Field Engineering Bulletin
071 8283 01 | March 4, 2004
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Broadlinx 2.1.1 Upgrade

Contents

Applicability

This release applies to all Trinix routers equipped with a Broadlinx board (NR-33000).

The software required for this upgrade is provided on a Broadlinx flash memory module.

CAUTION Installation of this upgrade will interrupt video signals passing through the system. The length of this interruption will vary depending on system size and specific procedures used. Users of this equipment should consult with Thomson Technical Support personnel before proceeding.

Purpose

The primary purpose of this release is to make corrections to release 2.1.0, which provides compatibility with:

- Encore control system version 1.6.1

- SMS 7000 control system version 8.2.1

- Trinix HO-33120 HD/SD Output Board

Other new features and error corrections are provided by this release, as described in the Release Notes section below.

As with any software package, some limitations remain. Many of these are known and are detailed in this document and other documents referenced. Please note that the description of known limitations is not an agreement to correct them.

Materials required

Qty	Description	Part number
1 or 2	64 MB Compact Flash Memory, Broadlinx (1 per NR-33000)	163 8279 05
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Note In some circumstances, additional materials may be indicated to minimize the impact of this upgrade to on-air operations. Please contact Technical Support for more information.

Equipment required

- Trinix router equipped with Broadlinx (NR-33000) board(s).

- Ethernet/Telnet connection to Trinix/Broadlinx (or terminal/serial connection). This connection is detailed later in this document.

Release notes

Release 2.1.1

Logged problems corrected (all Trinix routers)

1. For all types of Output Cards, corrected the problem where the last Take's action (within a group of Takes) was delayed an additional VIT period. This caused the output enable transition to occur one VIT after the switch in the DM-33512 Matrix Boards (for the last Take).

Logged problems corrected (DV-33512 routers)

1. In the DM-33512 Matrix board, fixed intermittent problem of detecting the presence of input cards within the frame. This was sporadically causing Takes to not be confirmed.

2. The RP-33500 would report a low 3.3 V supply when no cards were present (for example, frame number 2 in an input-expanded system).

Logged problems corrected (All Trinix routers with Encore control)

1. On rare occasions, when the NR-33000 card was activated, the NR's XPT bus controller would not become active. This has been corrected.

Logged problems corrected (HO-33120 boards only)

1. The monitor switch on the RP-33500 set the monitor output to 1536 when in the 1024 position, and 1024 when in the 1536 position.

Release 2.1

Enhancements (all Trinix routers)

1. Encore release 1.6.1 is supported, including NR-33000 redundancy.

2. The left hand Device pane in the NetConfig application now reports the target name of the router instead of the matrix size.

3. The Firmware Update status display has been improved.

4. The router can now be restarted after updates without cycling power or re-seating cards.

5. The new Trinix HO-33120 HD/SD Output Board with multi-rate reclocker is now supported.

Enhancements (DV-33512 routers)

1. The router no longer requires repowering when changing the frame number.

2. The system now reports the CPLD code versions running on the DM-33512 cards.

Logged problems corrected (all Trinix routers)

1. Fixed SMS 7000 board add messages for "SR types" and "Input types" – Extra messages were getting displayed when an SR-TYPE board was discovered.

2. The system update process would occasionally halt when 99% complete. This has been corrected.

3. The upgrade process has been modified so that the system makes up to two attempts to update a board.

4. The Ethernet Monitor task has been removed from externally switched router configurations. (Broadlinx with Jupiter).

5. SMS 7000 commanded NR-33000 switchover (active NR-33000 to inactive NR-33000) is disabled during a firmware upgrade.

6. The web firmware management page and device information page both show the revision levels in decimal.

7. SMS/Encore - The In Use LED now reports the correct status when the activate button is pressed.

8. Settings for the Reclock/Bypass switches on the HO-33110 are now consistent with those for the HO-33120.

Logged problems corrected (DV-33512 routers)

1. Invalid FPGA Overtemp alarms on the DM-33512 Matrix boards have been fixed.

2. Spurious +2.5 volt power supply alarms have been fixed.

3. The web page graphics for the DV-33512 have been corrected to show the "B" and "C" power supplies in the correct position.

