ASTi SYNAPSE
Cold Start and Installation Manual

Document: DOC-01-SYN4-CSI-1
Table of Contents

1.0. SOFTWARE CONFIGURATION ......................................................... 1

2.0. STUDIO COLD START PROCEDURE .............................................. 2
   2.1. Installing RHEL Software ................................................................. 2
   2.2. Installing ACE Studio Software ........................................................... 4

3.0. STUDIO CONFIGURATION PROCEDURE ........................................ 5
   3.1. Setting up the ACE Studio Development Workstation ......................... 5

4.0. TELESTRA BIOS CONFIGURATION .............................................. 7
   4.1.1. Configuring the BIOS version Advantech AIMB-562 American Megatrends ................................................................. 7
   4.1.2. Configuring the BIOS version Advantech AIMB-562 Award ................. 9
   4.1.3. Configuring the BIOS version Q35AX American Megatrends ............. 10

5.0. TARGET COLD START PROCEDURE .............................................. 12
   5.1. Installing RHEL Software ................................................................. 12
   5.2. Installing ACE Software .................................................................... 15

6.0. TARGET CONFIGURATION PROCEDURE ....................................... 17
   6.1. Pointing the Browser to RMS .......................................................... 17
   6.2. RMS System Log In ........................................................................... 17
   6.3. Edit Network Configuration in RMS .................................................. 18
   6.4. Install the ASTi Option File ................................................................. 19
       6.4.1. Uploading the Options Files ...................................................... 19
   6.5. Restore the Synapse Project ............................................................... 20

7.0. ACE-RIU FIRMWARE UPDATE PROCEDURE ............................ 21
   7.1. Check Firmware Version ................................................................. 22
   7.2. Updating ACE-RIU Firmware ........................................................... 23

8.0. ADDITIONAL SYNAPSE CONFIGURATION AND OPERATION ........ 24
1.0. SOFTWARE CONFIGURATION

<table>
<thead>
<tr>
<th>Description</th>
<th>Disk Labeled</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Base System</strong>¹</td>
<td></td>
</tr>
<tr>
<td>Red Hat® Enterprise Linux®</td>
<td>Version 5.x</td>
</tr>
<tr>
<td>ACE Software</td>
<td>Version 4.xx (Telestra and Studio platforms)</td>
</tr>
<tr>
<td><strong>Project File</strong>²</td>
<td></td>
</tr>
<tr>
<td>Synapse WS Project</td>
<td>Version SYN-WS-xx-x, where xx = 04, 08, 12, or 16</td>
</tr>
<tr>
<td>Synapse RT Project</td>
<td>Version SYN-RT-xx-x, where xx = 04, 08, 12, or 16</td>
</tr>
<tr>
<td>Synapse VS Project</td>
<td>Version SYN-VS-xx where xx = 04, 08, 12, 16, 24, 32</td>
</tr>
<tr>
<td><strong>Option File</strong>³</td>
<td></td>
</tr>
<tr>
<td>Software License File</td>
<td>Customer-specific filename.TGZ</td>
</tr>
<tr>
<td><strong>Remote Interface Unit</strong>⁴</td>
<td></td>
</tr>
<tr>
<td>Firmware</td>
<td>Version x.x</td>
</tr>
</tbody>
</table>

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’.

   ![Select a product to install](image)

   **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 Telestra.

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 Device CDROM
   5b. Second Boot Device Hard Disk
   5c. Third Boot Device LAN
   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.
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
   ```

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’.

   ![ACE Product Install]

   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.
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.
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.
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.*

<table>
<thead>
<tr>
<th>Maximum Cable Length to ACENet Switch</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACE-RIU</td>
</tr>
<tr>
<td>Target</td>
</tr>
</tbody>
</table>

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.
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.

---

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.

---

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.
8.0. ADDITIONAL SYNAPSE CONFIGURATION AND OPERATION

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

Find the manuals here: