propellerhead

REASON DRUM KITS
OPERATION MANUAL

propellerhead

Reason Drum Kits

Introduction

The Reason Drum Kits instrument is a Rack Extension version of the mighty popular Reason Drum Kits ReFill.

Anyone with experience in professional studio work will tell you that recording drums is the most difficult and demanding part of any project. Hands down. Drum recording is a craft which takes decades to learn, yet never gets any easier. It's exhausting. It's expensive. It can make or break an entire production.

Due to these challenging demands, the means for capturing the ultimate drum sound have always been out of reach for everyone except those who never get cold sweats from the tick tock of the studio clock. Until now.

We took care of the hard part, and the result is Reason Drum Kits - a powerful and versatile drum tool that tears down the last barrier between the virtual studio workspace and the real drum recording studio, and closes the quality gap between "merely" professional and world class!

Be the drummer - and the engineer!

Traditionally, the structure of computer based drum tools has been dictated by the anatomy of the drum kit. In other words, it's always been approached from the drummer's point of view. He's got his instruments - his bass drum, his snare, his toms and so forth, and that's how the drums are packaged and presented to you.

From the perspective of a sound engineer, however, it's not merely about drums but also about the microphones that capture them. On the mixing desk, the snare is represented by two channels - the bottom and the top microphone. The cymbals are represented by the overhead mics that capture them.

And what's more, there is always leakage between microphones - the snare bleeds into the hi-hat mic, the kick bleeds into the snare bottom mic, and all the instruments are picked up by the overhead mics.

This is all an essential part of the sound of recorded live drums, yet virtual drum tools seldom take these aspects into account. It therefore made sense to us that Reason Drum Kits should be built around microphones.

By replicating the recording situation, Reason Drum Kits lets you be both the drummer and the engineer, and gives you all the control you would have in a professional studio - with the added benefit of total recall of not only the mixer settings, but in fact the whole package; the room, the drums, the microphones, the effects, everything exactly the way you left it.

The illustration below shows the approximated source mic placements, and how each respective microphone source corresponds to channels in Reason Drum Kits.
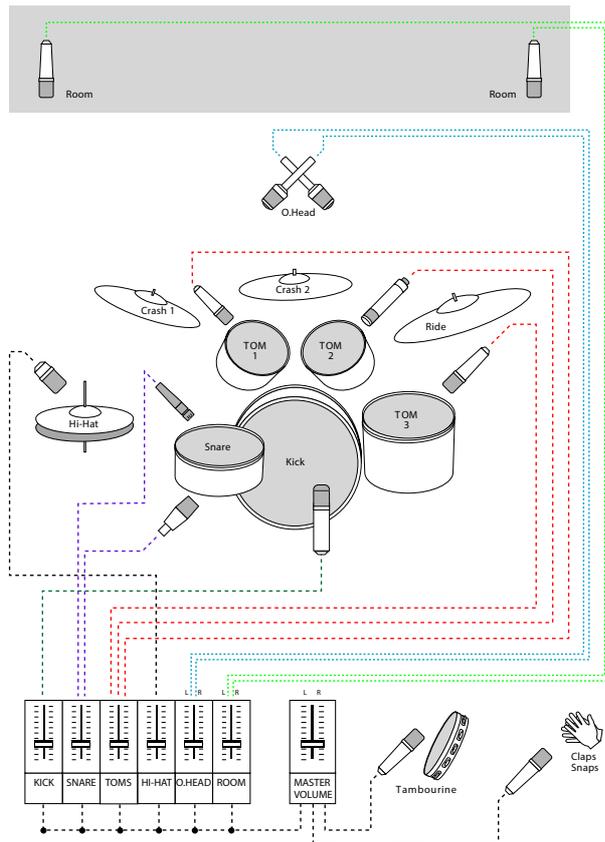
The Overhead mics capture an overall stereo picture of the kit from an overhead position. The Room mics will do the same, but at a greater distance to include more ambience, i.e. the natural room reflections of the studio itself. Likewise, the Snare Bottom mic captures not only the Snare, but also leakage from the Kick and Toms, which can add body to the overall sound. All the other mics capture the instrument it is dedicated to with little leakage.

With Reason Drum Kits you have access to a selection of great drums and cymbals - hypersampled (see "About Hypersampling") through signal chains that include some of the true heavyweights in the microphone business.

For detailed information about the drums and cymbals used in Reason Drum Kits, please refer to "Simply the best - how Reason Drum Kits was created".

Panel overview

The Reason Drum Kits front panel contains the following sections:

The Reason Drum Kits front panel sections.

- 1. Patch Selector (for browsing, loading and saving patches).
- 2. Interactive display (for previewing drum sounds and for viewing the currently selected/played instrument).
- 3. Mic Mixer.
- 4. Master Volume.
- 5. Drum Settings buttons (for selecting the instrument to edit).
- 6. Mic, Effects and Settings selector buttons (for selecting what to edit).
- 7. Drum, Mic, Effects and Settings panel.

Global controls

Loading and saving patches

A Reason Drum Kits patch is a drum kit, complete with drum selections and effects. Key Map (see "Changing the keyboard layout preset") and Randomize (see "Randomize Velocity and/or Pitch") settings are not included in the patch.

Loading and saving patches is done in the same way as with any other internal Reason device. See the "Sounds and Patches" chapter in the Reason Operation Manual pdf for details.

About Mod Wheel, Pitch Bend, Aftertouch and Sustain Pedal

Reason Drum Kits does not respond to Mod Wheel, Pitch Bend, Aftertouch or Sustain Pedal.

