

# Base Station Installation Guide



ADICOM WIRELESS

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**Safety Notes**      **The following safety notes are used throughout this manual. Familiar Yourself with each of the notes and its meaning before installation**

**Caution**      **Caution denotes a hazard. It calls attention to a procedure that, if the user do not Correctly performed or adhered to, would result in damage to or destruction of the product. Do not proceed beyond a caution sign until the indicated conditions are fully understood and met.**

**Warning**      **Warning denotes hazard. It calls attention to a procedure which, if not correctly performed or adhered to, could result in injury or loss of life. Do not proceed beyond a warning note until the indicated conditions are fully understood and met.**

**Product Marking**      **The following markings and caution and warning labels are used on the Adicom products. Be sure to observe all cautions and warnings**

## **Instruction Manual**



The instruction documentation symbol. The product is marked with this symbol when it is necessary for the user to refer to the instruction in the manual.

## **General Safety Considerations**

**Cover Warning**      **No operator serviceable parts inside. Refer servicing to qualified personnel. To prevent electrical shock, do not remove cover.**

**Fuse Warning**      **For continued protection against fire hazard, replace line fuse only with same type and rating. The use of other fuse or material is prohibited.**

## Table of Contents

Safety Notes .....	2
1.0 Introduction.....	5
2.0 Required Materials .....	5
2.1 Documents Required .....	5
2.2 Installation Material Kit Parts List.....	6
2.3 Installation Tools .....	8
2.4 Pre-Installation Activity .....	8
3.0 Equipment Rack .....	9
3.1 Assembly of the Equipment Rack.....	10
3.1.1 Rack Assembly .....	10
3.1.2 Rack Installation .....	11
3.1.3 Equipment Shelf Installation Assembly .....	13
3.1.4 Inter-shelf Cable Installation .....	17
3.2 Installing the Base Station Equipment Rack.....	25
3.3 Installing the Bulkhead Grounding Plate .....	26
3.4 Connecting the Equipment Rack to the External Connections.....	26
3.4.1 Rack Grounding to Facility Earth Ground.....	27
3.4.2 Primary Equipment Power for Indoor Installations .....	29
3.4.3 NMS Shelf to PSTN Installation.....	31
4.0 External Cable Installation to the Base Station .....	33
4.1 Global Position System (GPS) Connection .....	34
4.2 Analog Cable Installation to the Local Switch.....	37
4.3 Base Station Cabinet IF Cable Installation .....	40
5.0 Base Station Modules .....	42
5.1 Base Station Module Installation .....	43

## Figures/Tables

Table 2-1	Installation Kits .....	7
Table 2-2	Installation Tools .....	8
Figure 3-1	Rear and Front View of a Typical Rack Assembly .....	9
Figure 3-2	Rack Ground Terminal Block .....	10
Figure 3-3	Anchor Sleeve Installation Drawing .....	11
Figure 3-4	Rack Installation Views .....	13
Figure 3-5	Power Distribution Panel Installation .....	14
Figure 3-6	Aditus Base Station .....	15
Figure 3-7	E1 Mounting Panel .....	16
Figure 3-8	E1 Interface Card.....	16
Figure 3-9	COT Shelf Installation .....	17
Table 3-1	Shelf Ground Cable List .....	18
Figure 3-10	Grounding Wire .....	18
Table 3-2	DC Breaker Rating .....	19
Figure 3-11	Power Cable Installation .....	20
Figure 3-12	DC Power Terminations .....	20
Figure 3-13	Base Station E1 DB25 Connection .....	21
Figure 3-14	COT E1 10-pin Connector Installation .....	22
Figure 3-15	NMS Shelf RJ-45 Router Connection Installation .....	24
Figure 3-16	Rack Ground Terminal .....	27
Figure 3-17	Ground Wire to Earth Connection .....	28
Table 3-3	Gauge Cable Requirements .....	29
Figure 3-18	Back view of the Power Distribution Panel .....	30
Figure 3-19	NMS Rack Wiring Diagram .....	31
Figure 3-20	Telephone Line Terminal Strip .....	32
Figure 4-1	Rack Profile Wiring Rear View .....	33
Figure 4-2	GPS Cable Installation Diagram .....	35
Figure 4-3	GPS Cable Installation .....	36
Figure 4-4	COT Rear Diagram .....	38
Figure 4-5	Subscriber Line Terminal Block .....	38
Figure 4-6	IF Cable Diagram .....	41
Figure 5-1	Base Station Cabinet .....	42
Table 5-1	Module Slot Configuration .....	43

*NOTE: The figures in this manual are for illustrative purposes only, and may not reflect the parts used. Refer to the Bill of Materials for actual parts used.*

## 1.0 Introduction

This document is intended to serve as a general reference for the installation of the Aditus Base Station Rack and associated equipment. The installation procedure for each Wireless Local Loop (WLL) cell site will vary from site to site. Therefore, reference will be made throughout this document to certain Site Drawings for specific details of the site being installed which are found in this binder.

Before starting the installation, thoroughly review the Site Drawings in order to become familiar with the entire network being installed and the relationship of each site to others. It is assumed that a site survey was previously completed and the survey team, Network Engineer and customer has validated and approved the Site Drawings of this manual. These documents are also used to configure and test the equipment prior to shipping.

If the Site Drawings are not available or if they are incorrect, please contact your AdiCom representative.

## 2.0 Required Materials

### 2.1 Documents Required (See Site Drawings)

#### Network Diagram:

This diagram illustrates and provides general detail of the network being installed. It provides an overview of each site and the relationship with other locations.

#### System Block Diagram:

This diagram is an overview of the equipment being installed for each of the sites identified in the Network Diagram. It references site Identifiers (A, B, C....) and Base Station Identifiers (A1, A2, B1.....) numbers.

#### Site Diagram:

This diagram details the general facilities layout with buildings, towers, and other unique features for reference.

**Site Floor Plan:**

These diagrams detail the location of equipment, cable runs, power panels, and other items required to properly locate and install the rack and associated equipment.

**Site Equipment Interconnect Diagram:**

This diagrams the cable runs for all cable connections from the rack assembly to their termination points.

**Rack Profile Drawings:**

This drawing illustrates the rack configuration, module loading locations and other details necessary to configure the rack to meet the network requirements.

**Equipment List:**

The equipment list is a detailed inventory of all equipment and materials delivered to the site as required in the network design.

## **2.2 Installation Material Kit Parts List**

- ❑ Included in the shipping crate will be materials used for the installation of the rack and cabling used in the installation. Because the equipment configuration may be different for each site, refer to the Equipment List included with the Site Drawings.
- ❑ Inventory the materials received with those listed in the Equipment List to verify that all the materials are available. The cable delivered with the equipment will be sufficient length to meet the requirements defined in the installation documentation. The installation instructions will detail the cable requirements for that site being installed.

- Table 2-1 lists the installation kits used. Since each site is unique, the final material list will be detailed in the Equipment List.

Table 2-1. Installation Kits

Kit Description	Section	Use
Rack Installation Kit	Section 3.1.1	Assembling and installing the rack
Bulkhead Ground Plate Installation Kit	Section 3.3	Ground Plate for lightning protection
GPS Cable Installation Kit	Section 4.1	Connecting the GPS Receiver to the rack
Base Station Modules	Section 5.0	Modules to be installed in the Base Station



## 2.3 Installation Tools

The installer should have on hand the tools listed in Table 2-2, before attempting to install the Base Station Equipment.

Table 2-2. Installation Tools

Minimum Recommended Tools
Drill and 10 mm drill bit
Digital multimeter
Large adjustable wrench
Small adjustable wrench
Screw driver set (assorted)
Wire strippers
Wire Cutters

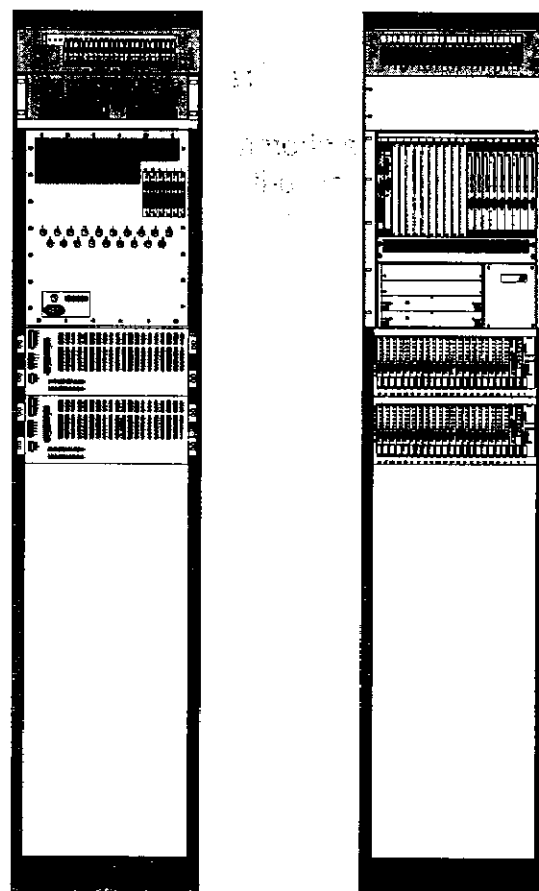
## 2.4 Pre-Installation Activity

- ❑ Prior to opening the shipping crate, inspect for any damages. If there is any damage to the crate, create a drawing or take pictures of the damage to submit to the shipping company.
- ❑ If no damage is found, refer to the Equipment list found in the Site Drawings and validate that all equipment has arrived.
- ❑ Check the rack, Base Station chassis and all other components to ensure there is no in-transit damage. Contact AdiCom Wireless, Inc. immediately if any irregularities are found. Be sure to retain packing materials and notify shipper in that event.

### 3.0 Equipment Rack

- The Aditus Base Station equipment rack may be shipped pre-assembled. If this is the case, go to Section 3.2 Installation of the Bulkhead Grounding Plate, of this manual. If the equipment will be assembled continue with this section. Depending on configuration, the shipping crates will contain other equipment as required in the site plan. Modules will be packed separately and clearly marked on the outside of the shipping box for identification.
- First refer to the Rack Profile Drawing included with the Site Drawings for the specific details of the rack profile for the cell site you are working on. Figure 3-1 illustrates the front and back view of a typical rack profile.

**Figure 3-1. Rear and Front view of a typical Rack Assembly**



### 3.1 Equipment Rack

#### 3.1.1 Rack Assembly

The rack must be assembled before it is bolted to the floor in the location identified.

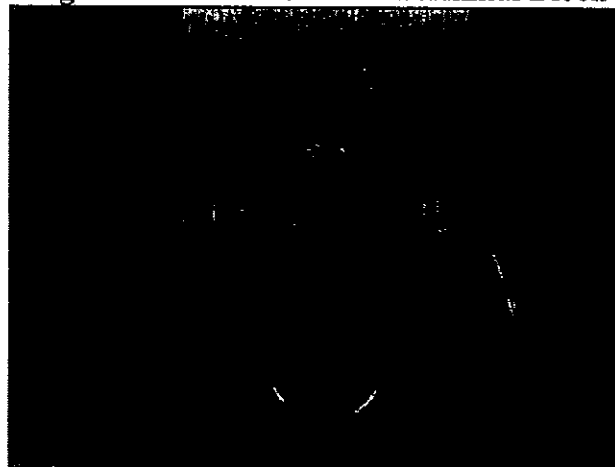
- The rack assembly will include:
  - 1) A box with the unassembled rack pieces with mounting hardware
  - 2) The Rack Installation Kit.
    - a. Ground Terminal to connect the facilities ground wire
    - b. Anchor sleeves and bolts to attach the rack to the floor
- Inventory the materials to make certain it is complete.
- Using provided instructions, assemble rack.

□ Once the rack is assembled, install the ground terminal at the top of the rack as shown in Figure 3-2.

Once the rack is assembled install the ground terminal at the top of the rack as shown in Figure 3-2.

Figure 3-2  
Rack Ground Terminal Block

**Figure 3-2. Rack Ground Terminal Block**



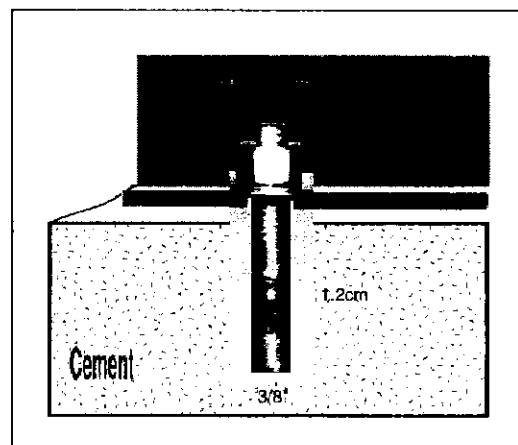
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### 3.1.2 Rack Installation

**NOTE:** The following procedure assumes installation to a concrete floor. In case this is not applicable, the rack must be braced to prevent it from over turning.

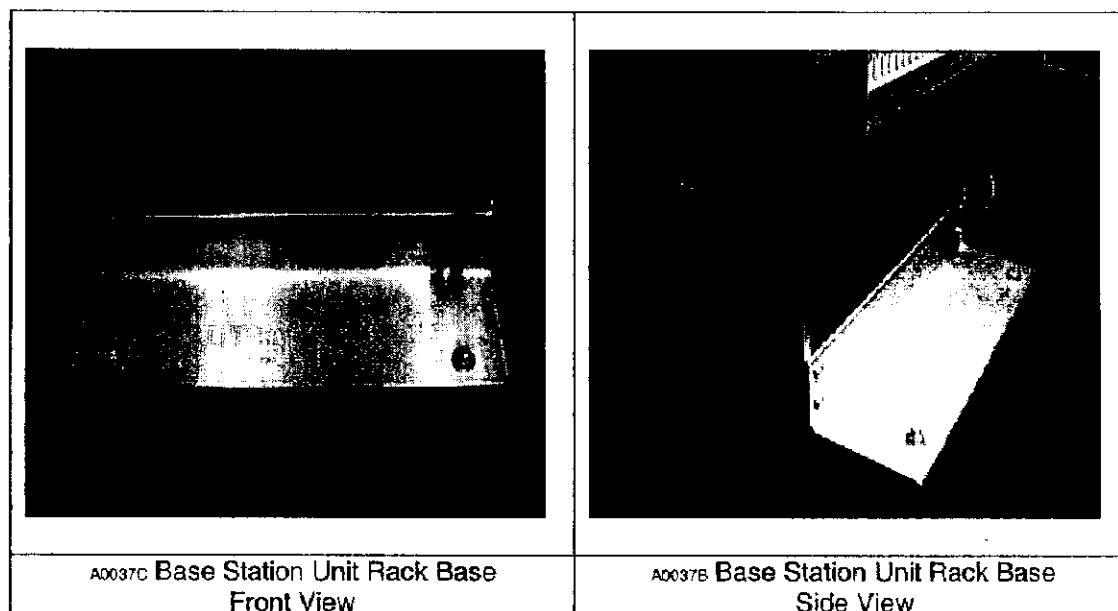
- ❑ Referring to the Facilities Site Drawing, find the location where the rack will be installed. Move the rack to this location.
- ❑ Move the rack to this location and position it so that there is adequate clearance behind the rack. If there are other equipment racks installed, align the rack with the others. On the floor, mark the center of the four mounting holes located at the base of the rack. These will be used for drilling the holes needed to install the anchor bolt sleeves.
- ❑ Drill the floor as described in the installation instructions included with the anchor sleeves using the rack base as a guide
- ❑ Unwrap anchor sleeves and thread the nut to the top of the shaft.
- ❑ Insert the sleeves into the holes drilled and drive them into the floor until the top of the sleeve ring is even with the floor.
- ❑ Screw the nut down to the rack base and then continue until the bolt rises and the sleeve sets into the concrete.

Correctly installed anchor sleeve is shown in Figure 3-3



- Once the anchor sleeves have been installed, move the rack in position over the holes and bolt the rack in place. Figure 3-4 illustrates a typical floor rack installation using concrete anchor bolts.

**Figure 3-4. Rack Installation Views**



### **3.1.3 Equipment Shelf Installation Assembly**

Once the rack has been bolted to the floor and is secure, the equipment shelves will be installed in the rack. There are a number of different equipment shelves that can be assembled in the equipment rack.

- Referring to the Rack Profile Drawing in the Site Drawing Section, identify the specific equipment shelves required for this site and identify where these will be installed in the rack. Refer to the shelf installation instruction drawing for the shelves appropriate to the rack configuration being installed.

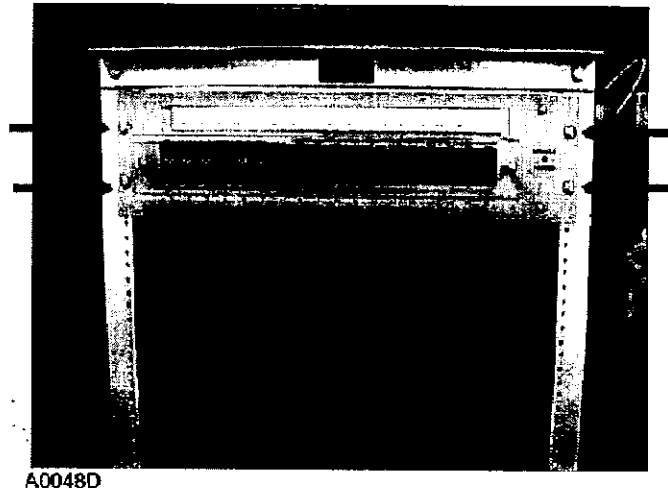
#### **3.1.3.1 Power Distribution Panel**

The Power Distribution Panel is used to connect the primary 48V DC cables to the equipment rack assembly. This primary power is distributed to the various shelves through breakers in the panel, identified for each shelf. When connecting the DC power to each shelf, make certain that the correct breaker is used.

- Assemble the Power Distribution Panel per the included instructions.

- ❑ Refer to the Rack Profile Drawing for this site and install the panel in the appropriate location with the screws shipped with the Rack Installation Kit.
- ❑ The panel is shown in Figure 3-5. Power Distribution Panel. This illustrates the assembly and it's mounting screws.

**Figure 3-5. Power Distribution Panel Installation**



### **3.1.3.2 Network Management System Shelf**

The Network Management Shelf is used to connect the Base Station to a telephone jack in the facility, allowing the centralized Network Management System to communicate with this location.

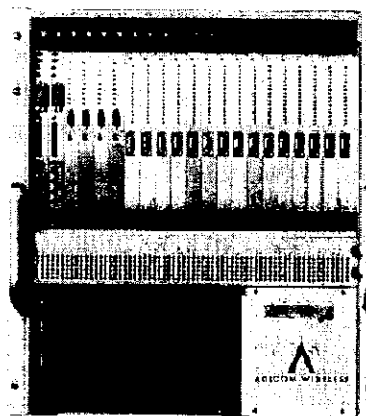
- ❑ Referring to the Rack profile Drawing for this site, identify the location in the rack for this shelf. It will normally be mounted towards the top of the rack.
- ❑ Find the shipping box labeled NMS Shelf and inspect the materials to make certain it has not been damaged.
- ❑ With the four (4) screws from the Rack Installation Kit, install the NMS shelf in the proper location.

### 3.1.3.3 Base Station Shelf

The modules for the Aditus Wireless Local Loop System are installed in the Base Station shelf. IF cabling to the antennas, E1 cabling to the switch, the GPS cable and the NMS cables are connected to this shelf.

- ❑ Referring to the Rack Profile Drawing, find the location of the Base Station Shelf.
- ❑ Find the box labeled Base Station Shelf. Open it and inspect to see if there is any damage to the shelf. There are no modules shipped with this shelf.
- ❑ With the screws from the Rack Installation Kit, install the cabinet in the location identified. If a second Base Station is required, install it in the same way. Figure 3-6. Shows the Aditus Base Station.
- ❑ It is very important to install the Base Station Shelf in the right location on the rack to be able to align all of the screws. This operation requires two people to safely align the shelf to the mounting holes of the rack.

**Figure 3-6. Aditus Base Station**



**Aditus Base Station**

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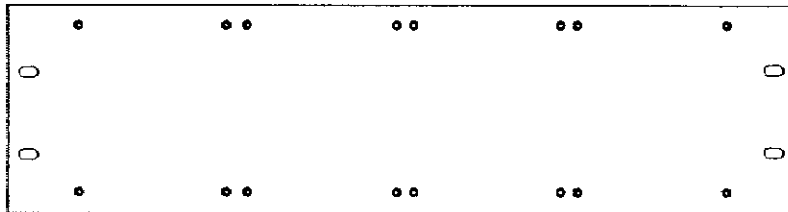


### 3.1.3.4 E1 Interface Card Installation

A E1 Panel is used to hold 1 to 4 E1 interface cards that connect the Base Station to a digital switch with E1 interface (including V5.2).

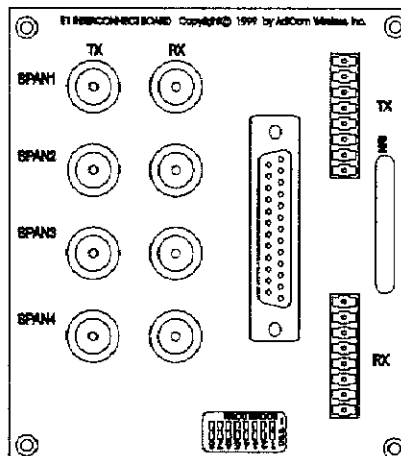
- With the screws from the installation kit, mount 1 to 4 E1 interface cards on the E1 panel. Figure 3-7 shows the E1 mounting panel.

**Figure 3-7. E1 Mounting Panel**



- With the four screws included in the rack installation kit, mount the completed E1 panel to the rack.
- Connect the DB-25 cable between each E-1 board and corresponding NIM.
- Determine the impedance type of E1 connector. For 120 Ohm twisted pair or for 75 Ohm (coax) balanced connections, make sure the rocker switches on the E1 interface card are in the "off" position. For unbalanced connections, place the rocker switches on the E1 interface card in the "on" position.
- Complete the appropriate connections to the E1 interface card. Refer to the site survey for type of connections required and order of installation.

**Figure 3-8. E1 Interface Card**

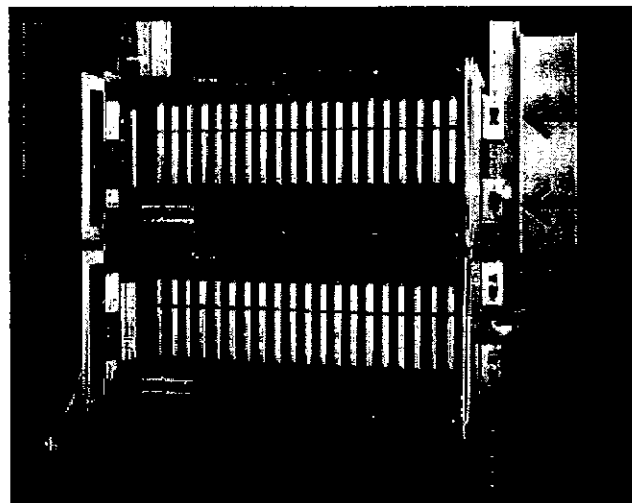


### **3.1.3.5 Central Office Terminal Shelf**

The Central Office Terminal (COT) is used to convert the E1 span lines to individual analog voice lines. It is connected to the Base Station shelf with a multi-wire cable.

- ❑ Referring to the Rack Profile Drawing, locate the position of the COT in the rack.
- ❑ Locate the shipping box labeled COT Shelf.
- ❑ With the four (4) screws included in the Rack installation Kit, install the COT in the appropriate location. Figure 3-7 - COT Shelf Installation style shows a typical installation.

**Figure 3-9. COT Shelf Installation**



A0046D Rear View

### **3.1.4 Inter-shelf Cable Installation**

After the installation of the shelves in the equipment rack, cables will be installed to provide the ground, power and signal connections within the equipment. The order of installation and the description of each connection are identified in this section.

### 3.1.4.1 Rack Grounding

Depending upon the configuration of the equipment being installed, different ground cables will be installed. Table 3-1 details the cable description used for each shelf installed in the rack.

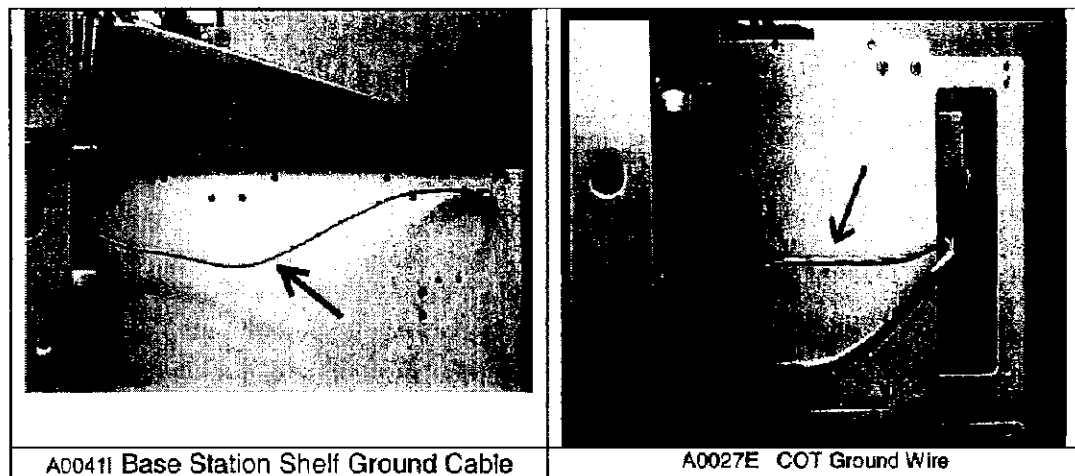
Table 3-1. Shelf Ground Cable List

Shelf Type	Cable Description
Base Station Shelf	Base Station Ground Cable
Central Office Terminal	COT Ground Cable

- ❑ Referring to the Rack Profile Drawing, identify the shelves installed in the equipment rack and identify the Ground Cables needed to ground the shelves to the rack.
- ❑ These cables will be found in the Box Station Installation Kit.
- ❑ The screws needed to install the cables on the rack will be found in the Rack Installation Kit.

Install the Grounding Wires as shown in Figure 3-10. These wires should be secured to each unit with plastic cable clamps to prevent the wires from being accidentally pulled down.

**Figure 3-10. Grounding Wire**



### 3.1.4.2 Primary Equipment Power

48VDC-power is used to provide power from the equipment rack Power Distribution Panel to each of the equipment shelves. Ground wire assembly is the same regardless of length.

- ❑ Locate the Rack DC Power Kit. It will have a 6 meter length of 12 AWG 2 conductor cable and lugs to assemble. The cable will be cut length for each shelf and the terminated.
- ❑ The DC power cable is terminated on one of the breakers installed on the Power Distribution Shelf. It is important that the DC Power Cable is connected to the correct breaker. The current ratings for breakers are shown in Table 3-2.

Table 3-2. DC Breaker Rating.

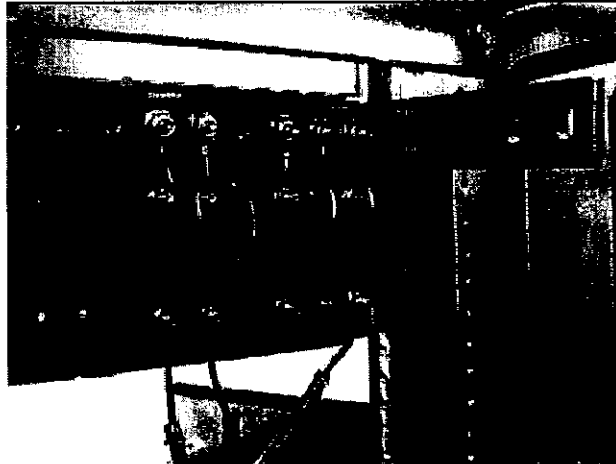
Shelf Description	Breaker Rating
Base Station Shelf	15 Amp or 20 Amp
Central Office Terminal (COT)	10 Amp
NMS Shelf	5 Amp

- ❑ Referring to the front of the Power Distribution Panel, install each DC cable to the correct breaker.

**Caution:** Verify correct polarity prior to applying power.

- Connect the lug to the bottom of the correct breaker as shown in Figure 3-11.

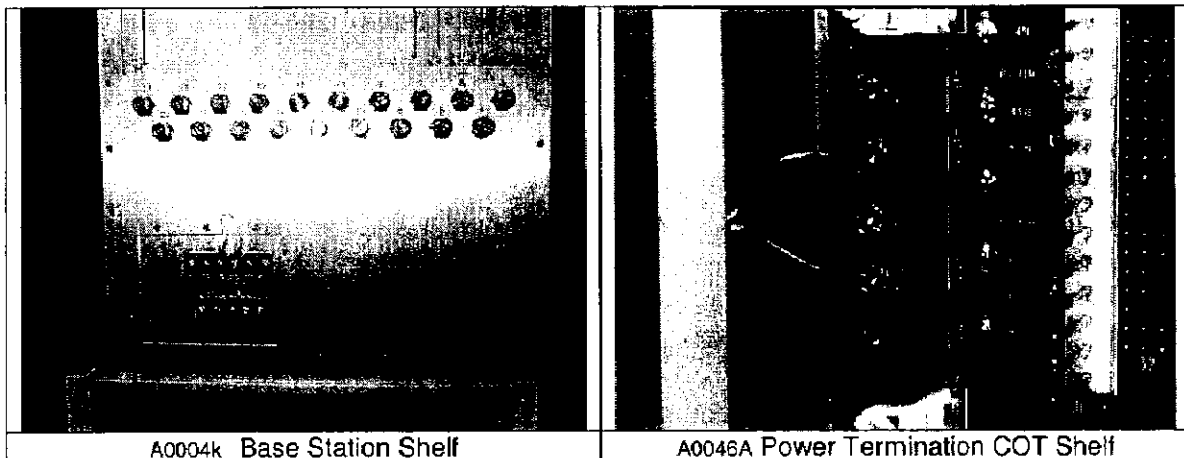
**Figure 3-11. Typical Power Cable Installation.**



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- Once the cable has been connected to the corrected breaker on the Power distribution Shelf, install the DC Power cable to each of the shelves as shown Figure 3-12.

**Figure 3-12. DC Power Terminations**



A0004k Base Station Shelf

A0046A Power Termination COT Shelf

### 3.1.4.3 Base Station to COT E1 Cable

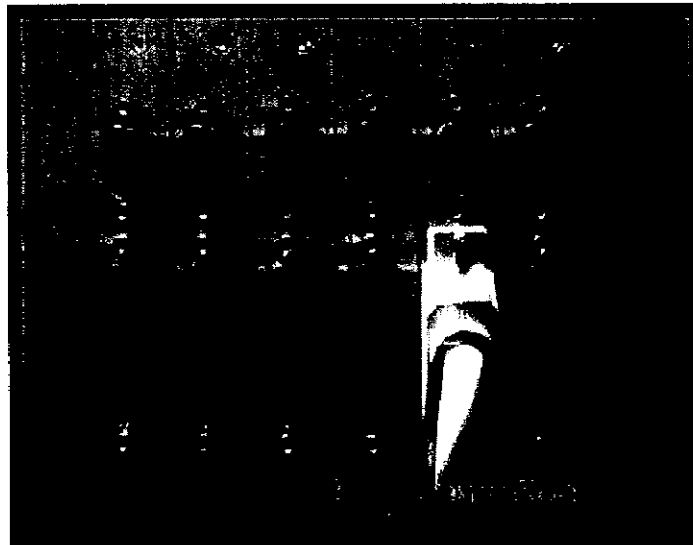
When the COT Shelf is installed in the equipment rack, a cable must connect the Base Station Chassis to the COT Shelf. Each cable connects four E1 spanlines from the NIM card in the Base Station to the COT. If a second NIM card is used, a second cable will be used to connect the four E1 spanlines to a second COT shelf.

- In the Base Station Installation Kit, there will be a cable with a DB25 connector on one end and two 10-pin push-on plastic connectors on the other end.

**NOTE:** Rear Interface Board (RIB) Cards are numbered from right to left. Position #1 is closest to edge of chassis.

- Install the cable DB-25 end of the cable to the bottom jack on the #2 RIB card. Figure 3-13 Base Station E1 DB25 Connection shows the location of this cable.
- If a second COT is used, another cable will be connected to bottom jack of the #3 RIB card.

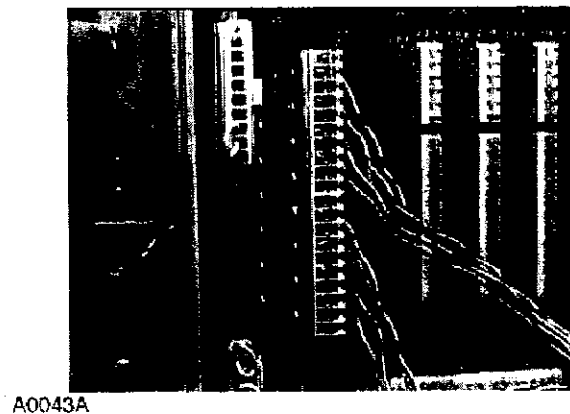
**Figure 3-13. Base Station E1 DB25 Connection**



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- On the COT Shelf, the E1 cable is connected to the jack (JP22) on the left side of the shelf. There are two 10-pin plastic push-on connectors inserted on JP22. The connector labeled "J1" is installed on the top 10 pins of the jack with the arrow pointing up and the connector labeled J2 is installed on the bottom 10 pins at the of the jack.
- The two connectors are installed on the COT back panel as shown in Figure 3-14.

**Figure 3-14. COT E1 10-pin Connector Installation**



- If there are more COT's installed in this equipment rack, follow the same procedure except connect the new E1 cable to the DB25 connector to the left of the last cable on the Base Station. This cable will be routed to the second COT.



#### **3.1.4.4 Base Station to NMS Shelf Cable**

The Base Station is connected to the NMS Shelf with the NMS cable

- ❑ Find the NMS Cable in the Base Station Installation Kit with RJ45 connector on one end and DB-25 on the other.
- ❑ Connect this cable to #1 RIB on the back of the Base Station Shelf as shown.
- ❑ The other end of the cable is connected to the WebRamp located on the NMS shelf as shown in Figure 3-15.

