



Release Notes

(Contact RGB Technical Support for more details)

Product: LINX™ 800, 1600, 3200 DVI Switcher

LINX 900, 1700, 3300 CrossXFormat™ Switcher

VERSION: 2.1

COMPATIBILITY: V 2.0

The following release notes apply to Linx 800,900, 1600, 1700, 3200, and 3300 switchers. A Linx 1600 or 3200 will not respond to commands intended exclusively for a Linx 1700 or 3300, respectively. A Linx 800 or 900 will not respond to commands intended exclusively for a Linx 1600, 3200, 1700 or 3300.

DVI-only models 800, 1600, 3200 will not respond to commands intended solely for CrossXFormat™ Switchers 900, 1700, 3300.

Support for dual-link DVI:

Dual-link DVI option is available for RGB Spectrum Linx CrossXFormat™ switchers including models 900, 1700 and 3300.

New features as listed herein are currently supported via command line. They are not currently supported through WCP.

All Linx switchers should be upgraded to the latest available firmware.

Upgrade path to 2.1 is from 2.0. If not already running 2.0, upgrade to 2.0, then to 2.1.

NEW FEATURES AND COMMANDS:

Follow the firmware upgrade instructions the Linx 2.1 User Guide or posted on the RGB website here:

http://www.rgb.com/support/product/Linx3300/Linx_FW_Upgrade.pdf

1. The **LINKTYPE** command has been added as part of support for dual-link functionality.

```
linktype <cardGroup> <cardPlusAll> [<linkType>]
<cardGroup> = {"input", "output"}
<cardPlusAll> = {1..16," all"}
<linkType> = {"single", "dual"}
```

The **LINKTYPE** can be used to view the link type configuration for the input or output cards in the system, or it can be used to set the link type for one or all of the input or output cards. Attempting to set the configuration link type for a single-link only card to “dual-link” will result in a warning message.

2. Dual-link DVI routing support has been added. Systems with cards configured as “dual-link” now have additional considerations for the user when creating routes.

Routes cannot be created from single-link cards to dual-link cards when the dual-link card is in



“dual-link” mode.

Routes cannot be created from dual-link cards to single-link cards when the dual-link card is in “dual-link” mode.

Dual-link routing complicates the “one-to-many” routing case. In a system with heterogeneous card mix, attempting to route port 'n' to 'all' will not succeed in the cases where the ports on the destination card are not configured to the same link type as the port on the input card. These routes will not be created and a warning message will be displayed.

3. The **OUTSRC** command has been modified to handle dual-link routes. The same restrictions apply to routes created with this command as to the route command.
4. The **COLORSPACE** command has been added for color space conversion:

```
COLORSPACE <cardGroup> <portPlusAll> [<conversion>]
<cardGroup> = [“input”, “output”]
<portPlusAll> = [1..31, “all”]
<conversion> = [“none”, “rgb2yuv”, “yuv2rgb”]
```

Color space conversion permits RGB signals to be converted to YCbCr, and vice versa. Color space Settings are persistent, as part of the parameter database.

5. The **UPSAMPLE** command has been added for command to provide an *upsampling* capability for the Linx. A 4:2:2 signal can be upsampled to a 4:4:4 signal. This capability is available on a per-port basis. The command syntax is:

```
UPSAMPLE <card type> <portPlusAll> <enable>
<card type> = {“input”, “output”}
<portPlusAll> = {1..32, “all”}
<enable> = {“on”, “off”}
```

6. The **DOWNSAMPLE** command has been added to provide a *downsampling* capability for the Linx. A 4:4:4 signal can be *downsampled* to a 4:2:2 signal. This capability is available on a per-port basis. The command syntax is:

```
DOWNSAMPLE <card type> <portPlusAll> <enable>
<card type> = {“input”, “output”}
<portPlusAll> = {1..32, “all”}
<enable> = {“on”, “off”}
```



7. A new command has been added to provide the capability to expand the range of pixel data for a signal (useful when *upsampling* a signal). This capability is available on a per-port basis. The command syntax is:

```
DATARNGEX <card type> <portPlusAll> <enable>  
<card type> = {"input", "output"}  
<portPlusAll> = {1..32, "all"}  
<enable> = {"on", "off"}
```

When this function is enabled, the HDMI transmitter expands the range of pixel data values from 16-235 into the full 8-bit range of 0–255. This feature is suitable for translating input YCbCr data into output RGB data in PC modes that use the complete range. It may be a standard PC resolution (XGA, SXGA, WXGA, and so on), or a specific native resolution. In these cases, when the HDMI transmitter receives YCbCr data, the data must be expanded to full range for delivering RGB full-range modes.

8. The **RESYNCAUDIO** command has been added. This applies to HDMI signals with embedded audio. `resyncaudio` forces a manual re-synchronization of the HDMI audio for the specified input port. This action will also force a re-synchronization of the associated output port(s), if any.

```
RESYNCAUDIO <input port>  
<input port> = [1..32]
```

9. The **SaVeEDID** command has been enhanced. If a user attempts to save an EDID from an output port that does not have a monitor attached, the following message is displayed on the console prior to the confirmation request:

No monitor attached to specified output port. This command will save the default EDID.

10. The **FORCEHotPlug** command has been added. It allows the user to generate a hot plug event on an input port from the command line.

```
FORCEHotPlug <inputportPlusAll>  
<inputPortPlusAll> = {1..32 "all"}
```

11. *System behavior change*: if a route exists on any of the ports of a card that is changing its *linktype*, said route will be deleted. This is to eliminate the possibility of creating an invalid route by changing the *linktype* for a card after a route is made.

12. Added card initialization messages for the different stages of parameter restoration. The boot messages are as follows:

```
_CardTaskInit: restoring equalization level settings...  
_CardTaskInit: restoring input signal type settings...
```



- _CardTaskInit: restoring input phase adjustment settings...
- _CardTaskInit: restoring input PLL range settings...
- _CardTaskInit: restoring link type settings...
- _CardTaskInit: restoring HDCP authentication mode setting...
- _CardTaskInit: restoring color space conversion settings..
- _CardTaskInit: restoring upsampling settings...
- _CardTaskInit: restoring downsampling settings...
- _CardTaskInit: restoring data pixel range settings...
- _CardTaskInit: releasing the EDID task...
- _CardTaskInit: sending the initial picture adjustment parameters...

13. An HDCP processing error that resulted in failures on odd numbered output ports has been fixed.

Firmware Update Notes:

Unlike other RGB equipment, a firmware update cannot be performed by simply removing the Compact Flash and overwriting the files. The firmware upgrade process must follow documented procedures. Briefly, ftp the update file to the Linx, perform a 'ufw' and finish with a 'uiocfw'. If for any reason the update process is interrupted, the user must always restart the sequence from the beginning.

Occasionally, an input or output card may not upgrade after the first restart (power cycle or SYSRST). If this happens, restart the Linx again. Once the restart has completed, I/O card version number can be checked via the SYSINFO command.

Linx 2.1 requires the following:

Backplane FPGA version 1.14 for the 3200 and 1600

Backplane FPGA version 1.15 for the 800

Dual single-link DVI input card firmware version 0.59

Dual single-link DVI/RGB input card firmware version 0.59

Dual single-link DVI/RGB input card FPGA version 0.2.19

Dual single-link output card firmware version 0.59

Dual single-link output card FPGA version 0.2.19

Version 0.4 of the boot loader prom