Playing Reason Drum Kits

By default Reason Drum Kits uses the following keyboard layout for playback of the drums via MIDI:
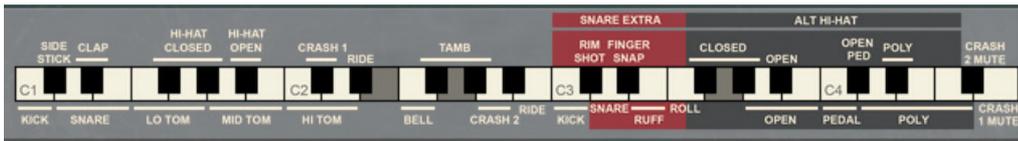
→ **You can also play/preview the different sounds by clicking the desired instrument in the interactive display:**
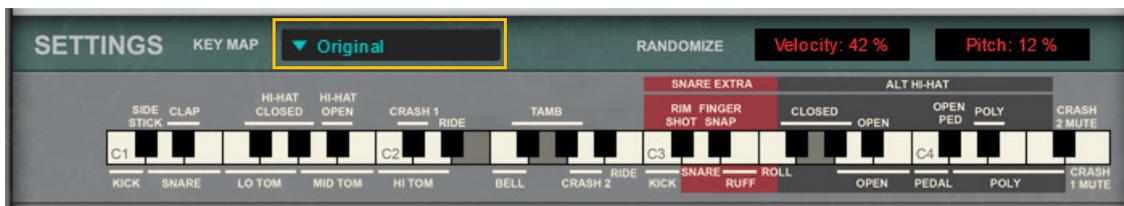

Changing the keyboard layout preset

If the default keyboard layout doesn't suit your needs you can easily switch to another keyboard layout preset:

1. Click the Settings button to open the Settings panel:

2. Click on the Key Map display and select the desired keyboard layout preset from the pop-up menu:

The available keyboard layout presets are:

- **Original**
  This is the original layout of the Reason Drum Kits ReFill, meant for playing from a MIDI keyboard. It is fairly close to a General MIDI drum layout, but has double keys for most drums (left/right hand) for added realism and ease of playing.

- **Alesis Kit**
  This layout corresponds to the MIDI note numbers sent by many electronic drum kits made by Alesis.

- **Roland Kit**
  This layout corresponds to the MIDI note numbers sent by many electronic drum kits made by Roland.

- **16 Pads**
  This layout corresponds to the layout of the Kong Drum Designer device and to many 16 Pad controllers. It is also the key map to use if you want to play Reason Drum Kits from the optional Drum Sequencer Player device, using its included drum beats.

! **Note that the keyboard layout is NOT saved with the Reason Drum Kits patch, but is "global" for all patches.**

Randomize Velocity and/or Pitch

→ Drag vertically in the Velocity and/or Pitch displays to set how much you want to randomize the Velocity/Pitch.

Selecting instruments for your kit

→ Click the Drum Settings button to open the Edit Panel for the desired instrument:

Clicking the Kick button opens the Edit Panel for the bass drum.

The interactive display now also highlights the Kick drum so you can see that it is selected:

Selecting sample set

1. Click in the Sample Set display and select the desired instrument from the pop-up menu:
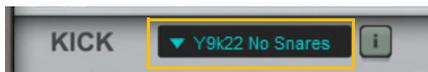
▸ Click the Info (i) button to the right of the display to view information about the selected sample set in the interactive display:

2. Repeat the procedure for the other instruments, by clicking the desired Drum Settings button and loading the desired sample set.

Editing instruments

The Sample Set section

The Sample Set section for the Kick, Snare, Hi-Hat, Ride. Crash 1 and Crash 2 instruments are pretty similar and contains the same types of parameters:

Pitch

The Pitch knob controls the pitch of the selected sample set.
Range: +/- 12 semitones

Decay

The Decay knob controls the decay time of the selected sample set. The decay range can be different depending on the selected sample set/instrument.

Vol

This controls the volume of the selected sample set into the Mic Mixer (see "Mic Mixer"). The Ride, Crash 1 and 2 all go to the O.Head channel in the Mic Mixer. The Tambourine and Claps & Snaps go straight to the Master Volume, bypassing the Mic Mixer.

Top & Bottom (Snare only)

These controls are only available for the Snare instrument and set the level of the top and bottom mics respectively. The Bottom parameter will affect the total level of the Snare Bottom mic signal, including any leakage from Kick and Toms

Pan

This sets the position of the selected sample set in the stereo panorama. For the Ride, Crash 1 and 2 instruments, the panning is related to the Overhead microphones.

Leakage

All instruments, except for the Tambourine and Claps + Snaps, have controls for the leakage to other mics. The leakage destinations are, depending on instrument:

- **Overhead mics**
- **Room mics**
- **Snare Bottom**

Reverb Send (Tambourine and Claps & Snaps)

The Tambourine and Claps & Snaps instruments feature a Reverb Send knob. This can be used for sending the signal to the Reverb in the Master FX section (see "Reverb").

The EQ

The EQ is a shelving low/hi and a parametric mid band equalizer. There is one EQ for each of the instrument channels.