4. Resolved an issue where upon power-up, some DM-33512 Matrix boards would not recognize frame properly causing the card to not function correctly.

5. Corrected a problem wherein input card presence detection would fail intermittently causing "no confirm" messages during Takes.

Known Issues

1. The Trinix web pages contain two representations of the Trinix frame, a tree view on the left and a graphical view on the right. The design of the web pages is such that a browser Refresh (via the menu Refresh, toolbar icon, or F5 key) returns the user to the Trinix home page. To facilitate refresh of only certain views a "Refresh" button has been added to many of the web pages. In some cases this results in the two views being out of sync. The most recently refreshed view should always be correct. The views can be re-synchronized with a browser Refresh (menu, toolbar, or F5). The user will then need to navigate back to the desired web page.

Related Documents

Trinix Installation Manual, part no. 071 8276 00.

Firmware Update

This process is used to update firmware on any or all of the boards within a Trinix frame using a serial console port or Ethernet/Telnet connection.

The update is detailed in the following sections of this document:

A. Preliminary procedure.

B. Update Loader, Re-loader, and firmware on all boards within the frame.

C. (DV-33512 units only) - Update the DM-33512 Matrix Board CPLDs.

CAUTION The CPLD update procedure will take approximately two minutes per DM-33512 board. During this time, video that is switched to ANY output may be disrupted, and NO new takes can be performed on the DM-33512 board card that is being updated.

D. Update the FPGA firmware.

E. Perform a system wide firmware reset on all FPGAs.

F. Verify system firmware revision status using the Broadlinx Firmware Management web page.

CAUTION The FPGA reset procedure will cause a momentary (a few seconds) disruption to all video outputs.

A. Preliminary Procedure

Note   The steps in this Preliminary Procedure will not affect on-air operations.

1. Connect to the Trinix NR-33000 (Broadlinx) board via a console session on a PC. This can be done using a serial connection or an Ethernet/ Telnet connection.

a. Serial connection method:

The serial method has the advantage of not requiring a reconnect after an NR-33000 reset.

On the back of the Trinix frame, there are two "Console" connections: one for the Primary NR slot (Console "A") and one for the Secondary NR slot ("Console B"). An RS-232 cable is used to connect to these ports as required during the following procedure.

COM 1 of the PC should be connected to Console A of the router.

If there are two NRs, a second cable should be used to connect COM 2 with Console B. (It is possible to use only one serial cable, but this requires moving the Trinix end of the cable back and forth between the Console A and Console B connectors during the upgrade.)

The COM ports should be configured as follows:

9600 baud

No Parity

8-Data Bits

1-Stop Bit

A Windows terminal program such as HyperTerminal should be used to interact with the NR-33000(s). If there are two NRs, two copies of HyperTerminal should be running: one for COM 1 / Console A/ Primary, the other for COM 2 / Console B / Secondary.

b. Ethernet/Telnet connection method:

You must know the current IP address of the Broadlinx board(s) to use this method.

Open a Windows Command Prompt screen. At the prompt, enter:

```
telnet [IP address of the Broadlinx board]
```

If you don't know the IP address of the board, and assuming the board has already been set up for access via a web browser, you should be able to use the browser to obtain this information. If for some reason the address isn't available from the browser, the Grass Valley NetConfig application can be used to discover the address.

For convenience, two copies of Telnet should be running: one for the Primary NR-33000 and one for the secondary.

2. If there are two NR-33000 boards present, you must be able to identify which is active. (The firmware update process MUST be performed through the **ACTIVE** NR-33000 card, because it has control of the Trinix "Com" bus.) This can be done either by checking the "Active" LED on the NR or by using the "boardShow" console command.

    a. The Active LED indicator, which is amber, is located next to the Activate push button. See Figure 1.

