applied to the sound, by which means interesting tone colors can be obtained.
- Clear Spectrum: This sets all bands to the minimum, the result being silence.
- Shuffle Spectrum: This sets all the bands to random levels. Let your EQ surprise you!

### The EQ macro sliders

The macro sliders affect the levels of all the frequency bands and their influence is immediately reflected in the height of the vertical bands. [Command]-clicking on any of the macro controls resets it to its neutral position. This undoes whatever effect it previously had on the height of the bands but any changes you may have made manually (i.e. other than with the macro) remain effective.




The controls are from left to right:

**Brilliance:** When you move this slider to the right, the level of the higher bands is raised, giving greater prominence to the high frequency content of the signal. Moving it to the left attenuates the higher bands, making the sound duller.

**Contour:** Moving this slider to the right increases any difference in height between neighboring bands, making the peaks higher and the troughs deeper, and generally sharpening the contours of the display. Moving the slider to the left initially makes the spectrum increasingly linear, before inverting it, so that what were formally peaks become troughs and vice versa.

**Tonality:** When moved to the right, this fades out notes foreign to the scale; when moved to the left, it fades out notes that do belong to the scale.

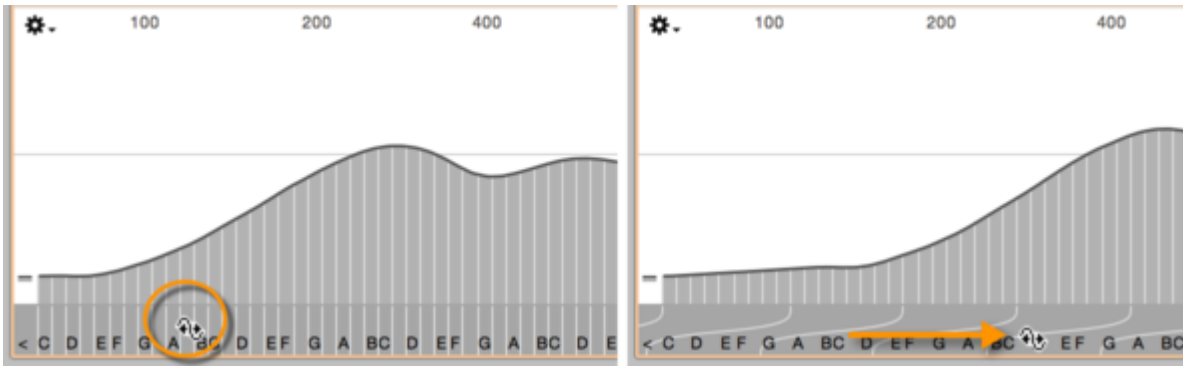
**Comb:** In the former case, the notes furthest from the tonic in the circle of fifths are removed progressively until finally only it and its octaves remain. With the buttons on each side of the slider, you can determine which note should be considered the tonic for the purpose, cycling clockwise or anticlockwise around the circle of fifths. The left button indicates the note currently designated as the tonic.

You can combine freely use the four sliders with direct editing of the individual frequency bands in the main EQ display.

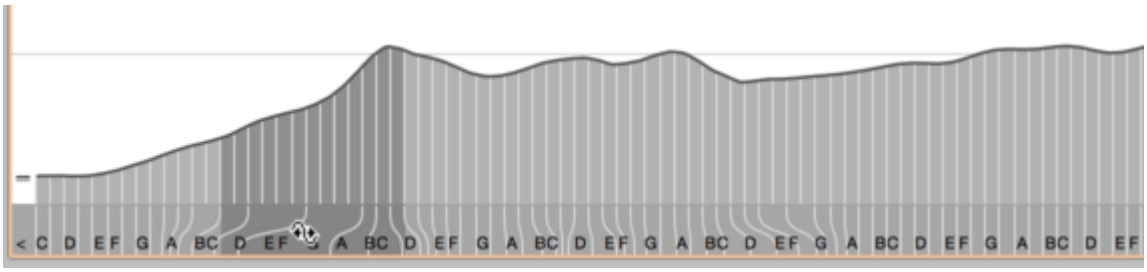
### Formants

Formants are peaks in the frequency spectrum, the position of which is not directly related to the pitch of the fundamental, that help to give each instrument or voice its individual character. If you have used Melodyne before, you will be familiar with the Formant Tool that allows you to alter the sound of notes by shifting their formants up or down.

The Sound Editor, too, offers access to the formants: you can edit them in the EQ, Harmonics, Lo and Hi working areas, the resulting shift in each case affecting all the notes of the track in question. The formants are accessible in the dark gray zone at the base of the bars or bands, in which the number of the harmonic or name of the note are displayed.




- Drag horizontally in this area to shift the formants governing all the harmonics or EQ bands.
- Select adjacent bars or bands to shift the formants governing only these. By repeating the process successively, you can shift the formants of multiple selections in different directions and by varying amounts to arrive at complex formant transposition patterns.




- [Command]-clicking in the formant zone restores the original formants throughout the register.

The Formant Tool, the technique just described in the Sound Editor, and the Formants knob in the Track Inspector can be applied simultaneously. Their combined effect is as follows:

- The Formant Tool shifts the formants of the selected notes upwards or downwards. If you have already, in the Sound Editor, ‘bent’ the formants of the track to which the notes in question belong, it is these ‘bent’ formants that will be shifted. The Formant Tool, in other words, adds a note-based offset to the formant structure displayed in the Sound Editor.

- The Formants knob in the Track Inspector and the formant shifting functions offered by the Sound Editor affect the track as a whole and work hand in hand. Each time you turn the Formants knob, the entire formant structure in the Sound Editor (including any editing of it you may have performed) will be shifted up or down. If you shift all the harmonics in the EQ or Harmonics working areas, the Formants knob will move accordingly. If, on the other hand, you shift merely a selection of harmonics or frequency bands in the Sound Editor, the Formants knob will not reflect the change.

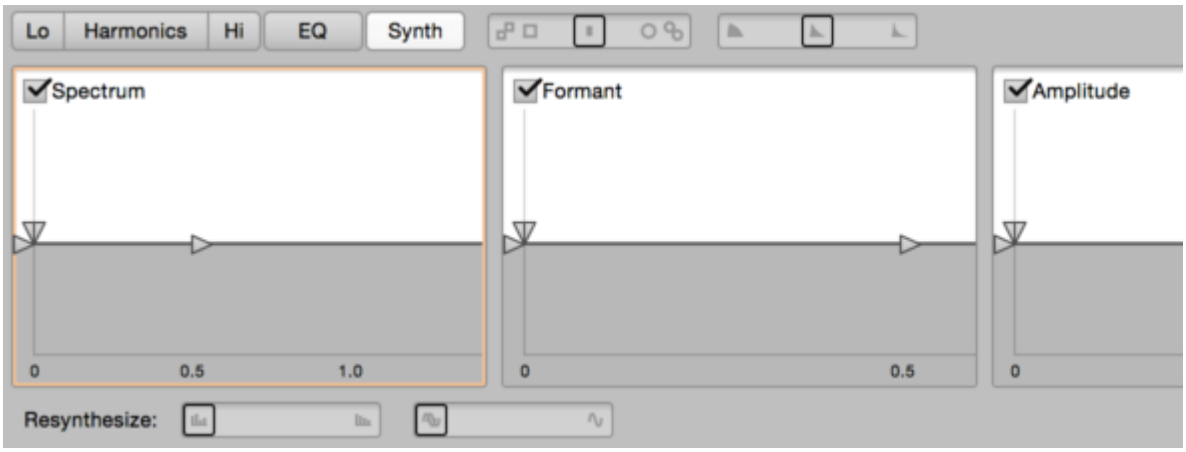
Since formants, almost by definition, do not move when the fundamental changes, strictly speaking it is only in one of the four working areas of the Sound Editor, namely the EQ working area, that they

can be edited; in the Harmonics, Lo and Hi working areas, the bars are tied to harmonics that move in parallel as note follows note, so it would be better in their case to speak of “manipulation of the spectrum”. Useful results can nonetheless be achieved using the techniques just described in all four working areas, and their combined effects are as follows:

- A formant shift applied to all the bands of the EQ will be reflected in the Harmonics working area; similarly, a formant shift applied to all the bars in the Harmonics working area will be reflected in the EQ. The Hi and Lo working areas will reflect a shift applied to all the bands of the EQ.
- No shifting of formants in the Hi or Lo working areas, however, will ever be reflected in the Harmonics or EQ working areas. This is because the Hi and Lo working areas only access half each of the register of fundamentals, so changes effected in either area could not be displayed in the Harmonics or EQ working areas.
- If you have shifted the formants in the Hi and/or Lo working areas and then shift all the formants in either the Harmonics or EQ working areas, the resulting shift will be reflected in the Hi and/or Lo working areas. Whatever formant structure(s) you had established in the Hi and /or Lo would in this case simply be shifted en bloc. By the same token, you can reset the harmonics in the Hi or Lo working areas without this being reflected in the Harmonics or EQ working areas.
- If, on the other hand, you reset the formants in either the Harmonics or EQ working areas, all four working areas will reflect the change. In the Harmonics and EQ working areas the formants will be reset, whereas in Hi and Lo, only whatever editing was performed in those individual windows will remain effective.
- Whenever, in fact, you select anything less than all the harmonics or frequency bands before shifting formants, the change will only be reflected in the working area in which the shift is performed.

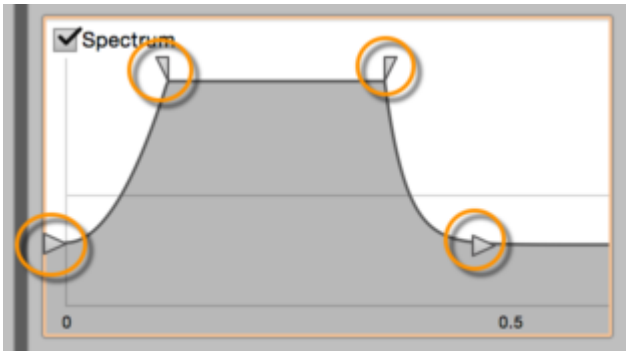
### The envelopes in the Synth working area

This working area contains three envelopes with which you can control dynamically the intensity of the spectral editing, the formant shifts and also the volume of the notes. Here you will also find two sliders that govern the resynthesis in the Sound Editor.

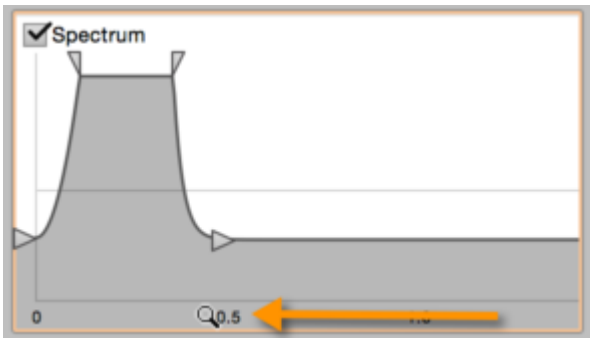



The envelopes allow you to influence the notes of the track being edited in a variety of ways. You could, for instance, lengthen slightly the attack of the notes of a piano track, giving the instrument a subtly different character. You could introduce spectral filtering that diminished in intensity within the lifetime of each note leaving the original spectrum in its stead. At the same time, you could make the formants of each note glide upwards.

These effects act directly on all the notes of the track you are editing. Each note, even in polyphonic audio material, follows the dictates of its own envelope, independently of the other notes. The operating principle is the same as that of the envelope generator of a polyphonic synthesizer, except that the Sound Editor's envelopes are not triggered by MIDI messages but by the notes of an audio track – or, to be more precise, by the musical starting points of the notes. If a note has no definite starting point, the note separation preceding it serves as an envelope trigger. (You can examine and set the starting points of the notes in Melodyne's Note Assignment Mode.)




To shape the envelopes, either drag their triangular handles or drag directly in the gray area. Each envelope has six parameters: starting level, attack time, sustain level, sustain time, decay time and final level (i.e. the level subsequent to the decay phase).




By dragging in the ruler beneath each envelope, you can determine the length of time in seconds represented by the envelope display and available for the creation of the envelope.

The checkboxes next to the words “Spectrum”, “Formant” and “Amplitude” in the various panes are used to activate and deactivate the corresponding envelope generators. [Command]-click an envelope to restore its original, neutral settings.

These are represented by the horizontal line in the middle of the three envelope displays. In the area above this central line, depending upon the envelope, the intensity of the spectral filtering is increased, the formants are shifted upwards, or the amplitude is increased. In the area beneath this central line, again depending upon the envelope, the intensity of the spectral filtering is decreased, the formants are shifted downwards, or the amplitude is reduced.

The Spectrum envelope governs the intensity of all changes to the original mean spectrum effected in the Harmonics, Hi, Lo and EQ working areas. The Formant envelope influences all the formant shifting in these areas by moving all the formant structures created there upwards or downwards.

### The Resynthesis parameters in the Synth working area

The Sound Editor, evidently, breaks the signal down into different frequencies that are modified and then combined to form a new signal. The signals thus combined include not only harmonic partials (the frequencies of which are integer multiples of that of the fundamental) but also enharmonic partials and simple noise included in the signal, such as the squeaking of strings or pedals and background noise) scattered throughout the spectrum and only rarely or accidentally coinciding with the harmonic partials.

Admittedly the bars in the Harmonics, Lo and Hi working areas are centered on the harmonic partials, but with Melodyne, unlike a pure synthesizer that has only a finite number of sine wave oscillators at its disposal, signal components lying between the partials are not lost but reproduced in the signal, to remain faithful to the original. By moving the Harmonics bars, you can alter the sound – radically, if you so desire – but the basis of your work is always the material of your original recording.

The case is different when you employ the two Resynthesis sliders.




**Magnitudes:** As you move this slider to the right, changes in the amplitude of the individual harmonics are gradually reduced until, when the slider reaches its rightmost extent, no timbral changes at all take place within the lifetime of each note. The balls as a result stop bouncing up and down and come to rest on the tops of the harmonics bars. Moving the slider to the right has the additional effect of narrowing the band assigned to each harmonic so that any non-harmonic components gradually disappear from the signal.

**Phases:** The different phases of the various partials also have a considerable influence upon the natural reproduction of the signal. As you move this slider to the right, the original phase ratios between partials are gradually reduced until all the partials are in phase. This primarily affects the transients in the signal, making the sound more synthetic. You can use the Phases and Magnitudes controls singly or in combination.

With both sliders at their rightmost extremes, the results sound particularly “artificial” and reminiscent of a static synthesizer waveform. Aside from the fact that this may sometimes be precisely what you want, the sound that results can also be an excellent starting point for further sound design using the harmonics bars, envelopes and so on.

# Tempo detection and Auto Stretch

Melodyne is capable of recognizing not only the notes but also the prevailing tempos and time signatures within a recording. This, combined with the tempo editing functions, offers you fascinating creative possibilities for your music.

### Introduction

Melodyne's tempo detection and tempo adjustment functions are used often and to great effect, yet they execute for the most part quietly in the background. Example: Drag a recording, a phrase or a loop into a document in the stand-alone implementation of Melodyne. Melodyne detects the tempo of the music and adjusts it to that of your project (even if this includes gradual tempo changes). The audio file runs in sync without your having to give it a moment's thought.

No tempo detection is performed in two cases:

- When an assignment file containing the results of a previous detection and any editing thereof has already been saved for the new audio file – here the tempo has been detected already so there is no need to repeat the process;
- When Apple loops are imported, as these already contain information regarding their tempo – here, again, further analysis of the tempo would be pointless.

People often record to a click so that a timing reference will be available later. Often this metronomic click is felt to be constraining: Without the click, there is greater freedom and the music that results sounds more dynamic and vibrant; it is capable of 'breathing'.

With Melodyne, you can dispense with the use of a click when recording and still retain a timing reference. The trick is simple: Instead of playing to the click resulting in a rigid timeline, with Melodyne you can simply adopt the tempo map of the actual recording – with all the minor fluctuations in tempo, sudden or gradual tempo changes, and changes in time signature it contains. The music, in other words, dictates to the timeline – not the other way around.

Whether in its detection of notes or in its detection of tempo, Melodyne never obliges you to be content with the dictates of algorithmic fate. You are invariably able to edit and improve upon the results of the tempo detection, overruling Melodyne's decisions wherever necessary with decisions based upon your own knowledge of the music and thereby ensuring that the tempo map corresponds exactly to the music.

In this way, you create the ideal foundations for the actual tempo editing. This done, you could, for example, make the timing of a band recording tighter by quantizing the recording – not to a rigid grid but to one derived from the music itself, reflecting all the fluctuations and changes in tempo found in the original recording. The grid that emerges from the detection is still open to optimization, either by

tightening it up or by redrawing the tempo map. In short: Melodyne offers you for the editing of musical tempo the same unique freedom and power as for working with notes.

### Tempo in the stand-alone and plug-in implementations

Melodyne's tempo detection only plays a role in the stand-alone implementation of the program; not in the plug-in. The reason is simple: The plug-in operates within a DAW from which it adopts not only the audio material but also all tempo information. Naturally with the Melodyne plug-in you can edit the *timing* in a multitude of ways, but it would be more than a little counterproductive to begin manipulating the tempo, as this would inevitably result in Melodyne and the DAW parting company. The same does not apply to the stand-alone implementation, from which you have full control of the tempo.

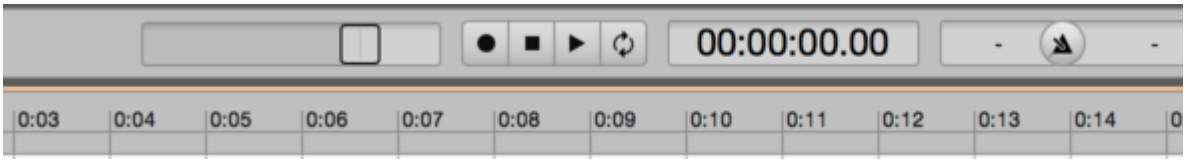
In consequence, the plug-in implementation of Melodyne has no functions for the editing of tempo. With two exceptions:

- The plug-in offers functions for "learning" tempo progressions, if any are created in the DAW after the transfer or are changed subsequently.
- In the ARA version of the Melodyne plug-in, there are functions for editing the tempo background that correspond to those in the stand-alone implementation, as – thanks to ARA – the DAW also profits from Melodyne and can, for example, adopt the tempo detected by, and edited using, Melodyne throughout the song.