EQ On/Off

→ **Click the LED button to activate the EQ.**

Lo Shelf

→ **Set the Lo Shelf frequency with the red knob.**
  Range: 50.0-800 Hz

→ **Set the Lo Shelf gain/attenuation with the blue knob.**
  Range: +/- 20 dB

Mid

→ **Set the mid frequency with the red knob.**
  Range: 40.0 Hz to 16.0 kHz

→ **Set the mid band gain/attenuation with the blue dB knob.**
  Range: +/- 20 dB

→ **Set the bandwidth with the blue Q knob.**
  Range: 0.40-4.32

Hi Shelf

→ **Set the Hi Shelf frequency with the red knob.**
  Range: 1.00-16.0 kHz

→ **Set the Lo Shelf gain/attenuation with the blue knob.**
  Range: +/- 20 dB

The Transient designer

The Transient designer can be used for accentuating or smoothing out the transients of the sound. There is one Transient designer for each of the instrument channels.

Transient designer On/Off

→ **Click the LED button to activate the Transient designer.**

Attack

→ **Set whether you want to cut (-) or boost (+) the attack transients.**
Range: +/- 15 dB

Sustain

→ **Set the length of the attack cut/boost.**
Range: +/- 100%

The Distortion effect

The Distortion effect can be used for adding tube-type or transistor-type distortion. There is one Distortion effect for each of the instrument channels.

Distortion On/Off

→ **Click the LED button to activate the Distortion effect.**

Drive

→ **Set the input gain to the distortion with the Drive knob.**
A high value will overdrive the pre-amp and generate more distortion.

Range: 0-60 dB

Type

→ **Set the distortion type with the switch.**
Tube-type to the left and transistor-type to the right.

The Overhead and Room mics sections

The Overhead and Room mics sections feature identical modules, that can be used for shaping the sound from the overhead and room microphones respectively.

Width

→ **Turn the Width knob to set the width of the sound from the mics - from mono via full stereo to 150%, where the mid signal is attenuated and the side signals boosted.**
Range: 0-150%

Compressor

This is a full-fledged stereo compressor with a Slam mode function for "inverted" compression.

Compressor On/Off

→ **Click the LED button to activate the Compressor.**

Gain Reduction

The Gain Reduction meter shows the level and characteristics of the gain reduction (compression).

Threshold

This is the threshold level above which the compression sets in. Signals with levels above the threshold will be affected, signals below it will not. In practice, this means that the lower the Threshold setting, the more the compression effect.

→ **Set the Threshold level with the knob.**
Range: -60 to 0 dB

Ratio

This specifies the amount of gain reduction applied to the signal above the set threshold. A high value makes the sound less dynamic and more "even" in level.

→ **Set the Ratio with the knob.**
Range: 1.00-20.00 (1:1 to 20:1)

Slam

This boosts the compression ratio so much that the output gets quieter as the input gets louder.

Attack

This governs how quickly the compressor will apply the gain reduction when signals rise above the set Threshold. If you raise the Attack value, the response will be slower, allowing more of the signal to pass through the compressor unaffected. Typically, high Attack values are used for preserving the attacks of the sounds.

→ **Set the Attack time with the knob.**
Range: 0-1000 ms

Release

When the signal level drops below the set Threshold, this determines how long it takes before the compressor lets the sound through unaffected. Set this to short values for intense, "pumping" compressor effects, or to longer values for a smoother change of the dynamics.

→ **Set the Release time with the knob.**
Range: 0.0 ms to 10.0 s

Make-up

This can be used to amplify the output signal and compensate for the gain reduction caused by compression.

→ **Set the Make-up gain with the knob.**
Range: 0.0-20.0 dB

The EQ and Distortion effect

These sections are identical to the corresponding sections for each instrument. Please refer to "The EQ" and "The Distortion effect".

The Master FX section

The Master FX section features a convolution Reverb, which is routed as a send effect for the channels in the Mic Mixer, as well as for the Tambourine and Claps & Snaps instruments. It also features a Compressor routed as a master insert effect, to affect the entire output mix.

Reverb

The Reverb send effect is a convolution reverb with a number of different reverb types (impulse responses). The effect levels can be set individually for each channel in the Mic Mixer - and from the Tambourine and Claps & Snaps instruments' Send knobs.

Reverb On/Off

→ **Click the LED button to activate the Reverb.**

Reverb type

→ **Click in the Reverb type display and select the desired reverb type from the pop-up list.**

The following reverb types can be selected:

- **Bright Plate**
- **Drum Corner**
- **Baffle Room**
- **Thick Stage**
- **Large Room**
- **Hall**
- **Arena**
- **Cathedral**
- **Stereo Spring**
- **Slapbacks**
- **Short Gated**

Pre Delay

→ **Set the pre-delay time of the reverb.**
This defines when you what the reverb effect to kick in after the audio has been fed into the effect.

Range: 0-200 ms.

Decay

→ **Set the length of the reverb effect.**
Middle position is the default decay time.

Low Cut

This is essentially a highpass filter.

→ **Raise the Lo Cut value to cut the low frequencies of the reverb signal and make the reverb effect less "muddy".**
Range: 20.0 Hz to 25.0 kHz

Hi Cut

This is essentially a lowpass filter.

→ **Lower the Hi Cut value to cut off the high frequencies of the reverb, thereby creating a smoother, warmer effect.**
Range: 20.0 Hz to 25.0 kHz

Compressor

This stereo Compressor is a master insert effect and can be used to compress the final output signal of Reason Drum Kits. The compressor also features a Dry/Wet control, which makes it possible to use it for parallel compression.

Compressor On/Off

→ **Click the LED button to activate the Compressor.**

Gain Reduction

The Gain Reduction meter shows the level and characteristics of the gain reduction (compression).

