

SAS RIO Bravo Effect Chains

The RIO Bravo Broadcast edition provides:

24 Mono Processing Chains, optimized for microphone processing.

Each Mono Chain provides, in order,

High Pass Filter

Expander

Compressor

4 Band Parametric Equalizer

AGC with Adjustable Peak Limiter

12 Stereo Processing Chains, ideal for Program and Send processing.

Each Stereo Chain provides, in order,

4 Band Parametric Equalizer

Stereo AGC with Adjustable Peak Limiter

The **Effect Chains** may be named to help you with routing. The Name assigned to the Effect Chain input is the Destination you can connect a System Source to using the Crosspoint Map function. The Name assigned to the Effect Chain Output is the Source you can connect to System Destinations. An example is a Microphone Signal coming in through an Analog or even Network (Dante) input can be connected to an Effect Chain Input. The Effect Chain Output can be connected to a Mix Bus or used as a Console Source on an Input Module (fader).

To name the **Effect Chain Input** use the Output/Destination Channel Config menu and select the 'Sends to Effects' group. Select the Effect Chain you will be using, click Edit and Name the chain.

To name the **Effect Chain Output** use the Input/Source Channel Config web page. The Effect Chain Output is used as a Source in the system. Under the Channel Type drop down menu select the FxDSP Sources. Select the Effect Chain output and click Edit to Name the chain.

The **Effect Chains** are inserted by using the Crosspoint Mapping function in the RIO Bravo.

To connect any System Source to an Effect Chain Input, navigate to the 'Local Router Control' menu, then select the 'Crosspoint Map' web page. Under Specify Output Channel Block select 'Sends to Effects'. Then use the Next and Prev buttons to go to the Effect Chain you will be sending signal to. Use the controls under Specify Input Channel Block to get to the Input/Source you will be connecting to the Effect Chain. Right Click on the cell where you want to Connect and select Take. The connection is confirmed by a Green Dot on the cell.

An Effect Chain Output is a System Source that can be selected as a Source to a Console Input Module or connected to any System Destination. To connect the Effect Chain Output to a System Destination navigate to the Crosspoint Map and under Specify Input Channel Block select FxDSP Sources. Use the Prev and Next buttons to get to the Effect Chain that you will be connecting. Under Specify Output Channel Block select the desired Destination. Right Click on the cell and chose connection type. A Green Dot will provide confirmation of connection.

To access the **Effect Chain Adjustments** navigate to the 'Local Router Control' menu, then the 'Adjust Effects Parameters' web page. There are three pull downs for Effect Editing. Choose the center 'Select Effect Chain by Name' and drop down to the Effect Chain you wish to monitor and adjust (e.g. Mono Chain #01 – NAME XXX). The first page you see will tell you the Effect Chain Preset Group the effect is using. You can choose another Effect Chain Preset here or continue. Next, select the 'Effect Stage By Name' using the right most drop down (e.g. Mono Expander/Compressor with highpass filter). Each stage presents you with controls to adjust the parameters and some real time feedback metering. Initial recommended settings are found on the next page.

Quick 'start here' for the Output AGC used to 'level' a Program Feed.

Initial adjustment for a RIO Bravo AGC applied to Program Leveling, based on +4 dBu = -20 dBFS..

1. Set the Output Level to -24 dBFS. I found this to adjust the output to be nominally '0' on our VU bar – close to -24 LUFS.
2. Set the Input Threshold to -36 dBFS. Where the AGC will start working to normalize the level. Below this it will gate the gain control to avoid pumping.
3. Set Rate to 4 or Medium. Live with it a while and then adjust to your preference.
4. Set Peak protect Threshold to -4 dBFS. -6 dBFS may be preferred with lots of talkers (due to peaky 'plosives') in the program material.

Quick 'start here' for the Mic Processing input stage.

