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ASTi SYNAPSE

Cold Start and Installation

Manual

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Product Name: ASTi Synapse

ASTi Synapse Cold Start and Installation Manual

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ASTi

500-A Huntmar Park Drive

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1.0. SOFTWARE CONFIGURATION

Description	Disk Labeled
Base System¹	
Red Hat® Enterprise Linux®	Version 5.x
ACE Software	Version 4.xx (Telestra and Studio platforms)
Project File²	
Synapse WS Project	Version SYN-WS-xx-x, where xx = 04, 08, 12, or 16
Synapse RT Project	Version SYN-RT-xx-x, where xx = 04, 08, 12, or 16
Synapse VS Project	Version SYN-VS-xx where xx = 04, 08, 12, 16, 24, 32
Option File³	
Software License File	Customer-specific filename.TGZ
Remote Interface Unit⁴	
Firmware	Version x.x

Notes

¹ Red Hat and ASTi Telestra installations disks are packaged together.

² Synapse Workstation (WS) or Synapse Radio-over-IP Bridge (RT), as applicable.

³ The option file is a .tgz file, where the filename is encoded to signify a specific customer-project. The filename format is: NAME#-#.TGZ, where NAME signifies the customer's name and the #-# signify the customer's site and project.

⁴ RIU firmware update / restoration procedure is performed using ASTi's web-based Remote Management System. There is no separate CD. A detailed procedure is described in the following document.



Important: For correct operation, the ASTi Studio (management / configuration system) and ASTi Telestra (simulation processing system) must have the same version of Red Hat® Enterprise Linux® and ASTi ACE software.

2.0. STUDIO COLD START PROCEDURE

2.1. Installing RHEL Software

1. Power on the system via the power switch. Insert the **ASTi DVD** immediately, and ensure that the system boots off the **ASTi DVD**.
2. At the prompt select

RHEL Studio [Default]

and press enter.

Note: For ACE software versions 4.30 and previous, the prompt screen is different. At the prompt type “studio” and press enter.



3. The prompt will read “**CD Not Found**” and the system will eject the **ASTi DVD**. Remove the DVD.



4. Insert the **RHEL DVD** and select ‘**Ok**’.
5. Wait for the installation to complete.
6. The DVD will automatically eject, remove the DVD and select ‘**Reboot.**’



2.2. Installing ACE Studio Software

1. Login with:

```
username: root      password: abcd1234
```

2. Insert the **ASTi DVD**.

3. To open the terminal navigate to Applications > Accessories > Terminal.

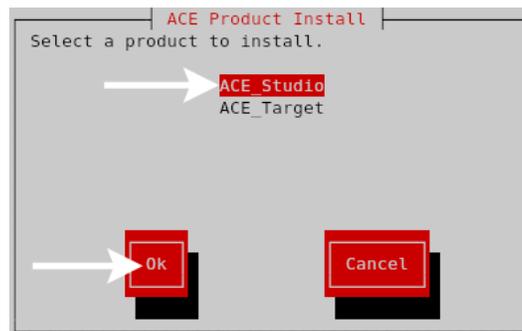
4. To mount the DVD type the following in the terminal:

```
mount /dev/dvd /media
```

5. At the prompt type:

```
sh /media/install
```

6. The prompt will read, 'Select a product to install.' Use the up and down arrow keys to select '**ACE Studio**'. Then using *tab* or right arrow key select '**OK**'.



Note: Screen may vary depending on software version.

7. Prompt will read, 'Do you wish to install ACE Studio?' Select '**Yes**' and wait for the installation to complete.

8. Then type:

```
eject /media
```

9. Remove the DVD from the drive.

10. Type:

```
reboot
```

to reboot the system.

For step-by-step instructions on installing the ASTi ACE Information Assurance (IA) software, see the **Telestra 4 Information Assurance Installation Guide (DOC-01-TEL4-IA-IG-1)**.

