

20 MIDI Tips



Keep your MIDI system in shape with these tips...

MIDI is one of the fundamental parts of making music in a studio, and yet it also seems to be the most common stumbling block. Instrument Digital Interface was originally developed by the Roland Corporation, and appeared on the market way back in 1983 as a way of syncing together different makes and models of musical equipment.

By 1985 just about every manufacturer's synth gear featured this new system. Despite the innovation, people have always loved it or hated it, but regardless of anyone's feelings, MIDI is something everyone will be forced to deal with sooner or later.

Rather than spend a long afternoon attacking your MIDI cables with a pair of pliers and a soldering iron in the hope of playing some of your MIDI files through your hi-fi, take a break from your music to digest a few of these basic MIDI principals. Then see if you can apply to your music some of the concepts and nifty tricks MIDI has to offer.

MIDI basics

MIDI In. All your MIDI data enters at the MIDI In port. An example would be on your synth or sampler where it receives information from your sequencer. **MIDI Out.** All the MIDI data generated from each device is sent from the MIDI Out port. This could be at your sequencer where it distributes material to your synths, or on your synth for playing notes of other gear. Sometimes the Out port can be configured to function as a Thru port by changing a setting in a menu of your synth.

MIDI Thru. The MIDI Thru port retransmits any data received at the MIDI In port. It is commonly used to link multiple devices together on a single MIDI path in a daisychain fashion. The term MIDI Thru is also often used on computer sequencers as a way of allowing MIDI data from your master keyboard to pass through your sequencer and on to your other synths via the MIDI Out on your computer's MIDI interface.

Cable lengths. Keep the length of your MIDI cables to an absolute minimum. It is crucial that an accurate signal arrives at your synth or sampler. Large cable runs create resistance which may corrupt the data, causing missed notes or erratic behaviour.

Flower power. Daisychaining refers to linking pieces of equipment together on a single MIDI path by using the Thru port on one device to transfer the MIDI data on to the In port of the next. By limiting the amount of devices connected in this fashion to a maximum of three, you reduce the chance of MIDI data becoming corrupted along the way. Any additional devices should be connected to another Out port on your MIDI Interface.

The bumpy MIDI road

MIDI loopy. MIDI loops occur when MIDI data circles back and arrives at the same place. This causes each sound to attempt to play twice, sometimes causing a flanged sound. It is particularly noticeable on percussion sounds and monophonic synth patches. When working with a sequencer, ensure that your master controller synth is set to Local Off, or alternatively, turn off the MIDI Thru option in the sequencer so the synth's sound engine doesn't receive messages directly from the keyboard, as well as returning back from the sequencer.

MIDI congestion. All messages travel along the MIDI cable, one after the other, in a serial fashion. Often you'll have several notes playing at exactly the same time in your sequencer, but this can cause irregular timing errors during playback with certain notes sounding late due to them waiting for their instructions. You can keep things sounding tight by keeping the percussion and rhythmic sounds exactly where they are, then slightly shift any other sounds forwards or backwards in your sequencer to allow the crucial data time to get to where it has to go, on time.

Out and Out again. Each MIDI line can carry up to 16 channels, or parts. To send additional parts you will require additional ports, with some MIDI interfaces offering up to eight ports (that's 128 channels!). If you're using several

devices daisy-chained together, try to run each device off its own MIDI interface Out port. This helps improve MIDI timing by sending each device's set of messages on its own cable, at the same time. Far more efficient than sending everything, one by one, through a single cable.

Going solo. When recording individual instrument parts, always solo the MIDI track in your sequencer to minimise timing inconsistencies during MIDI sequence playback. Otherwise the MIDI cable becomes busy with the traffic for all the other parts.

The naming game. To save yourself the time and hassle of manually typing all the patch names of your gear into your sequencer, try downloading the manual PDF file from the manufacturer's Web site. You can then freely copy and paste the names from the manual's instrument list. Make sure you've got something like Acrobat Reader to read the PDFs of course.