1. Adjust Compressor Drive (Forward Gain) to 10dB. Compressor Drive can be adjusted later 'on the fly' if a talker is consistently high or low. This compressor is modeled after the dBx 163X over-easy compressor, 'One Knob Squeezer'.
2. Adjust Mic Pre sensitivity for 'normal' deflection on console meter with 'typical' voice and nominal fader position. There should be occasional/moderate gain reduction showing on the compressor meter – noticeably more with louder voices. The compressor will allow softer and louder voices to be accommodated without lots of fader adjustment..
3. Set the high pass filter for desired rumble reduction. 80 Hz is very typical for voice, 125 Hz in a larger reverberant space.
4. Adjust the Expander if you would benefit from background noise being attenuated when the subject is not talking. Start with a Exp Threshold of -40dB and Exp Depth of 10 dB. This sets the Threshold to -40 dB from full scale, or about 10dB below the 'nominal' level before the compressor kicks in. The Expansion will be active between -40 and -50 dB with a depth setting of 10dB. Start with Exp Sustain set to off and Exp Output Scale set to 1x. If the noise is not reduced enough set the Exp Output Scale to 2x. This will multiply the noise reduction, further reducing the noise. Adjust the Exp Threshold and Exp Depth to suit the average talker.

Tone Generator

Bypass

Pass Through – allows you to chain 2 Tone Gens for multi-tone output

Tone Level – From 0dB Full Scale down in 3 dB steps to -30 dBFS

Tone Frequency – 2K, 1K, 500, 440, 250

Mono Input Effects Chain

INPUT SIGNAL CONDITIONING

Bypass – Bypasses this page.

High Pass Filter – OFF, 50, 80, 125, 200 Hz.

Downward Expander / Gate

Expander Threshold – below this level the expander will be active

Exp Input Depth – 0 to 20 dB of gain reduction when active

Exp Sustain – When On reduces pumping for low level signals

Exp Output Scale – 1 to 5X times the attenuation

Compressor Drive – Forward gain below threshold

EQ

Bypass – affects only EQ

4 band parametric controls.

Low Freq Fc 20 Hz to 500 Hz

Low Gain, +12 dB to -12 dB

Mid 1 Freq Fc 80 Hz to 1.25 KHz

Mid 1 Q, 0.08 Octave to 4 Octave

Mid 1 Gain, +12 dB to -48 dB

Mid 2 Freq Fc 500 Hz to 8.0 KHz

Mid 2 Q, 0.08 Octave to 4 Octave

Mid 2 Gain, +12 dB to -48 dB

High Freq Fc 2.5 kHz to 16 kHz

AGC

Input threshold – above this level the AGC will actively adjust the gain to keep the program 'even'. Below this input level output dynamics are held constant (gated).

Output Level – your desired average program level

Dynamics - how fast the AGC will apply corrections.

Peak Threshold – output peaks above this threshold will cause the AGC to react quickly.

Stereo Output Effects Chain

OUTPUT SIGNAL EQ

Bypass

Low Freq Fc 20 Hz to 500 Hz

Low Gain, +12 dB to -12 dB

Mid 1 Freq Fc 80 Hz to 1.25 KHz

Mid 1 Q, 0.08 Octave to 4 Octave

Mid 1 Gain, +12 dB to -48 dB

Mid 2 Freq Fc 500 Hz to 8.0 KHz

Mid 2 Q, 0.08 Octave to 4 Octave

Mid 2 Gain, +12 dB to -48 dB

High Freq Fc 2.5 kHz to 16 kHz

OUTPUT SIGNAL AGC (Automatic Gain Control)

Bypass

Input Threshold -10 dBFS to -50 dBFS Above this level the AGC will actively adjust the gain to keep the program 'even'. Below this input level output dynamics are held constant (gated).

Output Level – 10 dBFS to -50 dBFS This is the target output level.
-24 dB correlates well to -20 dB VU.

Dynamics: Slow / Medium / Fast / Hyper

Peak Threshold: 0dBFS down to -10 dBFS True peaks exceeding this level will cause fast peak limiting