Figure 1. NR-33000 Broadlinx board (as positioned in DV-33512 chassis)
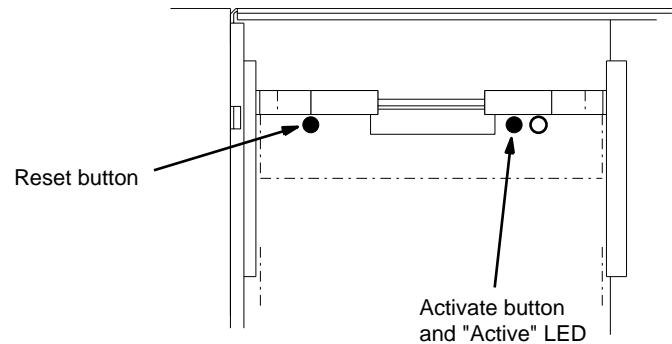
b. To use the boardShow console command, go to a console window
and type:

```
boardShow
```

Typically the system will respond as follows:

```
Broadlinx NR33000 board:
     Frame Type: 0x1 128 X 128
     Frame No  : 0x0
     Level     : 0x01

Power Supplies : OK
     XPT Control : Internal
     XPT Drivers : Active
     COM Drivers:Active
```

["Active COM Drivers" confirms that this NR-33000 is active.]

```
          Primary card slot.
```

["Primary" indicates where this NR-33000 board is located.]

```
        Board Revision: B2 -
     CPU FPGA Revision: 02 B
   Backplane detected:  00 No
        Switch S3 (RS):  12 2
   Battery present and Charged 0B
   value = 0 = 0x0
```

3. Install the provided compact flash memory module(s) in the NR-33000
memory slot(s):

Note   Any NR-33000 board, active or inactive, can be unseated safely with power
on. Switcher status will not change, but switching cannot take place without
an active Broadlinx board.

a. Pull out the Broadlinx board (the inactive board if there are two
NRs) far enough so the ejector levers allow access to the compact
flash module. See Figure 2.

*Figure 2. Primary Broadlinx location (DV-33512 installation shown).*
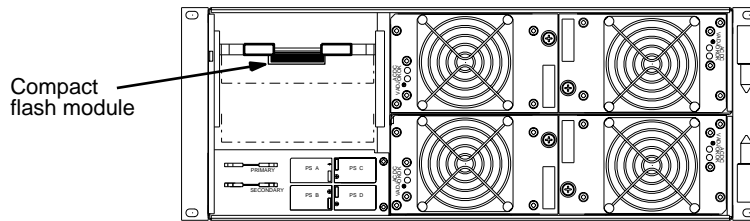
b. Remove the old flash module by pressing on the adjacent small
square ejector button.

c. Insert the new flash module and seat it firmly.

d. Re-seat the Broadlinx board. The board will boot up automatically with the new software.

When the board is first inserted, keep the ejector levers spread apart and slide the board in until the levers make contact. The levers are then folded toward each other to seat the board.

The boot process will take about 45 seconds, after which you will see a "spinning" pattern of the LEDs on the front edge of the board. See Figure 3.

Figure 3. Broadlinx board LEDs.

