

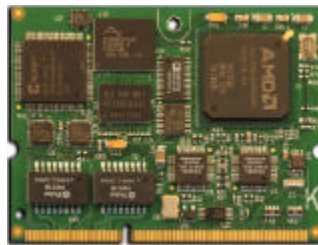
## ATCA Shelf Manager V2.2.0 Reliable Update Procedure for the ShMM-500

Thank you for choosing a Schroff or Electronic Solutions ATCA chassis and Shelf Manager. The Shelf Manager in your 5, 14, or 16 slot chassis is based on Pigeon Point Systems technology. Pigeon Point Systems periodically releases new versions of the Shelf Manager firmware that provide new features, bug fixes, and support for new hardware. The details of this firmware update are in the list below.

Your shelf manager may contain either a ShMM-300 or a ShMM-500 Management Mezzanine board. The ShMM-500 and ShMM-300 use different microprocessors so it is important to install the correct firmware.

The ShMM-500 can also use two different redundancy connections. All Schroff chassis that were originally shipped with ShMM-500s must be configured for a USB redundancy connection. All Electronic Solutions chassis, and Schroff chassis that were upgraded by the customer from a ShMM-300 to a ShMM-500 must be configured for an Ethernet redundancy connection. The U-Boot Environment variable values that control the Shelf Manager configuration are listed at the end of this procedure.

### Identifying your Shelf Management Mezzanine:



ShMM-500



ShMM-300

### V2.2.0 ShMM-500 Firmware

63998-04653.zip

#### This file contains the Reliable Upgrade files:

63998-04653.shmm500.kernel, 63998-04653.shmm500.rfs, and 63998-04653.u-boot.bin

#### and the TFTP upgrade files:

63998-04653.kernel and 63998-04653.rfs

## Updating your Shelf Manager to Release 2.2.0:

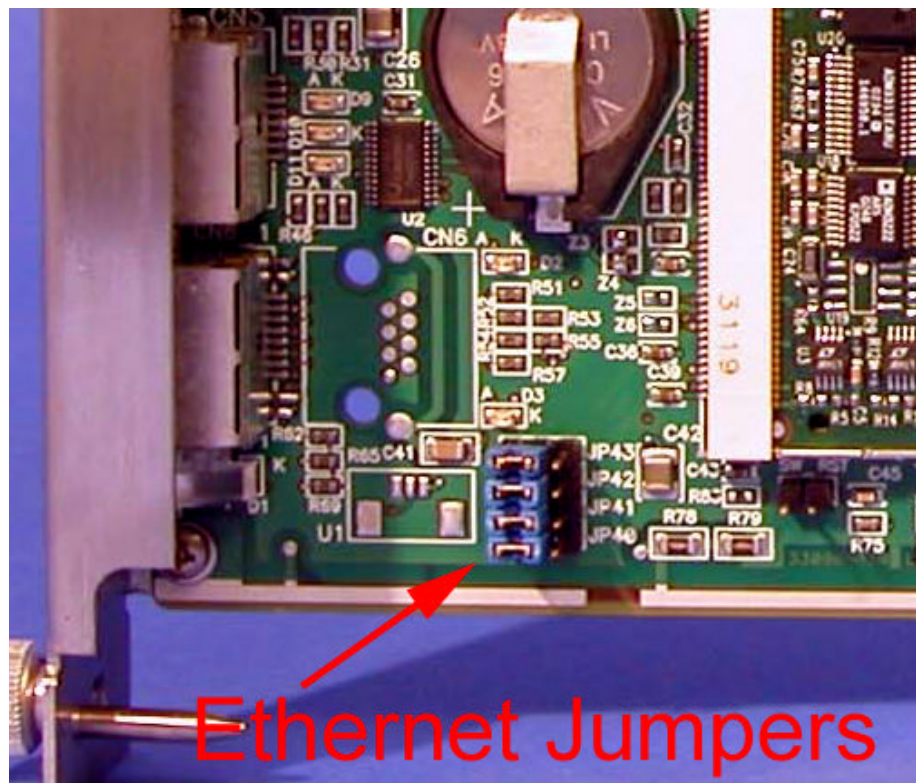
The easiest way to update the FLASH memory firmware images in your ShMM-500 based Shelf Manager is to use the Reliable Upgrade Procedure. This procedure will copy the new firmware flash images from an FTP server on your network to RAM on the ShMM-500 and then copy the images to flash memory.

