

🌀 YAMAHA Tutorial: MOTIF MIDI BOOT CAMP – the Basics to Advanced

If you have been experiencing some head-scratching setting up your MOTIF to work for you, MIDI-wise, this article is for you. If you believe that there is a 'bug' with the MIDI routing of the MOTIF, then this article is especially for you. Although we cannot cover every single possible scenario certainly you will be able to use your Motif in conjunction with your other MIDI products with confidence based on actual knowledge. Even if you are an experienced, savvy MIDI user, this guide will help you understand some of things behind some of the parameters. This will be fun. So let it begin...

MIDI is an acronym for Mindless-Idiots-Doing the Impossible, no, that's not right, Musical Instrument Digital Interface. Basically, the digital information that represents musical data in sound producing gear talking to each other down a wire. The Motif is a sampling workstation keyboard, meaning it combines a tone generator (sound producing engine), a controller (keyboard), a recording/playback/sampling sequencer and a storage system. We will have to consider the Motif as a stand-alone product and in conjunction with other MIDI gear. These are two distinctively different scenarios. Right out of the box (non-expanded) the Motif can be multi-timbral – up to 16-parts at one time. You can combine 4 multi-sampled Elements in a VOICE, you can combine 4 Voices in a PERFORMANCE. A Song or Pattern (using the sequencer) can play up to 16 different parts at one time, via a MIX. Within a mix a 'part' can be assigned a Motif Voice. You can copy a Performance to a Song or Pattern setup (via a MIX JOB) but it will use multiple parts, for example, logically, a Performance that contains 4 Voices will occupy 4 parts of the Song or Pattern's MIX – it will assign them all to the same receive channel. Additionally, a PLG150 Series Plug In Voice can be layered with, split with, or even replace an internal part.

Let's start with the Song and Pattern setup called [MIXING]. When you want to create a song or pattern with the sequencer, think of the [SONG] or [PATTERN] mode as the multi-track recorder – it will hold the note data. If you are in SONG mode for example, when you press [EDIT] you will see the *event* data that is recorded on a selected track. When you press [EDIT] from the [MIXING] mode, however, you will see data concerning the *sounds* that are selected. Analogy is a good tool – think of the Song or Pattern as the multi-track machine, and MIXING as the musicians. If you need to change an instrument then go to [MIXING]. If you need to change the Bb in measure 12, go to EDIT from Song or Pattern mode. A Motif moment: *It makes a difference which mode you are in when you enter EDIT or JOB modes.* (Likewise, it makes a difference if you enter Integrated Sampling from a VOICE/PERFORMANCE or a SONG/PATTERN – but that is another tutorial.) Follow the logic. If you enter JOB mode from MIXING mode you will see the Jobs related to the mix. If you enter Job mode from Pattern or Song mode you will see the Jobs related to the sequence data recorded in the pattern or song. It is really simple, once you start to recognize the difference.

By default, the Tracks, 1-16, the Parts, 1-16, and MIDI channels, 1-16, are set to make it easy to record immediately. Track 1, is assigned to MIDI channel 1, the tone generator has Part 1 assigned to receive on MIDI channel 1, Track 2 is set to transmit to Part 2 on MIDI channel 2, and so on. You may ask, "Why would you ever want to change this?" If you are asking that question, then you don't need this feature yet, but don't worry. For now, just realize that you **can** select a channel for each sequencer track to transmit on and you are free to reroute the data, assign multiple parts to a MIDI channel or choose to transmit the data or not (OFF).

The sequencer of the Motif communicates to the tone generator of the Motif via the MIDI channel. Much like the familiar television analogy, you have a transmitting device (the TV station) and a receiving device (your television). In your Motif you have the transmitting device (the sequencer track) and a receiving device (the Motif Voice assigned to the Part). If NBC-TV is transmitting on channel 4, you must set your television to channel 4 to receive their transmission. At the same time you may have a second TV in your bedroom that is set to channel 2 and is receiving CBS. The two station's information is discreet and will not interfere with the other station's signal. Every TV set that tunes in on channel 2 will receive CBS and

every TV set that tunes to channel 4 will receive NBC. Picture now (pun intended), 16 TV stations (the tracks) and 16 TVs (your Voices assigned to parts). This is a good analogy of what is going on. We must extend our thinking to external devices (TV sets, I means MIDI gear) because the Motif has a MIDI out that allows the same information to be transmitted to external MIDI products. Out of the single MIDI OUT jack are the 16 different channels of information. Any device set to the right channel will receive this data just as if it were an internal part. There are several ways to stop a part from being transmitted or received by another device. These include mutes, receive assignment and/or filtering. This is where many people will glaze over because they are not certain about the signal flow (routing). Let's take it slow.