The "spinning pattern" LED display will appear
when the Broadlinx board is booted up.
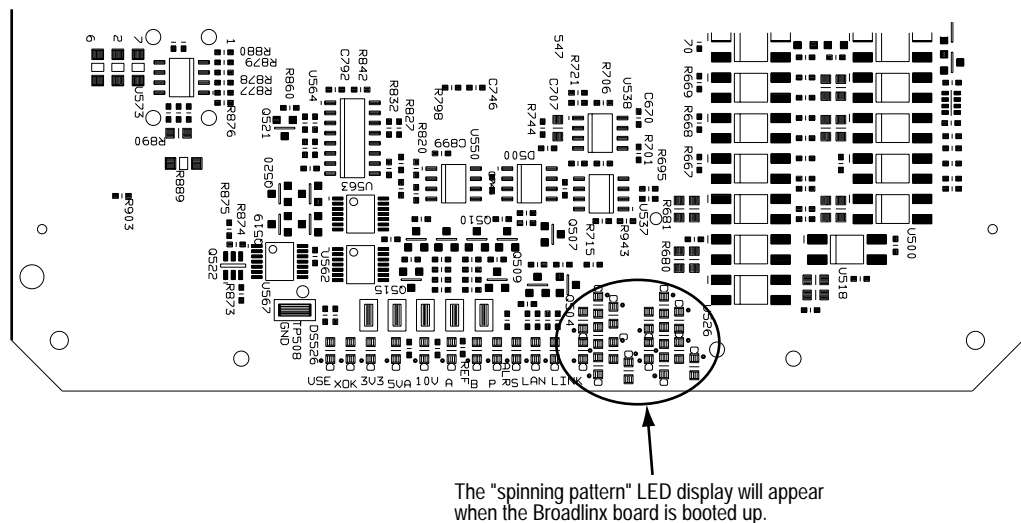
e. If there are two NR boards, make the inactive NR-33000 active:

Jupiter- and **Encore**-controlled systems - press the "Activate" button (see Figure 1). The "Active" LED indication will switch to this board. Note that a Secondary (amber) alarm will be asserted when the Secondary NR is active. The above mentioned "board-Show" console command can also be used to check active/inactive status.

SMS 7000-controlled system - use the SMS console command:

```
switchanc "name of configured anc"
```

...entering the quotation marks as shown. Or, press the "Reset" button on the **active** NR-33000 (see Figure 1). The "Active" LED indication will switch to the opposite board. The above mentioned "boardShow" console command can also be used to check active/inactive status.

Then return to Step a above and install the memory module on the remaining NR-33000.

B. Re-loader, Loader, and Firmware Update

Note The following four steps, which apply to all Trinix units, will not affect on-air operations.

1. To update all the boards within the frame (except the NR-33000 cards):

a. At the console window associated with the active NR-33000, type:

```
sendLoader -1
```

Typically the system will respond with the following console message; separate progress messages will be displayed for each board in the frame for the re-loader, loader and firmware update:

```
Suspend Health Check
Frame 00, Slot 08
Send reloader to frame 0 slot 8 (class 2, type 4)
  100% done
Send succeeded for frame 0 slot 8
Send loader to frame 0 slot 8 (class 2, type 4)
  100% done
Send succeeded for frame 0 slot 8
20000123.153719: Firmware update requested for frame 0 slot 8
(class 2, type 4)
 (slaveDevice.cc:169)
  100% done
```

Progress will also be indicated by red LEDs illuminating on the boards as they are updated.

2. Update the inactive NR-33000 board:

a. If the inactive NR is in the Primary slot, type:

```
sendLoader 10,0,0
```

b. If the inactive NR is in the Secondary slot, type:

```
sendLoader 10,0,1
```

Typically the system will respond with the following console message; separate progress messages will be displayed for the re-loader, loader and firmware update:

```
Suspend Health Check
Frame 00, Slot 01
Send reloader to frame 0 slot 1 (class 2, type 10)
  100% done
Send succeeded for frame 0 slot 1
Send loader to frame 0 slot 1 (class 2, type 10)
  100% done
Send succeeded for frame 0 slot 1
20000123.154259: Firmware update requested for frame 0 slot 1
(class 2, type 10. (slaveDevice.cc:169)
  100% done
Frame 00, Slot 08 Release tributary bus
Resume Health Check
value = 0 = 0x0
T128_1 > 20000123.154317: Firmware update succeeded for frame 0
slot 1, new version is 7. (slaveDevice.cc:223)
```