In the following, we present the fundamental concepts for the handling of tempo in the stand-alone implementation of Melodyne. The two exceptions just referred to and the detailed operation of the Tempo Editor are subjects dealt with in separate tours.

### Determining the tempo in the stand-alone implementation

In the stand-alone implementation of Melodyne, with a new document the tempo and time signature fields are initially empty; instead of a value in each case a simple dash ("–") is displayed.




The Time Ruler, initially, is calibrated in seconds. So you begin with a blank sheet and can either enter the tempo and time signature for the Melodyne project manually or allow Melodyne's tempo detection routines to do their work.

To enter the tempo manually, proceed as follows (the default values, unless others are entered by hand, are 120 BPM for the tempo, 4/4 for the time signature, and quarter note (crotchet) intervals for the Time Grid):

- Enter the desired value in beats per minute (BPM) in the tempo field
- Enter the desired values for the numerator and denominator of the time signature
- Enter a musical note value instead of seconds in the menu for the Time Grid
- Click on the button between the time signature and tempo fields in the transport bar to activate the metronome. * Opening the Tempo Editor If you are used to working with a DAW, you may prefer to set the tempo manually before beginning work on your project. Since Melodyne is extremely good at detecting the tempo, it is in many cases easier and more practical simply to allow Melodyne's tempo detection routines to determine the tempo for you.

To allow Melodyne's tempo detection routines to determine the tempo, proceed as follows:

- Instead of initializing the tempo, time signature and Time Grid values manually, as just described, begin recording with the tempo and time signature fields empty. Now you no longer need a click to listen to as you record because Melodyne will detect the tempo and tempo fluctuations within the recording and adjust the grid lines and subsequent click accordingly. Instead of entering a numerical value for the tempo, in other words, you are determining the tempo through your performance.

- Melodyne's tempo detection routines work in an analogous fashion when, instead of recording, you import previously recorded audio. The same condition applies here: you must begin with a blank sheet i.e. you must leave the tempo and time signature fields and the Time Grid menu untouched. To determine the tempo by means of an audio file, you must load it either by choosing File > Import Audio from the main menu or by drag 'n' drop. Melodyne will then detect the tempo of the file, set the project tempo accordingly and position the file in such a way that its musical content begins at Bar 1. As a rule, the first note of the music appears in Bar 1, with any silence in the recording that precedes the first note falling in the negative zone of the Time Ruler. If the music begins with an anacrusis, however, (i.e. one or more unstressed notes that precede the first bar line), Melodyne places this in Bar -1, so that the stress falls on the downbeat at the start of Bar 1. If you like, however, you can realign the bar lines by dragging in the Time Signature Editor. This is useful, for example, if you want to renumber the bars or simply nudge the entire contents of the file one beat to the left or right, so that downbeats become upbeats and vice versa.

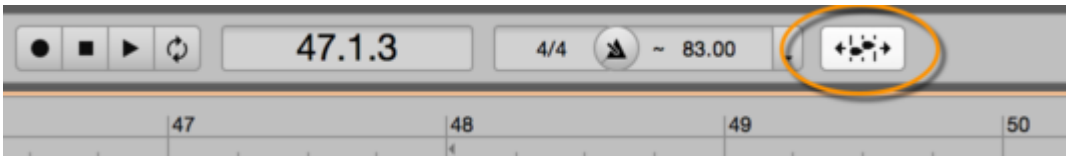
In Melodyne studio, you can import multiple audio files in one go to determine and set the tempo for the entire project. When you do this, Melodyne's tempo detection is based on information derived from all the files concerned, which increases the reliability of the process. To take advantage of this facility, proceed exactly as described above, only select more than one file. When these are imported, they will be placed on separate tracks.

Please note that files imported simultaneously must belong together musically for the tempo detection to make any sense. If you've recorded a band playing live, for example, with different tracks dedicated to the various instruments, it would make sense to import them all in one go, as they share a common tempo. It would be nonsensical, on the other hand, to import simultaneously one track

recorded at 120 BPM and another recorded at 93 BPM and expect Melodyne to detect a common tempo. Furthermore, we recommend that the first batch of tracks imported, upon which the joint tempo detection will be based, should only include instruments that maintain a fairly regular tempo. Solo instruments played very freely, for instance, that might confuse the tempo detection, are best excluded from the first batch and only imported later.

### Auto Stretch when importing additional audio files

Once the tempo has been determined, by whichever means, your project will have a tempo map with a time signature, an appropriately spaced grid and a tempo curve tracing any fluctuations in tempo it contains. The presence of this tempo map introduces new possibilities when additional files are imported; possibilities that were not present when we were working with a blank sheet. The Auto Stretch Switch, for example, which was grayed out before, now offers you two choices:




- With Auto Stretch switched on, every new file imported into the project will be adjusted to ensure it conforms to the tempo map in place and replicates any tempo changes it contains. To make this possible, Melodyne first analyzes the tempo of the material to be imported and then squeezes or stretches it wherever necessary to match the tempo of the project.

- With Auto Stretch switched off, no attempt is made to adjust the tempo of the imported file to that of the project; so initially, it simply plays back at its original speed. You are perfectly free, of course, once the material has been imported, to stretch or squeeze notes to your heart's content as you edit the material. All turning off the Auto Stretch switch does is prevent the tempo of the imported file adjusting *automatically* to the tempo map of the project.

Where on the Time Grid the file is initially positioned depends upon the procedure used to import it:

- If you choose File > Import Audio from the main menu or drag the file onto the track header , the physical start of the file (i.e. the first sample) will be aligned with the "0:00" seconds mark on the Time Ruler, which may be, but is not necessarily, the beginning of Bar 1. If the Auto Stretch Switch is on, the file will adjust to the project tempo; otherwise not.

- If you import the file by dragging it to a particular point on the Time Ruler (the "dropping point") and Auto Stretch is switched on, the file will be aligned such that the first beat of the first complete bar coincides with the dropping point; if Auto Stretch Switch is off, the physical start of the file will be aligned with the dropping point. When this procedure is used, the file will snap to whichever line on the Time Grid is closest to the dropping point, so your Time Grid setting (quarter notes, eighth notes, sixteenth notes…) is of importance here – unless, of course, you

wish the grid to be disregarded, in which case hold down the [Alt] key as you drag and drop the file onto the Time Ruler.

If, instead of a time value, the Time Ruler is calibrated in seconds, the Auto Stretch function is automatically disabled; the Auto Stretch Switch is grayed out and no attempt is made to adjust the tempo of the imported file to that of the project.

Unless Melodyne has correctly detected the tempo of an audio file, it will be unable to adapt it successfully to that of the project as it will be working with false assumptions as to the tempo of the newly imported file that it cannot correct without your intervention.

If you see that something has gone wrong with the tempo adjustment, proceed as follows:

- Delete from your project all the blobs belonging to the newly imported file.
- Create a new project document in Melodyne and load the file into it.
- Open the Tempo Editor in Assign Tempo Mode and correct the erroneous tempo interpretation.
- Copy the blobs and switch back to the original project.
- Switch Auto Stretch on, move the cursor to where you wish to insert the notes, and choose Edit > Paste.

### Auto Stretch when notes are moved or copied

The Auto Stretch Switch plays a role not only when audio is imported but also when notes are moved or copied.

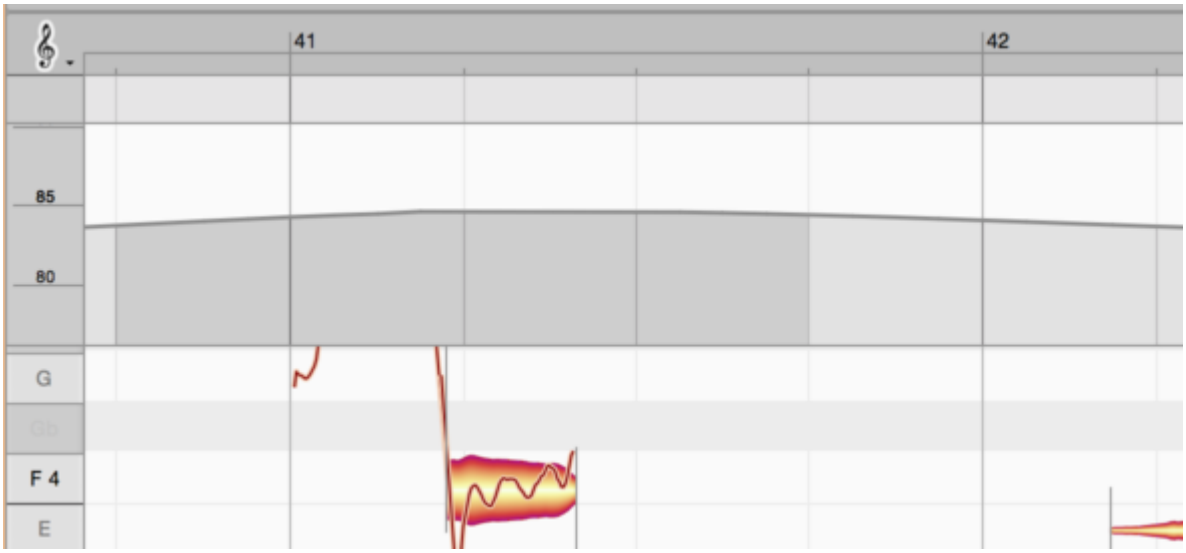
If at the destination (i.e. the point to which the notes are moved or pasted) the tempo differs from that of the source (i.e. the place from which they are taken), depending upon whether Auto Stretch is switched on or off they either adopt the tempo of the destination or retain that of the source. As a general rule, before copying or moving notes you will want to switch Auto Stretch on, so that they adjust to the tempo of the destination.

As a result, naturally, they will sound somewhat different to the way they sounded in their original location. If you wish to avoid this, in the Tempo Editor of the stand-alone implementation of Melodyne you can copy not only the notes but also corresponding segment of the tempo map from the source to the destination (which, naturally, will have the further consequence of influencing the notes already present at the destination). It makes no difference which you copy first: the notes themselves or the corresponding segment of the tempo map.

Whenever you alter the tempo curve, the notes affected *always* adjust to the altered tempo – regardless of whether Auto Stretch is activated or deactivated.

### The difference between editing and assigning tempo

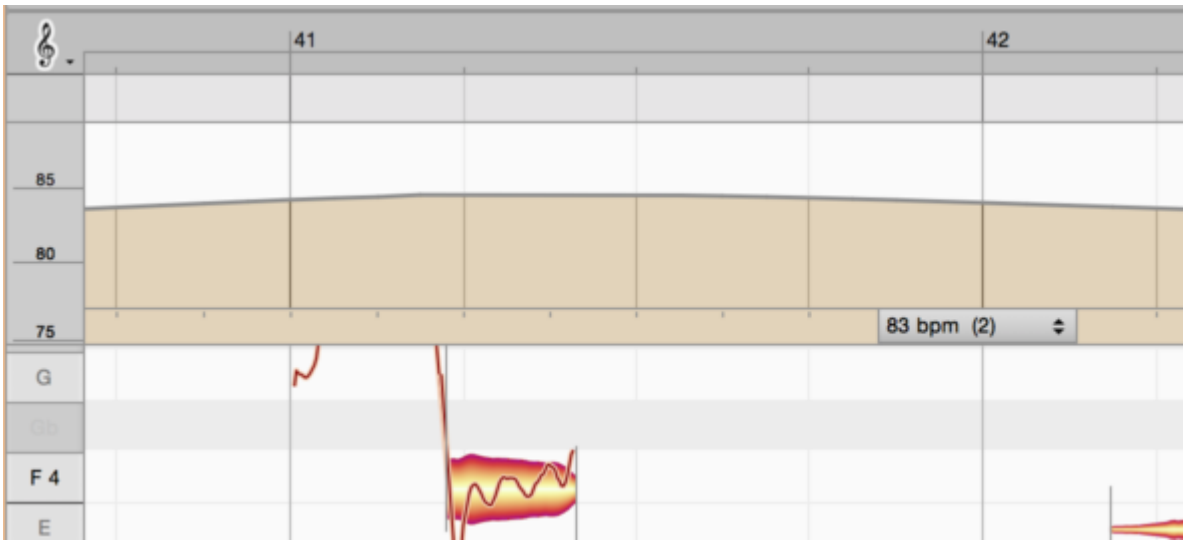
Not only is Melodyne capable of detecting the tempo of one piece of audio material and adapting it to the tempo of another, but it also offers you functions for the detailed editing and shaping of tempo progressions. To access them, begin by choosing Options > Open Note Editor from the main menu.




Here you are presented with a choice: Just as for notes there is a Note Assignment Mode (for the detection) and an edit mode (for the music itself), so also for the tempo there are two fundamentally different operating modes.

In **Edit Tempo Mode**, you can introduce changes in tempo (whether sudden or gradual) to which the notes will then conform. In this mode, in other words, you are shaping the tempo of your music.

In **Assign Tempo Mode**, on the other hand, you are correcting, where necessary, Melodyne's interpretation of the tempo prevailing at any given instant. In this mode, it is not the music itself that you are editing but the tempo map, which you are reshaping to reflect more accurately the musical reality. In this mode, therefore, you are not making any audible changes but simply checking and correcting, wherever necessary, the Time Grid *behind* the blobs. The goal here is to ensure that the tempos discerned by Melodyne really do accord with those understood and implemented by the musician(s).




It is just as important to check and, if need be, edit Melodyne's detection of the tempo before you begin work as that of the notes, because it forms the foundation of all subsequent tempo editing. It should be added that Melodyne is extremely good at detecting the tempo; it may even be that you will never, or seldom ever, need to make use of Assign Tempo Mode; this will largely depend upon the clarity of the sonic image of your loops or recordings and the playing techniques employed.

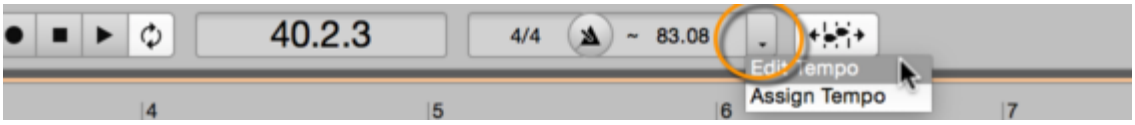
The operation of the Tempo Editor in these modes is described in separate tours.

# Editing tempo

In Edit Tempo Mode, the Tempo Editor allows you to shape the tempo map of your project and the audio material it contains in a musical way. This possibility only exists in the stand-alone implementation of Melodyne, as the plug-in derives its tempo information from the DAW. Tempo editing in that case is accomplished using the functions of the DAW, which passes the information on to the Melodyne plug-in.

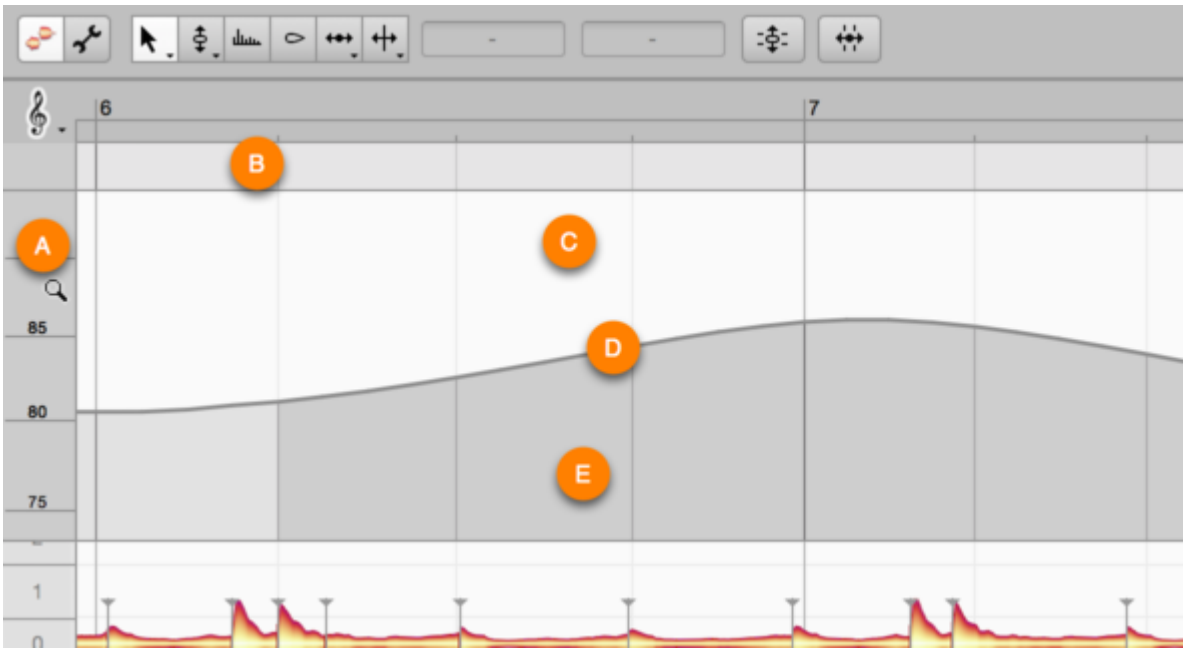
### Opening the Tempo Editor and overview

Open the Tempo Editor from the Note Editor in normal editing mode (Note Assignment Mode must not be active) by choosing Options > Show Tempo Editor > Edit Tempo from the main menu or by clicking the triangle to the right of the tempo field in the transport bar and choosing Edit Tempo from the drop-down menu.




Tip: The Tempo Editor can also be used in an empty document to create a predefined tempo map. This is useful, for example, if you wish to generate a click with a variable tempo for recording or to define the tempo to which audio loaded via drag ‘n’ drop should adjust.

The Tempo Editor appears above the Note Editor. You can move the dividing line between the two editors if you wish to allow the one or the other more headroom. The legend details the various areas and control elements of the Tempo Editor in Edit Tempo Mode.



