7800DA7-MADI
1x7 MADI Audio Reclocking Distribution Amplifier
User Manual

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Version 1.0, June 2015

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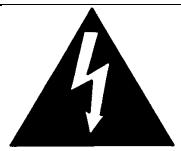
IMPORTANT SAFETY INSTRUCTIONS

	The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of uninsulated “Dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.
	The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (Servicing) instructions in the literature accompanying the product.

- Read these instructions
- Keep these instructions.
- Heed all warnings.
- Follow all instructions.
- Do not use this apparatus near water
- Clean only with dry cloth.
- Do not block any ventilation openings. Install in accordance with the manufacturer’s instructions.
- Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than other. A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
- Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles and the point where they exit from the apparatus.
- Only use attachments/accessories specified by the manufacturer
- Unplug this apparatus during lightning storms or when unused for long periods of time.
- Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

WARNING
TO REDUCE THE RISK OF FIRE OR ELECTRIC – SHOCK, DO NOT EXPOSE THIS APPARATUS TO RAIN OR MOISTURE

WARNING
DO NOT EXPOSE THIS EQUIPMENT TO DRIPPING OR SPLASHING AND ENSURE THAT NO OBJECTS FILLED WITH LIQUIDS ARE PLACED ON THE EQUIPMENT

WARNING
TO COMPLETELY DISCONNECT THIS EQUIPMENT FROM THE AC MAINS, DISCONNECT THE POWER SUPPLY CORD PLUG FROM THE AC RECEPTACLE

WARNING
THE MAINS PLUG OF THE POWER SUPPLY CORD SHALL REMAIN READILY OPERABLE

INFORMATION TO USERS IN EUROPE

NOTE

CISPR 22 CLASS A DIGITAL DEVICE OR PERIPHERAL

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to the European Union EMC directive. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

CE

EN60065	Safety
EN55103-1: 1996	Emission
EN55103-2: 1996	Immunity

EN504192 2005
Waste electrical products should not be disposed of with household waste. Contact your Local Authority for recycling advice

INFORMATION TO USERS IN THE U.S.A.

NOTE

FCC CLASS A DIGITAL DEVICE OR PERIPHERAL

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

WARNING

Changes or Modifications not expressly approved by Evertz Microsystems Ltd. could void the user's authority to operate the equipment.

Use of unshielded plugs or cables may cause radiation interference. Properly shielded interface cables with the shield connected to the chassis ground of the device must be used.

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Figures

REVISION HISTORY

REVISION	DESCRIPTION	DATE
1.0	First Release	Jun 2015

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1. OVERVIEW

The 7800DA7-MADI reclocking distribution amplifier provides inexpensive distribution of your AES10 MADI audio signals. The 7800DA7-MADI will automatically equalize MADI signals on Belden 1694A coax up to 250m.

The 7800DA7-MADI supports the industry standard 64-channel payload at a sampling rate of 48 kHz. Sampling rates up to 96 kHz are also supported at various payload capacities as specified in AES10-2003.

The 7800DA7-MADI card edge LED indicators provide quick and accurate assessment of the incoming signal integrity.

The 7800DA7-MADI occupies one card slot and can be housed in a 1RU frame which will hold up to 4 modules, a 3RU frame which will hold up to 15 modules, or a 350FR portable frame which will hold up to 7 modules.

Features & Benefits

- AES10-2003 standard for MADI audio on 75Ω coax
- Data reclocking provides jitter reduction
- Automatic equalization
- Equalizer and reclocker provide extended cable length compensation (> 250m)
- Seven 75Ω coax outputs
- VistaLINK® capable for remote monitoring, control and configuration capabilities via SNMP; using VistaLINK®PRO, CP-2116E or CP-2232E Control Panels. VistaLINK® is available when modules are used with the 3RU 7800FR frame and a 7700FC VistaLINK® Frame Controller module in slot 1 of the frame

