LINX™ MATRIX SWITCHERS FIRMWARE UPDATE INSTRUCTIONS FIRMWARE VERSION 4.3.1.0

Due to the complex nature of this update, please familiarize yourself with these instructions and then contact RGB Spectrum Technical Support (tech@rgb.com; +1-510-814-7000, option 1) before performing the update.

To install any version prior to 4.3.1.0, or update a version earlier than 2.0, you must contact RGB Spectrum for assistance.

IMPORTANT	For all upgrades, interlaced sources should be disconnected from the Linx Switcher. For upgrades from any version earlier than 4.1, all inputs to and outputs from the Linx Switcher should be disconnected or disabled before performing an update. If disconnection is not feasible, all upstream and downstream devices must be fully powered-down.

Overview

Performing the firmware update via the serial port is preferable to using the Ethernet port, because the *Linx* will continue to communicate its status even through a system reset. While Telnet may be used to enter commands, Ethernet connections are lost when the *Linx* resets and require a new log-in after each occurrence, and therefore cannot provide continuous status updates, including when a reset cycle has completed.

The serial port method tells you when an update command or system reset has completed by the return of the prompt (>) on the screen of the control PC. With Telnet, once the reset starts, the Telnet connection is lost. To prevent a premature re-login to the *Linx* which could interfere with the update process, the recommended wait time is approximately 30 minutes for the update command.

Determining the Current Firmware Version

On a *Linx* 800, 900 or 1000, rotate the front-panel control knob until the currently-installed firmware version appears on the front-panel display.

On a *Linx* 1600, 1700, 1800, 3200, 3300 or 3400, push the **SYS** button and then rotate the control knob to display the firmware version.

The version number of the existing firmware will determine the number of steps required to update to the latest version. Choose the appropriate update procedure for the currently-installed version. The basic steps are listed below; detailed instructions begin on **page 3**.

If the currently-installed firmware version is 4.3.0.0, you do not need to update it.

Updating from Any Version between 2.0 and 4.0.8u to 4.3.1.0

This is a seven-step process:

1. **Upload Firmware to the Linx Switcher**
2. **Export Settings**
3. **Download Exported Settings From A Linx Switcher to a PC**
4. **Pre-Install Firmware 4.1Pre-Up (for Versions Prior to 4.1)**
5. **Update the Boot Code Of the I/O Cards (for Versions Prior to 4.1)**
6. **Install Firmware**
7. **Upload Settings From PC and Import Settings Back to Linx**

Updating from Any Version between 4.1 and 4.2.1.1 to 4.3.1.0

This is a five-step process:

1. **Upload Firmware to the Linx Switcher**
2. **Export Settings**
3. **Download Exported Settings From A Linx Switcher to a PC**
4. **Install Firmware**
5. **Upload Settings From PC and Import Settings Back to Linx**

Transferring Files

Files may be downloaded from and uploaded to the *Linx* using File Transfer Protocol (FTP) via connection through the Ethernet port. Files that may be uploaded to the Linx Switcher include previously-saved system settings, new firmware, presets, and EDID information.

IMPORTANT	The FTP client must be in binary mode to upload firmware. The mode does not have to be set when transferring files using Windows Explorer.

In the steps that follow, an FTP session is illustrated using Windows Explorer (start **My Computer**). While the procedure will be similar with other operating systems, the appearance of the individual windows may vary.

1. Upload Firmware to the Linx Switcher

a Connect a PC to the Ethernet port of the Linx Switcher to transfer files.

b Open Windows Explorer.

c In the address bar, enter the FTP command:

```
ftp://rgb:spectrum@nnn.nnn.nnn.nnn
```

where **nnn.nnn.nnn.nnn** is the IP address of the Linx *Switcher;* **rgb:spectrum** is the user name and password. The examples that follow use the address 192.168.1.238.

The *Linx* FTP directory appears in the Explorer window as shown in **Figure 1**.

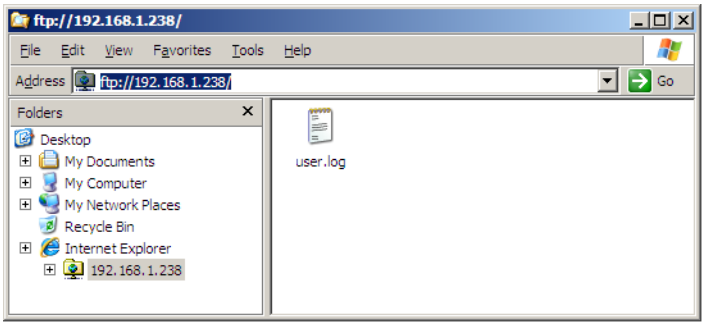

Figure 1 FTP Open

d Open another Explorer window and navigate to the location on the computer that contains the firmware file.

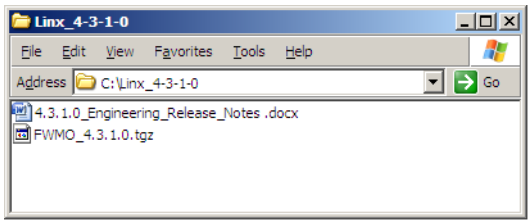

Figure 2 Locate File to Upload

e Select the firmware and drag it to the Linx FTP directory. Copy progress is displayed.