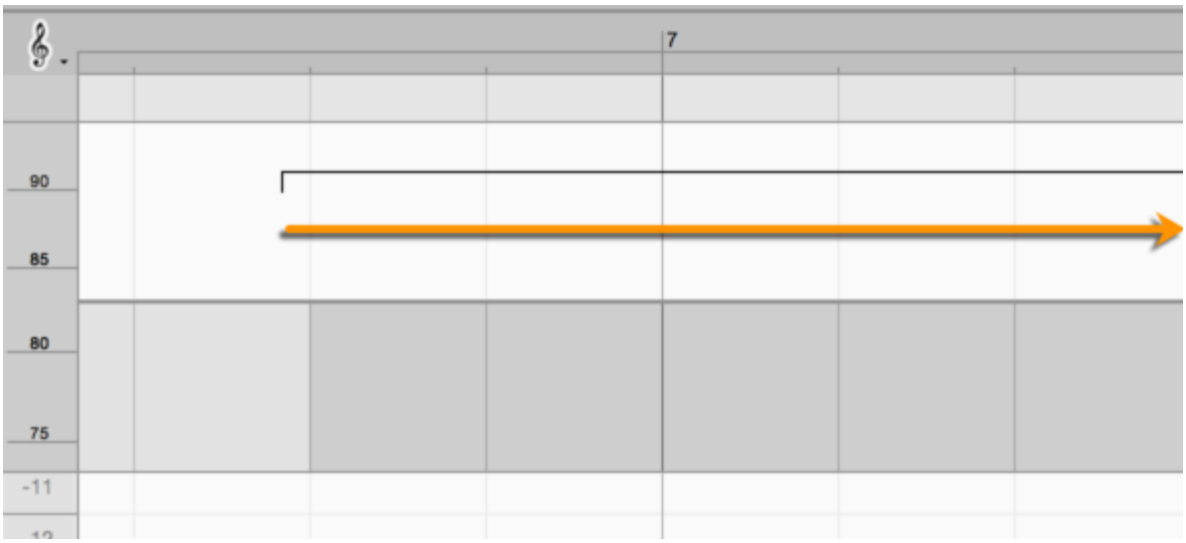

- A:* The Tempo (BPM) Scale. If you click in the central third of the scale and then drag the mouse upwards or downwards, the display is scrolled. Click in either the upper or lower third and repeat the same procedure to zoom the display. If you double-click in the center, the display is zoomed in such a way as to ensure that the entire tempo range is visible. In the Tempo Editor itself, you can scroll horizontally with the hand tool or mouse wheel and vertically with the magnifying glass.
- B:* The area for editing time signature changes. How this is accomplished is the subject of a separate tour.
- C:* The area above the tempo curve. By clicking here and dragging the mouse pointer horizontally, you select the segment of the curve you wish to edit.
- D:* The tempo curve. This can be redrawn with the help of a context-sensitive tool. There is a shallow strip just above the curve and two separate areas below it; the functions of the tool in each of the three areas are different. They will be described in detail later.
- E:* The area beneath the tempo curve. Here, too, the function of the tool varies, depending upon whether you simply click on the curve or do so after previously selecting a segment of it.

As is the case in the Note Editor, you can access most of the functions of the current tool using the [Cmd] and arrow keys. Whether using a tool in the normal way or operating it using the arrow keys, holding down the [Alt] key permits finer adjustment of the values.

### Editing the tempo curve

When you wish to change the tempo or create a tempo map, it will mostly be for a particular segment of the timeline. The tempo curve is divided into beats that correspond to the denominator of the time signature. When shaping the curve, you work with these beats; internally, however, the tempo changes are implemented in higher resolution.

Select first the desired segment of the tempo curve by clicking in the white area above the curve and dragging horizontally with the standard arrow pointer. You can lengthen or shorten the selection subsequently by holding down the [Shift] key as you click or drag. The keyboard shortcut [Cmd]+A can be used to select the entire curve.

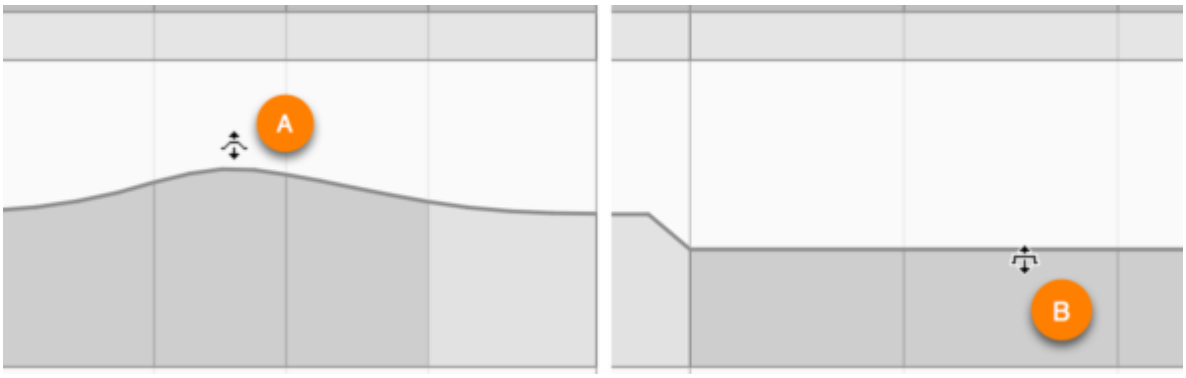



Rather than a whole passage, you may wish to edit an individual beat; in that case, click in the gray area beyond the shallow strip beneath the tempo curve (“E” in the illustration) on the relevant vertical line and drag it horizontally in the desired direction.

In the Tempo Editor, there is only one tool, but it has a wide variety of functions that depend, naturally, upon its position with relation to the tempo curve and the segment selected (if any). All the context-sensitive tool functions allow you, in one way or another, to reshape the tempo curve, with the form the mouse pointer assumes at any given moment illustrating not only the result to expect but also (through the two arrows in each diagram) whether to drag the mouse vertically or horizontally to obtain it. The best thing is to try it out for yourself on a selection several bars long and study the cursor. That’s the easiest way to get to know how to use the context-sensitive tool and its various functions.

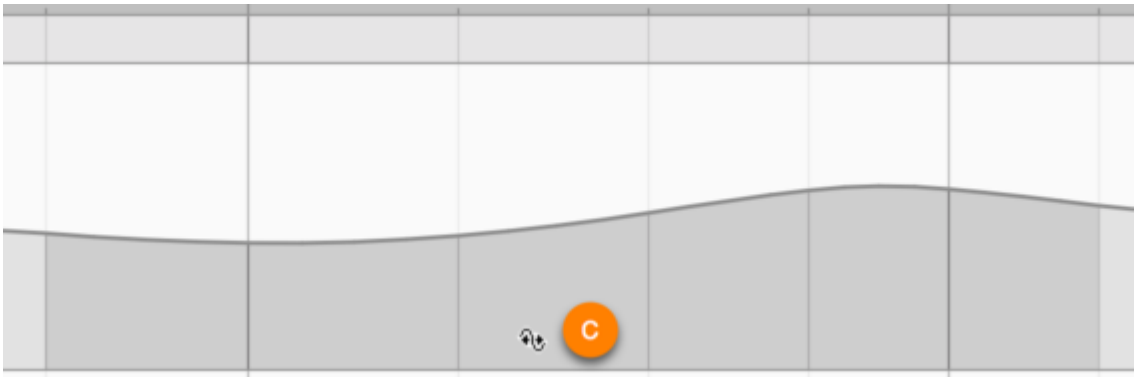
Let’s look first at how the tool functions when it is near the center of the segment of curve selected:

**A** (just above the curve): With this tool, you can form a “hill” or a “valley”, depending upon whether you drag upwards or downwards. The highest or lowest point, respectively, of the hill or valley will be perpendicular to the point at which you begin dragging, so the result will not necessarily be symmetrical.



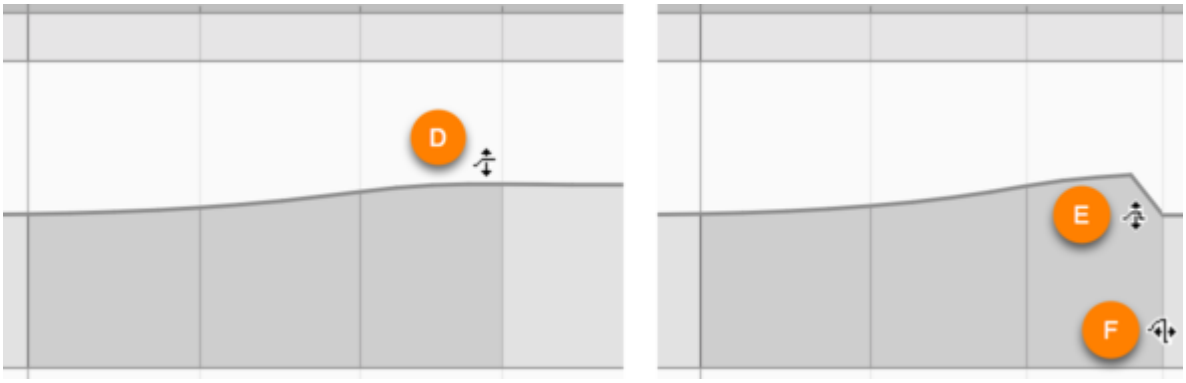

- B* (just below the curve): With this tool, you can raise or lower the tempo of the entire selection by a uniform amount, creating a plateau. At each end of the plateau there will then be an abrupt change of tempo. Whether you begin dragging from a point dead in the middle of the selection or a little to the left or right of center makes no difference with this tool.

As you create a plateau – or a hill or valley for that matter – you will notice that the length of the edited area changes. If you have increased the tempo of the passage, it takes up less time; decreasing the tempo, obviously, has the opposite effect. This is not reflected in the number or numbering of the bars or beats (as these remain the same whether there is a tempo change or not) but in the displayed length of the passage on screen: if you reduce the tempo, the bars and beats spread out; if you increase it, they huddle together.




**C** (in the gray area beneath the curve) Clicking within the selection and dragging to the left or right with this tool reshapes the selected passage by creating a wave on one side of the point clicked and a trough the other. The point within the selection at which you begin dragging determines the shape of the wave. However, regardless of the exact point at which you begin dragging, the increase in tempo to one side of it invariably compensates for the reduction in tempo to the other, leaving the

overall length of the selection unchanged; by which we mean that it occupies not only the same number of beats but also the same number of seconds (and therefore inches on screen).

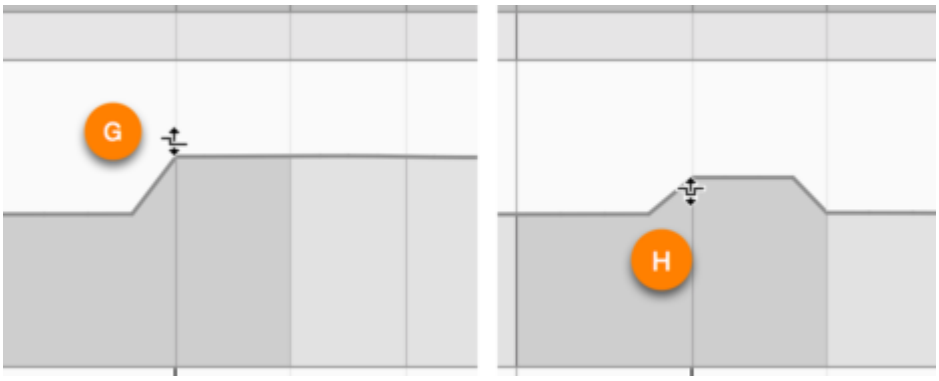



As you are editing, you will notice that the tempo curve reflects tempo changes with a gentle curve up to a certain point, but then breaks off and an abrupt tempo change appears at that point. This is normal and due to the fact that a very sudden and sharp change of tempo cannot be implemented in a flowing way and in all probability would make no musical sense either – an abrupt change of tempo is more plausible in such cases.

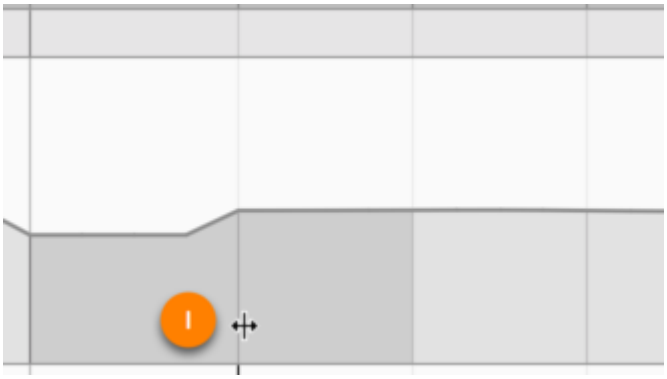
As you move the mouse pointer towards either end of the selected segment, new context-sensitive tools appear. Each tool on the right has a mirror image on the left in terms both of appearance and functionality, so we will consider only the tools on the right-hand end of the selected segment of curve.

- D* (just above the curve): Here a ramp tool is active; this creates a gradual increase or decrease in tempo throughout the selected segment, the level reached being then maintained beyond the boundaries of the selection.
- E* (just below the curve): Here a second ramp tool comes into play; it, too, implements a gradual increase or decrease in tempo throughout the selected segment, but with this tool, when the end of the selection is reached, the tempo returns instantly to its former level.
- F* (in the gray area beneath the curve): Here you can obtain the same result as in area “E”, this time by dragging the beat line horizontally. Use whichever of the two you prefer.

Until now, we have been working with a selected segment of the tempo curve. If, however, you have not made a prior selection and simply click on the curve, the context-sensitive functions are different still.



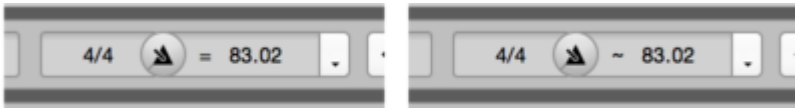

- G* (just above the curve): With this tool, you can raise or lower the entire tempo curve uniformly from the clicked beat onwards.
- H* (just below the curve): With this tool, you can raise or lower the tempo for the duration of a single beat.
- I* (in the gray area beneath the curve): With this tool, you can move the vertical beat line left or right and thereby increase or decrease the tempo of the preceding beat. If the entire tempo curve is selected, you can move the zero point of the tempo curve by this means.




### Tempo changes in the transport bar

When the Tempo Editor is closed, the tempo edit field in the transport bar reflects the current tempo at the playback cursor (whether or not playback is in progress).

An equals sign (“=”) in front of the tempo indicates that the tempo is constant. A tilde (“~”) denotes a variable tempo. These indications, if the Tempo Editor is closed, apply to the whole project. If the Tempo Editor is open, they relate to the segment of the tempo curve selected. If no segment is selected, the equals sign or tilde refer to the entire project.



When the Tempo Editor is open, the value displayed reflects the average tempo of the selected segment of the tempo curve. Dragging from the tempo field or typing in a new tempo or percentage value all then have the effect of modifying the average tempo within the selected segment. The tempo curve at this point is then raised or lowered proportionally.

When nothing is selected, typing a new value into the tempo field or clicking on the displayed value and then dragging alters the overall tempo – just as though the entire tempo curve were selected.

### The contextual menu

Right-clicking in the Tempo Editor opens a contextual menu with the following commands:

- Smooth Tempo Over Several Bars: This function spreads the tempo change smoothly over the course of several bars, with the start of the bars moving only slightly.
- Smooth Tempo Over Several Beats: This function spreads the tempo change evenly over a bar, producing virtually no change in the position of the start of each bar.
- Smooth Tempo Between Beats: This function effects a smooth tempo change between the beats. This does not change the position of the beats but the tempo change between them is smooth rather than proceeding in steps.




- Create Linear Tempo Progression: This function creates a smooth acceleration – or deceleration, as the case may be – between the tempos at the beginning and end of the selected passage (overwriting any existing tempo changes within it).
- Make Tempo Constant: This function calculates a constant tempo for the selected segment. This is equivalent to the average tempo over the course of the selected segment. Using this as a starting point, you can, of course, increase or decrease the tempo by dragging it or typing a new value into the tempo field.

If nothing is selected at the time, these commands act upon the entire tempo curve.

The tempo editing commands can also be accessed by choosing Edit > Tempo from the main menu.

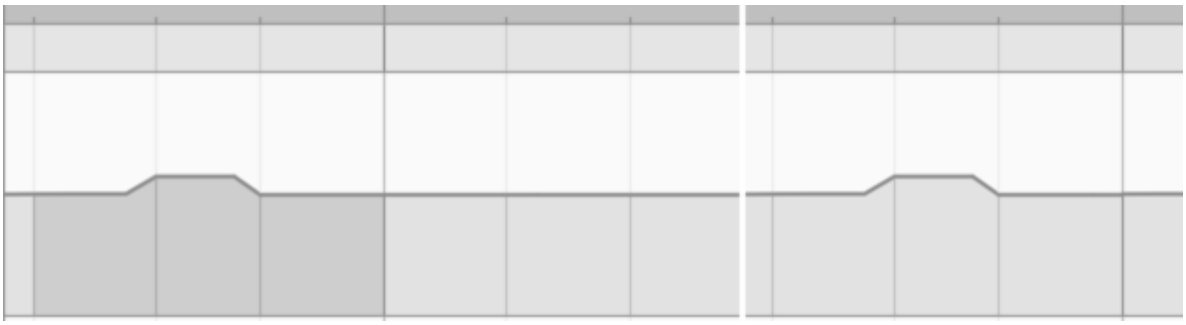
### Constant tempo and the start of Bar 1

If no tempo map has been defined or only a constant tempo was detected in the audio file loaded, there is only one tempo value. It is simple in that case to specify the tempo in the transport bar. If you wish to make an existing variable tempo constant, you can do this using the Make Tempo Constant command already described.

If, when an audio file was analyzed, the first beat was not detected at the beginning of the file, but you know that that is where it is located, you can move it to the correct position by choosing Edit > Tempo > Set Bar 1 to Start of File. This command can only be used if the tempo is constant. The command can only be executed when the tempo is constant and only then when the Tempo Editor is open in either Assign Tempo or Edit Tempo Mode.