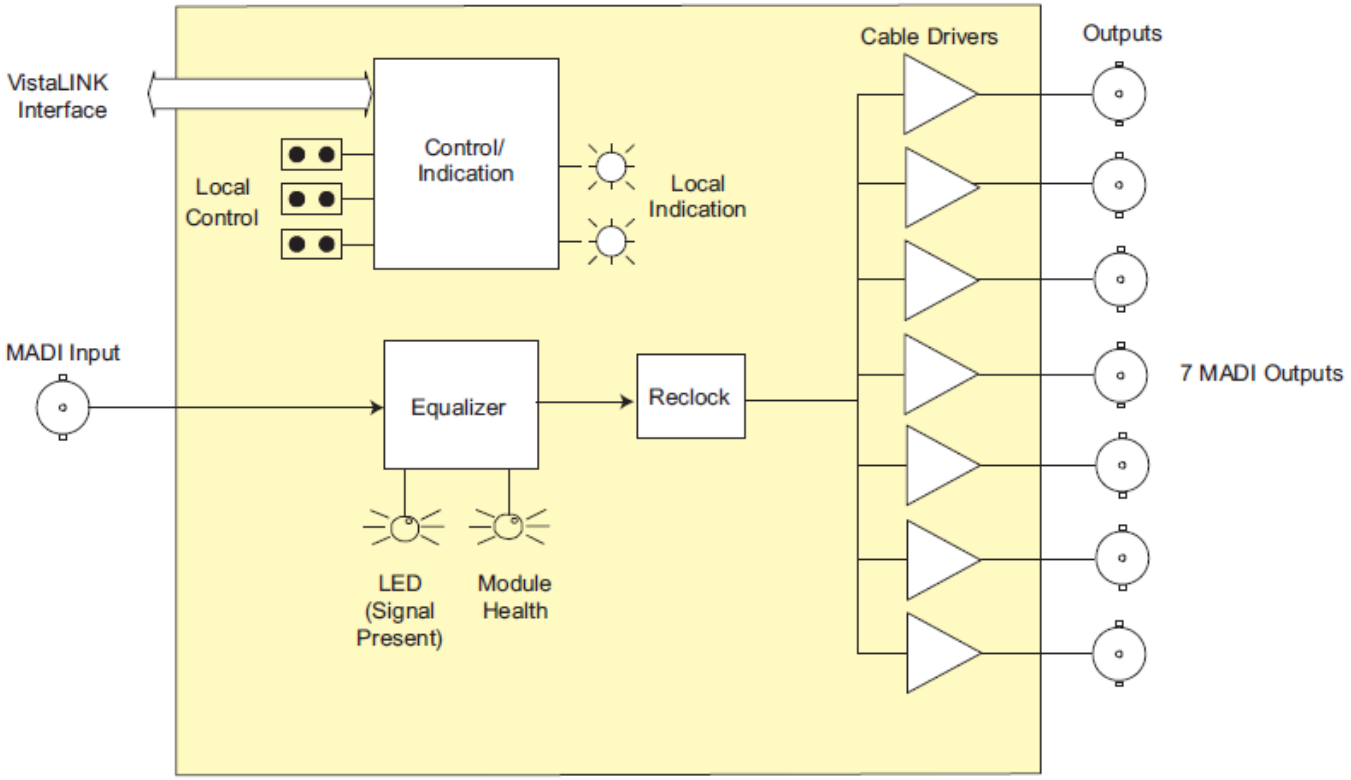

Figure 1-1: 7800DA7-MADI Block Diagram

2. GETTING STARTED

2.1. REAR PANEL DESCRIPTION

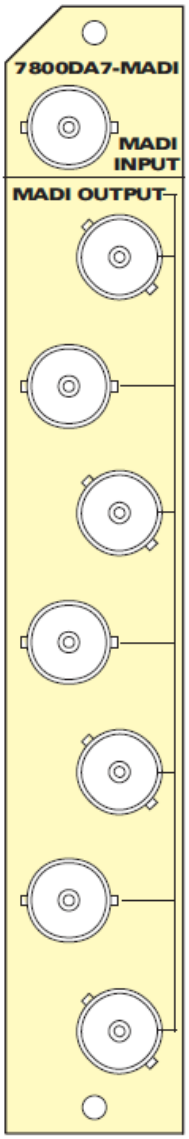

Figure 2-1: 7800DA7-MADI Rear Panel

MADI INPUT This BNC accepts the MADI input.

MADI OUTPUT These 7 BNCs distribute the reclocked MADI output.

2.2. HARDWARE INSTALLATION

To successfully install the 7800DA7-MADI, you will require the following:

1. VistaLINK® PRO Server IP address.
2. 7700 or 7800 Series Frame.
3. 7700 or 7800 Frame Controller.

Before handling the card it is important to minimize the potential effects of static electricity. It is therefore recommended that an ESD strap be worn.

Using a 7700/7800 series frame with a frame controller connected to VLPro, locate on the chassis one vacant slot. Unpack the 7800DA7-MADI and separate the rear panel from the main card. Locate on the rear of the rack the desired slot and remove the blank panel. Insert the rear panel into the back of the chassis and secure using the screws provided. Slide in 7800DA7-MADI module on the corresponding slot runners and mate with rear panel.

3. TEHCNICAL SPECIFICATIONS

3.1. MADI INPUT

Standard:	AES10-2003
Number of Inputs:	1
Connector:	BNC
Input Level:	0.3 – 0.6 V p-p
Input Impedance:	75Ω
Equalization:	Automatic to 250m with Belden 1694A (or equivalent)
Sampling Frequency:	32 kHz, 44.1 kHz, 48 kHz and 96 kHz

3.2. MADI OUTPUT

Number of Outputs:	7 per card reclocked
Connector:	BNC
Output Level:	0.6 V p-p
Output Impedance:	75Ω
Jitter:	0.1 UI

3.3. PHYSICAL (NUMBER OF SLOTS)

350FR:	1
7700FR-C:	1
7800FR:	1

3.4. ELECTRICAL

Voltage:	+12V DC
Power:	5W
EMI/RFI:	Complies with FCC Part 15, Class A EU EMC Directive

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4. CONNECTING TO VLPRO

This chapter assumes that the VistaLINK® PRO server and client are already configured for your network and you have basic knowledge of the VistaLINK® PRO interface. It also assumes that the user or network administrator has already added the appropriate jar file to the server, and both the client and server applications have been restarted. If you are the network administrator, refer to section 6 for information on updating the VistaLINK® PRO Server Jar File.

Open VistaLINK® PRO and click on the refresh tree icon. Expand the hardware tree by clicking on the "+" button. Your card should appear as a newly listed device under the IP address of the frame controller for the frame that the 7800DA7-MADI is installed in.

Please consult your network administrator if you continue to have problems connecting the card with VistaLINK® PRO, alternatively contact Evertz Microsystems Ltd. or your authorized reseller for technical support.

NOTE: When using VistaLINK® PRO it is important to ensure that the most recent 7800DA7-MADI ".JAR" control file is installed. See Section 6 for details on how to upgrade the 7800DA7-MADI VistaLINK® PRO JAR files.

4.1. VISTALINK® PRO INTERFACE

The 7800DA7 series products are controlled using VistaLINK® PRO. VistaLINK® PRO operates using Ethernet and SNMP control protocols. The 7800DA7 series modules do not have card edge controls. As a result, frame controller modules must be installed in all frames that house 7800DA7-MADI modules.

Within VistaLINK® PRO the 7800DA7 series modules have a set of system configuration controls which can be accessed by *right-clicking* on the module in the VistaLINK® PRO hardware tree, and selecting "*View Configuration…".*

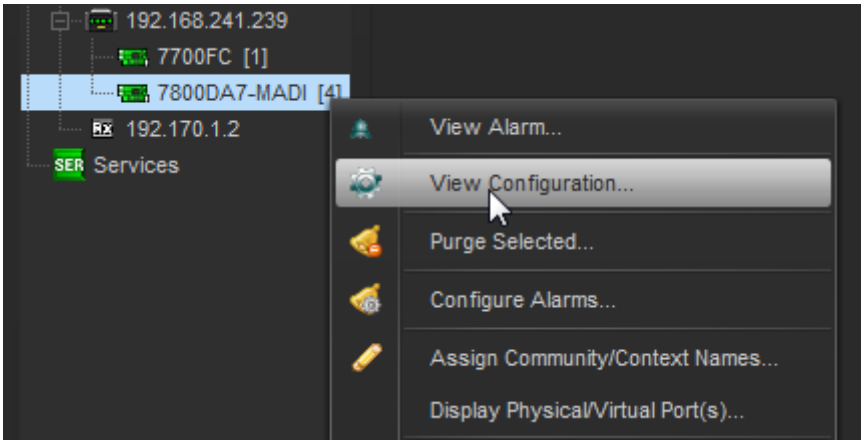


Figure 4-1: VLPro – View Configuration

4.2. GENERAL

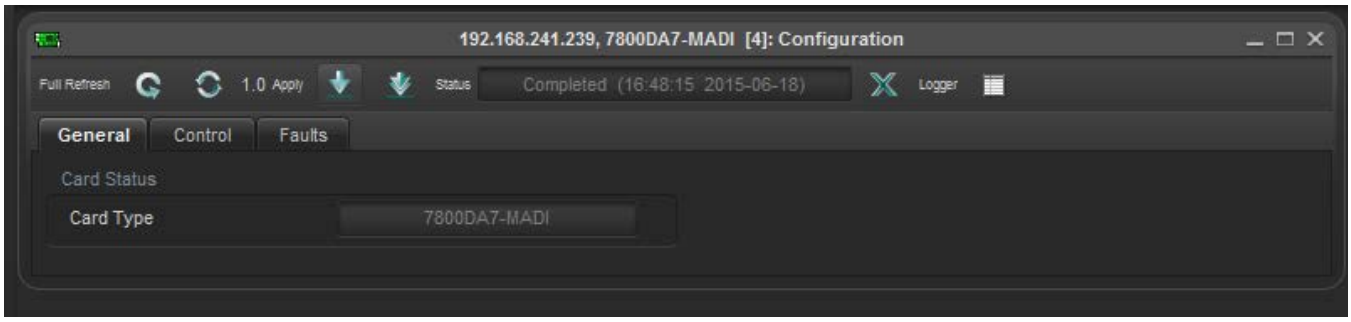


Figure 4-2: VLPro - General Tab

Card Status

Card Type: This field will display the card name that is read from the module.

4.3. CONTROL

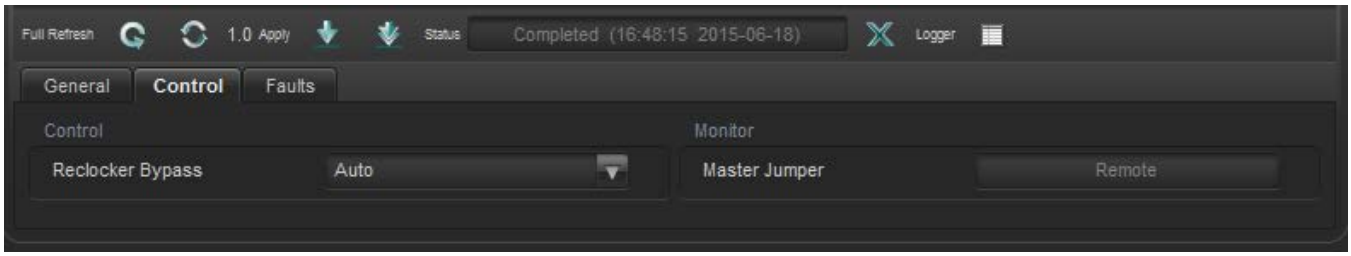


Figure 4-3: VLPro - Control Tab

Control

Reclocker Bypass: This control allows the user to set the reclocker bypass mode. Selecting *Auto* mode will cause the reclocker to be auto-bypassed when the PLL is not locked. Selecting *Force* mode will cause the reclocker to be bypassed all the time.

Monitor

Master Jumper: This field displays to the user the current status of the master jumper, as either *Local* or *Remote*.

4.4. FAULTS

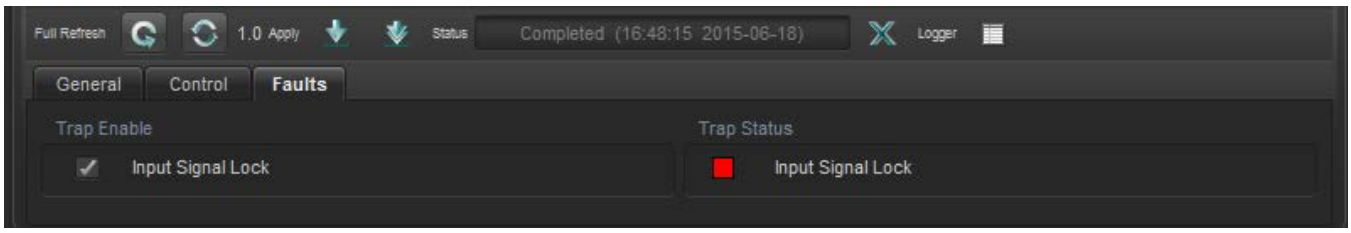


Figure 4-4: VLPro - Faults Tab

Input Signal Lock: This Fault indicates to the user when the Input Signal is no longer locked. By the *Trap Status* turning red, the user knows that the input signal is no longer locked and there is a fault. If the *Trap Status* is green, there is no fault and the input signal is locked.

5. UPGRADING THE FIRMWARE

5.1. CHECKING FIRMWARE VERSION ON THE 7800DA7-MADI

From time to time, the 7800DA7-MADI will need to be upgraded with the latest information ("image") to maintain the most up-to-date monitoring and control capabilities.

Ensure that the 7800DA7-MADI is running the latest firmware, to check this simply right click on the cards address in VLPro Client and select *Version Information*.

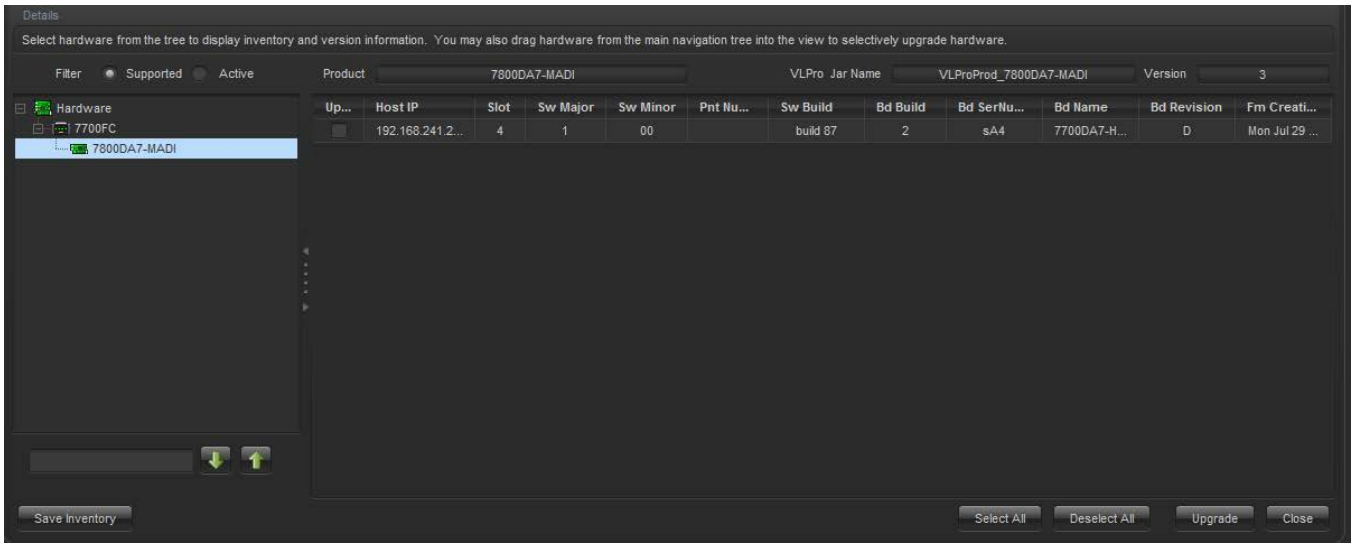


Figure 5-1 – Version Information

5.1.1. Downloading the 7800DA7-MADI Image

1. Download the image file " 7800DA7-MADI Image File". To retrieve the firmware contact your Evertz sales representative or check Evertz web site for availability (www.evertz.com – Support> Downloads > Firmware Downloads link > Type "7800DA7-MADI" in the Model search and press "Go"). Save the files to the hard drive.

Please contact Evertz for image file if it not available on Evertz web site.

2. Unzip the downloaded file and store the .bin file in a selected sub-directory. Record the location of the stored file.

The 7800DA7 image can be upgraded by a couple different procedures, which are outlined in sections 5.2 and 5.3,

5.2. REMOTE UPGRADE PROCEDURE USING VistaLINK®

To perform the remote upgrade for the 7800DA7 you will need the following setup:

- A working install of a VistaLINK® Pro client or VLPRO-C that's version 10.0.7 or greater.
- A downloaded and unzipped image file (.bin file) in section 5.1.1.

The DHCP mode should be disabled on the frame controller before proceeding with the 7800DA7-MADI upgrade. To disable your DHCP refer to frame controller manual.

5.2.1. Upgrading the 7800DA7-MADI Image using VistaLINK®

- Use the right-click mouse button on the '7800DA7-MADI' in the tree and select ***Version Information*** …' option.
- Open hardware tree and select card to be upgraded
- Check mark card or cards to be upgraded.
- Click the 'Upgrade' button on bottom right corner
- Click the 'Browse' button to select the unzipped 7800DA7-MADI Image .bin file, which was downloaded in section 5.1.1.
- Click the 'Upgrade' button and wait for the upload to complete. This will take approximately 5 to 10 minutes depending on network traffic.

Upon completion, the 7800DA7-MADI module will reboot automatically and return online in normal "run" mode.

5.3. UPGRADING SERIALLY THROUGH THE COM PORT

5.3.1. Setting the 7800DA7-MADI to Upgrade Mode

The RS232 serial port connector J24 located at the front of the module is used when “image” upgrades are being done to the module.

5.3.2. Setting up the Serial Baud Rate

Open TeraTerm and set up the Baud Rate for communication as follows on the COM port that is being used:

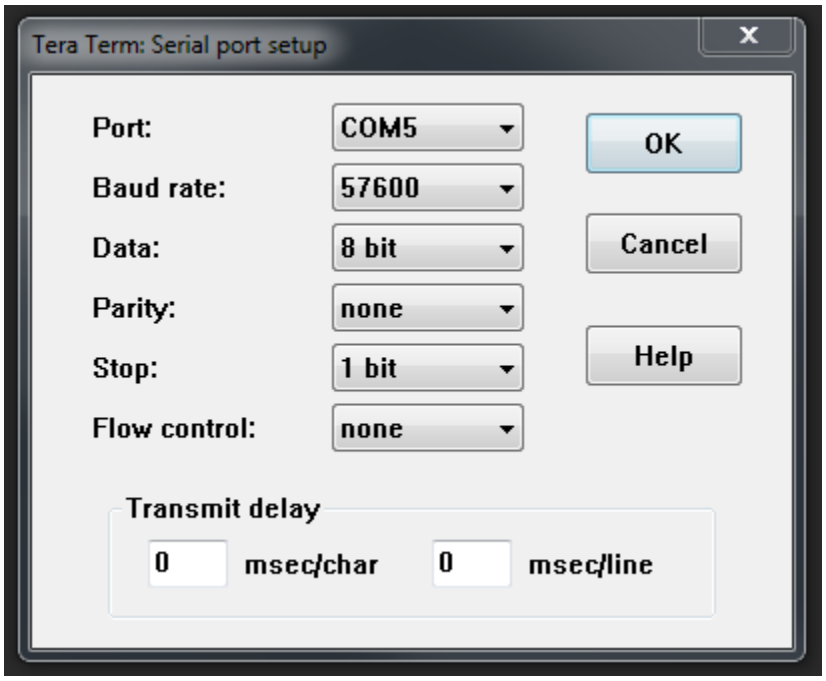


Figure 5-2: Baud Rate Settings on COM port

5.4. UPGRADING IN UPGRADE MODE

For normal operation, the jumper J16 is set in the *RUN* position. To upgrade the firmware in the module unit pull it out of the frame. Move Jumper J16 into the ***UPGRADE*** position. Reinsert the module into its slot.

Make sure to put J16 back to the RUN position when upgrade is complete.

5.4.1. Viewing Upgrade Information

- Booting information will then be sent to the Tera Term window. After the card powers up the "UPLOAD FILE NOW" message is displayed.

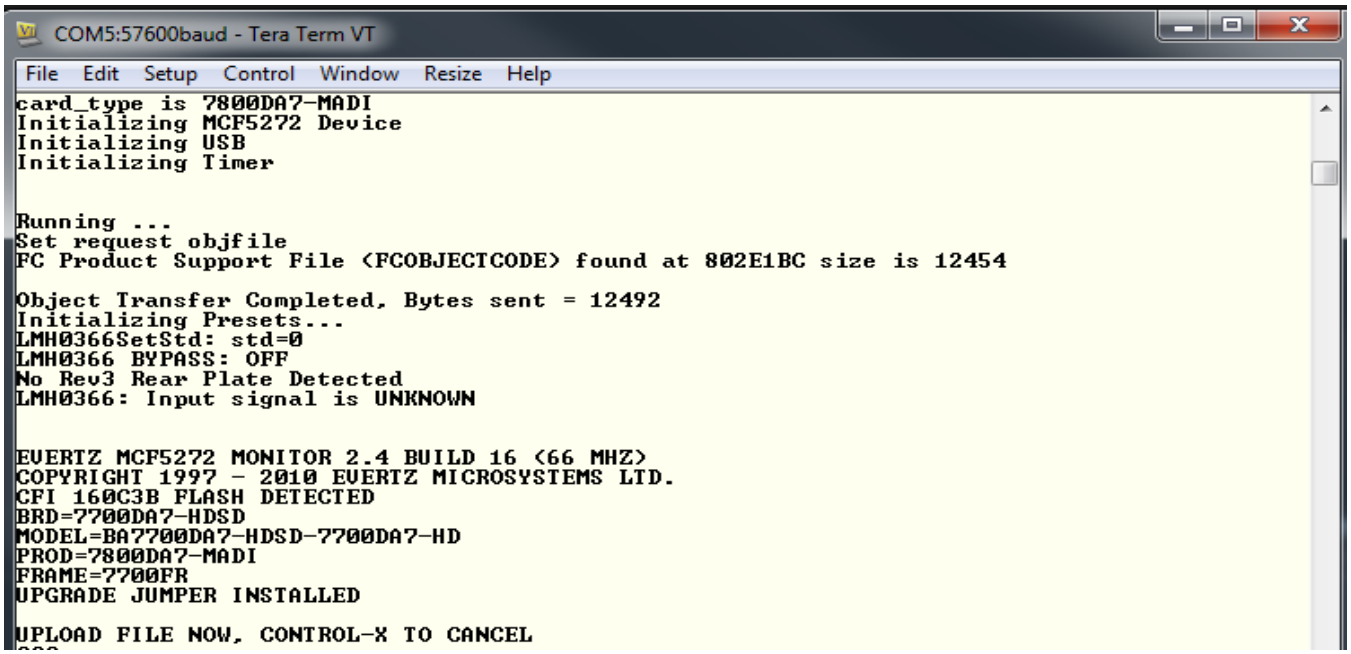


Figure 5-3: Serial Port - Viewing Upgrade Information

- Using XMODEM select to 'Send'.

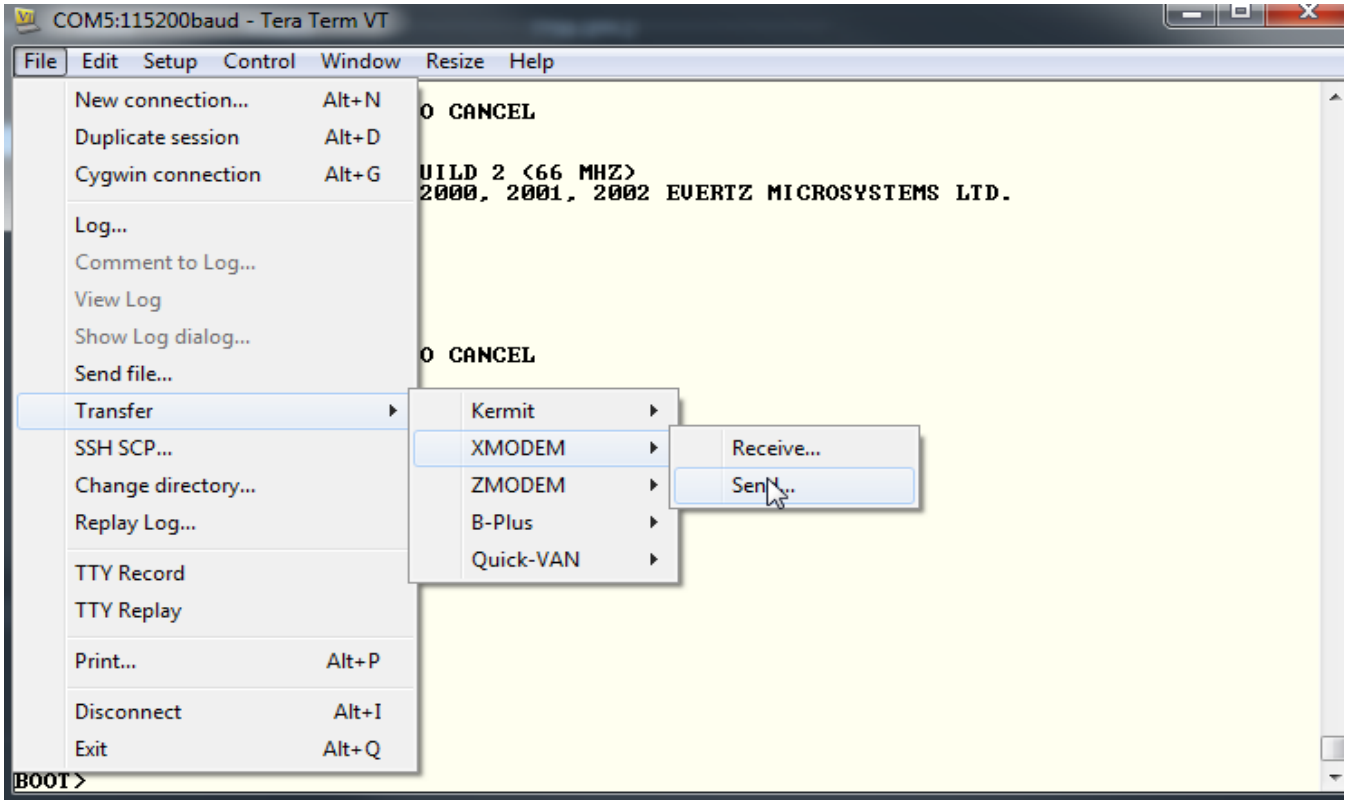


Figure 5-4: Serial Port – Sending via XMODEM

- Locate the unzipped image file and select 'Open'. File will now download. This may take several minutes.

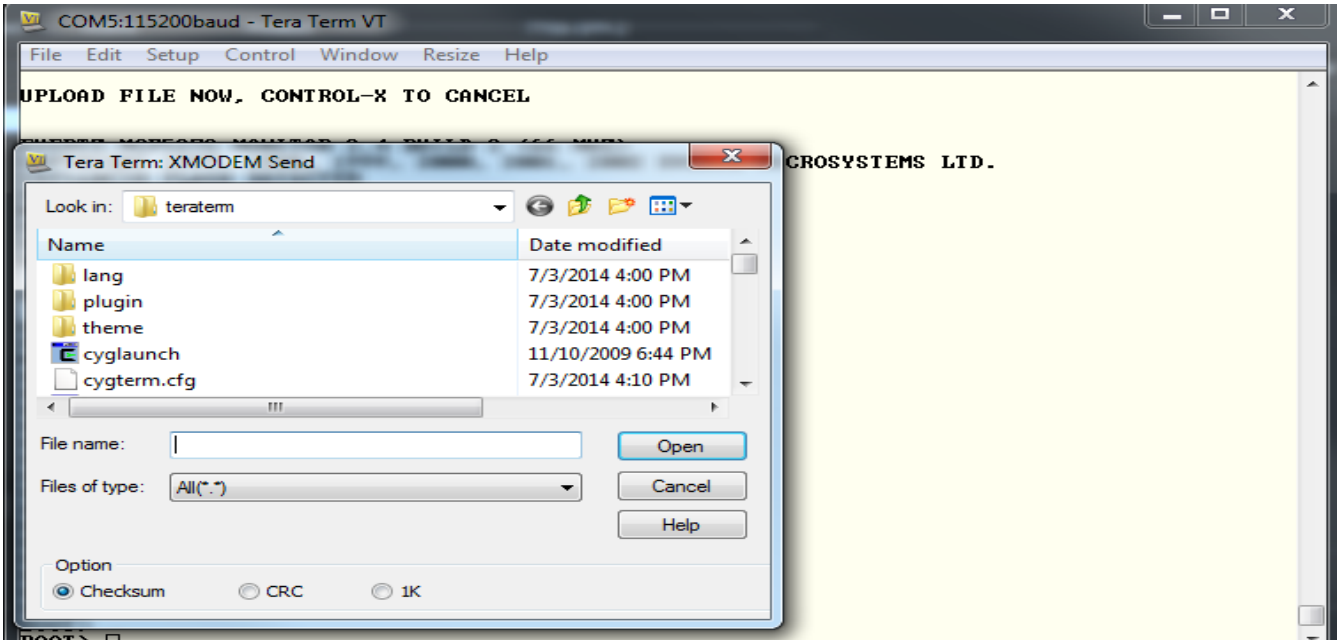


Figure 5-5: Serial Port – Selecting File for Upload

Select image file downloaded and unzipped in section 5.1.1 and upload file. Module will automatically reboot.

