Allied Telesis™

iMAP 9810

Installation Guide

iMAP Operating System

613-001881 Rev. D

Electrical Safety and Emissions Standards

This product meets the following standards.

U.S. Federal Communications Commission
Radiated Energy Note: This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of 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 this 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. Note: Modifications or changes not expressly approved of by the manufacturer or the FCC, can void your right to operate this equipment.

Industry Canada
This Class A digital apparatus complies with Canadian ICES-003. Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

European Union Restriction of the Use of Certain Hazardous Substances (RoHS) in Electrical and Electronic Equipment
This Allied Telesis RoHS-compliant product conforms to the European Union Restriction of the Use of Certain Hazardous Substances (RoHS) in Electrical and Electronic Equipment. Allied Telesis ensures RoHS conformance by requiring supplier Declarations of Conformity, monitoring incoming materials, and maintaining manufacturing process controls.

Product Safety: IEC 60950-1:2005 (Second Edition) + Am 1: 2009 + Am 2: 2013, EN60950-1: 2006+A11+A1+A12, UL 60950-1: 2007 R12.11, CAN/CSA-C22.2 No. 60950-1-07+A1:2011

Safety Agency labels: cTUVus, CE

Product EMC: EMC Directive 2004/108/EC, ETSI EN 300 386 V1.3.3, ETSI EN 300 132-2 V2.2.2, EN55032:2012, GR-1089-CORE V3, FCC 47 CFR Part 15 Class A, EN61000-4-2:1995 + A1:1999 + A2:2001, EN61000-4-3:2006, EN61000-4-4:2004, EN61000-4-5:2005, EN61000-4-6:2007, EN61000-4-8:1993+A1:2001, EN61000-4-11:2004

NEBS: GR1089-CORE Issue 5, August 2009, GR-63-CORE, Issue 3, March 2006

 Laser Safety EN60825
CDRH registered

Translated Safety Statements

Important: The ☞ indicates that a translation of the safety statement is available in a PDF document titled “Translated Safety Statements” on our web site at **http://www.alliedtelesis.com/support**.

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Preface

This guide contains the hardware installation instructions for the iMAP 9810 system. This preface contains the following sections:

- ❒ “Safety Symbols Used in this Document” on page 12
- ❒ “Contacting Allied Telesis” on page 13

Note
This version of the installation guide applies to release 17.0.3 and higher of the iMAP management software. The latest release of the management software is available from the Restricted Software Downloads web page on the Allied Telesis web site, at **www.alliedtelesis.com/support/software/restricted**.

Safety Symbols Used in this Document

This document uses the following conventions:

Note
Notes provide additional information.

Caution
Cautions inform you that performing or omitting a specific action may result in equipment damage or loss of data.

Warning
Warnings inform you that performing or omitting a specific action may result in bodily injury.

Warning
Warnings inform you that an eye and skin hazard exists due to the presence of a Class 1 laser device.

Contacting Allied Telesis

If you need assistance with this product, you may contact Allied Telesis technical support by going to the Support & Services section of the Allied Telesis web site at **www.alliedtelesis.com/support**. You can find links for the following services on this page:

- 24/7 Online Support - Enter our interactive support center to search for answers to your questions in our knowledge database, check support tickets, learn about Return Merchandise Authorization (RMA), and contact Allied Telesis technical experts.
- USA and EMEA phone support - Select the phone number that best fits your location and customer type.
- Hardware warranty information - Learn about Allied Telesis warranties and register your product online.
- Replacement Services - Submit an RMA request via our interactive support center.
- Documentation - View the most recent installation guides, user guides, software release notes, white papers and data sheets for your product.
- Software Updates - Download the latest software releases for your product.

For sales or corporate information, go to **www.alliedtelesis.com/purchase** and select your region.

Chapter 1

iMAP 9810 Chassis

This chapter describes the iMAP 9810 chassis configuration.

Note
This version of the installation guide applies to release 6.18.0.0 of the iMAP management software. The latest release of the management software is available from the Restricted Software Downloads web page on the Allied Telesis web site, at **www.alliedtelesis.com/support/software/restricted**.

Chassis Configuration

The iMAP 9810 is a rack-mounted shelf with a configuration that depends on customer requirements. Table 1 lists the components of the iMAP 9810 and how they are configured. Use the letters in this table and refer to Figure 1 to see where the iMAP 9810 components are located.

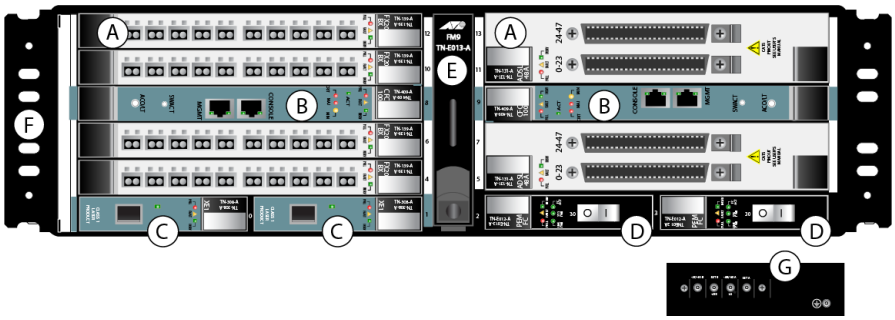

Figure 1. Fully Configured iMAP 9810

Table 1. Listing of components with slot/position and configuration notes

No.	Module	Slot/ Position	Configuration Notes
A	Service Module (SM)	4, 6, 10, 12 (left) 5, 7, 11,13 (right)	At least one is always configured. Unused slots must be configured with filler panel full (FPFs). Note: Refer to the **Allied Telesis Component Specification** for information on SMs supported on the iMAP 9810.
B	Control Modules (CM) - CFC100	8,9	Two cards per shelf (occupies one slot). Includes CONSOLE and MGMT port.
C	Network Module (NM)	Slot 0 and Slot 1 (half-slot)	One, both or neither slot can be configured in a functioning system. An unused half-slot requires a filler panel half (FPH).

Table 1. Listing of components with slot/position and configuration notes

No.	Module	Slot/ Position	Configuration Notes
D	Power Entry Module, Fan Controller (PEMFC)	2,3 (half-slot)	Integrated Fan Controller and Power Entry Module. Includes Power Status indicators.
E	Fan Module (FM9)	Center of chassis	Fan Module.
NA	MAC	Inside Chassis	Included with chassis. Located on the front of backplane behind slots 10 and 12.
F	-	-	Mounting hole group.
G	Power/ Ground	Rear	Power connections and primary ground connection. Note that the frame and signal ground are integrated
NA	Alarm In/ Out	Rear	Provides System Alarms connections. Refer to **Allied Telesis Component Specification.**

Chapter 2

Safety Precautions and Site Preparation

This chapter contains the safety precautions and guidelines for selecting a site for the chassis. The chapter contains the following sections:

- “Reviewing Safety Precautions” on page 20
- “Selecting a Site for the iMAP 9810” on page 22
- “Installation Tools and Materials” on page 25

Reviewing Safety Precautions

Please review the following safety precautions before you begin to install the iMAP 9810 system.