3. Update the active NR-33000 card:

   a. If the active card is in the Primary slot, type:

```
sendLoader 10,0,0
```

   b. If the active card is in the Secondary slot:

```
sendLoader 10,0,1
```

Typically the system will respond with the following console message; separate progress messages will be displayed for the reloader, loader and firmware update.

```
Suspend Health Check
Frame 00, Slot 00
Send reloader to frame 0 slot 0 (class 2, type 10)
  100% done
Send succeeded for frame 0 slot 0
Send loader to frame 0 slot 0 (class 2, type 10)
  100% done
Send succeeded for frame 0 slot 0
20000123.154540: Firmware update requested for frame 0 slot 0
(class 2, type 10). (slaveDevice.cc:169)
  100% done
Frame 00, Slot 01 Release tributary bus
Resume Health Check
value = 0 = 0x0
T128_1 > 20000123.154559: Firmware update succeeded for frame 0
slot 0, new version is 7. (slaveDevice.cc:223)
```

4. Verify that the update was successful:

   a. At the prompt type the following:

```
deviceListShow 1
```

Each board should show a version "a" in the "uC App core" and "uC Loader core" columns. Except for SI- and HI-33100s, each board should also show version "a" in the "FPGA Ldr core" column:

```
--- DeviceList ----------------------------------------------
Device Hardware: TRINIX 128
        Frames: 16 (0 to 15)
         Slots: 32 (0 to 31)
                  --- uC App -- uC Loader FPGA Ldr   FPGA
FR SL clas type ver mod  core mod  core mod  core ver  Name
-- -- ---- ---- --- ---- ---- ---- ---- ---- ---- ---  --------
00 00   2   10    7    8    a    3    a    2    a   10  NR-33000
00 01   2   10    7    8    a    3    a    2    a   10  NR-33000
00 08   2    4    5    3    a    3    a                 SI-33110
00 09   2    2    5    3    a    3    a                 HI-33110
00 10   2    4    5    3    a    3    a                 SI-33110
00 11   2    2    5    3    a    3    a                 HI-33110
00 16   2    9    7    6    a    3    a    2    a    5  DM-33100
00 25   2    8    7    9    a    3    a    2    a   12  SO-33110
00 26   2    8    7    9    a    3    a    2    a   12  SO-33110
00 27   2    8    7    9    a    3    a    2    a   12  SO-33110
--------------------------------------------- DeviceList ---
value = 0 = 0x0
```

C. Update CPLD code

Note This procedure applies to Trinix DV-33512 units only (this section can be skipped for DV-33128 and DV-33256 systems).

Purpose of CPLD update

In certain conditions some DM-33512 Matrix Boards presently in the field may fail to resume normal operation following a power off/on cycle, requiring them to be manually unseated and re-seated. After the following upgrade the DM-33512s will automatically resume normal operation when power is restored.

Procedure

CAUTION The CPLD upgrade method described below will interrupt signals passing through the router for approximately two minutes per DM-33512 Matrix Board. E.g., a fully-stuffed DV-33512 with four DM-33512 boards will be interrupted for approximately eight minutes.

Note Customers using this equipment in a continuous 24/7 environment should consult Thomson Technical Support concerning alternate procedures. Possibilities include 1) patching around the router during the upgrade, 2) switching away from and updating individual DMs or sets of DMs, or 3) implementing a facility policy whereby the router will be checked following a power cycle and the DM boards reseated if needed.

1. Go to the console window associated with the active NR-33000 and type:

```
fwDownload -1,-1,"/ata0/cpld/dm33501_cpld.wsvf"
```

2. When the system indicates that the first command is finished, type the following:

```
fwDownload -1,-1,"/ata0/cpld/dm33502_cpld.wsvf"
```

D. Update FPGAs

Note The following three steps, which apply to all Trinix units, will not affect on-air operations.

1. Go to the console window associated with the active NR-33000 and type:

```
updateFpga -1
```

The system will repeat the update firmware process until all boards (except the active NR) have been updated. This process requires approximately three to eight minutes per board, depending on board type.