Clock this! For editing purposes, it is handy to learn what each note value is worth in relation to the MIDI clock. If the MIDI clock resolution is 96 ticks per quarter note, then simple mathematics will work out the other note values:

384 = 1 bar/measure

192 = 1/2 bar/measure

96 = 1/4th note

48 = 1/8th note

24 = 1/16th note

12 = 1/32nd note

6 = 1/64th note

If resolution is 960, then multiply each value by 10.

MIDI effects processor

Note: Because MIDI consists of instructions that tell a device what to do, and not actual audio waveforms, you can't insert your favourite distortion effect into the MIDI path and get the desired effect. As synths become more multi-timbral, you are often left with a limited array of onboard effects to treat all those parts. Here are a few MIDI tricks to emulate some of the more traditional audio effects to free up your effects unit for more important duties.

Delay today. Some sequencers have a special option to recreate delay automatically by using MIDI notes. Note that delays created through MIDI may use up polyphony to create the additional notes, and therefore won't work with overlapping monophonic patches. You can do this on any sequencer by copying the series of notes to be delayed on to several new MIDI tracks.

To create the speed of the delay, shift the group of notes of each new track to some point later than the original. You can creatively lock the repeated notes in time with the BPM by using specific note values to shift the delayed tracks. To set the feedback, reduce the velocity of each progressively delayed track.

Playing ping pong. After creating the delay from tip 12, insert MIDI pan commands prior to each note to achieve that ping pong effect where each subsequent delayed note alternates between the left and the right.

Close the gate! A noisegate normally allows audio to pass through, but cuts off once the audio drops past a certain volume. It can also be triggered to open and close by an external source. To create this effect with MIDI, use MIDI Volume messages inserted in regular intervals to open and shut the gate. Have the volume open and close on every eighth or 16th note for a stuttering trance effect. This works particularly well on synth pads and vocals. Smooth out the effect with a little added reverb.

Metamorphosis. Sound morphing is a feature found on a lot of modern synths that allows one sound to evolve slowly into another. To achieve this on any multitimbral synth, duplicate a sequencer track so it plays an identical sequence to two different sounds (on different channels). Use MIDI Volume CC messages to keep one sound silent. Then at a point along the sequence, ramp up the volume of this sound whilst bringing down the volume of the other to create the morph effect. A good example would be a clean string pad which evolves into a raw and gritty resonant pad.

Fade away. With the nature of today's electronic music often consisting of a collection of copy and pasted MIDI or audio sections, this often results in new sounds and sequences entering and exiting from the track quite abruptly. Implement plenty of MIDI CC volume fades into and out of some of your sequenced sections to maintain a smooth overall flow, with the effect of a DJ blending two records via a mixer's crossfader.

Cymbal symbolism. Often percussion hits are assigned to different groups (in your synth) with rules set up to

ensure that hits within the same group can not sound together. You can use this to your advantage to act like a choke to tidy up a sloppy open hat or crash cymbal. Enter a low velocity MIDI note of the same group during the decay to cut off the cymbal sound at a specific point.

Gimme space! Duplicate a MIDI track in your sequencer to play an identical patch on two channels in your synth. Pan one channel left and the other right. Now shift one of the MIDI tracks so it plays late by a couple of clicks to separate the stereo image. You can even try substituting one of the patches for something similar for a true stereo sound. Adjust the pan controls towards the centre to reduce the stereo separation, leaving a fattened sound.

Effects effective. If you're shopping for an effects unit, consider one with MIDI. Apart from being able to switch between presets, you can also set up your sequencer to automatically control a whole series of other parameters, such as gradually raising the feedback of a delay, increasing the depth of a phaser, or boosting the drive of the distortion.

More multi. Many synths allow each patch to be made up of several layers. By assigning each layer to respond from different sections of the keyboard, you can build up patches that contain several individual instrument sounds. If your synth allows four layers per patch, then you can effectively transform your measly module's 16 parts into a 64-part multitimbral mighty MIDI module monster!

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