Drive

→ **Add an overdrive distortion by amplifying the input signal with the Drive knob.**

Threshold

This is the threshold level above which the compression sets in. Signals with levels above the threshold will be affected, signals below it will not. In practice, this means that the lower the Threshold setting, the more the compression effect.

→ **Set the Threshold level with the knob.**
Range: -60 to 0 dB

Ratio

This specifies the amount of gain reduction applied to the signal above the set threshold. A high value makes the sound less dynamic and more "even" in level.

→ **Set the Ratio with the knob.**
Range: 1.00-20.00 (1:1 to 20:1)

Attack

This governs how quickly the compressor will apply the gain reduction when signals rise above the set Threshold. If you raise the Attack value, the response will be slower, allowing more of the signal to pass through the compressor unaffected. Typically, high Attack values are used for preserving the attacks of the sounds.

→ **Set the Attack time with the knob.**
Range: 0-1000 ms

Release

When the signal level drops below the set Threshold, this determines how long it takes before the compressor lets the sound through unaffected. Set this to short values for intense, "pumping" compressor effects, or to longer values for a smoother change of the dynamics.

→ **Set the Release time with the knob.**
   Range: 0.0 ms to 10.0 s

Make-up

This can be used to amplify the output signal and compensate for the gain reduction caused by compression.

→ **Set the Make-up gain with the knob.**
   Range: 0.0-20.0 dB

Dry/Wet

→ **Set the balance between the "dry" unaffected signal and the compressed signal.**
   This makes it possible to use the Compressor for parallel compression.

The Close button

→ **Click the Close (X) button to close the settings panel.**
   This is useful when you want to focus on the music rather than the parameters, and also provides a convenient leather arm rest.

Mic Mixer

In the Mic Mixer you can balance the levels from the various microphones, to get a good sub-mix of your kit.

The Mic channels

- **The Kick channel represents the kick drum mic.**

- **The Snare channel represents the level of the snare drum top/bottom mic blend (as set in the Instrument parameters for the Snare).**

- **The Toms channel represents the level of the stereo mix between the three toms. Individual levels and pan settings for the toms can be made with the Instruments parameters.**

- **The Hi-hat channel represents the close mic for the hi-hat.**

- **O.Head represents the stereo overhead microphones. These will always capture the cymbals; for the other drums the amount of signal "leakage" to OH can be set individually.**

- **Room represents the ambient stereo microphones. The amount of signal leakage to Room can be set individually for the drums.**

- **Claps, finger snaps and tambourine have no representation here, but their levels can be set individually with the Instrument parameters if needed.**

- **Each Mic channel has a level fader and a level meter. In addition, the Kick, Snare, Toms and Hi-hat channels have send levels to the reverb send effect in the Master FX section (see "Reverb"). The Master section has a Return level for the Master FX reverb.**

- **All channels have Mute and Solo buttons.**

Connections
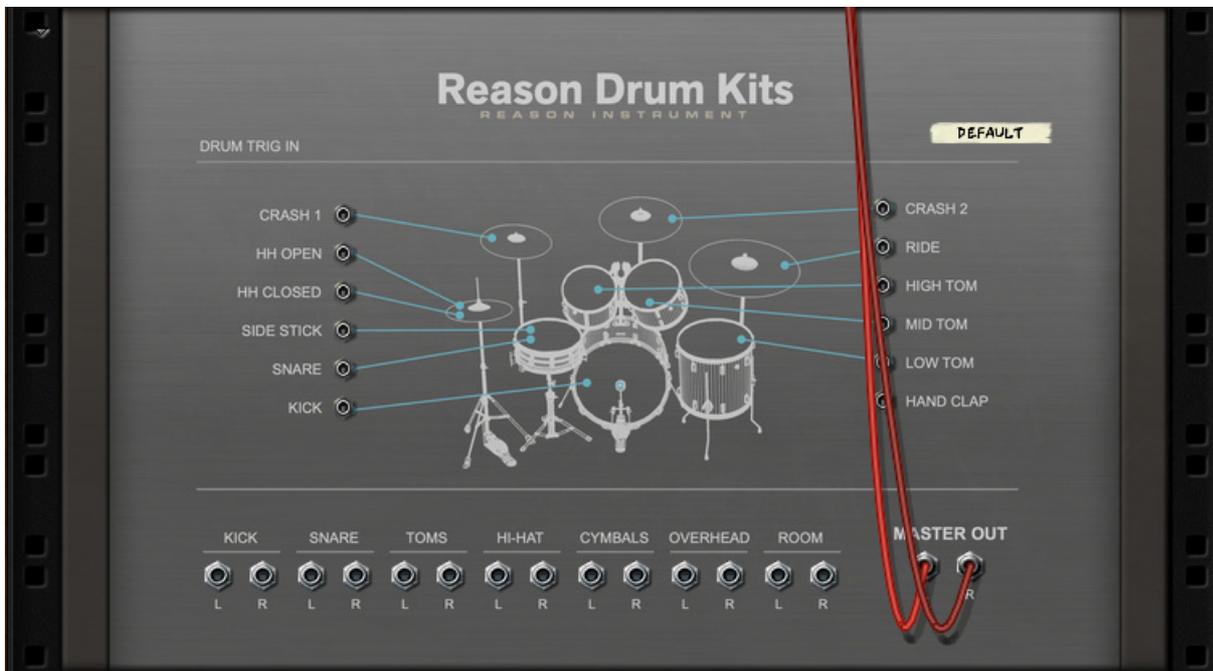
! **Remember that CV connections are NOT stored in the Reason Drum Kits patches! If you want to store CV connections between devices, put them in a Combinator device and save the Combi patch.**

Drum Trig In CV inputs

The Drum Trig In inputs allow you to play Reason Drum Kits from another CV/Gate device. The Drum Trig In inputs respond to note on/off along with velocity.