**Figure 3-15. NMS Shelf RJ-45 Router Connection Installation**



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### 3.2 Installing the Base Station Equipment Rack

The Site Floor Plan Drawing identifies the location for the rack and details the cable runs defined above. Please review this carefully to ensure the layout is the same as initially proposed.

- ❑ Referring to the Facilities Site Drawing, find the location where the rack will be installed. Move the rack to this location.
- ❑ Move the rack to this location and position it so that there is adequate clearance behind the rack. If there are other equipment racks installed, align the rack with the others. On the floor, mark the center of the four mounting holes located at the base of the rack. These will be used for drilling the holes needed to install the anchor bolt sleeves.



**Be very careful when moving the rack with shelves installed because it may be unstable. Never leave the rack unattended during this task.**

- ❑ Drill the floor as described in the installation instructions included with the anchor sleeves using the rack base as a guide
- ❑ Unwrap anchor sleeves and thread the nut to the top of the shaft. Insert the sleeves into the holes drilled and drive them into the floor until the top of the sleeve ring is even with the floor.
- ❑ Screw the nuts down to the rack base and then continue until the bolt rises from and the sleeve sets into the concrete.
- ❑ All racks should be erected and secured in a fashion similar to other equipment in existing office installations and should follow standard installation practices or customer supplied specifications.

### **3.3 Installing the Bulkhead Grounding Plate**

To protect the equipment and personnel from lightning strike surges, a Bulkhead Grounding Plate is installed at the cable entrance to the facility. All cable entering the facilities from the outside will be connected to this Bulkhead Grounding Plate to ensure good earth ground.

- ❑ Locate the Bulkhead Grounding Plate, GPS Kit and the Bulkhead Grounding Plate Installation Kit with the materials shipped. Inspect and inventory to ensure that there is no damage.
- ❑ Assemble the items per drawing
- ❑ Mount ground plate to appropriate location determined in the site survey.
- ❑ Connect bulkhead grounding plate to a good facilities ground using lug provided.

### **3.4 Connecting the Equipment Rack to the External Connections**

This section will outline the procedure to connect the equipment rack to the following external connections.

- a. Rack ground to Facility Earth Ground
- b. Rack Power to Facility DC Power
- c. NMS Shelf to PSTN
- d. GPS Synchronization Connection
- e. Local Exchange switch Interface
- f. Base Station IF Antenna Cables

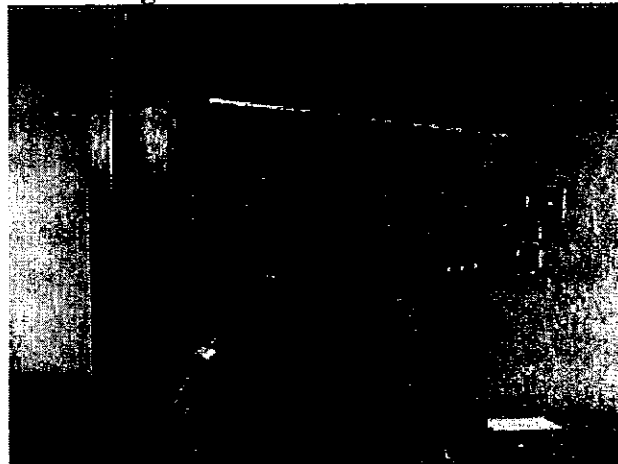
The material used for this section is shipped in the Facilities Installation Kit.

### 3.4.1 Rack Grounding to Facility Earth Ground

At this point, the rack has been installed and the shelves and rack wiring completed. At the top of the rack, a ground terminal has been installed for connecting the facility earth ground to the rack.

Figure 3-16 Rack Ground Terminal illustrates the ground detail located at the top of each rack.

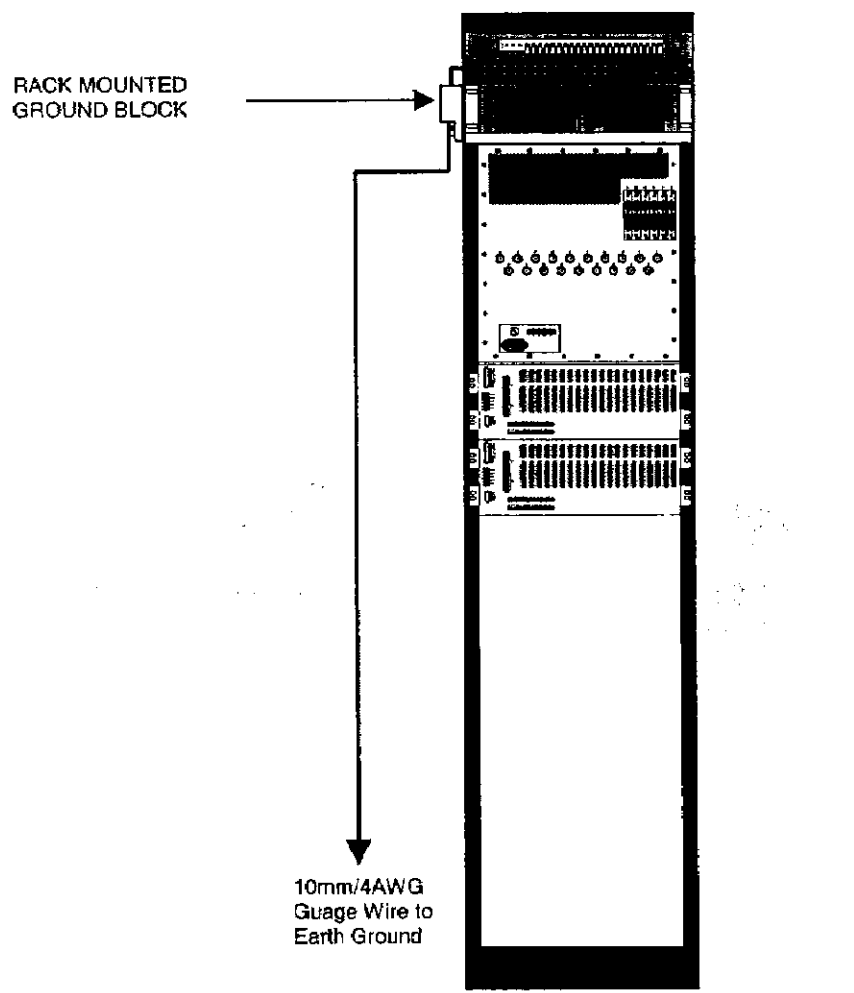
**Figure 3-16. Rack Ground Terminal**



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- Referring to the Site Floor Plan, a 25mm/10 AWG wire, run a ground wire from the facilities earth ground location shown to the rack and connect to the ground terminal on the rack. If an overhead ground bar is available, connect a braided grounding strap from the Brass bar and connect to the rack ground terminal on the rack. Figure 3-17 illustrates the rack ground cable and connection on the rack.

**Figure 3-17. Ground Wire to Earth Connection**



- Typically there are two methods of attaching a ground wire to an earth ground connections.
  - **Mechanical lug** – This method uses a lug crimped on the end of the ground wire coming from the rack to attach to a facility ground.
  - **Clamp** – If the ground wire is to attach to a pipe, a clamp will normally be tightened around the pipe and the ground wire will be attached to a bracket or with a setscrew on the clamp.
- It is very important that the ground wire is securely attached to earth ground and the connection is clean and tight.

### 3.4.2 Primary Equipment Power for Indoor Installations

- Primary Base Station rack equipment will typically be powered from a 48VDC source from the facilities. Input voltage range specifications are: -42 to -58 VDC.
- Use the Site Floor Plan to locate the DC Power Distribution Panel and the cable run diagram. See table 3-3, to identify the cable gauge required for the listed distances.

Table 3-3. Gauge Cable Requirements

Distance	Cable Size
Up to 20 meters	20mm/12 AWG
Up to 60 meters	25mm/10 AWG
Up to 90 meters	30mm/8 AWG



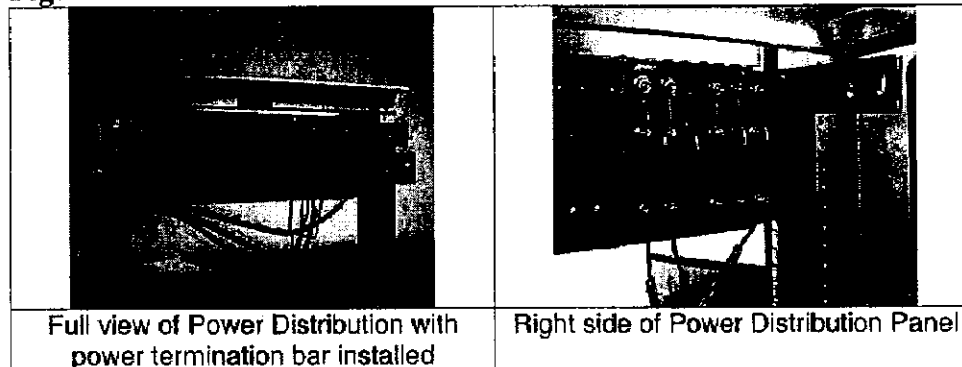
**NOTE:**

**Before connecting the DC power cable to the DC Distribution Panel,**

- 1) Place the breaker at the facility Power Distribution Panel in the OFF position**
- 2) Place the breakers on the equipment rack Power Distribution Panel into the "OFF" position.**

- ❑ Cables from DC source are connected to the main buss connection points on the Power Distribution Panel. The back view of this panel is illustrated in Figure 3.18.

**Figure 3-18. Back View of the Power Distribution Panel**



- ❑ Connect the – 48 VDC wire to the -DC terminal bus and the return wire to the + 48 VDC terminal bus. These connections are shown in Figure 3-19.
- ❑ To test the 48VDC circuit, engage the breaker at the facility DC Power Distribution Panel and with a voltmeter, measure -48VDC at the Rack Power Distribution Terminal Bus.
- ❑ If there is -48VDC, turn on the power switch and put each breaker in the ON position and measure -48VDC at the DC Terminal Blocks on each chassis. When -48VDC is measured on each chassis, return the breakers to the OFF position.
- ❑ This finishes the installation of the DC power to the equipment rack.

### 3.4.3 NMS Shelf to PSTN Installation

In the Aditus network, each Base Station is connected to a centralized Network Management System. This is accomplished by wiring each equipment rack to a local PSTN. Figure 3-19 illustrates the external wiring to a PSTN telephone line at the site.

**Figure 3-19. NMS Rack Wiring Diagram**

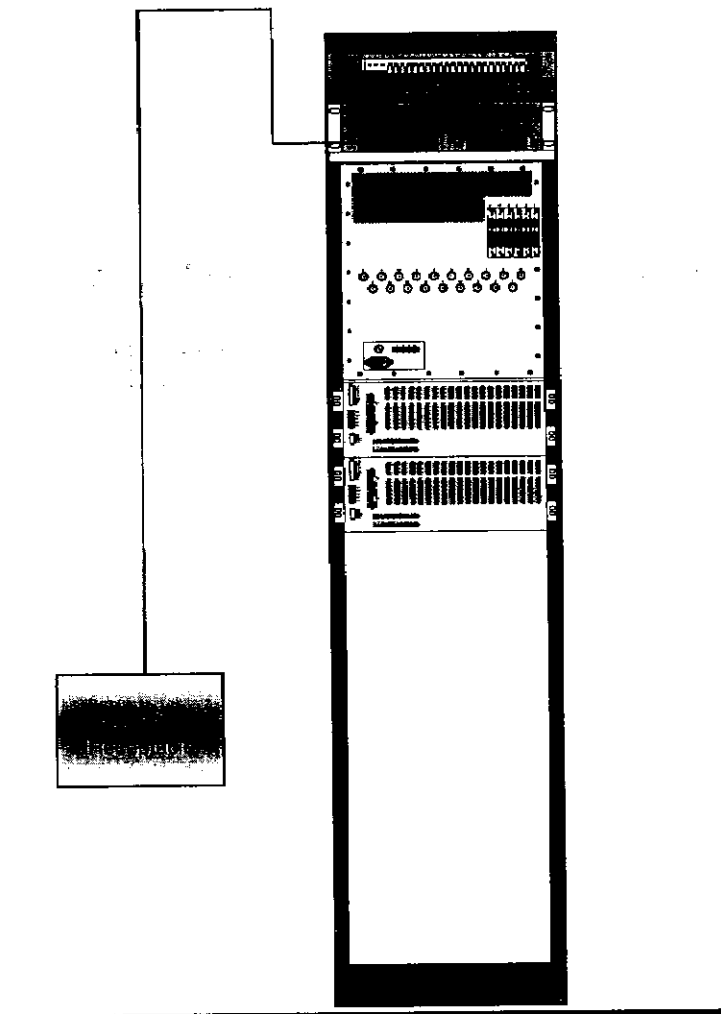
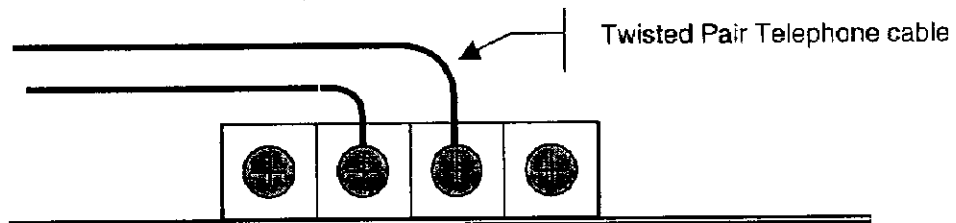




Figure 3-20, shows the Telephone line Terminal Strip used for the 2-wire telephone cable connections to the Network Interface Shelf.

**Figure 3-20. Telephone Line Terminal Strip**



- For the installation of the telephone line, use a standard telephone twisted pair cable, connect one end of the cable to the Terminal Strip provided on the NMS Interface Shelf and the other end to the PSTN connection.

This completes the installation of the NMS shelf to the PSTN.

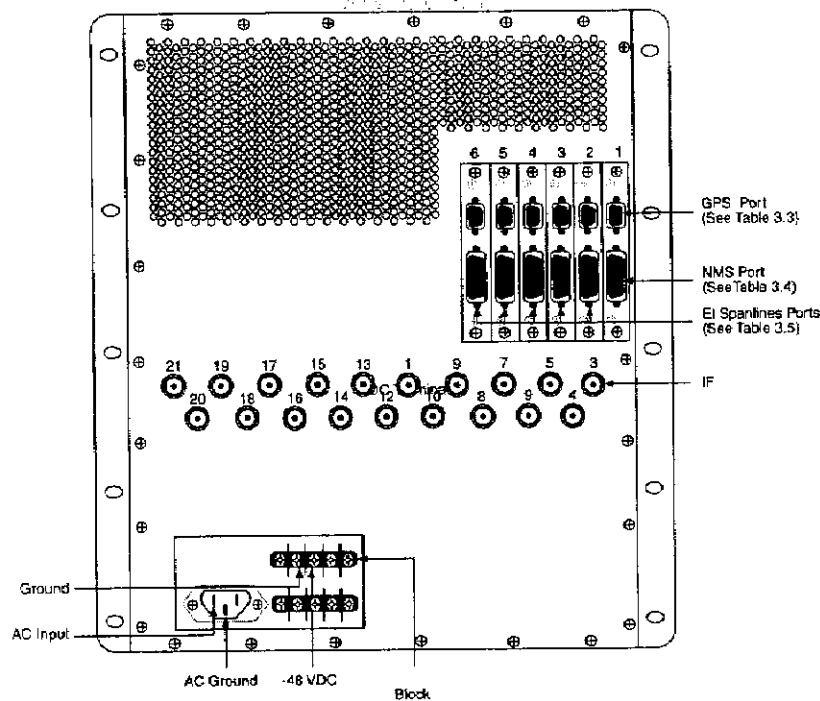
## 4.0 External Cable Installation to the Base Station

In preparation for installing the external cables, first refer to Site Interconnect Diagram.

For the Interconnect Cable Installation, there are three sets of cables that will be installed:

- 1) The cable from the GPS unit to the Base Station through the Bulkhead Grounding Plate
- 2) The IF cables connecting the Base Station to the BRFMs mounted on the antennas through the Bulkhead Grounding Plate
- 3) The Analog Telephone Cable from the COT to the switch

Figure 4-1, shows the termination connectors for the external cables.



\* AC Fuse Specifications:  
Cartridge type fuse. Approximate size is 3.2 cm long and 0.7 cm in diameter.  
For 100 to 130 volts: fuse part number: Buss MDA 10 250 V or equivalent.  
For 190 to 250 volts: fuse part number: Buss MDA 5 250 V or equivalent.