2. Make the inactive NR-33000 active:

a. **Jupiter**- and **Encore**-controlled systems - press the "Activate" button (see Figure 1). The "Active" LED indication will switch to this board. Note that a Secondary (amber) alarm will be asserted when the Secondary NR is active. The previously mentioned "boardShow" console command can also be used to check active/ inactive status.

b. **SMS 7000**-controlled system - use the SMS console command:

```
switchanc "name of configured anc"
```

...with the quote marks as shown. Or, press the "Reset" button on the **active** NR-33000 (see Figure 1). The "Active" LED indication will switch to the opposite board. The previously mentioned "boardShow" console command can also be used to check active/ inactive status.

3. Update the FPGA on the inactive NR-33000 board:

a. If the inactive board is in the Primary slot:

```
updateFpga 0,0
```

b. If the inactive board is in the Secondary slot:

```
updateFpga 0,1
```

E. Reset FPGAs

Note The following applies to all Trinix units.

CAUTION The FPGA reset procedure will cause a momentary (a few seconds) disruption to all video outputs.

1. Go to the console window associated with the active NR-33000 and type:

   ```
   restartFpga -2
   ```

   The system will repeat the process until all FPGAs (except on the active NR) have been reset.

   Typical system response:

   ```
   20000123.150603: Restart FPGA in frame 0 slot 25 (class 2, type
   8).
   (slaveDevice.cc:633)
   20000123.150603: Restart FPGA in frame 0 slot 27 (class 2, type
   8).
   (slaveDevice.cc:633)
   20000123.150604: Restart FPGA in frame 0 slot 1 (class 2, type
   10).
   (slaveDevice.cc:633)
   20000123.150604: Restart FPGA in frame 0 slot 26 (class 2, type
   8).
   (slaveDevice.cc:633)
   20000123.150605: Restart FPGA in frame 0 slot 16 (class 2, type
   9).
   (slaveDevice.cc:633)
   ```

2. Make the inactive NR-33000 active:

   a. **Jupiter**- and **Encore**-controlled systems - press the "Activate" button (see Figure 1). The "Active" LED indication will switch to this board. Note that a Secondary (amber) alarm will be asserted when the Secondary NR is active. The previously mentioned "boardShow" console command can also be used to check active/ inactive status.

   b. **SMS 7000**-controlled system - use the SMS console command:

      ```
      switchanc "name of configured anc"
      ```

      ...with the quote marks as shown. Or, press the "Reset" button on the **active** NR-33000 (see Figure 1). The "Active" LED indication will switch to the opposite board. The previously mentioned "boardShow" console command can also be used to check active/ inactive status.

3. Repeat Step 1 above. This will reset the FPGA on the remaining NR.

F. Verify Firmware Revision Status

Note   The following applies to all Trinix units.

The Broadlinx Firmware Management table displays the types of possible PC boards, the version of sub-level software that is presently associated with each type that is installed, the versions of top-level software packages present in the Broadlinx board, and the compatibility Status of these software elements. An example of this table is shown in .

Figure 4.

Firmware Management

Module	Fpga Active	Fpga Pending	uControl Active	uControl Pending	Status
HI-33110			5	5	●
SI-33110			5	5	●
HO-33110	11	13	7	7	●
SO-33110	11	13	7	7	●
DM-33100		5		7	●
HR-33000	8 ...	11	7	7	●
SR-33000		9		7	●
RP-33500			4	4	●
SR-33500	5	5	5	5	●
DM-33501	4 ...	8	5	5	●
DM-33502	4 ...	8	5	5	●
HI-33120					●
HO-33120		3		1	●
VxWorks			20040302	20040302	●
Web Interface			20040302	20040302	●

◉ 2.1.1

[Activate] [Upload] [Cancel]

Following the upgrade, all Status "lights" should be green. If not, contact Thomson Technical Support.

Note   If you are unfamiliar with procedures for displaying the Firmware Management menu, refer to Section 4 of the Trinix manual. If Adobe Acrobat Reader is installed on the PC, the Trinix manual can be displayed on line by clicking the "Help" command in the Broadlinx title bar. (The Help command may be beyond the right margin of the Broadlinx window; if so, go to the left edge of the window and slide it to the left until the Help command appears.)