Note
Only personnel trained in local telco practices should install, replace, or service this equipment.

Caution
Before working on the equipment, the user should be aware of standard safety guidelines and the hazards involved in working with electricity to avoid accidents. Follow these guidelines and warnings and those located throughout this installation guide for a safe and hazard-free installation.

Follow these guidelines to ensure overall safety:

- ❒ Keep all work areas clear and clean during and after installation.
- ❒ Keep all tools away from walk areas where personnel could trip over them.
- ❒ The user should not wear loose clothing that could catch on equipment. Secure any loose clothing.
- ❒ The user should wear safety glasses if working under conditions that might be hazardous to eyes.
- ❒ The user should not perform any action that creates an unsafe or hazardous situation for themselves or other personnel.

Note
Ensure proper power installation prior to installing system cards. Improper power installation can damage the system chassis and cards.

Note
It is important that the chassis cooling fans operate, within their normal running temperature range, while the system is powered up.

Caution
Ensure circuit breakers are OFF before starting the installation process.

Safety Precautions While Working with Electricity

Guidelines when working with electrically powered equipment:

- Locate the **Power Off** switch for the system being installed or serviced. In the event of an electrical accident, the user can quickly turn the power off.
- Disconnect all power by turning the circuit breakers off before:
  - Installing or removing a chassis
  - Working near the power supply
- Do not work alone if potential hazards exist.
- Never assume that power is disconnected from a circuit; always check the circuit.
- Inspect the work area carefully for possible hazards, such as moist floors, ungrounded power extension cables, frayed power cords, and missing safety grounds.
- If an electrical accident occurs, proceed as follows:
  - Use caution; do not become a victim yourself.
  - Turn off power to the system.
  - If possible, send another person to get medical aid. Otherwise, assess the condition of the victim and then call for help.
  - Determine if the person needs rescue breathing or external cardiac compressions; then, take appropriate action.

Selecting a Site for the iMAP 9810

Before installing the iMAP 9810, prepare the site to ensure the product will operate in the correct environment, all materials meet specifications, and all installation tasks can be performed.

The iMAP 9810 is installed in a central office or an outdoor cabinet environment. Refer to Table 2 for details on environmental constraints..

Table 2. Site Requirements for iMAP 9810, Office Installation

Type	Description
Access	To be installed in a restricted access location. For outdoor cabinet installations, outside air shall not be introduced into the cabinet when all doors are closed. Ambient temperature range is -40 to +65C.
Rear Access	PWR, GND, and Alarms
Rack configuration	Placement: None, but follow local cabling setup (from above, below, etc.) Care should be taken not to compromise the stability of the rack by the installation of this equipment. A maximum of 14 shelves can be installed in a 7 ft. rack. This number may be limited by the extended size of the cable bundle created by the number of units. Note: Due to weight limitations and the size of bundled cabling, 14 shelves can normally be installed in a single 7 ft. telecom rack. If there is a requirement for more than 14 shelves in a single 7 ft. rack, the user should verify that the floor loading for the rack, after installing additional units, does not exceed the floor loading standard for the region or country where the 9810 is being installed. 9810 installations inside the U.S. would follow the Bellcore floor loading standard of 114.7 lb. per square foot. See the **Allied Telesis iMAP Component Specification** for the NEBS specification.
Power Supply	Connect to a reliably grounded -48VDC source. The branch circuit must provide a 30A overcurrent protection device. Wiring shall follow NEC or local code requirements for permanently connected equipment.

Table 2. Site Requirements for iMAP 9810, Office Installation (Continued)

Type	Description
Spacing These measurements are for an EIA mid-mount. For other options contact your Allied Telesis representative.	Refer to Figure 2 Central Office Rack and its numbers: **1**. Mounting Width Aperture: 19.7 in (500.4mm) min. **2**. Aperture between mounting flanges: **-** 17.5 in (444.5 mm) min. (center-mounted flange) **3**. Total Shelf Depth: 12 in. (310 mm): **a**. In front of Reference Plane for equipment (i.e. subracks): 5 in (130 mm) **b**. Behind Reference Plane: 7 in (180 mm)
Horizontal Rack (Vertical Mount) Constraints 	The TN-253, 9810 chassis may be mounted in a vertical orientation provided specific constraints are adhered to as follows: - The chassis must be installed in a restricted access location accessible only to qualified service personnel. - The surface underneath the chassis must be non combustible. (Concrete or other non-combustible surface such as steel). Nothing can be located between the bottom of the chassis and this surface. - There must be a minimum of 4 inches between the bottom, or air inlet side, of the chassis and the non-combustible surface for proper air intake. - There must be a minimum of 4 inches between the top, or air outlet side, of the chassis and any surface immediately above the chassis. - If any product is to be mounted above the 9810 chassis, it should be installed first to minimize the risk of the installer dropping any tools or parts into the 9810 chassis. If this is not possible, it is a requirement that the 9810 chassis be powered off and the chassis covered with a solid surface when installing anything above it. Once the equipment is installed, the solid surface may be removed and the 9810 chassis power turned back on. - The chassis must be oriented such that the air intake is facing downwards and the air outlet is facing upwards. - A horizontal rack is required to which the 9810 chassis shall be permanently affixed, similar to installation in a vertical rack.

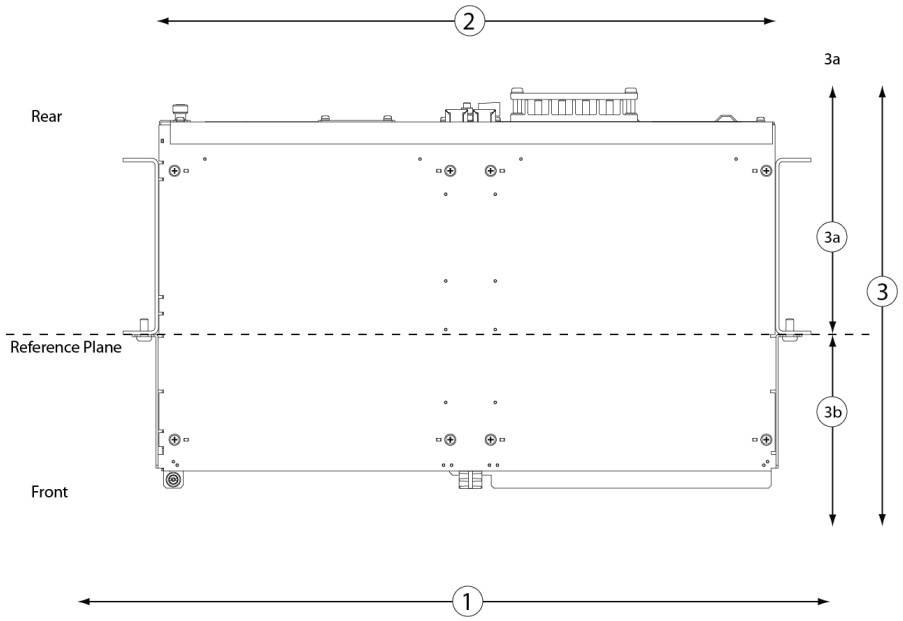

Figure 2. iMAP 9810 Space Requirements for Open Rack Environment

Installation Tools and Materials

Here is a list of tools and materials you need to supply to install the iMAP 9810:

Table 3. Tools and Materials Checklist

Item	Quantity	Description
MGMT cable	1	RJ-45, connectorized at one end, Cat 5
Bay Power Cabling		10 awg, length determined by shelf position and how cabling is routed
Alarm cable	3	RJ-45, connectorized at one end, Cat 5 Cables for the alarm I/O lines must be less than 6 meters long, unless there is already a more constraining limit in place.
Bolt	6	M6 (Number depends on how shelf mounted)
Voltmeter	1	Used to check the voltage at the terminal block
Double crimp terminal	as needed	Required for ground wiring.
Crimping Tool	1	Used to put ring terminals on power cabling.
#2 Phillips screwdriver	1	Used for mounting the chassis
Ring Terminals		#5 studs for 10 awg wire
Console Cable	1	RJ-45, connectorized, Cat 5 Used to connect local PC/terminal for local interface (usually through an RJ-45 to RS232 converter)
cable ties	as needed	n/a

Chapter 3

Mounting the Chassis in an Equipment Rack

This chapter describes how to install the iMAP 9810 in the following sections:

- ❒ “Checking Components are Present” on page 28
- ❒ “Installing the Chassis” on page 29

Caution

FCC - The Allied Telesis 9000 product series complies with FCC requirements for emissions radiation. Users of the Allied Telesis 9000 product are cautioned that any changes or modifications not expressly approved by the party responsible for FCC compliance could void the user’s authority to operate the product.

Checking Components are Present

Ensure that all components you need for the installation are present:

- ❒ iMAP 9810 shelf
- ❒ PEMFC (2)
- ❒ FM9
- ❒ Network Module (at least 1) and SFP for each Network Module
- ❒ Control Module (2)
- ❒ Service Module (at least 1 up to 8)
- ❒ FPF (none to 7, depending on the Service Module configuration)
- ❒ FPH (none or 1, depending on Network Module configuration)
- ❒ Cable for each Service Module (length determined by office configuration)

> **Note**
> All of these items can be ordered as required. Refer to your Allied Telesis representative for orderable part numbers. Refer to the **Allied Telesis iMAP Component Specification** for more information.

Enter into your office records the serial number of the chassis, which will be a S/N label on the rear of the chassis. You will need the product serial number to troubleshoot problems with Allied Telesis support.

Installing the Chassis

Caution
Ensure that no cards are present in the iMAP chassis until the chassis is mounted in a rack/cabinet, properly connected to earth ground, and the power connections installed and verified.

1. In an antistatic environment, remove the chassis from its packaging.
2. Note the flanges, which are attached so that the shelf is center-mounted.

Note
If you want to front mount the Allied Telesis 9810 chassis, contact your Allied Telesis representative.

Vertical Rack (Horizontal Mount)

1. Install the bottom mounting bolts in the rack. Tighten until there is a 1/4 inch gap between the bolt flange and the rack surface.
2. Pick up the Allied Telesis 9810 chassis by placing your hands on the inside of the chassis, palms up, and placing in the rack, lining up the notch on the bottom of the flange with the bottom mounting bolt.
3. Once the shelf is mounted, hand tighten the bottom bolts.
4. Install the remaining mounting bolts. Use a minimum of three bolts for each side, with the other two bolts used being one of the middle mounting groups and one at the top. Refer to Figure 3.
5. Tighten the flange bolts to secure the shelf. Refer to Table 4.

Note
An alternative to this procedure is from Step 2 forwards, have one person hold the chassis in place while another person inserts the bolts into the chassis

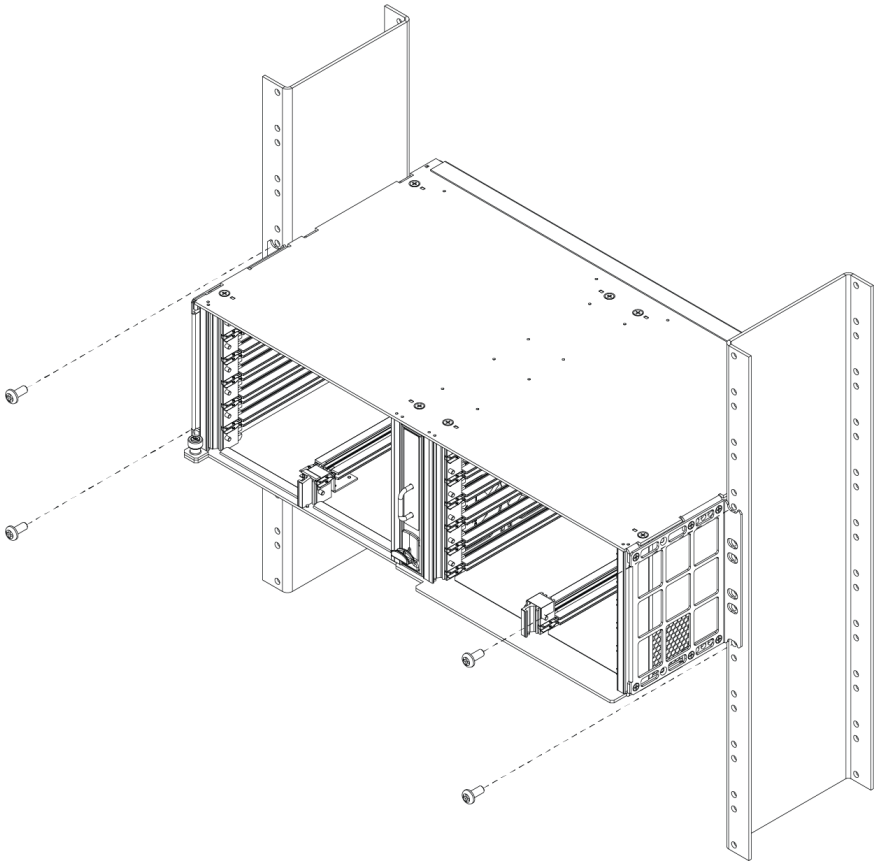

Figure 3. Mounting the Allied Telesis 9810 Chassis into a Vertical Rack Mount

Horizontal Rack (Vertical Mount)

1. Rest chassis on the bottom rack element and loosely install bottom mounting bolts.
2. Install the top mounting bolts into the rack. Refer to Figure 4.
3. Tighten the bolts to secure the chassis.Refer to Table 4