AWB-279-806

Figure 4-1. Rack Profile Wiring rear view

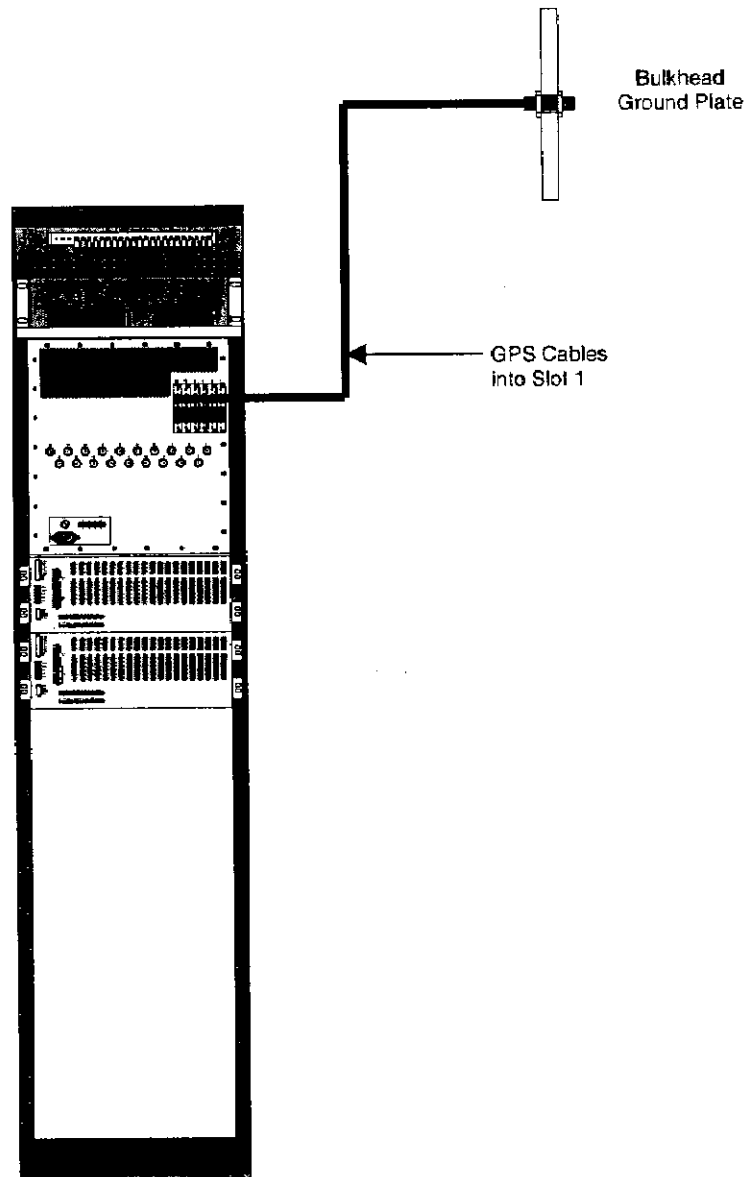
## **4.1 Global Position System (GPS) Connection**

GPS provides an accurate 1 Hz clock source used to synchronize the Transmit (Tx) and Receive (Rx) frames for a network of Base Stations. It also provides the ultimate reference for all other system clocks.

The cable that connects the GPS antenna to the DB-9 connector on #1 RIB must be connected to a lightning arrester at the entrance duct of the facility. The assembly and mounting of the GPS antenna and the cable installation is covered in the Base Station Antenna installation section.

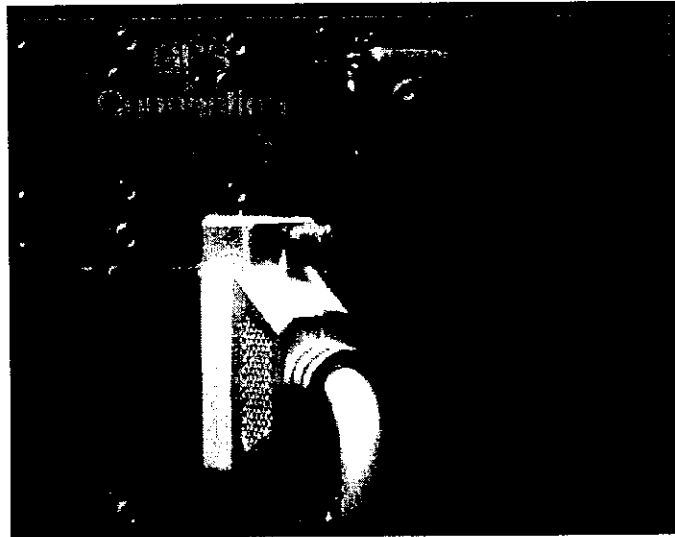
- There are three steps required to install the GPS cable to the Base Station.
  1. Connecting the DB9 connector to the #1 RIB on the Base Station Shelf.
  2. Measuring the cable distance from the Base Station to the Bulkhead Grounding plate and cutting the cable from the DB9 connector end to the correct length.
  3. Connect the cable to the Bulkhead Grounding Plate with lugs attached to the cable. Figure 4-2 illustrates the location of the connection on the rack.

**Figure 4-2. – GPS Cable Installation Diagram**



- On the upper right side of the back plane in the Base Station chassis are a set of six Remote Interface Boards (RIB). The GPS RIB connector is illustrated in Figure 4-3.

**Figure 4-3. GPS Cable Installation**



- From the GPS Installation Kit, get the cable labeled GPS Cable and connect it to the back of the Base Station as shown in Figure 4-3.
- Run the cable to the Bulkhead Grounding Plate and cut the cable with an extra one-meter length.
- From the GPS Lightning Arrestor, get the crimp lugs and install them on both end of the cable as shown in the installation sheet included with the kit.
- Secure the GPS cable to the lightning arrestor as shown in the installation instructions.
- With tie wraps included in the Shelf Installation Kit, secure the cable.

This completes the installation of the GPS cable.

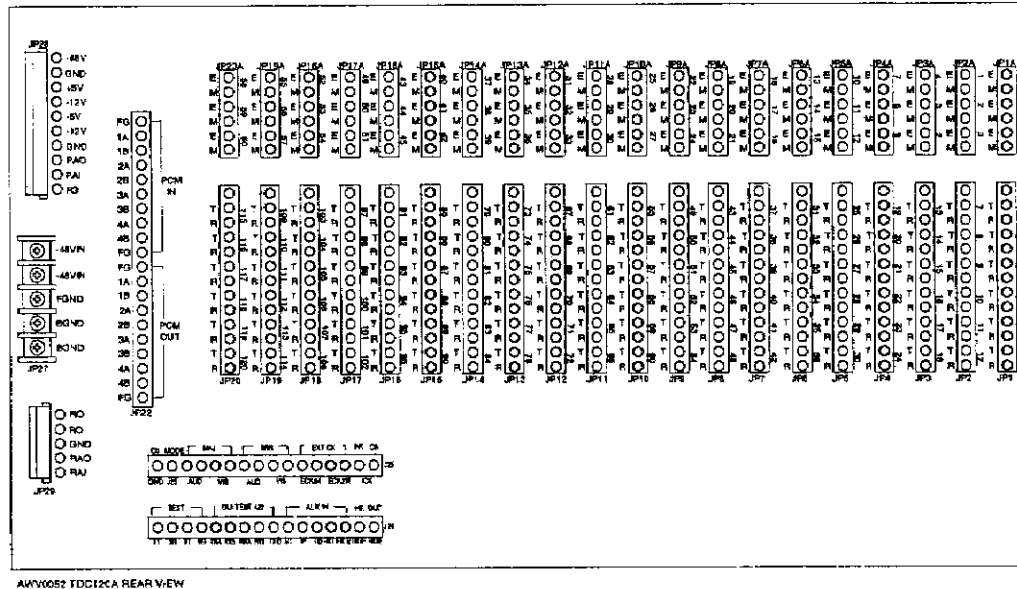
## **4.2 Analog Cable Installation to the Local Switch**

When the Base Station is configured to provide an analog output to the local exchange switch, a 120 twisted pair telephone cable is installed from the switch to the equipment rack. The twisted pair analog lines will terminate at the COT shelf in the rack.

Figure 4-2  
Analog Cable  
Installation

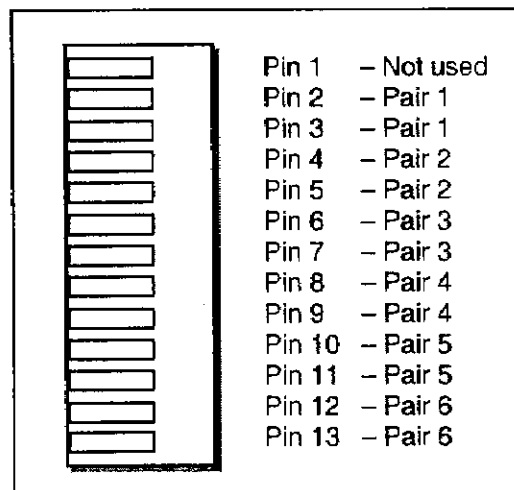
Figure 4-4 illustrates the location of the analog termination on each of the Subscriber Line card connector.

**Figure 4-4 COT Rear view Drawing**



Each Subscriber Line card supports six analog subscriber lines and has six twisted pair telephone cables punched down on a terminal block attached to the connector. Figure 4-5 shows the configuration and the location of the punch down points.

**Figure 4-5. Subscriber Line Terminal Block**



- ❑ Locate the bag of connectors labeled "Subscriber Line Card Connectors" in the Shelf Cable Installation Kit.
- ❑ Install these punch down connectors on the back of the COT on the lower 13 pin sets on JP1 through JP20.
- ❑ Route the cable from the switch to the equipment rack and cut it 1 meter below the bottom of the COT shelf.
- ❑ Strip the cable cover back to the bottom of the shelf and secure the cable with a tied down clamp on the rack at the bottom of the shelf.
- ❑ Take the first 6 pair of color coded cable and follow the telephone cable color coding chart, route these to the right of the first connector identified as JP1.



**The first punch down pin at the top of each connector is never used on any of the subscriber line cards.**

- ❑ Starting with Pin 2 punch down the appropriate color coded telephone wire and continue to the next 11 pins.
- ❑ Take the next 6-pairs of color coded cable in sequence in the color coding, route these through the cable tray and up to the next subscriber line connector set. Punch these down the same as the previous set and continue to do this for the rest of the connections.
- ❑ This completes the cable installation for the analog telephone lines to the switch.



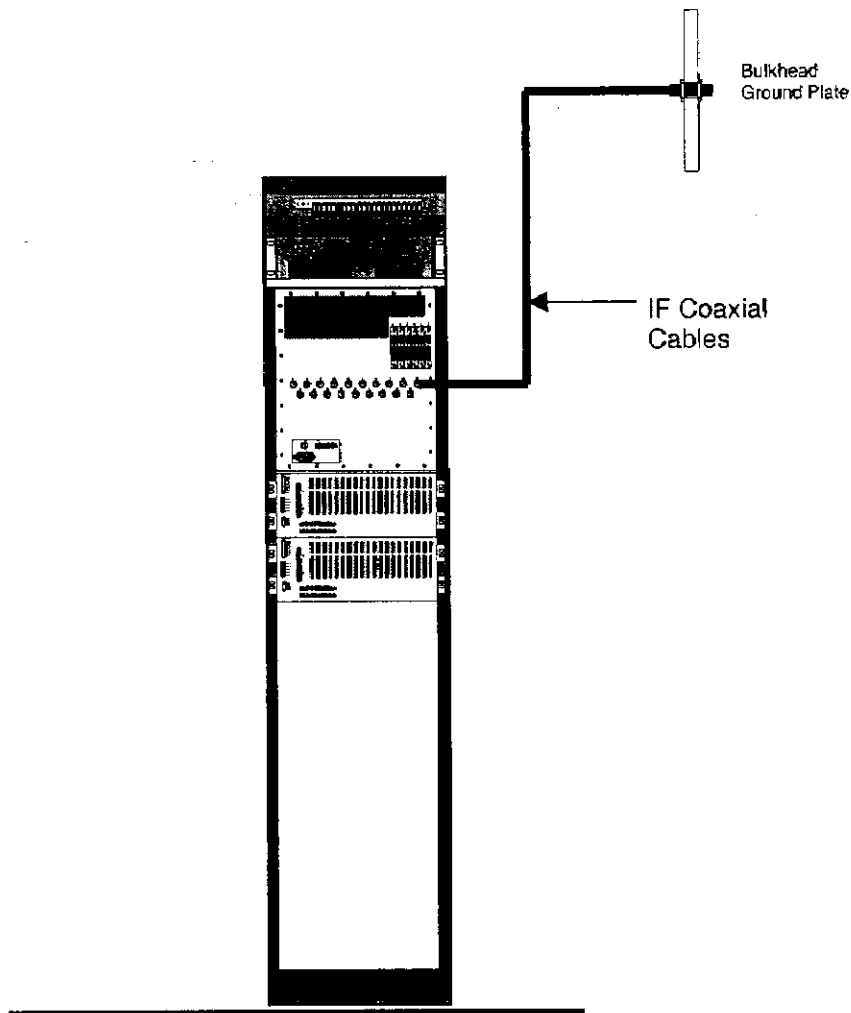
### 4.3 Base Station Cabinet IF Cable Installation

The IF cables will now be installed from the Base Station to the Bulkhead grounding Plate. It is important that the identification and installation of these cables are done correctly since these cables will be routed to the radio modules on the antennas.

- ❑ Using the Rack Profile Drawing, identify the number and the connector location of the IF cables used in this system.
- ❑ The cables are in the IF cable Installation Kit and have a right angle "N" type connector on one end and a straight "N" type connector on the other.
- ❑ Match connector ID to identify the Base Station IF and Bulkhead Grounding Plate connector port where the cable will be installed.
- ❑ Referring to Figure 4-1, connect the right angle connector on the cable to the correct IF port on the Base Station. These are numbered from 21 to 3.
- ❑ Tighten these connectors with your fingers. Do not use a tool.

- Figure 4-6 IF Cable Diagram, shows the cable run to the Bulkhead Grounding Plate.
- Route the IF cables to the Bulkhead Grounding Panel and connect the straight connector to the same IF Port on the panel.
- Tighten these connectors with your fingers. Do not use a tool.
- If installation is exposed to moisture, apply weather proofing tape to "N" Connectors.
- This completes the section on Base Station IF cable installation.

**Figure 4-6. IF Cable Diagram**



## 5.0 Base Station Modules

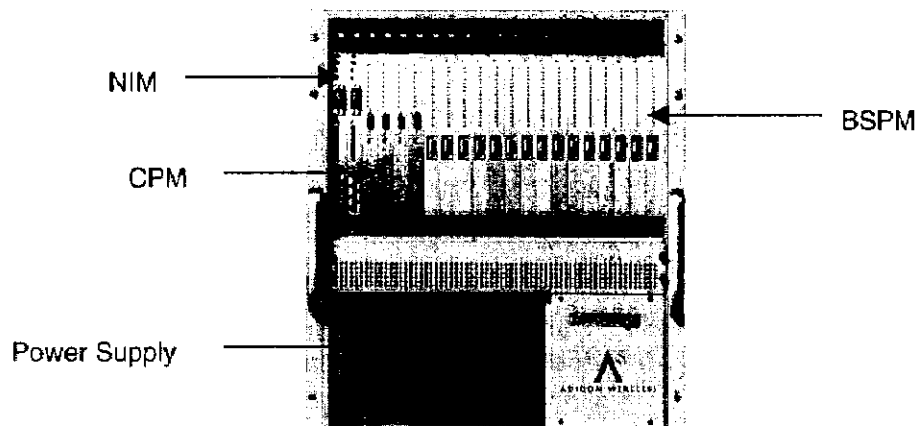
Four types of modules reside in the Base Station chassis:

1. Central Processing Module (CPM)
2. Network Interface Module (NIM)
3. Base Station Signal Processing Module (BSPM)
4. Power Supply Module

A complete description of each module will be found in the Aditus Product Description included in this binder

A Base Station with all modules installed is illustrated in Figure 5-1. The allowable slot locations for each type of module is illustrated in Table 5-1.

**Figure 5-1. Base Station**



**Aditus Base Station**

Table 5-1. Module Slot Configuration

Modules	Slots	Configuration
CPM	1	The CPM will be inserted into slot 1.
NIM	2 - 6	Typically, the NIMs will be installed in the order of slots 2, 3, 4, 5, 6
BSPM	3 - 21	The BSPMs will be installed from slot 21 to slot 3 on the right as required.

When inserting the modules for a specific Base Station, refer to the Site Drawings - Site Plan: Rack Profile for the specific installation diagram for the each site.



Note that the Base Station Power Supply Modules supply all of the necessary voltages to the back plane of the Base Station chassis. These modules are not intended to power any other equipment (See Primary Equipment Power).

## 5.1 Base Station Module Installation

All modules are shipped in separate containers and are installed in the Base Station chassis. Before installing any modules, refer to the Rack Profile Drawing for details on the location of the modules for the specific site location.

- Before installing the modules, check to make certain that the 48VDC Power Distribution power switch is turned off and the breakers are in the OFF position for each of the shelves.
- The CPM, NIM and BSPM modules mount vertically into the upper card shelf. The Power Modules mount horizontally into the lower left side of the Base Station. All modules support Hot Insertion capability.
- Spread BSPM's evenly across available slots to ensure adequate air flow for cooling.
- Blank panels must be installed in all unused slots for EMI isolation.

This completes the installation of the Base Station equipment rack and associated equipment and cabling. Proceed to the Base Station Antenna Installation Guide.

# MHabib

\\server\name

PSCRIPT Page Separator



**Billing and Prepaid Analysis**  
**6,000 Subscribers, 60 E1 Channels, 100 mErI**

Description	Qty/# mos.	List Price	Disc Price	Cost	Margin
<b>Post-Paid</b>					
eBill License	1	55,000		20,000	
PC plus server PC	1	6,200		10,000	
<b>Pre-paid Subs and Cards</b>					
<b>Software</b>					
NT, SQL, PC Anywhere	1			2,500	
Pre-paid Subs and Cards Software	1	40,000			
<b>Hardware - ACULAB 2E1 Traffic (60 channels)</b>	1	25,000		18,000	
<b>Expansion (60 Channels)</b>					
Software	1	12,000			
Hardware	1	20,000		18,000	
<b>Technical Support and Software Upgrades</b>	1	2,000			
<b>Miscellaneous</b>					
Rack	1	2,000		400	
Monitor	1			700	
Keyboard	1			100	
		162,200	0	69,700	

**NOTES: CPDI PRICING**

- 1) Base System (Card System, 60 Channels): \$168K
- 2) Expansion (30 Channels): \$25K
- 3) Tech Support and SW Upgrades: \$2K/month







## Adicom Wireless, Inc.

Subject:

**Aditus Network Management System Installation**

Document Number:

**95-000180-00****Document Location:**

\\Aw1\SQA\Docs\NMS\_Installation.doc

### Revision History:

Revision History			
Revision	Date	Description	Author
1.0	June 17, 1998	First Version	Vipul Gore, Info Objects, Inc.
1.1	July 1, 1998	Version with changes (SCR fixes)	Vipul Gore, Info Objects, Inc.
1.2	July 7, 1998	Version with more changes (SCR fixes)	Vipul Gore, Info Objects, Inc.
1.3	July 15, 1998	Version after Review	Vipul Gore, Info Objects, Inc.
1.4	Aug 19, 1998	Version after new context to root map	Ravi C. Kondamuru, Info Objects, inc.
1.5	Sept 24, 1998	Added a section on installing NMS in standalone mode(PC & Base station connects to the hub only).	Nagalatha Srivatsa
1.6	Dec 4, 1998	Added installation for Oracle8. Added "NoGeneric" property to all OVW maps.	Cecilia Muaddi
1.7	Jan 5, 1999	Modified Aditus NMS installation	Cecilia Muaddi
1.8	Feb 1, 1999	This doc reflects the new installation procedure	Nagalatha Srivatsa
1.9	Apr 1, 1999	Modified Oracle installation (a new database is used rather than using the sample one created during Oracle installation)	Sandra Yu
1.10	Apr 26, 1999	Added the procedure to modify the Oracle database installation when Oracle Net8 Assistant is not running on the machine	Nagalatha Srivatsa
1.11	July 17, 1999	Added the procedure to start the Openview services before starting the Oracle Srevicees	Nagalatha Srivatsa
1.12	Aug 2, 1999	Moved the procedure to modify database installation when	Nagalatha Srivatsa

		<b>ORACLE Net8 Assistant is not running on the machine, into Appendix A</b>	
1.13	Nov 23, 1999	Added procedure to install license, frequency and to start SNMP emanate process before Oracle. This reflects the installation with the new release NMS 2.3.0.2	Nagalatha Srivatsa
1.14	Jan 31, 2000	Removed section on RAS connections. Added section to install remote desktop software.	Nagalatha Srivatsa
1.15	May 22, 2000	Modified Oracle installation to Reflect Oracle 8.0.5.	John Slater
1.16	June 6, 2000	Added RAS setup information after SNMP.	Elijah Meeks
2.0	10/06/2000	Changed document to reflect the NMS InstallShield enhancements	Ron Yun
2.1	10/10/00	Added section on Initial NMS Setup	Ron Yun
2.2	10/12/00	Updates after installation test	Ron Yun
2.3	10/17/00	Specify that NMS Disk1 and Disk2 need to be in the root directory. Other updates	Ron Yun

## Table of Contents

<b>1. INTRODUCTION.....</b>	<b>4</b>
1.1. SCOPE.....	4
1.2. PURPOSE AND OBJECTIVE.....	4
1.3. DOCUMENT STRUCTURE.....	4
1.3.1. Chapter 2.3.4 - Installing Remote Desktop Software.....	5
<b>2. SYSTEM CONFIGURATION.....</b>	<b>6</b>
2.1. HARDWARE CONFIGURATION .....	6
2.2. SOFTWARE CONFIGURATION.....	6
2.3. INITIAL SYSTEM CONFIGURATION.....	7
2.3.1. Configuring the NT workstation for networking.....	7
2.3.2. Installing HP Openview NNM software.....	12
2.3.3. Installing Oracle 8 for Windows NT software .....	13
2.3.4. Installing Remote Desktop Software.....	15
<b>3. ADITUS NMS INSTALLATION .....</b>	<b>16</b>
3.1. FULL ADITUS NMS INSTALLATION .....	16
3.2. ADITUS NMS SOFTWARE UPGRADE.....	22
<b>4. ADITUS NMS ADMINISTRATION.....</b>	<b>29</b>
4.1. SYSTEM STARTUP.....	29
4.2. SYSTEM SHUTDOWN.....	29
4.3. ADITUS NMS SYSTEM STATUS .....	30
4.4. INITIAL NMS SETUP.....	30
4.5. ADD THE BASE STATION IP ADDRESS TO THE HOST FILE .....	31
4.6. USER ADMINISTRATION.....	31
4.6.1. Creating New User .....	31
4.6.2. Deleting User.....	31
4.6.3. Modifying User Profile.....	32
<b>5. APPENDIX A – WHEN ORACLE NET8 ASSISTANT FAILS.....</b>	<b>33</b>
<b>6. REFERENCES.....</b>	<b>34</b>

# 1. Introduction

---

This document is the Administration Document for Aditus 200 Network Management System (NMS).

The intended audience of this document is Adicom test teams and Adicom field support team.

This chapter describes the scope, purpose and objective of the Administration Document. It also describes the structure of the remainder of the document.

## 1.1. Scope

The Administration Document is developed and intended to outline administrative procedures for installing and maintaining the Aditus NMS system as described by the Aditus NMS Functional Specification.

## 1.2. Purpose and Objective

The Administration section specifies how the Aditus NMS system will be administered. It describes detailed procedures for following administrative tasks:

System Configuration

NMS Installation

NMS Software Upgrade

System Startup and Shutdown

Initial setup of a Cell in Aditus NMS

User Administration

## 1.3. Document Structure

This document starts with an introduction, and progressively goes into the description of detailed procedures for above tasks. The chapters are organized as follows:

Chapter 1 - Introduction

This chapter provides introduction to the Aditus NMS Administration Document. It outlines the scope, purpose and document structure of the rest of the document

Chapter 2 - System Configuration

This chapter provides an overview of the System Configuration of the Aditus NMS system. It details configuration procedures for configuring the NT system for installing and executing the Aditus NMS system in different operational modes.

### **1.3.1. Chapter 2.3.4 - Installing Remote Desktop Software**

This section installs McAfee Remote Desktop 32, version 2.12.

Close all windows.

Insert the CD containing Remote desktop software into your CD ROM drive.

NT will automatically begin installation. If installation doesn't automatically begin, click "Start" on the taskbar, choose "Settings", and then choose Control Panel. Next, double click "Add/Remove Programs", then click "Install"

Make sure the only check-box selected is "Controller Component Only". Uncheck all others.

An installation wizard will be displayed to help guide you through the installation. Enter all default options until you hit the "Finish" button.

After you click on the "Finish" button, the user is asked to restart the computer. Click on the button "Reboot Computer"

You have completed the installation of the Remote desktop software.

### **Aditus NMS Installation**

This chapter describes the installation procedure and software upgrade procedure for the Aditus NMS software

### **Chapter 4 - Aditus NMS Administration**

This chapter describes the general procedures for Aditus NMS administration such as system startup, system shutdown and user administration,

### **Chapter 5 -**

This chapter lists the References used in developing the Acceptance Test Plan for the Aditus NMS system

## 2. System Configuration

---

This chapter describes the hardware and software configuration required prior to installation of the Aditus NMS software.

The Aditus NMS system runs on the Windows NT platform. The hardware and software configuration required for the Windows NT workstation are described in following sections.

### 2.1. Hardware Configuration

The Aditus NMS system will run on a Pentium based Windows NT workstation with following configuration:

Windows NT 4.0 workstation (unmodified)

Pentium processor (350 Mhz or higher)

128 MB RAM, 100 MHz SDRAM

4 GB Hard Disk

10 MB Ethernet card with PCI interface

24x CD-ROM Drive

3 1/2" Floppy Drive

Tape Drive (Optional) for database or software archive

VGA, 1024 x 768 resolution, 16 bit high-color minimum, w/ PCI or AGP interface

A NetModem to communicate with remote Base Stations

UPS, 1200 VA minimum, w/software shutdown

### 2.2. Software Configuration

It is assumed that the Pentium Workstation will be loaded with Windows NT Workstation Version 4.0 operating system. It is also assumed that the SNMP Service required for Aditus NMS software is provided by the Windows NT 4.0 operating system.

The Aditus NMS system will require following software:

- HP OpenView Network Node Manager 250 Version 5.02
- Oracle 8 For Windows NT, Version 8.0.5.0.0
- Aditus NMS Software
- Window NT Service Pack 6

## **2.3. Initial System Configuration**

The Window NT workstation first needs to be configured properly for networking in order to install and run the Adition NMS software. The NT workstation Administrator can only perform the initial system configuration of the Adition NMS. The initial system configuration consists of following steps:

1. Configuring the NT workstation for networking
2. Installing HP OpenView NNM software
3. Install Oracle 8 For Windows NT.

The following sections describe above steps in details.

### **2.3.1. Configuring the NT workstation for networking**

The NT workstation should be configured properly for networking prior to any Adition NMS specific installation and configuration. In fact, the HP OpenView NNM software will not install properly if the NT workstation is not configured appropriately for networking.

The NT workstation configuration comprises of following steps:

1. Font Size Settings on NT Workstation
2. TCP/IP configuration
3. SNMP Service configuration

#### **2.3.1.1. Font Size Settings on NT Workstation**

The Adition NMS System uses third party products such as Dundas Grid in the application which require specific font size on the NT Workstation to function properly. This section describes procedure to set these fonts on the workstation. Necessary fonts are set on the NT workstation by following steps:

1. Logon to NT workstation as an NT Administrator
2. From the Start Menu, click on "Settings->Control Panel".
3. Select "Display" in the Control Panel Window by double-clicking display icon.
4. Choose the "Settings" tab in the Display window.
5. In the Font Size pull down menu, select "Small Fonts" and click on OK.
6. Restart NT Workstation to set the new font size.

This will ensure that the Dundas Grid used in the Adition NMS system will function properly.

#### **2.3.1.2.TCP/IP Configuration**

The TCP/IP Configuration involves setting up the TCP/IP protocol on the NT workstation.

### 2.3.1.2.1. System with DNS Server

The NT workstation is connected to the base stations over the network (LAN or WAN). The system can be connected using WebRamp. The procedure to install WebRamp can be found in the NMS Operations manual. Prior to starting the TCP/IP configuration, following items are required. Appropriate System and Network Administrator personnel should be contacted to obtain following items:

IP Address for the NT workstation

Subnet Mask

Workgroup Name if available (Not necessary in standalone NT workstation)

Default Gateway IP Address if available (Not necessary in standalone NT workstation)

DNS IP Address if available (Not necessary in standalone NT workstation)

The TCP/IP on the NT workstation in this mode should be configured in following steps:

1. Bring up the Control Panel by picking "Settings->Control Panel" from the "Start" menu.
2. Double click on the "Network" applet in the Control Panel
3. Select the "Identification" tab
4. Change the "Computer Name" to "AditusNMS" (if desired) by clicking on Change button. Also change the Workgroup name if available. Otherwise leave the default name.  
**Note:** It is not necessary to change the Computer Name. It is only for convenience.
5. Click "Ok"
6. Select the "Services" tab.
7. Remove the "Client Service for Netware" service.
8. Now, select the "Protocols" tab
9. Remove "IPX/SPX" protocol by selecting and highlighting it and then clicking on the "Remove" button.
10. If "TCP/IP" protocol is not present, follow steps 9 through 12. Otherwise skip to Step 13
11. Click on "Add" button. This will bring up a list of protocols. Select "TCP/IP Protocol" and click on "OK"
12. Click on "Close" to close the Network dialog box. On clicking Close, a dialog for TCP/IP configuration will be displayed.
13. Select "TCP/IP Protocol" and click on "Properties" button.
14. Click on "IP Address" Tab.
15. Click on "Specify an IP Address". Make sure that the other option to obtain Host IP address dynamically from DHCP is NOT selected.



16. Enter the IP address, Subnet mask and Default Gateway IP Address (if available) in appropriate boxes.
17. Click OK.
18. Click on "DNS Tab" and enter DNS host name (if available) and domain name (if available). Also, add the DNS Service Search Order. Click on Add and enter DNS Server IP Address.
19. Click on "WINS Address" Tab. Deselect both Enable DNS and Enable LMHosts options.
20. Click OK.
21. Restart the NT workstation for the new TCP/IP configuration to load by picking "Yes" on the "Network Setting changed" dialog box.
22. Confirm that the TCP/IP configuration is correct by going into "Network" applet in the "Control Panel".

This concludes the TCP/IP installation and configuration for the NT workstation on the Ethernet LAN.

#### **2.3.1.2.2. System without DNS Server**

The NT workstation is connected to the base stations through the hub. This system is now in standalone mode.

Prior to starting the TCP/IP configuration, following items are required. Appropriate System and Network Administrator personnel should be contacted to obtain following items:

IP Address for the NT workstation

Subnet Mask

**NOTE: Make sure the subnet mask and the IP address are on the same network**

The TCP/IP on the NT workstation in this mode should be configured in following steps:

1. Bring up the Control Panel by picking "Settings->Control Panel" from the "Start" menu.
2. Double click on the "Network" applet in the Control Panel
3. Select the "Services" tab.
4. Remove the "Client Service for Netware" service, if installed.
5. Now, select the "Protocols" tab
6. Remove all protocols other than TCP/IP (by selecting and highlighting each of them and then clicking on the "Remove" button).
7. Select "TCP/IP Protocol" and click on "Properties" button.
8. Click on "IP Address" Tab.

9. Click on "Specify an IP Address". Make sure that the other option to *obtain an IP address from a DHCP server* is NOT selected.
10. Enter the IP address, and Subnet mask in appropriate boxes.
11. **Enter the IP address of the PC in the field for Default Gateway.**
12. Remove all the list items from the DNS Service Search Order box and Domain Suffix Search Order box (by highlighting the list item and then clicking on the "Remove" button).
13. Click on "WINS Address" Tab. Deselect both Enable DNS for Window Resolution and Enable LMHosts Lookup options.
14. Delete the addresses of any Primary WINS Server and Secondary WINS Server.
15. Click on Apply button.
16. Click on OK button.
17. Restart the NT workstation for the new TCP/IP configuration to load by picking "Yes" on the "Network Setting changed" dialog box.
18. Confirm that the TCP/IP configuration is correct by going into "Network" applet in the "Control Panel".

### 2.3.1.3. SNMP Service Installation

2.3.1.3

The Microsoft SNMP Agent (SNMP service) must be installed before you install the HP OpenView Network Node Manager.

The SNMP Service should be installed on the NT workstation in following steps:

1. Bring up the Control Panel by picking "Settings->Control Panel" from the "Start" menu.
2. Double click on the "Network" applet in the Control Panel.
3. Select the "Services" tab.
4. Click "Add"
5. Select the "SNMP Service"
6. Click "OK"
7. Insert your Windows NT 4.0 CD ROM and enter the directory path (Usually <DRIVE>\i386\)
8. Pick "Continue" in the "Windows NT Setup" dialog
9. You do not need to add any information in the "Microsoft SNMP Properties" dialog because the Microsoft master agent will not be used, instead the SNMP Research Emanate SNMP Agent will be used (configuration is stored in the file %OV\_MAIN\_PATH%\conf\SNMPAgent\snmpd.conf). Pick "OK".

10. Pick "Close" to close the "Network" dialog
11. When the "Network Settings Changed" dialog appears, pick "Yes" to establish your SNMP-related changes by restarting NT.

This concludes the SNMP Service installation on the Windows NT workstation.

#### **2.3.1.4 RAS Set Up**

This section describes the installation and set up of the Remote Access Service.

The RAS should be installed on the NT workstation in following steps:

1. Bring up the Control Panel by picking "Settings->Control Panel" from the "Start" menu.
2. Double click on the "Network" applet in the Control Panel.
3. Select the "Services" tab.
4. Click "Add"
5. Select the "Remote Access Service"
6. Click "OK"
7. Insert your Windows NT 4.0 CD ROM and enter the directory path (Usually <DRIVE>:\i386\)
8. Pick "Continue" in the "Windows NT Setup" dialog
9. Windows will prompt you to install a RAS capable device. Click "Yes"
10. When prompted to auto-detect a new modem, do not select "Skip Auto-Detection" and click "Next"
11. Windows will find and query your modem and present you with the option to change the driver for the modem. If you have hardware specific software, click "Change" and point to the proper software.
12. After selecting a driver or if keeping the default driver, click "Next" and "Finish"
13. Click "OK" for RAS to use the modem you've just installed.
14. From the Remote Access Setup screen with the modem highlighted, click "Configure" and select the "Receive Calls Only" radio button and click "OK".
15. From the Remote Access Setup screen with the modem highlighted, click "Network" and select the "Allow any authentication including clear text" radio button.
16. Make sure only the TCP/IP check box is selected and click "Configure". Click the "Allow remote clients to request a predetermined IP address" check box. Click "OK" and then "OK" again to return to the Remote Access Setup Screen and click "Continue".
17. Reboot the machine and, after logging in, open Start->Administrative Tools->User Manager. From User Manager, select the Administrator account, click the "Dial-In" button and click the "Grant Dial-In Access" check box and click "OK".