Make sure to put J16 back to the RUN position when upgrade is complete.

6. JAR UPGRADE PROCEDURES

6.1. VISTALINK PRO JAR FILE UPGRADE

Evertz products are constantly evolving and new features are often added. It is therefore important to update the JAR files in use to provide access to all the latest features or enhancements. It will also be necessary to add JAR files for new products. If your new product has not appeared even after waiting a few minutes for the Ethernet switch negotiation to complete, then it is possible that your JAR file may be old or missing.

Download the JAR file ”7800DA7-MADI”. To retrieve the JAR file contact your Evertz sales representative or check Evertz web site for availability (www.evertz.com – Support> Downloads VistaLINK® PRO JAR File Downloads> > Type “7800DA7-MADI” in the Model search and press “Go”). Save the files to the hard drive.

Please contact Evertz for JAR file if it not available on Evertz web site.

To perform a JAR update, ensure that all VistaLINK® PRO clients are closed (those clients which are not closed will automatically be disconnected as soon as the VistaLINK® PRO Server is restarted). Maximize the VistaLINK® PRO Server window from the Windows task bar. A window will appear, as shown in Figure 6-1.

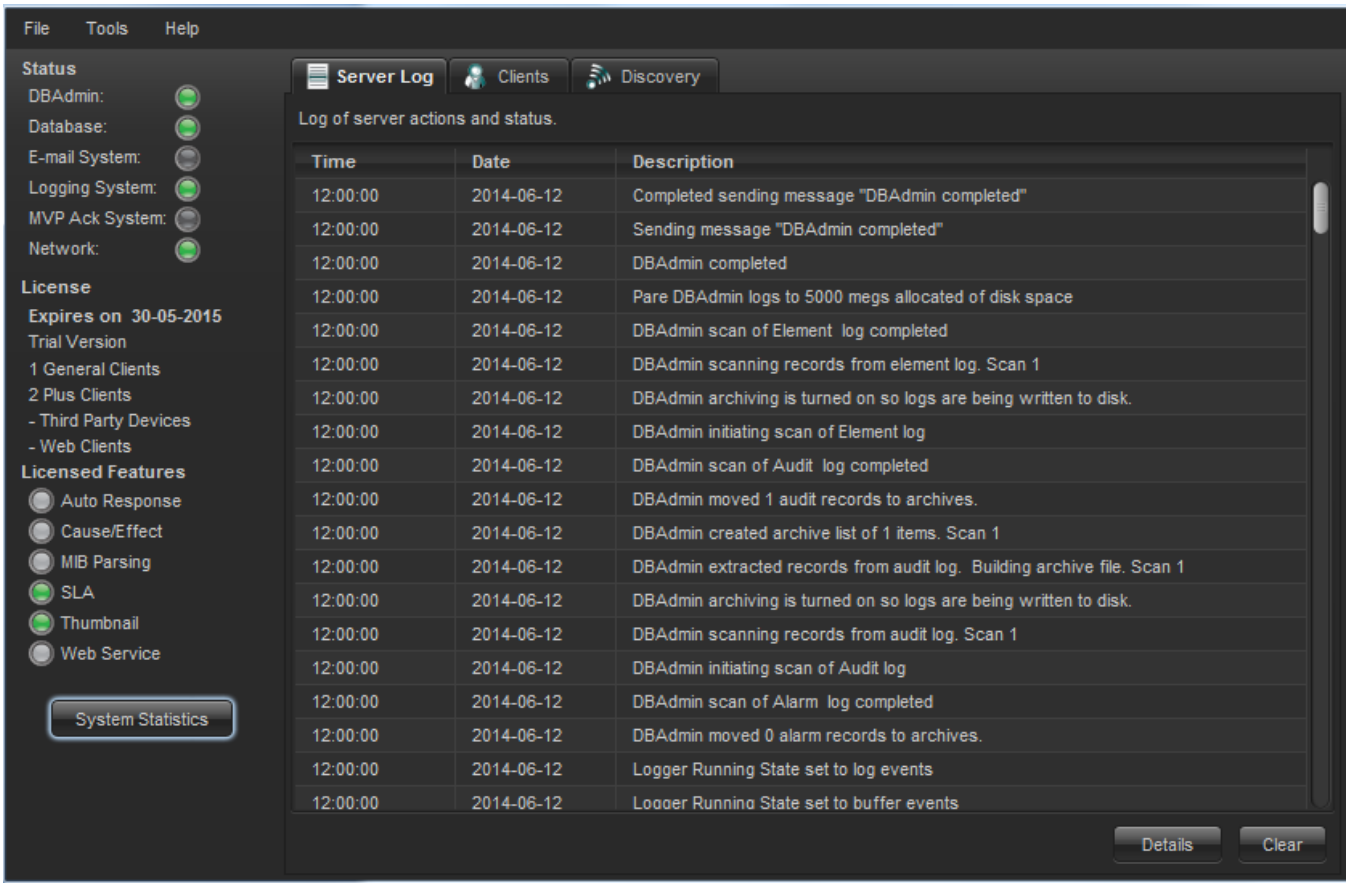


Figure 6-1: VistaLINK® PRO Server

Select *Help> Apply Update> Product* from the menu. A window will appear, as shown in Figure 6-2: VistaLINK® PRO Server, navigate to the location of the new JAR file and double click to select the file. The window will automatically close and the update will be applied in the background.