### Copying and pasting tempo maps

To copy a part of the tempo map to a new location, select the segment of the tempo curve in question and choose Copy from the menu; move the playback cursor to the first beat of the passage to which you would like to copy the tempo and choose Paste. The segment of the tempo curve copied will be pasted (without changing its length) to the target position, overwriting the existing tempo for the duration of the pasted segment.



Alternatively, you can select a segment of the curve at the target position. In this case, if the copied segment is longer than the selected segment, the former will be truncated to fit the selection. If the copied segment is shorter than the selected segment, part of the selected segment will remain unchanged.

The insert point, however, will move to the end of the pasted segment to allow you to repeat the operation once or several times.

Tip: If you copy a selection of notes from part of the project where the tempo is variable to another part where the tempo is constant, the copied notes will adopt the constant tempo. This adjustment, naturally, is advantageous and often desirable, though it does mean that the passage once pasted no longer sounds quite the same. If you do wish its original character to be maintained, first copy the corresponding section of the tempo curve from the source to the destination and then copy the notes; or vice versa, copy the notes first and then the corresponding section of the tempo curve. By copying

both the notes and the corresponding section of the tempo curve, you ensure that the notes sound the same at the destination as at the source.

### Importing a tempo map

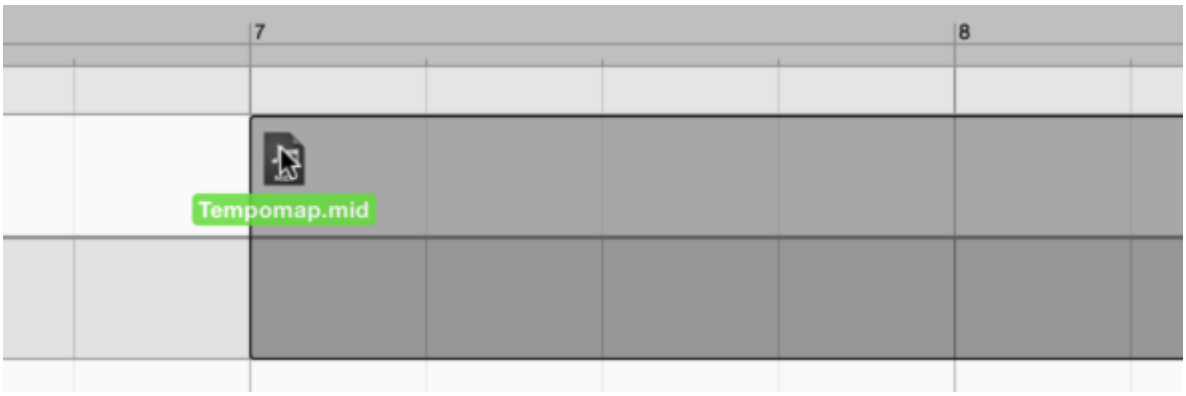
Similar to the copy and paste procedure is that whereby you import a tempo map from an MPD file, from an audio file that has already been detected (having a valid assignment file), or from a MIDI file.

The data can be imported by dragging and dropping it into the Tempo Editor. Any tempo regions and changes of time signature are ignored; only the pure curve is imported. The same principles apply to importing as copying segments of the tempo map:

If nothing is selected, the imported file snaps to a beat and determines the tempo for a period equivalent to its own length as defined in the file. If something is selected, the imported file snaps to the beginning of the selection and determines the tempo of the selected passage. Thereafter, the original tempo is resumed.

The starting point of the tempo map derived from the file is always its Beat “0”. If in the file a tempo is defined prior to the first bar, this is ignored.

The import can also be performed, however, by choosing File > Import Tempo from the main menu, in which case the tempo will be defined from the start of the document.



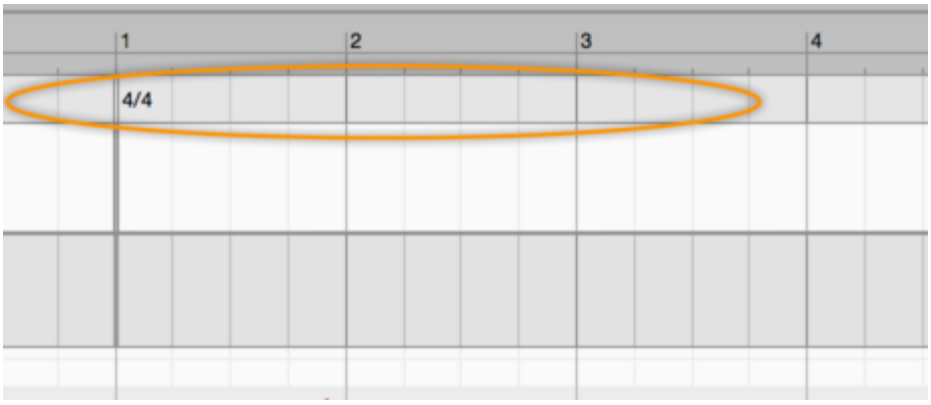

### Exporting a tempo map

By choosing File > Export and Tempo Map from the Format list box, you can export a tempo map from Melodyne as a standard MIDI file. This will create a MIDI file containing no notes but simply a tempo curve. This file could then be imported, for example, by a DAW, so that the tempo map created by Melodyne could be used there. To create a MIDI file containing both a tempo map *and* the notes, choose File > Export followed by MIDI (not ‘Tempo Map’) from the Format list box.

# Time signature changes

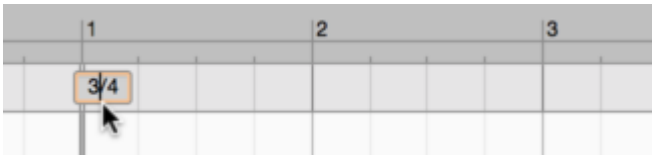
The horizontal strip at the top of the Tempo Editor is the Time Signature Editor. The time signature entered or displayed there applies always to the whole project, regardless of whether you have opened the Tempo Editor in Edit Tempo or Assign Tempo Mode.

An exception to this rule comes when the Tempo Editor is open at the same time as Note Assignment Mode. In that case, the Time Signature Editor applies only to the audio source being edited in Note Assignment Mode, which may have a different time signature to that of the project. In this configuration, the Time Signature Editor is also available in the ARA plug-in of Melodyne.




### Changing the time signature.

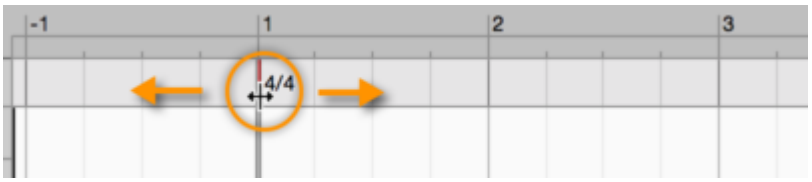
To change the time signature, double-click on the time signature currently displayed (e.g. 4/4). An input field appears into which you can enter a new time signature. If you do not wish to alter the denominator, it suffices to change the numerator, and vice versa. To switch from 4/4 to 3/4, for example, it is enough to replace the first “4” with a “3”.




### Moving the beginning of the first bar

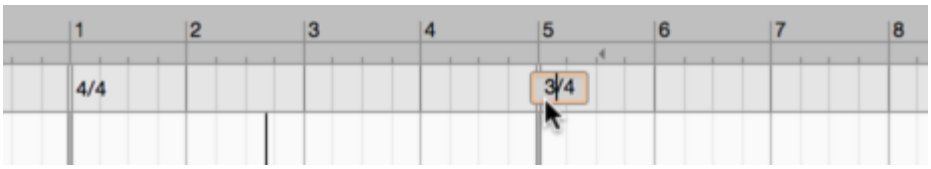
If the beginning of the first bar (or “measure”) is not displayed where – knowing the musical content – you would expect to find it, just click anywhere in the Time Signature Editor and drag to the left or

right, as the case requires, until Bar 1 is correctly aligned. As you do so, the bar lines will move one beat (as defined by the denominator) at a time. The current setting of the Time Grid has no effect upon what happens in the Time Signature Editor.



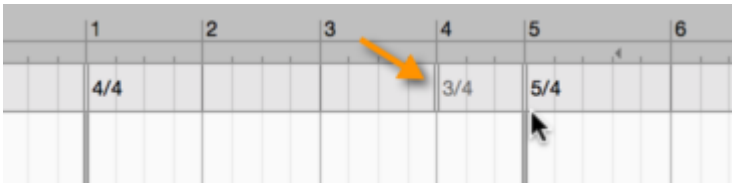

### Inserting and editing time signatures

You can enter a new time signature wherever you like in the timeline. Just double-click at the appropriate place in the Time Signature Editor and enter the desired time signature in the text field that appears.




If you click in the Time Signature Editor and drag horizontally, the time signature governing the bar within which you have clicked will move one beat at a time (as determined by the denominator) in the corresponding direction. If, in the course of doing so, it crosses another time signature, this will be deleted. If you double-click on the double bar line immediately to the left of a time signature, the time signature in question (as well as the double bar itself) will be deleted. The influence of the preceding time signature will then be extended to include the range of the deleted one, exactly as you would expect.

A new bar can only ever begin on a beat that accords with the previous time signature. If necessary, therefore, compensatory bars of the requisite length will be inserted automatically to preserve the integrity of the sequence of bars. The time signatures of compensatory bars appear in gray.




If any subsequent dragging of bar lines removes the need for a compensatory bar, it will disappear. If, however, you wish to retain it, double-click on its time signature (which will turn black). The double bar line at the start of the bar will then remain in place regardless of changes made elsewhere.

An automatically generated bar will also turn into a normal bar as soon as you edit, insert or delete a time signature elsewhere in the timeline – you will notice that the gray time signature immediately turns black – or close the Tempo Editor

You can copy a series of time signature changes simply by selecting the corresponding section of the tempo curve and choosing Edit > Copy from the main menu. After cancelling the selection, you can then insert them at the position indicated by the playback cursor using Edit > Paste. This is possible in both Edit Tempo and Assign Tempo modes, though in the latter case only the time signature changes will be copied, whereas in Edit Tempo Mode the tempo curve will be copied as well.

### The time signature display near the tempo display

The time signature display near the tempo display in the transport bar indicates the time signature at the current playback position. Entering a new time signature in this field does not add a time signature change but simply alters the time signature in force at the playback position (i.e. the nearest time signature to the left of the playback cursor).




It is different in the case of an empty document that does not yet have a tempo or time signature. Here, if you type “3/4” into the time signature field of the transport bar, the time signature will apply to the entire project. For this simple change it is not necessary to open the Tempo Editor.

# Assigning tempo

In Assign Tempo Mode, the Tempo Editor is used to correct the tempo map Melodyne creates in the course of its analysis of the audio material. Here it is not a question of altering the audio material itself but rather of making the requisite adjustments to the display background (or “Beat Grid”), which consists of bar lines (intended to coincide here with the first beat of each bar) and fainter lines between them (indicating the remaining beats of the bar). These are represented acoustically by metronome clicks. In Assign Tempo Mode, however, you are adjusting the metronome click to fit the music – not the other way around.

### What purpose does Assign Tempo Mode serve?

Adjusting the click and the background display to fit the recording is necessary to ensure that subsequent editing procedures, such as quantization to the grid or matching the tempo of one recording to that of another, function correctly. The point of Assign Tempo Mode is best illustrated by an example: Suppose you have made a multi-track recording of a live performance during which no click was used by the performers to help them keep time. You load these tracks into Melodyne. From its own analysis of the music based on the sum of all the tracks, Melodyne now creates a tempo map; this can be thought of as a virtual click track that keeps time with the musicians (even though no click was used in the actual performance). This tempo map, provided it is accurate, gives rise to exciting possibilities. It can be used, for example, to tighten up the timing of the entire band; and here, remember, we are talking about a multi-track recording of a live performance!

Or, equally exciting, it can be used to adapt the rigid tempo of a sample to the reconstructed live click – and, with it, to the fluctuations in tempo real musicians inevitably introduce into each performance.

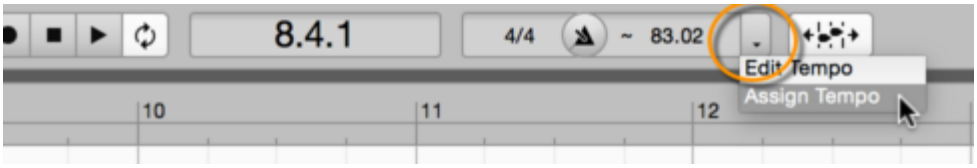
You are able now, in other words, to record without using a click and yet still retain full control over tempo and timing. Even if the band gets carried away and bolts towards the end of the song, it’s no problem; with Melodyne you have the reins at all times in your hands.

There are unbelievable, hitherto unknown, possibilities here – provided, always, that the tempo detection yields perfect results throughout the entire piece. But what does “perfect” mean here? Imagine, for example, that you have on one track a saxophone solo played with great rhythmic freedom and on another the drums played with rhythmic discipline. These two tracks, clearly, are pulling in different directions and perhaps urging Melodyne to different conclusions. To which instrument in this example greater weight should be given has nothing to do with perfection in the sense of right or wrong but is purely a question of interpretation.

It is to resolve such questions that your intervention in the tempo detection process is required. The Tempo Editor’s Assign Tempo Mode offers you a wealth of different ways of intervening and tools to assist you in the task, and it is these that form the subject of this tour.

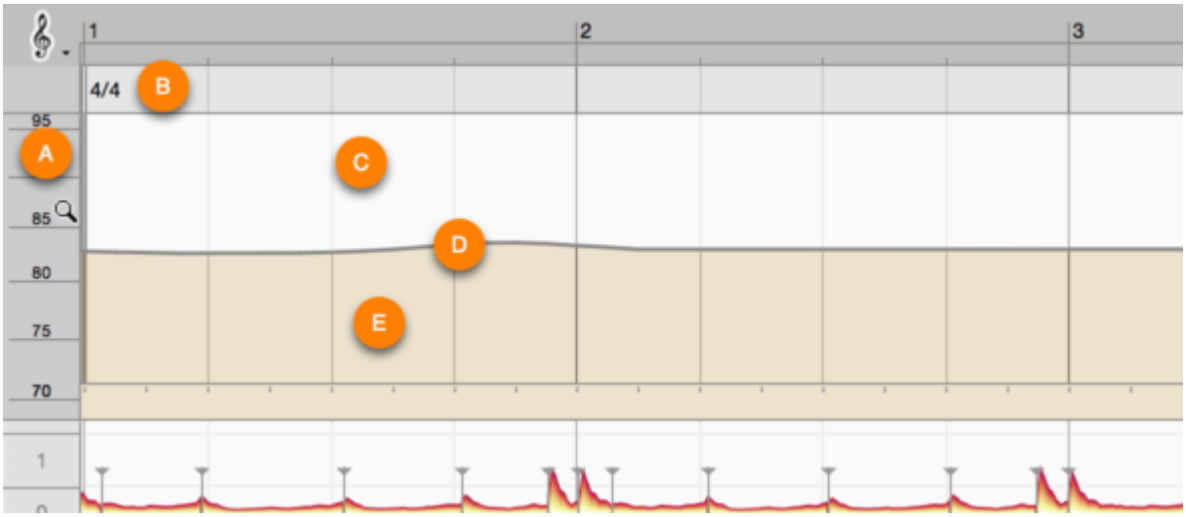
### Overview of the Tempo Editor in Assign Tempo Mode

Open the Tempo Editor by choosing Options > Show Tempo Editor > Assign Tempo from the menu or by selecting the same command from the drop-down menu to the right of the tempo field in the transport bar.




The Tempo Editor appears above the Note Editor. You can move the dividing line between the Tempo and Note editors if you wish to allow the one or the other GREATER headroom.

Before discussing the individual editing functions, let us begin with an overview of the various zones of the Tempo Editor in Assign Tempo Mode and the components of the interface.




**A:** The Tempo (BPM) Scale. This is made up of three zones: If you click in the central third of the scale and then drag the mouse upwards or downwards, the display is scrolled. Click in either the upper or lower third and repeat the same procedure to zoom the display. If you double-click in the center, the display is zoomed in such a way as to ensure that the entire tempo range is visible. In the Tempo Editor itself, you can scroll horizontally with the hand tool or mouse wheel and vertically with the magnifying glass.

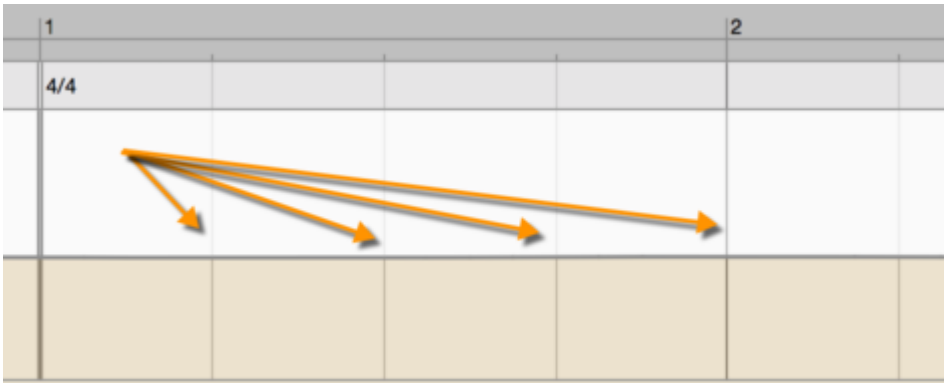
**B:** The area for editing time signature changes. How this is accomplished is the subject of a separate tour.

**C:** The area above the tempo curve. By clicking here and dragging the mouse pointer horizontally, you select the segment of the curve you wish to edit.

**D:** The tempo curve. This can be reshaped with the help of a context-sensitive tool. The contexts in question being three zones: a single shallow strip just above the curve and two separate layers below it.

**E:** The area beneath the tempo curve. This, as we have said, is divided into two distinct layers; in the upper layer the tool is used for the quantized movement of segments of the curve whereas in the lower layer it is used to reshape the curve within a beat selection. See below for details.

As in the Note editor, you can also perform the current functions of the tool (which depend, of course, upon its position) using the command and arrow keys. Since changes made in this way proceed by small increments, this is a particularly useful technique if you need to make fine adjustments. Whether you are using keyboard commands or tools in the normal way, holding down the [Alt] key at the same time allows you to adjust the values in still finer resolution.