18. Bring up the Control Panel by picking "Settings->Control Panel" from the "Start" menu.
19. Double click on the "Network" applet in the Control Panel.
20. Click on the Bindings tab.
21. Expand the NetBIOS Interface->WINS Client (TCP/IP)
22. Make sure that the network card binding (3Com Etherlink or Intel EtherExpress) is listed above the Remote Access WAN Wrapper binding. If it is not, highlight the network card binding and click "Move Up". Click "OK" and reboot if prompted.

This concludes the RAS installation on the Windows NT workstation.

Now reinstall Windows NT Service pack 6.

### **2.3.2. Installing HP Openview NNM software**

This section describes the installation of the HP Openview NNM software on the Windows NT workstation. Make sure you have the "HP Openview Network Node Manager 5.0 (or higher) for Windows NT" CD-ROM.

The HP Openview NNM should be installed on the Windows NT 4.0 in following steps:

1. Close all windows.
2. Insert the CD entitled "HP OpenView Network Node Manager 5.0 (or higher) for Windows NT" into your CD ROM drive
3. NT will automatically begin installation. If installation doesn't automatically begin, click "Start" on the taskbar, choose "Settings", then choose Control Panel. Next, double click "Add/Remove Programs", then click "Install"
4. An installation wizard will be displayed to help guide you through the installation. Enter all default options unless specified here.
5. Choose "Custom" Installation instead of Typical or Compact. Do not choose IPX Networking. Click NO on the IPX Network Dialog box.
6. Select following executables and modules in Custom installation
  - Program Files
  - Contributed Apps
  - SNMP MIBs
  - SNMP RFCs
  - Backgrounds
7. **Do NOT select "Start network auto-discovery"** after selection of custom installation modules.

8. Continue with default options until Finish.
9. At the end of the installation, a dialog box indicating that the installation is complete and whether the user wants to read a README file pops up. The user can answer "YES" or "NO" depending on whether he wants to read the file. This completes the HP Openview NNM software installation.
10. Restart the NT workstation at the end of the installation.

### **2.3.3. Installing Oracle 8 for Windows NT software**

This section describes the installation of the Oracle 8 software on the Windows NT workstation. Make sure you have the "Oracle 8 for Windows NT 8.0.5" CD-ROM.

The Oracle 8 should be installed on the Windows NT 4.0 in following steps:

1. Close all windows.
2. Insert the CD entitled "Oracle 8 version 8.0.5" into your CD ROM drive
3. NT will automatically begin installation. If installation doesn't automatically begin, click "Start" on the taskbar, choose "Settings", then choose Control Panel. Next, double click "Add/Remove Programs", then click "Install"
4. An installation wizard will be displayed to help guide you through the installation. Enter all default options unless specified here.
5. Select "Typical Configuration (installs a pre-configured database).
6. Do not install "Legato Storage Manager".
7. Restart the NT workstation at the end of the installation.
8. When the NT is restarted, use the following step to setup the database table to be used by the NMS system:
  - A. From the NMS CD, Go to the folder "Install". Under this folder there should be a batch file named "installdb.bat". Double click (or Run) on this file, the Adicom NMS database will be then installed. **(Make sure you do not click "installdb" twice)**
  - B. Select Start->Program->Oracle for Windows NT->Oracle Net8 Assistant (If the Oracle Net8 Assistant does not come up, go to Appendix A)
    - Click on "Yes" button, on the warning window (You will see the warning "Comment information has been detected ..." Now Oracle Net8 Assistant window will come up.
    - Click on the "Service Names" folder on the left
    - Select Edit->Create from the menu
    - Enter Service Name: "NMS", click on the Next button
    - Choose "TCP/IP (Internet Protocol)" from the list box, click on the Next button

- Enter Host Name : [Computer name for the workstation], click on the Next button
  - Change Database SID: "NMS", click on the Next button
  - Click on the Finish Button
  - Double click on the Listeners folder
  - Click on "@LISTENER" under the Listeners folder
  - Select "Database Services" from the Drop-down list box on the right
  - Change SID: "NMS"
  - Select File->Save Network Configuration
  - Exit from Oracle Net8 Assistant
- C. Go to the MS-DOS command prompt
- Enter "regedit", the registry editor window appears
  - Choose HKEY\_LOCAL\_MACHINE\SOFTWARE\ORACLE
  - Locate ORACLE\_SID parameter on the right side of the registry editor window
  - Double-click the parameter name and change the data to "NMS"
- D. Restart the NT workstation at the end of the installation.
- E. Select Start->Program->Oracle for Windows NT-> Oracle ODBC Test
- F. Click on "Connect..."
- G. Select "Machine Data Source" page.
- H. Click on "New..."
- I. Select "System Data Source (...)", then click on "Next>"
- J. Select "Oracle ODBC Driver", then click on "Next>"
- K. Click "Finish", the Oracle8 ODBC Driver Setup window appears.
- L. Enter the following information:
- Data Source Name: NMS
  - Description: Adicom NMS tables
  - Service Name: NMS
  - Click "OK". You will be asked to provide password. Enter "nms" as user id and "nms1234" as password.

- M. If everything is setup properly, you will be return to the Oracle ODBC 32Bit Test window. The "Disconnect..." button will be enabled and the "Connect.." button is disabled.
- N. Now exit the Oracle ODBC Test.
- O. You have completed the installation of the Oracle NMS database.

#### **2.3.4. Installing Remote Desktop Software**

This section installs McAfee Remote Desktop 32, version 2.12.

Close all windows.

Insert the CD containing Remote desktop software into your CD ROM drive.

NT will automatically begin installation. If installation doesn't automatically begin, click "Start" on the taskbar, choose "Settings", and then choose Control Panel. Next, double click "Add/Remove Programs", then click "Install"

Make sure the only check-box selected is "Controller Component Only". Uncheck all others.

An installation wizard will be displayed to help guide you through the installation. Enter all default options until you hit the "Finish" button.

After you click on the "Finish" button, the user is asked to restart the computer. Click on the button "Reboot Computer"

You have completed the installation of the Remote desktop software.

### 3. Aditus NMS Installation

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This chapter describes the installation of the Aditus NMS software on the NT workstation. The Aditus NMS software will be provided on a CD-ROM.

This chapter is divided into following subsections:

#### Full Aditus NMS installation

This subsection describes installation of Aditus NMS on a pre-configured NT workstation loaded with HP OpenView NNM software.

#### Aditus NMS software upgrade

This subsection describes upgrading Aditus NMS software from one release to another.

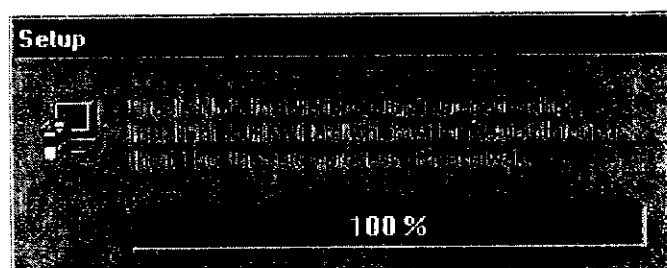
These subsections are described in following sections.

#### 3.1. Full Aditus NMS installation

Full Aditus NMS installation is done the first time after you have installed HP Openview and Oracle on your NT workstation. Or you have HP Openview and Oracle installed but have not executed the Aditus NMS Installation program before. If you have already run the Aditus NMS Installation program before, go to Section 3.2, Aditus NMS Software Upgrade.

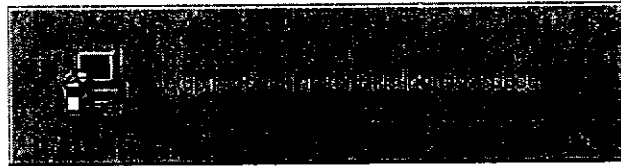
The following steps are required to install the Aditus NMS software on a new NT workstation. Prior to Aditus NMS installation, the NT workstation should be configured with HP Openview Network Node Manager and Oracle software.

1. Click on the Setup.exe file located in the folder Disk1 on the Aditus NMS CD.  
Note: Disk1 and Disk2 must be located in the root directory of the drive you are installing from.
2. You should see the following screen after clicking on Setup.exe.

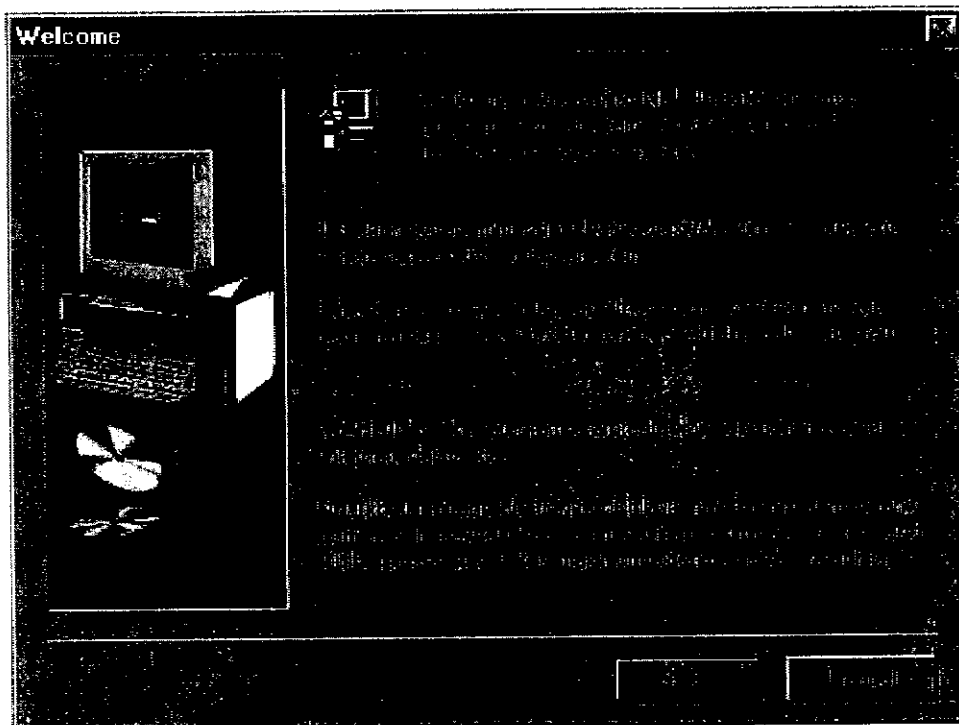




Setup will check for existing disk space. If there is not enough disk space, Setup will inform the user and automatically exit.

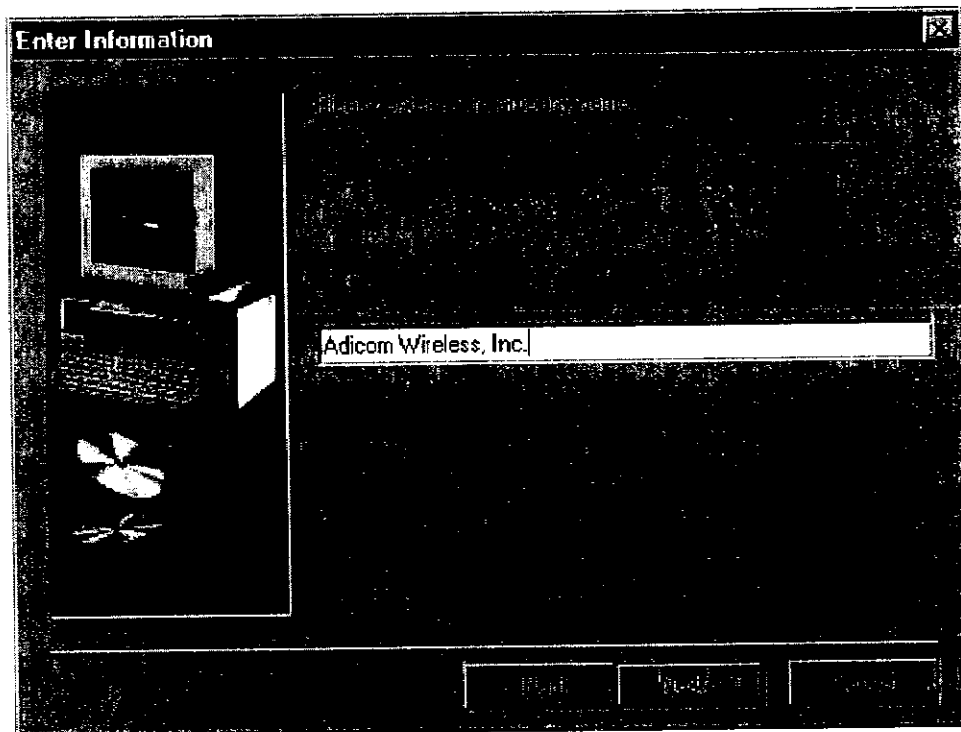


3. If there is adequate disk space you will see the following screen. It is strongly advised that the user close all applications before Aditus NMS installation proceeds.

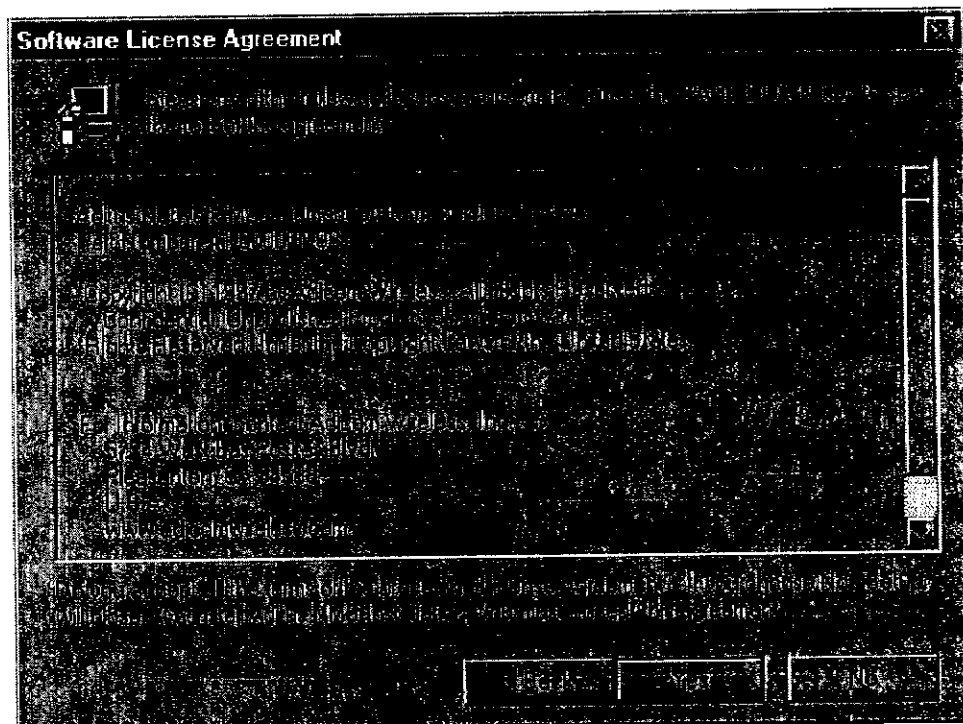


4. Click on the Next button to proceed with installation.

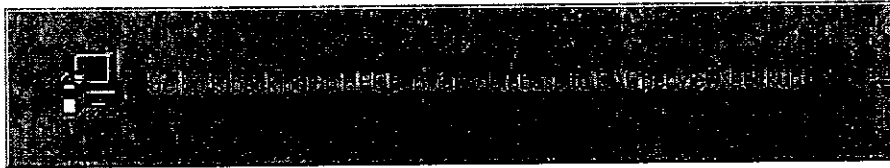
5. Enter your company name then click the next button.



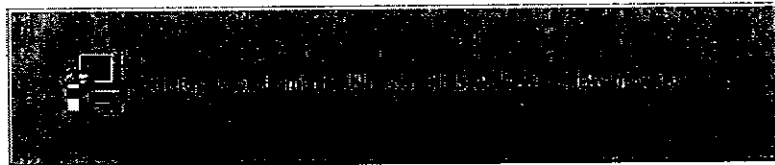
6. Next, you will see the Software License Agreement screen. Click yes if you agree to all the terms and conditions. If you choose No, Setup will inform the user and exit automatically.