Direct Outs

The separate outputs can be used for routing individual Drum channels to external destinations, for individual processing.

! **Note that connecting to the Direct Outs will break the corresponding signal to the Master Outs. However, if the tapped instrument(s) have any Leakage levels, the leakage will still be present on the Main Outs.**

! **The Cymbals Direct Out will also break the internal signal path to the Overhead mics.**

Master Out L&R

These are the main audio outputs. When you create a new Reason Drum Kits device, these outputs are auto-routed to the first available Mix Channel in the Reason main mixer. If there is no Mix Channel available, a new one will be automatically created.

Sample set structure and signal flow charts

Sample set structure

Each sample set in Reason Drum Kits consists of a large amount of samples, to faithfully reproduce the drum/cymbal/hi-hat instruments. The green boxes in the picture below indicate user-selectable sample sets. The yellow circles indicate the various sample types included in a sample set. For example, there are 7 different playable sample types in a Hi-hat sample set. In addition, there are velocity and alternative multi-samples + separate Overhead, Room and Snare Bottom mic samples, where applicable.
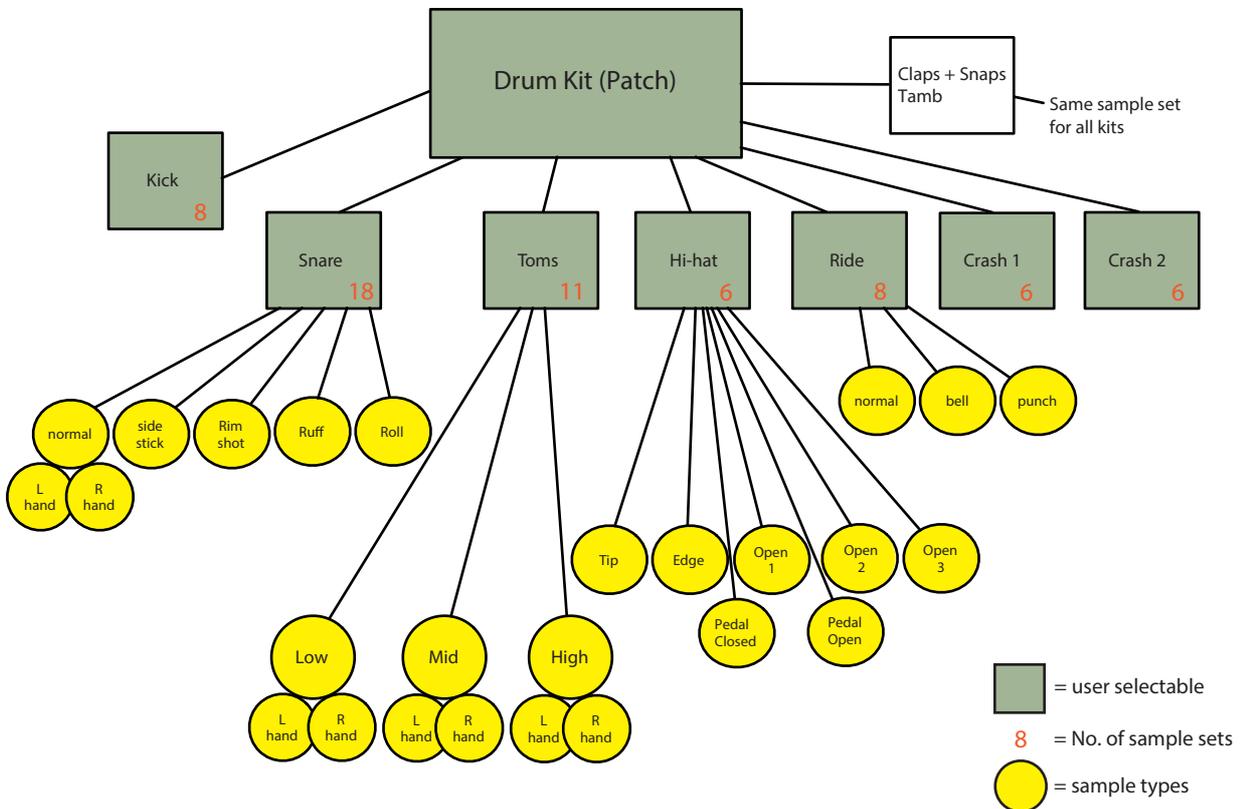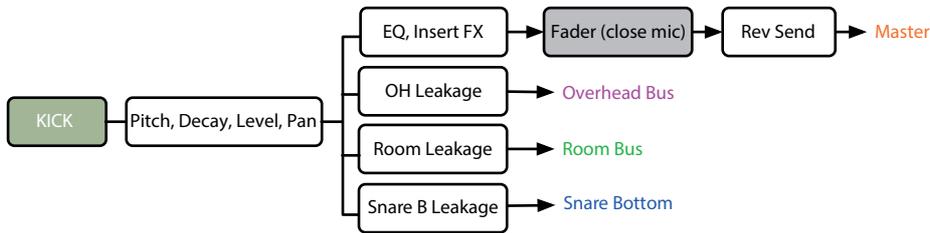
Signal flow charts