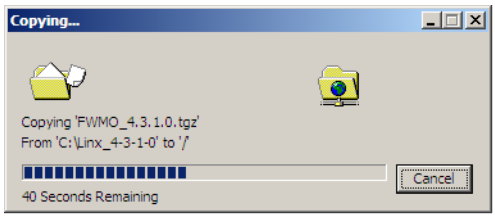

Figure 3 Copying Firmware to the Linx Switcher

f When copying is complete, the firmware appears in the *Linx* FTP directory along with other system files.

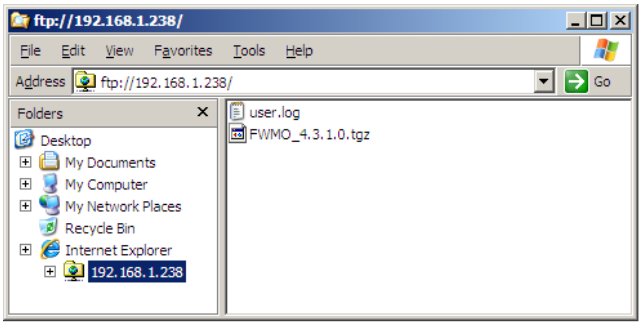

Figure 4 Firmware Uploaded

2. Export Settings

It is highly recommended that all system settings be saved and downloaded to a PC prior to beginning the update procedure.

Note	In firmware versions 4.2.0.0 and later, the EDID list now has three factory default settings. These are stored in the first three elements of the EDID list and cannot be overwritten. You should move any current EDID settings to below slot three before exporting the settings in preparation for the update.

a Use a serial or telnet connection to export settings from the Linx Switcher by executing the following command:

```
exportsettings all [file_name.txt]
```

This creates a file in the FTP folder of the Linx Switcher containing a copy of the existing settings. If you do not specify a file name, it will be named **export.txt**.

3. Download Exported Settings From A Linx Switcher to a PC

a Use the procedure in **Upload Firmware to the Linx Switcher** to initiate a browser-based FTP session.

b Drag the exported settings file created above from the Linx Switcher's FTP folder to the desired location on the connected PC. Files that may be downloaded from the Linx Switcher include exported system settings, EDID information, and presets.

4. Pre-Install Firmware 4.1Pre-Up (for Versions Prior to 4.1)

IMPORTANT	**Do not interrupt power to the unit during the firmware update.** Delete any exported or saved files in the *Linx* FTP buffer before uploading any firmware files. System files **user.log** and .**profiles**, if present, do not need to be deleted. The FTP client must be in binary mode to upload firmware.

a Using FTP, transfer the pre-install file **FWMO_4.1PreUp.tgz** from the PC to the Linx Switcher.

b Execute the `UFW` command.

5. Update the Boot Code Of the I/O Cards (for Versions Prior to 4.1)

a After system reboots, execute the command:

```
UBT ALL ALL
```

This command updates the boot code on all input and output cards.

b When the system is ready, enter the `SYSRST` command to reboot it.

6. Install Firmware

a Using FTP, transfer the file **FWMO_4.3.1.0.tgz** from the PC to the Linx Switcher.

b Execute the `UFW` command.

c For serial port control, wait until the prompt is redisplayed; for Telnet operation, allow approximately 30 minutes to for the system to complete the update and reboot.

d Issue the **SYStemINFO** (`SYSINFO`) command to verify that the correct firmware version is displayed and that all input and output cards have boot code version X.6. **Figure 5** shows a **SYStemINFO** report example.

```
Model:                  Linx 1000
Manufacture date:       06/08/2012
Firmware version:       4.3.1.0
SH4 firmware version:   4.3.1.0
Firmware build date:    Feb 25 2014 12:18:28
Hardware revision:      1.0
CPLD version:           1.17
WCP Applet Version:     4.3.1.0
Reboot count:           157
System up time:         1d 4h 48m 0s
Total system up time:   219d 19h 53m 24s
Host name:              Linx1000
IP address:             10.0.0.232
Subnet mask:            255.255.255.0
Gateway IP address:     10.0.0.1
MAC address:            1a:2b:3c:4d:5e:6f
System logging level:   Warning
System upgrade state:   no ufw/ubt/retry in progress
Backplane FPGA version:1.27
Input
Card   FW Ver  HW Ver            Card Type                FPGA Ver      Boot
----   ------  ------ ------------------------------ ----------------- ----
   1    0.135   1.0   HDBT Input                      11.1.3             1.6
   2    0.192   3.0   Single Dual Link DVI/RGB        2.1.16             1.6
   3    0.049   2.0   HD SDI                          6.1.7              1.6
   4    0.192   2.0   Fiber IN                        8.1.6              1.6
Output
Card   FW Ver  HW Ver            Card Type                FPGA Ver      Boot
----   ------  ------ ------------------------------ ----------------- ----
   1    0.138   2.0   HDBT Output                     11.1.3             2.6
   2    0.188   2.0   Fiber OUT                       9.1.10             2.6
   3    0.134   2.0   HDMI Audio Output               10.0.13            2.6
   4    1.046   3.0   Dual Single Link DVI Scaler     7.2.42-2.6.156A    3.6
```

Figure 5 SYSINFO Report Example

e Verify that the FPGA firmware versions for all cards match those in the most recent firmware release notes.

7. Upload Settings From PC and Import Settings Back to Linx

a Use the procedure in **Upload Firmware to the Linx Switcher** to initiate a browser-based FTP session.

b Upload the system settings file that you created in Step 2 and downloaded in Step 3 back to the Linx Switcher.

c Using a serial or telnet connection, import the system settings file by executing the command:

```
importsettings file_name.txt
```

d The old settings are now available on the Linx Switcher.