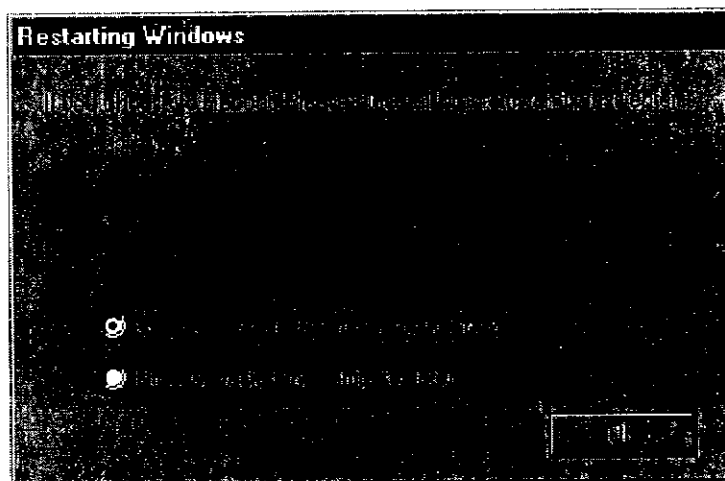
7. If the folder C:\openview\adicom does not exist then setup will back up the HP Openview database to C:\openview\backup.



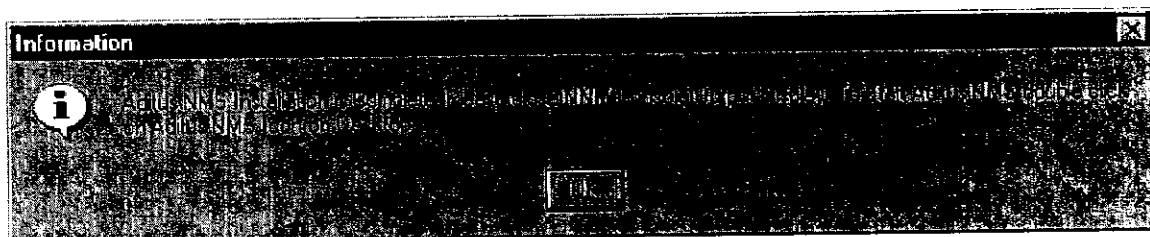
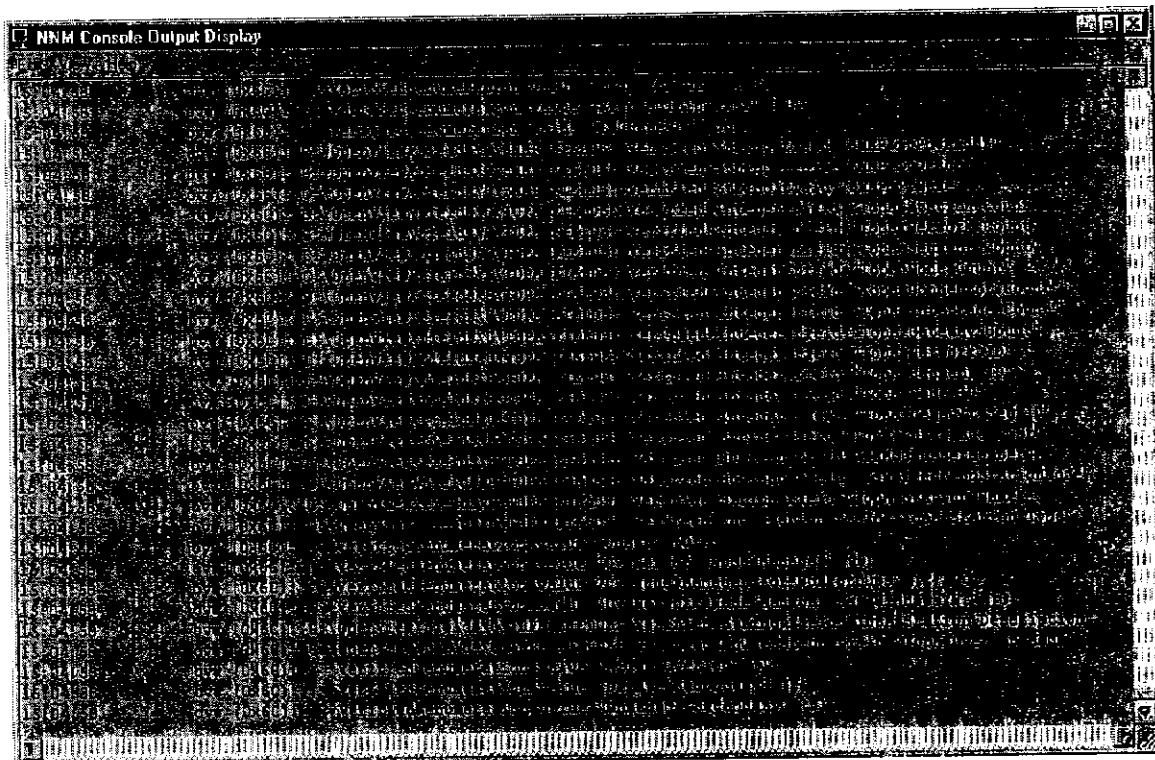
8. Next, Setup will customize Oracle for Aditus NMS. This will take a few minutes.



9. After setup customizes Oracle you will see the screen below. It is recommended that you close all programs and reboot the system.



10. After you reboot, the Aditus Installation will automatically restart.
11. Setup displays a Network Node Manager Console Output Display and a message to close it. Click OK to close the Information dialog box.



12. Start the NMS program by clicking on Programs-> Adicom NMS from the Start menu. (OR by clicking on the icon "Adicom NMS" from the desktop)
13. The NMS will start and a Root map will open along with Event Categories window.
14. Click "Cancel" on the "Openview Daemon Not running" dialog box  
**Note:** This dialog box states that "netmon" the network discovery process is not running. Since we are not allowing network discovery via HP Openview, we need not start this process.
15. Select "Internet" icon and choose "Properties" from the Map pull down menu.
  - The name field shows "Adicom Network"
  - Click on View tab; unselect "Auto Layout"
  - Click on Status Propagation tab: select "Propagate the Most Critical" instead of "default"
  - Close the "Properties" Dialog box.
16. Click on the menu Map → Submap → Properties. Type in the name as "Adicom Network". Click on the tab "Context". Remove any context that's already there and add "isAdicomNetworkMap" and "NoGeneric". Click on Apply after adding to make it effective for the map.
17. Right Click on the Internet symbol on the Root Map. Click on "Symbol Properties". **All label must be spelled as is defined here.**
  - Change label to "Adicom Network" instead of "Internet"
  - Choose Child submap properties
  - Click on General Tab: Change label name to "Aditus Cell Map"
  - Click on Context Tab: Remove any context that's already there and add "hasCells" and "NoGeneric" properties
  - Click on View Tab: Unselect "Auto Layout"
  - On the View tab: Choose a Background GIF for desired country using "Browse" button.
  - Click on "Apply" button and close the Child Submap properties dialog box and Symbol properties dialog box
18. Move the Adicom Network Icon to the center of the Root Map .
19. The following steps installs a NMS license:
  - Double click on Adicom Network icon. This opens up the "Aditus Cell Map" window. From this window click on the menu Admin → Licenses → Add.
  - Using the browse button, go to the location of the license file. Click on the menu Action → Add. A message box comes up stating that licenses were installed successfully.

20. The following steps install BSPM frequency:

- From the "Aditus Cell Map" window, click on the menu Admin → Tools: Install frequency.
- Select the radio button A100.
- Using the browse button go to the A100 frequency file.
- Click on OK button on the Install frequency window. The window disappears. This implies that frequency for A100 BSPM was installed successfully.
- Installing frequency for an A200 BSPM is same as the above. Only difference is you have to select A200 radio button and select the location of A200 frequency file.

21. The following steps install BSPM frequency:

22. To Start Aditus NMS, follow the path: Windows Start Menu: Programs: Aditus NMS: NMS.

23. The NMS will start and a Root map will open along with an Event Categories window.

24. Click "Cancel" on the "Openview Daemon Not running" dialog box

**Note:** This dialog box states that "netmon" the network discovery process is not running. Since we are not allowing network discovery via HP Openview, we need not start this process.

Setup is now complete and Aditus NMS is ready for use.

Remove the NMS CD from the CD-ROM drive and store in a safe place.

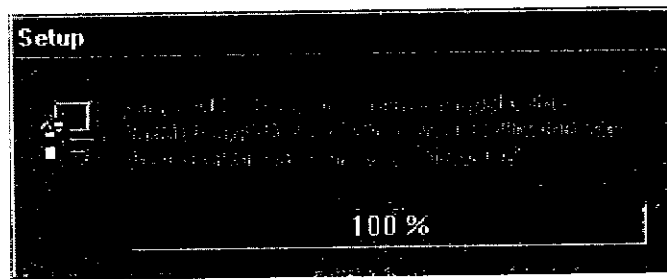
### **3.2. Aditus NMS Software Upgrade**

This section describes procedure to upgrade the Aditus NMS software from one point release to another. This upgrade procedure retains the Aditus NMS Database from previous release and just upgrades the executables and other configuration files related to executables.

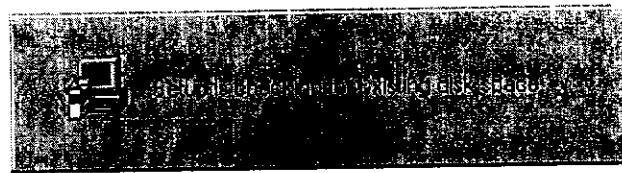
The following steps should be taken to upgrade the Aditus NMS software.

1. Click on the Setup.exe file located in the folder Disk1 on the Aditus NMS CD.  
**Note:** Disk1 and Disk2 must be located in the root directory of the drive you are installing from.

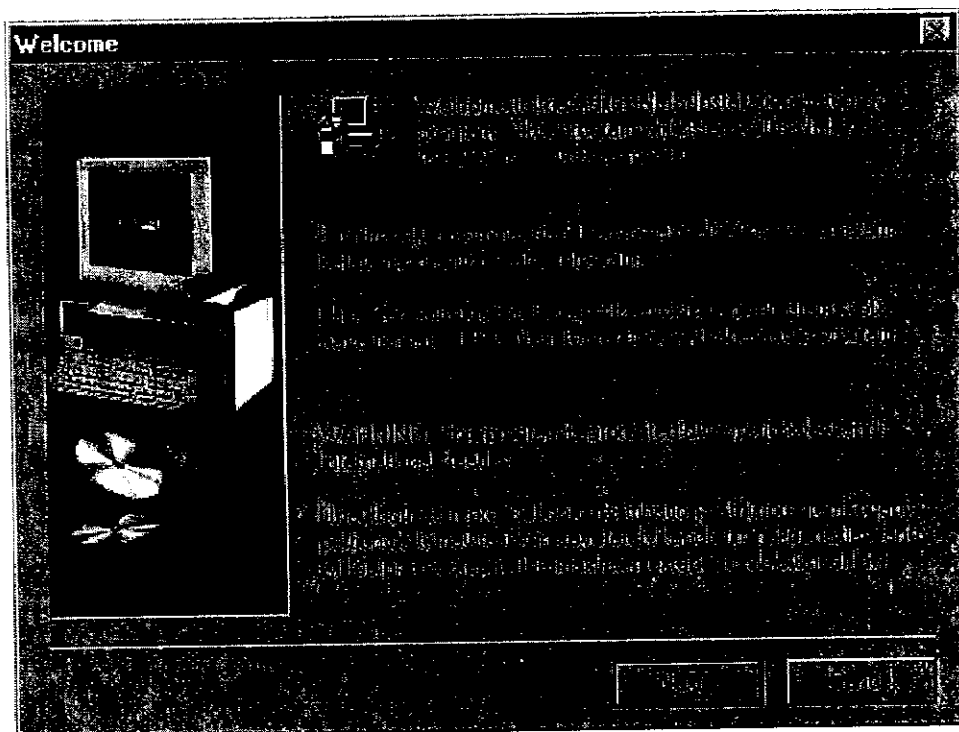
2. You should see the following screen after clicking on Setup.exe.



The Setup will check for existing disk space. If there is not enough disk space, Setup will inform the user and automatically exit.



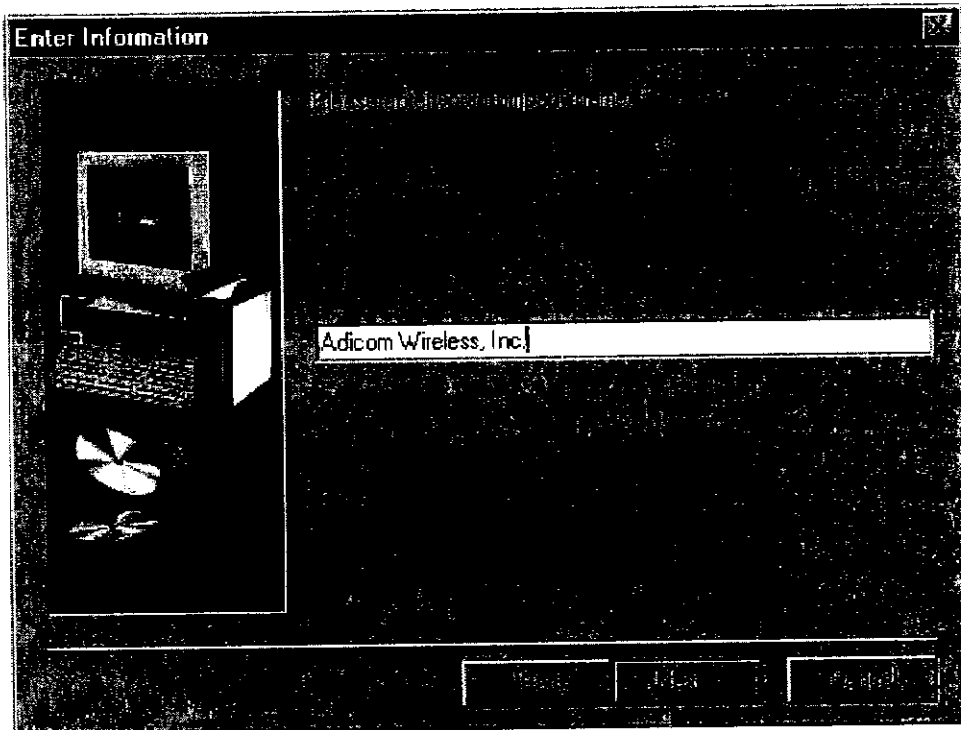
3. If there is adequate disk space you will see the following screen. It is strongly advised that the user close all applications before Aditus NMS installation proceeds.



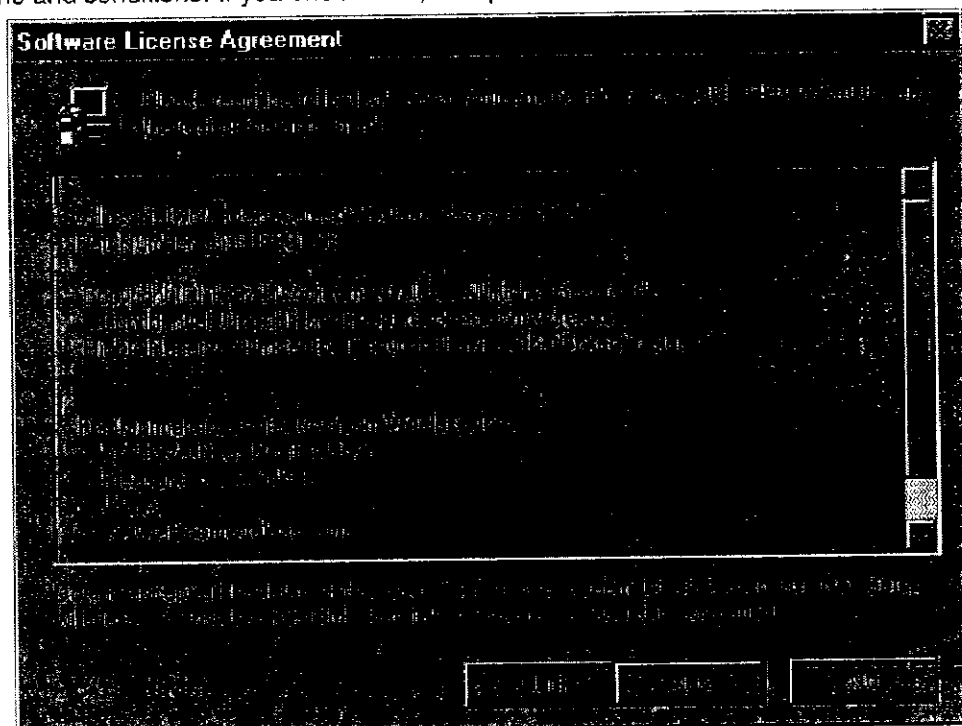
4. Click on the Next button to proceed with installation.



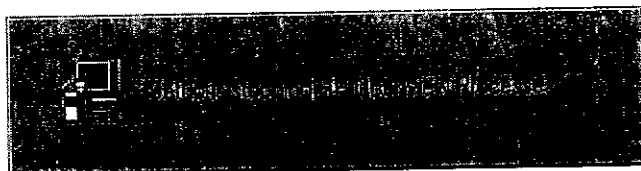
5. Enter your company name then click on the next button.



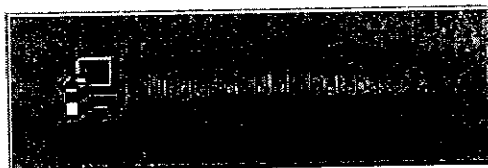
6. Next you will see the Software License Agreement screen. Click yes if you agree to all the terms and conditions. If you choose No, Setup will inform the user and exit automatically.