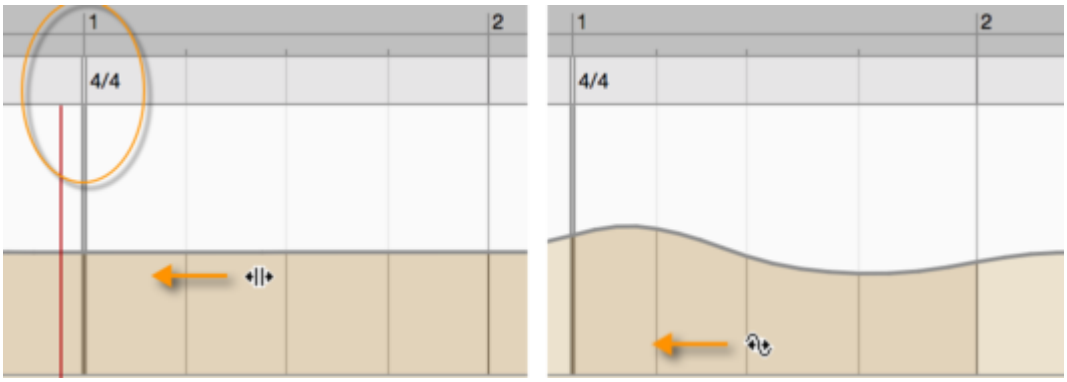

### Editing the tempo curve using the tools

The tempo curve is intersected by beats that correspond to the denominator of the time signature. When shaping the curve, you work with these beats; internally, however, the tempo changes are implemented in higher resolution.

If the tempo of a recording has not been correctly identified throughout, the problem will usually be that some of the beats coincide with the offbeat, with the result that the metronome click, too, sounds on the offbeat. This can occur when the performer hesitates or slows momentarily, causing the detection from that point onwards to slip back to the offbeat. It is recommended in view of this that, before you begin editing, you listen to the whole piece once through with the metronome running. At the same time check that the time signature is correct and that the “1” really does coincide with the start of the bar.

For these corrections, you should work initially with the Time Grid activated, as this will facilitate the movement of beats. The width of the grid (i.e. the interval between the lines) is of no importance; all that matters is that the grid is active. The width of the grid, incidentally, is determined by the number of sub-beats in the tempo region, as is explained below.

When working with an active Time Grid, the two most valuable tools are those found beneath the time curve, each in a separate layer. In the layer closest to the tempo curve you will find the Tool for Quantized Movement of segments; in the layer below, you will find the Wave Tool, which is used to reshape the curve within a beat selection. The shape assumed by the mouse pointer changes as it moves from layer to layer.




If no tempo regions (the functions of which are explained below) have been detected and the tempo throughout is on the offbeat, proceed as follows to correct it:

- With the Tool for Quantized Movement (the higher of the two tools beneath the tempo curve), click on the tempo curve at any point within four beats of the first bar definition and drag the mouse to the right or left. This will move the entire tempo curve sideways along the grid allowing you to correct the offbeat.

If the tempo has been correctly detected initially but at some later point slips to the offbeat, proceed as follows:

- Select with the Tool for Quantized Movement a beat at the point where the curve slips out of sync. The entire segment that follows (and which therefore needs to be corrected) will be selected automatically. Now drag the mouse to the left or right, as appropriate, which will allow you to move not only the beat you clicked on but also the selected beats that follow it along the Beat Grid and correct the offbeat.

Note: If several tempo regions have been detected within the recording, the area automatically selected by this procedure will extend only to the end of the current tempo region. You will find more information on tempo regions below.

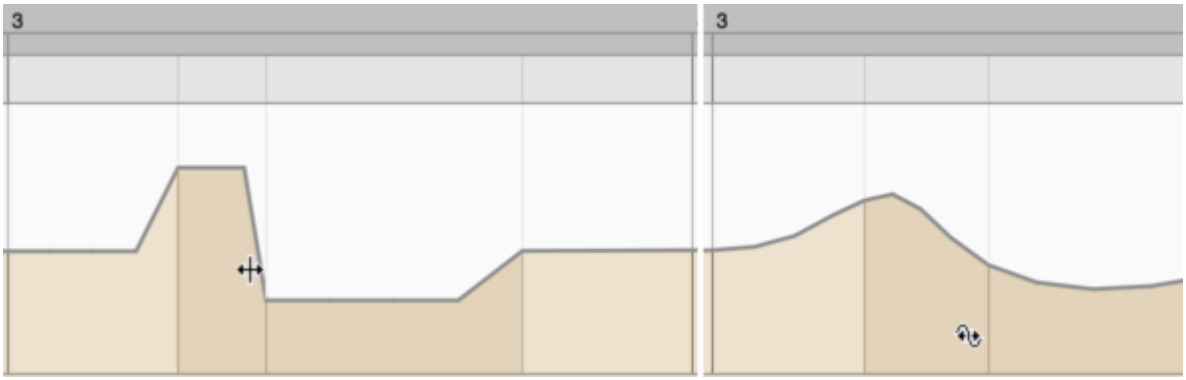
It can also happen sometimes that the tempo as detected gets ahead of, or lags behind, the actual tempo, or that – perhaps because a passage is played *rubato* i.e. the performance is rhythmically very free – the start of almost every bar has to be corrected. This type of error is corrected using the Wave Tool (found in the lower of the two layers beneath the tempo curve), which reshapes the wave within a given selection of beats..

Since the Wave Tool affects not only the point clicked but also the surrounding area, clicking with this tool (when the Time Grid is active) invariably results in a segment of the tempo curve being selected. If you click on the beginning of a bar, the two neighboring bars are selected. If you now drag the mouse to the right or left, the beginning of the bar in question (i.e. the bar line) moves the furthest, whereas the beats in the neighboring bars are affected to a lesser extent. The first beats of the preceding and following bars are not moved at all.

In this way, if need be, you can go through an entire passage correcting the position of each bar line in turn. If a longer passage is affected by this “premature” or “tardy” tempo detection, you can select the passage manually before using the tool. Here, again, the most movement will be at the point from which the dragging commences, with the effect tailing off towards each end of the selection.

If you click and drag from a point within a bar, only the intermediate beats will move; the first beat of the bar and that of the following bar will be unaffected. In this way, if you ever need to, you can make subtle corrections to the tempo curve within a bar.

Tip: If, where the performance is very free, you have made a coarse correction to the position of almost every bar line, without making any fine corrections within the bars, unnecessary unevenness in the tempo progression may result. For this reason it is often useful, after making a coarse correction to the position of the bar lines, to select Smooth Tempo Over Several Bars from the context menu, as this command is designed to eliminate irregularities on a broader scale.




For the editing procedures described so far, we have been using an active Time Grid. If the Time Grid is not active, the two tools just described function differently. In this case, a range is not selected automatically, so the tools only affect the beat selected.

- The higher of the two tools allows you to move the beat in question without affecting the neighboring beats.
- The lower tool also moves the beat selected but the tempo flow to the neighboring beats is preserved.

Suppose, for example, the performer has introduced a fairly long pause before beginning a new section but that the lead-in (or “anacrusis”) to the following bar is more or less in the new tempo, so

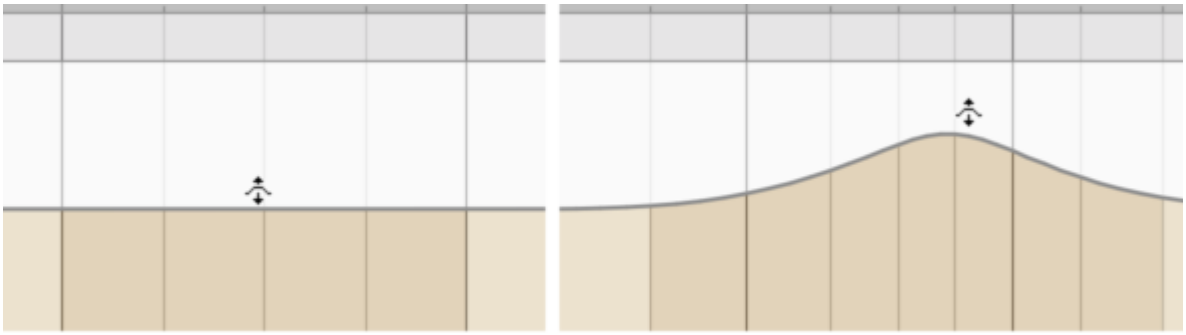
there is no continuous tempo flow and the beats have to be moved one by one to the correct position. It is to solve problems like these that you need to deactivate the Time Grid before using the two tools.

### The tools for changing the tempo locally through the insertion of beats

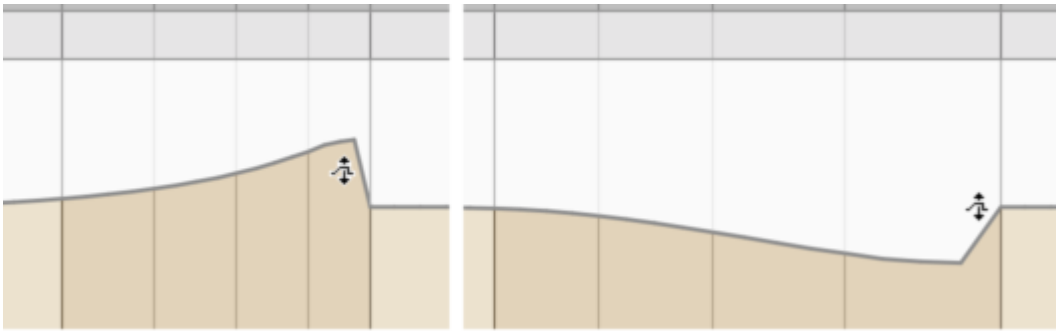
If the tempo as detected during a particular passage is too slow or too fast, so that a beat needs to be added or removed, you can correct this by clicking just above the tempo curve and dragging upwards or downwards. In this way, at the point clicked, you can create a mountain or a valley and alter the tempo by inserting or removing beats.

Note how this differs from Edit Tempo Mode: Nothing you do in Assign Tempo Mode ever changes the position in time of the notes. What you are seeking to do is adjust the timing of the metronome clicks to match the music, which is what happens here when you change the tempo and insert or extract beats. In Edit Tempo Mode, on the other hand, no beats can be inserted or removed and any tempo changes affect all the following notes, causing them to sound earlier or later as the case may be.

If, prior to using the tool, you have selected a segment of the curve, the tool will act upon the entire selection and is available in its central area. If nothing is selected at the time, use of the tool results in a number of beats being selected automatically.



At the beginning or end of a selection, by dragging downwards or upwards you can also remove or insert one or several beats. In this way you can, for example, slow the tempo at the end of a phrase without affecting the tempo of what follows.



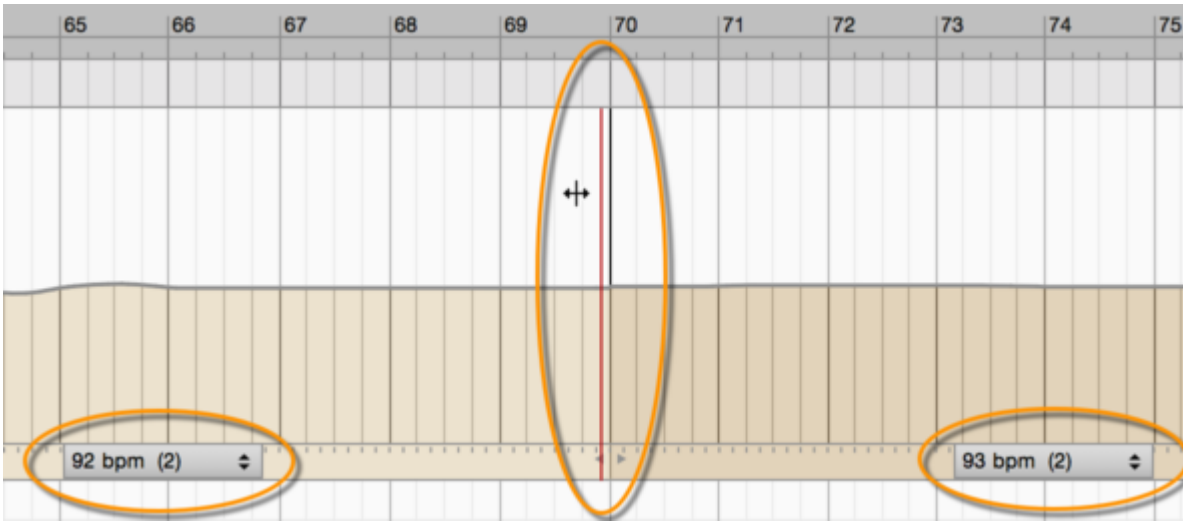
If you click near a tempo region separation, this tool mode is activated automatically and a segment of the curve extending to the region division will be selected. You will find more information on tempo regions in the next section.

### Tempo regions

An evenly flowing tempo is generally interpreted by the analysis as a continuous sequence even if the tempo fluctuates. Just as with a constant tempo, Melodyne creates then a *single* tempo region for the entire duration. Tempo regions are indicated by pop-up menus in the horizontal ruler at the bottom of the Tempo Editor.

A tempo region extends rightwards to the end of the audio source or the beginning of the next tempo region. By clicking alongside one of these pop-up menus, you can select all the notes of the corresponding tempo region.

Each tempo region possesses at its left-hand division a black vertical line that serves as a handle and extends from the bottom to the top of the Tempo Editor. By dragging this line horizontally, you can move the beginning of a tempo region along the Beat Grid of the tempo curve.




If the tempo slows markedly in places, such as at the end of phrases performed in the “romantic” style, the analysis will split the tempo curve into multiple regions wherever the position is unclear. These tempo regions, on the one hand, provide a clearer overview of what is happening in terms of the tempo, but also offer some important setting options to ensure that the tempo in the passage affected is correctly interpreted.

If several tempo regions have been detected, it is frequently necessary to tidy up their divisions. In the following section, we describe the type of situation that can arise and how to adjust the tempo regions accordingly.

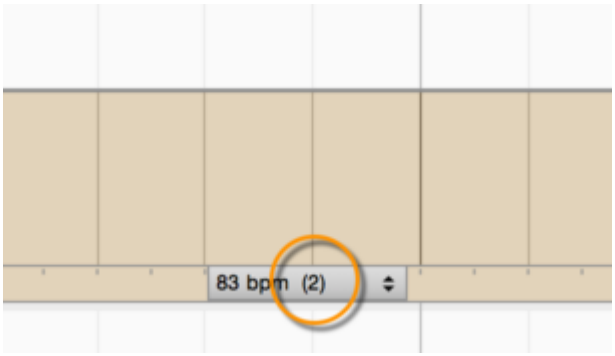
- Superfluous region divisions:* Sometimes the analysis introduces region divisions where the tempo only slows slightly. These divisions, and the superfluous tempo regions they create, can be deleted. To delete a tempo region, double-click on its vertical handle. As a result of the deletion, the tempo curve corresponding to the surrounding beats will be smoothed automatically to create a more regular tempo flow.

- The creation of additional tempo regions:* If you double-click in the ruler at the bottom of the Tempo Editor, where the pop-up menus of the tempo regions are located, a new tempo region will be created there. The insertion of a tempo region can be useful if , prior to the start of a new phrase, there is a pause that you wish to be spared the effect of any subsequent smoothing operations.

**Position of the region divisions:** Often the region divisions are not situated at the exact point where the music begins to slow down. In such cases, drag the tempo region by its handle to the correct position. So as to be able to hear inconsistencies clearly, before you begin editing you should check the detected time signature and ensure that the start of the first bar begins on the correct “1”. When you move a region division, the tempo and positions of the neighboring regions adjust accordingly.

### Tempo regions and sub-beats

The analysis detects what are called “sub-beats”, these being the smallest pulse units found in the audio material. Beats are generally understood as quarter-notes (or “crotchets”) and the subdivisions of these displayed in the region indicate how many sub-beats there are to a crotchet. There could be two or four if the tempo has an even feel to it; three if it has a triplet feel; or even some other number in exceptional cases.

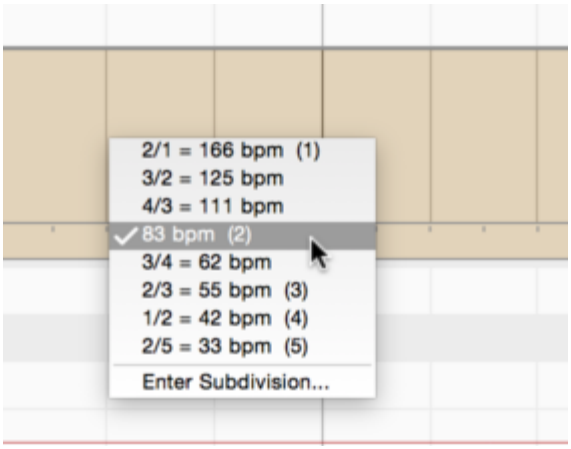



In the following, we discuss the cases in which you will need to edit the parameters of a tempo region with respect to these sub-beats.

- Sub-beats and tempo* It can happen that the analysis interprets sub-beats as eighth notes (or “quavers”), meaning that there are two sub-beats per crotchet, when in fact the “intended”

tempo is only half as fast, because the sub-beats detected ought to be sixteenth notes (or “semiquavers”). A quarter note ought, therefore, to consist of four sub-beats, which would halve the tempo.

It can also happen that two sub-beats are assigned to quarter notes when eighth note triplets are in fact intended. In this case, the subdivision must be changed from 2 to 3 and the tempo with it by two thirds. These changes can be effected using the region’s pop-up menu. There you can stipulate how many sub-beats should make up a quarter note and alter the tempo accordingly. The numbers in brackets indicate how many of the discovered sub-beats are combined in the tempo, but values are also available for selection that are not multiples of sub-beats.




If several tempo regions are present and the tempo of the entire recording is to be halved, for example, select all the regions with [Cmd]+A and alter the tempo in the pop-up menu of one (it doesn’ t matter which) of the selected regions.
**Enter Subdivision:** If a passage exhibits simultaneously a dual and triple feel or alternates between the two, it can happen that the analysis detects the sub-beats too unclearly. In such a case, you should choose Enter Subdivision from the region’s pop-up menu and type the desired value into the text box that appears.

