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SUBJECT: 9G20 uBoot Code, Update Procedure

PRODUCT: 9G20 SBCs used in RMX*digital*, VistaMax, Envoy, VMConnect, and VMReact

URGENCY: recommended **UPDATE RELEASE:** May 10, 2013 **PAGES:** 3

BACKGROUND: This document covers the procedure to upload uBoot build svn2038 to 9G20 single-board computers (SBC) used in VistaMax system consoles and card frames. uBoot is the bootstrap loader which manages the initial power-up and configuration of the SBC before handing off control to the VistaMax system code.

The svn2038 build corrects a flaw in the code loaded on all 9G20 SBCs shipped by Harris prior to March, 2013. This flaw may cause an SBC to crash and/or halt during a restart, requiring re-loading of the VistaMax system code to recover (see TSB1058).

Note 1: All SBCs shipped from April, 2013 have build svn2038 uBoot code installed and thus are not affected by this Technical Bulletin.

Note 2: This bulletin applies only to Harris PR&E products using a 9G20 SBC running the WinCE operating system. Products using x86 SBCs (most BMX*digital* consoles and most systems shipped prior to 2011) are not affected. Also, Intercom and Source Selector panels using a 9G20 SBC are not affected since they use a different uBoot for their Linux operating system.

REQUIRED MATERIALS: A PC (either the admin computer or a laptop); a cross-over Ethernet cable; a DB-9 serial null-modem cable; and a USB-to-RS232 adaptor if the PC does not have an RS-232 port. The PC needs to have 3CDaemon (a TFTP server app, downloadable from any Harris PR&E support site) and TeraTerm (a terminal program, downloadable from CNET.com) installed.

The uBoot code file: **`sl040-abn-00012-som9g20-uboot.bin`** must also be on the PC. This file is in a zipped folder (9G20_uBoot_update.zip) downloadable from any Harris PR&E support site (on the Harris PR&E FTP site it is in the Software_and_Firmware / 9G20_uBoot_update folder).

It is critically important that the steps on the next two pages are followed precisely, and that the correct confirmation messages appear in the terminal program after each step. Otherwise, the SBC could be rendered useless and unsalvageable.

In the following steps the terminal commands that are sent to the device are shown in **`blue`** while the responses from the device are shown in **`red`**. To ensure correct command entry, you can also copy and paste the commands shown in **`blue`** into the terminal program. These commands are also listed in a separate text document (uBoot_commands_text.txt) which is in the zipped folder with the uBoot code on the Harris PR&E download sites.

Download and unzip the two files in the 9G20_uBoot_update.zip folder to the desktop or to the top level of the PC's C drive.

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9G20 UBOOT UPLOAD PROCEDURE:

1. Connect the PC's Ethernet port directly to the VistaMax device using a crossover cable. The PC's IP address must be set to match the static "SER_IP" address specified in that device's NQX.INI file. The default setting for this address is 192.168.100.11. (It is the "Administrator Address" shown at the top level of your community in the VistaMax Control Center software.) If the PC has multiple Ethernet ports, ensure that the correct port is connected.

2. Start the 3CDaemon application and select the TFTP server tab. Click the Configure TFTP server icon and set the TFTP server's upload/download directory to the 9G20_uBoot_update folder on your PC which contains the uBoot code file: **sl040-abn-00012-som9g20-uboot.bin.**

Verify that the TFTP server is running (3CDaemon's status window shows: **Listening for TFTP Requests on IP Address: 192.168.100.11, Port 69**). Note: the IP address will be different when your system is not using default settings.

3. Connect the PC's serial port to the 9-pin serial port on the VistaMax device using a null-modem cable (on a VMReact, the top cover must be removed to access the serial port). Start TeraTerm and configure it for the active COM port using these settings: 115200 baud, 8, N, 1. Note: HyperTerminal will not work in this application.

4. Reset the device: on an RMX*d* press the SBC RESET button on the KSU; on a VistaMax Controller card press the CONTROLLER CARD RESET button; on a VMReact press the internal reset button.

5. TeraTerm (if properly configured) displays a number of messages as the uBoot is loaded and the SBC restarts. When the message: **Hit any key to stop autoboot** appears, quickly press any key on the PC's keyboard to halt the boot process. When halted the terminal shows a **U-Boot>** prompt. If you do not see this prompt, and a number of other messages are shown, then reset the SBC again. The system only pauses for about one second to wait for a keypress, so you have to respond quickly to halt the boot process.

6. With the **U-Boot>** prompt displayed, on the same line type in:
protect off 0xD0008400 0xD0041FFF
then press Enter.

The terminal response:

```
Un-Protect 1 DataFlash Sectors
U-Boot>
```

7. At the next **U-Boot>** prompt, type in:
tftp 0x20000000 sl040-abn-00012-som9g20-uboot.bin
then press Enter.

The Terminal response:

```
macb0: link up, 100Mbps full-duplex (lpa: 0x45e1)
Using macb0 device
TFTP from server 192.168.100.11; our IP address is 192.168.100.(xxx)
Filename 'sl040-abn-00012-som9g20-uboot.bin'.
Load address: 0x20000000
Loading: ###############
done
Bytes transferred = 219144 (35808 hex)
U-Boot>
```

8. Type in: **cp.b 0x20000000 0xD0008400 ${filesize}**
then press Enter.

The Terminal response:

```
Copy to DataFlash... done
U-Boot>
```

9. Type in: **reset**
then press Enter.

The Terminal response:

```
resetting...
```

The uBoot code update is now complete. The terminal messages will show the SBC resetting. The new uBoot version number (svn2038) should now appear in the startup messages, on the serial port, as excerpted below:

```
U-Boot 2009.06-rc1-svn2038 (Sep 27 2012 - 14:41:24)
EMAC Inc. SOM-9G20M
DRAM: 64 MB
NAND: 1024 MiB
DataFlash:AT45DB321
Nb pages: 8192
Page Size: 528
(...)
```

You may now disconnect the PC and reconnect the device to your VistaMax community to resume normal operations.

For additional Harris Broadcast studio products information, contact Technical Support (in Quincy, IL) at 217.222.8200 or tsupport@harris.com

For studio product service needs, contact the PR&E Studio Products Tech Support department (in Vista, CA) at 760.936.4013 or presupport@harris.com