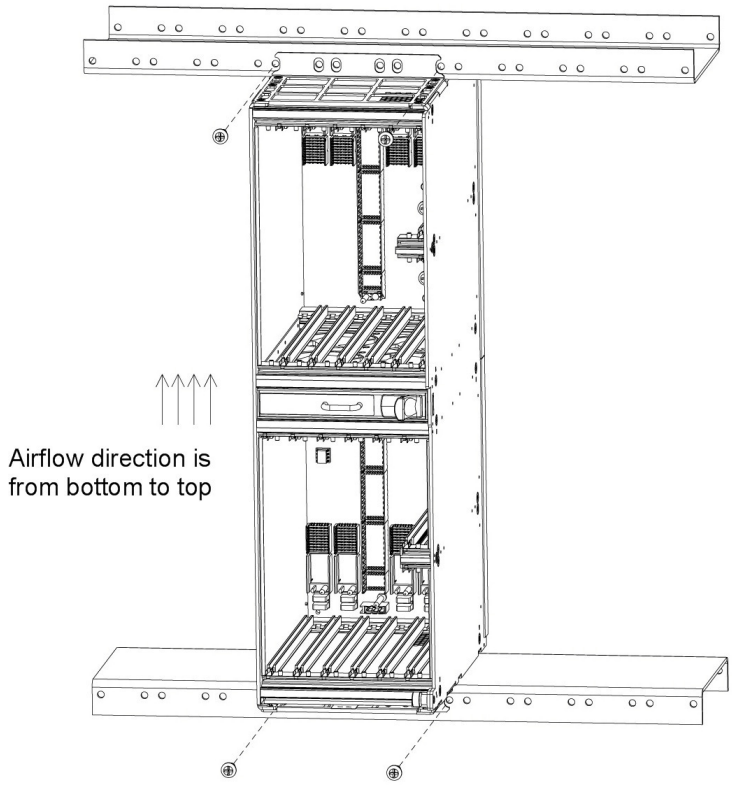

Figure 4. Mounting the Allied Telesis 9810 Chassis into a Horizontal Rack Mount.

Table 4. Chassis retaining screw torque setting

Torque setting for M6 chassis retaining screws or 12-24 screws	35.0 in lb. MAX

Chapter 4

Installing the Power Supplies

This chapter explains how to install the power supplies. It has the following sections:

- ❒ “Protecting Against Electrostatic Discharge (ESD)” on page 34
- ❒ “Connecting the Grounding Stud” on page 35
- ❒ “Connecting the Power” on page 37
- ❒ “Connecting Alarm Cables” on page 39

Protecting Against Electrostatic Discharge (ESD)

Proper ESD protection is required when handling equipment. Installation and maintenance personnel should be properly grounded using ground straps to eliminate the risk of ESD damage to the equipment.

- ❒ Whenever dealing with electrostatic-sensitive equipment, wear a ground or foot strap.
- ❒ Ensure the power source for the product is off.

Antistatic procedures:

- ❒ Verify that the chassis is electrically connected to earth ground.
- ❒ Wear an ESD-preventive device such as a foot strap or wrist strap, ensuring that it makes good contact with the user's skin. If a foot strap is used, the floor must be ESD conductive.
- ❒ Connect the clip from the ESD-preventative device to an unpainted surface of the frame, rack or ESD point on the chassis frame connecting it directly to ground. This ensures that unwanted ESD voltages safely flow to ground.
- ❒ Wear the ESD-preventive device correctly to properly guard against ESD damage and shock. If no foot or wrist strap is available, the user should ground themselves by making contact with an unpainted, metal part of the chassis.

Connecting the Grounding Stud

The primary ground for the iMAP 9810 shelf is a grounding stud located on the rear of the chassis (it will have the grounding symbol ⏚).

Caution
The separate protective earthing terminal provided on this product shall be permanently connected to earth.
Do not proceed until the earth ground connection has been verified.

Note
There is only one grounding procedure, since the Office and Logic Ground are integrated.

1. Using a 10 awg grounding cable (green with yellow stripe), connect the chassis grounding stud to office primary ground using KEPS nuts. Connect the wire to the grounding stud using a double crimp terminal (PANDUIT PMNF6-4R or equivalent). Refer to Figure 5

   Note
   Torque setting for the grounding stud nut is 31.7 in. lb. (3.60 N*m) MAX. When tightening the outer nut, ensure that the inner nut is held securely.

2. Since the signal and primary office grounds are to be combined, installation is complete. Refer to Figure 5.

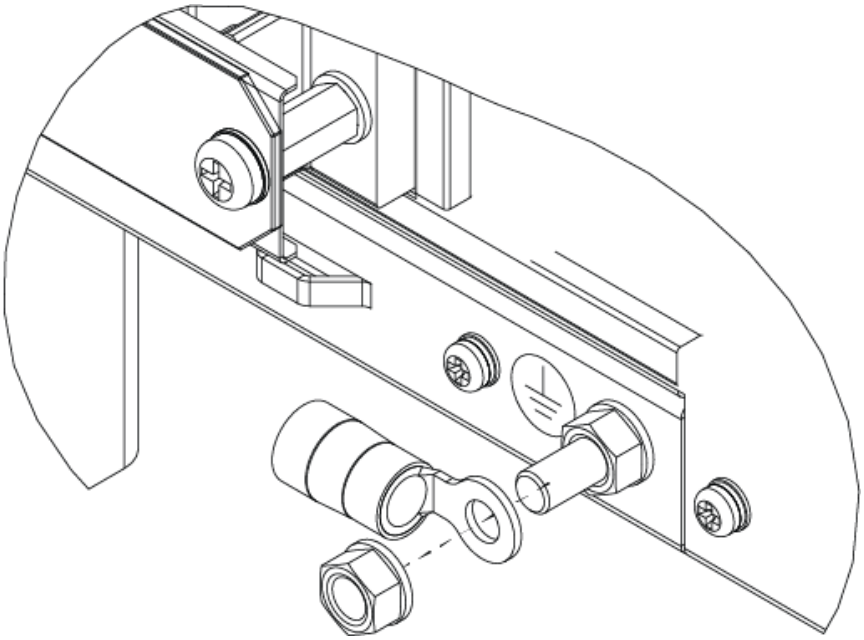

Figure 5. Primary Grounding Post Exploded View

Connecting the Power

Before connecting any power (or grounding) cable, ensure the following:

1. Connect to a reliably grounded 48VDC SELV (Safety Extra Low Voltage) source.
2. The branch circuit overcurrent protection must be rated 30A Max.
3. A readily accessible disconnect device that is suitably approved and rated shall be incorporated in the field wiring
4. The customer-provided power (-48 VDC) is off (visibly disconnected).
5. Use 10 AWG copper conductors.
6. DC return lines that are part of the iMAP 48V power feed should be bonded to GND at the battery plant or rectifier, as dictated by local or national codes. Do not bond DC return to GND within the iMAP chassis or terminals.

To connect the power cable:

1. Remove the plastic cover for the power and grounding terminals.
2. Connect the -48VDC power feeds and DC returns for the A and B power sources.

Note
The torque settings for terminal block nuts is 20 in-lbs (2.26 N*m) MAX.

3. Replace the plastic cover.

Note
The shelf can operate on one power feed (A or B). The customer can select to connect the A and B feeds to different customer power sources, so that if one power source goes down, the shelf can continue to operate. The PEMFCs are interconnected such that if one power supply is lost (such as A) with its associated PEMFC (in this case the left PEMFC), the Fan Controller function will still be powered by the other (right) PEMFC.

Caution
If you utilize a single power source, a Major alarm will be raised in the iMAP 9810 system. To clear the alarm, jumper the 48A and 48B

feeds together as well as the RET A and RET B, as illustrated in Figure 6. It is recommended not to have a single power source.

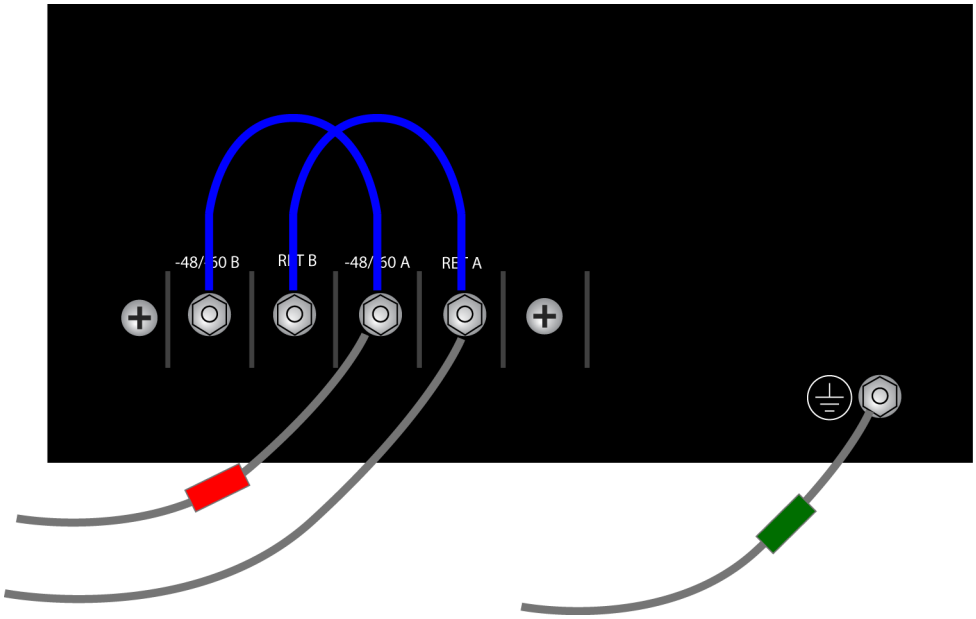

Figure 6. Single Power Source Jumpers

Connecting Alarm Cables

Note
Connecting the alarm cables at this time is optional. After initial system installation is complete, the user can connect the alarm cables and configure the system alarms.

Two RJ-45 plugs are used as connecting cables for external alarms. Connect them as follows:

- one RJ-45 used for alarm indicator input, into the ALM IN port
- one RJ-45 used for the ALM OUT port as required.

Refer to the *Allied Telesis iMAP Component Specification* for more information.

Note
Cables for the alarm I/O lines must be less than 6 meters long, unless there is already a more constraining limit in place.

Chapter 5

Installing the System Cards

This chapter explains how to install the PEMFC and FM9 system cards. It has the following sections:

- ❒ “Installing the PEMFC(s)” on page 42
- ❒ “Installing the Fan Module (FM9)” on page 43
- ❒ “Applying and Checking Power” on page 44

Note
Do not attempt to install system cards without observing correct antistatic procedures. Failure to do so may damage cards.

Note
Ensure that all cards are seated properly. A card that is only partially connected to the backplane may affect system operation.

Installing the PEMFC(s)

With the iMAP 9810, Power Entry Modules (PEMFCs) are latch-type cards and therefore installed similarly to the network module cards.

The PEMFCs go into Slots 2 and 3.

1. Ensure the customer power supply is OFF.
2. Take the card from its antistatic container.
3. Ensure the PEMFC switch is OFF (O).
4. Hold the card securely with component side up (lock-latch and label on the inside of the chassis)
5. Locate the half-slot where the card is to be inserted.
6. Press the release button on the inside of the latch and push the latch out.
7. While holding the card, slowly but firmly push the card into the slot until the latch begins to engage the locking rail.
8. Close the latch until the card locks into place.

Installing the Fan Module (FM9)

1. Take the FM9 from its antistatic container.
2. Slide the FM9 into the center slot, and push until the latch clicks.

Note
The FM9 has a push-to-close latch, so when the latch clicks, the FM9 is fully seated.

Applying and Checking Power

Caution
Do not install any Control Modules, Service Modules, or Network Modules into the iMAP chassis until connection to earth ground, -48V, and RTN have been established and verified.

1. Ensure the customer power supply is OFF.
2. Ensure that the PEMFC power switches are OFF (0).
3. Turn the customer power supply ON. Power is now being applied to the terminal block but not to the shelf components. Verify the LINE PWR LED is ON for the PEMFC(s).
4. At the rear of the chassis, check for voltage using a voltmeter. With the shelf operating a nominal voltage of -48VDC, the reading should be between -40 to -57.6 VDC. If the voltage is outside this range, check the customer-supplied power.
5. Turn the PEMFC power switches ON (|). Verify the SYS PWR LED is ON for the PEMFC(s)
6. The fans will start to operate.

Note
If the fans do not operate, ensure the FM9 is installed as part of the chassis. If the FM9 is installed, contact your Allied Telesis representative.

The fans are designed to run at high speed when no Control Module (CFC) is installed. When a CFC is installed they will run at high speed until the CFC slows them down based on temperature needs.

7. Turn the PEMFC power switches OFF (0). Power will be reapplied after you install the line cards.

The shelf is now ready for the remainder of the cards to be inserted.

Chapter 6

Installing the Line Cards

This chapter explains how to install the line cards. It has the following sections:

- ❒ “Installing the Control Module(s)” on page 46
- ❒ “Installing the Service Module(s)” on page 47
- ❒ “Installing the Network Module(s)” on page 49
- ❒ “Installing the Fiber Interface Module(s)” on page 50
- ❒ “Installing Filler Plates” on page 51

Note
The Control Module, Network Module, and Service Module cards can be inserted and removed while the power is on.

Installing the Control Module(s)

Caution
Do not install any Control Modules, Service Modules, or Network Modules into the iMAP chassis until connection to earth ground, -48V, and RTN have been established and verified.

Note
Do not attempt to install system cards without observing correct antistatic procedures. Failure to do so may damage cards.

1. Take the card from its antistatic container.
2. Hold the card securely with the lock-latch and label on the inside of the chassis as illustrated in Figure 7.

Figure 7. CFC100 Faceplate (for slot 8)

3. Press the release button on the inside of the latches and push the latches out. (Refer to Figure 8.)
4. Locate the slot (8 and 9) where the cards are to be inserted.
5. While holding the latches/faceplate, slowly with a firm pressure push the card into the slot until the latches begin to engage the locking rail.
6. Close the latches until they lock into place.
7. For two CFCs, repeat this procedure for slot 9.

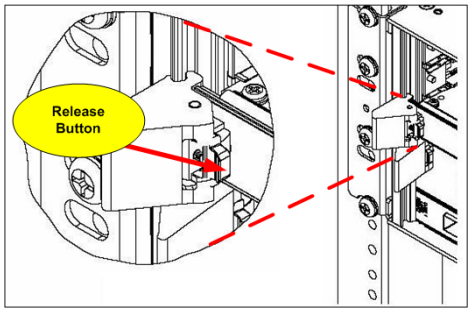

Figure 8. Latch in the Out Position (Release Button has been Engaged)

Installing the Service Module(s)

Caution
Do not install any Control Modules, Service Modules, or Network Modules into the iMAP chassis until properly grounded to earth ground, -48V, and RTN connections have been established and verified.

Note
This example is for the FE10, but it can be applied to any SM supported by the 9810 system.

The Service Modules can be placed in any of the following slots: 4, 6, 10, 12 (left), and 5, 7, 11, 13 (right). It is recommended that the slots be filled in numerical order slot 4-13.

1. Take the card from its antistatic container.
2. For insertion into slots 4, 6, 10, or 12, hold the card securely with component side down. For insertion into slots 5, 7, 11, or 13, hold the card by its latches with component side up. (For any slot, the latch/label will go on the inside of the chassis). Refer to Figure 9.

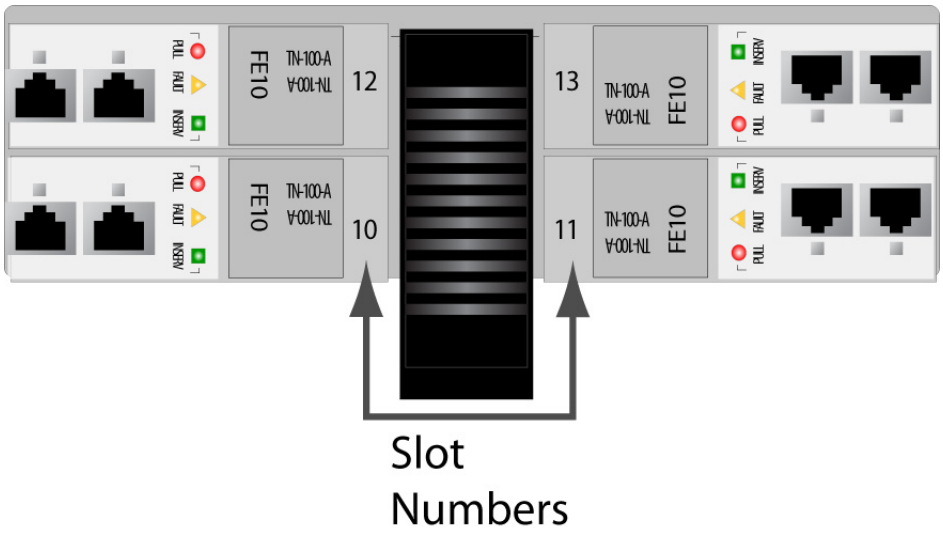

Figure 9. For 9810 SM Cards, Slot Numbering

3. Press the release buttons on the inside of the latches and push the latches out. (Refer to Figure 8.)

4. While holding the card, slowly but firmly push the card into the slot until the latches begin to engage the locking rail.

5. Close the latches until the card locks into place.

Installing the Network Module(s)

Caution
Do not install any Control Modules, Service Modules, or Network Modules into the iMAP chassis until properly grounded to earth ground, -48V, and RTN connections have been established and verified.

Note
This procedure can be applied to any Network Module supported on the iMAP 9810.

The Network Module(s) go into Slots 0 and 1. It is recommended that Slot 0 be filled first.

1. Take the card from its antistatic container.
2. Hold the card securely with component side down (lock-latch and label on the inside of the chassis).
3. Locate the half-slot where the card is to be inserted.
4. Press the release button on the inside of the latch and push the latch out. (Refer to Figure 8.)
5. While holding the card, slowly but firmly push the card into the slot until the latch begins to engage the locking rail.
6. Close the latch until the card locks into place.

Installing the Fiber Interface Module(s)

The GE3, XE1 and XE1S Network Modules support pluggable fiber interface modules for additional connectivity options, as follows:

- ❒ GE3 - SFP
- ❒ XE1 - XFP
- ❒ XE1S - SFP+

To install a fiber interface module:

1. Open the latch on top of the module.
2. Insert the module into into the fiber interface slot on the card. The module will only fit into the slot in one way.
3. Push the module into the slot until it is fully seated.
4. Close the latch to lock the module into place.

Installing Filler Plates

The FPF and FPH are needed to keep dust from entering the chassis and to ensure proper airflow. The shelf may overheat or become damaged if these are not properly installed in every unused slot.

Do not allow the metal plate to touch the components of neighboring cards.

While inserting the FPF and FPH, be careful not to get fingers pinched between cards.

Installing the FPF

For the Allied Telesis 9810, FPF are installed in empty service module slots. To install the FPF:

1. Hold the FPF card securely and slowly but firmly push the card into the slot until the latches begin to engage the locking rail.
2. Close the latches until the card locks into place.

Table 5. 9810 system configuration and installation of filler plate full (FPF)

System Configuration	Service Module Location	Location of filler plates
9810 system	4, 6, 10, 12 (left) and 5, 7,11, 13 (right)	Empty Service Module slots

Installing the FPH

For the Allied Telesis 9810, FPH are installed in empty network module slots. To install the FPH:

1. Hold the FPH card securely and slowly but firmly push the card into the slot until the latch begins to engage the locking rail
2. Close the latch until the card locks into place.

The placement of filler plates is dependent upon the configuration of the 9810 system. The following table illustrates the differences between the two configurations.

Table 6. Single or dual network module configuration and installation of filler plate half (FPH)

System Configuration	Network Module Location	Location of filler plate
One network module	Half slot 0 (recommended)	Half slot 1
Two network modules	Half slot 0 and 1	None

Chapter 7

Starting the System

This chapter explains how to start the system. It has the following sections:

- “Configuring the Local Terminal or PC” on page 54
- “Connecting the System Cables” on page 56
- “Applying Power and Checking the Startup Sequence” on page 58
- “Checking the Configuration” on page 61

Configuring the Local Terminal or PC

You can use the CONSOLE terminal port during the initial installation startup to connect the iMAP 9810 to a local management device, which can be:

- A terminal (VT-100 compatible)
- A PC with terminal emulation software

The CONSOLE port is an RJ45 connection. Pinout is as follows:

- Pin 3 -TXD
- Pin 6 - RXD
- Pin 4 (or 5) - GND

The CONSOLE port is connected to a pass-through connector to provide a DB9 female socket configured as a DCE, which allows for the direct connection to the terminal or PC.

