

Operation Manual

PADSHOP 2

Granular and Spectral Synthesizer



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New Features

New Features in Version 2.2.0

Load Program Dialog

- When loading programs, the **Load Program** dialog opens, which allows you to switch between the **MediaBay** and the **File System** pages. See [Loading Programs](#).

New Features in Version 2.0.0

Highlights

Spectral Oscillator

- The spectral oscillator with its high-end time stretching and pitch scaling allows you to play a sample freely at any speed, direction, or pitch. See [Spectral Oscillator](#).

Additional Filter Shapes

- Padshop has new filter shapes for the HP, LP, and BP filters. See [Filter Section](#).

Arp Page

- Use the integrated arpeggiator and phrase player. See [Arp Page](#).

More New Features

New for Cubase Padshop users

- You can import your own samples into Padshop to use them in the grain or the spectral oscillator.
- A global reverb effect to enrich your sound with fullness and atmosphere. See [Global Reverb Section](#).

Polyphonic LFOs

- In addition to the two monophonic LFOs, Padshop 2 has two additional polyphonic LFOs. See [LFO Section](#).

Env 3 Section

- The Env 3 section provides an additional envelope that can be routed freely in the modulation matrix. See [Envelope 3 Section](#).

Effects

- The effects parameters are now available on a separate page. See [FX Page](#).
- The Ensemble and Phaser modulation effects are available in addition to the Chorus and Flanger effects. See [Modulation Effects Section](#).
- The global reverb effect now contains Chorus parameters. See [Global Reverb Section](#).

Padshop

Padshop 2 is a sophisticated granular and spectral synthesizer. This instrument allows you to create complex sounds that can drastically evolve over time.

It features two completely independent layers that each use a set of samples as grain or spectral oscillator sources. On each layer, you can work with factory samples or import your own. This way, you can create interesting and very unique sounds, such as combining slowly moving pads with rhythmic parts. Thanks to the new arpeggiator, you can also produce new, advanced patterns.

The **Filter** section provides 24 different filter shapes, including low-pass, high-pass, band-pass, and band-reject filters. The integrated filter distortion can produce analog tube distortions or hard-clipping effects, or reduce the bit depth or sample frequency. Three envelopes (**Filter**, **Amp**, and **Env 3**), four LFOs (two monophonic and two polyphonic LFOs), and the step modulator in Padshop can be used to modulate a large number of modulation destinations, now even via drag and drop.

The included modulation matrix features 16 freely assignable modulation rows. This allows you to create Note Expression modulation assignments that can be directly addressed from within Cubase, for example. To give the sounds the final polish, Padshop provides a three-stage effects section including EQ, chorus, flanger, ensemble, phaser, different delay effects that can be defined for each layer, and a global reverb effect.



Grain Oscillator

The grain oscillator uses granular synthesis. In granular synthesis, only short portions of a sample are played back. These so-called grains can be played back in any order. Each time a grain ends, a new one starts. To avoid discontinuities in the playback and to minimize artifacts, envelopes are applied to the grains. Very short grains produce sounds with an individual pitch. This means that you can also extract pitched sounds from samples without a distinct pitch, such as drum loops or sound effects. Sounds with longer grains usually play back with the pitch of the original sample.

Spectral Oscillator

The spectral oscillator analyzes the spectrum of the loaded sample, that is, the progression of the frequencies, amplitudes, and phases from the sample start to the end of the sample. The analyzed spectrum is used to generate a waveform for playback. When the play marker moves through the sample, dynamic progressions of waveforms are produced. You can also slow down the playback speed up to the point where only a static waveform is played back. Furthermore, Padshop allows you to modulate the playback position in the sample, which allows you to control the movement through the sample using LFOs, the step modulator, or the arpeggiator controller lanes, for example. The **Purity**, **Inharmonicity**, and **Formant Shift** parameters allow for extensive sound manipulations.

Getting Started

The tutorials help you to get familiar with the functions and possibilities in Padshop. You can experiment with the different presets and try out the available samples.

Creating Sounds Using Long Grains

Sounds with longer grains usually play back with the pitch of the original sample.

PROCEDURE

1. In the **Oscillator** section, select the “Crystal Pad” sample from the “Padshop/01 Synths” folder.
2. Set **Duration** to 200.0.
3. Play a note.
A single grain is repeated continuously.
4. Set **Number of Grains** to 3.
This way, you get three grain streams.
5. Again, play a note.
The grain density has increased, but the sound is rather repetitive.
6. Set **Position** to 50 %.
7. Play a note and increase the **Position Random** value until the sound is no longer repetitive.
Now, each grain plays a random portion of the sample, and the sound is much richer.
8. Experiment with the other parameters and see what they do, for example, try out **Pitch Interval**, **Speed**, **Duration**, and **Duration Key Follow**.
9. Select another sample from the “Padshop/01 Synths” folder, and see how it sounds with your settings.
10. Adjust the filter, envelope, and effect settings to your liking, and save your sound as a preset.

TIP

The “Swarm Intelligence” preset from the factory library is a good example for a pad sound created using long grains.

Creating Sounds Using Short Grains

Very short grains produce sounds with an individual pitch. For that reason, you can also use samples without a distinct pitch, such as drum loops and sound effects, to extract pitched sounds from them.

PROCEDURE

1. Select the “Pure Sine” sample from the “Padshop/02 Waveforms” folder.
This loads a perfect sine wave.
2. Play a note.
You hear a single stream of grains.
3. Set **Duration** to 1.
The grain duration determines the pitch of the sound. With a **Duration** setting of 1 and **Duration Key Follow** at +100 %, the sound plays back at the pitch that you play on the keyboard. If you set **Duration** to 2, the pitch drops by one octave, because the grain duration is twice as long. The longer the grain duration, the more the pitch of the sound is determined by the pitch of the original sample.
4. Adjust the **Shape** parameter while you play, to hear the amplitude modulation.
The shape of the grains determines the amplitude of the portion of the sample that is played back within the grain. This is similar to amplitude modulation, where one signal (the modulator) determines the amplitude of another signal (the carrier). In this case, the sample is the carrier and the grain is the modulator. Amplitude modulation adds sidebands to each sinusoidal component of the carrier signal. Therefore, the more complex the sample is, the more sidebands you hear.
5. Play a note and increase the **Formant** parameter.
A formant is a group of frequencies in the spectrum that is emphasized. When you increase the parameter, you hear that a formant in the spectrum moves up. The pitch of the sound does not change, because the grain duration is not modified. If you take a look at the waveform display, you see that the higher the **Formant** setting, the longer the portion of the sample that is played back within the grain.
6. Play a note, and decrease the **Length** parameter.
The **Length** parameter has an effect similar to the **Formant** parameter. By decreasing the length, the grain is shortened, but the period at which the grains repeat stays the same. Therefore, only the spectrum of the sound changes, but not its pitch.
7. Open the modulation matrix, select **Grain Formant** or **Grain Length** as modulation destinations, and set the modulation source to **Filter Envelope** or **LFO 1/2**, for example.
This adds more liveliness to the sound.
8. Adjust the modulation depth, and listen to the result.
9. Try out your settings with a more complex sample.
10. Click the waveform to change the position of the grain playback. The spectrum changes accordingly.
11. Adjust the filter, envelope, and effect settings to your liking, and save your sound as a preset.

TIP

The “Formantor” preset from the factory library is a good example for a pad sound created using short grains.

Using LFO 3 for Time-Stretching

In this tutorial, you use LFO 3 to sync a loop to the tempo of your song. You can use the spectral or grain oscillator for this.

PROCEDURE

1. Load the “Init” preset.
 2. On the **Synth** page, select the oscillator that you want to use: grain or spectral.
 3. Load the “Andank” sample from the “Padshop Factory/05 Musical Fx” folder.
You can also use other samples from this folder.
 4. Set **Position** to +50 % and **Speed** to 0 %.
 5. If you use the grain oscillator, set **Number** to 2, **Duration** to 10, and **Duration Key Follow** to 0 %.
 6. Go to LFO 3 and drag its modulation icon to the **Position** parameter.
 - For the grain oscillator, this assigns LFO 3 to **Grain Position** in the modulation matrix.
 - For the spectral oscillator, this assigns LFO 3 to **Spectral Position** in the modulation matrix.
 7. On LFO 3, select **Saw** as **Waveform** and set **Shape** to 100 %.
 8. Set **Retrigger** to **On**, **Sync Mode** to **Tempo**, and **Rate** to 4/4.
 9. Optional: Try out other samples from the Padshop Factory/05 Musical Fx folder.
-

RESULT

If you now play a note and change the tempo of the host, the loop will follow.

TIP

The “Init Time Stretch” preset uses the settings described above for the grain and spectral oscillators. Use this preset to switch freely between grain and spectral oscillator and listen how it sounds.

The “Trigger Point” preset is a finished sound using the spectral oscillator. You can also switch it to the grain oscillator.

Creating Sounds with the Spectral Oscillator

The spectral oscillator with its **Purity**, **Inharmonicity**, and **Formant** parameters allows you to create characterful piano sounds.

PROCEDURE

1. Load the Init preset.
2. On the **Synth** page, select the spectral oscillator.
3. Load the “Grand Piano” sample from the “Padshop Factory/03 Instruments” folder.

4. Set **Loop** to **Off**.
5. Adjust the **Purity** and **Inharmonicity** parameters.
Purity affects the brightness of the sound, and **Inharmonicity** changes the timbre from clean to dissonant.
6. Set **Purity** to +50 % and **Inharmonicity** to 0 %.
7. In the modulation matrix, assign **Velocity** to **Spectral Purity** and set the modulation **Depth** to -25 %.
8. Assign **Velocity** to **Spectral Inharmonicity** and set the modulation **Depth** to +25 %.
The higher the velocity of the note, the brighter and more inharmonic the sound. Now, the sound is too dull when playing low notes and too bright when playing high notes.
9. Set **Formant Key Follow** to 0 % to correct this with the formant filter.
10. To make the sound more playable, set **Amplifier Velocity** to +50 %.
11. Optional: Add filters, amplifier envelope, effects, or an arpeggio.
12. Optional: Experiment with other samples and the settings you made for this sound.

TIP

The “Illusions of Piano” preset is a good example of a preset that was produced this way.

Common Editing Methods

Some common controls and concepts exist throughout the program. For example, presets can be used in several different sections and contexts, but their handling is always the same.

Knobs and Sliders

Knobs and sliders can be unidirectional or bidirectional. Unidirectional values, for example, level values, start at a minimum value and go up to the maximum. Bidirectional controls start from the middle position and go to the left for negative and to the right for positive values.

Most of the editing methods are the same for knobs and sliders.

- Move the mouse over a knob or its parameter name to show the current parameter value. You can adjust the value with the mouse wheel or enter a new value manually.
- To adjust a value, click a knob or a slider and drag up and down, or use the mouse wheel. If you press **Alt/Opt** when clicking a knob, a small slider appears, allowing you to set the parameter.
- To make fine adjustments, press **Shift**, and move the knob or use the mouse wheel.
- To restore the default value for a parameter, press **Ctrl/Cmd**, and click on the control.

Buttons

Padshop contains two different types of buttons: **On/Off** buttons and push buttons.

On/Off Buttons

These buttons have two states: on and off. If you move the mouse over an **On/Off** button, it changes its appearance to show that you can click it.

Push Buttons

Push buttons trigger an action and then go back to their inactive state. These buttons open menus or file dialogs.

Value Fields

You can enter or edit values in the available value fields using your keyboard or mouse. To enter key ranges or the root key, for example, you can use an external MIDI keyboard.

To set a value, you have the following possibilities:

- Double-click in a value field, enter a new value, and press **Return**.
If the entered value exceeds the parameter range, it is automatically set to the maximum or the minimum value, respectively.
- Click in the value field, and drag up or down.
- Position the mouse over a value field, and use the mouse wheel.
- Click the up/down triangles next to the field.
- To set the parameter to its default value, **Ctrl/Cmd**-click the value field.
- To use a fader to adjust the value, **Alt/Opt**-click a value field.
- To enter musical values, such as key ranges or the root key, with your MIDI keyboard, double-click the value field, press a key on your MIDI keyboard, and press **Return**.
- To navigate to the next parameter, press **Tab**. To jump backwards to the previous parameter, press **Shift-Tab**.
If no parameter is selected inside the focused view, pressing **Tab** always jumps to the first parameter.




Presets

Throughout Padshop, you can find controls for section and module presets. These presets store and recall the setup of specific components, such as the effects on the **FX** page, for example.

- To save a preset, click **Save** .

NOTE

You cannot overwrite factory presets. If you want to save changes made to a factory preset, save the preset under a new name or in a new location.

- To load a preset, click the arrow icon and select a preset from the list.
- To step through the available presets, click **Previous Preset** /**Next Preset** , if available.
- To delete a preset, click **Delete** .

NOTE

Factory presets cannot be deleted.

Plug-in Functions Section

The plug-in functions section allows you to switch between the different pages and layers, apply global settings and functions, and obtain further information about a plug-in.



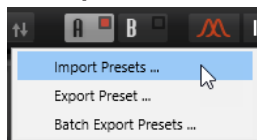
Plug-in Logo

To get information regarding the version and build number of the plug-in, click the plug-in logo. This opens the **About** box. To close the **About** box, click it or press **Esc** on your computer keyboard.

Program Loader

- To load a program, click the program loader, navigate to the program in the **Load Program** dialog, and double-click the program.
- To load the previous or next program, use the left and right arrow buttons.
- To save the current program, click **Save**.

Import/Export Presets



- **Import Presets** allows you to import a preset.
- **Export Preset** allows to export a preset, including its samples, to the specified destination folder. The referenced samples are copied into a subfolder of the destination folder, maintaining the existing folder structure.
- **Batch Export Presets** allows you to export multiple presets, including their samples, from a source folder to a destination folder. This makes it easier to exchange presets between systems, for example. All presets are copied from the source to the destination folder. The referenced samples are copied into a subfolder of the destination folder, maintaining the existing folder structure.

Layer Buttons

Allow you to switch between layer A and layer B and to activate the layers.

- To select a layer, click its **Show Layer** button.
- To activate a layer, click **Layer On/Off** at the top right of the **Show Layer** button.

Page Buttons

Allow you to switch between the **Synth**, **Arp**, and **FX** pages for the selected layer.

Functions

Click the **Functions** button next to the page buttons to open the **Functions** pop-up menu.

- **Copy Layer** allows you to copy your current layer settings.
The arpeggiator and effect settings of the layer are also included, except for the global reverb effect, which is not part of a layer.
- **Paste to Layer** allows you to paste the copied settings to the other layer.

NOTE

You can also copy layers between programs or even between different plug-in instances.

- **Init Layer**

Resets the current layer to its default settings.


Switch Off All Arpegiators

If this button is activated, both arpegiators are bypassed.

Lock Arpegiators

If this button is activated, both arpegiators are locked so that loading another program does not affect the arpegiator settings. This allows you to try out different sounds with specific arpeggios.

Options

Click the **Options**  button to open the **Options** pop-up menu.

- **Show Tooltips**

Activates and deactivates the tooltips.

- **Show Value Tooltips**

Activates additional value tooltips for controls that do not have a value field. The value tooltips are shown when you use the control.

- If **Polyphonic Key Mode** is activated, multiple note-on messages for the same note can be active at the same time. This allows you to trigger the same note several times, with different parameter values, and end each note event separately.

- If **High DPI Mode** is activated, the plug-in uses high-resolution bitmaps when it is displayed with a scaling of 150% or higher on a high-resolution monitor, such as 4K (UHD), 5K, etc. This allows for sharper images on high-resolution displays.

NOTE

Windows systems currently only support scaling factors that are multiples of 100. For example, if you use a scaling factor of 150%, in , the scaling factor is set to 200%.

High DPI Mode may not be compatible with some combinations of software and hardware. If you experience display issues with your setup, you can deactivate **High DPI Mode**.

- If **High DPI Mode** is deactivated, the native monitor resolution is used.

- **Reset MIDI Controller to Factory Default**

Restores the factory MIDI controller assignments.

- **Save MIDI Controller as Default**

Saves the current MIDI controller assignments as default. If you add a new instance of the plug-in, the new default settings are used.

Steinberg Logo

Click the Steinberg logo to open a pop-up menu with links to Steinberg web pages containing information on software updates, troubleshooting, etc.

Loading Programs

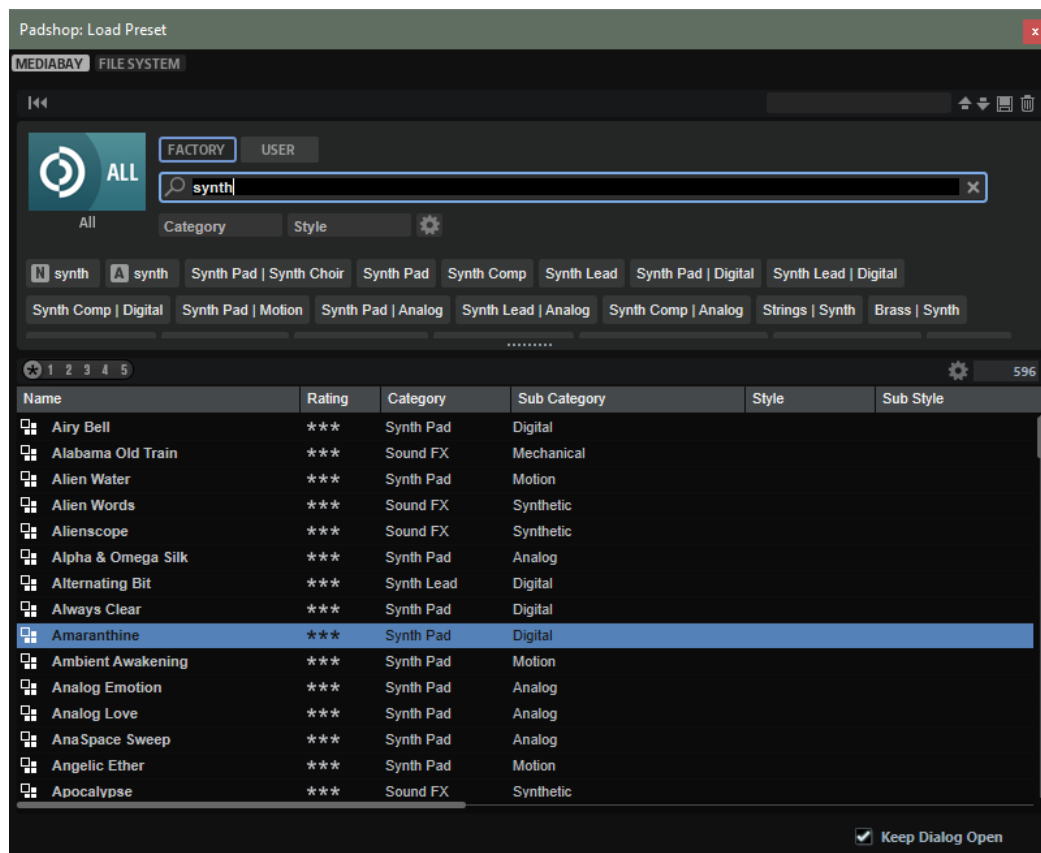
You can load programs via the **Load Program** dialog.

The **MediaBay** and the **File System** buttons at the top allow you to choose whether to use Steinberg's **MediaBay** to look for files or to search for files by browsing through the folders in your system.

Load Dialog–MediaBay Page

On the **MediaBay** page, you can search for and load files. To help you find your files more quickly, you can define a library filter and an attribute filter, the results list, and much more.

In the top section of the page, you can specify which sounds to look for. The lower section shows the corresponding results.



Reset Filter

Resets all filter settings.

Presets

You can save, load, and delete the settings of a **MediaBay** search, which includes both the search mask at the top and the results list. This allows you to create search templates for different search scenarios, for example.

Saving the **MediaBay** with active search filters allows you to create different preset collections that can be recalled very quickly. These collections are dynamic, that is, any new presets added to your system at a later time also appear in the results list when a new search is performed.

Select Library

Click the library icon on the left to open the library selector, where you can specify which library to search for content.

Factory

Activate this button to search for presets that are part of commercial or free libraries and that are installed on your system as VST Sound libraries.

User

Activate this button to search for presets that you have created and saved in the **MediaBay**.

Filter Text

In the text search field, you can enter text that is part of the name or an attribute of a preset that you are looking for. For example, if you enter **Piano**, the results list displays all presets whose name contains "Piano", or presets for which the term "Piano" is used in one of the attributes, such as the **Category** attribute **Piano** or the **Subcategory** attribute **Keyboard | E.Piano**.

Configure Attribute Menus

Allows you to add attribute menus, where you can specify attributes for your search. The following attribute menus are available:

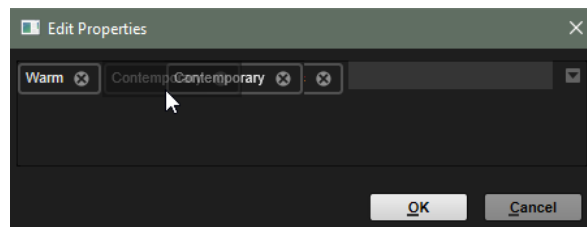
- **Category** opens a tree view that allows you to select a **Category** or a **Subcategory**. **Subcategory** tags are shown together with the corresponding **Category**, in the following way: (Category | Subcategory).
- **Style** opens a tree view which allows to select a **Style** or a **Substyle**. **Substyle** tags are shown together with the corresponding **Style**, in the following way: (Style | Substyle).
- **Properties** opens the **Properties** dialog, where you can add one or multiple **Properties** attributes.

To search for a **Properties** attribute, enter a text string in the text field, such as **warm**, for example. When you start typing, the available properties are shown and can be selected from the list. If the entered text does not match any of the existing attribute values, all available attribute values are shown in alphabetical order. By adding multiple properties, you can narrow down the results to the ones that match both properties.

Alternatively, click **Show All Attribute Values** next to the text field to open a list of all **Properties** attributes. You can search for matching attributes by scrolling the list. Press or click a property to add it.

To add a new **Properties** attribute, enter the text and press .



If you specify multiple attributes, you can change their order using drag and drop.



- **Moods** opens the **Moods** dialog, where you can add one or more **Moods** attributes.

To search for an attribute, enter a text string in the text field, such as **energetic**, for example. When you start typing, the available properties are shown and can

be selected from the list. If the entered text does not match any of the existing attribute values, all available attribute values are shown in alphabetical order. By adding multiple properties, you can narrow down the results to the ones that match both properties.



Alternatively, click **Show All Attribute Values**  next to the text field to open a list of all attribute values. You can search for matching attribute values by scrolling the list. Press  or click an attribute value to add it.

To add a new **Moods** attribute, enter the text and press .

If you specify multiple attributes, you can change their order using drag and drop.



- **Articulations** opens the **Articulations** dialog, where you can add one or more **Articulations** attributes.

To search for an attribute, enter a text string in the text field, such as **Decrescendo**, for example. When you start typing, the available articulations are shown and can be selected from the list. If the entered text does not match any of the existing attribute values, all available attribute values are shown in alphabetical order. By adding multiple articulations, you can narrow down the results to the ones that match both articulations.

Alternatively, click **Show All Attribute Values**  next to the text field to open a list of all **Articulations** attributes. You can search for matching attributes by scrolling the list. Press  or click an attribute to add it.

To add a new **Articulations** attribute, enter the text and press .

If you specify multiple attributes, you can change their order using drag and drop.

- **Author** opens a list with all available authors.
- **Key** opens a list with all available keys.
- **Signature** opens a list with all available signatures.
- **Tempo** opens the **Tempo** dialog, where you can select a **Tempo** and specify a **Range** in which the tempo of the result can deviate from the set tempo. Activate the **Half-Time**  or **Double-Time**  buttons to include presets that use half or double the tempo.

Rating Filter

Allows you to limit the results list according to the rating of the presets. Use the rating slider to define the minimum rating.

Set up Result Columns

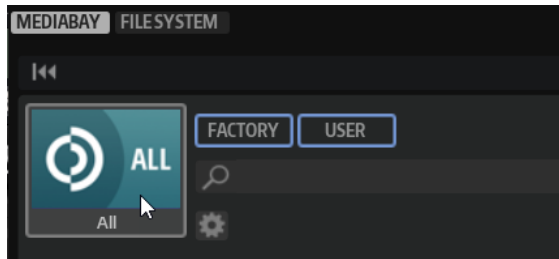
Allows you to select which attribute columns to display in the results list.

Browsing for Files

The **MediaBay** allows you to browse for and load files.

PROCEDURE

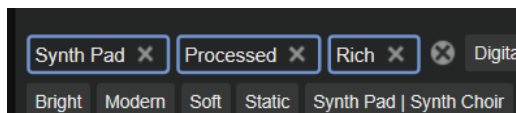
1. Use the **Factory** and **User** buttons at the top of the window to specify whether you want to browse through the factory content or the content that you created yourself.
You can activate both buttons to browse through the entire content.
2. Click the library name to open the library selector, and specify where you want to search for files: To select a particular library, click it. To browse through the entire content, select **All Libraries**.