Note: Section 6.1 of the IPM Sentry Shelf Manager User Guide covers the details the Reliable Upgrade Procedure.

You can also use TFTP from U-Boot to update the firmware. See the TFTP Upgrade Procedure section for details on this procedure.

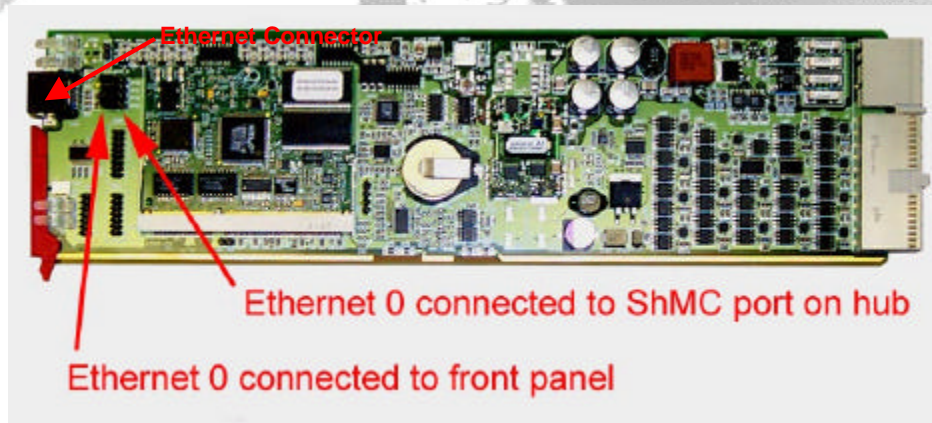
In order to retrieve the new firmware images the Shelf Manager needs a network connection to your FTP server. If this already exists through the Base Interface hub then no further network configuration is required. If your Base Interface hubs are not connected to a network, you can use the RJ-45 connector on the front panel of the Shelf Manager to connect to the FTP server on your network.

If you need to use the front panel Ethernet connector you need to set the jumpers on the Shelf Manager to route the primary Ethernet port to the front panel. When the jumpers are on the pins towards the front panel the Ethernet is connected to the front panel connector.

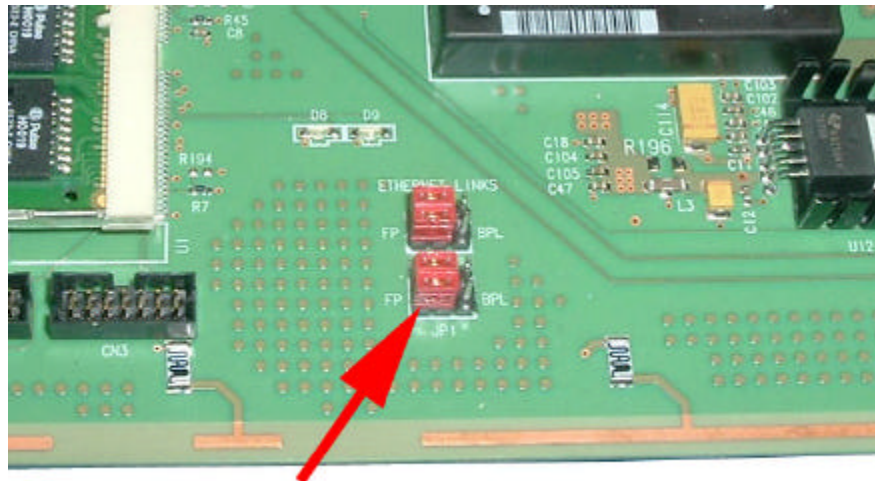


Ethernet jumpers on Schroff ACB-II Shelf Manager positioned to route the eth0 Ethernet port to the front panel.





Ethernet jumpers on a Schroff ACB-III Shelf Manager positioned to route the eth0 Ethernet port to the front panel.



Ethernet Port eth0 connected to front panel

Ethernet jumpers on an Electronic Solutions SMC-I Shelf Manager positioned to route the eth0 Ethernet port to the front panel.

You need to configure the IP Address that the shelf manager will use on the network to access the FTP server. The command “`clia setlanconfig 1 ip 192.168.0.2`” will set the IP Address of the **active** Shelf Manager to “192.168.0.2”. The active shelf manager is the one with the green LED illuminated and not blinking. You need to substitute “192.168.0.2” in the example for your desired IP Address.

If your Shelf manager is on a different network than your FTP server, then you need to configure the Default Gateway. The command “`clia setlanconfig 1 dft_gw_ip 192.168.0.1`” will set the IP Address of the Default Gateway to “192.168.0.1”. You need to substitute “192.168.0.1” in the example for the IP Address of the Default Gateway on your network.

If you use subnets on your network then you need to change the Subnet Mask from the default value of “255.255.255.0”. The command “`clia setlanconfig 1 subnet_mask 255.255.255.128`”

will set Subnet Mask of the Subnet Mask to “255.255.255.128”. You need to substitute “255.255.255.128” in the example for the Subnet Mask of your network.

You can use the command “ping 192.168.0.6” to test the network connection to the FTP server. You need to substitute “192.168.0.6” in the command for the IP address of the FTP server on your network. The example below shows a successful ping test.

```
# ping -c 2 192.168.0.6
PING 192.168.0.6 (192.168.0.6): 56 data bytes
64 bytes from 192.168.0.6: icmp_seq=0 ttl=64 time=1.5 ms
64 bytes from 192.168.0.6: icmp_seq=1 ttl=64 time=1.9 ms

--- 192.168.0.6 ping statistics ---
2 packets transmitted, 2 packets received, 0% packet loss
round-trip min/avg/max = 1.5/1.7/1.9 ms
```

Connect a serial console cable to from a terminal or PC running a terminal emulator (Hypercom, Minicom, etc) to the console port of the Shelf Manager. Set the terminal or emulator to 115200, N 8, 1 (115200 baud, no parity, 8 bits per character, 1 stop bit).

Note some ShMM-500 based Shelf Managers may have the serial console configured for 9600, N, 8, 1.

## Reliable Upgrade Procedure:

The V2.2.0 FLASH images for the ShMM-500 based shelf managers can be obtained from the WWW site at: <http://www.a-tca.com/software>.

Put the three Reliable Upgrade FLASH images (63998-04653.shmm500.kernel, 63998-04653.shmm500.rfs, 63998-04653.u-boot.bin) on an FTP server that is on the same network as the Shelf Managers. For this example the Reliable Upgrade FLASH images were put in the /tftpboot directory on the FTP server. A single command is executed on the **active** Shelf Manager to upgrade the FLASH images. This command will download the FLASH images using FTP, copy them into the alternate FLASH memory, configure the Shelf Manager for a provisional boot, and reboot the Shelf Manager. If all goes well the reliable upgrade watchdog timer will be reset after Linux boots and the provisional FLASH memory will be configured as the current FLASH memory. If the upgrade fails the original FLASH memory will be configured as the current FLASH memory and the Shelf Manager will reboot.

In the example below “192.168.0.6” is the TCP/IP address of the FTP server. You will need to substitute the TCP/IP address of your FTP server. In the example “/tftpboot” is the directory on the FTP server that contains the new FLASH images. You will need to substitute the directory name on your FTP server that contains the FLASH images. In the example “userid” is a valid userid on the FTP server and “password” is the password for the userid. You will need to substitute a userid and password for your FTP server.