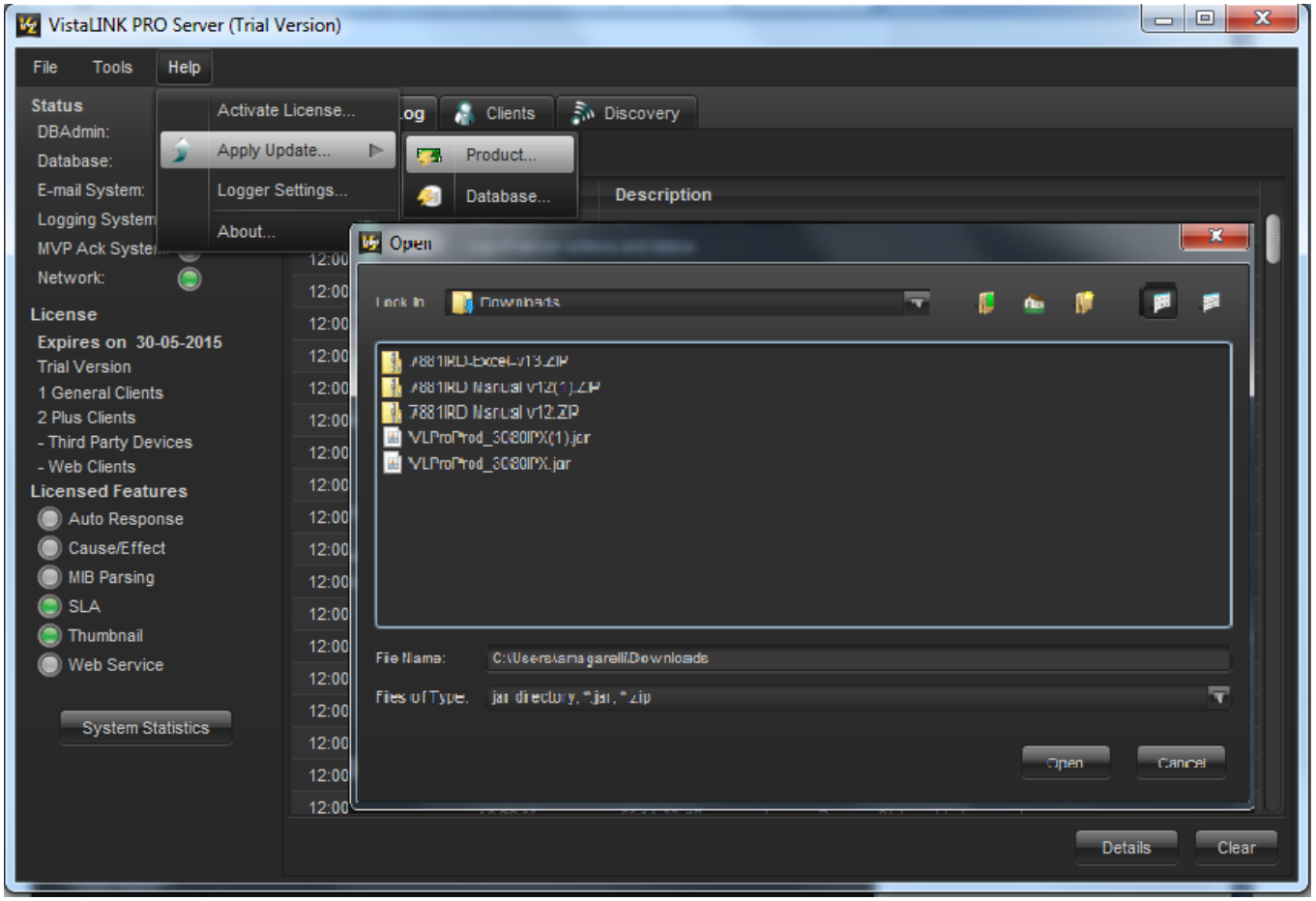
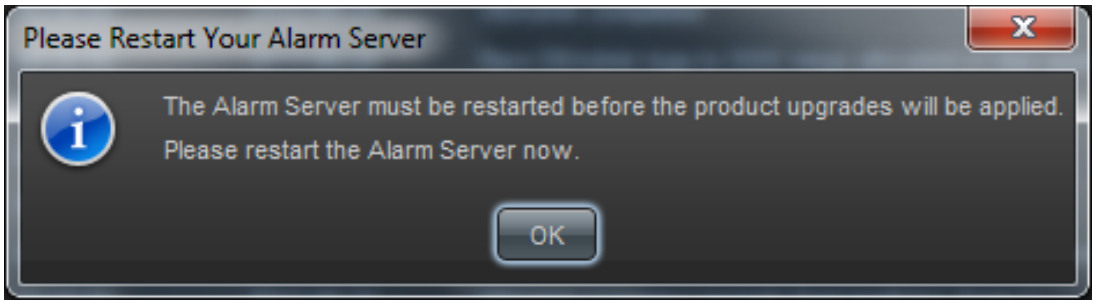


Figure 6-2: VistaLINK® PRO Server – Applying JAR Updates

You will be prompted to restart the server to enable the change to take effect. Apply as many JAR updates as required before restarting the server.



NOTE: You may confirm that all updates have been successfully applied by selecting from the menu *Tools>View>Show/Hide Product update log*.

From the menu, shutdown the server by selecting *File*>*Shutdown Server*. Now re-open the server, it is normal for the start-up to take marginally longer while each individual update is being applied. Once complete, you may restart the VistaLINK® PRO Clients. As the Client restarts you will experience a short delay while the update is applied. A prompt will appear confirming that the updates have been applied.