STAGEBOX I/O INTERFACE
Quick Start Guide

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STAGEBOX, FRONT PANEL VIEW

STAGEBOX OVERVIEW

Stagebox is a WheatNet-IP system (WNIP) audio interface device similar to a Blade. WNIP systems are AES67-compatible AoIP (Audio over Internet Protocol) networks which can have any number of WNIP devices—like Strata 32, LXE, or LX Surfaces; M4 Mic Processors; Blade I/O Interfaces, and PCs using the WNIP audio driver, all networked together using one or more AoIP-rated gigabit Ethernet switches. Each WNIP device is able to share their audio signals with every other WNIP device connected to any network switch port.

The Stagebox is a specialized type of WNIP Blade, having more I/O and an expanded input gain range to support direct mic connection but lacking common WNIP Blade features, like Silence Sensing, Utility Mixers, and Audio Processing. Thus, the Stagebox is classified as a "Razor-SBX" device in Navigator, the WNIP system's user interface application that's used to configure and cross-connect Stagebox's signals to other devices.

Stagebox is networked with a WNIP system by connecting a straight-thru CAT6 cable, of up to 320' (100m), from the Network 1 or Network 2 RJ45 jack to an available port, configured for switchport mode access, on any WNIP network switch. If the WNIP system is using the default subnet (192.168.87.0) then Stagebox appears in Navigator's System Dock as a new device named BL50 since a new Stagebox is set as Device #50 (Blade 50) from the factory. Its default IP address is set as 192.168.87.50. The Navigator app can be used to edit the Name, the ID#, and IP the address, as required, to ensure each device has unique settings in the WNIP system.

Stagebox uses 4RU in a standard 19" rack but, because of the number of op amps within the unit, we recommend adding a 1RU blank or vented panel above the unit for ventilation.

Stagebox comes with an internal switching power supply (an IEC AC jack is on the rear panel) for use on AC systems supplying 90-240 VAC @ 50/60 Hz. There is no power switch so plugging in the AC cable powers the unit. A Redundant supply can be ordered as a factory-installed option. Front panel Power 1 and 2 LEDs light to indicate DC voltage is present on each supply.

STAGEBOX CONNECTIONS

ROWS 1 & 2—32 MIC / LINE ANALOG INPUTS
A mix of balanced mic and line inputs can plug into the thirty-two female XLR connectors (Mic/Line Inputs 1 - 32). By default, all analog inputs are configured as mono, line-level inputs, but any odd/even pair of inputs (i.e., 1 & 2, 3 & 4, etc.) can be linked for stereo in Navigator. The default input level is set for unity gain (0 dB), which is suitable for most balanced line devices using +4 dBu nominal levels. Because each analog input has an *extended gain range*, a microphone can be directly connected to any analog input. The input gain control in Navigator is then used to add up to +78 dB of gain to raise the mic input to line-level. Any analog input can also have +48 volts Phantom Power turned on to support condenser mics via a *PPwr* check box in the *Sources* tab in Navigator. The audio inputs have the default names of BL050S01 - BL050S40. S01 - S32 are the thirty-two analog mic/line inputs while S33 - S40 are the eight AES Inputs. These default names are easily edited using Navigator, see page 2 for details.

ROW 3—ANALOG LINE OUTPUTS
The sixteen male XLR connectors are mono line-level outputs, by default, but any odd/even pair of outputs (i.e., 1 & 2, 3 & 4, etc.) can be set as a stereo signal using the Navigator app. Audio outputs are called *Destinations* in Navigator. When BL50 in the System dock is selected, the *Destinations* tab lists the Stagebox outputs. They have the default names: BL050D01 - BL050D24, with D01 - D16 being the sixteen analog outputs and D17 - D24 being the eight AES Outputs. Each signal is set for a default output level of 0 dB but this can be lowered by up to -18 dB or raised by up to +18 dB using the *Destinations* Tab level controls, se page 2 for details.

ROW 4—AES INPUTS & OUTPUTS, LOGIC, AND NETWORKING
All AES inputs and outputs are set to stereo by default. Each AES input and output has +/- 18 dB of gain control, and any AES input or output can be split into two separate mono signals in the Navigator app.

The DB-15 female jack has twelve LIO (Logic Input/Output) ports plus two grounds (pins 1 & 8) and +5 volts (pin 15). Each LIO port can be set as a logic input or logic output in Navigator. An LIO may be associated with a specific audio signal or it may be set as a stand-alone logic-only signal. In Navigator, the Stagebox LIOs have the same LIO names as used on Blades. This means they are listed as LIO1 and LIO2, each with six ports, since Blades use two RJ45 jacks rather than the single 12-port LIO on a DB-15. This can cause some confusion so Figure 2, on page 2, has a table of Navigator port names to DB-15 pin numbers which should help sort things out.

Use either the Network 1 or Network 2 RJ45 port to connect the Stagebox to the WNIP system. Only connect one port at a time (which one is used is not critical). The unused port is there as a backup connection only. The Network LED for the active port flickers to indicate network traffic. Since the Network ports carry high-speed multicast streaming audio, only connect the Network port to a WNIP network switch port using CAT5e or CAT6 cable.