This is an example of the Reliable Upgrade command:

```
rupgrade_tool -s -v --k=63998-04653.shmm500.kernel --r=63998-4653.shmm500.rfs  
--u=63998-04653.u-boot.bin --proto=ftp:192.168.0.6:/tftpboot:userid:password
```

Note: This command is on a single line.

---

The text below that is **red** shows the commands you need to enter.

```
# rupgrade_tool -s -v --k=63998-04653.shmm500.kernel --r=63998-04653.shmm500.rfs --u=63998-04653.u-boot.bin --proto=ftp:192.168.0.6:/tftpboot:userid:password
rupgrade_tool: PLB is 7
rupgrade_tool: EEPROM page saved
rupgrade_tool: persistent flash is 1
rupgrade_tool: provisional flash is 0
rupgrade_tool: copying image(s)
rupgrade_tool: copying 63998-04653.u-boot.bin from 192.168.0.6:/tftpboot to /tmp using 'ftp' protocol
220 ready, dude (vsFTPD 1.1.0)
USER userid
331 Please specify the password.
PASS *****
230 Login successful. Have fun.
TYPE I
200 Binary it is, then.
PASV
227 Entering Passive Mode (204,62,230,65,31,236)
RETR /tftpboot/63998-04653.u-boot.bin
150 Opening BINARY mode data connection for /tftpboot/63998-04653.u-boot.bin (179348 bytes).
226 File send OK.
QUIT
221 Goodbye.
rupgrade_tool: copying 63998-04653.shmm500.kernel from 192.168.0.6:/tftpboot to /tmp using 'ftp' protocol
220 ready, dude (vsFTPD 1.1.0)
USER userid
331 Please specify the password.
PASS *****
230 Login successful. Have fun.
TYPE I
200 Binary it is, then.
PASV
227 Entering Passive Mode (204,62,230,65,36,166)
RETR /tftpboot/63998-04653.shmm500.kernel
150 Opening BINARY mode data connection for /tftpboot/63998-04653.shmm500.kernel (839276 bytes).
226 File send OK.
QUIT
221 Goodbye.
rupgrade_tool: copying 63998-04653.shmm500.rfs from 192.168.0.6:/tftpboot to /tmp using 'ftp' protocol
220 ready, dude (vsFTPD 1.1.0)
USER userid
331 Please specify the password.
PASS *****
230 Login successful. Have fun.
TYPE I
200 Binary it is, then.
PASV
227 Entering Passive Mode (204,62,230,65,97,236)
RETR /tftpboot/63998-04653.shmm500.rfs
```



```
150 Opening BINARY mode data connection for /tftpboot/63998-04653.shmm500.rfs
(3517398 bytes).
226 File send OK.
QUIT
221 Goodbye.
rupgrade_tool: invoking scripts (step4v*) [--u=63998-04653.u-boot.bin --
k=63998-04653.shmm500.kernel --r=63998-04653.shmm500.rfs --pro
to=ftp:192.168.0.6:/tftpboot:user:password ]
rupgrade_tool: copying 63998-04653.u-boot.bin from /tmp to /dev/mtdchar8
using 'cp' protocol
rupgrade_tool: copying 63998-04653.shmm500.kernel from /tmp to /dev/mtdchar7
using 'cp' protocol
rupgrade_tool: copying 63998-04653.shmm500.rfs from /tmp to /dev/mtdchar9
using 'cp' protocol
rupgrade_tool: invoking scripts (step4h*) []
/etc/upgrade/step4hshm: Stopping Shelf Manager...Done
/etc/upgrade/step4hshm: Cleaning new /var partition...Done
/etc/upgrade/step4hshm: Cleaning new /etc partition...Done
/etc/upgrade/step4hshm: Copying /var/nvdata contents...Done
/etc/upgrade/step4hshm: Upgrade completed.
rupgrade_tool: image(s) copy OK
rupgrade_tool: watchdog started
rupgrade_tool: selected provisional flash
rupgrade_tool: reboot
Restarting system.
```

