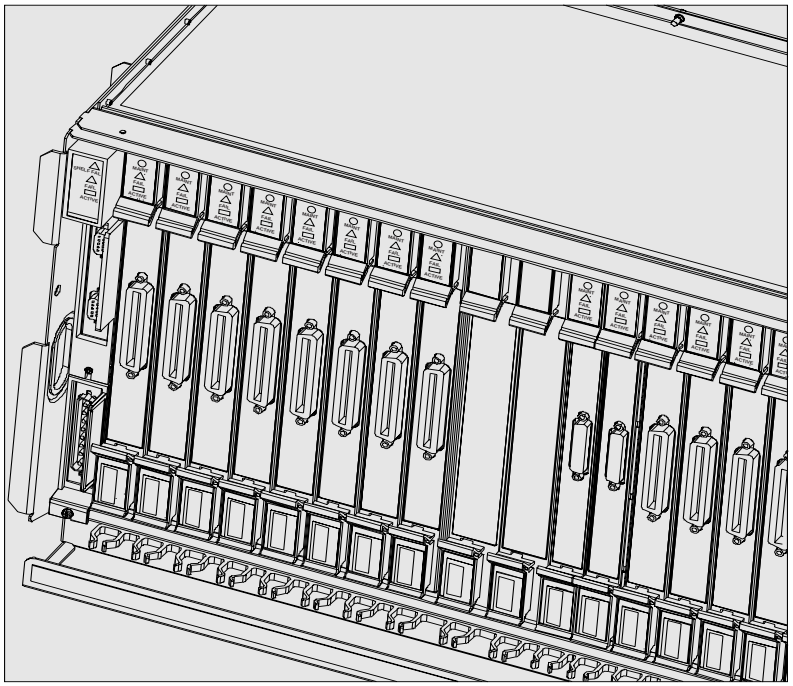
**297-8391-301**

DMS-100

# Universal Edge 9000

Data System Setup Quick Reference

NA015 Standard 01.01 March 2001



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## Front cover

# About this guide

This guide provides step-by-step procedures for setting up the Universal Edge 9000 (UE9000) system for data services. Perform each numbered procedure in sequential order.

This guide contains the following topics:

- Setting up the UNIX/Solaris workstation
- Loading the UE9000 data software
- Setting up the Data Network
- Setting up the UE9000 DS1 IMA or DS3 ATM Core Cards

***Note:*** Use the *UE9000 Voice Setup Quick Reference* to set up the UE9000 system for voice services.

## Audience

Experienced installers and technicians who are familiar with AccessNode equipment can use this guide to prepare the UE9000 to receive data traffic.

## Objectives

After reading this guide, you will know how to perform the following tasks.

- Install the UNIX/Solaris workstation
- Designate an IP address for the UNIX/Solaris workstation
- Install HP-UX or Solaris software
- Verify configurable kernel parameters
- Install HPOV software
- Install uEMS software
- Commission the UE9000 shelf for inband (classical IP) management for either DS1 IMA or DS3 ATM core cards
- Commission the UE9000 shelf for out-of-band management for either DS1 IMA or DS3 ATM core cards
- Verify initial commissioning of the ATM core cards
- Verify UE9000-to-workstation communication
- Discover the IP elements

## References

The following documents are referenced in this guide:

- *UE9000 Installation Quick Reference*
- *UE9000 Voice Setup Quick Reference*
- *UE9000 Data OAM&P User Guide*
- *UE9000 Data Testing and Troubleshooting Guide*

You may also need the upgrade change application procedure (CAP) for the desired software release (for example, the *AD3.0 Upgrade CAP*).

# Before you begin

**Read this guide completely before beginning any of these procedures.**

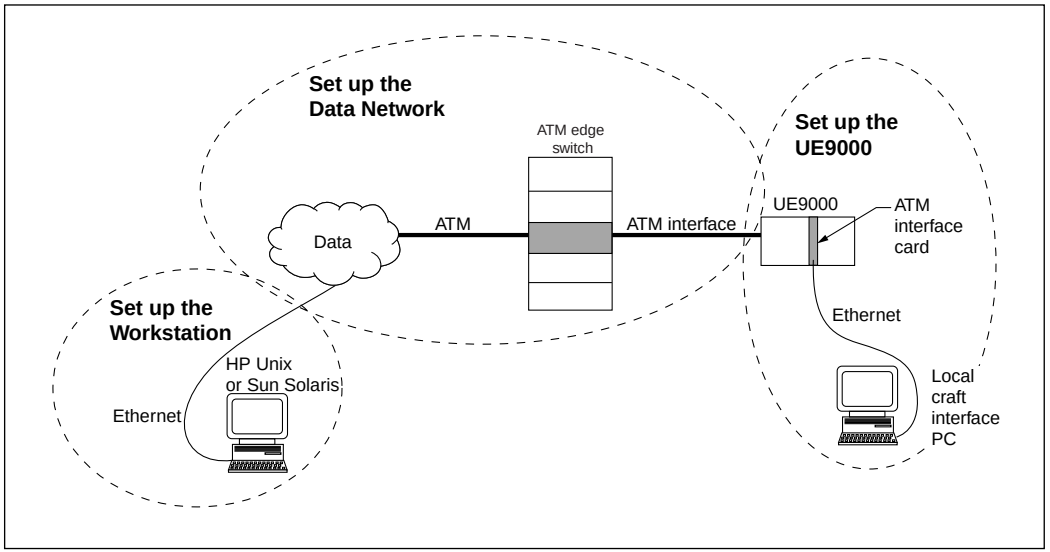
This guide provides step-by-step procedures on how to perform the data system setup of the Universal Edge 9000 (UE9000) product. Perform each numbered procedure in order. **Checkboxes are provided.**

## Overview

This guide describes three major areas that require setup and configuration. You must set up the workstation prior to provisioning the UE9000 for data services. You can set up the data network and the UE9000 prior to provisioning, or you can pre-provision data services. Once the uEMS workstation is set up, you can use uEMS to pre-provision for later downloading to the UE9000. You will not be able to download the provisioning information until you set up the communication channels through the data network and perform initial commissioning of the UE9000.

See the *UE9000 Data OAM&P User Guide* for provisioning procedures.

UE-1087



# Set up the workstation

To support UE9000 for data services, you must set up a Hewlett-Packard (HP) UNIX workstation or a Sun Microsystems Solaris workstation and connect the workstation to your data network using an Ethernet interface.

## Workstation requirements

Your UNIX/Solaris workstation must meet the following minimum requirements. Meeting these requirements will enable you to support up to 125 UE9000 units.

### Hardware requirements

- Model: HP C3000 (or higher) or Sun Ultra 10 (or higher)
- RAM memory: 512 Mb (or higher)
- Disk swap space: 1.5 X RAM (i.e., 768 Mb for 512 Mb RAM)
- Hard disk drive size: 9.0 Gb (or higher) for UNIX, 9.0 Gb (or higher) for Solaris
- /opt partition: 1 Gb free space
- /var partition: 1 Gb free space
- Monitor: 1024 x 768 color monitor
- Peripherals: CD-ROM drive; 10Base-T Ethernet network interface card (NIC) (needed to install the uEMS and HPOV NNM software

### Software requirements

- Operating system: HP-UX 10.20 (operating system must have TFTP applications) or Solaris version 2.6.

  ***Note:*** The uEMS software does not support HP-UX 11.
- HP OpenView (HPOV) Network Node Manager (NNM) software, version 5.01.

  ***Note:*** The uEMS software does not support HPOV 6.0.
- Nortel Networks UE9000 data application software, which includes uEMS (Universal Edge 9000 element management system), ATMIF, and xDSL software.
- Required HP-UX or Solaris software patches, as supplied initially by Nortel Networks on separate CD-ROM (see “Load HP-UX/Solaris patches” on page 7 for detailed information on how to acquire and load HP-UX patches)
- Recommended HPOV software patches, as supplied by Nortel Networks on separate CD-ROM (see “Load HPOV patches” on page 10 for detailed information on how to acquire and load HPOV patches)

## Software installation sequence

The required installation sequence for UNIX software is as follows:

| Sequence | Software |
|---|---|
| 1 | HP-UX 10.20 |
| 2 | HP-UX 10.20 patches, as specified by Nortel Networks<br>(For more information, see “Install HP-UX and Solaris software” on page 6) |
| 3 | HPOV NNM (Network Node Manager) 5.01 |
| 4 | HPOV patches, as specified by Nortel Networks<br>(For more information, see “Install HPOV software” on page 10) |
| 5 | Download jre11803 os10.depot (http://47.31.128.33:8080/uems) |
| 6 | Download swing.depot (http://47.31.128.33:8080/uems) |
| 5 | uEMS software load |

The required installation sequence for Solaris software is as follows:

| Sequence | Software |
|---|---|
| 1 | Solaris 2.6 |
| 4 | Solaris patches, as specified by Nortel Networks<br>(For more information, see “Install HP-UX and Solaris software” on page 6) |
| 2 | HPOV NNM (Network Node Manager) 5.01 |
| 3 | HPOV patches, as specified by Nortel Networks<br>(For more information, see “Install HPOV software” on page 10) |
| 5 | Download jre11803 os10.depot (http://47.31.128.33:8080/uems) |
| 6 | Download swing.depot (http://47.31.128.33:8080/uems) |
| 7 | uEMS software load |

## g 1 Install the workstation

To install the UNIX /Solaris workstation, use the physical installation procedures that accompany your workstation. Your data network designer or provider must provide a means to interface the workstation with your data network (via Ethernet).

**CAUTION**
**Risk of system failure**
The HPOV workstation must be dedicated to uEMS for UE9000 support only. Do not install or run any software other than what is listed under “Software requirements” on page 4.

## g 2 Designate IP address for workstation

The IP address for the UNIX/Solaris workstation must be designated by your ATM network designer or provider. The address is assigned to the workstation during the installation of the HP-UX or Solaris software.

## g 3 Install HP-UX and Solaris software

Install HP-UX 10.20 software on your UNIX workstation, or install Solaris version 2.6 on your Solaris workstation if it is not already installed. Refer to the documentation that accompanies the software.

- During installation, you must modify the disk partitioning.
- After installation, you must load recommended patches.

### Disk partitioning

You will have to modify disk partitioning information during the installation of the HP-UX or Solaris software. Verify that the disk partitioning meets minimum requirements.

For correct disk partitioning, refer to the documentation that accompanies your HP-UX 10.20 or Solaris 2.6 software. The disk partitioning must meet the following requirements. If it does not, reinstall HP-UX 10.20 or Solaris 2.6.

| Partition | Minimum size |
|---|---|
| / | 300 Mb |
| /var | 1 Gb |
| /opt | 1 Gb |

## Load HP-UX/Solaris patches

HP-UX and Solaris patches are recommended by Nortel Networks as a baseline. These patches verify proper operation of uEMS and HPOV.

### HP-UX patches

Nortel Networks supplies the recommended HP-UX 10.20 patches on a CD-ROM that accompanies your initial software load CD-ROM. Load all of the patches from the CD-ROM provided by Nortel Networks.

Subsequent HP-UX 10.20 patches are available at the following URL:

**http://us-support.external.hp.com**

**CAUTION**
**Database corruption**
Do not deviate from the Nortel Networks recommended list of HP-UX patches. Do not install new HP-UX patches from any website without consulting Nortel Networks. Otherwise, database corruption can occur.

***Note:*** Before beginning this procedure, check if a mount point directory (/cdrom) has already been created. Type **ls /** and look for “cdrom” in the command response.