NOTE

If you enter search text, the library selector shows all libraries whose names contain the text, plus all libraries containing files whose names or attributes contain the text.

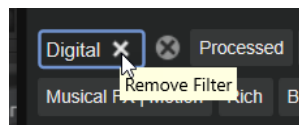
3. Above the results list, a list of suggested filter tags is displayed, based on the most frequently used tags. To use a suggested tag as a filter tag, click it. You can activate several filter tags simultaneously. The list of suggested filter tags is updated with every active filter tag.




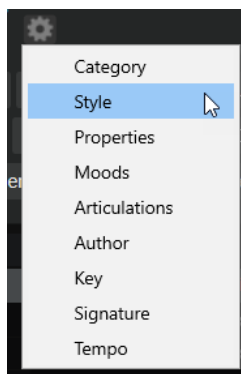
NOTE

Active filter tags have a blue border and are displayed to the left of the suggestions.

- To remove a filter tag, click its **Remove Filter** button.

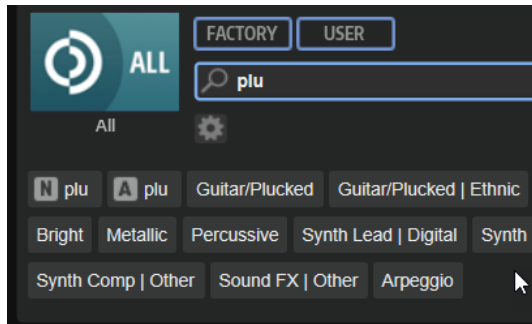


- To remove all tags, click **Remove All Filters**  between the filter tags and the suggestions.
4. Optional: Configure the **MediaBay** to provide multiple attribute menus to search for specific types of presets. To add or remove a menu, click the **Configure Attribute Menus** button, and select/deselect the corresponding attribute.



5. To search for files that contain a specific text, either in their name or in any of the attributes, enter this text in the text field.

While you type, the list of suggested filter tags is updated. This allows you to see in how many and in which attributes your search text is used.

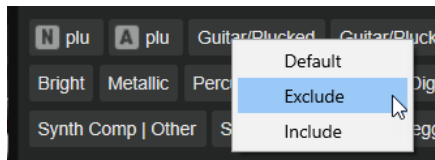


The **Name** **N** and **All Attributes** **A** tags are the first suggestions. To show which attribute another suggested filter tag belongs to, hover the mouse pointer over it to view its tooltip.

TIP

Combining tags from different attributes means that both filter criteria need to be matched to create a result. If you add multiple tags for the same attribute, the result only needs to match one of them.

- Optional: You can set the search parameters so that they include or exclude presets with specific tags. To do so, define the **Mode** for the filter tag by right-clicking it and selecting an option from the menu.

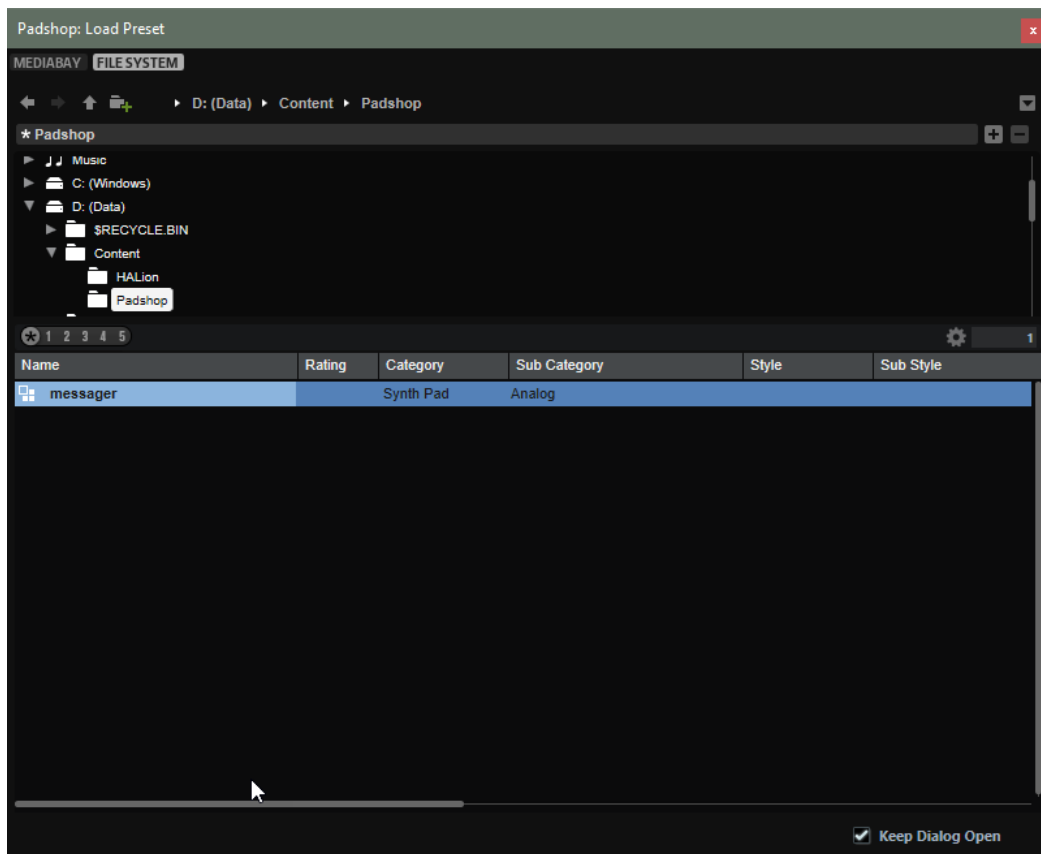


- Default** is the standard behavior. This is indicated by a blue frame.
 - Include** can list presets, even if the filter tags prevent this. For example, if you specify **Category = Piano**, **Property = Warm** and **Name = Warm Piano (Mode = Include)**, the results list shows presets whose **Category** and **Property** attributes match, in addition to any presets whose names contain "Warm Piano". **Include** mode is indicated by a green frame around the filter tag.
 - Exclude** can exclude presets from the results list, even if their attributes match your settings. For example, if you specify **Category = Piano** and **Property = Warm (Mode = Exclude)**, only piano presets for which the **Warm** tag is not set are listed. **Exclude** mode is indicated by a red frame.
- In the results list, double-click a file to load it.

Load Dialog–File System Page

On the **File System** page, you can browse for files in your system.

In the top section of the page, you can specify where to look for sounds. The lower section displays the corresponding results.

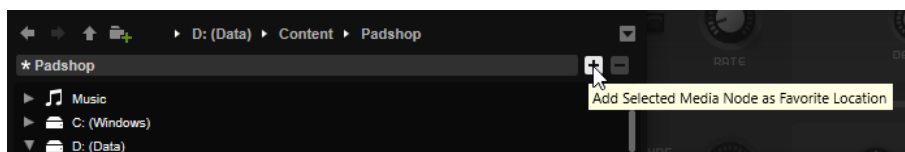


Navigation controls



- To step through the recent locations, click the **Previous Browse Location/Next Browse Location** buttons.
- To navigate to the folder one level up in the location tree, click the **Browse Containing Folder** button.
- The path to the current position in the hierarchy is shown on the right. To navigate to one of these folders, click its name.
- To open the history, click the **Navigation History** button on the right.

Locations



You can save folders or directories in your system as favorite locations for quick access.

- To open the list of favorite locations, click in the text field.
If you have not created any locations yet, this list is empty.
- To add the current folder as a favorite location, click **Add Selected Media Node as Favorite Location**.
You can keep the folder name or specify a new name for the location.
- To delete the current location from the list, click **Remove Favorite Location**.

Rating Filter

Allows you to limit the results list according to the rating of the presets. Use the rating slider to define the minimum rating.

Set up Result Columns

Allows you to select which attribute columns to display in the results list.

Importing Presets

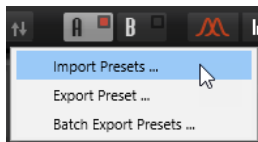
To import a preset, drag it from the File Explorer/macOS Finder to the waveform display or click **Import/Export Presets** in the plug-in functions section and select **Import Preset** from the pop-up menu.

Exporting Presets

By exporting presets together with their used samples, you can transfer presets between different computers more easily.

PROCEDURE

1. Click **Import/Export Presets** in the plug-in functions section and select **Export Preset** from the pop-up menu.



2. In the dialog, specify where you want to save the preset and click **Save**.
-

RESULT

In this location, a "Samples" folder is created in which the samples that are used in the preset are saved.

NOTE

- If you export multiple presets to the same location, they share the "Samples" folder.
 - If a sample with the same name as an exported sample is already present in the "Samples" folder, a number is added to the file name on export and the sample references are updated automatically.
-

Keyboard

The section in the lower left of the window contains the keyboard and the wheel controls.



Wheel Controls

To the left of the internal keyboard, the pitchbend wheel and the modulation wheel are located.

Previewing Notes Using the Keyboard

- To preview a note, click the corresponding key on the keyboard.
The vertical position where you click a key defines the velocity that is used to trigger the note. Click the lower part of a key to use the highest velocity, and the upper part to use the lowest velocity.
- To play a key and all following keys at the same velocity, for as long as you keep the mouse button pressed, hold down **⌘**, and click the key on the keyboard.
- To play each note 10 times at increasing velocities between 1 and 127, hold down **⌘**, and click a key.

Layer Section

The **Layer** section in the lower right of the window allows you to mix the two layers.

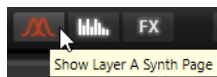


- Use the **Layer A/B Mix** fader to adjust the relative levels of the layers in the final mix.

Synth Page

On the **Synth** page, you can find the parameters for the oscillators, the envelopes, the LFOs, the modulation matrix, and the step modulator.

- To show the **Synth** page for a layer, activate its **Show Synth Page** button.



The form and the color of the symbol on the page button indicate which oscillator type is used for the layer.

Voice Section

The **Voice** section contains the voice settings. For example, it allows you to choose between monophonic and polyphonic playback or to specify how notes are triggered.



Mono

Activates monophonic playback.

Retrigger

This option is only available in **Mono** mode. If **Retrigger** is activated, a note that was stolen by another note is retrigged if you still hold the stolen note when you release the new one.

This way, you can play trills by holding one note and quickly and repeatedly pressing and releasing another note, for example.

Polyphony

If **Mono** mode is deactivated, you can use this parameter to specify how many notes can be played simultaneously.

Glide

Allows you to bend the pitch between notes that follow each other. You achieve the best results in **Mono** mode.

Fingered

Activate this parameter to glide the pitch only between notes that are played legato.

Glide Time

Sets the glide time, that is, the time it takes to bend the pitch from one note to the next.

Pitchbend Up/Pitchbend Down

Determines the range of the modulation that is applied when you move the pitchbend wheel.

Key Range

Allows you to specify the key range for each layer. This allows you to create split sounds, where specific keyboard regions only play a specific layer.

You can also set one layer to the full range while the other adds a tonal component within a defined key range.

Voice Mode

Determines which notes are stolen during playback and whether new notes are triggered when the **Polyphony** setting is exceeded.

- **Last** – New notes have playback priority over the notes that were played before them.
If you exceed the maximum number of notes, the notes that were played first are stolen in chronological order (First in/First out), and the new notes are triggered.
- **First** – Older notes have playback priority over newer notes.
If you exceed the maximum number of notes while older notes are still being held, no notes are stolen. New notes are only triggered if a free voice is available.
- **Low** – Low notes have playback priority over higher notes.
If you exceed the maximum number of notes by playing a lower note than the ones that are held, the highest note is stolen, and the new note is triggered.
If you exceed the maximum number of notes by playing a higher note than the ones that are held, no note is stolen, and no new note is triggered.
- **High** – High notes have playback priority over lower notes.
If you exceed the maximum number of notes by playing a higher note than the ones that are held, the lowest note is stolen, and the new note is triggered.
If you exceed the maximum number of notes by playing a lower note than the ones that are held, no note is stolen, and no new note is triggered.

Trigger Mode

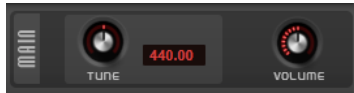
Defines the trigger behavior for new notes.

- **Normal** triggers a new note when the previous note gets stolen.
- **Resume** retriggers the envelope, but resumes at the level of the stolen note. The pitch is set to the new note.

- If **Legato** is selected, the envelope keeps running, and the pitch is set to the new note.

Main Section

The **Main** section allows you to set up the global tuning and volume for Padshop.