3.0. STUDIO CONFIGURATION PROCEDURE

3.1. Setting up the ACE Studio Development Workstation

To complete the set up you will need the following hardware:

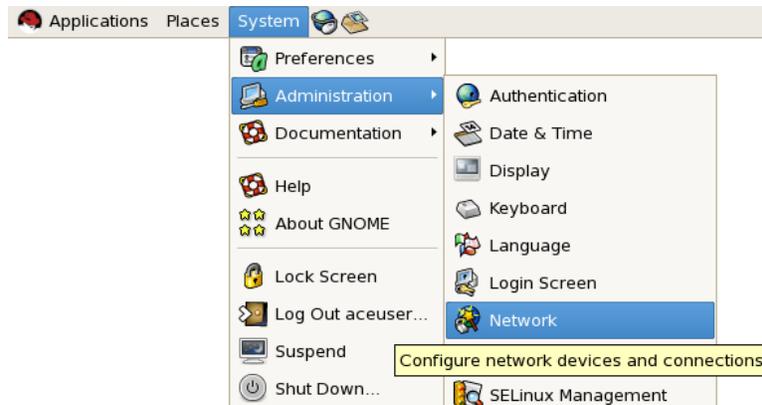
- monitor
- keyboard
- mouse
- power supply (if using a small footprint computer system)
- ACE Studio Development Workstation
- Category 5e cable or better
- Network connection from ACE Studio to Telestra

Follow the steps below to setup the ACE Studio Development Workstation and assign an IP address to the system. The ACE Studio Development Workstation will not have an IP address without a DHCP network connection.

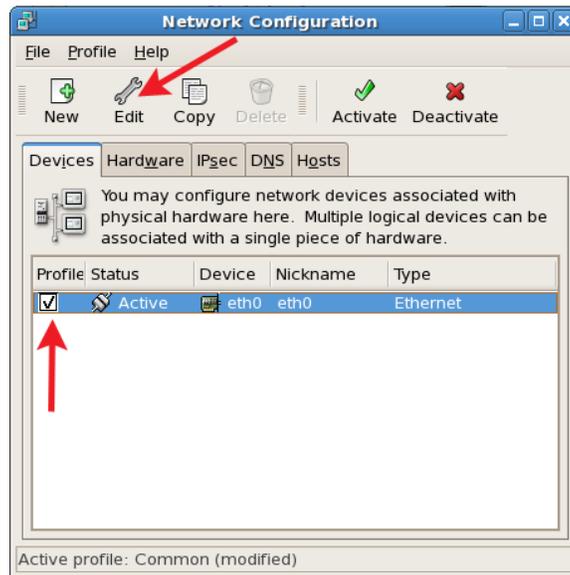
1. Connect the monitor, keyboard, mouse, and power supply to the development workstation.
2. Connect the development workstation to the same network as the Telestra.
3. Power on the development workstation and allow it to boot.

The development workstation will not have an IP address without a DHCP network connection.

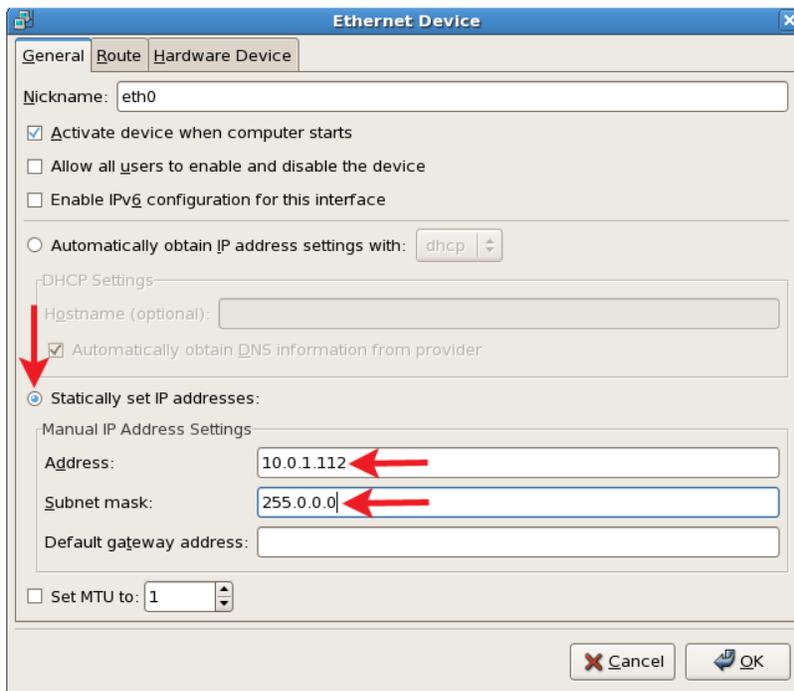
4. In the top left corner select **System > Administration > Network**.



5. Check the **'Profile'** box and then select **'Edit.'**



6. Select the **'Statically set IP addresses'** button.
7. Enter the IP address and Subnet mask.



Ask your network administrator for valid IP addresses and subnet masks for the network(s) where the Telestra and ACE Studio Development Workstation will be integrated.

8. Enter the default gateway. If the network does not have a gateway, enter the IP address in this field.
9. Reboot the Studio platform.

4.0. TELESTRA BIOS CONFIGURATION

During initial system boot-up, pause the screen to view the version number of the BIOS. The three BIOS versions are:

- Advantech AIMB-562 American Megatrends
- Advantech AIMB-562 Award
- Q35AX American Megatrends

Important: There are three different BIOS configurations, follow the configuration instructions that correspond to the BIOS version number on your system.

Note: By default the USB keyboard is disabled in the BIOS. If you are using a USB keyboard during the Cold Start Procedure, you must enable it in the BIOS.

4.1.1. Configuring the BIOS version Advantech AIMB-562 American Megatrends



1. If you have not already done so, attach a monitor, keyboard and power cable to the Teles-
tra.
2. Power on the Target and immediately press the 'Del' key as the system starts to enter the
BIOS Setup.
 - 2a. The BIOS Setup Utility will open with a menu across the top reading:
Main Advanced Power Boot Exit
 - 2b. Navigate to **Exit** and select **Load Set Up Defaults**.
3. Use the arrow keys to move to the **Main** field, select **System Time** and set the value to
Greenwich Mean Time (GMT). GMT = Eastern Standard Time + 5 hours
4. In the **Main** field, select **System Date** and change the value to the current date.
5. Use the arrow keys to navigate to the **Power** field and then to the **APM Configuration**.

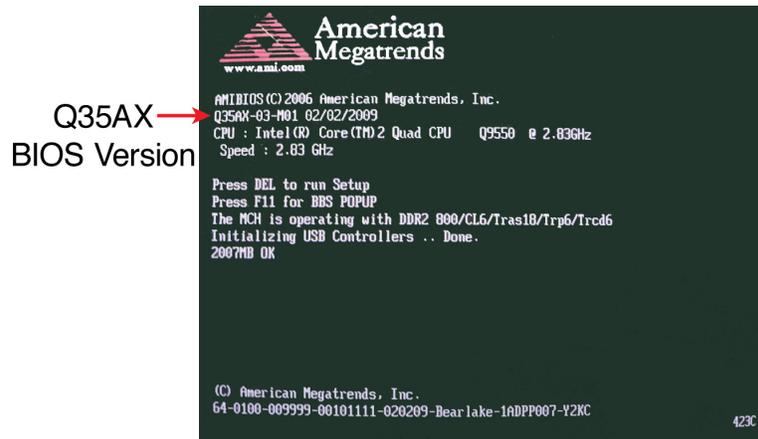
- 5a. Ensure that the **Restore on AC Power Loss** is set to **Power On**.
6. Navigate to the **Advanced** field and then to the **CPU Configuration**.
 - 6a. Ensure that the **Execute Disable Function** is **Enabled**.
 - 6b. Ensure that the **Intel(R) Speed Step(tm) Tech** is **Disabled**.
7. Continue in the **Advanced** field and navigate to the **Onboard Device Configuration**.
 - 7a. Ensure that the **LAN Option ROM** is **Enabled**.
8. Navigate to the **Exit** field and select **Exit and Save**. After the prompt opens, select **OK**.
9. As the Telestra reboots automatically, immediately press the ‘**Del**’ key as the system starts to enter the BIOS Setup.
10. Navigate to the **Boot** field and then to the **Boot Device Priority**. Set the Boot Device Priority as follows:
 - 1st Boot Device [**CD/DVD**] Note: This will say something different for different versions of CD/DVD drives.
 - 2nd Boot Device [**Hard Drive** for example “WDC WR800JD”] Note: This will say something different for different versions of Hard drives.
 - 3rd Boot Device [**Ethernet** for example “IBA GE Slot 0200 v1228”] Note: This will say something different for different Ethernet ROMs.
 - 4th Boot Device [**Disabled**]
11. Navigate to the **Exit** field and select **Exit and Save**. After the prompt opens, select **OK**.