Below are signal flow charts for the respective instruments and mics, to get a clearer view of where the signals go.
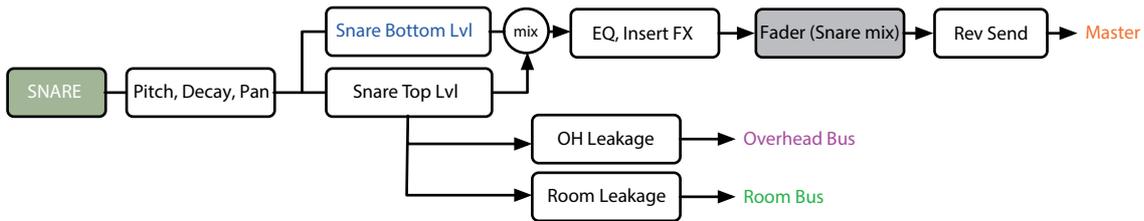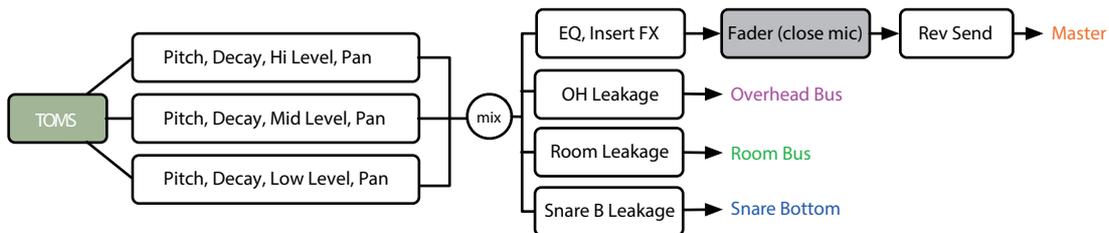
Kick

The Kick signal flow is as follows:

```
KICK → Pitch, Decay, Level, Pan → EQ, Insert FX → Fader (close mic) → Rev Send → Master
                                → OH Leakage → Overhead Bus
                                → Room Leakage → Room Bus
                                → Snare B Leakage → Snare Bottom
```

Snare

The Snare signal flow is as follows:

```
SNARE → Pitch, Decay, Pan → Snare Bottom Lvl → mix → EQ, Insert FX → Fader (Snare mix) → Rev Send → Master
                          → Snare Top Lvl ↗
                                          → OH Leakage → Overhead Bus
                                          → Room Leakage → Room Bus
```

! **Note that the Snare Bottom Level also affects any Snare Leakage levels of the Kick and Toms instruments.**

Toms

The Toms signal flow is as follows:

```
TOMS → Pitch, Decay, Hi Level, Pan  →
     → Pitch, Decay, Mid Level, Pan → mix → EQ, Insert FX → Fader (close mic) → Rev Send → Master
     → Pitch, Decay, Low Level, Pan →     → OH Leakage → Overhead Bus
                                          → Room Leakage → Room Bus
                                          → Snare B Leakage → Snare Bottom
```

Hi-hat

The Hi-hat signal flow is as follows:

```
HI-HAT → Pitch, Decay, Level, Pan → EQ, Insert FX → Fader (close mic) → Rev Send → Master
                                  → OH Leakage → Overhead Bus
                                  → Room Leakage → Room Bus
```
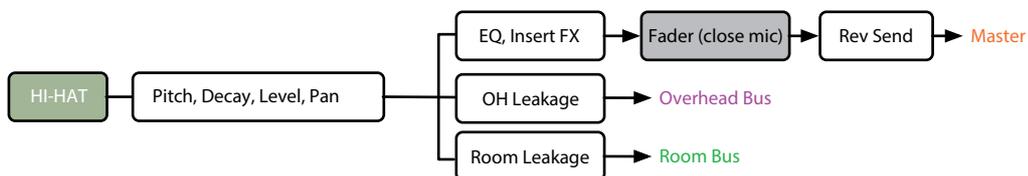
Ride, Crash 1 and Crash 2

The cymbal signal flows are as follows:

| RIDE | → | Pitch, Decay, Level, Pan | → | EQ, Insert FX | → Overhead Bus |
| | | | | Room Leakage | → Room Bus |

| CRASH 1 | → | Pitch, Decay, Level, Pan | → | EQ, Insert FX | → Overhead Bus |
| | | | | Room Leakage | → Room Bus |

| CRASH 2 | → | Pitch, Decay, Level, Pan | → | EQ, Insert FX | → Overhead Bus |
| | | | | Room Leakage | → Room Bus |
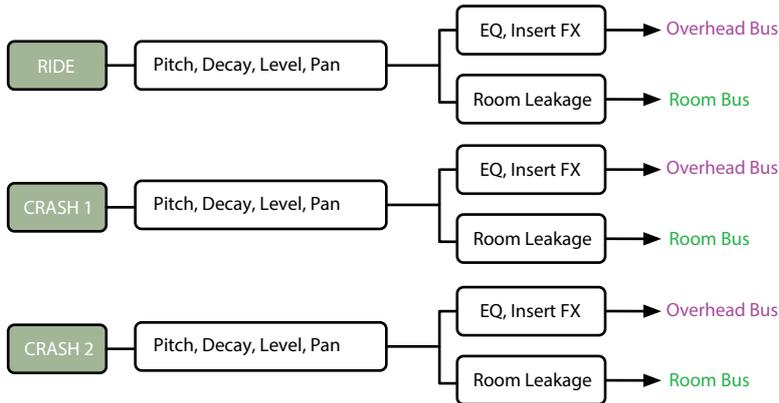
Tambourine and Claps+Snaps

The Tambourine and Claps+Snaps signal flows are as follows:

TAMB → Level, Pan → EQ, Insert FX → Rev Send → Master

CLAPS SNAPS → Level, Pan → EQ, Insert FX → Rev Send → Master
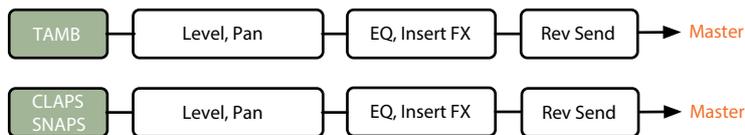
! **Note that the Tambourine and Claps+Snaps instruments do not have any mixer channel, but are routed straight to the Master section.**
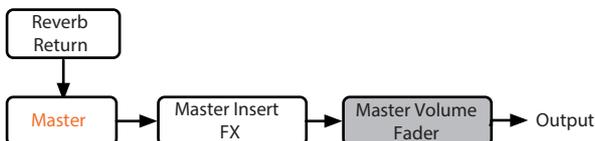
Overhead mics

The O.Head mics signal flow is as follows:

Overhead Bus → Insert FX, EQ → Fader → Master

Room mics

The Room mics signal flow is as follows:

Room Bus → Insert FX, EQ → Fader → Master

Master section

The Master section signal flow is as follows:

Reverb Return → Master → Master Insert FX → Master Volume Fader → Output

Using the Reason Drum Kits MIDI files

Included in the Reason Drum Kits Rack Extension folder is a folder named "MIDI Files". This folder contains subfolders with drum pattern MIDI files in different genres. The MIDI files contain 4 bars each and are built up according to the instrument configuration used in the "Original" Key Map in the Reason Drum Kits device.

To import these pattern MIDI files onto a Reason Drum Kits sequencer track, proceed as follows:

1. **In the Reason Browser, open (or expand) the "MIDI Files" folder in the Reason Drum Kits Rack Extension folder.**

2. **Open or expand the desired subfolder.**
   In this example we expand the "Disco" subfolder (see picture at the bottom of this page).

! **Make sure you have selected the "Original" Key Map on the Settings Panel in Reason Drum Kits:**
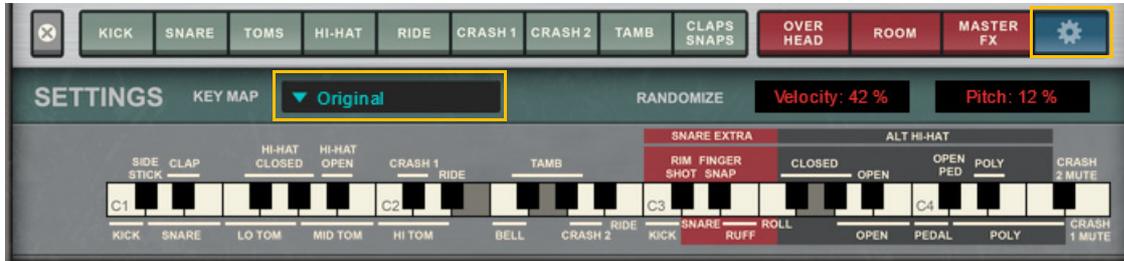
3. **Drag one of the MIDI files from the folder and drop at the desired position on the Reason Drum Kits sequencer track:**
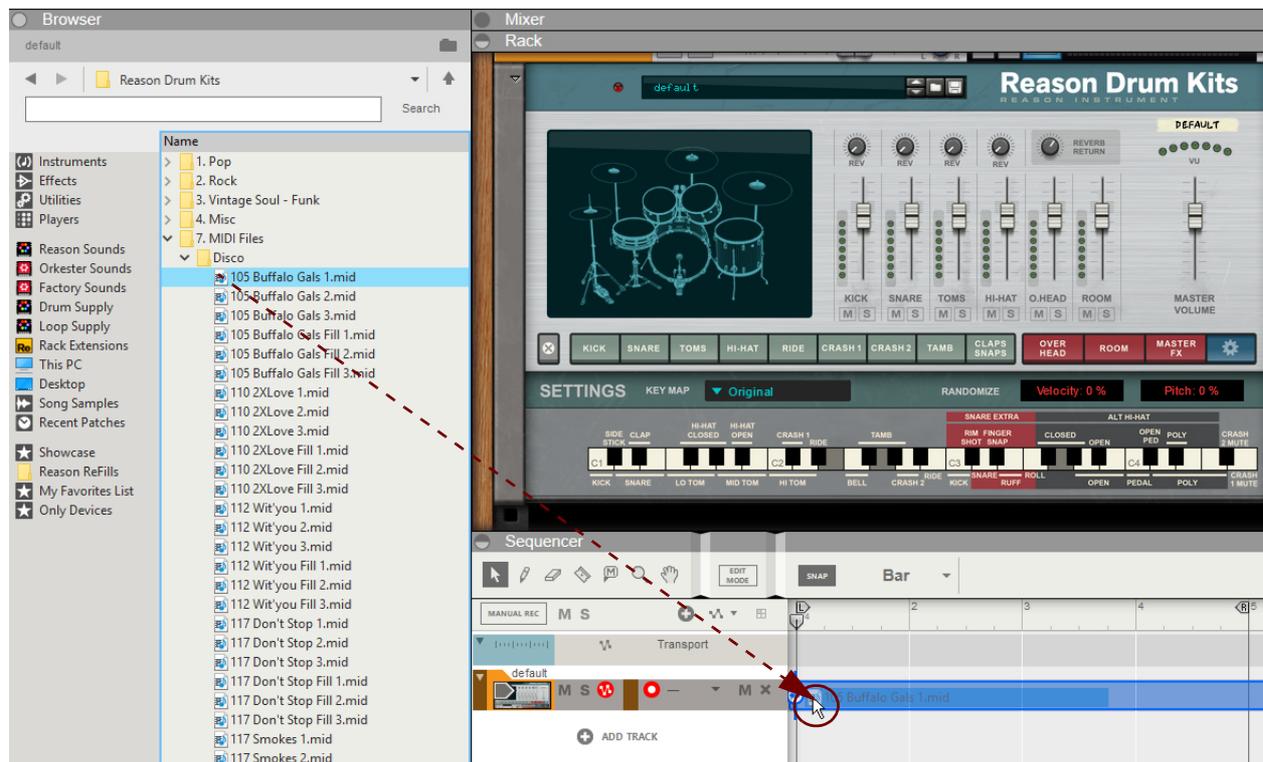
   Once dropped on the sequencer track the MIDI file is automatically converted to a 4-bar note clip.