Tune

Adjusts the main tuning of the plug-in.

Volume

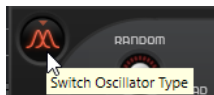
Adjusts the main volume of the plug-in.

Oscillator Section

In this section, you can select the oscillator type that you want to use and make settings for the oscillator.

You can choose between a grain oscillator and a spectral oscillator to create the sounds.

- To switch between the two oscillator types, click **Switch Oscillator Type**.



Loading Samples

You can load samples from your hard disk to use them in Padshop.

Loading a sample makes it available for use in the oscillator.

If you want to be able to select this sample from the sample selector in Padshop, you must import it first.

- To load a sample, click **Sample Functions** in the top right of the display and select **Load Sample** from the pop-up menu.

You can also load samples using drag and drop:

- Drag a sample from the **MediaBay** of your Steinberg DAW to the waveform display.

NOTE

You can only load samples from VST Sound containers that are shown in the **MediaBay** of your Steinberg DAW. Samples from the HALion or HALion Sonic **MediaBay** cannot be loaded.

- Drag one or more selected audio events from a project of your Steinberg DAW to the waveform display.
- Drag a slice from the **Sample Editor** of your Steinberg DAW to the waveform display.
- Drag a sample from the File Explorer/macOS Finder to the waveform display.

NOTE

If **Import Sample When Dropping** is activated on the **Sample Functions** pop-up menu, samples are imported rather than loaded.

RELATED LINKS

[Importing Samples](#) on page 23

Importing Samples

If you import a sample into Padshop, it is loaded in the oscillator and becomes available on the sample selectors.

You can import samples using one of the following methods:

- Click **Sample Functions** in the top right of the display and select **Import Sample** from the pop-up menu.

You can also import samples using drag and drop.

NOTE

To import samples using drag and drop, **Import Sample When Dropping** must be activated on the **Sample Functions** pop-up menu. Otherwise, the samples are loaded, but not imported.

- Drag a sample from the **MediaBay** of your Steinberg DAW to the waveform display.

NOTE

You can only import samples from VST Sound containers that are shown in the **MediaBay** of your Steinberg DAW. Samples from the HALion or HALion Sonic **MediaBay** cannot be imported.

- Drag one or more selected audio events from a project of your Steinberg DAW to the waveform display.
- Drag a slice from the **Sample Editor** of your Steinberg DAW to the waveform display.
- Drag a sample from the File Explorer/macOS Finder to the waveform display.

Imported samples are saved in the predefined directory

C:\Users\user\documents\Steinberg\Padshop\Samples\User Samples\. This directory is scanned regularly by Padshop. You can add subfolders to the user samples folder to structure your sample content.

NOTE

- The maximum length for samples to be imported is ten minutes. If you try to import a longer sample, Padshop imports only the first ten minutes.
 - If the name of an imported sample is already used by an existing sample, a number is added to the file name on import.
-

RELATED LINKS

[Loading Samples](#) on page 22

Oscillator Preview

You can quickly preview certain parts of the sample by clicking and dragging in the waveform display.

If notes are playing when you click and drag, their playback is affected.

If no notes are playing, C3 with velocity 127 is played for as long as you press the mouse button.

Grain Oscillator

The grain oscillator allows you to load the sample that you want to use, define the sample range and the loop range, and set up the oscillator sound to your liking.

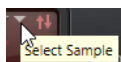


Waveform Display

The waveform display provides an overview of the sample. It shows the play marker positions, the loop range, and the sample range that can be used to create grains.

- To specify the sample range that is used to create grains, drag the handles above the sample waveform.
- To move the entire sample range, click in the area between the handles above the waveform display, and drag.
- If **Loop** is set to **On** or **Alt**, the waveform shows the loop range. To adjust the loop range, drag the loop handles.
- To load a different sample, click **Select Sample** in the upper right of the waveform display and select a sample.

Padshop comes with a large variety of samples that can be used as sources for the oscillator, but you can also use your own samples.



To search for a specific sample, enter its name in the text field at the top of the sample browser.

NOTE

Loading a new sample in the **Oscillator** section does not change any of the parameter settings for the plug-in.

Position Settings

If you repeatedly play back the same portion of a sample, the sound may become too static. You can use the position settings on the left of the waveform display to bring more liveliness into the sound.

Position

You can set the playback position of the grains manually. For example, at a setting of 50%, the playback position is in the middle of the sample. The playback position is updated with every new grain.

Random Position

Selects a random playback position within a specific range around the current position. At a setting of 100%, the playback position jumps to a random position between the start and the end of the sample. The random playback position is calculated separately for each channel of the sample, at the start of a new grain. This can be used to widen the panorama of the sound.

Channel Offset

Offsets the playback position for each channel of the sample. Positive values modify the playback position of the right channel, and negative values modify the playback position of the left channel. In either case, the other channel is not affected. This can be used to widen the panorama of the sound. If the sample is mono, the oscillator creates a copy of the channel. This allows you to create a stereo sound from a mono sample, for example.

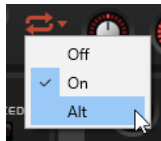
Position Spread

If **Number of Grains** is set to a value higher than 1, this parameter spreads the playback positions of the grains, making each grain play back a different portion of the sample.

Playback Settings

The playback settings below the waveform display allow you to set up the loop and specify playback speed and direction.

Loop



- If **Loop** is set to **On**, the grains in the loop range are played back continuously. When the loop end is reached, the playback marker jumps back to the start of the loop.
- If **Loop** is set to **Alt**, the grains in the loop are played back alternatingly forwards and backwards, that is, when the loop end/start is reached, the playback order is reversed.

NOTE

Only the playback order of the grains is reversed, the actual content of the grains stays the same.

- If **Loop** is set to **Off**, playback stops at the end of the loop.

- #### NOTE

If a grain ends up behind the loop end, for example, due to the **Random**, **Spread**, or **Offset** settings, it is played back and playback continues to the end of the sample.

Speed

Determines the speed and direction with which the grain position progresses through the sample.

- At 0 %, the grain position always stays the same.

- At 100 %, the grain position progresses through the sample at the original speed and direction.
- At 200 %, the grain position progresses through the sample at twice the original speed.
- At -100 %, the grain position progresses through the sample at the original speed, but in reverse direction.
- At -200 %, the grain position progresses through the sample at twice the original speed and in reverse direction.

Grain Settings

The grain settings below the waveform allow you to set up the grains, that is, specify the number of grains that you want to use, their duration, etc.

Number of Grains

You can specify the number of grains for each channel of the sample. At a setting of 2, the two grains are offset by 180°. Due to this phase offset, the root of the spectrum is canceled out, and the pitch increases by one octave. To compensate for this, adjust the **Position Spread**, **Position Offset**, or **Duration Spread** parameters.

Duration

Increases the grain period by a factor ranging from 1 to 1000.

For very short grains, the sound is assigned the pitch of the frequency at which the grains repeat. For grains longer than 30 ms, the sound assumes the pitch of the original sample. This is the case for **Center Key** C3 if the **Duration** is set to a value above 10, for example.

Duration Key Follow

Determines how the grain duration changes with the notes you play. It is mostly used with short durations. Longer durations sound with the original pitch of the sample and therefore, do not need to follow the keyboard.

With a **Duration** of 1 and a **Duration Key Follow** setting of 100%, the difference in pitch between two keys is one semitone, which corresponds to the standard keyboard tuning. Longer durations lead to an audible volume modulation that is different for the different keys. To apply the same volume modulation with each key, set **Duration Key Follow** to 0%.

NOTE

The volume modulation is only audible if the grain is long and if you only use a few grains.

Duration Random

Sets the random grain duration. This duration is calculated at the start of a new grain. This can be used to widen the panorama of the sound. At a setting of 100%, the grain duration varies between half and twice the grain period.

Duration Spread

This parameter is available if **Number of Grains** is set to a value higher than 1. It modifies the grain durations by the factor you set. This way, each grain is played with a different duration. A setting of +100 % corresponds to twice the original duration, and a setting of -100 % to half the original duration.

For short grains with a duration of 1, lower **Spread** values result in slightly different pitches for the different grains. Higher **Spread** values are perceived as the sound being detuned.

Pitch Settings

In granular synthesis, you have two different approaches to define the pitch of a sound: It can either be the pitch of the original sample or be defined by the grain oscillator.

- To use the pitch of the original sample, raise the **Duration** value until you can clearly hear the sample's own pitch.
- To define the pitch using the grain oscillator, set **Duration** to very low values, preferably 1 or 2.

Pitch Interval

Allows you to specify an interval between -12 and +12 semitones. The grains are played randomly at their original pitch, or are transposed according to the pitch interval. This parameter is suitable for longer grain durations.

Pitch Random

Sets the random pitch range in semitones and cents. At a setting of +12, the random pitch values lie between -12 and +12 semitones. The random pitch is calculated separately for each channel of the sample, at the start of a new grain. This parameter can be used to enrich the sound.

Pitch Spread

This parameter is available if **Number of Grains** is set to a value higher than 1. It detunes the pitch of the grains in semitones and cents. The first grain keeps its pitch, and the other grains are detuned evenly to values within the specified range. The last grain is detuned to the maximum value.

NOTE

For shorter grains, this is perceived as a change in the spectrum and for longer grains, as a detuning of the sample.

Length and Shape Settings

On the right below the waveform, you can specify the **Length** and the **Shape** of the grains used in the grain oscillator.

Length

Shortens the length of the grain without changing the grain duration. At a setting of 100%, the grain length corresponds to the grain duration. By decreasing the grain length, a shorter portion of the sample is played back, which results in a change in the spectrum. The pitch of the sound does not change, because the grain duration stays the same.

Shape

Determines the shape of the grain. The shape strongly influences the spectrum of the sound. Click the display to open the pop-up menu that contains the available shapes.

Level Settings

To the right of the waveform display, you can make settings that affect the level and the stereo width of the grain oscillator.

Level

Adjusts the overall level of the grain oscillator. When you increase the number of grains, it might become necessary to lower the oscillator level. When you play back a very quiet portion of a sample, you can use this control to raise the level.

Random Level

Sets a random level for each new grain. At a setting of 100%, the level varies between a factor of 0 and 2 of the original level. The random level is calculated separately for each channel of the sample, at the start of a new grain. This can be used to randomize the panorama of the sound.

Width

Narrows the stereo width of the grain oscillator. It is applied after the grain oscillator and does not affect the stereo width of the actual sample. At a setting of 0%, the output of the grain oscillator is mono.

Gain

Allows you to automatically adjust the level of grains using quieter sample parts. Note that by raising the gain, you can lose the dynamics of the sample.

Spectral Oscillator

The spectral oscillator allows you to load the sample that you want to use, define the sample range and the loop range, and set up the oscillator sound to your liking.

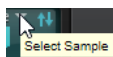


Waveform Display

The waveform display provides an overview of the sample. It shows the play marker positions, the loop range, and the sample range that can be used to create the sounds.

- To specify the sample range that is used to extract sounds, drag the handles above the sample waveform.
- To move the entire sample range, click in the area between the handles above the waveform display, and drag.
- If **Loop** is set to **On** or **Alt**, the waveform shows the loop range. To adjust the loop range, drag the loop handles.
- To load a different sample, click **Select Sample** in the upper right of the waveform display and select a sample.

Padshop comes with a large variety of samples that can be used as sources for the oscillator, but you can also use your own samples.



To search for a specific sample, enter its name in the text field at the top of the sample browser.

NOTE

When switching from the grain oscillator to the spectral oscillator or when selecting a new sample for the first time, the spectral oscillator needs some time to analyze the sample.

NOTE

Loading a new sample in the **Oscillator** section does not change any of the parameter settings for the plug-in.

Position Settings

If you repeatedly play back the same portion of a sample, the sound may become too static. You can use the position settings on the left of the waveform display to bring more liveliness into the sound.

Position

Sets the start position within the sample, that is, the marker that is played when a note is triggered. For example, at a setting of 50 %, the playback position is in the middle of the sample.

Random Position

Allows you to vary the position each time that a note is triggered. At a setting of 100 %, the playback position jumps to a random position within the sample range. This can be used to widen the panorama of the sound.

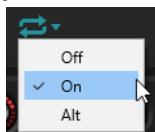
Channel Offset

Offsets the playback position for each channel of the sample. Positive values modify the playback position of the right channel, and negative values modify the playback position of the left channel. In either case, the other channel is not affected. This can be used to widen the panorama of the sound. If the sample is mono, the oscillator creates a copy of the channel. This allows you to create a stereo sound from a mono sample, for example.

Playback Settings

The playback settings below the waveform display allow you to set up the loop, specify playback speed and direction, determine the number of playback markers that you want to use, etc.