To mount the CD and install HP-UX patches, load the CD and do the following:

1. Log in as root.
2. Type **ls /dev/dsk** ↵
3. Type **/usr/sbin/ioscan -funC disk** ↵
   *Sample output is as follows:*

```
Class  I H/W Path      Driver   S/W State  H/W Type  Description
disk   0 8/0/19/0.6.0  sdisk    CLAIMED    DEVICE    SEAGATE ST34572WS
       /dev/dsk/c0t6d0 /dev/rdsk/c0t6d0
disk   1 8/16/5.2.0    sdisk    CLAIMED    DEVICE    TOSHIBA CD-ROM XM-5701TA
       /dev/dsk/c1t2d0 /dev/rdsk/c1t2d0
```

4. Type **/sbin/mount /dev/dsk/<c1t2d0> /cdrom** ↵

   where

   <c1t2d0> is the appropriate device name. See output example from step 3.

**5** Type **ls /cdrom** ↵

*You should see three files: README, AN<load name>-HPUX10.20PATCHES.depot, and AN<load name>-OVPATCHES.r1_1.depot*

where

<load name> is the software release you are loading. For example, for AN release 17.30, the two depot files are *AN1730-HPUX10.20PATCHES.depot, and AN1730-OVPATCHES.r1_1.depot*

**6** Type **/usr/sbin/swinstall -x autoreboot=true -s /cdrom/AN<load name>-HPUX10.20PATCHES.depot *** ↵

where

<load name> is the software release you are loading. For example, for AN release 17.30, the command line is as follows:

/usr/sbin/swinstall -x autoreboot=true -s /cdrom/AN1730-HPUX10.20PATCHES.depot *)

***Note:*** Command is one-line.

*After the installation is complete, the workstation automatically reboots*

**7** Type **cd /**

**8** Type **/sbin/umount /cdrom**

**9** Press **eject** to retrieve the CD.

***Note:*** If the workstation already has some of the HP-UX patches, these patches are not re-installed. This behavior is normal.

**Solaris Patches**

Solaris patches are available at the following URL in .tar files:

**http://www.sun.com/software/shop**

**1** Type **cd /tmp** ↵

**2** Uncompress the .tar files.

**3** Un-tar the file.

*This creates a directory in /tmp with the patch ID as /tmp/patch_id.*

**4** Type **patchadd /tmp/<patch_id>** ↵

## g 4 Verify configurable kernel parameters

**Use these steps to verify kernel parameters. Modify if necessary.**

To display the existing kernel parameters, do the following:

1 Type **sysdef**↵

*The existing kernel parameters are displayed.*

2 If the kernel parameters do not match the following values, configure them using the procedure below.

| Parameter | Value |
|---|---|
| maxdsiz | 256 Mb.<br>***Note:*** From the sysdef command, you will see units in pages for maxdsiz. One page is equal to 4096 bytes. For 256 Mb, you will have 65536 pages (from a decimal value of 268 435 456). |
| maxfiles | 1024 |
| nfile | 2742 or more |
| ninode | 4000 or more |
| nproc | 1044 or more |

### Procedure to configure kernel parameters

To configure kernel parameters, do the following:

***Note:*** To configure kernel parameters, you must run the SAM tool. You must be logged in as **root** to run this tool. If you are not, you will receive the following error message: *The SAM Registration database, /etc/sam/reg_files.db, either is missing, cannot be opened, or is empty. This is usually caused by running SAM on a system that is not configured to run SAM. If this is the case, please use swconfig (1M) to configure the SystemAdmin product.*

1 Login as root.

2 Type **/usr/sbin/sam**↵

3 Double-click **Kernel Configuration**.

4 Double-click **Configurable Parameters**.

*The list of configurable parameters displays in a dialog box.*

5 Select parameters one at a time. Then, click **Action** on the menu bar and invoke **Modify Configurable Parameters....**

*A separate dialog box appears.*

***Note:*** When you invoke “Modify Configurable Parameters...” for the parameter “maxdsiz,” you may see a hex value in the field where you would assign the new value (for example, 0x04000000). This is ok. You can type a decimal value (for example: 268 435 456 for 256 Mb) in that same field, or a hex value (for example: 0x10000000 for 256 Mb), whichever is preferable.

6 Type the new value.

7 After changing all parameters, click **Action-Create New Kernel**.

*A separate dialog box appears that displays: “The newly created configuration file will be copied to /stand/system. Any comments in that file will be lost because SAM cannot preserve them. This is default.”*

Click **OK**.

8 When the SAM tool finishes building a kernel, it asks for permission to *move kernel into place and shutdown/reboot system now.*

Click **OK**.

## g 5 Install HPOV software

Install HPOV 5.01 software on your UNIX/Solaris workstation, if not already installed. To install HPOV software, refer to the HPOV documentation that accompanies the software.

After installation, you must load required HPOV patches.

### Load HPOV patches

The uEMS application software requires specific HPOV patches for proper operation. Nortel Networks supplies recommended HPOV 5.01 patches on a CD-ROM that accompanies your initial software load CD-ROM. Load all of the patches from the CD-ROM provided by Nortel Networks.

**CAUTION**
**Database corruption**
Do not deviate from the specified list of HPOV patches. Do not install new HPOV patches from any website without consulting Nortel Networks. Nortel Networks issues release notes and bulletins that list the specific patch requirements and any changes to requirements.

To mount the CD and install HPOV patches, insert the CD (if not already in the CD-ROM drive) and do the following:

**UNIX workstation**

1 Type **/sbin/mount /dev/dsk/<c1t2d0> /cdrom** ↵

where

<c1t2d0> is the appropriate device name.
See output example from step 3 on page 7.

2 Type **/opt/OV/bin/ovstop** ↵

3 Type **ls /cdrom** ↵

4 Type **/usr/sbin/swinstall -s /cdrom/AN<load name>-OVPATCHES_r1_1.depot *** ↵

where

<load name> is the software release you are loading. For example, for AN release 17.30, the command line is as follows:
**/usr/sbin/swinstall -s /cdrom/AN1730-OVPATCHES_r1_1.depot *)**

5 Type **/opt/OV/bin/ovstart -v** ↵

6 Type **cd /** ↵

7 Type **/sbin/umount /cdrom** ↵

8 Press eject to retrieve the CD.

**Solaris workstation**

1 Type **cd /** ↵

2 Type **/opt/ov/bin/ovstop**↵

3 Type **ls /cdrom/PSOV***↵

*This lists the applicable files.*

4 Type **cp /cdrom/PSOV* /tmp**↵

5 Press **eject** to retrieve the CD.

6 Type **cd /tmp**↵

7 Install one patch at a time. Install PSOV_02468 first.

8 Type **sh <patch_id>**↵

*This creates a .tar file as <patch_id>.tar.*

9 Type **rm <patch_id>**↵

10 Type **tar xovf /tmp/<patch_id>.tar**↵

11 Type **cd /tmp/<patch_id>.install**↵

**12** Type **./install_patch**↵

**13** Install the rest of the patches using the same procedure.

**14** Type **/opt/ov/bin/ovstart -v**↵

# Load the UE9000 data software

To support a data interface to the UE9000, you must install the Nortel Networks UE9000 data application software onto the UNIX/Solaris workstation. This software includes applications for uEMS (Universal Edge 9000 element management system), ATM, ADSL, and software patches for HP-UX, Solaris, and HPOV (already loaded).

## Prerequisites

Before installing the UE9000 application software on your UNIX/Solaris workstation, you must meet the following prerequisites.

- You must have root (superuser) access to the workstation
- TFTP servers must be resident on the workstation
- You must have the following already installed on the workstation:
  - HP-UX UNIX software, version 10.20 or Solaris version 2.6
  - recommended HP-UX 10.20 patches or recommended Solaris 2.6 patches
  - HP OpenView (HPOV) version 5.01
  - Nortel Networks-required HPOV patches

## Install uEMS software

**Use these instructions to install the uEMS software onto your UNIX/Solaris workstation.**

**1** If you did not log in as root, do so now. At the prompt, type: **su root** ↵

This command allows you to become superuser. Type the root password when prompted.

**2** Place the CD-ROM labeled **UE9000 Data System Software** (NTNP90AA) in the attached CD-ROM drive.

If the CD-ROM drawer does not open, unmount using this command line:

Type **cd /** ↵

Type **/sbin/umount /cdrom** ↵

**3** Mount the uEMS distribution CD-ROM on the destination workstation.

Type **/sbin/mount /dev/dsk/<c1t2d0> /cdrom** ↵

where

<c1t2d0> is the device name.
See output example shown in step 3 on page 7.)

If the mount fails, consult your local UNIX/Solaris administrator or Nortel Networks support.

If the mount succeeds, go to step 4.

**4** Verify that you installed the correct version.

Type **cd /cdrom** ↵

Type **more README.txt** ↵

*"UEMS LOAD VERSION <load name>" displays.*

where

| | |
|---|---|
| <load name> | is the numerical designation for the uEMS load. For example: UEMS LOAD VERSION 1.3.0.6) |

**5** Install uEMS.

*For HP-UX 10.20*

Type **/usr/sbin/swinstall -s /cdrom/<uEMS load name> ***

where

| | |
|---|---|
| <uEMS load name> | is the designation for the software load. For example: /usr/sbin/swinstall -s /cdrom/UE_AN_Data_1306.depot * |

*The screen displays the progress of the installation.*

The installation process takes about 4 minutes. When the installation completes, the screen displays "Execution succeeded." If the screen displays anything else (i.e., warnings or errors), open the following file in a text editor to see the cause of the failure: **/var/opt/sw/swagent.log**

*For Solaris*

Type **cp /cdrom/<uEMS load name>.pkg.gz /tmp** ↵

Type **cd /tmp** ↵

Type **unzip <uEMS load name>.pkg.gz** ↵

Type **/usr/sbin/pkgadd -d /tmp/<uEMS load name>.pkg all**↵

If the solution is not immediately apparent, contact your next level of Nortel Networks technical support.

**6** Unmount the CD-ROM.

Type **cd /** ↵

Type **/sbin/umount /cdrom** ↵

*This step releases the CDROM drive for later use.*

## Upgrading the uEMS software

For procedures on how to upgrade the uEMS software, follow the instructions that accompany the new uEMS software load.

### Pre-provisioning (optional)

Once you have set up your uEMS workstation, you can use uEMS to pre-provision for later downloading to the UE9000. You will not be able to download the provisioning information until you set up the communication channels through the data network and perform initial commissioning of the UE9000. See the *UE9000 Data OAM&P User Guide* for provisioning procedures.

# Set up the data network

Your uEMS workstation must be able to communicate with the UE9000 shelf through the data network. This requires that your network designer or provider set up certain elements of the data network. Required network configurations and information is as follows.

***Note 1:*** Setup of the data network needs to be performed for every UE9000 shelf.

***Note 2:*** When setting up the IP addresses for the ATM core card and uEMS, you must use a valid subnet mask (supernetting is not supported).

## Requirements

Your network designer or provider must meet the following requirements.

### Network configuration

**For inband configuration:**

- ATM edge switch connection for DS1 IMA or DS3 (depending on the type of ATM core card in the UE9000 shelf)
- ATM PVC between the ATM core card on the UE9000, and the edge router that provides access to your uEMS workstation

**For out-of-band configuration:**

- Ethernet HUB. This arrangement allows you to easily add more uEMS workstations later
- Ethernet connectivity between the ATM core card on the UE9000 and the Ethernet HUB
- Ethernet connectivity between the uEMS workstation and the Ethernet HUB

### Information requirements

- Management VPI.VCI for the ATM network connection
- Configuration details (frame format, line coding, and clock source) for DS1 IMA or DS3 (depending on the type of ATM core card in the UE9000 shelf)
- ATM IMA group (for UE9000 shelves with DS1 IMA ATM core cards)

- IP address, subnet mask, gateway address, etc., for ATM core card (determined as part of design, but assigned at the UE9000 via the local craft interface)
- IP address of the uEMS workstation

# Set up the UE9000 for DS1 IMA

***Note:*** This procedure is for setting up a UE9000 shelf with DS1 IMA ATM core card(s) installed. For setting up a UE9000 shelf with DS3 ATM core card(s), refer to ‘Set up the UE9000 for DS3” on page 28.

For the UE9000 to interface with the uEMS workstation, you must physically install the UE9000 and perform initial commissioning procedures. Initial commissioning is necessary to establish a communication channel between the UE9000 and your uEMS workstation.

***Note:*** You need to repeat these procedures for every UE9000 shelf that you deploy, regardless of when you deploy the shelf.

## Prerequisites

The following is a prerequisite for the UE9000 setup.

- Install the UE9000 shelf (if not already installed), including circuit cards, cables, and power. Minimum card requirements are the TDM core cards, and ATM core cards. DS1 cables must connect the ATM core card to the ATM network. For physical installation procedures, see the *UE9000 Installation Quick Reference*.

## g 1 Establish the local craft interface

**Establish the local craft interface by connecting a PC to the Ethernet port on the ATM core card.**

### PC requirements

Your PC must have the following:

- 486 or greater
- Ethernet capability
- Netscape web browser software, version 4.x or higher

### Installation and configuration

You must set up the PC for connection (via Ethernet) to the ATM core card.

**1** The Ethernet port on the ATM core card has a factory-installed IP address of: **10.0.0.1** Set the PC Ethernet adapter to an address in the same subnet, such as: **10.0.0.2**

2 Verify that the PC Ethernet adapter has a subnet mask of **255.255.255.0**.

3 Using a cross-over Ethernet cable (or an Ethernet hub between the PC and UE9000), connect the PC to the Ethernet port on the front of the ATM core card.

Use this procedure only if you want to use an inband ATM core card IP address that exists in the same subnet as the factory-installed Ethernet (out-of-band) ATM core card IP address. For example, you can not set the inband ATM core card IP address to 10.x.x.x until you change the Ethernet ATM core card IP address to something other than 10.x.x.x, such as 20.0.0.1. **Follow these steps carefully**.

1 Follow the steps immediately above to install and configure your PC Ethernet connection.

2 Follow “Connect to the UE9000 Local Craft Interface webpage” on page 17, to set up your Netscape preferences.

3 Follow “Commission for out-of-band management” on page 22. Omit steps 6 through 13 if you do not plan to use an out-of-band configuration. In step 16, enter an Ethernet IP address that does not begin with 10, such as **20.0.0.1**. Omit step 21.

4 Set the PC Ethernet adapter to an address in the same subnet, such as **20.0.0.2**.

5 Verify that the PC Ethernet adapter has a subnet mask of **255.255.255.0**.

6 Follow “Commission for inband management” on page 18, but connect to the Universal Edge 9000 Local Craft Interface webpage using the new Ethernet IP address (i.e., **20.0.0.1**). In step 16 on page 21, enter the new inband ATM core card IP address (example: **10.1.2.1**).

## g 2 Connect to the UE9000 Local Craft Interface webpage

**Use the local craft interface to connect to the Universal Edge 9000 Commissioning webpage.**

Once you are in the UE9000 Local Craft Interface webpage, you can choose two commissioning options for connection to the uEMS workstation. These are:

- Inband access, using an ATM PVC across the ATM data network (recommended)
- Out-of-band access, using the Ethernet port on the ATM core card

To connect to the webpage, do the following:

1 Open Netscape on your PC.

2 Click **Edit**, then **Preferences**.

*The Preferences window appears.*

3 On the left side of the window, open the **Appearance** category, then click **Fonts**.

*The Preferences window displays font information on the right.*

- Set the **Variable Width Font** to **Times New Roman** with a **Size** of **8**.
- Set the **Fixed Width Font** to **Courier New** with a **Size** of **10**.

- Click the button specifying **Use my default fonts overriding document specified fonts**.

4 On the left side of the window, open the **Advanced** category, then click **Cache**.

*The Preferences window displays cache information on the right.*

- Click on the **Memory Cache** field and set it to **0**.
- Click on the **Disk Cache** field and set it to **0**.
- Under “Document in cache is compared to document on network,” click the button specifying “Every time.”

5 Click **OK** to close the Preferences window.

6 In the Location field of your browser, type **http://10.0.0.1** and press **Enter.**

*The UE9000 Local Craft Interface webpage appears.*

7 If you are commissioning:

- an inband system, go to “Commission for inband management” on page 18.
- an out-of-band system, go to “Commission for out-of-band management” on page 22.

## g 3 Commission for inband management

**Use the UE9000 Commissioning webpage to commission for inband (classical IP) management**

For inband management, the connection between the uEMs and the UE9000 shelf is through the ATM core card’s ATM port (control circuit is part of the transport payload).

All initial commissioning, and verification of commissioning, is accomplished through the local craft interface (LCI). To commission the UE9000 shelf for inband (classical IP), do the following:

1 Connect to the Universal Edge 9000 Local Craft Interface webpage (see “Connect to the UE9000 Local Craft Interface webpage” on page 17).

***Note:*** If you do not set the fonts correctly, the Commissioning page will not work correctly.

2 Click on the **Inband Configuration** link.

*The UE9000 Commissioning page appears.*

3 Click **Node OAMP** at the top left of the screen.

*The menu slides to the right revealing various options.*

4 Click **Shelf/Slot**.

*The Shelf/Slot box appears.*

- Click on the Shelf field and type **1**.
- Click on the Slot field and type **10**.
- Click **Submit**.

*Node OAMP "Shelf/Slot" indicator changes to "Node done" and moves into the ATM Control Card display.*

- Click **Close**.

**5** Click **Node OAMP** again to close the menu.

**6** Click **Carrier OAMP** (beneath Node OAMP).

*The menu slides to the right revealing various options.*

**7** Click **IMA Group**.

*The IMA Group dialog box appears.*

- Set the IMA Group ID. (This is especially necessary for a 3COM IMA interface.) For example, click on the Tx IMA Id field and type **1**.
- Click **Submit**.

*The Carrier OAMP "IMA Group" indicator changes to "Grp. done".*

- Click **Close**.

**8** Click **DS1**.

*A list of all provisionable DS1s appears.*

- Select **DS1 Carrier #1**.

*The DS1 Carrier #1 settings box appears.*

- Select the desired settings in the pop-up box and click **Submit.** (See the *UE9000 Data OAM&P User Guide* for descriptions of each setting.)

*The Carrier OAMP "DS1 Oamp" indicator changes to "DS1 done".*

- Click **Close**.
- Repeat this step for each carrier that will be provisioned in uEMS.

***Note:*** The quantity of carriers that you provision here must match the quantity of carriers that you provision in uEMS. A normal configuration includes eight DS1s.

**CAUTION**
**Loss of service**

To avoid loss of or erratic service, always provision the DS1s in sequential order, starting with DS1 link number 1. DS1 link number 1 must always be the IMA timing reference link due to differences between the IMA protocol implementation on the ATM core card and the IMA protocol implementation on other ATM devices.

If a loss of service occurs on DS1 link number 1, the ATM core card transfers timing to another link. Users may see erratic behavior because of a loss of timing synchronization between the UE9000 and the far-end ATM device.

***Note:*** The current ATM core card hardware and software support IMA version 1.0.

**9** Click **DS1 Carrier Off**.

*The DS1 Carrier box closes.*

**10** Click IMA Link.

*A list of all provisionable IMA links appears.*

- Select **IMA Link #1**.

*A dialog box appears.*

- Click **Submit**.

*The Carrier OAMP "IMA Links" indicator changes to "Link done" and all three Carrier OAMP indicators move into the ATM Control Card display.*

- Click **Close**.
- Repeat this step for each IMA link that will be provisioned in uEMS.

***Note:*** The quantity of IMA links that you provision here must match the quantity of DS1 carriers provisioned. A normal configuration includes eight IMA links.

**11** Click **IMA Link Off**.

*The IMA Link box closes.*

**12** Click **Unlock Carrier**.

*The Carrier Unlock dialog box appears.*

***Note:*** Click **Submit**.

*All three Carrier OAMP indicators move into the ATM Control Card display.*

***Note:*** Click **Close**.

**13** Click **Carrier OAMP** again to close the menu.

**14** Click **Classical IP**.

*The menu slides to the right revealing Default Route and Configure.*

**15** Click **Default Route**.

*The Def Route dialog box appears.*

- Click on the **Default Gateway** field and type in the address of the router to which the ATMIF card is connected.
- Click on the **uEMS IP** field and type in the IP address of the uEMS.
- Click **Submit**.

*The CIP OAMP indicator changes to "CIP done" and moves into the ATM Control Card display.*

- Click **Close**.

**16** Click **Configure**.

*The Classical IP dialog box appears.*

- Click on each field and type all Classical IP information as indicated in the following table.

***Note:*** You must complete all entries in ALL fields.

| Field | Classical IP Information |
|---|---|
| Classical IP Address<br>***Note:*** For inband only. | <IP address of ATM core card><br>***Note:*** This is the IP address of the inband management port. |
| SubNet Mask | Of the ATM core card<br>***Note:*** This is the subnet mask of the inband management port. |
| Management | Virtual Path Identifier (VPI) |
| Management | Virtual Channel Identifier (VCI) |

**CAUTION**
**Use different IP addresses for inband versus out-of-band configurations.**
For example, if the inband IP address is on the 111.xxx.xxx.xxx network, the out-of-band IP address must be on a different network — NOT 111.xxx.xxx.xxx.

- Click **Submit**.

  *CIP OAMP moves into the ATM Control Card display.*

- Click **Close**.

**17** Click **Node OAMP** at the top left of the screen.

*The menu slides to the right, revealing various options.*

**CAUTION**
**Loss of service**
An ATM core card cold restart drops all data traffic on the UE9000 shelf. You will need to re-establish all current calls. However, the ATM core card retains all of the initial provisioning data.

**18** Click **Cold Restart**.

*The Node Restart dialog box appears.*

19 Click **Submit**.

*The Commissioning window closes. Allow 2 minutes for the cold restart to complete.*

20 Go to “Verify initial commissioning” on page 25.

## g 4 Commission for out-of-band management

**Use the UE9000 Commissioning webpage to commission for out-of-band (Ethernet) management.**

For out-of-band management, the connection between the uEMs and the UE9000 shelf is through the ATM core card’s Ethernet port.

All initial commissioning, and verification of commissioning, is accomplished through the local craft interface (LCI). To commission the UE9000 shelf for out-of-band, do the following:

1 See “Connect to the UE9000 Local Craft Interface webpage” on page 17 to connect.

***Note:*** If you do not set the fonts correctly, the Commissioning page will not work.

2 Click on the **Ethernet Configuration** link.

*The UE9000 Commissioning page appears.*

3 Click **Node OAMP** at the top left of the screen.

*The menu slides to the right revealing various options.*

4 Click **Shelf/Slot**.

*The Shelf/Slot box appears.*

- Click on the Shelf field and type **1**.
- Click on the Slot field and type **10**.
- Click **Submit**.

*Node OAMP “Shelf/Slot” indicator changes to “Node done” and moves into the ATM Control Card display.*

- Click **Close**.

5 Click **Node OAMP** again to close the menu.

6 Click **Carrier OAMP** (beneath Node OAMP).

*The menu slides to the right revealing various options.*

7 Click **IMA Group**.

*The IMA Group dialog box appears.*

- Set the IMA Group ID. (This is especially necessary for a 3COM IMA interface.) For example, click on the Tx IMA Id field and type **1**.
- Click **Submit**.

*The Carrier OAMP “IMA Group” indicator changes to “Grp. done”.*

- Click **Close.**

**8** Click **DS1**.

*A list of all provisionable DS1s appears.*

- Select **DS1 Carrier #1**.

*The DS1 Carrier #1 settings box appears.*

- Select the desired settings in the pop-up box and click **Submit.** (See the *UE9000 Data OAM&P User Guide* for descriptions of each setting.)

*The Carrier OAMP "DS1 Oamp" indicator changes to "DS1 done".*

- Click **Close**.
- Repeat this step for each carrier that will be provisioned in uEMS.

***Note:*** The quantity of carriers that you provision here must match the quantity of carriers that you provision in uEMS. A normal configuration includes eight DS1s.

**CAUTION**
**Loss of service**

To avoid loss of or erratic service, always provision the DS1s in sequential order, starting with DS1 link number 1. DS1 link number 1 must always be the IMA timing reference link due to differences between the IMA protocol implementation on the ATM core card and the IMA protocol implementation on other ATM devices.

If a loss of service occurs on DS1 link number 1, the ATM core card will transfer timing to another link. However, users may see erratic behavior because of a loss of timing synchronization between the UE9000 and the far-end ATM device.

***Note:*** The current ATM core card hardware and software support IMA version 1.0.

**9** Click **DS1 Carrier Off**.

*The DS1 Carrier box closes.*

**10** Click **IMA Link**.

*A list of all provisionable IMA links appears.*

- Select **IMA Link #1**.

*A dialog box appears.*

- Click **Submit**.

*The Carrier OAMP "IMA Links" indicator changes to "Link done" and all three Carrier OAMP indicators move into the ATM Control Card display.*

- Click **Close**.
- Repeat this step for each IMA link that will be provisioned in uEMS.

***Note:*** The quantity of IMA links that you provision here must match the quantity of DS1 carriers provisioned. A normal configuration includes eight IMA links.

**11** Click **IMA Link Off**.

*The IMA Link box closes.*

**12** Click **Unlock Carrier**.

*The Carrier Unlock dialog box appears.*

- Click **Submit**.

*All three Carrier OAMP indicators move into the ATM Control Card display.*

- Click **Close**.

**13** Click **Carrier OAMP** again to close the menu.

**14** Click **Ethernet**.

*The menu slides to the right revealing Default Route and Configure.*

**15** Click **Default Route**.

*The Def Route dialog box appears.*

- Click on the **Default Gateway** field and type in the address of the router to which the ATMIF card is connected.
- Click on the uEMS IP field and type in the IP address of the uEMS.
- Click **Submit**.

*The Ethernet OAMP "Ethernet Data" indicator changes to "Ethernet done" and moves into the ATM Control Card display.*

- Click **Close**.

**16** Click **Configure**.

*The Ethernet dialog box appears.*

- Click on each field and type all Ethernet information as indicated in the following table.

***Note:*** You must complete all entries in ALL fields:

| Field | Ethernet Information |
|---|---|
| Ethernet IP Address | <IP address of the Ethernet port on the ATM core card> |
| Subnet Mask | Of the Ethernet port on the ATM core card |

**CAUTION**
**Use different IP addresses for inband versus out-of-band configurations.**
For example, if the inband IP address is on the 111.xxx.xxx.xxx network, the out-of-band IP address must be on a different network — NOT 111.xxx.xxx.xxx.

- Click **Submit**.

*The uEMS OAMP indicator moves into the ATM Control Card display.*

- Click **Close**.

**17** Click **Ethernet** again to close the menu.

**18** Click **Node OAMP** at the top left of the screen.

*The menu slides to the right revealing various options.*

**CAUTION**
**Loss of service**
An ATM core card cold restart drops all data traffic on the UE9000 shelf. You will need to re-establish all current calls. However, the ATM core card retains all of the initial provisioning data.

**19** Click **Cold Restart**.

*The Node Restart dialog box appears.*

**20** Click **Submit**.

*The Commissioning window closes. Allow 2 minutes for the cold restart to complete.*

**21** Go to “Verify initial commissioning” on page 25.

## g 5 Verify initial commissioning

**Verify that the commissioning configurations are correct.**

Use this procedure to verify that all the initial provisioning is correct and that no alarm conditions exist.

**1** Connect to the Universal Edge 9000 Commissioning webpage (see “Connect to the UE9000 Local Craft Interface webpage” on page 17).

***Note:*** You may need to reload the web page by clicking the **Reload** button on Netscape’s navigation toolbar.

**2** Click **Ethernet Configuration** or **Inband Configuration**.

*The UE9000 Commissioning page appears.*

3 Click the **Get UE Data** command box on the Universal Edge 9000 Commissioning webpage.

*The icons move to the center of the screen. A window appears that lists the states and alarms for the DS1 carriers, IMA links, and the IMA group.*

4 Click **Close** to close the window.

**CAUTION**
**Loss of service**
For inband, unplug the Ethernet cable from the ATM core card, once initial commissioning and verification is complete. Failure to do so may result in a full shelf loss of data service.

5 If you are using the inband (classical IP) configuration, you must unplug the Ethernet cable from the ATM core card.

## g 6 Verify UE9000-to-workstation communication

**Verify that the UE9000 is communicating with the uEMS workstation.**

The purpose of this procedure is to:

- Verify that there is basic IP connectivity between the uEMS workstation and the ATM core card on the UE9000 shelf.

  ***Note:*** IP connectivity does not imply SNMP connectivity, but is a prerequisite for SNMP access and file transfer of software update.
- Verify that there is SNMP connectivity between the uEMS workstation and the ATM core card on the UE9000 shelf.

  ***Note:*** SNMP connectivity implies IP connectivity.

### Prerequisites

To accomplish this procedure, you must first do the following:

- Verify that the ATM core card is properly installed and commissioned in the UE9000.
- Provision the subject ATM core cards from the uEMS, including IP address, subnet mask, gateway address, and VPI/VCI. Procedures for this are in the *UE9000 Data OAM&P User Guide*.

## Procedure

To verify that the workstation is communicating with the ATM core card, do the following.

1 Launch HPOV and uEMS. At the HP-UX prompt, type:

**/opt/OV/bin/ovw** ↵

2 At your uEMS workstation, highlight the ATM core card in the shelf submap, then select:

**Fault -> Ping**

*The Ping dialog box appears.*

Can you ping the ATM core card from the workstation?

| | |
|---|---|
| **Yes** | There is basic IP connectivity to the ATM core card. Go to step 3. |
| **No** | See the *UE9000 Data Testing and Troubleshooting Guide*. |

***Note 1:*** You can also issue the ping command from an HP-UX shell.

***Note 2:*** Ensure that the far end equipment does not have scrambling enabled on the IMA interface. Scrambling is an ATM parameter that UE9000 equipment does not support over the DS1 IMA links because it is not required at T1 speeds. If scrambling is enabled, the ATM cells experience payload corruption, resulting in CRC errors at the CPE.

3 Verify that the ATM core card can communicate with uEMS using SNMP. From the pull-down menu, select:

**Fault -> Nortel uEMS -> verifyComm**

Was the test successful?

| | |
|---|---|
| **Yes** | The ATM core card can communicate with uEMS using SNMP. You are finished with this procedure. |
| **No** | See the *UE9000 Data Testing and Troubleshooting Guide*. |

## g 7 Provision the UE9000 from the uEMS

Once the UE9000 is ready to receive data traffic, you can provision for data services. See the *UE9000 Data OAM&P User Guide* for complete instructions on how to provision the UE9000 shelf from the uEMS workstation, using uEMS.

***Note:*** You must include all configuration information in the uEMS configuration database for the particular UE9000 shelf.

# Set up the UE9000 for DS3

***Note:*** This procedure is for setting up a UE9000 shelf with DS3 ATM core card(s) installed. For setting up a UE9000 shelf with DS1 IMA ATM core card(s), refer to ‘Set up the UE9000 for DS1 IMA” on page 16.

For the UE9000 to interface with the uEMS workstation, you must physically install the UE9000 and perform initial commissioning procedures. Initial commissioning is necessary to establish a communication channel between the UE9000 and your uEMS workstation.

Initial commissioning of the DS3 ATM core card is performed through the UE9000 TL1 command interpreter, which is accessed through the local craft interface (LCI). The LCI can also be used to view alarms for low-level troubleshooting (if the uEMS is not communicating with the ATM core card). Refer to “TL1 commands for DS3 ATM core card” on page 45 for a complete listing of TL1 commands for the DS3 ATM core card.

***Note:*** You need to repeat these procedures for every UE9000 shelf that you deploy, regardless of when you deploy the shelf.

## Prerequisites

The following are prerequisites for the UE9000 setup.

- Install the UE9000 shelf (if not already installed), including circuit cards, cables, and power. Minimum card requirements are the TDM circuit cards, and ATM core cards. DS3 cables must connect the ATM core card to the ATM network. For physical installation procedures, see the *UE9000 Installation Quick Reference*.

## g 1 Establish the local craft interface

**Establish the local craft interface by connecting a VT100 terminal to the DS3 ATM core card via either:**

- serial cable to the RS-232 port
- telnet to the Ethernet port

### PC requirements

Your PC must have the following:

- 486 or greater
- Ethernet capability (if connecting to Ethernet port)

## Installation and configuration

If you are connecting to the DS3 ATM Ethernet port, you must set up the PC for connection (via telnet) to the ATM core card.

1. The Ethernet port on the ATM core card has a factory-installed IP address of: **10.0.0.1** Set the PC Ethernet adapter to an address in the same subnet, such as: **10.0.0.2**
2. Verify that the PC Ethernet adapter has a subnet mask of **255.255.255.0**.
3. Using a cross-over Ethernet cable (or an Ethernet hub between the PC and UE9000), connect the PC to the Ethernet port on the front of the ATM core card.

## g 2 Commission for inband management

**Use the local craft interface (LCI) to access the TL1 command interpreter to perform initial provisioning of the DS3 ATM core card for inband (classical IP) management.**

For inband management, the connection between the uEMs and the UE9000 shelf is through the ATM core card's ATM port (control circuit is part of the transport payload).

All initial commissioning, and verification of commissioning, is accomplished through the LCI, using a TL1 command interpreter.

The following is a typical TL1 sequence for inband management:

```
ACT-USER::ADMIN:REF99::ADMIN;
SET-UEMS-IPADDR:::KEY::47.71.208.34;
SET-ADMIN-STATE::1-10-1-3:ABC::LOCK;
SET-CARR::1-10-1-3:T20::CBITPARITY,B3ZS,NOCODE,NOLOOP,LOOPTIMING,
DIRECT,SCR_ON;
SET-ADMIN-STATE::1-10-1-3:ABC::UNLOCK;
SET-ATMIF-CIPOA:::ANYTAG::0,33,47.114.6.11:255.255.255.248:
47.114.6.9:47.71.208.34;
SET-ADMIN-STATE::1-0-0-0:ABC::LOCK;
INIT-SYS:::CTAG;
```

To commission the UE9000 shelf for inband (classical IP), do the following:

**1** Log in to the UE9000 TL1 command interpreter by typing the following command:

**ACT-USER::<aid>:<ctag>::<pid>;**

where

<aid> is the user identifier (factory default is **ADMIN**)

<ctag> is the user-defined correlation tag (alphanumeric string)

<pid> user password identifier (factory default is **ADMIN**)

Example: **ACT-USER::ADMIN:REF99::ADMIN;**

*The terminal displays a message similar to the following:*

```
UE9000 00-03-14 08:27:44
M REF99 COMPLD
“ADMIN:0,00-03-13 16:58:17”
;
```

***Note:*** If the user is not logged in, a “Login not active” error message is displayed. Example:

```
“NE.A08/SHELF.1OOB/DAC.A”00-08-24 01:58:32
M 0 DENY
PLNA
/*Login not active*/
```

**2** Specify the IP address of the uEMS workstation that will manage the DS3 ATM core card. At the TL1> prompt, type the following command:

**SET-UEMS-IPADDR:::<ctag>::<ip addr>;**

where

<ctag> is the user-defined correlation tag (alphanumeric string)

<ip addr> is the IP address of the uEMS workstation

Example: **SET-UEMS-IPADDR:::KEY::47.71.208.34;**

***Note 1:*** If the uEMS IP address is in the same subnet as the ATM core card’s Ethernet address, it may be necessary to specify the uEMS IP address as the endpointIp of the SET_ATMIF_CIPOA command (see step 6). This creates a static route for the uEMS through the gateway in the routing table.

***Note 2:*** To check the uEMS IP address, use the RTRV-UEMS-IPADDR command. Refer to “TL1 commands for DS3 ATM core card” on page 45 for a complete listing of TL1 commands for the DS3 ATM core card.

**3** Lock the DS3 ATM carrier. At the TL1> prompt, type the following command:

**SET-ADMIN-STATE::<aid>:<ctag>::<state>;**

where

<aid> follows the format <shelf><slot><port><port type> where:

<shelf> is **1**

<slot > is **0** for a node; **10** or **11** for a carrier or the ATM core card (depending on which shelf slot the ATM core card occupies)

<port> and <port type> are set to **0-0** to lock or unlock a card or node, and to **1-3** to lock or unlock a carrier

<ctag> is the correlation tag (alphanumeric string)

<state> is either **LOCK** or **UNLOCK**

Example: **SET-ADMIN-STATE::1-10-1-3:ABC::LOCK;**

**4** Configure the DS3 link by specifying line type, line coding, send code, loopback, clock source, sublayer map, and payload scrambling. At the TL1> prompt, type the following command:

**SET-CARR::<aid>:<ctag>::<line type>,<line coding>,<send code>, <loopback>,<clock source>,<sublayer map>,<payload scrambling>;**

where

<aid> follows the format <shelf><slot><port><port type> where:

<shelf> is **1**

<slot > is **10** or **11**

<port> is **1**

<port type> is **3**

<ctag> is the correlation tag (alphanumeric string)

<line type> is the type of DS3, either:

- **M23** (for ANSI T1.107-1988)
- **CBITPARITY** (for ANSI T1.107a-1989)

<line coding> is the type of Zero Code Suppression; must be **B3ZS**

<send code> is the type of code being sent across the DS3:

- **NOCODE** (sending looped or normal data)
- **LINECODE** (sending request for a line loopback)
- **PAYLOADCODE** (sending request for a payload loopback, i.e., all DS1s in a DS3 frame)
- **RESETCODE** (sending a loopback deactivation request)

where

<loopback> sets the loopback parameter:

- **NOLOOP** (not in the loopback state)
- **PAYLOAD** (received signal is looped through the device)
- **LINE** (received signal does not go through the device but is looped back out)
- **OTHER** (loopbacks not defined above)

**Note:** The loopback parameter must be set to NOLOOP before changing it to one of the other possible values, otherwise the change is rejected.

<send code> is the type of code being sent across the DS3:

- **NOCODE** (sending looped or normal data)
- **LINECODE** (sending request for a line loopback)
- **PAYLOADCODE** (sending request for a payload loopback, i.e., all DS1s in a DS3 frame)
- **RESETCODE** (sending a loopback deactivation request)

<clock source> selects the type of timing:

- **LOOPTIMING**
- **LOCALTIMING**
- **THROUGHTIMING**

<sublayer map> controls DS3 framing mode:

- **DIRECT** (cell delineation is used to locate the cell boundaries)
- **PLCP** (activate the transmission of 12 rows of ATM cells every 125 u-seconds)

<payload scrambling> enables or disables ATM cell payload scrambling (which removes long strings of 1s and 0s that could be mistaken as error conditions):

- **SCR_ON** (enables payload scrambling)
- **SCR_OFF** (disables payload scrambling)

Example: **SET-CARR::1-10-1-3:T20::CBITPARITY,B3ZS,NOCODE,NOLOOP, LOOPTIMING,DIRECT,SCR_ON;**

***Note:*** To check the DS3 carrier parameters, use the RTRV-CARR command. Refer to “TL1 commands for DS3 ATM core card” on page 45 for a complete listing of TL1 commands for the DS3 ATM core card.

**5** Unlock the DS3 ATM carrier. At the TL1> prompt, type the following command:

**SET-ADMIN-STATE::<aid>:<ctag>::<state>;**

where

| | |
|---|---|
| <aid> | follows the format <shelf><slot><port><port type> where:<br><shelf> is **1**<br><slot > is **0** for a node; **10** or **11** for a carrier or the ATM core card (depending on which shelf slot the ATM core card occupies)<br><port> and <port type> are set to **0-0** to lock or unlock a card or node, and to **1-3** to lock or unlock a carrier |
| <ctag> | is the correlation tag (alphanumeric string) |
| <state> | is either **LOCK** or **UNLOCK** |

Example: **SET-ADMIN-STATE::1-10-1-3:ABC::UNLOCK;**

**6** Set up the classic IP over ATM configuration by specifying the ATM virtual path and circuit, the IP address of the connection, the netmask, and the gateway of the sub-network. Type the following command:

**SET-ATMIF-CIPOA:::<ctag>::<vpi>,<vci>,<ipaddr>:<netmask>:<gateway>:[endpointIp];**

where

| | |
|---|---|
| <ctag> | is the correlation tag (alphanumeric string) |
| <vpi> | is the ATM virtual path for the classical IP connection |
| <vci> | is the ATM virtual circuit for the classical IP connection |
| <ipaddr> | is the IP address of the classical IP connection |
| <netmask> | is the netmask of the classical IP connection |
| <gateway> | is the IP address of the network gateway on the sub-network |
| [endpointIp] | (optional) specifies from which IP to make a static route to the gateway (default value is **0**)<br>Typically used as the uEMS IP when it is in the same subnet as the ATM core card's Ethernet address (see SET-UEMS-IPADDR). This value can be set to 0 to undo a previous route made with a specific endpointIP |

Example: **SET-ATMIF-CIPOA:::ANYTAG::0,33,47.114.6.11:255.255.255.248:47.114.6.9:47.71.208.34;**

***Note 1:*** Steps 1 to 6 set up a separate VPI/VCI that is used strictly as a management channel between the uEMS and the DS3 ATM core card.

***Note 2:*** To check the classic IP over ATM configuration, use the RTRV-ATMIF-CIPOA command. Refer to “TL1 commands for DS3 ATM core card” on page 45 for a complete listing of TL1 commands for the DS3 ATM core card.

**7** Lock the DS3 node. At the TL1>prompt, type the following command:

**SET-ADMIN-STATE::<aid>:<ctag>::<state>;**

where

<aid> follows the format <shelf><slot><port><port type> where:

<shelf> is **1**

<slot > is **0** for a node; **10** or **11** for a carrier or the ATM core card (depending on which shelf slot the ATM core card occupies)

<port> and <port type> are set to **0-0** to lock or unlock a card or node, and to **1-3** to lock or unlock a carrier

<ctag> is the correlation tag (alphanumeric string)

<state> is either **LOCK** or **UNLOCK**

Example: **SET-ADMIN-STATE::1-0-0-0:ABC::LOCK;**

**8** Perform a cold restart in order for the SET-UEMS-IPADDR command (performed in step 2 on page 30) to fully take effect. At the TL1>prompt, type the following command:

**INIT-SYS:::<ctag>;**

where

<ctag> is the correlation tag (alphanumeric string)

Example: **INIT-SYS:::CTAG;**

*After a few seconds, the system is restarted.*

## g 3 Commission for out-of-band management

**Use the local craft interface (LCI) to access the TL1 command interpreter to perform initial provisioning of the DS3 ATM core card for out-of-band management**

For out-of-band management, the connection between the uEMs and the UE9000 shelf is through the ATM core card's Ethernet port.

All initial commissioning, and verification of commissioning, is accomplished through the LCI, using a TL1 command interpreter.

The following is a typical TL1 sequence for out-of-band management:

```
ACT-USER::ADMIN:REF99::ADMIN;
SET-UEMS-IPADDR:::KEY::47.71.208.34;
SET-ADMIN-STATE::1-10-1-3:ABC::LOCK;
SET-CARR::1-10-1-3:T20::CBITPARITY,B3ZS,NOCODE,NOLOOP,LOOPTIMING,
DIRECT,SCR_ON;
SET-ADMIN-STATE::1-10-1-3:ABC::UNLOCK;
SET-ATMIF-IPADDR:::Z10::47.114.14.13:255.255.255.0:47.114.14.1;
SET-ADMIN-STATE::1-0-0-0:ABC::LOCK;
INIT-SYS:::CTAG;
```

To commission the UE9000 shelf for out-of-band, do the following:

**1** Log in to the UE9000 TL1 command interpreter by typing the following command:

**ACT-USER::<aid>:<ctag>::<pid>;**

where

| | |
|---|---|
| <aid> | is the user identifier (factory default is **ADMIN**) |
| <ctag> | is the correlation tag (alphanumeric string) |
| <pid> | user password identifier (factory default is **ADMIN**) |

Example: **ACT-USER::ADMIN:REF99::ADMIN;**

*The terminal displays a message similar to the following:*

```
UE9000 00-03-14 08:27:44
M REF99 COMPLD
"ADMIN:0,00-03-13 16:58:17"
;
```

***Note:*** If the user is not logged in, a "Login not active" error message is displayed.
Example:

```
"NE.A08/SHELF.1OOB/DAC.A"00-08-24 01:58:32
M 0 DENY
PLNA
/*Login not active*/
```

**2** Specify the IP address of the uEMS workstation that will manage the DS3 ATM core card. At the TL1> prompt, type the following command:

**SET-UEMS-IPADDR:::<ctag>::<ip addr>;**

where

| | |
|---|---|
| <ctag> | is the correlation tag (alphanumeric string) |
| <ip addr> | is the IP address of the uEMS workstation |

Example: **SET-UEMS-IPADDR:::KEY::47.71.208.34;**

***Note:*** To check the uEMS IP address, use the RTRV-UEMS-IPADDR command. Refer to “TL1 commands for DS3 ATM core card” on page 45 for a complete listing of TL1 commands for the DS3 ATM core card.

**3** Lock the DS3 ATM carrier. At the TL1> prompt, type the following command:

**SET-ADMIN-STATE::<aid>:<ctag>::<state>;**

where

| | |
|---|---|
| <aid> | follows the format <shelf><slot><port><port type> where:<br><shelf> is **1**<br><slot > is **0** for a node; **10** or **11** for a carrier or the ATM core card (depending on which shelf slot the ATM core card occupies)<br><port> and <port type> are set to **0-0** to lock or unlock a card or node, and to **1-3** to lock or unlock a carrier |
| <ctag> | is the correlation tag (alphanumeric string) |
| <state> | is either **LOCK** or **UNLOCK** |

Example: **SET-ADMIN-STATE::1-10-1-3:ABC::LOCK;**

**4** Configure the DS3 link by specifying line type, line coding, send code, loopback, clock source, sublayer map, and payload scrambling. Type the following command:

**SET-CARR::<aid>:<ctag>::<line type>,<line coding>,<send code>, <loopback>,<clock source>,<sublayer map>,<payload scrambling>;**

where

| | |
|---|---|
| <aid> | follows the format <shelf><slot><port><port type> where:<br><shelf> is **1**<br><slot > is **10** or **11**<br><port> is **1**<br><port type> is **3** |
| <ctag> | is the correlation tag (alphanumeric string) |

where

<line type> is the type of DS3, either:

- **M23** (for ANSI T1.107-1988)
- **CBITPARITY** (for ANSI T1.107a-1989)

<line coding> is the type of Zero Code Suppression; must be **B3ZS**

<send code> is the type of code being sent across the DS3:

- **NOCODE** (sending looped or normal data)
- **LINECODE** (sending request for a line loopback)
- **PAYLOADCODE** (sending request for a payload loopback, i.e., all DS1s in a DS3 frame)
- **RESETCODE** (sending a loopback deactivation request)

<loopback> sets the loopback parameter:

- **NOLOOP** (not in the loopback state)
- **PAYLOAD** (received signal is looped through the device)
- **LINE** (received signal does not go through the device but is looped back out)
- **OTHER** (loopbacks not defined above)

**Note:** The loopback parameter must be set to NOLOOP before changing it to one of the other possible values, otherwise the change is rejected.

<clock source> selects the type of timing:

- **LOOPTIMING**
- **LOCALTIMING**
- **THROUGHTIMING**

<sublayer map> controls DS3 framing mode:

- **DIRECT** (cell delineation is used to locate the cell boundaries)
- **PLCP** (activate the transmission of 12 rows of ATM cells every 125 u-seconds)

<payload scrambling> enables or disables ATM cell payload scrambling (which removes long strings of 1s and 0s that could be mistaken as error conditions):

- **SCR_ON** (enables payload scrambling)
- **SCR_OFF** (disables payload scrambling)

Example: **SET-CARR::1-10-1-3:T20::CBITPARITY,B3ZS,NOCODE,NOLOOP, LOOPTIMING,DIRECT,SCR_ON;**

***Note:*** To check the DS3 carrier parameters, use the RTRV-CARR command. Refer to "TL1 commands for DS3 ATM core card" on page 45 for a complete listing of TL1 commands for the DS3 ATM core card.

**5** Unlock the DS3 ATM carrier. At the TL1>prompt, type the following command:

**SET-ADMIN-STATE::<aid>:<ctag>::<state>;**

where

<aid> follows the format <shelf><slot><port><port type> where:

<shelf> is **1**

<slot > is **0** for a node; **10** or **11** for a carrier or the ATM core card (depending on which shelf slot the ATM core card occupies)

<port> and <port type> are set to **0-0** to lock or unlock a card or node, and to **1-3** to lock or unlock a carrier

<ctag> is the correlation tag (alphanumeric string)

<state> is either **LOCK** or **UNLOCK**

Example: **SET-ADMIN-STATE::1-10-1-3:ABC::UNLOCK;**

**6** Set the IP parameters for the DS3 ATM core card. At the TL1>prompt, type the following command:

**SET-ATMIF-IPADDR:::<ctag>::<ip addr>:<netmask>:<gateway>;**

where

<ctag> is the correlation tag (alphanumeric string)

<ip addr> is the IP address of the DS3 ATM core card

<netmask> is the subnet mask

<gateway> is the default route to devices outside the local subnet

Example: **SET-ATMIF-IPADDR:::Z10::47.114.14.13:255.255.255.0:47.114.14.1;**

***Note:*** To check the DS3 ATM core card IP parameters, use the RTRV-ATMIF-IPADDR command. Refer to "TL1 commands for DS3 ATM core card" on page 45 for a complete listing of TL1 commands for the DS3 ATM core card.

**7** Lock the DS3 node. At the TL1>prompt, type the following command:

**SET-ADMIN-STATE::<aid>:<ctag>::<state>;**

where

<aid> follows the format <shelf><slot><port><port type> where:

<shelf> is **1**

<slot > is **0** for a node; **10** or **11** for a carrier or the ATM core card (depending on which shelf slot the ATM core card occupies)

<port> and <port type> are set to **0-0** to lock or unlock a card or node, and to **1-3** to lock or unlock a carrier

<ctag> is the correlation tag (alphanumeric string)

<state> is either **LOCK** or **UNLOCK**

Example: **SET-ADMIN-STATE::1-0-0-0:ABC::LOCK;**

**8** Perform a cold restart on the node in order for the SET-UEMS-IPADDR command (performed in step 2) and the SET-ATMIF-IPADDR command (performed in step 6 on page 38) to fully take effect. At the TL1>prompt, type the following command:

**INIT-SYS:::<ctag>;**

where

<ctag> is the correlation tag (alphanumeric string)

Example: **INIT-SYS:::CTAG;**

*After a few seconds, the system is restarted.*

## g 4 Changing band management

**Use the local craft interface (LCI) to access the TL1 command interpreter to change provisioning of the DS3 ATM core card from inband to out-of-band, and from out-of-band to inband.**

### Changing from inband to out-of-band

To change commissioning of the UE9000 shelf from inband to out-of-band, do the following:

1 Log in to the UE9000 TL1 command interpreter by typing the following command:

**ACT-USER::<aid>:<ctag>::<pid>;**

where

<aid> is the user identifier (factory default is **ADMIN**)

<ctag> is the correlation tag (alphanumeric string)

<pid> user password identifier (factory default is **ADMIN**)

Example: **ACT-USER::ADMIN:REF99::ADMIN;**

*The terminal displays a message similar to the following:*

```
UE9000 00-03-14 08:27:44
M REF99 COMPLD
“ADMIN:0,00-03-13 16:58:17”
;
```

***Note:*** If the user is not logged in, a “Login not active” error message is displayed. Example:

```
“NE.A08/SHELF.1OOB/DAC.A”00-08-24 01:58:32
M 0 DENY
PLNA
/*Login not active*/
```

2 Remove the classical IP over ATM configuration using the SET-ATMIF-CIPOA command, and setting all the parameters to “0”. Type the following command:

**SET-ATMIF-CIPOA:::<ZTAG>::0,0,0:0:0:0;**

*The classical IP over ATM configuration is removed.*

3 Commission the DS3 ATM core card for out-of-band, using procedure “Commission for out-of-band management” on page 35.

### Changing from out-of-band to inband

To change commissioning of the UE9000 shelf from out-of-band to inband, simply follow procedure “Commission for inband management” on page 29.

## g 5 Verify initial commissioning

**Verify commissioning configurations are correct.**

Use this procedure to verify that all the initial provisioning is correct and that no alarm conditions exist.

**1** Log in to the UE9000 TL1 command interpreter by typing the following command:

**ACT-USER::<aid>:<ctag>::<pid>;**

where

<aid> is the user identifier (factory default is **ADMIN**)

<ctag> is the correlation tag (alphanumeric string)

<pid> user password identifier (factory default is **ADMIN**)

Example: **ACT-USER::ADMIN:REF99::ADMIN;**

*The terminal displays a message similar to the following:*

```
UE9000 00-03-14 08:27:44
M REF99 COMPLD
“ADMIN:0,00-03-13 16:58:17”
;
```

***Note:*** If the user is not logged in, a “Login not active” error message is displayed.
Example:

```
“NE.A08/SHELF.1OOB/DAC.A”00-08-24 01:58:32
M 0 DENY
PLNA
/*Login not active*/
```

**2** Check for any alarm conditions. At the TL1> prompt, type the following command:

**RTRV-ALM-ALL:::<ctag>;**

where

<ctag> is the correlation tag (alphanumeric string)

Example: **RTRV-ALM-ALL:::CTAG;**

*The terminal displays any alarms on the node, carrier, DS3 interface, DS3 ATM core card, and the multi-circuit line cards.*

***Note:*** You can also choose to individually show alarms for the node, carrier, DS3 interface, or DS3 ATM core card and multi-circuit line cards, using specific RTRV-ALM commands. Refer to “TL1 commands for DS3 ATM core card” on page 45 for a complete listing of TL1 commands for the DS3 ATM core card.

**3** Resolve alarms, if necessary, then proceed as follows:

| If | Then |
|---|---|
| you have commissioned for out-of-band and, due to an alarm condition, you have revised the IP parameter setting (using SET-ATMIF-IPADDR) | you must restart the node in order for the IP parameter changes to take effect. Go to step 4. |
| you have commissioned for out-of-band, but did not change the IP parameter setting | go to step 6. |
| you have commissioned for inband (classical IP) | go to step 6. |

**4** To restart the node for revised IP parameter changes to take effect, you must first lock the node. At the TL1>prompt, type the following command:

**SET-ADMIN-STATE::<aid>:<ctag>::<state>;**

where

<aid> follows the format <shelf><slot><port><port type> where:

<shelf> is **1**

<slot > is **0** for a node; **10** or **11** for a carrier or the ATM core card (depending on which shelf slot the ATM core card occupies)

<port> and <port type> are set to **0-0** to lock or unlock a card or node, and to **1-3** to lock or unlock a carrier

<ctag> is the correlation tag (alphanumeric string)

<state> is either **LOCK** or **UNLOCK**

Example: **SET-ADMIN-STATE::1-0-0-0:ABC::LOCK;**

**5** Perform a cold restart on the node. At the TL1>prompt, type the following command:

**INIT-SYS:::<ctag>;**

where

<ctag> is the correlation tag (alphanumeric string)

Example: **INIT-SYS:::TAG9;**

*After a few seconds, the system is restarted.*

**6** Log out of the TL1 command interpreter. At the TL1> prompt, type the following command:

**CANC-USER::<aid>:<ctag>;**

where

<aid> is the user identifier (factory default is **ADMIN**)

<ctag> is the correlation tag (alphanumeric string)

Example: **CANC-USER::ADMIN:100;**

*The terminal displays the following message:*

```
UE9000 00-03-14 08:33:48
M 100 COMPLD
ADMIN
/* User initiated logout completed. */
;
```

**7** If you are using the inband (classical IP) configuration, you must unplug the Ethernet cable from the ATM core card.

**CAUTION**
**Loss of service**
For inband, unplug the Ethernet cable from the ATM core card, once initial commissioning and verification is complete. Failure to do so may result in a full shelf loss of data service.

## g 6 Verify UE9000-to-workstation communication

**Verify that the UE9000 is communicating with the uEMS workstation.**

The purpose of this procedure is to:

- Verify that there is basic IP connectivity between the uEMS workstation and the ATM core card on the UE9000 shelf.

***Note:*** IP connectivity does not imply SNMP connectivity, but is a prerequisite for SNMP access and file transfer of software update.

- Verify that there is SNMP connectivity between the uEMS workstation and the ATM core card on the UE9000 shelf.

***Note:*** SNMP connectivity implies IP connectivity.

## Prerequisites

To accomplish this procedure, you must first do the following:

- Verify that the ATM core card is properly installed and commissioned in the UE9000.
- Provision the subject ATM core cards from the uEMS, including IP address, subnet mask, gateway address, and VPI/VCI (inband configuration only). Procedures for this are in the *UE9000 Data OAM&P User Guide*.

## Procedure

To verify that the workstation is communicating with the ATM core card, do the following.

**1** Launch HPOV and uEMS. At the HP-UX prompt, type the following and then press Enter:

**/opt/OV/bin/ovw**

**2** At your uEMS workstation, highlight the ATM core card in the shelf submap, then select:

**Fault -> Ping**

*The Ping dialog box appears.*

Can you ping the ATM core card from the workstation?

| | |
|---|---|
| **Yes** | There is basic IP connectivity to the ATM core card. Go to step 3. |
| **No** | See the *UE9000 Data Testing and Troubleshooting Guide*. |

***Note:*** You can also issue the ping command from an HP-UX shell.

**3** Verify that the ATM core card can communicate with uEMS using SNMP. From the pull-down menu, select:

**Fault -> Nortel uEMS -> verify com**

Was the test successful?

| | |
|---|---|
| **Yes** | The ATM core card can communicate with uEMS using SNMP. You are finished with this procedure. |
| **No** | See the *UE9000 Data Testing and Troubleshooting Guide*. |

## g 7 Provision the UE9000 from the uEMS

**Provision the UE9000 shelf from the uEMS.**

See the *UE9000 Data OAM&P User Guide* for complete instructions on how to provision the UE9000 shelf from the uEMS workstation, using uEMS.

***Note:*** You must include all configuration information in the uEMS configuration database for the particular UE9000 shelf.

# TL1 commands for DS3 ATM core card

Initial commissioning of the DS3 ATM core card is performed through the UE9000 TL1 command interpreter, which is accessed through the local craft interface (LCI). The LCI can also be used to view alarms for low-level troubleshooting (if the uEMS is not communicating with the ATM core card). This section lists the TL1 commands for the DS3 ATM core card.

## TID and SID general information

In the TL1 standard, the first parameter after the command name is the Target Identifier (TID). It is normally used to specify the end-target network element. In the case of the DS3 ATM core card, you are directly connected to the target, so the TID can be ignored and set to null, which is represented by two successive colons (::). Note that the same is true for the general block, which follows the CTAG in the parameter list. It is never used and can be set to null.

The Source Identifier (SID) is part of the output response message header, and is used to identify the NE generating the message. Its value is UE9000 by default. However, the unit name is used as soon as the ATM core card has synchronized with the uEMS (enclosed in double quotes if it contains any non-alphanumeric character like '.' or '/'):

```
UE9000 00-03-30 09:32:56
M CTAG COMPLD
;
```

OR

```
“NE.1/SHELF.4/DAC.A” 00-03-30 09:38:05
M CTAG COMPLD
;
```

## ACT-USER

This command is used to establish a session with the network element. After a successful ACT-USER command, the console is active and commands can be entered. The <pid> is not echoed to the terminal; characters typed are replaced by stars (*).

### Input syntax

ACT-USER::<aid>:<ctag>::<pid>;

where

| | |
|---|---|
| <aid> | is the user identifier (factory default is **ADMIN**) |
| <ctag> | is the correlation tag (alphanumeric string) |
| <pid> | user password identifier (factory default is **ADMIN**) |

### Example

ACT-USER::ADMIN:REF99::*****;

### Normal response

```
UE9000 00-03-14 08:27:44
M REF99 COMPLD
“ADMIN:0,00-03-13 16:58:17”
;
```

## CANC-USER

This command is used to terminate a session with the network element.

**Input syntax**

CANC-USER::<aid>:<ctag>;

where

<aid> is the user identifier

<ctag> is the correlation tag (alphanumeric string)

**Example**

CANC-USER::ADMIN:100;

**Normal response**

```
UE9000 00-03-14 08:33:48
M 100 COMPLD
ADMIN
/* User initiated logout completed. */
;
```

## ED-SECU-PID

This command is used to change the password identifier. Neither the <old pid> nor the <new pid> are echoed to the terminal; characters typed are replaced by stars (*).

**Input syntax**

ED-SECU-PID::<aid>:<ctag>::<old pid>,<new pid>;

where

| | |
|---|---|
| <aid> | is the user identifier |
| <ctag> | is the correlation tag (alphanumeric string) |
| <old pid> | is the previous user password identifier |
| <new pid> | is the new user password identifier |

**Example**

ED-SECU-PID::ADMIN:TAG12::*****,*****;

**Normal response**

```
UE9000 00-03-14 08:31:17
M TAG12 COMPLD
“ADMIN”
;
```

## INH-CRD-ALM

This command inhibits or enables spontaneous reporting of the card alarms.

**Input syntax**

INH-CRD-ALM::<aid>:<ctag>::<status>;

where

<aid> follows the format <shelf><slot><port><port type> where:
<shelf> is **1**
<slot > is **10** or **11**
<port> is **1**
<port type> is **1**

<ctag> is the correlation tag (alphanumeric string)

<status> is **ON** to inhibit reporting, or **OFF** to enable reporting

**Example**

INH-CRD-ALM::1-10-1-1:C::ON;

**Normal response**

```
UE9000 00-03-13 16:24:19
M C COMPLD
“OK”
/* Card alarms are turned OFF */
;
```

## INH-DS3-ALM

This command inhibits or enable spontaneous reporting of the DS3 alarms.

**Input syntax**

INH-DS3-ALM::<aid>:<ctag>::<status>;

where

| | |
|---|---|
| <aid> | follows the format <shelf><slot><port><port type> where:<br><shelf> is **1**<br><slot > is **10** or **11**<br><port> is **1**<br><port type> is **3** |
| <ctag> | is the correlation tag (alphanumeric string) |
| <status> | is **ON** to inhibit reporting, or **OFF** to enable reporting |

**Example**

INH-DS3-ALM::1-10-1-3:C::OFF;

**Normal response**

```
UE9000 00-03-13 16:26:20
M C COMPLD
“OK”
/* DS3 alarms are turned ON */
;
```

## INH-NDE-ALM

This command inhibits or enables spontaneous reporting of the node alarms.

**Input syntax**

INH-NDE-ALM::<aid>:<ctag>::<status>;

where

<aid> follows the format <shelf><slot><port><port type> where:
<shelf> is **1**
<slot > is **0**
<port> is **0**
<port type> is **0**

<ctag> is the correlation tag (alphanumeric string)

<status> is **ON** to inhibit reporting, or **OFF** to enable reporting

**Example**

INH-NDE-ALM::1-0-0-0:CTAG::ON;

**Normal response**

```
UE9000 00-03-13 16:22:24
M CTAG COMPLD
“OK”
/* Node alarms are turned OFF */
;
```

## INIT-SYS

This command performs a COLD RESTART on the node. It is typically done after configuration of the shelf is completed, for the changes made with the SET-ATMIF-IPADDR command and the SET-UEMS-IPADDR command to take effect. The node must be in the LOCKed state (with the SET-ADMIN-STATE command) for the INIT-SYS command to succeed.

**Input syntax**

INIT-SYS:::<ctag>;

where

<ctag> is the correlation tag (alphanumeric string)

**Example**

INIT-SYS:::CTAG;

**Normal response**

```
UE9000 70-01-01 01:17:36
M CTAG COMPLD
;
```

## RTRV-ALM-ALL

This command reports all the alarms that the other RTRV-ALM commands can show individually. This includes alarms for the following:

- the node
- the carrier
- the DS3 interface
- the DS3 ATM core card and multi-circuit line cards.

Refer to the other RTRV-ALM commands for a list of all possible alarms.

**Input syntax**

RTRV-ALM-ALL:::<ctag>;

where

<ctag> is the correlation tag (alphanumeric string)

**Example**

RTRV-ALM-ALL:::CTAG;

**Typical response**

```
UE9000 70-01-01 01:09:15
M CTAG COMPLD
“LOS”
/* Loss of Signal */
>
TL1>
70-01-01 01:09:15
M CTAG COMPLD
“LOS”
/* Receiving LOS failure state */
;
```

## RTRV-ALM-CARR

This command returns the faults that are monitored by the carrier OAM&P. The RTRV-ALM-CARR command can return the following types of alarms:

| Alarm type | Description |
|---|---|
| LOS | Loss of Signal |
| AIS | Alarm Indication Signal |
| LOF | Loss of Frame |
| RAI | Remote Alarm Indication |
| noAlarm | No alarm present |
| rcvRAIFailure | Receiving Yellow/Remote Alarm Indication |
| txRAIalarm | Transmitting Yellow/Remote Alarm Indication |
| rcvAIS | Receiving AIS failure state |
| txAIS | Transmitting AIS |
| loopbackState | Looping the received signal |
| rcvTestCode | Receiving a test pattern |
| otherFailure | any line status not defined |

**Input syntax**

RTRV-ALM-CARR::<aid>:<ctag>;

where

<aid> follows the format <shelf><slot><port><port type> where:
<shelf> is **1**
<slot > is **10** or **11**
<port> is **1**
<port type> is **3**

<ctag> is the correlation tag (alphanumeric string)

**Example**

RTRV-ALM-CARR::1-10-1-3:TAG;

**Typical response**

```
UE9000 00-03-13 13:34:52
M TAG COMPLD
“LOS”
/* Loss of Signal */
;
```

## RTRV-ALM-CRD

This command reports the UE9000 DS3 ATM core card and multi-circuit line card (MLC) alarms.

For ATM core cards, the RTRV-ALM-CRD command can return the following types of alarms:

| Alarm type | Description |
|---|---|
| AN | ATM None |
| AW | ATM Warning |
| AM | ATM Minor |
| AMj | ATM Major |
| AC | ATM Critical |
| TN | TDM None |
| TW | TDM Warning |
| TM | TDM Minor |
| TMj | TDM Major |
| TC | TDM Critical |
| LN | LC None |
| LW | LC Warning |
| LM | LC Minor |
| LMj | LC Major |
| LC | LC Critical |

For multi-circuit line cards, the RTRV-ALM-CRD command can return the following types of alarms:

| Alarm type | Description |
|---|---|
| NF1 | No fault 1 |
| NF2 | No fault 2 |
| A50F | ATM50 line signal fault |
| DFO | ATM50 downstream FIFO overrun |
| NF5 | No fault 5 |
| NF6 | No fault 6 |
| DHEC | ATM50 downstream HEC error |
| V12E | +12V power supply under voltage failure |
| V12NE | -12V power supply under voltage failure |
| V48NE | -48V power supply under voltage failure |
| CKLE | ATU-C clock stuck low failure |
| V12W | +12V power supply under voltage warning |
| V12NW | -12V power supply under voltage warning |
| V48NW | -48V power supply under voltage warning |
| CKLW | ATU-C clock stuck low warning |
| H12E | +12V power supply over voltage failure |
| H12W | +12V power supply over voltage warning |
| H12NE | -12V power supply over voltage failure |
| H12NW | -12V power supply over voltage warning |
| H48NE | -48V power supply over voltage failure |
| H48NW | -48V power supply over voltage warning |
| CKHE | ATU-C clock stuck high failure |
| CKHW | ATU-C clock stuck high warning |
| LLN | Line card needs a load |
| PF | Post fail |
| VME | Voltage monitor failure |

**Input syntax**

RTRV-ALM-CRD::<aid>:<ctag>;

where

| | |
|---|---|
| <aid> | follows the format <shelf><slot><port><port type> where: |
| | <shelf> is **1** |
| | <slot > is from **2** to **21**, however, cannot be 12 or 13 (TDM cards), since the TDM card alarms cannot be retrieved. Note that slot 10 or 11 is for the DS3 ATM core card. |
| | <port> is **1** |
| | <port type> is **1** |
| <ctag> | is the correlation tag (alphanumeric string) |

**Example**

RTRV-ALM-CRD::1-10-1-1:CT100;

**Typical response**

```
UE9000 00-03-13 14:09:04
M CT100 COMPLD
“TMj”
/* TDM Major */
;
```

## RTRV-ALM-DS3

This command returns the line status of the DS3 interface. It contains loopback and failure state information. The RTRV-ALM-DS3 command can return the following types of alarms:

| Alarm type | Description |
|---|---|
| NA | No Alarm |
| rcvRAIF | Far End Loss of Frame |
| txRAI | Transmitting Yellow/Remote Alarm Indication |
| rcvAIS | Receiving AIS failure state |
| txAIS | Transmitting AIS |
| LOF | Receiving LOF failure state |
| LOS | Receiving LOS failure state |
| loopbackState | Looping the received signal |
| rcvTestCode | Receiving a test pattern |
| otherFailure | any line status not defined |

**Input syntax**

RTRV-ALM-DS3::<aid>:<ctag>;

where

<aid> follows the format <shelf><slot><port><port type> where:
<shelf> is **1**
<slot > is **10** or **11**
<port> is **1**
<port type> is **3**

<ctag> is the correlation tag (alphanumeric string)

**Example**

RTRV-ALM-DS3::1-10-1-3:42;

**Typical response**

```
UE9000 00-03-13 13:45:33
M 42 COMPLD
“rcvTestCode”
/* Receiving a Test Pattern */
;
```

## RTRV-ALM-NDE

This command returns the node alarms. The RTRV-ALM-NDE command can return the following types of alarms:

| Alarm type | Description |
|---|---|
| NAUR | Node Alarm Under Repair |
| NAC | Node Alarm Critical |
| NAMj | Node Alarm Major |
| NAM | Node Alarm Minor |
| NAO | Node Alarm Outstanding |

**Input syntax**

RTRV-ALM-NDE::<aid>:<ctag>;

where

<aid> follows the format <shelf><slot><port><port type> where:
<shelf> is **1**
<slot > is **0**
<port> is **0**
<port type> is **0**

<ctag> is the correlation tag (alphanumeric string)

**Example**

RTRV-ALM-NDE::1-0-0-0:CT100;

**Typical response**

```
UE9000 00-03-13 13:47:46
M CT100 COMPLD
“NAM”
/* Node Alarm Minor */
;
```

## RTRV-ATMIF-CIPOA

This command displays the classical IP over ATM configuration.

**Input syntax**

RTRV-ATMIF-CIPOA:::<ctag>;

where

<ctag> is the correlation tag (alphanumeric string)

**Example**

RTRV-ATMIF-CIPOA:::ANYTAG;

**Typical response**

```
“NE.A08/SHELF.1/DAC.B” 00-07-13 11:45:37
M ANYTAG COMPLD
“VPI:            000“
“VCT:            033“
“IP address:     47.114.6.11“
“Mask:           255.255.255.248“
“Gateway:        47.114.6.9“
“Static Route:   47.71.208.34“
;
```

## RTRV-ATMIF-IPADDR

This command displays the IP parameters for the out-of-band Ethernet port.

**Input syntax**

RTRV-ATMIF-IPADDR:::<ctag>;

where

<ctag> is the correlation tag (alphanumeric string)

**Example**

RTRV-ATMIF-IPADDR:::Z10;

**Typical response**

```
“NE.A08/SHELF.1/DAC.B” 00-07-13 11:41:02
M ANYTAG COMPLD
“IP address:    47.114.14.13“
“Mask:          255.255.255.0“
“Gateway:       47.114.14.1“
;
```

## RTRV-CARR

This command displays the configuration of the DS3 carrier link.

**Input syntax**

RTRV-CARR::<aid>:<ctag>;

where

| | |
|---|---|
| <aid> | follows the format <shelf><slot><port><port type> where:<br><shelf> is **1**<br><slot > is **10** or **11**<br><port> is **1**<br><port type> is **3** |
| <ctag> | is the correlation tag (alphanumeric string) |

**Example**

RTRV-CARR::1-10-1-3:T20;

**Typical response**

```
“NE.A08/SHELF.1/DAC.A” 00-07-13 11:39:00
M T20 COMPLD
“LineType:    CBitParity“
“LineCoding:  B3ZS“
“SendCode:    NoCode“
“Loopback:    NoLoop“
“ClockSource: LoopTiming“
“SublayerMap: Direct“
“PayloadScr:  On“
;
```

## RTRV-EQP-INV

This command retrieves the equipment inventory of all the cards configured in the UE9000 shelf.

**Input syntax**

RTRV-EQP-INV:::<ctag>;

where

<ctag> is the correlation tag (alphanumeric string)

**Example**

RTRV-EQP-INV:::CTAG;

**Typical response**

```
UE9000 00-03-30 14:22:19
M CTAG COMPLD
00:07:NTNP44AA
00:10:
00:12:
/* The list of slot numbers and PECs are as follows:
<shelf>:<slot>:<PEC> */
;
```

## RTRV-UEMS-IPADDR

This command displays the IP address of the uEMS element management system.

**Input syntax**

RTRV-UEMS-IPADDR:::<ctag>;

where

<ctag> is the correlation tag (alphanumeric string)

**Example**

RTRV-UEMS-IPADDR:::KEY;

**Typical response**

```
“NE.A08/SHELF.1/DAC.B” 00-07-13 11:42:12
M KEY COMPLD
“uEMS IP address: 47.71.208.34“
;
```

## SET-ADMIN-STATE

This command is used to unlock (put in service) or lock (put out of service) the node, an ATM core card, or a carrier.

### Input syntax

SET-ADMIN-STATE::<aid>:<ctag>::<state>;

where

| | |
|---|---|
| <aid> | follows the format <shelf><slot><port><port type> where:<br><shelf> is **1**<br><slot > is **0** for a node, or **10** or **11** for a carrier or the ATM core card (depending on which shelf slot the ATM core card occupies)<br><port> and <port type> are set to **0-0** to lock or unlock a card or node, and to **1-3** to lock or unlock a carrier |
| <ctag> | is the correlation tag (alphanumeric string) |
| <state> | is either **LOCK** or **UNLOCK** |

### Example

SET-ADMIN-STATE::1-10-1-3:ABC::LOCK;

### Normal response

```
UE9000 00-03-15 08:57:24
M ABC COMPLD
“OK”
/* Carrier has been successfully LOCKED */
;
```

## SET-ATMIF-CIPOA

This command defines the classical IP over ATM configuration. If all the parameters are set to “0” (zero), the command removes the classical IP over ATM configuration.

### Input syntax

SET-ATMIF-CIPOA:::<ctag>::<vpi>,<vci>,<ipaddr>:<netmask>:<gateway>: [endpointIp];

where

| | |
|---|---|
| <ctag> | is the correlation tag (alphanumeric string) |
| <vpi> | is the ATM virtual path for the classical IP connection |
| <vci> | is the ATM virtual circuit for the classical IP connection |
| <ipaddr> | is the IP address of the classical IP connection |
| <netmask> | is the netmask of the classical IP connection |
| <gateway> | is the IP address of the network gateway on the sub-network |
| [endpointIp] | (Optional parameter) specifies from which IP to make a static route to the gateway (default value is **0**)<br>Typically used as the uEMS IP when it is in the same subnet as the ATM core card’s Ethernet address (see the SET-UEMS-IPADDR command). This value can be set to 0 to undo a previous route made with a specific endpointIp. |

### Example

SET-ATMIF-CIPOA:::ANYTAG::0,33,47.114.6.11:255.255.255.248:47.114.6.9:47.71.208.34;

### Normal response

```
“NE.A08/SHELF.1/DAC.B“ 00-07-13 11:44:09
M ANYTAG COMPLD
“OK”
/* CIPOA successfully set-up */
;
```

## SET-ATMIF-IPADDR

This command defines the IP parameters for the out-of-band Ethernet port.

***Note:*** A cold restart (INIT-SYS command) is required for the changes to take effect.

**Input syntax**

SET-ATMIF-IPADDR:::<ctag>::<ip addr>:<netmask>:<gateway>;

where

| | |
|---|---|
| <ctag> | is the correlation tag (alphanumeric string) |
| <ip addr> | is the IP address of the DS3 ATM core card |
| <netmask> | is the subnet mask |
| <gateway> | is the default route to devices outside the local subnet |

**Example**

SET-ATMIF-IPADDR:::Z10::47.114.14.13:255.255.255.0:47.114.14.1;

**Normal response**

```
UE9000 00-03-13 13:37:49
M Z10 COMPLD
“OK”
/* IP Addresses configured successfully */
;
```

## SET-CARR

This command configures the DS3 carrier link. The carrier must be locked (using SET-ADMIN-STATE) before using this command.

**Input syntax**

SET-CARR::<aid>:<ctag>::<line type>,<line coding>,<send code>, <loopback>, <clock source>,<sublayer map>,<payload scrambling>;

where

<aid> follows the format <shelf><slot><port><port type> where:

<shelf> is **1**

<slot > is **10** or **11**

<port> is **1**

<port type> is **3**

<ctag> is the correlation tag (alphanumeric string)

<line type> is the type of DS3, either:

- **M23** (for ANSI T1.107-1988)
- **CBITPARITY** (for ANSI T1.107a-1989)

<line coding> is the type of Zero Code Suppression; must be **B3ZS**

<send code> is the type of code being sent across the DS3:

- **NOCODE** (sending looped or normal data)
- **LINECODE** (sending a request for a line loopback)
- **PAYLOADCODE** (sending a request for a payload loopback, i.e., all DS1s in a DS3 frame)
- **RESETCODE** (sending a loopback deactivation request)

<loopback> sets the loopback parameter:

- **NOLOOP** (not in the loopback state)
- **PAYLOAD** (received signal is looped through the device)
- **LINE** (received signal does not go through the device but is looped back out)
- **OTHER** (loopbacks not defined above)

**Note:** The loopback parameter must be set to NOLOOP before changing it to one of the other possible values, otherwise the change is rejected.

where

<clock source> selects the type of timing:

- **LOOPTIMING**
- **LOCALTIMING**
- **THROUGHTIMING**

<sublayer map> controls DS3 framing mode:

- **DIRECT** (cell delineation is used to locate the cell boundaries)
- **PLCP** (activate the transmission of 12 rows of ATM cells every 125 u-seconds)

<payload scrambling> enables or disables ATM cell payload scrambling (which removes long strings of 1s and 0s that could be mistaken as error conditions):

- **SCR_ON** (enables payload scrambling)
- **SCR_OFF** (disables payload scrambling)

**Example**

SET-CARR::1-10-1-3:T20::CBITPARITY,B3ZS,NOCODE,NOLOOP,LOOPTIMING, DIRECT, SCR_ON;

**Normal response**

```
UE9000 00-03-15 08:57:37
M T20 COMPLD
“OK”
/* Carrier Configuration has been completed successfully */
;
```

## SET-UEMS-IPADDR

This command defines the IP address of the uEMS element management system. SNMP traps generated are sent to this address.

In some cases, when using inband management, if the UEMS IP address is in the same subnet as the ATM core card's classical IP address, it may be necessary to specify the uEMS IP address as the endpointIp of the SET-ATMIF-CIPOA command. This creates a static route for the uEMS through the gateway in the routing table.

***Note:*** A cold restart (INIT-SYS command) is required for this command to fully take effect.

**Input syntax**

SET-UEMS-IPADDR:::<ctag>::<ip addr>;

where

| | |
|---|---|
| <ctag> | is the correlation tag (alphanumeric string) |
| <ip addr> | is the IP address of the uEMS workstation |

**Example**

SET-UEMS-IPADDR:::KEY::47.71.208.34;

**Normal response**

```
UE9000 00-03-13 13:47:11
M KEY COMPLD
“OK”
/* uEMS IP Address configured successfully */
;
```

# LED Quick Reference

### Circuit pack LEDs indicate card status.

For normal operation, all LEDs are **off**, or only the green LED is **on**. Any of the LEDs can be **on** simultaneously. On power up, the LEDs are **on** briefly before normal operation resumes.

> ***Note:*** If there are two DS3 ATM core cards in the UE9000 shelf, the system LEDs on the standby DS3 core card are **off** when the card is ready and active-capable.

| **LEDs for core cards and multi-circuit line cards** | |
|---|---|
|  Amber | **Meaning:** Maintenance activity in progress<br>**Causes:** Loopback in place, download occurring, booting, line under test, etc.<br>**Action:** This is a temporary condition. Do not replace the card |
|  Red | **Meaning:** Critical hardware failure<br>**Causes:** Full or partial card failure, non-downloadable firmware incorrect, loss of signal on any interface, loss of framing, incorrect provisioning<br>**Action:** Check provisioning. If not correct, replace the card |
|  Green | **Meaning:** Activity in active/standby units<br>**Causes:** Customer voice or data traffic exists<br>**Action:** Removing the card will interrupt service |
| **LED (single, tri-color) on DS3 core card for DS3 network connection** | |
|  Red | **Meaning:** Network loss of signal (LOS) or loss of frame (LOF) detected |
|  Amber | **Meaning:** Remote alarm indication (RAI) signal detected |
|  Green | **Meaning:** Normal activity |
| **LEDs for the shelf interconnect (SI) card** | |
|  Red | **Meaning:** Shelf fail (any card failed) |
|  Red | **Meaning:** Fail (SI) |
|  Green | **Meaning:** Active |

DMS-100

# UE9000 DMS

## Data System Setup Quick Reference

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