Let's understand MUTES

First, just within the Motif itself. If you are in [SONG] or [PATTERN] mode, press the [MUTE] button – all 16 tracks will illuminate. You can mute data (stop from sounding) on any of the 16 tracks by pressing a button [1] – [16] – the muted track LED will go out. This is literally stopping the signal from leaving the Multi-track recorder. Therefore, nothing after this will receive the sequence data, including the MIDI OUT. However, you will notice that if you now press the [TRACK SELECT] button and *select* the track you muted, you can still play and hear that sound on the Motif keyboard. Okay, that is observation number one. Please return all muted tracks to normal before proceeding. Press [MUTE] and un-mute any tracks you muted.

Now, try pressing the [MIXING] button for the Song or Pattern you are in and then press the [MUTE] button. This time mute that same track, then go to [TRACK SELECT], select the track and attempt to play the keyboard. It does not sound. Instead of muting the multi-track recorder, you have now muted the musician (like putting a bag over the guitar player – how many times have you wished to do that?). You have muted the PART! You cannot play that sound on the keyboard anymore. This is observation number two. Please return all tracks to normal before proceeding.

So here we have learned about two kinds of muting¹. File that in your memory banks. What is happening OUT via MIDI during these two mute operations? Good question. Can you guess? In the first scenario, from the main Pattern or Song screen when you mute a track during playback, the sequencer will mute, but you will still be able to communicate with sounds **both** internal and external via MIDI by playing on the keyboard. However, if you enter mute from the MIXING mode, you will be able to mute the internal part and have the external MIDI part continue to play as before and you will be able to play the external sound without the internal sound. No problems... That is what you can do with just the Motif and its 16-Part system.

Okay, now lets consider what else effects MIDI communication. If you are using just the Motif, make sure you are set to **MIDI** (as opposed to USB-MIDI) [UTILITY]→[F5]MIDI →[SF4]Other. Return to the main Pattern or Song screen. From the main Song or Pattern screen press [F3] OUTPUT. Here you will see the default assignment for how **tracks** go out on MIDI channels. If you set a track's OUTPUT CHANNEL to OFF, logically, all connected sounds, internal and external, will be shut OFF, because the track will not transmit. Also on this screen is the PORT settings. Ignore these because they are not for use unless you are using USB-MIDI to communicate with a computer sequencer (more on this later). Trust that they (the ports) do not concern us when we are working within the Motif by itself. The internal parts are set to receive by MIDI channels, as well, of course.

When you are in [MIXING] mode and press [EDIT], then you can select any track, [TRACK SELECT] 1-16, to view its setup data. You can view the Receive channel of each Part – from the MIXING screens press [EDIT]→ [F1]VOICE →[SF2]Mode. When a Part's **receive channel** is set to OFF it will naturally ignore the data coming from the sequencer.² However,

¹ Actually there is another but it has to do with muting (controlling) external audio tracks in Cubase, Logic, Cakewalk (Sonar) or ProTools via the Remote Control feature. When the REMOTE CONTROL switch is illuminated the MUTE buttons work external to the **audio** mixer in the above software.

² Recognize that you can assign any part to any MIDI channel – it will 'layer' with any other sound on the same channel.

the data will continue to be transmitted out the MIDI out jack to any external device assigned to the appropriate MIDI channel. If you play on the keyboard from this Part, you will be transmitting via MIDI out – on the MIDI channel set by its OUTPUT CH setting.

To break the 16-part restriction you will need to use the USB-MIDI connection to your computer sequencer. Once configured you will be able to choose what information goes to what external module or internal Motif part, individually, discreetly and completely via your software. Read on...

What about the main Transmit and Receive channel setting?

They refer to VOICE and PERFORMANCE mode, only. When you are in SONG or PATTERN mode your transmit channel is determined by the track you select, [TRACK SELECT]. If you select track 1 you will be transmitting on MIDI channel 1 because, by default track 1 is set to Output CH 1. If you select track 1 and it is assigned to output channel 12 you will be transmitting on MIDI channel 12, to any part set to receive on channel 12, and so on.

Working with external sequencers...

(And why you should be using the USB(MIDI) Multi-Port MIDI setup)

If you plan on using the Motif with an external sequencer, break out your MIDI-Jedi gear and forge ahead. When there are two sequencers in the system you will have to be as logical as a Vulcan Starfleet Academy officer. Things like playing back data, routing arpeggios to be recorded, or jamming along can pose interesting variations on your setup. Depending on your software you may need different setups to accomplish your different goals. No one article could even attempt to be complete in this area but at least we can help you with the Motif side of things.

First, when working with the Motif as both a data entry device (keyboard controller) **and** as a tone generator, most people³ find it convenient to work in LOCAL OFF⁴ mode. Local off is a condition where the keyboard of the Motif is disengaged from triggering the tone engine, directly. The signal is diverted first to the computer software, where theoretically your software lets you determine on which MIDI channel the data will return to the Motif. Whether you hear a Part is determined by how the signal is routed in the software. And although the result is the same, these are quite different scenarios. This is the way the 'pros' work⁵, with LOCAL OFF. You may have to arm a track in order to "echo back" the signal to the Motif. Some software calls this "Thru" or "Soft Thru" or other such terms. You may need to consult the manual or help menu of your software to ensure you can work comfortably with Local Off. If you have Local ON **and** you are echoing signal back to the keyboard, bad things happen – you will experience headaches, heartbreak, doubling of signal, hung notes or worse. That condition is **never** right, period. Master working with LOCAL OFF before proceeding. Each software package may deal with this differently. Take your time and learn to operate your software in this regard. We'll wait right here...