Loop



- If **Loop** is set to **On**, the loop range is played back continuously. When the loop end is reached, the playback marker jumps back to the start of the loop.
- If **Loop** is set to **Alt**, the playback marker travels alternately forwards and backwards through the sample. This means that the playback direction changes every time the loop start or end marker is reached.
- If **Loop** is set to **Off**, playback stops at the end of the loop.

NOTE

If a play marker ends up outside the loop boundaries, due to the **Random**, **Spread**, or **Offset** settings, playback continues until the end of the sample and ends there.

Speed

Determines how fast and in which direction the playback marker progresses through the sample.

- At 0 %, the playback marker does not move.
- At 100 %, the playback marker progresses through the sample at the original speed and direction.
- At 200 %, the playback marker progresses through the sample at twice the original speed.
- At -100 %, the playback marker progresses through the sample at the original speed, but in reverse direction.
- At -200 %, the playback marker progresses through the sample at twice the original speed and in reverse direction.

Speed Key Follow

Adjusts how the speed of the oscillator is affected by the note that you play. The center key is fixed at C3.

- Values above 0 increase the speed of notes above the center key and decrease the speed of notes below the center key.
For example, at a setting of 100 %, playback is twice as fast for the octave above the center key and is half the speed for the octave below the center key. A setting of 200 % results in a speed that is four times as fast for the octave above the center key and is a quarter of the current speed for the octave below.
- Negative values invert the order, that is, the speed gets lower above the center key, and higher below the center key.

Random Direction

Allows you to randomize speed and direction of playback by adding a negative or positive random value to the current **Speed** setting when you play a note.

Purity

Allows you to adjust the spectral purity of the sound. At 0%, you hear the original sound.

- Positive values increase the level differences between partials, which results in a pure sound.
- Negative values decrease the level differences between partials, which results in a noisy, impure sound.

Purity can be modulated via the modulation matrix.

This parameter scales the frequency offsets of all partials. The effect of this parameter largely depends on whether frequency offsets exist in the signal. If a sound is strictly harmonic, that is, if there are no frequency offsets, the **Inharmonicity** control does not have an effect.

The frequencies of the partials are compared to the harmonic series, starting two octaves below the played pitch. If a sound is not strictly harmonic, the frequencies of some of the partials are offset to match the frequencies of the assumed harmonic series.

At 0%, only harmonic frequencies are allowed. At +100%, you hear the original sound. At +200%, the frequencies are assigned twice the frequency offset. Negative values invert the frequency offsets accordingly.

Inharmonicity can be modulated via the modulation matrix.

Low Cut

Allows you to adjust the damping of low frequencies. The higher the amount, the more of the low frequencies are cut.

Low Cut does not work like a classic filter with a fixed cutoff frequency. Instead, it takes into account the current frequencies in the sample. For example, if you set this parameter to 10 %, those low frequencies that occupy 10 % of the overall energy in the spectrum are removed. This is especially useful to remove low rumble that might get audible if you use pitch shift towards higher pitches. At higher values, **Low Cut** can produce more drastic effects.

Low Cut can be modulated via the modulation matrix.

Number

Determines the number of play markers that play back simultaneously. You can also set fractions of numbers. For example, with a setting of 2.5, you hear two audio streams at full level and a third one at half level.

Position Spread

Distributes the positions of the playback markers if **Number** is set to a value higher than 1. This way, each playback marker plays from a different position.

Detune

Detunes the playback markers.

Pan Spread

Distributes the signals of the play markers in the stereo panorama.

Level Settings

The settings on the right of the waveform display allow you to make settings for the playback level and the channel width.

Root Key

The root key determines the original pitch of the sample, that is, the key on which the sample is played without being transposed.

Gain

Allows you to automatically adjust the level of quieter sample parts. Note that by raising the gain, you can lose the dynamics of the sample.

Level

Adjusts the overall level of the spectral oscillator. When you increase the number of play markers, it might become necessary to lower the level. When you play back a very quiet portion of a sample, you can use this control to raise the level.

Width

Narrows the stereo width of the oscillator. At a setting of 0%, the output of the oscillator is mono.

Pitch Section

In the **Pitch** section, you can adjust the pitch. The available settings depend on the selected oscillator type. If you use the grain oscillator, you can specify the pitch of the grains. If you use the spectral oscillator, you specify the pitch of the waveforms and make formant settings.



Octave

Adjusts the pitch in octave steps.

Coarse

Adjusts the pitch in semitone steps.

Fine

Allows you to fine-tune the pitch in cent steps.

Fixed

This parameter is available for the grain oscillator.

- When working with longer grain durations, activating **Fixed** sets a constant pitch for all keys.
- When working with shorter durations, each key plays a different spectrum.

Formant

- For the spectral oscillator, this allows you to shift the formants of the spectrum.
- For the grain oscillator, this changes the pitch of the original sample. The following applies:

For short grain durations, where the perceived pitch depends on the grain size, changing the pitch of the underlying sample creates an effect similar to formant shifting.

For longer grain durations, where the perceived pitch is the pitch of the original sample, the effect changes to a pitch offset.

Formant Key Follow

This parameter is available for the spectral oscillator. It allows you to shift the formants with the played pitch.

With a value of 100 %, the formants follow the pitch. With a value of 0, the formants remain static. If you want to emulate the rather static formant characteristics of real instruments, start by setting this value to 0 and slowly raise it until you get the desired formants when playing notes in different key ranges.

Filter Section

The **Filter** section allows you to adjust the tone color of the sound. It provides 24 different filter shapes, including low-pass, high-pass, band-pass, and band-reject filters. The integrated filter

distortion can produce analog tube distortions or hard clipping effects, or reduce the bit depth or sample frequency.



You can use the filter envelope to modulate a large number of modulation destinations that are accessible in the modulation matrix.

Envelope Amount

Controls the cutoff modulation from the filter envelope.

Cutoff Key Follow

Adjusts the cutoff modulation using the note number. Increase this parameter to raise the cutoff with higher notes. At 100%, the cutoff follows the played pitch exactly.

Center Key

Specifies the MIDI note that is used as the central position for the **Key Follow** function.

Filter Shape

- LP24, 18, 12, and 6 are low-pass filters with 24, 18, 12, and 6 dB/oct. Frequencies above the cutoff are attenuated.
- BP12 and BP24 are band-pass filters with 12 and 24 dB/oct. Frequencies below and above the cutoff are attenuated.
- HP6 + LP18 and HP6 + LP12 are a combination of a high-pass filter with 6 dB/oct and a low-pass filter with 18 and 12 dB/oct, respectively (asymmetric band-pass filter). Frequencies below and above the cutoff are attenuated. Attenuation is more pronounced for the frequencies above the cutoff.
- HP12 + LP6 and HP18 + LP6 are a combination of a high-pass filter with 12 and 18 dB/oct and a low-pass filter with 6 dB/oct (asymmetric band-pass filter). Frequencies below and above the cutoff are attenuated. Attenuation is more pronounced for the frequencies below the cutoff.
- HP24, 18, 12, and 6 are high-pass filters with 24, 18, 12, and 6 dB/oct. Frequencies below the cutoff are attenuated.
- BR12 and BR24 are band-reject filters with 12 and 24 dB/oct. Frequencies around the cutoff are attenuated.
- BR12 + LP6 and BR12 + LP12 are a combination of a band-reject filter with 12 dB/oct and a low-pass filter with 6 and 12 dB/oct, respectively. Frequencies around and above the cutoff are attenuated.
- BP12 + BR12 is a band-pass filter with 12 dB/oct plus a band-reject filter with 12 dB/oct. Frequencies below, above, and around the cutoff are attenuated.
- HP6 + BR12 and HP12 + BR12 are a combination of a high-pass filter with 6 and 12 dB/oct and a band-reject filter with 12 dB/oct. Frequencies below and around the cutoff are attenuated.
- AP is an all-pass filter with 18 dB/oct. Frequencies around the cutoff are attenuated.
- AP + LP6 is an all-pass filter with 18 dB/oct plus a low-pass filter with 6 dB/oct. Frequencies around and above the cutoff are attenuated.

- HP6 + AP is a high-pass filter with 6 dB/oct plus an all-pass filter with 18 dB/oct. Frequencies around and below the cutoff are attenuated.

Cutoff

Controls the cutoff frequency of the filter.

Distortion Type

- **Off** deactivates the filter section.
- **Tube Drive** adds warm, tube-like distortion. You can set the amount of tube drive with the **Distortion** parameter.
- **Hard Clip** adds bright, transistor-like distortion. You can set the amount of hard clipping with the **Distortion** parameter.
- **Bit Red** (Bit Reduction) adds digital distortion by means of quantization noise. You can adjust the bit reduction with the **Distortion** parameter.
- **Rate Red** adds digital distortion by means of aliasing. You can adjust the rate reduction with the **Distortion** parameter.
- **Rate Red KF** adds digital distortion by means of aliasing. In addition, **Key Follow** is used. The rate reduction follows the keyboard, so the higher you play, the higher the sample rate.

Resonance

Emphasizes the frequencies around the cutoff. At higher settings, the filter self-oscillates, which results in a ringing tone.

Distortion Level

Adds distortion to the signal. The effect depends on the selected type. At higher settings, it creates a very intense distortion effect.

Envelope Faders and Velocity Control

With the envelope faders, you can specify the attack, decay, sustain, and release times of the filter envelope.

The **Velocity** control determines how much the envelope intensity depends on velocity. If the control is set to 0, the envelope is fully applied. Higher values reduce the intensity for lower velocities.

Amplifier Section

In the **Amplifier** section, you can adjust **Level** and **Pan** for the amplifier and set up the amplifier envelope. The amplifier envelope can be used to modulate a large number of modulation destinations that are accessible in the modulation matrix.



Level

Adjusts the level of the sound.

Normally, the internal headroom of 12 dB allows for polyphonic playback without the need for level adjustments. However, when working with higher filter distortion levels, it can become necessary to reduce the level.

Pan

Sets the position of the sound in the stereo panorama.

Envelope Faders

With the envelope faders, you can specify the attack, decay, sustain, and release times of the amplifier envelope.

Velocity Control

The **Velocity** control determines how much the output level depends on the velocity. When the control is set to 0, the sound is always played back at its full amplitude. Higher values reduce the level for lower velocities.

Step Modulator

Padshop features a polyphonic step modulator that you can use to create rhythmic control sequences.



The step modulator can be freely assigned in the modulation matrix.

Steps

Sets the number of steps in the sequence. The maximum number of steps is 32.

Slope

Determines whether the step modulator jumps from step to step or creates ramps between the steps.

- **No Slope** produces hard steps.
- **Slope on Rising Edges** creates ramps for rising edges only.
- **Slope on Falling Edges** creates ramps for falling edges only.
- **Slope on All Edges** creates ramps for all edges.

Amount

If **Slope** is set to **Slope on Rising Edges**, **Slope on Falling Edges**, or **Slope on All Edges**, this parameter determines the time of the ramp between two steps. The higher the setting, the smoother the transitions between steps.

Rate

If **Sync** is deactivated, this controls the speed at which the sequence is repeated.

Sync Mode

If **Sync** is activated, you can synchronize the steps to the tempo of the host application.

- **Beat** synchronizes the step modulator restart to the transport of the host application and aligns it to the beats of the project.
- **First** restarts the step modulator when a note with the specified note value is triggered and no other note is held.
- **Each** restarts the step modulator each time a note with the specified note value is triggered.

Step

Allows you to select a specific step.

Level

Shows the level of the selected step.

Snap

If **Snap** is activated, the level of each step can only be adjusted in steps of 1/12th.

Editing Steps

You can adjust the steps separately, but you can also use modifier keys to enter or edit multiple steps simultaneously.

- To set the level of a step, click at the corresponding position in the graphical editor.
- To change the value of a step, drag the step up or down, or enter a new value in the **Level** value field.
- To reset the level of a step to 0%, **0**-click the step.
- To reset all steps, hold **0**, and click in the graphical editor.
- To adjust all steps at the same time, **0**-click, and drag a step.
- To draw a ramp with steps, hold down **0**, and draw a line.
- To draw symmetric ramps at the beginning and the end of the sequence, hold down **0**, and draw a line.
- To gradually raise or lower the value of the selected step, use the **↑** and **↓** keys.
By default, the value changes in increments of 1%. Hold **0** to use increments of 0.1% instead.
- If the graphical editor has the keyboard focus, you can use the left and right arrow keys to select the previous or the next step.

Modulation Matrix

The modulation matrix features 16 freely assignable modulations. This allows you to create modulations, such as Note Expression modulation assignments that can be addressed from within Cubase, for example.