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Figure 1. Navigator Source and Destination Numbering

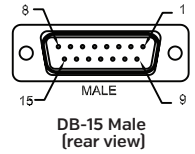| Nav. LIO	DB-15
LIO 1 Pin 2	= Pin 9
LIO 1 Pin 3	= Pin 2
LIO 1 Pin 4	= Pin 10
LIO 1 Pin 5	= Pin 3
LIO 1 Pin 6	= Pin 11
LIO 1 Pin 7	= Pin 4
LIO 2 Pin 2	= Pin 12
LIO 2 Pin 3	= Pin 5
LIO 2 Pin 4	= Pin 13
LIO 2 Pin 5	= Pin 6
LIO 2 Pin 6	= Pin 14
LIO 2 Pin 7	= Pin 7

DB-15 Male
(rear view)

Figure 2. Navigator Logic Names to DB-15 Pins

STAGEBOX SIGNAL CONFIGURATION OVERVIEW

Stagebox's inputs and outputs are configured, like any WNIP Blade signal, in the Wheatstone app **Navigator**. All of the WNIP devices appear in a *System Dock* pane along the left side of the app. A new Stagebox is named BL50, so click on the BL50 icon to select that device. Navigator's tabs change to show those specific to Stagebox: *Sources*, *Destinations*, *Wire Info*, *LIO Info*, etc. The Stagebox's input signals are viewed and edited in the *Sources* tab. Its output signals are viewed and edited in the *Destinations* tab.

EDITING THE SIGNAL NAMES

The names shown in the *Sources* and *Destinations* tabs appear on Surface channel displays and in Navigator's crosspoint grid. Each tab has similar sections: a Signals list with *Add*, *Edit*, and *Delete* buttons; Signal Details; Free Resources; and Meters with gain controls (Figure 3). To edit a name, click on it in the Signal list to select it then type in a new name of up to eight characters. Default names identify the device type (BL for Blade); its device number (050 for device 50) and the physical input (S1 - S40) or output (D1 - D24). Since the Details section (and the *Wire Info* tab) will also give you this info, you don't have to include a connector number within the signal name, although for inputs with temporary connections it may be useful to include the number as part of a generic name, like IN32, to identify that jack.

CHANGING SIGNAL FORMAT

All analog inputs and outputs are mono signals while all AES inputs and outputs are stereo signals. To combine any odd/even pair of analog signals (like S15 and S16) into a stereo signal, click on the even number signal (BL050S16) to select it, then click *Delete* to remove that signal. There is now a "Mono Free Resource." Click on the odd signal name (BL050S15) then click *Edit* to open the Signal Editor (Figure 4). The Signal Type will be *Mono.* Click the *Stereo* radio button to combine S15 and S16 into a stereo signal with S15 being the left channel and S16 being the right channel. Conversely, you can split a stereo signal into two mono signals by selecting the stereo signal and changing its Signal Type to *Mono*. A new mono signal, with a unique number will then appear in the Signals list where its name can be edited as required.

ADJUSTING INPUT & OUTPUT GAIN

The Stagebox *Sources* and *Destinations* tabs each have a Meters section. Every signal has its own level meter and gain control. In Figure 5, the left meter pair shows two mono analog inputs. These have up to 78 dB of gain and a phantom power switch (PPwr) for mic inputs. The right meter pair shows a stereo input. A stereo signal has a level and a balance control. All meters are post level/balance control so their actions are reflected in the metering.

ADDING LOGIC

A list of the Stagebox LIO names as they appear in Navigator, and the DB-15 connector pin each connects to, is listed in Figure 2. When logic is associated with an audio signal, select that audio signal and click *Edit* to open the Signal Editor. Click the *LIO Info* tab then click *Add* to open the Add Logic pop-up pane (Figure 6). Select the logic *Direction* (Input or Output); select the *Function* from a list of logic commands; click on an LIO to assign it to that pin; click *Apply* then click *Close*.

If logic is not associated with an audio signal, like a Studio Hot Mic Warning, create a new destination by clicking *Add.* Select and edit that signal setting its Signal Type as *LIO only*. Select the logic *Direction* (Input or Output); select the *Function* from a list of logic commands; click on an LIO to assign it to that pin; click *Apply* then click *Close*. A logic-only cross-connection in Navigator's grid appears as a square icon.
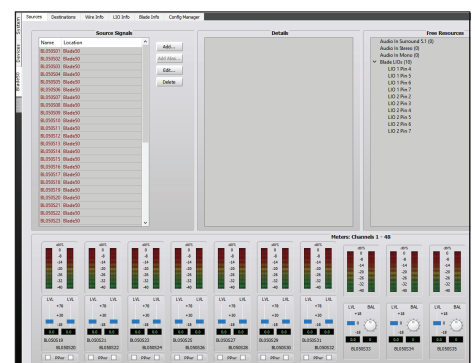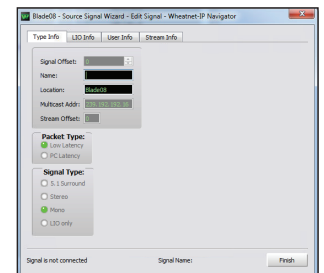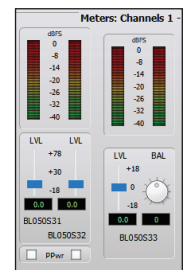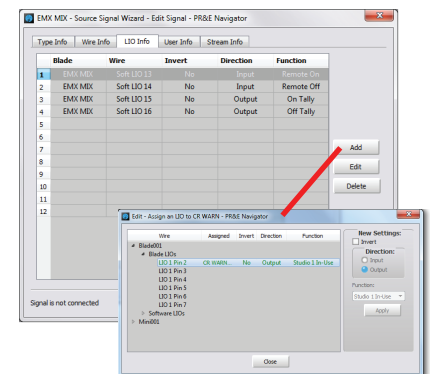

Figure 3. Sources Tab

Figure 4. Signal Editor

Figure 5. Meters

Figure 6. Editing LIO Settings