4. **Repeat the drag and drop procedure to add more MIDI file after the previous one(s) on the sequencer track.**
   Just make sure you drop the file(s) at the desired position (bar) on the sequencer track.

Simply the best - how Reason Drum Kits was created

With the emphasis on sonic and creative realism, it is vital that every component along the path from the studio floor to your computer is the best of the best - no weak links anywhere.

We therefore took utmost care in assuring that the studio, the recording gear, the instruments, and last but not least the talent involved, was top notch across the board.

The studio

Reason Drum Kits was recorded at the legendary Atlantis Studio in Stockholm, whose Hall of Fame includes the likes of ABBA, Quincy Jones, Lenny Kravitz, Elvis Costello and The Cardigans.

Atlantis was originally a cinema theatre with 330 seats, built in 1941 and converted to an audio recording facility in the early 1960's.

Renowned for its spectacular acoustics, Atlantis was the ideal choice for our ambitious project. The wonderful ambience of the rooms was captured on individual tracks and ultimately included as separate samples in Reason Drum Kits.

The signal chain

The instruments were captured using tried and true microphones such as Shure SM57 and AKG 414, along with various classic Neumann models. The signals were fed through a Class A Neve 32/8/32 console directly onto a Studer B67 2" analog tape machine. No processing was applied, except in a few rare instances where we used an Urei 1176 compressor. The analog recordings were transferred to a ProTools HD system at 176.4 kHz, 24-bit.

Mic usage – brands, models and placement

Source	Microphone
Bass drum	1 x Neumann U47 FET (distance: 4")
Snare drum	1 x Shure SM57
Snare drum (bottom)	1 x AKG 414
Hi tom	1 x Neumann U87
Mid tom	1 x Neumann KM56
Floor tom	1 x Neumann U87
Hi-hat (small room)	1 x Neumann U87
Hi-hat (large room)	1 x Neumann TLM 103
Overhead	2 x Neumann KM 86
Ambience	2 x Neumann U87

The instruments

First we rented a broad selection of premium quality drums and cymbals from a renowned provider.

The engineers, producers and drummers then collaborated in assembling the ultimate combinations for each music style. Finally we experimented with a vast variety of drum head combinations, until we found the most excellent sounding range of instruments we could imagine.

→ **Click the Info (i) button to the right of the sample set display to view information about the selected drum/hi-hat/cymbal instrument in the interactive display:**

The people

- **Jan Hansson, co-owner of the Atlantis studio, has over 30 years of experience as a recording engineer and is one of the people behind the ABBA sound.**
  He has worked with many pop and rock artists over the years, and is particularly sought after for acoustic recordings - many contemporary jazz and folk artists have turned to him for capturing their sound.

- **Martin Brengesjö and Micke Svensson are accomplished instrument technicians who has managed guitars and drums for some of Sweden's biggest acts.**

- **Martin Jonsson, Magnus Frykberg and Henka Johansson are professional drummers with a collective experience that covers live and studio work for, in short, everyone.**

- **J Chris Griffin and Terence Skerritt created the Reason Drum Kits factory patches.**

About Hypersampling

Multisampling is the established standard for digital representation of analog/acoustic instruments. While it has been refined somewhat over the years, multisampling still has a few shortcomings:

- **The dynamic resolution is often too limited, failing to capture the subtle nuances between the steps.**

- **Typically, a single microphone (or, at best, a merged signal from multiple microphones) is used, leaving the recording distance, ambience and character set in stone.**

- **You usually get only one sample per "velocity span", while a real instrument sounds slightly different for every pluck, stroke or beat (even when played at a static velocity level)**

- **Instruments can be played with countless approaches and techniques, yet multisampling typically only offers the basic archetypes. At best, you get a couple of velocity layers, but these only represent a tiny fraction of all the sound variations you can get out of an analog instrument.**

So, how could we bring something fresh to the table?

The answer: Hypersampling. We like to refer to it as multi-dimensional sampling, because it gives you complete control over many aspects of instrument reproduction that used to be out of reach for the end user.

What is Hypersampling?

Hypersampling involves the following:

- **Multiple velocity levels**
  For capturing the full dynamic range of each instrument.

- **Multiple microphones and signal chains**
  For capturing, controlling and blending the characters of various amps and mics.

- **Multiple same-velocity samples**
  Alternation between similar sounding samples, for a more realistic performance.

- **Multiple variation sampling**
  Capturing the different playing techniques, sound attributes and noises that make the instrument come alive.