Assigning modulations means interconnecting modulation sources, like LFOs and envelopes, with modulation destinations, like pitch, cutoff, amplitude, etc. For example, by assigning the step modulator in the modulation matrix and routing it to the grain position, you can use a different spectrum for each step.

The 16 modulations are available on four tabs. Each tab contains four modulations.



Creating Modulations

Modulations allow you to control one parameter, the modulation destination, by another parameter, the modulation source.

PROCEDURE

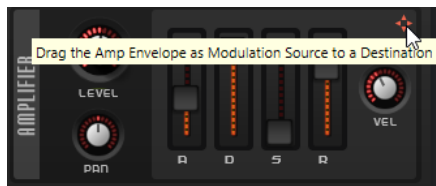
1. On the **Synth** page, open the **Matrix** section and select tab **1**.
This tab contains the first four modulations.

2. For the first modulation, select a modulation source and a modulation destination, for example, **LFO1** as source and **Pitch** as destination.
 3. Use the horizontal **Modulation Depth** fader to adjust the modulation intensity.
 4. Optional: Click the **Modifier** field and select a modifier.
A modifier is used to scale the output of the modulation source. For example, select **Pitch Bend** as modifier.
-

Combining Modulation Source and Destination Using Drag and Drop

The most important modulation sources can be assigned to the most common modulation destinations using drag and drop.

If a parameter can be used as modulation source, this is indicated by a drag icon .



You can drag the filter envelope, the amplifier envelope, the LFOs, the assignable envelope Env 3, and the wheel controls of the keyboard.

- To create a modulation assignment, drag the drag icon over the parameter that you want to modulate.

If a parameter can be used as modulation destination, this is indicated by a green overlay that is displayed when you drag the modulation source on this parameter.



If you drop the modulation source, the modulation is created and the modulation matrix is updated accordingly.

NOTE

If all 16 modulation rows in the matrix are used, no further assignments can be made. In this case, you cannot assign modulations using drag and drop.

Modulation Matrix Parameters

In the modulation matrix, you can set up the source, destination, and modifier for the modulation and specify the modulation depth.

Modulation Sources

LFO 1/2

The LFOs 1 and 2 produce cyclic modulation signals.

These LFOs are monophonic, that is, a single signal is used for all notes.

LFO 3/4

The LFOs 3 and 4 produce cyclic modulation signals.

These LFOs are polyphonic, that is, a new LFO signal is created with each new note.

Amp Envelope

The amplifier envelope. This modulation source is unipolar. The shape of the envelope determines the modulation signal.

Filter Envelope

The filter envelope. The shape of the envelope determines the modulation signal.

Env 3

A freely assignable envelope. This modulation source is bipolar. It is suited for pan or pitch modulation, for example.

Step Modulator

The step modulator of the zone. This modulation source is bipolar. It produces cyclic, rhythmically stepped modulation signals.

Key Follow

This produces modulation in relation to the MIDI note number. For the lowest MIDI note (C-2), the value is -1, and for the highest MIDI note (G8), the value is +1.

Velocity

Note-on velocity can be used as the modulation signal. This modulation source is unipolar.

Pitchbend

The position of the pitchbend wheel can be used as the modulation signal. This modulation source is bipolar.

Modulation Wheel

The position of the modulation wheel can be used as the modulation signal. This modulation source is unipolar.

Aftertouch

Aftertouch can be used as the modulation signal. This modulation source is unipolar. Some MIDI keyboards cannot send aftertouch messages. However, most sequencer software is able to produce such messages.

Arpeggiator

This submenu allows you to use the controller lanes of the arpeggiator as modulation sources.

Note Expression

This submenu lists the eight Note Expression parameters that can be used as the modulation signals.

Noise

Produces a random modulation signal. This modulation source is bipolar.

Bus 1-16

Modulations that are sent to one of the 16 busses can be reused as sources. This way, you can combine several modulations to produce more complex signals.

Offset

Allows you to specify an additional offset on the output of the modulation source.

Modulation Modifiers

All modulation sources can also be used as modifiers. A modifier is used to scale the output of the modulation source. A typical example is an LFO as a source and the modulation wheel as the modifier. This allows you to control the intensity of the LFO modulation using the wheel.

Modulation Depth

Adjusts the intensity of the modulation.

Modulation Destinations

Pitch

Modulates the pitch. For example, assign one of the LFOs to create a vibrato effect. If **Pitch** is selected, the modulation depth is set in semitones (-60 to +60).

Cutoff

Modulates the filter cutoff.

For example, to create rhythmic patterns in the spectral timbre, assign the **Step Modulator**.

Resonance

Modulates the filter resonance. Resonance changes the character of the filter.

For example, to increasingly accent the filter the harder you hit a key, assign **Velocity** to **Resonance**.

Distortion

Modulates the filter distortion.

Level

Adds to the level setting. It can be used to create level offsets using the modulation wheel, for example.

Volume 1

Modulates the gain. This modulation multiplies with the level.

Volume 2

As **Volume 1**. **Volume 1** is multiplied with **Volume 2**. This way, you can build more complex modulations.

Pan

Modulates the position of the sound in the panorama.

Grain Position

Modulates the playback position. The modulation is not continuous, but it is updated at the start of each grain.

Grain Speed

Modulates the **Speed** parameter.

Grain Duration

Modulates the grain duration, that is, the frequency at which the grains repeat. The maximum modulation range at a modulation depth of 100% is -5 to +5 octaves.

Grain Length

Modulates the grain length.

Grain Pitch

Modulates the pitch of a grain. The modulation is not continuous, but it is updated at the start of a new grain. For continuous pitch modulation, use **Pitch** instead of **Grain Pitch** as the destination, and make sure that **Follow Zone Pitch** is activated in the grain oscillator.

Grain Formant

Modulates the pitch of the source sample, regardless of the grain duration. This results in formant shifting for short durations.

Grain Level

Modulates the grain level. The modulation is not continuous, but it is updated at the start of each new grain. For continuous level modulation, use the destinations **Volume 1**, **Volume 2**, or **Level**.

LFO 3/4 Frequency

Modulates the speed of the corresponding LFO.

LFO 3/4 Shape

Modulates the waveform of the corresponding LFO.

Step Mod Frequency

Modulates the speed of the step modulator. For example, assign an LFO to increase or decrease the speed cyclically.

Step Mod Slope

Modulates the shape of the edges of the step modulator if the **Slope** parameter is active. For example, assign the modulation wheel to blend from hard to smooth edges.

Amp Attack

Modulates the attack time of the amplitude envelope. This modulation destination cannot be modulated continuously. The time is updated only when the segment starts.

Amp Decay

Modulates the decay time of the amplitude envelope. This modulation destination cannot be modulated continuously. The time is updated only when the segment starts.

Amp Sustain

Modulates the sustain level of the amplitude envelope. This modulation destination cannot be modulated continuously. The level is updated only when the segment starts.

Amp Release

Modulates the release time of the amplitude envelope. This modulation destination cannot be modulated continuously. The time is updated only when the segment starts.

Filter Attack

Modulates the attack time of the filter envelope. This modulation destination cannot be modulated continuously. The time is updated only when the segment starts.

Filter Decay

Modulates the decay time of the filter envelope. This modulation destination cannot be modulated continuously. The time is updated only when the segment starts.

Filter Sustain

Modulates the sustain level of the filter envelope. This modulation destination cannot be modulated continuously. The level is updated only when the segment starts.

Filter Release

Modulates the release time of the filter envelope. This modulation destination cannot be modulated continuously. The time is updated only when the segment starts.

Env 3 L0

Modulates the **L0** parameter of the user-definable envelope 3, that is, the level of the first envelope node. This modulation destination cannot be modulated continuously. The level is updated only when the segment starts.

Env 3 Attack

Modulates the attack time of the user-definable envelope 3. This modulation destination cannot be modulated continuously. The time is updated only when the segment starts.

Env 3 L1

Modulates the **L1** parameter of the user-definable envelope 3, that is, the level of the second envelope node. This modulation destination cannot be modulated continuously. The level is updated only when the segment starts.

Env 3 Decay

Modulates the decay time of the user-definable envelope 3. This modulation destination cannot be modulated continuously. The time is updated only when the segment starts.

Env 3 Sustain

Modulates the sustain level of the user-definable envelope 3. This modulation destination cannot be modulated continuously. The level is updated only when the segment starts.

Env 3 Release

Modulates the release time of the user-definable envelope 3. This modulation destination cannot be modulated continuously. The time is updated only when the segment starts.

Env 3 L4

Modulates the **L4** parameter of the user-definable envelope 3, that is, the end level of the envelope. This modulation destination cannot be modulated continuously. The level is updated only when the segment starts.

Bus 1-16

You can send any modulation to one of the 16 busses, for example, to produce more complex modulation signals. Select the bus that you want to send the signals to as a destination. To use the modulation that was sent to a bus, assign the corresponding bus as a modulation source.

Spectral

This submenu allows you to use the parameters of the spectral oscillators as modulation destinations.

LFO Section

Padshop features two monophonic LFOs and two polyphonic LFOs. In this context, monophonic means that the LFOs are only calculated once and feed multiple voices at the same time. Polyphonic means that the LFOs are calculated per voice.

The LFOs on tabs **1** and **2** are monophonic and the LFOs on tabs **3** and **4** are polyphonic.



LFO Waveform and Shape

- **Sine** produces smooth modulation, suitable for vibrato or tremolo. **Shape** adds additional harmonics to the waveform.
- **Triangle** is similar to **Sine**. **Shape** continuously changes the triangle waveform to a trapezoid.
- **Saw** produces a ramp cycle. **Shape** continuously changes the waveform from ramp down to triangle to ramp up.
- **Square** produces stepped modulation, where the modulation switches abruptly between two values. **Shape** continuously changes the ratio between the high and low state of the waveform. If **Shape** is set to 50 %, a square wave is produced.
- **S & H 1** produces randomly stepped modulation, where each step is different. **Shape** puts ramps between the steps and changes the **S & H** into a smooth random signal when fully turned right.
- **S & H 2** is similar to **S & H 1**. The steps alternate between random high and low values. **Shape** puts ramps between the steps and changes the **S & H** into a smooth random signal when fully turned right.

Rate

Controls the frequency of the modulation, that is, the speed of the LFO.

- If **Sync Mode** is activated, the speed is specified in fractions of beats.
- If **Sync Mode** is deactivated, you can set up the frequency in Hz.

Retrigger

Defines whether the LFO is restarted with the specified start phase when a new note is triggered. This parameter is available for the sync modes **Off** and **Tempo**.

For monophonic LFOs, the parameters work as follows:

- **Off** – The LFO is not restarted.
- **First** – The LFO is restarted when a note is triggered and no other note is held.
- **Each** – The LFO is restarted each time that a note is triggered.

For polyphonic LFOs, the parameters work as follows:

- **Off** – The LFO is not restarted.
- **On** – The LFO is restarted each time that a note is triggered. This way, the polyphonic LFOs can modulate each voice separately.

Sync Mode

Specifies how the LFO speed is set.

- **Off** – The speed of the LFO is set in Hz.
- **Tempo** – The speed of the LFO is set in note values. The resulting rate depends on the tempo specified in the host sequencer.
- **Beat** – The speed of the LFO is set in note values. The resulting rate depends on the tempo specified in the host sequencer. In addition, the current start phase is calculated based on the current position.

Select this option to synchronize the LFO restart to the transport of the host application and align it to the beats of the project.

Phase

Sets the initial phase of the waveform when the LFO is retriggered.

Rnd (Random Phase)

If this button is activated, each note starts with a randomized start phase.

NOTE

The **Phase** control cannot be used if **Rnd** is activated.

Fade In

Sets the fade in time for the polyphonic LFOs.

Envelope 3 Section

The **Env 3** tab provides an additional envelope that can be routed freely in the modulation matrix. This envelope is bipolar, therefore, it is particularly suited to modulate destinations like pan or pitch, for example.