U-Boot 1.1.2 (Jan 20 2006 - 08:26:09)

CPU: Aul550 324 MHz, id: 0x02, rev: 0x00

Board: ShMM-500

S/N: 08001234

DRAM: 128 MB

Flash: 64 MB

In: serial

Out: serial

Err: serial

Net: AulX00 ETHERNET

Hit any key to stop autoboot: 0

## Booting image at be080000 ...

Image Name: MIPS Linux-2.4.26

Created: 2006-01-20 16:25:36 UTC

Image Type: MIPS Linux Kernel Image (gzip compressed)

Data Size: 839212 Bytes = 819.5 kB

Load Address: 80100000

Entry Point: 802b6040

Verifying Checksum ... OK

Uncompressing Kernel Image ... OK

## Loading Ramdisk Image at be440000 ...

Image Name: 63998-04653 RFS

Created: 2006-02-08 14:20:18 UTC

Image Type: MIPS Linux RAMDisk Image (gzip compressed)

Data Size: 3517334 Bytes = 3.4 MB

Load Address: 00000000

Entry Point: 00000000

Verifying Checksum ... OK

Starting kernel ...

```
init started: BusyBox v0.60.5 (2006.01.20-16:20+0000) multi-call binary
/etc/rc: Mounted /proc
/etc/rc: Mounting filesystems...
/etc/rc: Mounted /dev/pts
/etc/rc: Mounted /dev/mtdblock0 to /var
/etc/rc: Mounted /dev/mtdblock10 to /var/upgrade
/etc/rc: Checking the reliable upgrade watchdog timer...activated
/etc/rc: Mounted ram disk to /var/log
/etc/rc: Started syslogd and klogd
/etc/rc: Mounted ram disk to /var/tmp
/etc/rc: Setting hostname sentry
/etc/rc: Strobing the reliable upgrade watchdog timer
/etc/rc: /dev/mtdblock1 appears to be empty ... restoring from factory
/etc...
/etc/rc: Mounted /dev/mtdblock1 to /etc
/etc/rc: Calling /etc/rc.acb3
Board Hardware Address: 0x10
/etc/netconfig: /etc/hosts updated with 192.168.0.2 entry
/etc/netconfig: Updating /etc/profile.sentry with IP settings
/etc/netconfig: Starting inetd...
/etc/rc.acb3: Starting up DSP...
/etc/rc.acb3: Updating /etc/profile.sentry with specific settings
/etc/rc.acb3: Starting snmpd...
/etc/rc.acb3: Starting httpd...
/etc/rc.acb3: Starting Shelf Manager ...
```

```
<I> 00:57:34.257 [197] IPM Sentry Shelf Manager ver. 2.2.0. Built on Jan 20
2006 08:19:32
<*> 00:57:34.264 [197] Limits: code=(400000:529c90), end_data=10062000,
start_stack=7fff7d30, esp=7fff7698, eip=2ab0d2e4
<*> 00:57:34.264 [197] Stack limits: curr=1fff000, max=7fffffff
<*> 00:57:34.265 [197] Data limits: curr=7fffffff, max=7fffffff
<*> 00:57:34.269 [197] *** Lock log print buffer at 1003c9a0 ***
<*> 00:57:34.269 [197] *** Pthread lock log print buffer at 100409d0 ***
```

sentry login: **root**

BusyBox v0.60.5 (2006.01.20-16:20+0000) Built-in shell (msh)

You can verify the version that you are running with the “version” command.

```
# version
Firmware Image Version 63998-04653
```

IPM Sentry Shelf Manager Command Line Interpreter

```
IPM Sentry Shelf Manager ver. 2.2.0
IPM Sentry is a trademark of Pigeon Point Systems.
Copyright (c) 2002-2006 Pigeon Point Systems
Build date/time: Jan 20 2006 08:20:11
All rights reserved
```

## TFTP Upgrade Procedure:

### Overview

Download the 63998-04653.rfs and 63998-04653.kernel images from <http://www.a-tca.com/firmware> and place them on your network reachable TFTP server. The 63998-04653.rfs



image includes the new 63998-04653.u-boot.bin, 63998-04653.shmm500.kernel and 63998-04653.shmm500.rfs images *inside* this special boot image.

TFTP boot the upgrade kernel and rfs images on your ShMM-500. Once booted, the rc script will automatically update your ShMM-500 using the rupgrade\_tool utility and the new 2.2.0 kernel and rfs and u-boot images stored in the upgrade RFS image. It will then reboot.

For customers with F64M128 (large capacity ShMM-500 modules), an additional step will be performed to reprogram the ADM1060 to enable larger flash.

### **Step 1**

Download the 2.2.0 upgrade sentry.kernel and sentry.rfs images posted at the top of this page. These images need to be placed on a TFTP server machine that is network reachable from the ShMM-500 module.

### **Step 2**

Power on your ATCA shelf and interrupt the boot-up process by pressing the space bar on the serial port console of the Shelf manager:

```
UBoot 1.1.2...  
...  
Shmm500
```

### **Step 3**

Make sure the network settings for your ShMM-500 are such that it can see the TFTP server on your network and it will download the correct firmware files. The bootfile and ramdisk values will change with each firmware update.

```
shmm500 printenv serverip ipaddr netmask gatewayip bootfile ramdisk
```

```
serverip=192.168.0.7  
ipaddr=192.168.0.2  
netmask=255.255.0.0  
gatewayip=192.168.0.1  
bootfile=sentry.kernel  
ramdisk=sentry.rfs
```

If any of these need changing, do it as follows:

```
shmm500 setenv serverip 192.168.0.88  
shmm500 setenv bootfile 63998-04653.kernel  
shmm500 setenv ramdisk 63998-04653.rfs
```

```
shmm500 saveenv
```

Saving Environment to EEPROM...

**IMPORTANT:** As part of the upgrade process, the ENV VAR settings will be restored to factory default. Please make sure to take note on the ENV VAR settings so they can be restored at the end of the upgrade.

To print out the current settings, type:

```
shmm500 printenv
```

### Step 4

If your ShMM-500 module has the “net” command defined; you can use this command to boot the upgrade kernel and rfs as follows:

[illegible]

Data Size: 6030247 Bytes = 5.8 MB  
Load Address: 00000000  
Entry Point: 00000000  
Verifying Checksum ... OK

Starting kernel ...

```
init started: BusyBox v0.60.5 (2005.08.10-19:30+0000) multi-call binary
/etc/rc: Mounted /proc
/etc/rc: Mounting filesystems...
/etc/rc: Mounted /dev/pts
/etc/rc: Mounted /dev/mtdblock0 to /var
/etc/rc: Mounted /dev/mtdblock10 to /var/upgrade
/etc/rc: Checking the reliable upgrade watchdog timer...inactive
/etc/rc: Mounted ram disk to /var/log
/etc/rc: Started syslogd and klogd
/etc/rc: Mounted ram disk to /var/tmp
/etc/rc: Setting hostname sentry
/etc/rc: Mounted /dev/mtdblock1 to /etc
/etc/rc: Calling /upgrade/upgrade.sh
Starting Upgrade ...
rupgrade_tool: PLB is 7
rupgrade_tool: EEPROM page saved
rupgrade_tool: persistent flash is 0
rupgrade_tool: provisional flash is 1
rupgrade_tool: copying image(s)
rupgrade_tool: copying u-boot.bin from . to /dev/mtdchar8 using 'cp' protocol
rupgrade_tool: copying sentry.shmm500.kernel from . to /dev/mtdchar7 using
'cp' protocol
rupgrade_tool: copying sentry.shmm500.rfs from . to /dev/mtdchar9 using 'cp'
protocol
rupgrade_tool: invoking scripts (step4h*) [erase]
/etc/upgrade/step4hshm: Stopping Shelf Manager...Failed, ignoring
/etc/upgrade/step4hshm: Cleaning new /var partition...Done
/etc/upgrade/step4hshm: Cleaning new /etc partition...Done
/etc/upgrade/step4hshm: Leaving /var and /etc empty.
/etc/upgrade/step4hshm: Upgrade completed.
rupgrade_tool: image(s) copy OK
rupgrade_tool: watchdog started
rupgrade_tool: selected provisional flash
rupgrade_tool: reboot
Restarting system.
```