Mastered it...good! We continue: You may also want to take the time to install a Mixer Map (Cubase), or Environment (Logic) or Instrument Definition (Cakewalk) or whatever your favorite software calls it, to help you in selecting sounds. These usually can be found online shortly after the release of a product – since most software lets the user create these by hand – they quickly become shareware. They usually list all the various sounds and various banks within a synth so that you can conveniently pick sounds from a list rather than from the front panel of the Motif. You may or may not prefer to work like that—your choice.

Our main concern here is to get a clear understanding of how best to address the Motif tone generator when working with an external computer sequencer. The Motif by itself is a 16-way multi-timbral synth engine. Even when you add three PLG150 boards to the expansion slots, it is still a 16-channel system, if used alone – the boards *share or replace* an internal AWM2

³ Sorry, I hate using that term.

⁴ Local Control ON/OFF can be found in [UTILITY]/[F5] MIDI/ [SF2] Switch

⁵ Sorry, again, I hate this term as well. The 'pros' don't always know either.

sound. You can expand beyond the 16-channel limit, however, when you use an external sequencer with the USB-MIDI connection. The USB-MIDI⁶ connection is a connection that is capable of carrying multiple 16-channel systems, simultaneously, directly to/from your computer without traditional MIDI cables. You can, via this multi 'port' system, address the internal AWM2 Motif sounds on **port 1** (fixed)⁷ via channels 1-16, and address the PLG150 series boards on three separate MIDI channels of **port 2**. Port 2 is a totally separate 16-channel system. Now you can address the Motif on up to 19 separate discreet tracks of your computer sequencer (provided you have three PLG150 series boards installed). Cool! You set the PORT for the PLG boards in [UTILITY]/[F6] PLUG/[SF2] MIDI – they all will setup to the same port because each only needs a single MIDI channel of the 16 channel Port. You will wind up with 13 MIDI channel leftover – (but so what)! Before your head explodes, let's go for just a bit more. When using the USB-MIDI connection from the Motif to your computer software, you can have yet another discreet 16-channel system sent out the Motif's MIDI OUT jack. You can turn the MIDI OUT into a "THRU PORT". If you set the THRU PORT parameter to 3, for example, you can now assign tracks freely, discreetly via the USB-MIDI through the Motif OUT to your **Port 3** device. (The THRU PORT setting is found with the MIDI / USB setting: [UTILITY]/[F5] MIDI/ [SF4] Other. Cool! Again consult your software sequencer for information on how to assign individual tracks to output PORTS.

If you are going to use both sequencers simultaneously, consult First Officer Spock or Tuvloc for advice. You can do it, though. From the main Song or Pattern screen press [F3] OUTPUT, here you can use the PORT setting to re-route any of Motif's sequencer tracks to internal sounds (on port 1), Plug Ins (on port 2)⁸ or an external MIDI device (on port 3), in our example.

The USB-MIDI multi-port connection is the elegant way to assign tracks to multiple devices connected to the Motif. If you are experiencing headaches trying to *stop tracks from reaching external modules* or anything like that, then you should take the plunge and **step up** to the USB-MIDI connection. It was designed for people using external sequencers and modules. (If you have been trying to operate as if you had multiple-ports by using just MIDI – PLEASE STOP IT. Get your USB-MIDI freak-on and you will be happy for the rest of your life). You will need to configure your external software sequencer to address the USB driver so that you can route each track of your software discreetly to the appropriate device. If your intention is to work with external devices, do yourself a favor and use the multi-port capability of the USB-MIDI interface. Each track of your sequencer can be connected to a specific port and specific channel on that port. You will be able to configure anything that you need without having to program blank voices or turn down the volume (cute) on the receiving device. Those workarounds are if you are using the Motif in MIDI IN/OUT mode and are trying to 'workaround' the fact that you have only one 16-channel system. With the USB-MIDI you can assign data on up to three different ports for the Motif alone. Elegant!

Remember that the REMOTE CONTROL feature of the Motif also uses the USB-MIDI connection and can control the AUDIO tracks of Cubase, Logic, Cakewalk (Sonar) and Pro Tools. This brings with it: Track Mutes, Transport Control, assignable Sliders and Knobs to control the software, cool! Follow the instructions carefully when setting up the Remote Control function. Well, that's all for now. Happy MIDI-ing or if you have been having a problem - welcome to the world of **USB-MIDI**. One connection – a little configuration – and you are in MIDI heaven.

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⁶ To select USB(MIDI) press [UTILITY]/[F5]MIDI / [SF4]Other.

⁷ No apology here, this is a fact: The internal tone engine is fixed to port 1

⁸ You can assign a port to communicate with the Plug in boards in [UTILITY]/[F6] PLUG/[SF2] MIDI.