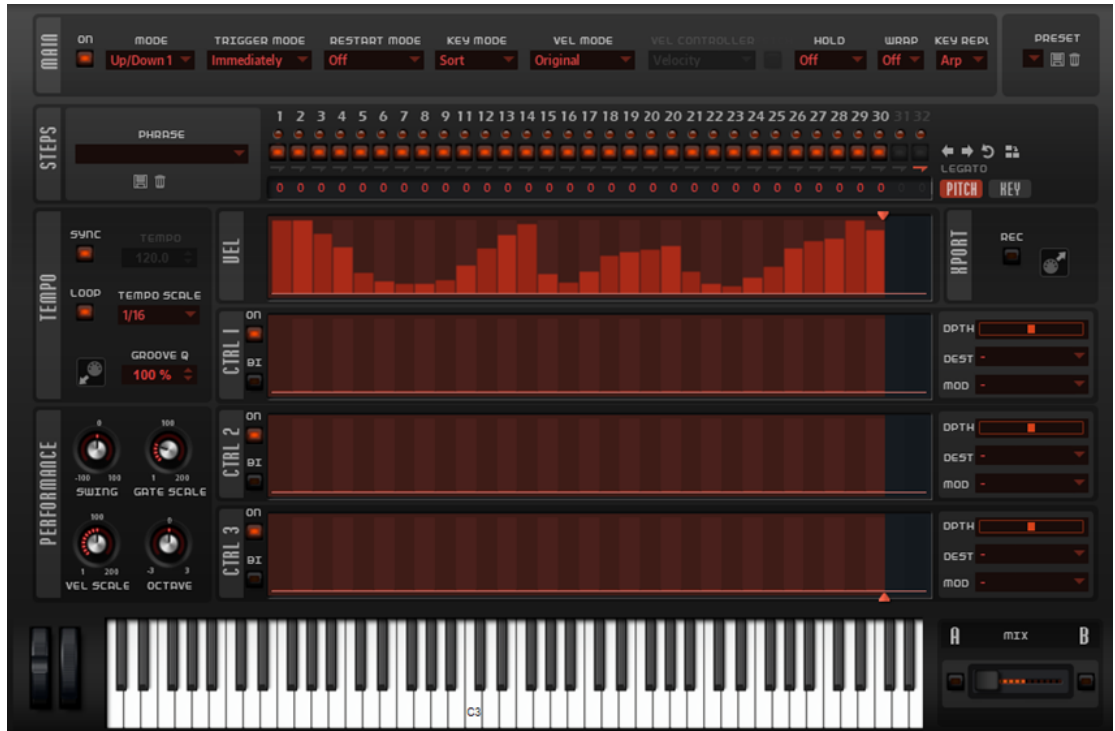
The following parameters are available:

- **L0** sets the start level.
- **A** sets the attack time.
- **L1** sets the attack level.
- **D** sets the decay time.
- **S** sets the sustain level.
- **R** sets the release time.
- **L4** sets the end level.
- **Velocity** determines how much the envelope intensity depends on the velocity.

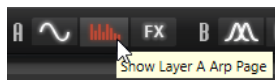
If this parameter is set to 0, the envelope is fully applied. Higher values reduce the intensity for lower velocities.

Arp Page

On the **Arp** page, you can find the arpeggio and phrase player of Padshop.

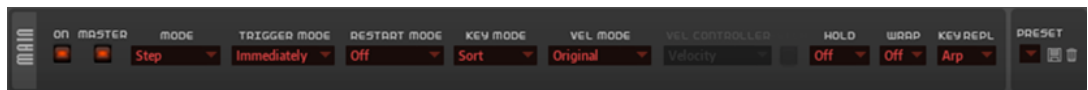


- To show the **Arp** page for a layer, activate the corresponding **Show Arp Page** button.



Main Section

In the **Main** section, you can make global settings for the arpeggiator.



Arpeggiator On/Off

Activates/Deactivates the arpeggiator.

Master

If this button is activated, the arpeggiator of the current layer becomes the master arpeggiator and is also used for the second layer.

NOTE

- Any settings you have made for the slave arpeggiator are not deleted. They become available again when you deactivate **Master** mode.
- The modulation assignments for the controller rows 1 to 3 remain active even in slave mode. This allows you to specify the influence of the master arpeggiator on the slave layer.

Mode

Specifies the playback of the notes.

- If **Step** is selected, the last note that is received triggers a monophonic sequence.
- If **Chord** is selected, the notes are triggered as chords.
- If **Up** is selected, the notes are arpeggiated in ascending order.
- If **Down** is selected, the notes are arpeggiated in descending order.
- If **Up/Down 1** is selected, the notes are arpeggiated first in ascending, then in descending order.
- If **Up/Down 2** is selected, the notes are arpeggiated first in ascending, then in descending order. This mode depends on the set **Key Mode**.
If **Key Mode** is set to **Sort**, the highest and the lowest note are repeated.
If **Key Mode** is set to **As Played**, the first and the last note are repeated.
- If **Down/Up 1** is selected, the notes are arpeggiated first in descending, then in ascending order.
- If **Down/Up 2** is selected, the notes are arpeggiated first in descending, then in ascending order. This mode depends on the set **Key Mode**.
If **Key Mode** is set to **Sort**, the highest and the lowest note are repeated.
If **Key Mode** is set to **As Played**, the first and the last note are repeated.
- If **Random** is selected, the notes are arpeggiated in random order.

Trigger Mode

Determines the moment when the arpeggiator scans for new notes that you play on the keyboard.

- If **Immediately** is selected, the arpeggiator continuously scans for new notes. The phrase changes immediately, in reaction to your playing.
- If **Next Beat** is selected, the arpeggiator scans for new notes at every new beat. The phrase changes at each new beat, in reaction to your playing.
- If **Next Measure** is selected, the arpeggiator scans for new notes at the start of new measures. The phrase changes on each new measure, in reaction to your playing.

Restart Mode

- If this is set to **Off**, the phrase runs continuously and does not restart at chord or note changes.
- **New Chord** restarts the phrase on new chords.

NOTE

The phrase does not restart upon notes that are played legato.

- **New Note** restarts the phrase with each new note that you play.
- **Sync to Host** aligns the phrase with the beats and measures of your host application each time that you start the transport.

Key Mode

Determines if and how the playback of the phrase is affected by the order of the notes, as played on the keyboard.

- If **Sort** is selected, the notes are played in the order of the selected phrase, regardless of the chronological order.
- If **As Played** is selected, the notes are played in the order in which you play them on the keyboard.

- If **Direct** is selected, the phrase creates controller events instead of notes. You hear the notes that you play plus any controller events of the phrase, such as pitch bend, volume, pan, etc.

NOTE

Direct only has an effect if you have set up and activated a controller lane in the arpeggiator and if a modulation destination is assigned to it.

Vel Mode

- If **Original** is selected, the notes of the phrase play with the velocity that is saved in the phrase.
- If **Vel Controller** is selected, you can choose a velocity controller to generate or modulate the velocities of the notes.
- If **Original + Vel Controller** is selected, the phrase velocity is determined by the combination of the velocity saved in the phrase and the velocity derived from the velocity controller.

Vel Controller

If the **Vel Mode** pop-up menu is set to **Vel Controller** or **Original + Vel Ctrl.**, the **Vel Controller** pop-up menu is available. It allows you to generate or modulate the velocities of the notes using the incoming controller values.

- If **Velocity** is selected, the triggered notes inherit the velocity of the note that you play.
- If **Aftertouch** is selected, the triggered notes receive their velocity from the aftertouch controller.
- If **Poly Pressure** is selected, the triggered notes receive their velocity from the poly pressure controller. This allows you to control the velocity via the keys.
- Selecting **MIDI Controller** opens a submenu, where you can select a MIDI controller.

The value of this MIDI controller is used as the velocity for the triggered notes.

Hold

Allows you to prevent the phrase from stopping or changing when the keys are released.

- If **Off** is selected, the phrase changes as soon as you release a key. The phrase stops immediately when you release all keys.
- If **On** is selected, the phrase plays to the end, even if the keys are released. If **Loop** is activated, the phrase is repeated continuously.
- If **Gated** is selected, the phrase starts to play when the first key is played. It plays silently in the background, even if the keys are released, and resumes playback at the current position when you press any of the keys again. This way, you can gate the playback of the phrase.

Wrap

For all modes except **Step** and **Chord**, you can use this parameter to restart the arpeggio after a specified number of steps.

NOTE

Deactivated steps are taken into account.

In **Step** and **Chord** mode, this parameter only affects the **Octaves** setting.

If the **Octaves** parameter is active, the arpeggio traverses the octaves and restarts from the original octave after the specified number of steps.

Steps Section

The **Steps** section allows you to set up the phrase. You can load one of the included phrases or create your own phrase from scratch. Each step of the phrase can be edited separately.



Phrase

Allows you to select a phrase.

Step LEDs

The step LEDs light up when the corresponding step is played.

Step On/Off buttons

Activate/Deactivate the steps.

Legato buttons

The **Legato** buttons below the step buttons allow you to introduce a legato between two steps.

- To create a legato, click the **Legato** button below the first step, so that a small arrow is shown.

Show Pitch Row

Displays the **Transpose** value fields under the steps, which allow you to enter individual transpose values for the steps.

Show Key Row

Displays the **Key Select** value fields under the steps, which allow you to specify which key in the note buffer to play for each step.

Key Select

The arpeggiator scans the keyboard and writes the keys that you press into a note buffer. Depending on the selected **Key Mode**, this note buffer is sorted either by pitch or in the order in which you play the keys. **Key Select** allows you to play back a defined key from the note buffer. You can set up **Key Select** for each individual step, which allows you to create very elaborate phrases.

NOTE

Key Select cannot be used if **Arp Mode** is set to **Step** or **Chord**.

- To access the **Key Select** values of the steps, click **Show Transpose or Key Select** to the left of the editor, so that a keyboard icon is shown.
- To switch between the available **Key Select** values for a step, click the value, and drag up/down, or use the scroll wheel.

The following options are available:

- **P** (Phrase) plays the note of the user phrase, according to the selected mode, for example, **Up, Down, Up/Down 1**, etc.

- The settings **1 - 8** play the corresponding keys from the note list. Which key is played depends on the **Key Mode** setting. For example, if **Key Mode** is set to **Sort**, setting **1** plays the lowest key.
- **L** (Last) always plays the last key from the note buffer. Depending on the **Key Mode**, this is the highest note or the last note in the note buffer.
- **A** (All) plays all keys from the note buffer as a chord.

Velocity Section

In this section, you set up the steps of the arpeggio and specify their velocities.



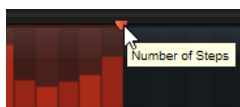
A phrase can contain up to 32 steps. Only activated steps are played.

- To activate a step, activate its **On/Off** button in the **Steps** section.





Step Editing

You can edit the entire phrase, for example, by shifting or reversing it, or edit the steps separately, for example, by setting their velocity values or by activating/deactivating single steps.

- To specify the number of steps for the phrase, drag the **Number of Steps** handle to the left or right.







Adjusting the Phrase

- To shift the rhythm of the phrase, click **Shift Phrase Right**  or **Shift Phrase Left** .
- If you shift the rhythm of the phrase to the left, the first step is moved to the end. If you shift the phrase to the right, the last step is moved to the beginning.
- To reverse the phrase, click **Reverse Phrase** .
- To duplicate short phrases, click **Duplicate Phrase** .

NOTE

The maximum number of steps is 32. Therefore, phrases that contain more than 16 steps cannot be duplicated as a whole.

Editing Steps

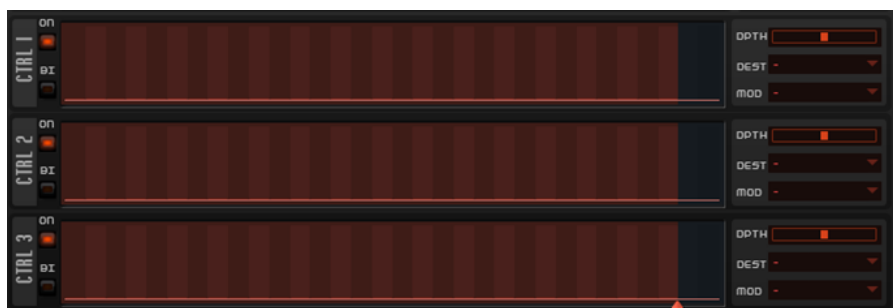
- To activate all steps, select **Enable All Steps**  from the context menu.
- To adjust a value, click a step, and drag up or down.
- To adjust multiple steps, click and draw a curve.
- To adjust the velocity of all steps relatively, -click and drag.
- To draw a ramp with steps, hold down , and draw a line.
- To draw symmetric ramps at the beginning and the end of the sequence, hold down , and draw a line.

- To reset the velocity of a step to 127, **⌘**-click the step.
- To reset the velocity of all steps to 127, hold **⌘**, and click a step.
- To introduce a legato between two steps, activate **Step Legato** for the first of these steps, so that a small arrow is shown.
If **Legato** is activated, the **Gate Scale** parameter is not taken into account.
- To transpose a step, click in the **Step Transpose** field, and enter the number of semitones for the transposition.
- To adjust the gate length of a step, drag its right border.
- To adjust the gate length of all steps, hold down **⌘**, and drag the right border of a step.
You can only adjust the length this way until a step reaches the next step. If you increase the gate length of a step so that it overlaps with the following step, the latter step is deactivated.
- To reset the length of a step to 1, **⌘**-click its highlighted right border.
- To reset the length of all steps, hold down **⌘**, and click on a highlighted right border.
- To fill the gaps between consecutive steps, select **Fill Gap** or **Fill All Gaps** from the context menu.