U-Boot 1.1.2 (Jan 20 2006 - 08:26:09)

CPU: Au1550 324 MHz, id: 0x02, rev: 0x00  
Board: ShMM-500  
S/N: 08001234  
DRAM: 128 MB  
Flash: 64 MB  
In: serial  
Out: serial  
Err: serial  
Net: Au1X00 ETHERNET  
Hit any key to stop autoboot: 0  
## Booting image at be080000 ...  
Image Name: MIPS Linux-2.4.26

```
Created:      2006-01-20  16:25:36 UTC
Image Type:   MIPS Linux Kernel Image (gzip compressed)
Data Size:    839212 Bytes = 819.5 kB
Load Address: 80100000
Entry Point:  802b6040
Verifying Checksum ... OK
Uncompressing Kernel Image ... OK
## Loading Ramdisk Image at be440000 ...
Image Name:   63998-04653 RFS
Created:      2006-02-08  14:20:18 UTC
Image Type:   MIPS Linux RAMDisk Image (gzip compressed)
Data Size:    3517334 Bytes =  3.4 MB
Load Address: 00000000
Entry Point:  00000000
Verifying Checksum ... OK
```

Starting kernel ...

```
init started: BusyBox v0.60.5 (2006.01.20-16:20+0000) multi-call binary
/etc/rc: Mounted /proc
/etc/rc: Mounting filesystems...
/etc/rc: Mounted /dev/pts
/etc/rc: Mounted /dev/mtdblock0 to /var
/etc/rc: Mounted /dev/mtdblock10 to /var/upgrade
/etc/rc: Checking the reliable upgrade watchdog timer...activated
/etc/rc: Mounted ram disk to /var/log
/etc/rc: Started syslogd and klogd
/etc/rc: Mounted ram disk to /var/tmp
/etc/rc: Setting hostname sentry
/etc/rc: Strobing the reliable upgrade watchdog timer
/etc/rc: /dev/mtdblock1 appears to be empty ... restoring from factory
/etc...
/etc/rc: Mounted /dev/mtdblock1 to /etc
/etc/rc: Calling /etc/rc.acb3
Board Hardware Address: 0x10
/etc/netconfig: /etc/hosts updated with 192.168.0.2 entry
/etc/netconfig: Updating /etc/profile.sentry with IP settings
/etc/netconfig: Starting inetd...
/etc/rc.acb3: Starting up DSP...
/etc/rc.acb3: Updating /etc/profile.sentry with specific settings
/etc/rc.acb3: Starting snmpd...
/etc/rc.acb3: Starting httpd...
/etc/rc.acb3: Starting Shelf Manager ...
```

```
<I> 02:15:23.496  [200] IPM Sentry Shelf Manager ver. 2.2.0. Built on Jan 20
2006 08:19:32
<*> 02:15:23.502  [200] Limits: code=(400000:529c90), end_data=10062000,
start_stack=7fff7d30, esp=7fff7698, eip=2ab0d2e4
<*> 02:15:23.503  [200] Stack limits: curr=1ff000, max=7fffffff
<*> 02:15:23.503  [200] Data limits: curr=7fffffff, max=7fffffff
<*> 02:15:23.507  [200] *** Lock log print buffer at 1003c9a0 ***
<*> 02:15:23.507  [200] *** Pthread lock log print buffer at 100409d0 ***
```