4.1.2. Configuring the BIOS version Advantech AIMB-562 Award



1. If you have not already done so, attach a monitor, keyboard and power cable to the Target.
2. Power on the Target and immediately press the 'Del' key as the system starts to enter the BIOS Setup.
3. Select **Load Optimized Defaults**.
4. Select **Standard CMOS Features**.
 - 4a. Set Date and Time. Note set the time value to Greenwich Mean Time (GMT). GMT = Eastern Standard Time + 5 hours
 - 4b. Halt on No Errors
5. Navigate to the **Advanced BIOS Features** and set the following:
 - 5a. First Boot DeviceCDROM
 - 5b. Second Boot DeviceHard Disk
 - 5c. Third Boot DeviceLAN
6. Select **Integrated Peripherals**.
 - 6a. Select **Onboard Lan Boot ROM** and set to **Enabled**.
 - 6b. Select **OnChip IDE Device**.
 - 6c. Set **On-Chip Serial ATA** to **Enhanced Mode**.
 - 6d. Set **SATA PORT Speed Settings** to **Force GEN I**.
 - 6e. Select **Super IO Device** and set **PWERON After PWR-Fail to On**.
7. Navigate to the main screen and select **Save and Exit Setup**. After the prompt opens, select **OK**.

4.1.3. Configuring the BIOS version Q35AX American Megatrends



1. If you have not already done so, attach a monitor, keyboard and power cable to the Target.
2. Power on the Target and immediately press the '**Del**' key as the system starts to enter the BIOS Setup.
 - 2a. The BIOS Setup Utility will open with a menu across the top reading:


```

Main Advanced Power Boot  Exit
          
```
 - 2b. Navigate to **Exit** and select **Load Optimized Defaults**.
3. Navigate to **Main**.
 - 3a. Set Date and Time. Note set the time value to Greenwich Mean Time (GMT). GMT = Eastern Standard Time + 5 hours
4. Navigate to **Advanced** to **CPU Configuration** and set **Intel(R) SpeedStep(tm) tech** to **[Disabled]**.
5. Navigate to **Advanced** to **IDE Configuration**.
 - 5a. Set **SATA#1** to **[Enhanced]**.
 - 5b. Set **Configure SATA#1** to **[IDE]**.
6. Navigate to **Advanced** and then to **SuperIO Configuration** and set **Serial Port 1 Address** to **Disable** and **Serial Port 2 Address** to **Disable**.
7. Navigate to **Chipset** to **SouthBridge Configuration** and set **GbE LAN Boot** to **[Enabled]**.
8. Navigate to the **Exit** field and select **Exit and Save**. After the prompt opens, select **OK**.
9. As the Telestra reboots automatically, immediately press the '**Del**' key as the system starts to enter the BIOS Setup.

10. Navigate to the **Boot** field and then to the **Boot Device Priority**. Set the Boot Device Priority as follows:
 - 1st Boot Device [**CD/DVD**]
 - 2nd Boot Device [**SATA**] Note: This will not show up for systems without a hard drive.
 - 3rd Boot Device [**Network**]
 - 4th Boot Device [**Disabled**]
11. Navigate to the main screen and select **Save and Exit Setup**. After the prompt opens, select **OK**.

5.0. TARGET COLD START PROCEDURE

Note: Prior to the software installation, ensure that the “Boot Priority” is set in accordance with the proper BIOS instructions previously outlined in this document. Otherwise, the Target will not boot from the DVD and automatically enter the installation routine.

5.1. Installing RHEL Software

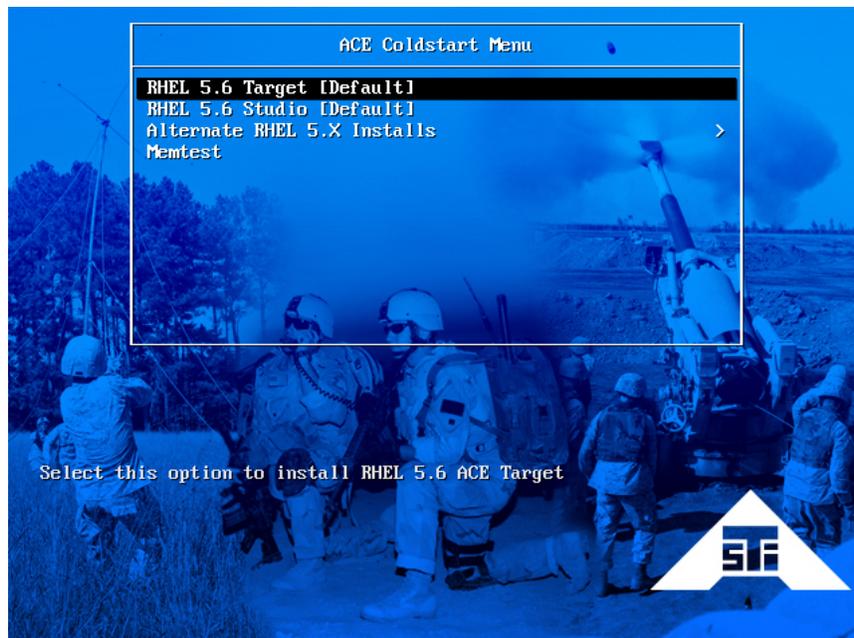
The following steps are for software versions 4.10 and above.

1. Power on the Target via the power switch on the chassis.
2. Insert the **ASTi DVD** and reboot by pressing the “**Reset**” button on the front of the chassis.
3. At the prompt, select

```
RHEL Target [Default]
```

and press enter.

Note: For ACE software versions 4.30 and previous, the prompt screen is different. At the prompt type “target” and press enter.



4. The prompt will read “**CD Not Found**” and the system will eject **ASTi DVD**. Remove the DVD
5. Insert the **RHEL DVD** and select ‘**Ok**’.



6. Wait for the installation to complete.
7. Remove the DVD and then select “**Reboot.**”



8. After the system reboots, the login prompt will open. Continue with the next section for software installation.

```
Red Hat Enterprise Linux Client release 5 (Tikanga)
Kernel 2.6.18-8.el5 on an i686

localhost login: _
```

5.2. Installing ACE Software

Before proceeding with this installation, complete section **5.1 Installing the RHEL Software**.

1. Login with:

```
username: root          password: abcd1234
```

2. Insert the **ASTi DVD** and type:

```
mount /dev/dvd /media
```

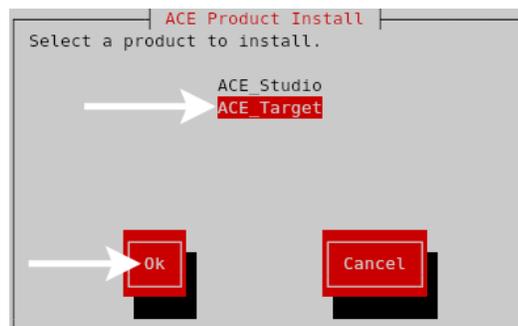
```
Red Hat Enterprise Linux Client release 5 (Tikanga)
Kernel 2.6.18-0.e15 on an i686

localhost login: root
Password:
Last login: Tue Sep  4 11:28:43 on tty1
[root@localhost ~]# mount /dev/cdrom /media
mount: block device /dev/cdrom is write-protected, mounting read-only
```

3. At the prompt type:

```
sh /media/install
```

4. Prompt will read, 'Select a product to install.' Tab down and select '**ACE Target**'. Then select '**OK**'.



Note: Screen may vary depending on software version.

5. Prompt will read, 'Do you wish to install ACE Target?'. Select '**Yes**'.

6. After the installation is complete type:

```
eject /media
```

7. Remove the DVD from the drive.

8. At the prompt type:

```
ace-net-config -a xxx.xxx.xxx.xxx -n yyy.yyy.yyy.yyy
```

where “xxx.xxx.xxx.xxx” is the IP address and “yyy.yyy.yyy.yyy” is the netmask.

This sets the IP address and netmask for Eth0 which is used to access the Remote Management System (RMS) via a browser to complete the network setup.

9. *Optional:* For more network setup options type:

```
ace-net-config -h
```

10. Reboot the Target to activate the changes.

For step-by-step instructions on installing the ASTi ACE Information Assurance (IA) software, see the **Telestra 4 Information Assurance Installation Guide (DOC-01-TEL4-IA-IG-1)**.

6.0. TARGET CONFIGURATION PROCEDURE

6.1. Pointing the Browser to RMS

In order to access RMS using a web browser, the computer must be on the same network segment (LAN or WAN) as the Target. Contact your network administrator if you have any questions.

To launch the web browser application, go to the “Address” or “Location” field of the web browser’s display and type:

```
http://xxx.xxx.xxx.xxx/
```

where “xxx.xxx.xxx.xxx” is the IP address previously assigned to eth0 using a DHCP server or by manually setting it. After pointing the browser to the Target, RMS will respond by displaying the System Status screen, which displays general information about the system.

6.2. RMS System Log In

For the initial system log in, use the following user name and password.