This changes nothing with respect to the beats and tempo, but in the pop-up menu of the region other tempo ratios can then be selected and any movement of the region will henceforth be governed by the new sub-beat subdivision.

- The significance of the tempo regions after the editing:* The tempo detection offers regions initially in places where the detection may have discontinuities. In the case of recordings with a continuous flowing tempo, all these need to be cleared away; in other words, by the time you have finished editing, there should be no tempo regions left in the tempo map.

If, on the other hand, there are times in the recording where the performer has paused at the end of a phrase but returned to an even tempo at the start of the following phrase, the division between the

regions should be moved to the start of this second phrase and left in place, because the tempo flow has been interrupted. A recording might also be made up of passages with sharply differing tempo levels that alternate. In this case, too, the region divisions need to be preserved.

Whenever you use one of the “Smooth Tempo ...” commands, the smoothing is invariably confined to a single region, so the region divisions are unaffected.

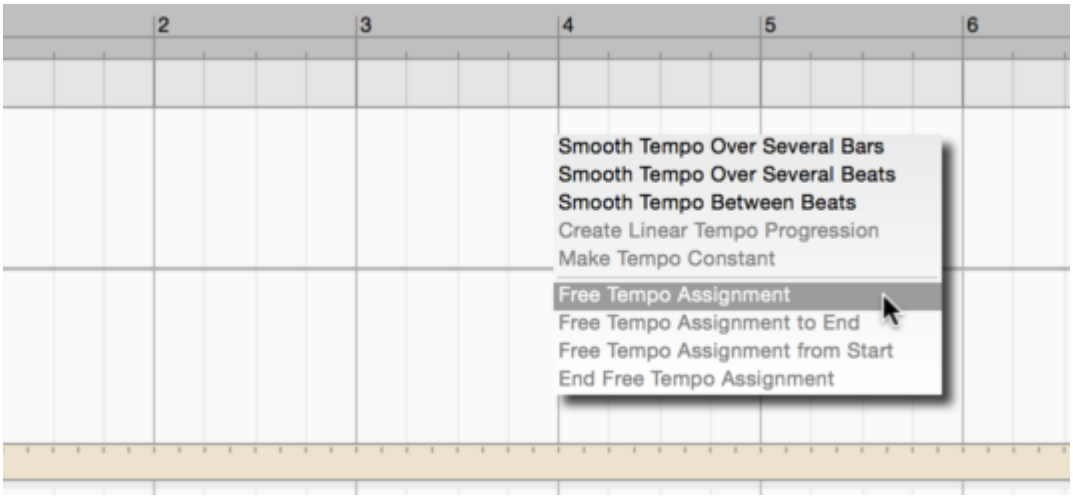
### Assigning the tempo designation "free"

Where a performance is really free rhythmically, the tempo detection may in some cases provide little assistance and it may be easier to ignore the results of the detection altogether and simply assign to the entire passage the tempo designation “free”.

Similarly, where the music is silent for several bars or only contains a wash of sounds with no discernible note beginnings or rhythm, the analysis is unlikely to deliver a tempo curve that makes much sense. This, in itself, is hardly a problem, but if you need a click in such passages – because you wish, for example, to add a rhythmic overdub lasting a definite number of beats – proceed as follows:

Select the area in question in the Tempo Editor and choose Free Tempo Assignment from the context menu. If you wish to assign the designation “free” to the tempo of the entire file, nothing should be selected at the time you use the command; that way it will act upon the entire tempo curve.

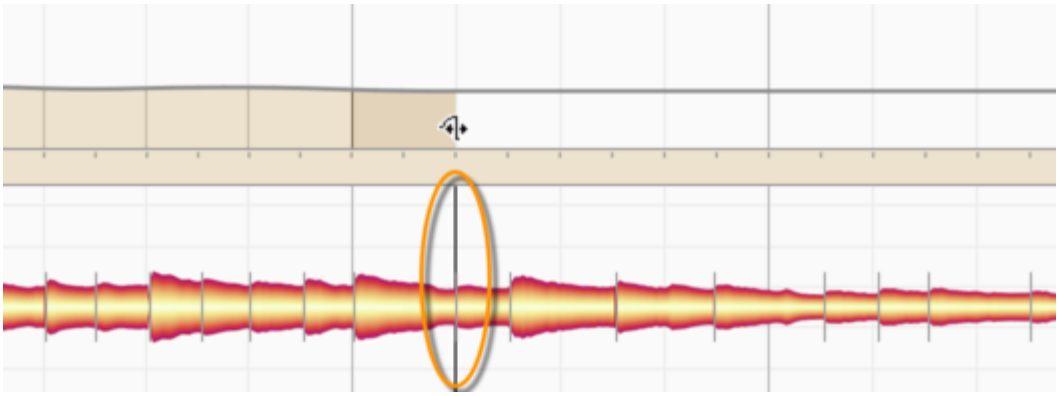
The effect of the command is to delete the existing tempo and replace it with a constant one. The passage in question will appear white – with no beats – and the tempo curve will be a straight line. First, by dragging the line horizontally at the bar zero point, establish the start of the tempo progression.




Then drag the straight line upwards or downwards until the average tempo of the recording is reached or the area is filled with the desired number of bars. If you wish to assign the designation "free” to the

tempo of the entire file, as an alternative to moving the curve vertically, you can simply alter the value in the tempo field in the transport bar.

The best thing then is to go from left to right through the undefined tempo area clicking on the start of each bar which will result in a valid beat appearing at that point. Drag the beat to the correct note at the beginning of the bar in question. It is helpful here to orient yourself by the vertical line that appears at the bottom of the Note Editor during the movement.



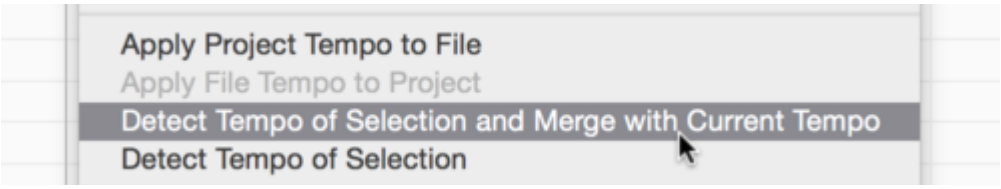
When you have edited the tempo in this way until the desired position is reached, choose the command Finalize Free Tempo Assignment from the context menu. The range will be filled with beats and its “defined” status restored. If you have assigned the tempo designation “free” to a mere segment of the tempo curve rather than the entire map in this way, when you click in the last bar, beats will be inserted automatically and the transition of the curve to the following segment smoothed.

You will find in the context menu, in addition to the command Free Tempo Assignment that has been described, two other commands: Free Tempo Assignment to End and Free Tempo Assignment from Start. These two commands are designed to save you the trouble of performing the corresponding selections manually.

They are useful in the following situations: If there is a marked slowing down during the final notes of a piece, you will define a corresponding slowing down of the tempo at that point. After that, the defined tempo that follows needs to be discarded and the slower tempo retained until the end. To achieve this, select first Free Tempo Assignment to End and then edit the slowed down tempo at the end. The command Free Tempo Assignment from Start evens out the tempo in a leftward direction until the beginning of the file is reached.

### Triggering a redetection of the tempo

If you have made a mess of your tempo assignments, you can trigger a redetection of the tempo and begin again from scratch. Instead of wiping the entire slate clean, you may prefer to keep most of your assignments and redo only the passage with which you have been having difficulty. In this case, select the blobs of the passage in question and choose from the main menu Edit > Tempo > Detect Tempo of Selection and Merge with Current Tempo.




This has the effect of discarding all the tempo assignments that you have applied to the passage and replacing it with tempo information derived by Melodyne from the audio material. To the right and left of the selected passage, however, the tempo curve remains unchanged, complete with any improvements you may have made to it.

What is of crucial importance to the success of this procedure is the choice of notes upon which the redetection will be based. Remember the example cited earlier of the band recorded live: If you were tapping your foot in time to the music, in all probability you would be following as you did so (albeit unconsciously) the drums and bass rather than the less disciplined saxophonist. By the same token, you would want Melodyne to base its analysis of the tempo on the drums and bass, along with the rhythm guitar perhaps, and not be distracted by the saxophone.

For this reason, you should drag into the Note Editor only those tracks that will help Melodyne with its analysis and select within them only the notes that coincide with the saxophone solo. Then choose Edit > Tempo > Detect Tempo of Selection and Merge with Current Tempo.

Now you have replaced throughout the problem passage the original detection (and your botched editing thereof) with another based upon an optimized track selection. To recap: The original detection was triggered when all the tracks were imported simultaneously, with equal weight being given to each of them. By triggering a redetection (this time based upon a narrower selection of tracks) in the manner just described, you ensure that the more laid-back playing of the saxophonist does not lead Melodyne into error.

You can optimize the starting material for a redetection by deliberately deselecting certain notes within a track. Suppose, for example, you were working with a stereo live recording and wanted to create a click track retrospectively. In this case, it might be advisable to deselect all the notes derived from the vocals along with one or two others, so as to ensure that Melodyne based its analysis of the tempo predominantly upon the bass or kick drum, which tend to be quite easily identified within the overall mix.

### The assignent of individual file tempos

So far, we have been discussing the situation in which the entire project has a single tempo map that you can then optimize, if necessary, in Assign Tempo Mode to make it correspond more closely to the audio material. Here we were assuming that the project was composed of tracks that were broadly synchronous – either because they were recorded simultaneously or because some kind of overdub procedure was used. What if you want to combine in a single project recordings with different tempos? With Auto Stretch switched on, Melodyne adjusts each newly imported audio file to fit the

tempo map of the project. What this involves – and how you can intervene in the process – is the subject of the following sections.
As each file is imported, Melodyne analyzes the audio material, detects the tempo throughout the file, and from the information thus obtained creates a tempo map. This is the tempo map of the file. If several files are imported, each will have its own tempo map. But the project itself can only have one tempo map: the one you have perhaps already begun editing in Assign Tempo Mode.

When it comes to play back the project, therefore, Melodyne will stretch or squeeze in all the right places the tempo map of each individual file to ensure that it conforms to the tempo map of the project A very simple example: Melodyne has detected in the file a fixed tempo of 100 BPM whereas that of the project is 120 BPM. All that is needed here is to play back the file 20% faster. Now suppose another file is imported with a fixed tempo of 112 BPM. This time, the new file must be played back around 7% faster.

The mathematics becomes far more complex, of course, when neither the file nor the project has a constant tempo, and the fluctuations found in the one have nothing to do with those found in the other. But no worries; Melodyne can cope even then. No action is called for on your part.

You may occasionally, however, want to redraw the tempo map of the file – i.e. to impose your own interpretation of the tempo, by halving or doubling the displayed tempo of a drum loop, for example, or, in the case of a polyrhythmic recording, by opting for triplets or not, as the case may be. Such decisions have no initial influence upon the file itself; when you come to import the file into a project with Auto Stretch switched on, however, they can make a considerable difference.

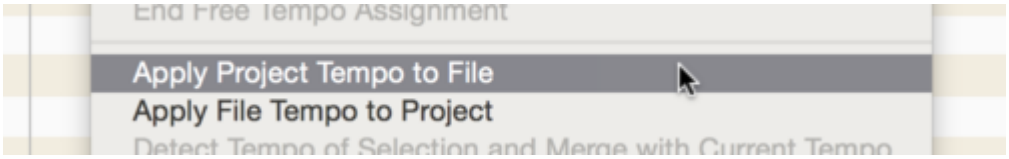
In short: Even single audio files have tempo maps that you can edit. To do this, switch to Note Assignment Mode. If on the track in question you have multiple audio files, click beforehand on a blob belonging to the file you wish to work on, to ensure that the correct file is available for editing in Note Assignment Mode.

In Note Assignment Mode, you always hear one audio file in isolation (and, initially, in its pure state – i.e. ignoring any note editing you may have done in the meantime).

Because you are now in Note Assignment Mode, when you come to open the Tempo Editor it will open automatically in Assign Tempo Mode; Edit Tempo Mode is inaccessible from Note Assignment Mode.

Now, however, it is not the tempo map of the project but that of the audio file alone that is being assigned. Or you could think of it another way and say you are now in a completely different project – namely, the one within which the file was originally recorded – and that your objective is to reconstruct the click track of the original recording so that Melodyne can later “bend” this to match the click track of the current project.

The procedures and tools used, and the functions available, in the Tempo Editor when you are assigning the file tempo are identical to those already described for Assign Tempo Mode of the Tempo Editor, except that two additional commands now come into play in the Edit > Tempo menu:




If you choose Edit > Tempo > Copy Song Tempo to File, the tempo of the file will be ignored and replaced by that of the project.

This command is particularly useful if you subsequently save an assignment file in the Algorithm Inspector from Note Assignment Mode. A useful application for this is shown by the following example.

Suppose you have recorded a “chanson” (i.e. some political or satirical song with perhaps a single guitar or piano as accompaniment) performed live with no click and for which Melodyne has detected a flowing tempo; suppose further that you want now to import the vocal track into a remix that is slightly faster but more importantly has a constant tempo. Here you must first create a tempo map for the vocal track so that it can be “bent” to match that of the remix. But wait – a tempo map already exists for the vocal track; it is that of the project from which it is derived: the live performance of the song we mentioned earlier. So adopt this for the current file with the command Apply Project Tempo Assignment to File Tempo Assignment and store it in your assignment file. During the playback in the remix context, Melodyne reads the fluctuating chanson tempo from the assignment file and synchronizes the singing automatically.

Or you might prefer to do things the other way around. If, for example, out of a number of related recordings you have assigned the tempo of the drum track only and then wish to apply this assignment to the tempo assignment of the entire project. This is where the command Edit > Tempo > Apply File Tempo to Project comes into play.

In the Tempo Editor’s Assign Tempo Mode, too, you can import a tempo map stored in an MPD, assignment or MIDI file if you wish to. This can be done either by choosing “File > Import Tempo...” or simply by dragging the file in question into the Tempo Editor.

In this way, you could, for example, transfer the tempo detection of a file that has already been edited to the project or the file just edited in Note Assignment Mode.

In the Tempo Editor’s Assign Tempo Mode, an imported data map is always placed at the start of the project. From the imported file, not only the tempo map but also any time signature changes and tempo regions are adopted.

### Commands in the context menu

If the Tempo Editor is in Assign Tempo Mode, you will also find in the context menu the following commands that correspond exactly to those in the Tempo Editor's edit mode.

- Smooth Tempo Over Several Bars: This function spreads the tempo change smoothly over the course of several bars, causing the start of the bars to move slightly.
- Smooth Tempo Over Several Beats: This function spreads the tempo change evenly over a bar, whereby the bars themselves are hardly affected.
- Smooth Tempo Between Beats: This function effects a smooth tempo change within the beats. This does not change the position of the beats but the tempo change between them is smooth rather than proceeding in steps.
- Create Linear Tempo Progression: This function calculates a gradual tempo change between the current tempo at the first beat, and that at the last beat, of the selection (regardless of the prior shape of the Curve between these two points).

Note how this differs from Edit Tempo Mode: If in Edit Tempo Mode an increasing or decreasing tempo progression has been calculated, the number of beats selected in the range in question remains the same; the position of the following beats, however, is moved as a result of the new local tempo progression. When assigning the tempo, this is not what you want, so in Assign Tempo Mode the number of beats in the range selected alters to match the new tempo progression; the following beats do not change position.

- Make Tempo Constant: This function calculates a constant tempo for the selected segmen that is equivalent to the average tempo over the course of the selected segment. Once again, beats are added or removed within the selected area to ensure their number matches the new tempo.

You can also use this command when nothing is selected in which case it applies to the entire tempo map. An example: In the course of the analysis, Melodyne has detected a mildly fluctuating tempo. You know, however, that a constant click was used during the recording. In this case, the command calculates the constant tempo that best fits the given material as well as its starting point and adopts this constant tempo as the assigned tempo.

These commands can also be accessed from the main menu under “Edit > Tempo ...”.

### Enhanced tempo detection with the Universal Algorithm

If you wish to edit the tempo of a complex piece of music for which the Universal Algorithm has been used for the detection, you can achieve still more accurate tempo detection by choosing the option Edit > Tempo > Enhanced Tempo Detection.

If the option is selected, Melodyne employs the same tempo detection algorithms internally as for polyphonic detection. The tempo detection is more accurate in this case because it is able to access additional information about the file.

Of course, in the case of highly rhythmic or comparatively simple material you will notice no difference. With complex piano sonatas or the mix of an entire band, on the other hand, you will: Such material reveals the real advantages of the enhanced tempo detection, which delivers better results.

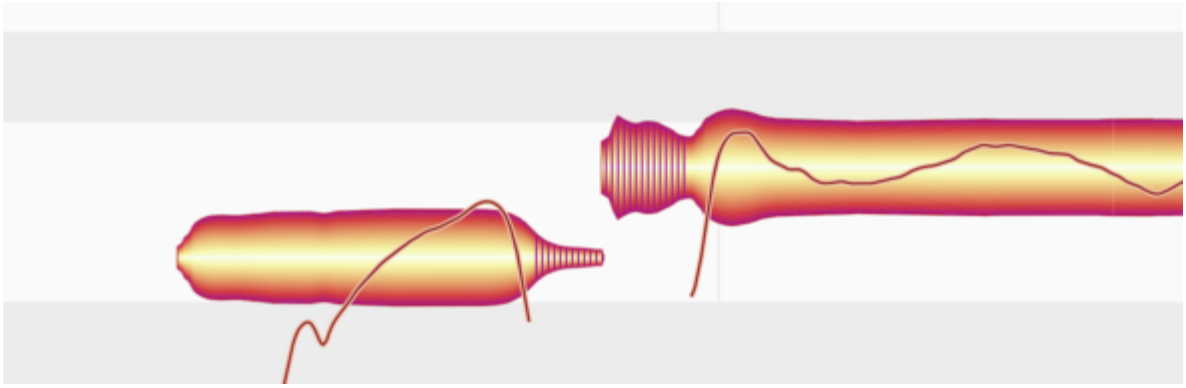
The option “Enhanced Tempo Detection” is only available when the Universal Algorithm is selected. When the Polyphonic Algorithm is used, it is always active; with the other algorithms it is grayed out.