The following modem control signals are not in the connector:

- Clear To Send
- Request To Send
- Data Set Ready
- Data Terminal Ready
- Carrier Detect

The settings for the CONSOLE port are factory configured with the following default values

Note
When using the CONSOLE port, ensure that the terminal emulation software has FLOW CONTROL disabled.:

Table 7. Default Asynchronous Port Settings

Option	Default	Option	Default
ATTENTION	BREAK	MAXOQLEN	0 (Unrestricted)
CDCONTROL	IGNORE	MTU	1500
DATABITS	8	NAME	ASYN 0
DEFAULTSERVICE	FALSE	OUTFLOW	HARDWARE
DTRCONTROL	ON	PAGE	22

Table 7. Default Asynchronous Port Settings

Option	Default	Option	Default
ECHO	ON	PARITY	NONE
FLOW	HARDWARE	PROMPT	DEFAULT (CMD>)
HISTORY	30	SECURE	ON
INFLOW	HARDWARE	SERVICE	NONE
IPADDRESS	NONE	SPEED	9600
IPXNETWORK	NONE	STOPBITS	1
LOGIN	ON	TYPE	VT100

1. Connect the RS-232 cable from the terminal or PC to an RS-232 pass through device and then to the CONSOLE port.
2. If the device is a PC, bring up the terminal emulation window
3. Emulation settings are: 9600, 1 STOP, No flow, No parity, 8-bit data

Connecting the System Cables

Service Module

SMs with RJ45 connectors

Attach the RJ45 end of the Ethernet cable to the specified port on the FE10 card.

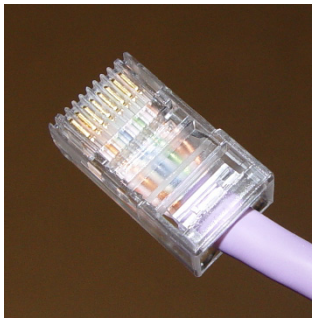

Figure 10. FE10 Cable Connector

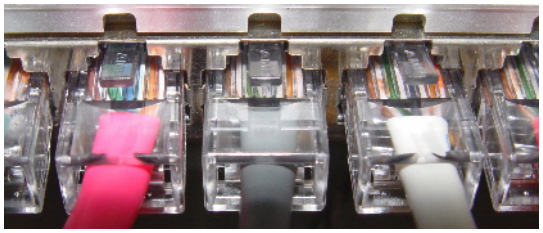

Figure 11. FE10 data cable connectors

Note
Each RJ45 cable connected to the FE10 card should be dressed neatly and tightly. Do not permit cables to loop.

Figure 12. FE10 RJ45 Connector Dressing

SMs with RJ21 connectors

Attach the connectorized end of the cable to the SM card.

1. Use the screw and a tie wrap to secure in place.
2. Split off voice and data service using DC non-blocking splitters

Note
Splitters are not required when using ADSL24SA cards.

Note
Do not over tighten the screw. Hand tighten to secure. Then install the tie wrap, pulling it snug enough to secure the connector.

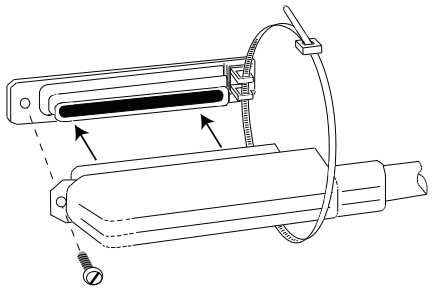

Figure 13. RJ21 cable connector at the SM card

Network Module

1. Attach the optical cables to the NM card.
2. Attach the other end of the optical cables to the uplink device.

Note
Connect this cable only if you plan to use the MGMT port for the management interface.

Data Management Cable (MGMT Port on Control Module)

Follow the instructions included with the Control Module for placing the ferrite on the ethernet cable.

Connect one end of the ethernet cable to the MGMT port and connect the other end to a port that connects to the TCP/IP network.

Applying Power and Checking the Startup Sequence

1. Turn the PEMFC Power Switches ON (|).
2. Observe that the fans should start and airflow should be begin horizontally through the unit.

> **Note**
> If installing two CFC modules, you will have to connect to the active module (observe ACT LED on modules).

3. Observe the startup sequence on the terminal interface, which should show the following:

> **Note**
> The startup sequence the user observes on the terminal may not exactly match the one illustrated below. However, it should be free of any error messages.

```
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

ATI 100G Central Fabric Controller Boot Loader
  Version 14.0.b.01.20090205
  Created on Sat 03/14/2009 at 6:55a
  Copyright Allied Telesis Inc., 2009

VxWorks Version 5.5.1 for IBM PowerPC 440GX Rev. F
  BSP version 1.2/3
  Copyright Wind River Systems, Inc., 1984-2002

@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

FPGA Version 0.5
Starting Telesyn Product Software Loading.
Attaching to Flash File System ... done.
/tffs/  - Volume is OK

Press any key to stop automatic loading of software image...
 0
Automatically loading software image...

Boot album is (current, attempt 1): '/tffs/load/cfc100_14.0.0.tar'
Checking Album's integrity...done
Loading vxWorks.bin.gz...(9567692 bytes)
Starting at 0x10000...

Attaching interface lo0...done

Adding 63149 symbols for standalone.

@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

                          ;@ @@@@@@@@@@@@@@@@@@  ====
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                       ;@@@@@@@@@   @@@@@@@@" ,@ ========
                     ,;@@@@@@@@@@@@@ @@@@@@@" ,@@@ ========
                    ;@@@@@@@@@@@@@@@@ @@@@;" ,@@@@@@ ====,
                 ,;@@@@@@@@@@@" ;@@@@@ @@"  @@@@@@@@@@@@"
               @@@@@@@@@@@"    "@@@@@ " @@@@@@@@@@@@@"
                           Allied Telesis, Inc.
```

```
ATI 100G Central Fabric Controller
  Version 14.0.0.ALPHA.20091012 (Customer-Release Build)
  Created on Mon 10/12/2009 at 05:13 AM
  Copyright Allied Telesis Inc., 2009

VxWorks Version 5.5.1 for IBM PowerPC 440GX Rev. F
  BSP version 1.2/3
  Copyright Wind River Systems, Inc., 1984-2002

Memory Size: 255 MB

@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

Logs with ID 0x454c4f47 cleared due to type change
System Time is 2009-10-19 10:39:11.005
Last reset occurred due to a power interruption.
System initializing...
/tffs/  - Volume is OK

@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

ATI 100G Central Fabric Controller Boot Loader
  Version 14.0.b.01.20090205
  Created on Sat 03/14/2009 at 6:55a
  Copyright Allied Telesis Inc., 2009

VxWorks Version 5.5.1 for IBM PowerPC 440GX Rev. F
  BSP version 1.2/3
  Copyright Wind River Systems, Inc., 1984-2002

@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

FPGA Version 0.5
Starting Telesyn Product Software Loading.
Attaching to Flash File System ... done.
/tffs/  - Volume is OK

Press any key to stop automatic loading of software image...
 0
Automatically loading software image...

Next boot attempt from same album
Boot album is (current, attempt 2): '/tffs/load/cfc100_14.0.0.tar'
Checking Album's integrity...done
Loading vxWorks.bin.gz...(9567692 bytes)
Starting at 0x10000...

Attaching interface lo0...done

Adding 63149 symbols for standalone.




@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

                          ;@ @@@@@@@@@@@@@@@@@@  ====
                        ,;@@@@ @@@@@@@@@@@@@@@@" ========
                      ;@@@@@@@@   @@@@@@@@" ,@ ========
                   ,;@@@@@@@@@@@@ @@@@@@@" ,@@@ ========
                 ;@@@@@@@@@@@@@@@@ @@@@;" ,@@@@@@ ====,
              ,;@@@@@@@@@@" ;@@@@@ @@"  @@@@@@@@@@@@"
            @@@@@@@@@@"    "@@@@@ " @@@@@@@@@@@@@"

                          Allied Telesis, Inc.

ATI 100G Central Fabric Controller
  Version 14.0.0.ALPHA.20091012 (Customer-Release Build)
  Created on Mon 10/12/2009 at 05:13 AM
```

```
  Copyright Allied Telesis Inc., 2009

VxWorks Version 5.5.1 for IBM PowerPC 440GX Rev. F
  BSP version 1.2/3
  Copyright Wind River Systems, Inc., 1984-2002

Memory Size: 255 MB

@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

System Time is 2009-10-19 10:41:14.005
System initializing...
/tffs/  - Volume is OK

Initialization completed successfully (14.0.0)

User Access Verification
Username:
```