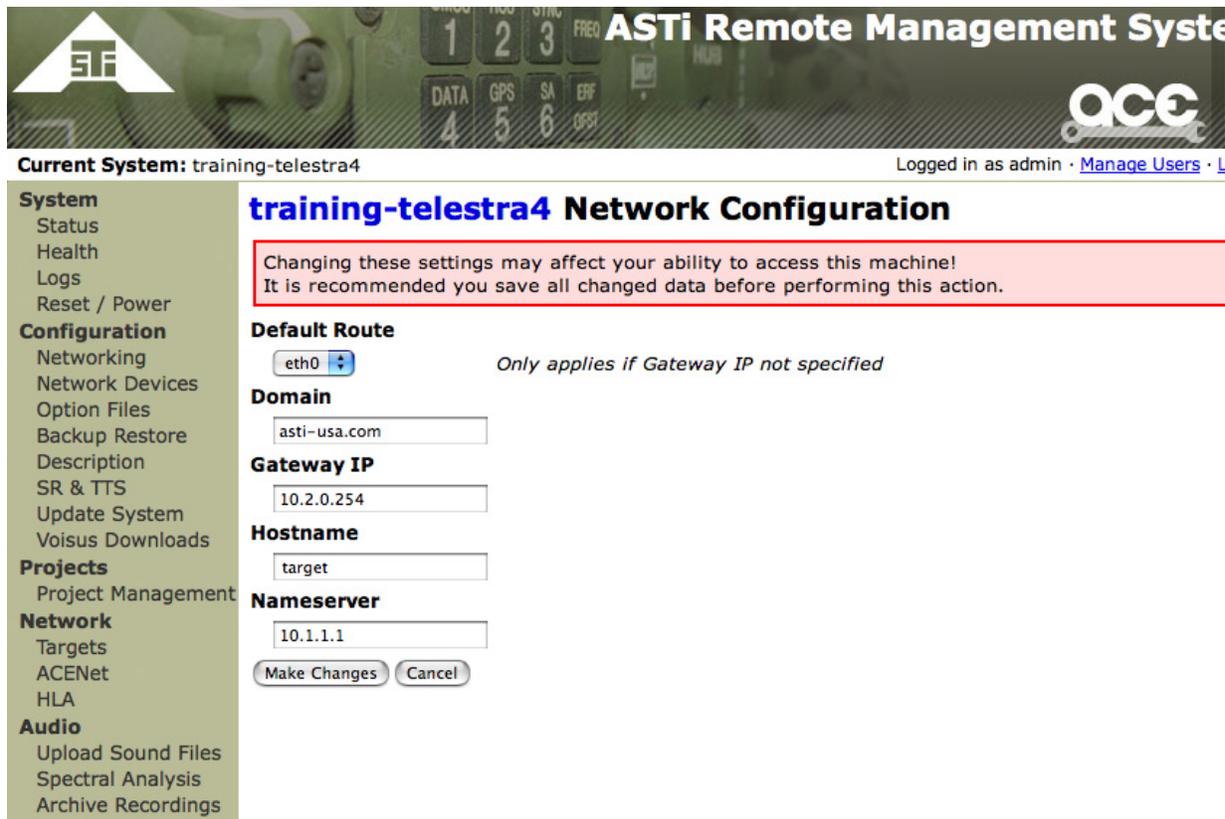
```
user name: admin
```

```
password: astirules
```

After initial log in, users can create new user accounts and passwords to meet system administration requirements.

6.3. Edit Network Configuration in RMS

Under Configuration > Networking, select the “Edit eth# Config.” link to edit eth0, eth1, and eth2 configuration settings. Select the “Make Changes” button to commit the changes to the system.



The screenshot displays the ASTi Remote Management System (RMS) interface. At the top, the header reads "ASTi Remote Management System" with the OCE logo on the right. Below the header, the current system is identified as "training-telestra4" and the user is logged in as "admin". A navigation menu on the left lists various system functions such as System, Configuration, Projects, Network, and Audio. The main content area is titled "training-telestra4 Network Configuration". A prominent red-bordered warning box states: "Changing these settings may affect your ability to access this machine! It is recommended you save all changed data before performing this action." Below the warning, the configuration fields are as follows: "Default Route" is set to "eth0" (with a note "Only applies if Gateway IP not specified"); "Domain" is "asti-usa.com"; "Gateway IP" is "10.2.0.254"; "Hostname" is "target"; and "Nameserver" is "10.1.1.1". At the bottom of the configuration area are "Make Changes" and "Cancel" buttons.

6.4. Install the ASTi Option File

The option file is a software license file. The filename is encoded to specific customer-project related ASTi Targets. The filename format is: NAME#-#.TGZ.

6.4.1. Uploading the Options Files

The Options file is shipped on a CD with the system. The Options file is a .tgz file.