sentry login:root

Note: If your ShMM-500 module does not have “net” command defined, you can do this:



```
shmm500 tftp 80400000 63998-04653.kernel  
shmm500 tftp 81200000 63998-04653.rfs
```

```
shmm500 run ramargs addmisc  
shmm500 bootm 80400000 81200000
```

#### Step 5

Upon successful upgrade, reboot to u-boot and restore any u-boot environment variables specific to your location.

For instance:

```
shmm500 setenv rc2 /etc/rc.acb3  
shmm500 saveenv; saveenv
```

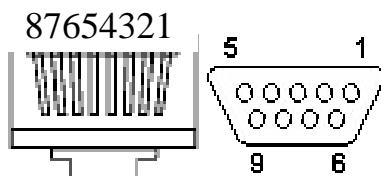
## U-Boot Configuration Notes for Release 2.2.0

The U-Boot environment variable “rc2” determines which configuration script is run at boot and therefore the configuration of the shelf manager.

Chassis	Redundancy	Shelf Manager Carrier Board	rc2 value
Schroff 5U 5 slot	Ethernet	ACB-II	/etc/rc.acb2
Schroff 14U 14 slot	Ethernet	ACB-FC	/etc/rc.acbfc
Schroff 12U/13U 14/16 slot	USB	ACB-III	/etc/rc.acb3
Schroff 12U/13U 14/16 slot	Ethernet	ACB-III	/etc/rc.acb3e
Schroff 13U 16 slot	USB	ACB-IV	/etc/rc.acb4
Schroff 13U 14 slot	USB	ACB-IV	/etc/rc.acb4-14t
Electronic Solutions	Ethernet	SMC-I	/etc/rc.smc1

**Schroff Shelf Manager RJ45 to 9 Pin PC Serial Console Cable P/N CBL000001**

RJ45 Pin	RJ45 Signal Name	PC 9 pin D-Sub	Signal Name
1	DSR	4	DTR
2	CD	N/C	CD
3	DTR	6	DSR
4	Ground	5	Ground
5	RxD0	3	TX
6	TxD0	2	RX
7	CTS	7	RTS
8	RTS	8	CTS



RJ45 and 9 pin D-Sub connectors are viewed with the cable going away from you.

**Electronic Solutions RJ11 to 9 Pin PC Serial Console Cable P/N VEN12ATCA-SC**

RJ11 Pin	RJ11 Signal Name	PC 9 pin D-Sub	Signal Name
1			
2	RxD0	3	TX
3	TxD0	2	RX
4	Ground	5	Ground
		4 to 6	DTR/DSR
		4 to 1	DTR/CD
		7 to 8	RTS/CTS

## ShMC Cross-Connect Support:

V2.2.0 firmware on an ACB-III shelf manager that has been configured for USB redundancy interconnect can now support ShMC Cross-Connect as defined in PICMG 3.0 R2.0; ECN 3.0-2.0-001. This feature will allow a Shelf manager to connect to two Base Interface hub boards that also support ShMC Cross-Connect.

The Chassis FRU SEEPROMs will need to be upgraded to support this feature. The new chassis FRU images may be obtained from the WWW site at: <http://www.a-tca.com/software>. You can use an FTP client to put the new SEEPROM images into the /var/nvdata directory on the Shelf Manager.

The shelf manager commands: “cd /var/nvdata”, “clia frudataw 20 1 Schroff\_11592085\_BA.bin” and “clia frudataw 20 2 Schroff\_11592085\_BA.bin” will update the chassis FRU SEEPROMs. You should power cycle the chassis after updating the FRU SEEPROMs.

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