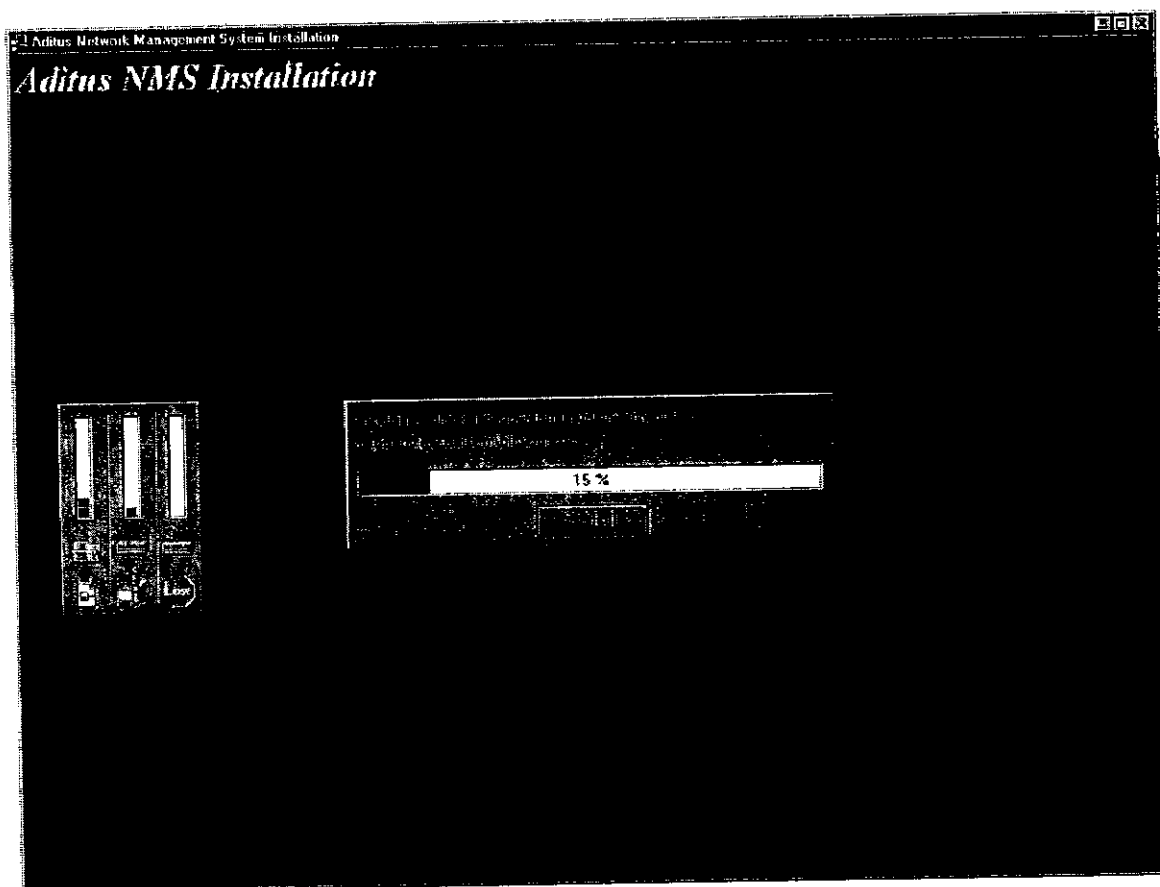
7. Setup stops HP Openview processes.



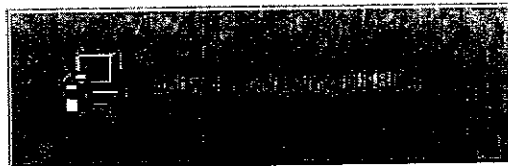
8. Setup will upgrade the NMS database.



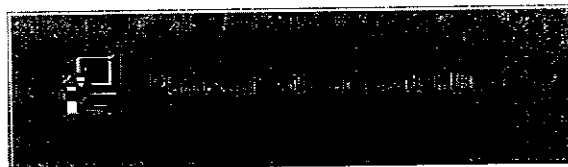
9. Next, Setup transfers the required files from the Aditus NMS CD to the host computer.



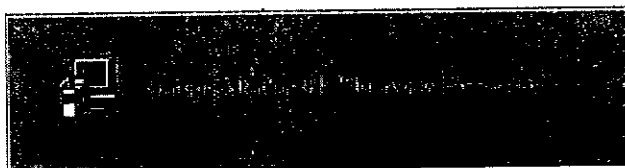
10. Setup creates the NMS Data Source Name.



11. Next, Setup reloads MIBs

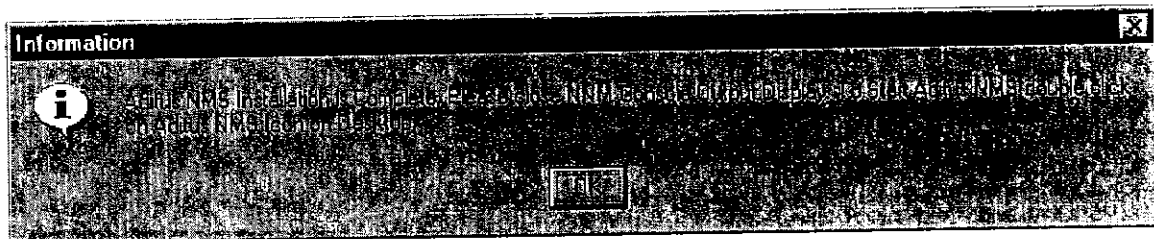
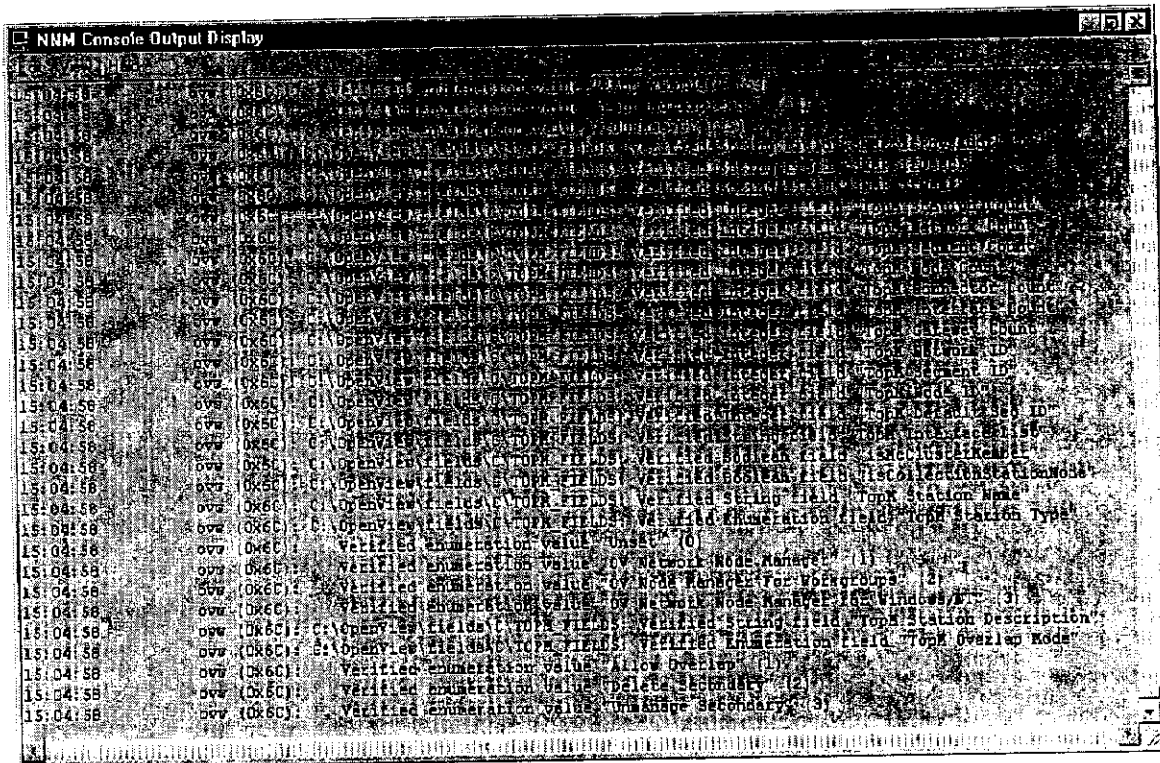


12. After loading MIBs, setup restarts HP Openview processes.



**NOTE:** The Adicom specific files will be copied into c:\openview\adicom. Check the log and error file stored under c:\openview\adicom for any installation error. Report all other warning/errors to the Aditus NMS Field Support team.

13. Setup displays a Network Node Manager Console Output Display and a message to close it.  
Click OK to close the Information dialog box. Click on Edit -> Exit to close the NNM Console Output Display window.



14. To start NMS, click on Programs-> Adicom NMS from the Start menu. (OR click on the icon "Adicom NMS" on the desktop)
15. The NMS will start and a Root map will open along with an Event Categories window.
16. Click "Cancel" on the "Openview Daemon Not running" dialog box

**Note:** This dialog box states that "netmon" the network discovery process is not running. Since we are not allowing network discovery via HP Openview, we need not start this process.

The Software upgrade is now complete and Aditus NMS is ready for use.

Remove the NMS CD from the CD-ROM drive and store in a safe place.

## 4. Aditus NMS Administration

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This chapter describes procedures for common administration tasks for the Aditus NMS system. These common administration tasks include following:

System Startup

System Shutdown

Aditus NMS system status

User Administration

Aditus NMS Database Object Deletion

Aditus NMS Database Backup

Aditus NMS Database Restore

The above common administration task management is described in following sections.

### 4.1. System Startup

The Aditus NMS system startup procedure involves starting HP Openview NNM services i.e. server applications and then starting the HP Openview Windows.

The following steps should be executed to start the Aditus NMS application.

1. Logon to NT workstation as a NT Administrator
2. Verify that the NNM services are not running by checking NNM Services status as explained in Section 4.3. Continue with following steps only if NNM Services are not running.
  - (a). From the Start menu, click on "Programs->HP OpenView->NNM Services – Start" option.
  - (b). A window dialog box will appear showing server processes starting one after another.
  - (c). Click on "Close" on the dialog box after all processes have started (The Restart button will be highlighted after all processes have started)
3. From the Start menu, click on "Programs → Adicom NMS → NMS" option to start the HP Openview windows. OR click on the icon "Adicom NMS" on the desktop.
4. Click "Cancel" on the intermediate dialog box "Openview Daemon not running".
5. A Root Map showing "Adicom Network" icon will appear. Double clicking on the "Adicom Network" icon will navigate you through the different Cells and Base Stations in the Aditus NMS system.

### 4.2. System Shutdown

The Aditus NMS system shutdown procedure involves shutting down the HP OVW and the HP Openview NNM services i.e. server applications.

The following steps should be executed to shutdown the Aditus NMS application.

1. On the Adicom Network Root Map window or Aditus Cell Map window, click on "Exit" on the menu option.
2. A dialog indicating exiting HP OVW will appear. Click on "OK". This will close all HP OVW windows and exit from the application.
3. Logout and login as NT Administrator (if not already logged in)
4. From the Start Menu, click on "Programs->Openview->NNM Services – Stop". This will stop all the HP Openview server processes one after another. (The Restart button will be highlighted after all processes have stopped)

#### **4.3. Aditus NMS system status**

The status of Aditus NMS system services can be verified at any time. In order to check the system status, following steps need to be executed.

1. Logon as NT Administrator on the NT workstation
2. From the Start menu, click on "Programs->HP Openview->NNM Status".
3. A dialog box showing status of all the HP Openview server processes will be displayed.

#### **4.4. Initial NMS Setup**

This section describes the initial setup of a Cell through the NMS graphical user interface.

1. From the Start menu, go to Programs->Adicom NMS to start NMS. The NMS Root map with the Event Categories window will appear.
  - Click Cancel on the OpenView Daemon Not Running dialog box.
2. Highlight the Internet symbol in the Root map and select Properties from the Map pull-down menu.
  - Verify that the name Adicom Network appears in the name field of the Properties window.
  - Under the View tab, deselect Auto Layout.
  - Under the Status Propagation tab, select Propagate Most Critical.
  - Close the Properties window.
3. From the Map pull-down menu, select Open to bring up the Maps dialog box.
4. Highlight the Read Write line for Adicom Network and click on the Select User Default button.
5. Click Close.
6. From the Map pull-down menu in the Root map, go to Submap->Properties.
  - Type Adicom Network in the name field of the Submap Properties window.
  - Under the Context tab, remove all contexts. Add the context "isAdicomNetworkMap" and "NoGeneric".
  - Click on Apply.
7. Highlight and right click the Internet symbol in the Root map to bring up the Symbol Properties window.
  - Type Adicom Network in the name field.
  - Click on Child Submap Properties.
  - Under the General tab, type Aditus Cell Map in the name field.
  - Under the Context tab add the contexts "hasCells" and "nogenetic", and remove all other contexts.

- Under the View tab, verify that Auto Layout is deselected.
- Under the View tab, choose the background country GIF using the Browse button.
- Click on Apply and close the Child Submap Properties window.
- Close the Symbol Properties window.
- Setup is now complete and Aditus NMS is ready for configuration

#### 4.5. Add the Base Station IP Address to the Host File

This is particularly useful to speed the look-up process when networking.

1. Open the host file on the NMS Host Computer.
  - Host file is located at <drive>:\winnt\system32\drivers\etc\hosts
  - Type in the IP address of each Base Station on a separate line.
  - On the same line of each IP address, separated by at least one space, type in the name of the Base Station. This name must be unique with this file.

Example of a Host file

206.196.96.45	Marconi
206.196.96.46	Hertz
206.196.96.60	Curie

#### 4.6. User Administration

The Aditus NMS system relies on Windows NT User Administration for managing users. An NT Administrator user is required prior to installing, configuring and starting Aditus NMS system. New users can be created or deleted from Windows NT User Profile function as follows. All users can start and stop the Aditus NMS GUI but cannot start or stop Aditus NMS server applications. Only NT Administrator can start and stop the Aditus NMS server applications.

##### 4.6.1. Creating New User

Following steps describe how to create a new user for the Aditus NMS system.

1. Logon to NT workstation as NT Administrator
2. From the Start menu, Click on "Programs->Administrative Tasks (Common)->User Manager"
3. Click on User pull down menu
4. Choose New User. A dialog box appears
5. Enter User Name, Full Name, Description and other required identification. Click on OK and Exit User Manager
6. The First time, the user logs into NT workstation, he will be asked to choose and enter his password
7. After Logon, start Aditus NMS system as explained in Section 4.1

##### 4.6.2. Deleting User

Following steps describe how to delete a user for the Aditus NMS system.

1. Logon to NT workstation as NT Administrator
2. From the **Start** menu, Click on "Programs->Administrative Tasks (Common)->User Manager"
3. Select a particular user from the list and from User pull down menu, choose Delete. Click OK. The user and his profile will be deleted.

#### **4.6.3. Modifying User Profile**

Following steps describe how to create a new user for the Aditus NMS system.

1. Logon to NT workstation as NT Administrator
2. From the **Start** menu, Click on "Programs->Administrative Tasks (Common)->User Manager"

**Select a particular user from the User list and update his profile by modifying desired fields**



## 5. Appendix A – When Oracle Net8 Assistant Fails

The following steps are performed when Oracle Net8 Assistant program does not come up on the machine:

- Go to the folder "ORANT" (This is the folder, which is created when Oracle is installed). From this folder open the file NET80\ADMIN\Listener.ORA

- Make sure the port 1521 is pointing to the host machine name. For example if the host machine name is sw73, then the above file should have the following Address list:

```
(ADDRESS=
  (PROTOCOL= TCP) (Host= sw73) (Port= 1526)
)
```

- Edit the above file (listener.ORA) such that the SID\_NAME of the host machine is "NMS".

```
(SID_DESC =
  (GLOBAL_DBNAME = sw73)
  (SID_NAME = NMS)
)
```

- Save and close the file.

- Open another file in the folder "Orant". The file is Net80\ADMIN\TNSNAME.ORA.

- Insert the following highlighted paragraph in the above file (TNSNAME.ORA):

```
...NmpExample.world =
  (DESCRIPTION =
    (ADDRESS_LIST =
      (ADDRESS =
        (PROTOCOL = NMP)
        (Server = FinanceServer1)
        (Pipe = ORAPIPE)
      )
    )
    (CONNECT_DATA = (SID = ORCL)
  )
)
NMS.WORLD =
  (DESCRIPTION =
    (ADDRESS = (PROTOCOL = TCP) (HOST = SW73) (PORT =
1521))
    (CONNECT_DATA = (SID = NMS))
  )
)
```

- Save and close the above file
- Continue with step C of point 20 in section 2.3.3

## 6. References

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This chapter lists the relevant documents, manuals and books referred to in this document.

1. Aditus 200 Network Management System Functional Specifications
2. HP Openview Using Network Node Manager for Windows NT Operating System; May 1997.
3. NMS Operations Manual