1. Install the CD in the computer running RMS in the browser and copy the Options file to the desktop.
2. Drag the file onto the workstation.
3. In RMS, navigate to Configuration > Option Files and select “Choose File.”
4. Find the file on the workstation and select “Choose.”
5. Upload the Options file.

A new Options file may be uploaded at any time.

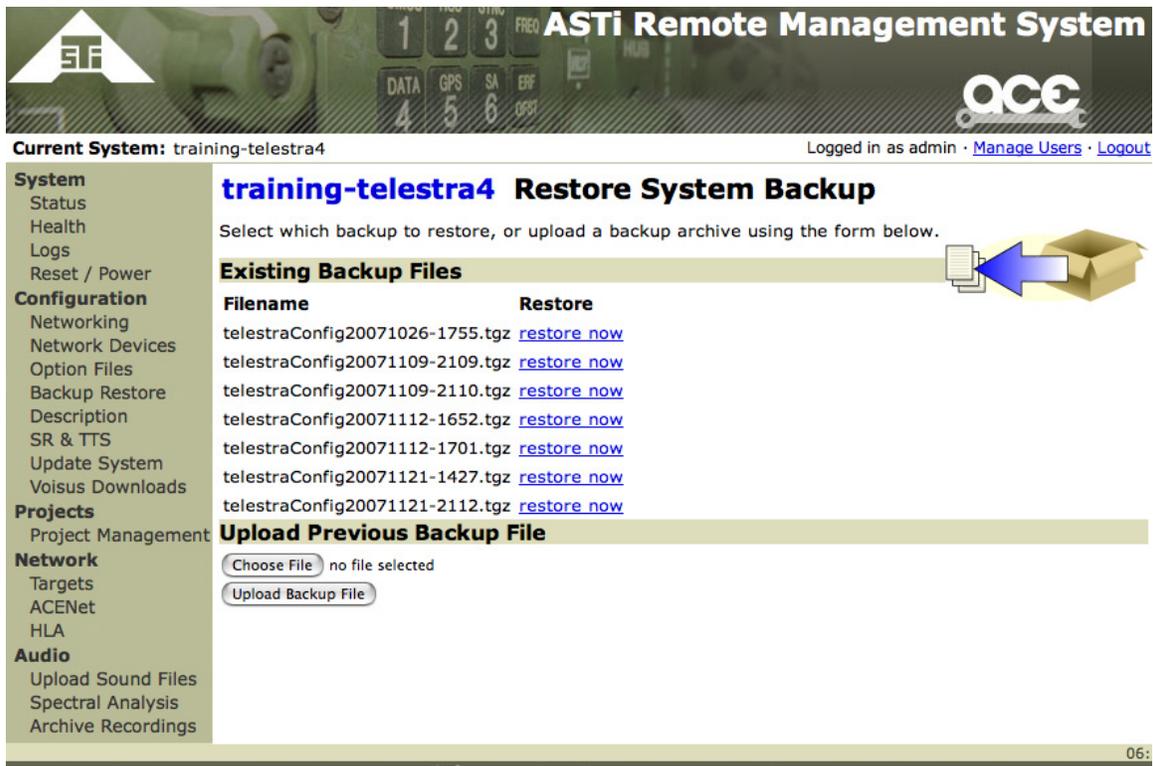
Note: Selecting an Options file with the same name as the currently installed Options file will result in the new file overwriting the existing file.

The screenshot shows the ASTi Remote Management System interface for the 'training-telestra4' system. The page title is 'training-telestra4 Options File Mgmt.'. On the left is a navigation menu with categories: System, Configuration, Projects, Network, and Audio. The main content area is divided into 'Current Options' and 'Upload Options File'. The 'Current Options' section lists various system parameters with status indicators (two green bars). The 'Upload Options File' section contains instructions, a 'Choose File' button (highlighted with a red arrow), and an 'Upload New Options File' button. Below this is a section for 'Ethernet MAC Addresses' listing eth0, eth1, and eth2. The footer includes the ASTi logo, contact information, and the current time and system uptime.

6.5. Restore the Synapse Project

The Project filename is SYN4-vv-xx-rev.tgz, where:

- vv: Product version, either WS for Workstation or RT for Radio Over IP Bridge
 - xx: Number of operators (for WS) and radio interfaces (for RT)
 - rev: Software revision level
1. Install the CD in the computer running the browser with RMS and copy the project file to the desktop.
 2. In RMS, under **Configuration > Backup Restore** upload the project file that has been saved to the local workstation. This option allows the user to restore system configuration files.
 3. Select “restore now” to start the installation.



