

I have bitten the bullet, and gone for a setup with two laptops, one at the desk position, and one remote, connected by a VPN, and running rtpMIDI for any midi that I need to transfer between the laptops. I am using VLC as a server for the headphone monitor from the desk to the remote laptop. The Mac version of rtpMIDI truncates NRPN messages for some reason (it is fine with SysEx). Andy's "Sends on Fader" and "Change Recorder" are only available for PC. Everything else works well on the Mac, and sometimes better, but "Everything Else" is unfortunately "Not Much". However, if you stick with SysEx only over rtpMIDI then you can use any modern Apple device including the I-Phone, and of course your laptop for remote control. rtpMIDI is called "Network" Midi Device by Apple. If both laptops have the same screen format, 4:3 or 16:9 you can avoid endless scrolling on the VPN viewer.

The laptop at the desk is most usefully a PC as Andy's Change recorder is vital when using BCF2000 units for the band to control their own in-ear monitors. These BCF's need to be running NRPN, as if they are running SysEx they cannot "follow" the desk or each other, and anyway Change Recorder records NRPN and not SysEx.

The Yamaha Digital desks "talk" SysEx with Studio Manager at any resolution up to 0-16383.

They "talk" NRPN via the 5-pin DIN connectors at 0-16383 (14-bit ABS) resolution if NRPN has been selected on the desk MIDI setup, and "high" as the resolution. BUT NOT ALWAYS, the Gate Knee has a resolution of 1023! I am looking at using "low" resolution (0-255) in large setups so as to increase the NRPN speed, but that requires some more study.

When the desk receives NRPN at the Midi-In it outputs the equivalent SysEx to Studio Manager.

When the desk receives SysEx at the Midi-In it executes and sends it though to Studio Manager if it understands the message.

When the desk receives SysEx from Studio Manager it outputs NRPN via its Midi-Out.

SysEx is only seen at the Midi-Out connector if a Parameter or Bulk Dump request has been sent.

When "Sends on Fader" is in the flow synchronisation of Studio Manager with the desk can be badly affected by any attempt to break into it's connections using MidiOx.

Because we are dealing with any "Yamaha Digital Desk" we must not use desk specific SysEx (F0 43 1n 3E 0D F7) (01v96) but commands in a format that will work with any Yamaha Desk (F0 43 1n 3E 7F F7). EXCEPT THAT IT IS NOT THAT EASY! Here is a table of some Yamaha Digital desks showing some troubling differences depending upon where you input your data, and in what format:-

"Yamaha desk input + output midi messages.pdf"

If you are using more than one desk then you need to use ID's, and be careful about where you send any data. See the Yamaha docs if you are using for example two 01v96 desks with different ID's.

NRPN is not desk specific, and should be (nearly) the same for every Yamaha Desk, and therefore you have to be even more careful about where you send your data.

Here are two files for control of channels 1-8 on a Yamaha Digital Desk using a BCF2000. You can dissect them most easily using "Birdie"

http://rapidshare.com/#!download|332tl3|115649724|bcfredit_V0.41.zip

NRPN

"NRPN 1-8 fader + NRPN on off toggle + sysex (01v96 only) select.syx" This has channels 1-8 in NRPN on faders, Toggle on/off in NRPN on (lower) upper buttons and Select (01v96 only) in SysEx on (upper) upper buttons.

SysEx

"SysEx 1-8 fader(any desk) +sel(knob)+ solo + on off toggle(NRPN).syx" This has channels 1-8 (any Yamaha Desk) in SysEx on faders, Toggle on/off in NRPN on (lower) upper buttons, Solo (01v96 specific) in SysEx on (upper) upper buttons and Select (01v96 specific) in SysEx on the knob buttons.

All the BCF2000 units are in mode U3.

NRPN is a bit slow, as each control has a resolution of 0-16383, so it is not suitable if I am using a BCF2000 for FOH mixing with 8 faders moving at the same time. In that case I am using SysEx where possible at a resolution of 0-1023. I have to use NRPN FOH for the toggle ON/OFF of desk channels, as I cannot "toggle" a SysEx command on the BCF2000.

I could use SysEx with 2 separate buttons, one for ON and one for OFF, but there is no need as the NRPN value is only 0 or 16383 so fast enough. The BCF button lights do not respond correctly to received NRPN commands however. This is not a huge problem. Using Apple OSX on the remote laptop I cannot use NRPN for on/off (see 1st. paragraph).

I am using Andy's "Sends on Fader" for any monitor level changes that I need to make from FOH, as then "Change Recorder" and the desk are correctly updated, but unfortunately not any band BCF's that are on a different set of controls (I can ask the desk to send updated info when the BCF's change presets, but it is a SysEx request and the reply is SysEx, which the BCF's do not understand).

((Note to Andy - could Yammie be programmed with an option to "Play" it's recorded file every few seconds, so that everything is constantly updated?))

It is important that all of the BCF2000 units are set to different ID's and that they have the latest Behringer driver associated with them (V1.2.1.3) as then they all have different names in the computer {ID1 will be BCF2000(1)}. Otherwise setting up the system is a nightmare. If you see "USB Audio Device" in "Device Manager" associated with a BCF2000 then you need to update the driver and choose the correct driver yourself. "Search Automatically" will not find the correct driver.

rtpMIDI <http://www.tobias-erichsen.de/rtpMIDI.htm> and the latest version of MidiOx - MIDI-OX BETA 7.0.2.372 - do not lose any packets.

If you are using wifi for the remote laptop and you lose the connection rtpMIDI normally reconnects, but the VPN might have to be reconnected and MidiOx ports might need to be refreshed (closed and re-opened) if they are connected to rtpMIDI.

Beware which devices you connect to the same USB host. The host controller directs traffic flow to devices, so no USB device can transfer any data on the bus without an explicit request from the host controller. In USB 2.0, the host controller polls the bus for traffic, usually in a round-robin fashion. The slowest device connected to a controller sets the bandwidth of the interface.

Now the Setup.

Studio Manager and Sends on Fader are connected directly to the desk by USB or ethernet as shown in Andy's "Sends on Fader" setup instructions. They are not connected to MidiOx.

Change recorder is connected to Maple Midi ports 3 and 4, but these could of course be MidiYoke3 and MidiYoke4 or others of your choosing.

The BCF's are also shown in the MidiYoke map and are self explanatory.

The Input in MidiOx "Mezzanine for MidiOx" is the input from the rtpMidi connection.

In the screenshot "all talk different" the BCF's all update the desk (and then of course Studio Manager) through the "Terratec" Midi ports.

In the screenshot "all talk" the BCF's also update each other as well, but this is of course not normally necessary.

If the desk is on stage:

The laptop connected directly to the desk is running "Sends on Fader" and Studio Manager, rtpMIDI, MidiOx, a VNC server, a VLC server for the FOH headphones, and "Change Recorder". It can also be running a Media Player for playback, and recording software. The recording can be digital at the sample rate of the desk. I run the playback analogue into the desk so as to avoid sample rate problems. Here are some screenshots of the laptop directly connected to the desk.

The FOH laptop is running a VNC client, VLC to receive the Solo signal, rtpMIDI to send the SysEx from the FOH BCF2000, and something to send SysEx to the BCF's during setup.

If the desk is at the FOH position:

The laptop on stage is running MidiOx to gather the BCF's and rtpMIDI to send the NRPN to FOH. Also "Change Recorder" and a VPN server so that it can be controlled remotely.

The laptop at FOH is running "Sends on Fader" and Studio Manager, a VPN client, rtpMIDI and MidiOx. Personally I am also running Quicktime for video on a projector and sound to/from the desk.

If the desk is elsewhere (5th balcony, behind glass):

The setup is similar to the desk being on stage, except that the laptop at the desk position is connected to the onstage BCF's via a Belkin Network USB Hub over a FIXED ethernet connection. Wireless is inadvisable for this connection as MidiOx does not like to lose it's ports.

IF I SEND SYSEX TO THE MIDIIN ON THE DESK IT GOES THROUGH TO STUDIO MANAGER, BUT DOES NOT ECHO NRPN AT THE MIDI OUT. In order to update on-stage BCF's which are running NRPN on the same channel parameters the SysEx needs to be put into the input to the desk via USB from Studio Manager. I have kept the Sends on Fader/ Studio Manager Midi separate from MidiOx to avoid any conflicts, and so am unable to do this. Anyway, my FOH BCF is controlling the input faders, to which the band do not have access.

03.01.2011 Whale AV - David Kent.