4. The system will run initialization tests and end with the prompt `Username`:
5. Input a user ID of **officer** and a password of **officer**.
6. Check the management logs for any problems by inputting the following:

   ```
   > SHOW LOG SEVERITY=CRITICAL
   > SHOW LOG SEVERITY=MAJOR
   > SHOW LOG SEVERITY=MINOR
   ```

7. Check for any alarm conditions by inputting the following:

   ```
   > SHOW ALARMS ALL
   ```

8. Determine if there are any faults as a result of performing Steps 6 and 7.

❒ If any logs are produced, or if an alarm has a status other than INFO, contact your Allied Telesis representative and review the output.

Note
If the MAC is bad, the following is produced:

– - A SYS009 log is generated with text “**Can Not Read MAC Address**”

– - A major alarm is set against the shelf with the text “**Can Not Read MAC Address**”

❒ If there are no faults, go to section **Check the Configuration**.

Checking the Configuration

Check the software load

Input the command SHOW FILE to see the load names that are used for cards that require a software load. Loads use the following naming convention, as in this example:

`CFC100_X.Y.Z.tar` where:

- X = Major Release Version number
- Y = Minor Release Version number
- Z = Maintenance Release Version number

Refer to the **Allied Telesis iMAP Component Specification** for information on iMAP 9810 hardware and software compatibilities.

Check management interfaces

The iMAP 9810 is now connected to a local terminal over an RS232 cable and can be queried. Refer to the **Software Reference for iMAP Series Switches** for information on how to query the initial iMAP 9810 status and configure the management interfaces.

For more information on system hardware, refer to the **Allied Telesis iMAP Component Specification**.

Chapter 8

Upgrading CFC100 to CFC100GX

This chapter explains how to upgrade the 9810 chassis central fabric controller card from the CFC100 to the CFC100GX . The chapter has the following sections:

- “Upgrading the Central Fabric Controller Cards” on page 65

Guidelines

The following guidelines apply to upgrading the 9810 chassis central fabric controller card from the CFC100 to the CFC100GX:

- This procedure is disruptive to network operations because it requires powering off the chassis.
- Installing a CFC100GX card in a 9810 chassis with an existing CFC100 is not supported. In a mixed system, the inactive CFC fails to come in service. The file system is synchronized with the active CFC, but the database is not synchronized with the active CFC.
- The iMAP management software comes pre-installed on the CFC100GX. The CFC100GX uses the same software load as the CFC100.
- The CFC100GX does not support versions earlier than 17.0.3 of the iMAP management software.
- You can transfer the configuration file on the CFC100 to the CFC100GX so that the controller and Ethernet line cards maintain their configuration settings after the upgrade. You may need to edit the configuration file with a text editor before loading it onto the new controller card.
- The text editor that you use to edit the configuration file must be capable of handling ACSII text and must not insert any special or hidden characters into the text file.

Upgrading the Central Fabric Controller Cards

To upgrade the chassis from CFC100 to CFC100GX, perform the following procedure:

1. Start a local or remote management session with the active CFC100 in the chassis.

   Note
   If the chassis is using DHCP relay, perform step 2. Otherwise, go to step 3.

2. If the chassis is using DHCP relay, do the following:

   a. Enter the SHOW DHCPRELAY INTERFACE command to view the status of the DHCP relay filtering option on the ports:

   ```
   SHOW DHCPRELAY INTERFACE=*.*
   ```

   b. Examine the output of the command to determine if the filtering option is enabled (ON) on any of the ports. If filtering is disabled (OFF) on all the ports, go to step 3.

   c. Write down the port numbers on which the filtering option is enabled.

   d. Use the SET DHCPRELAY INTERFACE to disable filtering on those ports on which it is enabled. This example of the command disables filtering on port 1.2:

   ```
   SET DHCPRELAY INTERFACE=1.2 FILTER=OFF
   ```

3. Use the BACKUP CONFIG command to back up the CFC100 configuration file to a network server. This example of the command backs up the configuration file to a TFTP server with the IP address 149.135.78.12 and assigns it the filename **9810_chassis.cfg**:

   ```
   BACKUP CONFIG FILE=9810_chassis.cfg TFTP
   SERVER=149.135.78.12
   ```

   Note
   Do not use the BACKUP DATABASE command to backup the configuration. It creates a binary file that cannot be edited.

4. Power off the 9810 chassis.

5. Remove the CFC100 card(s) from the chassis.

6. Install the new CFC100GX cards. For instructions, see “Installing the Control Module(s)” on page 46.

7. Power on the chassis. For instructions, see “Applying Power and Checking the Startup Sequence” on page 58.

8. Wait a few minutes for the controller and line cards to complete the initialization process.

9. Use the console port to assign an IP address to the active master CFC100GX card. For instructions, see “Configuring the Local Terminal or PC” on page 54.

10. After the initial configuration, start a local or remote management session on the chassis.

11. Enter the SHOW FILES command to display the files on the active CFC100GX.

12. Verify the