The screenshot displays the ASTi Remote Management System (RMS) interface. At the top, the header reads "ASTi Remote Management System" with the QCE logo. Below the header, it shows "Current System: training-telestra4" and "Logged in as admin · [Manage Users](#) · [Logout](#)".

The main content area is titled "training-telestra4 Restore System Backup". It includes a navigation sidebar on the left with categories: System, Configuration, Projects, Network, and Audio. The "Configuration" section is expanded to show "Backup Restore".

The main content area contains the following sections:

- Select which backup to restore, or upload a backup archive using the form below.**
- Existing Backup Files**: A table listing backup files with their filenames and "Restore" links.

Filename	Restore
telestraConfig20071026-1755.tgz	restore now
telestraConfig20071109-2109.tgz	restore now
telestraConfig20071109-2110.tgz	restore now
telestraConfig20071112-1652.tgz	restore now
telestraConfig20071112-1701.tgz	restore now
telestraConfig20071121-1427.tgz	restore now
telestraConfig20071121-2112.tgz	restore now
- Upload Previous Backup File**: A section with two buttons: "Choose File" (with the text "no file selected" next to it) and "Upload Backup File".

An icon of a blue arrow pointing into a yellow box is located to the right of the "Existing Backup Files" table.

7.0. ACE-RIU FIRMWARE UPDATE PROCEDURE

In RMS, select the Network ACENet page to view all ACE-RIUS devices on the network. Each device on ACENet must have a unique device name. Your ACE-RIUs must have a firmware version that is compliant with the Telestra software version.

Connect ACE-RIUs to the Target / ETH1. The ACE-RIU connects to the ACENet network via an ACENet port on the back panel of the ACE-RIU using a category 5e or better cable.



Caution: Customer made cables are the number one reason for product failure. ASTi recommends using manufactured Category 5e cables.

Maximum Cable Length to ACENet Switch	
ACE-RIU	100 meters (328 feet)
Target	100 meters (328 feet)

Direct connection from the ACE-RIU to the Target (Eth1) is supported and requires a cross over cable. ACE-RIUs do not support daisy chaining to additional units or internal switching across networks.

7.1. Check Firmware Version

All ACE-RIUs on the Target’s local ACENet must have the same firmware version. Do not mix devices with different firmware versions on the local ACENet. Navigate to the RMS > ACENet page and check the devices for the firmware version.

ASTi Remote Management System

Current System: Synapse [Login](#)

Synapse Device List

Update Settings: [Name](#) [Number](#) [Latency](#)

Update Firmware: [ACE-RIU](#)

	Device Name	In Layout	F/W Version	Device Number	Latency Mode	Status	Message
4							
RIU(s)	RIU1	■■	2.3	7	Normal	✓	OK, MAC=00:1a:18:00:00:03
	RIU2	■■	2.3	1366	Normal	✓	OK, MAC=00:1a:18:00:05:56
	RIU3	■■	2.3	2052	Normal	✓ 3	OK, MAC=00:1a:18:00:08:04
	RIU4	■■	2.3	2003	Normal	✓	OK, MAC=00:1a:18:00:07:d3

16:14:29 up 3 days

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7.2. Updating ACE-RIU Firmware

As needed, update the ACE-RIU firmware version. On the RMS ACENet page next to “Update Firmware:” select the ‘ACE-RIU’ link for instructions to update the firmware. The following page will display the step-by-step instructions for updating the firmware.

ASTi Remote Management System

Current System: training-telestra4 [Login](#)

training-telestra4 ACE-RIU Firmware Update

ACE-RIU firmware can only be updated on a unit that has been powered on in "Boot Mode". *This is different from the ACE-RIU's normal operation.*

ACE cannot locate any ACE-RIUs that are powered on in Boot Mode. Please follow the instructions below.

Enabling Boot Mode for ACE-RIUs:

1. Power off the ACE-RIU by removing its power supply plug from the jack in the rear of the unit.
2. Using a small tool, *gently* toggle DIP switch #1 to the down position, as shown.

Setting the ACE-RIU  **Boot Mode**



3. Power on the ACE-RIU by reconnecting its power supply.
4. The red and green LEDs adjacent to the DIP switches should be blinking rapidly in an alternating pattern.
5. Refresh this page to see the ACE-RIU in the table above.

16:09:01 up 9:56

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8.0. ADDITIONAL SYNAPSE CONFIGURATION AND OPERATION

Refer to the Synapse Operator Manuals for more configuration and operation details.

Find the manuals here:

<http://www.asti-usa.com/support/document/synapse.html>