# Melodyne 5: Update guide

The following is a brief summary of all you need to know to get started with the new Melodyne 5. In the individual tours in the Help Center, you will find plenty of exciting tips, tricks and background info to read later, but the best place to begin is here.

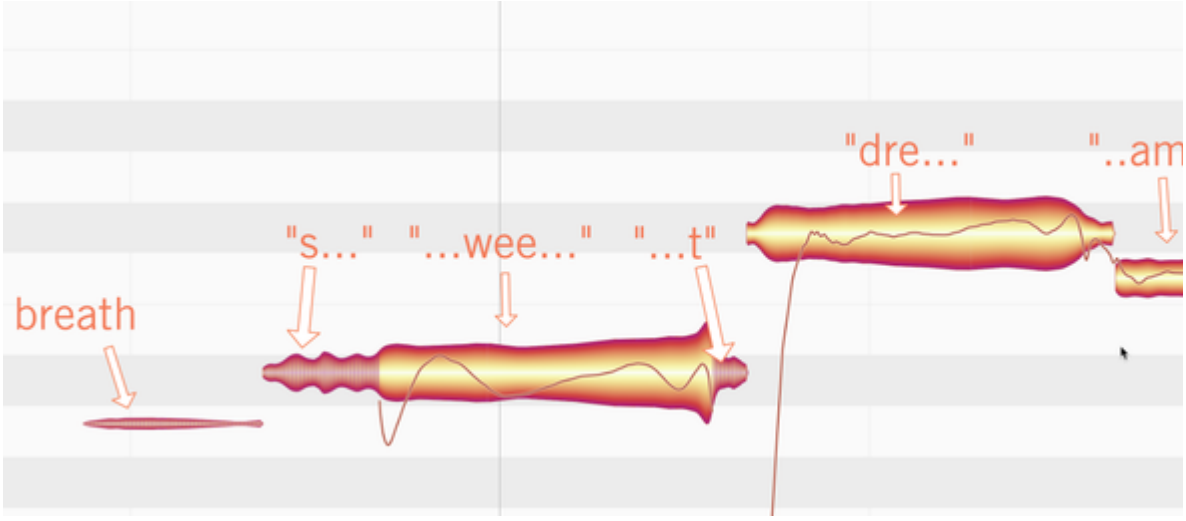
### The Melodic Algorithm with Sibilant Detection

First the good news: You don't have to do anything; during its initial analysis of the material (the 'detection'), the algorithm in its default setting automatically separates the pitched from the unpitched (noise-like) components of the sound and thus behaves correctly during the playback. The upshot is better sound, pure and simple.



The extent of any noise-like components that have been detected – we call them 'sibilants' – is indicated by hatching. This is how Melodyne marks not only sibilants proper ("s", "z", "ch" and "zh") but also other unvoiced consonants like "k" and "t" as well as the sound of the vocalist inhaling or exhaling between words.
If any part of the detection seems strange or incorrect to you, you can switch to Note Assignment Mode where you will find the requisite Correction Tools though doing so is seldom necessary.

When you alter the pitch of a note, Melodyne does not alter the frequency of the sibilants, as that would sound unnatural – after all, in real life no singer has the wherewithal to sing one "S" higher than another or pitch the sound of their own breathing. In the display, however, the hatched areas do move up or down with the rest of the blob when the corresponding note is transposed, but they do this solely in the interests of legibility, so that the visual integrity of each syllable is preserved.




The way changes in the length of notes is implemented in Melodyne now also better represents the natural behavior of singers: if a note contains both sibilants and pitched components, the sibilants remain unaltered. When time-stretching is applied to the word “sweet”, for example, it becomes “s-weeeeeeee-t” (not “sss-www-eeeeee-ttt” or anything ghastly like that!).

The case is different where the note in question (or, in this case, the sound to which the blob refers) consists *solely* of sibilants and has no pitched components at all, as is often the case with breath noise: this would certainly be shortened to make room for a time-stretched word invading its space. But here, too, the principle is the same, because if the rest between two words were shorter, the singer would necessarily take a shorter breath. So even when it comes to lengthening or shortening breathing sounds, Melodyne 5 automatically achieves a natural effect.

And once they have been isolated, breaths can be stretched or squeezed using a different algorithm, with results that sound considerably better than those of earlier versions of Melodyne.
Since, however, sibilants often coincide with pitched components, it can happen that breath sounds do sometimes move; when this happens, it is because Melodyne has detected a small pitched element in them that has been transposed, and this fact must naturally be reflected in the display. This should not surprise you.

All editions of Melodyne profit from these improvements – even the entry-level Melodyne essential.

### Compatibility with Melodyne 4

When you open projects that were saved by an earlier version of Melodyne, they sound exactly the same in the new version as in the old. This is because when you open old documents, two new functions are initially not activated:

- Sibilants are not detected.
- Pitch centers of notes are still calculated as in Melodyne 4.

The upshot is that everything sounds exactly as it did before, so if you open your old project today with the intention simply of making some minor change to the mix, you do not need to take any special precautions.

If, however, you plan to do substantially more work on the project, taking advantage of the new features of Melodyne 5, you can do so simply by switching on Sibilant Handling on the vocal tracks. This is done by:

- placing a checkmark next to the option “Sibilant Handling” in the Algorithm Inspector in Note Assignment Mode. This will trigger a fresh analysis of the entire track; when this is finished, any sibilants will be marked and the playback algorithm will behave accordingly. This may change the sound, usually for the better. Please note however that Sibilant Detection is only available with the Melodic or the Percussive Pitched algorithm; with all the others, the function is grayed out.

Unfortunately, this function is not available with the edition Melodyne essential. If you want to edit an old Version 4 project taking advantage of the new sibilant functions, you must trigger a fresh detection of the material by clicking the words ‘Melodic’ or ‘Percussive Pitched’ (as appropriate) in the Algorithm menu. Please bear in mind, however, that if you do this, all your previous editing will be lost, so it will seldom be worth it. Another option would be to upgrade to Melodyne assistant; then not only would the entire tool kit be at your disposal but you would also be able to switch Sibilant Handling on and off.

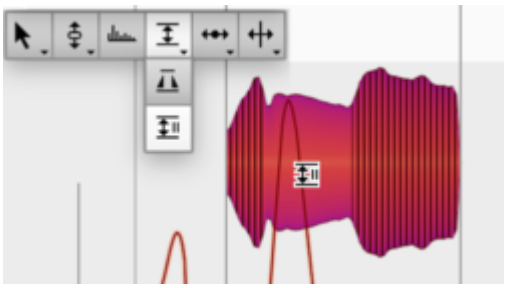
- triggering a recalculation of the pitch center of the notes. To do this, you must enter Note Assignment Mode and ALT-double-click on the relevant notes. While it is replotting the Pitch Curve of each note, Melodyne also recalculates its pitch center. As a result of the improved method of determining the pitch center of each note, the blobs may realign themselves slightly in the vertical plane, with some moving upwards and others down; the results in either case reflect more faithfully the perceived pitch of the notes.

More on the new way of calculating the pitch center.

### New tools (not only) for vocals

With Version 5, Melodyne assistant, editor and studio have gained two new tools:

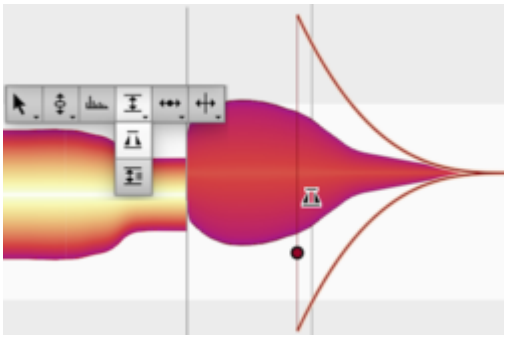
**The Sibilant Balance Tool**: This governs the ratio between the amplitude of the sibilants and that of the other (pitched) components of the sound. Its uses range from the defusing of problematic sibilants (de-essing) and the rapid adaptation of doubled vocal tracks, to creative sound design and improved mixing options.



The tool is easy to use: Drag downwards to attenuate the sibilants, or upwards to attenuate the pitched components. You can make very fine adjustments but also – when double-tracking, say – mute altogether either the sibilants or the pitched components.
The tool can be used for the detailed editing of single notes or, when multiple notes are selected, to apply the same change throughout an entire passage.

You will find all the details here.

**The Fade Tool**: With Melodyne 5, you can fade in at the start of a note and/or fade out at the end. No doubt you're familiar with the principle from your DAW. Using the tool is easy: just double-click to insert a fade; then use the left/right arrows to move it, and the up/down arrows to adjust its slope. That's all you need to know.

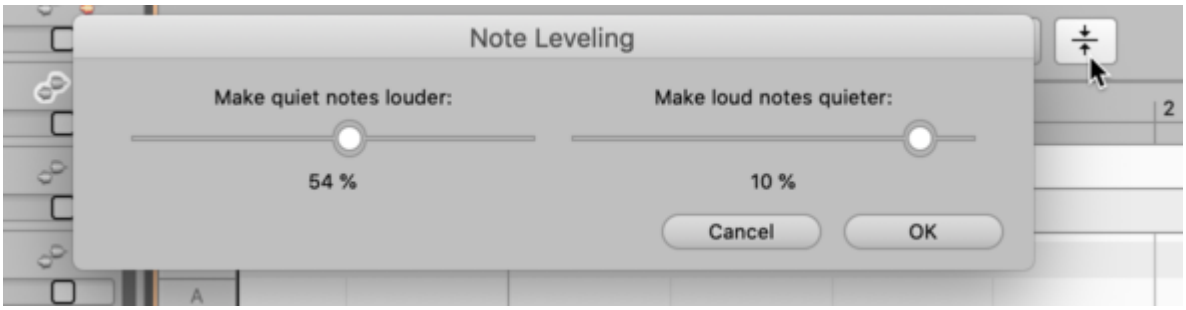


What is much more interesting, however, is that this function increases the control Melodyne offers over the playing dynamics of all types of instrument, because it operates on a per-note basis. So in polyphonic material, for example, you can fade in or out on individual notes within chords. The Fade Tool also makes possible the rapid elimination of extraneous noise in material of all kinds – most notably, polyphonic instrument tracks – as well as providing totally new scope for creativity.

You will find all the details here.

### The Leveling Macro

The new Leveling Macro allows you to rein in volume disparities swiftly. Its effect is to reduce differentials between the amplitude of different notes on a track – not only in melodic but also in percussive and even polyphonic material.




The left-hand fader makes the quiet notes louder, whilst the right-hand fader makes the loud notes quieter. With both faders set to 100%, all the notes will have the same amplitude.

Whilst this may sound simple, it can accelerate your workflow considerably – particularly in the case of polyphonic material, as it allows you swiftly and effortlessly to iron out or reduce disparities between the volume levels of different notes within chords.

You can find out more about the Leveling Macro here.

### Pitch correction by double-clicking and the Correct Pitch Macro

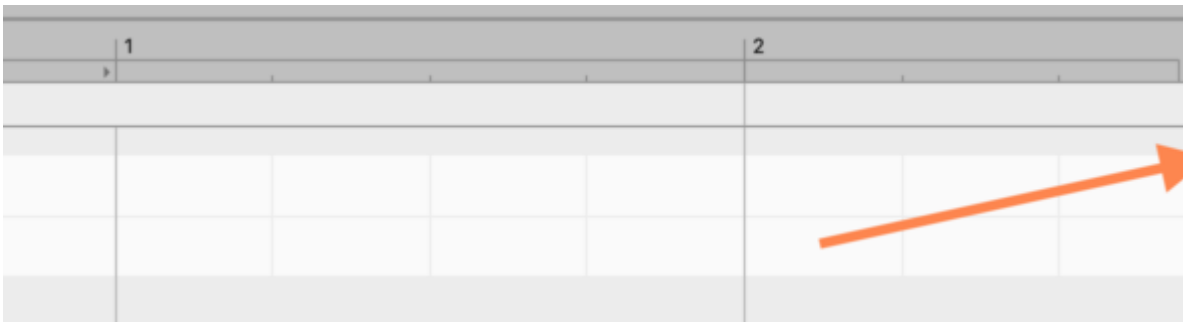
Whether you double-click on out-of-tune notes to correct intonation errors or use the macro, the new, musically weighted calculation of pitch centers delivers better results. Whereas previously you often had to fine-tune individual notes manually, even after double-clicking or using the macro, now Select All followed by a double-click always results in musically correct intonation. Further editing is now required, at most, in a handful of specific genres to steady-up the beginning or ending of words – and even this can be performed in Melodyne 5 in next to no time.

More on this....

Both the Correct Pitch macro and double-clicking also profit from the new Chord Track. To an extent you can control, and in an extremely musical manner, not only can the intonation of the notes be improved swiftly but they can also be transposed simultaneously to fit the chords of the song. This allows any instrument track or any sample to accompany any song.

### Chord Recognition and the Chord Track

If it is not already visible, click here to show the Chord Track.

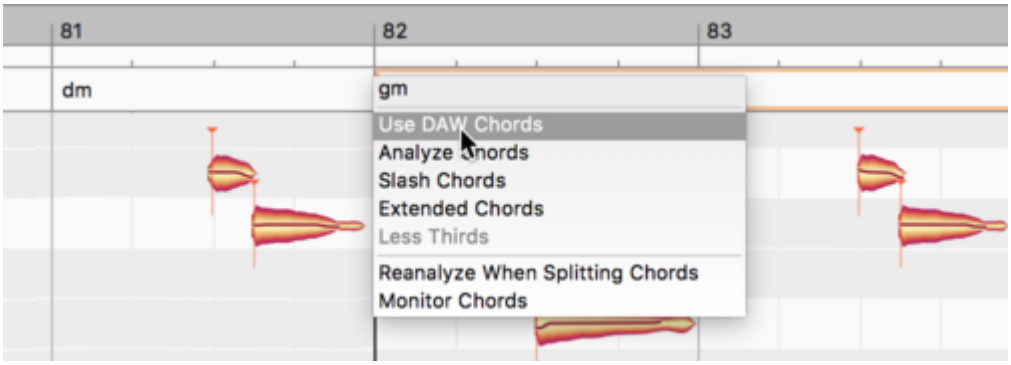



There are now various ways of filling in the chords:

- by hand. If you know the chords, you can just type them in. From the Preferences dialog, you can choose between various chord naming conventions.

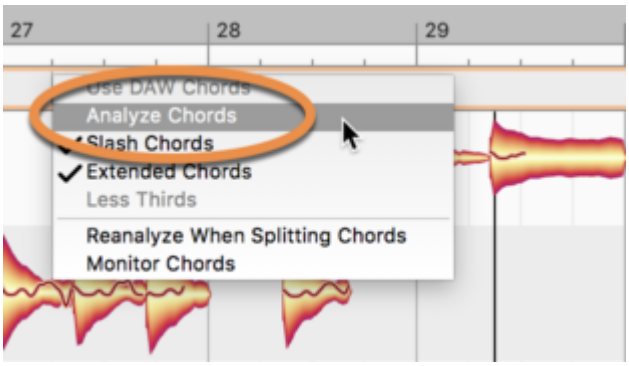



- via ARA: If your DAW is equipped with a chord track and makes it available via ARA, Melodyne can simply take the chords from the DAW. Any subsequent chord changes you make in the DAW will be reflected immediately in Melodyne.

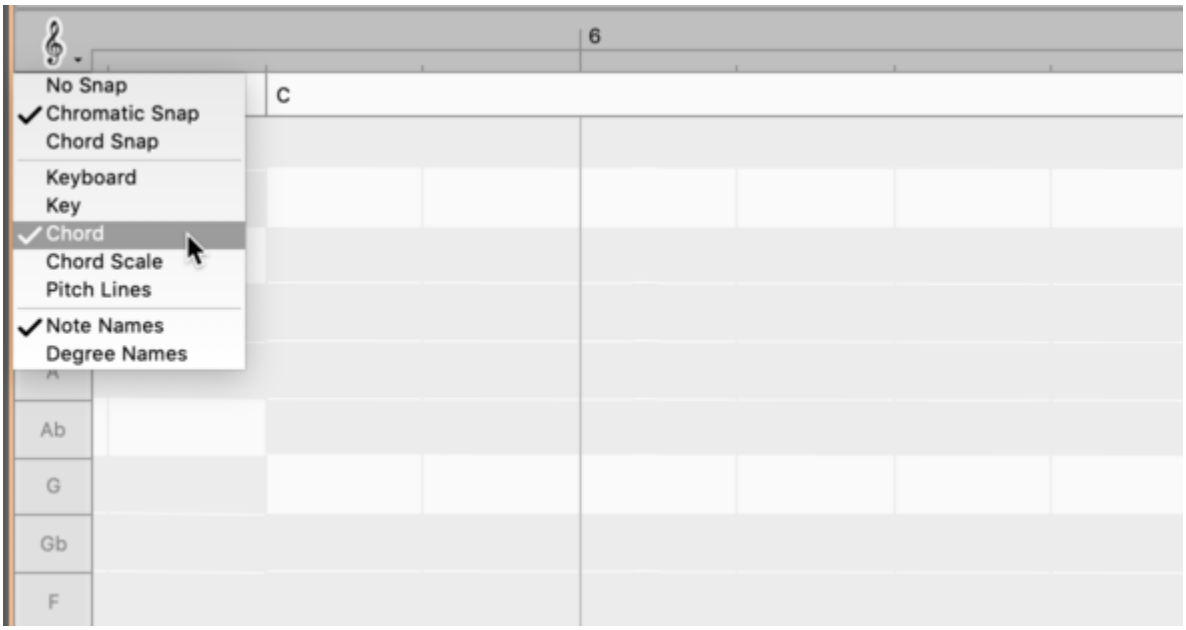



- using the Chord Recognition function. If you do not know what the chords of the song are, Melodyne can find out for you. Select for the purpose tracks with as much harmonic information as possible (e.g. guitar, keyboard or bass) and as little pitch fluctuation as possible (so preferably not vocals); do not include drum tracks.

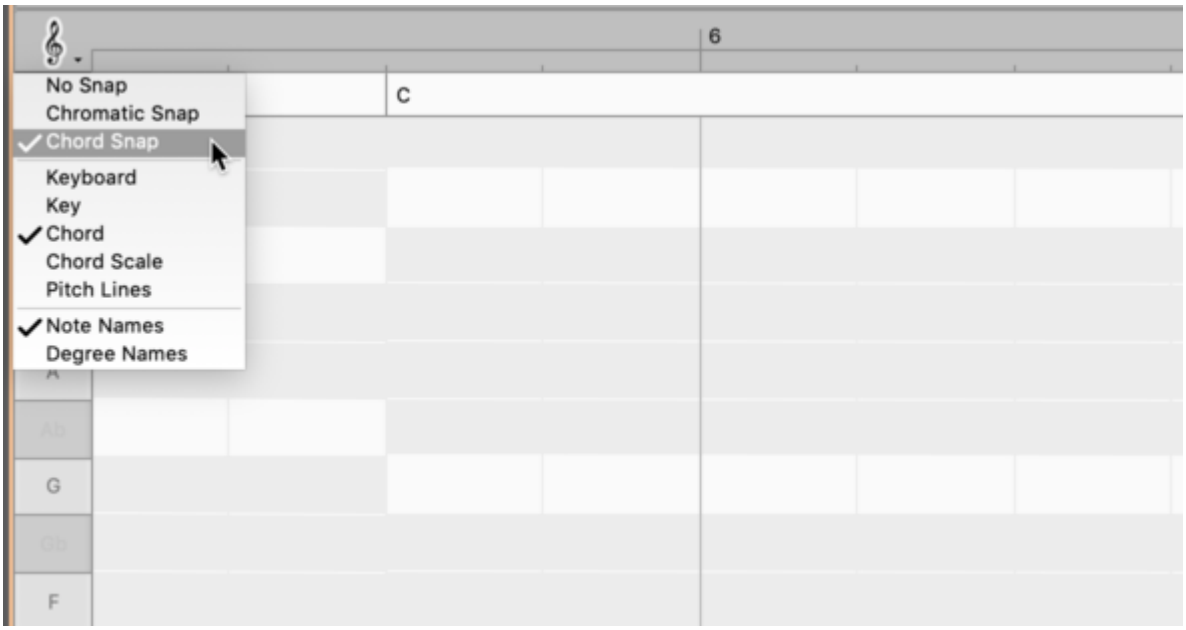
Now right-click on the Chord Track and choose “Analyze Chords”.




Once the Chord Track has been filled in, you can set the Pitch Grid in the note-editing background to reflect the changing harmonies of the song. From this, you can tell at a glance which pitches are, and which are not, suitable destinations for notes.




If you now activate the grid by selecting ‘Chord Snap’, whenever you drag and drop notes they will snap to pitches consistent with the named chord.




The same thing will happen whenever you double-click on a note or selection of notes; each note will move to the nearest pitch consistent with the named chord. It can happen, of course, that two or more notes then come to rest at the same pitch, so it is worth casting a quick eye over the results.

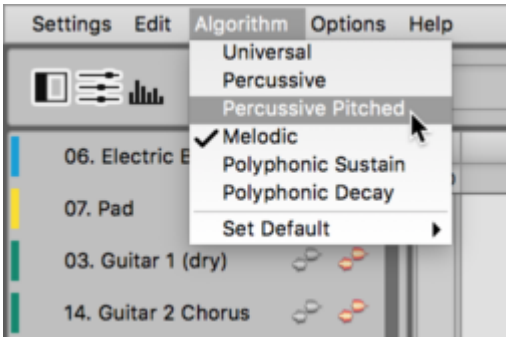
You will find everything relating to chords, the Chord Track and adapting new material to fit the chords here.

### The new Percussive Pitched Algorithm

With Version 5, Melodyne has acquired a new algorithm. The Percussive Pitched Algorithm combines the strengths of two of the existing algorithms.

Like the Percussive algorithm, the new algorithm is optimized acoustically for drums and percussion, or – in more general terms – for noise-based material.

In other respects, though, with its display format in which pitches are clearly identified, the Percussive Pitched algorithm is more like the existing Melodic algorithm.



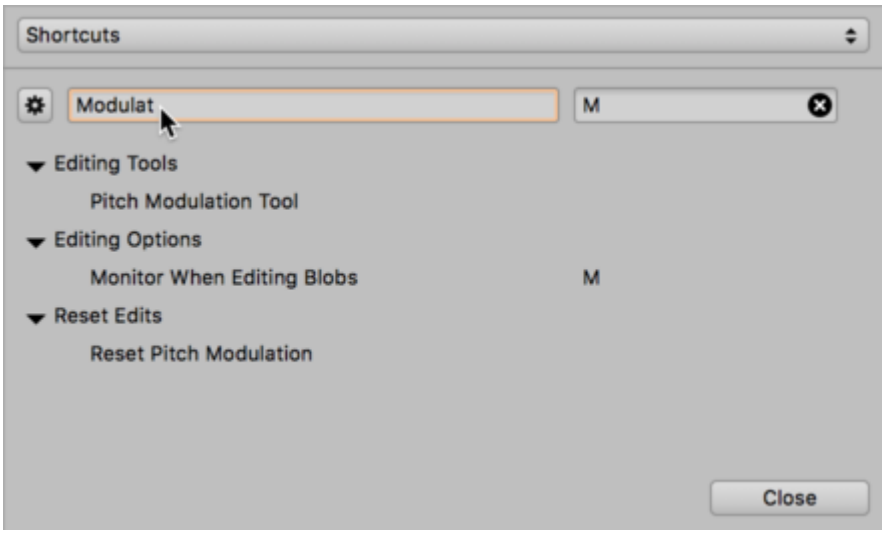
Suitable candidates for the new algorithm are all drum-like instruments that are capable at the same time of producing recognizable melodies: an 808 loop, for example, which in addition to the noise-based snare and hi-hat sounds includes a kick drum tuned to the bass of the song as well as tuned toms. A beatboxer track would be another typical candidate for the new algorithm; there, too, melodic (bass) with percussive (snare) elements are united in one and the same recording.

More on this....

### Keyboard shortcuts

In Melodyne, virtually any function can be controlled using a keyboard shortcut. Experienced Melodyne users know how to take advantage of this, and are able to perform tasks considerably more swiftly by using shortcuts tailored to their own specific working habits.

To facilitate the handling of keyboard shortcuts, the Shortcuts page of Melodyne 5's Preferences dialog offers a search function that makes creating your own sets of shortcuts easier and more intuitive.



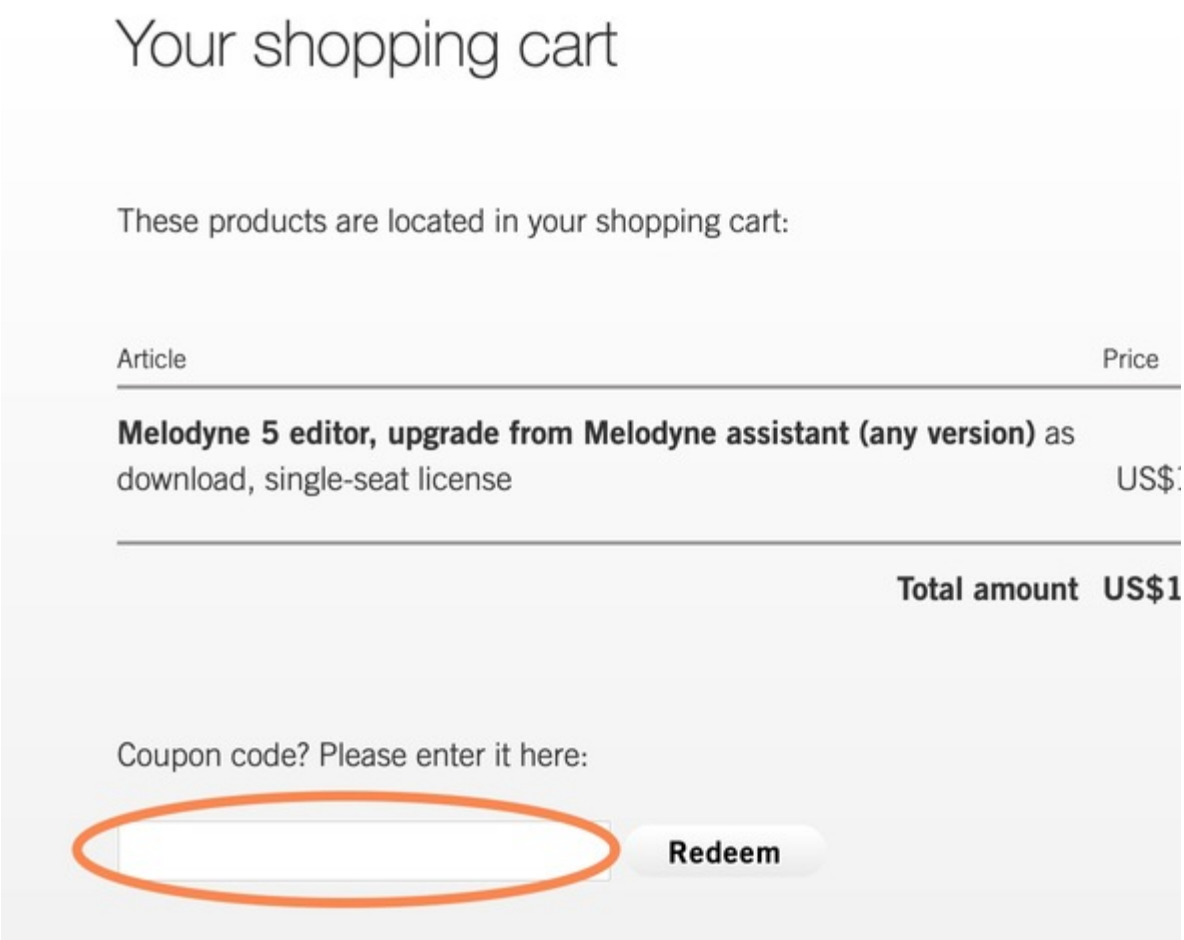

You can find out more about keyboard shortcuts here.

# Already own a Melodyne?

If you are already a Melodyne customer and have received a license for Melodyne 5 essential bundled with some other software or hardware product, don't worry; you can use the license in our web shop as a coupon when purchasing any other update or upgrade. Here's how it works:

### How does the coupon work?

In our web shop, first place the update for your existing Melodyne or the desired upgrade in your shopping cart; then, when you come to pay, enter the serial number of your Melodyne 5 essential as your coupon code and click on "Redeem".



The coupon has a value of €/US$ 20. This amount will therefore be subtracted from the sum you have to pay when switching to a larger edition or later version of Melodyne. What if you already have Melodyne 5 studio? In that case, you can use the coupon when purchasing an additional activation or a future update to Version 6.

### What if I have already activated my Melodyne 5 essential by mistake?

Don’t worry. You can still recover your coupon. Just open Melodyne 5 essential, choose “License” from the Help menu; this will take you to your user account where you can deactivate Melodyne. After deactivating your Melodyne 5 essential, you can use its serial number as a coupon code. If you do so, however, you will no longer be able to reactivate your Melodyne 5 essential, as use of the coupon voids the license.

### Coupons: terms and conditions of use

Anyone who has received a serial number for Melodyne 5 essential as part of some other product bundle can, if he or she is already a Melodyne customer, use this serial number instead on a single occasion as a Melodyne coupon in the Celemony web shop. Use of the coupon in this way voids the Melodyne 5 essential license.

- The coupon has a value of EUR 20.00 or USD 20.00 and can be redeemed for Melodyne updates or upgrades exclusively in the Celemony web shop (www.celemony.com). When you purchase a Melodyne update or upgrade, this amount will be credited to your account and therefore deducted from the total purchase price. The coupon cannot be redeemed for products other than Melodyne updates or upgrades.
- The coupon can be redeemed within one year of receipt of the serial/coupon number and in any case within three months of the release of Melodyne 6.
- Only one coupon can be redeemed per purchase transaction in the Celemony web shop. The coupon cannot be exchanged for cash.
- The coupon cannot be used in combination with other coupons/discounts and cannot be redeemed for purchases already made.

# Version history

Here you will find an overview of all changes introduced by the most recent Melodyne updates.

### New in Version 5.2

#### New features and improvements

- Compatibility: In version 5.2, Melodyne now runs natively on Macs with Apple Silicon processors. The Mac version is supplied in Universal Binary format with native code for processors from Intel/AMD and Apple.
- Pitch editing: The scale snap behavior for pitch systems with closely spaced alternate stages has been improved.
- The playback function: In ARA mode and when using the transfer plug-in, you can now trigger playback of the current blob selection using the shortcut Alt+Space. If you would prefer to assign a different key combination to this shortcut, you can do so from the Shortcuts page of the Preferences dialog.
- Cache: The location of Melodyne's internal cache is now displayed in the Preferences dialog in ARA mode too, and you can alter its size.

#### Bug fixes

- Pitch editing: "Monitor When Editing Blobs" now also functions reliably with the arrow keys when pitch shifting.
- Editing the tempo assignment under certain circumstances led to a crash. Fixed.
- Accidentally dragging a track to the Project Inspector tab under certain circumstances led to a crash. Fixed.
- Changing the pitch reference at high zoom levels under certain circumstances led to a crash. Fixed.
- Moving an inserted note separation under certain circumstances generated an error message. Fixed.
- Scale changes: If the "Tuning and Mode" option is active when using "Notes Follow Scale Changes", notes are now moved correctly.
- Windows: Melodyne's file name extension is now correctly assigned.
- Melodyne essential: The option "Highlight Notes During Playback" has been added to the Options > Note Editor submenu.
- Stand-alone mode: When the Replace Audio command has been used, local playback now correctly reflects the track selection.
- Melodyne essential: The option "Show Fades" that appeared erroneously in the Options menu has been removed.

- The Note Inspector: When algorithms without sibilant detection are in use, the Sibilant Balance parameter is now grayed out.
- Selection: When removing a note separation results in two blobs merging, the resulting blob is now also selected in ARA mode.

### New in Version 5.1.1

- Change: A workaround has been integrated for ARA compatibility with Mixcraft 8.
- Fixed: Lead sheets are now exported correctly via MIDI.
- Fixed: In Apple Logic, playback can also now be started reliably from Melodyne.
- Fixed: Under macOS, shortcuts using the “cmd” and function keys are now displayed correctly.

### New in Version 5.1

#### Features and improvements

- macOS 11 Big Sur: Melodyne 5.1 is compatible with macOS 11 Big Sur on Intel-based Macs as well as on ARM-based Macs under “Rosetta”.
- DAW-oriented keyboard shortcuts: We are always looking for ways to make the operation of Melodyne even easier for users of digital audio workstations. That’s why we’ve included sets of keyboard shortcuts customized for Pro Tools, Logic, Cubase and Studio One in Version 5.1. You can choose the set you want from the Shortcuts page of the Preferences dialog.
- Exporting lead sheets: It is now possible to export the contents of the Chord Track as a lead sheet via MIDI; you will find the relevant command in the Chord Track’s context menu.
- Algorithm selection: During ARA operation with Cakewalk, Melodyne’s Select Algorithm menu is now displayed prior to any MIDI export.
- ARA improvements: The interaction with ARA DAWs has been optimized in various ways – partly to ensure compatibility with future DAW versions.
- New keyboard shortcuts: It is now also possible to assign keyboard shortcuts to the following commands: “Show Sibilants”, “Note Leveling”, “Copy Song Data to Note Assignment…” and “Copy Note Assignment Data to Song…”.

#### Bug fixes

- A keyboard shortcut assigned to “Toggle Cycle Mode” now also works reliably when Melodyne is running as a plug-in and under ARA.

- MIDI export has been improved and muted notes are no longer included in the export.
- Under macOS, keyboard shortcuts using the function keys are now also correctly displayed in the menu.
- The “Set Cycle to Selection” function now also works correctly in Studio One.
- When you stop playback in Pro Tools, the playback cursor in Melodyne now remains where it was when playback was halted, instead of springing back to the previous start position.

### New in Version 5.0.2

- Bugfix: The installation program no longer launches under Windows 7, displaying instead a message saying that Windows 7 is not supported.
- Bugfix: In the Note Editor, you can now also place time handles without having to select a note first.
- Bugfix: In the Note Editor, you can now also move note separations without having to select a note first.
- Bugfix: In Samplitude X5, when a new audio file is detected, whichever algorithm is selected as the default is now used.
- Bugfix: There is no longer a delay before newly inserted note separations are displayed in the Note Editor.
- Bugfix: In Cubase (in Transfer mode, i.e. without ARA), Melodyne still displays correctly even if you have changed the size of its window.
- Bugfix: During local playback in ARA mode, overlapping notes are no longer erroneously played back at the comping boundaries.

### New in Version 5.0.1

- Bugfix: Use of the “Separate Notes as Trills” command no longer produces occasional artifacts.

# User manuals for older versions

### Melodyne 4

The online user manuals for Melodyne 4 studio, editor, assistant and essential in English, German, French, Japanese and Spanish can be found here.

These versions were replaced in May 2020 by Melodyne 5 studio, editor, assistant and essential.

### Melodyne editor, assistant and essential 2 (singletrack)

The online user manuals for Version 2 of Melodyne editor, assistant and essential are available in English, German, French, Spanish and Japanese; they are complemented by numerous video tutorials.

Melodyne editor | Melodyne assistant | Melodyne essential

These versions were replaced at the beginning of 2016 by Melodyne 4 editor, assistant and essential.

### Melodyne studio 3

The user manual for Melodyne studio 3 is available here in PDF format:
English | German | French | Spanish | Japanese

This version was replaced at the beginning of 2016 by Melodyne 4 studio.

### Ending support for older versions of Melodyne

The following versions of Melodyne are very out of date and no longer compatible with current operating systems. For that reason, support for them was discontinued at the end of 2018. It is no longer possible, therefore, to download, activate or obtain technical support for these versions of Melodyne:

- Melodyne studio versions 1 and 2
- Melodyne cre8
- Melodyne uno
- Melodyne plugin
- Melodyne essential from a Digidesign or E-mu bundle

We have, however, provided links to free updates to the latest versions of all the discontinued products. If you have one of them and have not already received a notification from us to this effect, please contact our support for an update.