Controller Lanes Section

The three controller lanes allow you to set up controller sequences that you can use to modulate the phrase.

The MIDI controllers 110, 111, and 112 from the three controller lanes are sent to the modulation destinations. When you export a recorded sequence, these controller values are also exported. This means that once you add the exported MIDI sequence to the sequencer, you can deactivate the arpeggiator and play the notes and controller values using the sequencer.



- To activate a controller lane, click its **On/Off** button.
- You can specify whether you want to use the controller curve as unipolar or as bipolar modulation source by activating/deactivating the **Bipolar On/Off** button for each lane.
- On the right, you can set up the modulation for the controller lane.

NOTE

Even if you deactivate the arpeggiator, its controller lanes are still available in the modulation matrix and can be used to modify the modulation using the incoming MIDI controller messages.

RELATED LINKS

[Step Editing](#) on page 48

[Modulation Matrix Parameters](#) on page 37

Tempo Section

In the **Tempo** section, you can set the playback speed for the arpeggiator or synchronize playback to the tempo of the host.



Sync

Synchronizes the phrase to the tempo of your host application.

NOTE

In addition, you can set **Restart Mode** to **Sync to Host**. This aligns the phrase with the beats and measures of your host application.

Tempo

If **Sync** is deactivated, you can use the **Tempo** control to set the internal playback speed of the arpeggiator. The playback speed of the phrase is specified in BPM.

If **Sync** is activated, the **Tempo** parameter is not available.

Loop

Allows you to play the phrase in a loop.

Tempo Scale

Defines the rate at which notes are triggered, that is, the speed at which the phrase is running. In addition to the **Tempo** parameter, this gives you further control over the playback speed. You can specify a value in fractions of beats. You can also set dotted and triplet note values.

For example, if you change the **Tempo Scale** setting from 1/16 to 1/8, the speed is cut in half. If you set it to 1/32, the speed is doubled.

Groove Quantize

To adapt the timing of a phrase to an external MIDI file, you can drop this MIDI file on the **Groove Quantize** drop field.

The **Groove Quantize Depth** parameter to the right of the drop field determines how accurately the phrase follows the timing of the MIDI file.

Performance Section

The **Performance** section allows you to specify how the phrase is played. For example, you can give it a swing feeling or add an additional octave to playback.



Swing

Shifts the timing of notes on even-numbered beats, which results in a “swing feeling”. Negative values shift the timing backward, and the notes are played earlier. Positive values shift the timing forward, and the notes are played later.

Gate Scale

Allows you to shorten or lengthen the notes of the phrase. At a value of 100%, the notes play with their original gate length.

Vel Scale

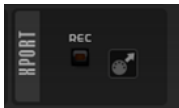
Allows you to raise or lower the note-on velocities of the phrase. At a value of 100%, the notes are played with their original velocity.

Octaves

Extends the phrase playback to include higher or lower octaves. Positive settings extend the playback to higher octaves, and negative settings to lower octaves. For example, a value of +1 first plays the phrase in the octave range that you originally played. Then, it repeats the phrase one octave higher.

Export Section

This section contains the MIDI export functions. You can export the phrases created with the arpeggiator by recording them and then dragging them onto a track in your DAW.



Record Output

Allows you to record the MIDI output of the arpeggiator.


Drag MIDI Phrase to Host Sequencer

Allows you to drag the recorded MIDI phrase to your host sequencer.

Locking the Arp Page

You can lock the **Arp** page to play the same arpeggio for different sounds.

PROCEDURE

- Click **Lock Arpegiators**  in the plug-in functions section.
Now, you can switch presets to try out different sounds with the same arpeggio.
-

FX Page

This page features an equalizer, a chorus or flanger modulation effect, and a delay effect for each layer. Furthermore, it contains the global reverb effect.

To activate/deactivate a section, click its **On/Off**  button.

EQ Section

For each layer, a high-quality 4-band equalizer is available.



The two mid-range bands act as peak filters and the low and high bands act as shelving filters. All bands are fully parametric with adjustable **Gain**, **Frequency**, and **Q** parameters.

Gain

Sets the amount of cut or boost for the corresponding band.

Freq

Sets the frequency that is cut or boosted with the **Gain** parameter.

Q (Quality)

Adjusts the bandwidth of the mid-range peak filters from wide to narrow. By increasing the **Q** value on the low and high shelving filters, you can add a dip to their shape.

Modulation Effects Section

In this section, you can select the modulation effect that you want to use from the **Type** menu. You can choose between the following effects: **Chorus**, **Flanger**, **Ensemble**, and **Phaser**.



For **Chorus** and **Flanger**, the following parameters are available:

Rate

Specifies the frequency of the pitch modulation.

Sync

Allows you to set the **Rate** value in fractions of beats.

Depth

Sets the intensity of the pitch modulation.

Phase

Widens the sound image of the effect from mono to stereo.

Feedback

Adds resonances to the effect.

Mix

Sets the ratio between the dry and the wet signal.

For the **Ensemble** effect, the following parameters are available:



Sync

Allows you to set the **Rate** value in fractions of beats.

Rate

Sets the frequency of the LFO.

Depth

Sets the intensity of the delay time modulation by the LFO.

Shimmer

Sets the intensity of a secondary faster delay time modulation.

Shimmer Rate

Determines the relation between the speed of the primary and the secondary delay modulation. For example, at a value of 10, the secondary modulation is 10 times faster.

Mix

Sets the ratio between the dry and the wet signal.

For the **Phaser** effect, the following parameters are available:



Sync

Allows you to set the **Rate** value in fractions of beats.

Rate

Specifies the frequency of the phase modulation.

Phase

Widens the sound image of the effect from mono to stereo.

Depth

Sets the intensity of the phase modulation.

Feedback

Adds resonances to the effect. Higher settings produce a more pronounced effect.

Shift

Shifts the phase modulation upwards to higher frequencies of the spectrum.

Low Cut

Attenuates the low frequencies.

High Cut

Attenuates the high frequencies.

Mix

Sets the ratio between the dry and the wet signal.

Delay Section

In the **Delay** section, you can choose the delay effect that you want to use and make settings for it.



Delay Mode

- **Stereo** has two delays in parallel, one for the left and one for the right audio channel, each with a feedback path of its own.
- **Cross** has two delay lines with cross feedback, where the delay of the left channel is fed back into the delay of the right channel, and vice versa.
- **Ping-Pong** mixes the left and right input channels and sends the mixed signal to hard-panned left and right delays. This way, the echoes bounce from left to right, like a ping-pong ball, in the stereo panorama.

Sync

Allows you to synchronize the delay time to the host tempo. If **Sync** is activated, the time is set as a note value.

NOTE

The maximum delay time is 5000 ms. If the note length exceeds this value, it is automatically shortened.

Delay Time

Sets the overall time for the left and right delay. Use the **Delay L/R** parameter to shorten the time for the left or right delay.

Delay L/R

Offsets the time of the left or right delay from the overall delay time. At a factor of 1, the right or left delay time has the same length as the overall delay time. At a factor of 0.5, the time is half as long as the overall delay time.

- To offset the left delay time, turn the control to the left.
- To offset the right delay time, turn the control to the right.

Feedback

Sets the overall amount of feedback for the left and right delay. Feedback means the output of the delay is fed back to its input. Set to 0%, you hear only one echo. With a setting of 100%, the echoes are continuously repeated.

Feedback L/R

Offsets the amount of feedback of the left or right delay from the overall feedback. A factor of 1 means that the amount of feedback corresponds to the overall feedback. A factor of 0.5 means that the amount is half the overall feedback.

- To offset the left feedback, turn the control to the left.
- To offset the right feedback, turn the control to the right.

NOTE

This parameter is only available in **Stereo** mode.

High Damp

Attenuates the high frequencies of the delays.

Mix

Sets the ratio between the dry and the wet signal.

Global Reverb Section

The reverb effect works as a global AUX effect. It can be fed by the two layers individually. This allows you to add reverb only to one of the layers while keeping the other layer dry, for example. To modify the parameters, use the controls, click and drag in the display, or enter new values manually in the fields below the display.



Layer A/Layer B

Allows you to specify for each layer how much of the processed signal is sent to the global reverb effect.

Chorusing

Chorusing allows you to enrich the reverb tail through subtle pitch modulations.

- **Chorusing On/Off** activates/deactivates the chorusing effect.
- **Rate** specifies the frequency of the pitch modulation.
- **Depth** sets the intensity of the pitch modulation.

Predelay

Determines how much time passes before the reverb is applied. This allows you to simulate larger rooms by increasing the time it takes for the first reflections to reach the audience.

Low Time

Controls the reverb time for the low frequencies of the reverb tail. Positive values result in a longer decay for the low frequencies. Negative values result in a shorter decay.

Frequencies are affected depending on the **Low Freq** parameter.

Low Freq

Sets the cross-over frequency between the low and the mid band of the reverb tail. The reverb time for frequencies below this value can be offset from the main reverb time with the **Low Time** parameter.

Main Time

Controls the overall reverb time. The higher this value, the longer the decay. At a setting of 100 %, the reverb time is infinitely long.

High Freq

Sets the cross-over frequency between the mid and the high band of the reverb.

High Time

Controls the reverb time for the high frequencies of the reverb. When you set positive values, the decay time of the high frequencies is longer, when you set negative values, it is shorter.

High Cut

Attenuates the high frequencies of the reverb.

Room Size

Controls the dimensions of the simulated room. With a setting of 100%, the dimensions correspond to a cathedral or a large concert hall. With a setting of 50%, the dimensions correspond to a medium-sized room or studio. Settings below 50% simulate the dimensions of a small room or a booth.

Width

Adjusts the output of the reverb signal between mono and stereo. With a setting of 0%, the output of the reverb is mono. At 100%, it is stereo.

Level

The return level of the reverb.

Quick Controls

Padshop provides a predefined set of 8 quick controls that can be controlled directly from within your Steinberg DAW.

By default, these quick controls are assigned to the following parameters:

- 1 is assigned to **Layer A Filter Cutoff**.
- 2 is assigned to **Layer A Filter Resonance**.
- 3 is assigned to **Layer A DCA Attack**.
- 4 is assigned to **Layer A DCA Release**.
- 5 is assigned to **Layer B Filter Cutoff**.
- 6 is assigned to **Layer B Filter Resonance**.
- 7 is assigned to **Layer B DCA Attack**.
- 8 is assigned to **Layer B DCA Release**.

NOTE

You can also change the default quick control assignments. For more information, see the **Operation Manual** of your Steinberg DAW.

MIDI Controller Assignments

Almost all parameters in Padshop can be adjusted via MIDI controllers.

The MIDI controller assignments are saved globally for the plug-in, except for the mod wheel. The mod wheel assignment is saved with the preset. This allows you to control effect parameters using the mod wheel, for example.

NOTE

Volume and **Pan** are assigned to controllers 7 and 10 by default, and are therefore always available.

NOTE

When you use Padshop in a host application like Cubase, the MIDI controller assignments are saved with the project.

Assigning MIDI Controllers

You can remote-control the parameters in Padshop by assigning MIDI controllers to them.

PROCEDURE

1. Right-click the control that you want to remote-control and select **Learn CC**.
2. On your MIDI keyboard or controller, use the potentiometer, fader, or button.
The next time you right-click the control, the menu shows the assigned MIDI controller.

NOTE

You can assign the same MIDI controller several times to different parameters. However, you cannot assign different MIDI controllers to the same parameter.

Unassigning MIDI Controllers

PROCEDURE

- To remove a MIDI controller assignment, right-click the control, and select **Forget CC**.
-

Setting the Parameter Range

You can set the minimum and maximum values of the parameter for each assignment separately. This gives you more control over the parameter, for example, when you are performing live on stage.

PROCEDURE

1. Set the parameter to the minimum value.
 2. Right-click the control, and select **Set Minimum** from the context menu.
 3. Set the parameter to the maximum value.
 4. Right-click the control, and select **Set Maximum**.
-

Assigning the Mod Wheel

PROCEDURE

1. Right-click the control for which you want to assign the mod wheel.
 2. On the **Modulation Wheel** submenu, select **Enable Mod Wheel**.
 3. Set the minimum and maximum values for the mod wheel using the **Set Minimum** and **Set Maximum** commands.
-

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