Element Management System (EMS) Server Installation & Maintenance Manual

Version 3.0

Document #: LTRT-94106 Rev 007

Notice

This Product Description describes and illustrates the Element Management System (EMS), available from Nortel. Information contained in this document is believed to be accurate and reliable at the time of printing. However, due to ongoing product improvements and revisions, Nortel cannot guarantee the accuracy of printed material after the Date Published nor can it accept responsibility for errors or omissions. Updates to this document and other documents can be viewed and downloaded by registered Technical Support customers at www. nortel.com.

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Note: When viewing this manual on CD, Web site or on any other electronic copy, all cross-references are hyperlinked. Click on the page or section numbers (shown in blue) to reach the individual cross-referenced item directly. To return to the point from where you accessed the cross-reference,
press **Alt** + ←.

Note: The EMS supports the following Nortel products:

1. Media Gateway 3500

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Customer Support

Customer technical support and service are provided by Nortel. Contact support@nortel.com.

Abbreviations and Terminology

Each abbreviation, unless widely used, is spelled out in full when first used. Only industry-standard terms are used throughout this manual. The $ symbol indicates hexadecimal notation.

Document Conventions

`Courier`	-	`UNIX Commands`
[ ]	-	***User-inserted input***
Times New Roman, bold, size 11	-	User name, path or file name

When x.y.z appears in this document as part of a software file name, ‘x.y’ indicates the major version and ‘z’ indicates the build number. For example, 3.0.56: ‘3.0’ indicates the major version and ‘56’ indicates the build number.

Related Documentation

Manual Name
Media Gateway 3500 Media Gateway Installation, Operation & Maintenance Manual
Media Gateway 3500 Product Description
Element Management System (EMS) User's Manual
Element Management System (EMS) Product Description
Element Management System (EMS) Parameter Guide for the Media Gateway 3500
Element Management System (EMS) Alarm Guide
Element Management System (EMS) Online Help

1 Overview

The EMS provides customers with the capability to easily and rapidly provision, deploy and manage up to 100 Media Gateway 3500 media gateways.

Provisioning, deploying and managing these Media Gateways with the EMS is performed from a centralized management station (PC) with a user-friendly Graphical User Interface (GUI).

The EMS comprises two infrastructure elements:

1. EMS **Server** (running on **Sun™ Microsystems' Solaris™**)
2. EMS **Client** (running on Microsoft™ Windows™ operating system), displaying the EMS GUI screens that provide the Customer access to system entities.

This EMS Installation & Maintenance Manual is intended for anyone responsible for installing and maintaining Nortel's EMS server and the server database – Oracle 9i, running on a UNIX™.

Customers should also refer to the Oracle9i Installation Guide, Release 2 (9.2.0.1.0) for UNIX Systems: AIX-Based Systems, Compaq Tru64 UNIX, HP; 9000 Series HP-UX, Linux Intel, and Sun Solaris as of May 2002. Part No. A96167-01.

2 EMS Server and Client Requirements

This section lists the platform and software required to run the EMS software.

2.1 EMS System Requirements

Table 2-1: EMS Minimal Platform Requirements

Resource	EMS Server	EMS Client
Operating System	Solaris™ 64-bit, version 5.9	Windows™ 2000 / XP
Memory	1 GB RAM	512 MB RAM
Disk space	40 GB	300 MB
Processor	1 GHz UltraSPARC IIIi	600 MHz Pentium III
Swap space	2 GB	1 GB

Table 2-2: EMS Software Requirements

#	EMS Server	EMS Client
1	JDK 1.4.2 for Solaris™	JDK 1.4.2 for Windows™
2	X Server and Window Manager	
3	Executable tcsh	

Table 2-3: OS Patches Required for EMS Server

#	Patch Name	Required by Application
1	SUNWarc	Oracle 9i DB
2	SUNWbtool	Oracle 9i DB
3	SUNWhea	Oracle 9i DB
4	SUNWlibm	Oracle 9i DB
5	SUNWlibms	Oracle 9i DB
6	SUNWsprot	Oracle 9i DB
7	SUNWtoo	Oracle 9i DB
8	SUNWi1of	Oracle 9i DB
9	SUNWxwfnt	Oracle 9i DB
10	SUNWxwkey	Oracle 9i DB
11	UPDATE5	Oracle 9i DB (recommended)

3 EMS Server Pre-Installation Requirements

Before beginning the EMS server installation procedure, verify that your system meets the hardware, disk space, operating system and other requirements.

This is necessary for the installation to succeed.

3.1 Hardware Requirements

1. RAM - A minimum of 1 GB

   To determine the amount of random access memory installed on your system, enter the following command:

   ```
   tcsh
   prtconf | grep -i mem
   ```

2. Disk Space – A minimum of 40 GB (on the same disk or under RAID - Redundant Arrays of Independent Disks)

   To determine the amount of disk space of your system, enter the following command:

   ```
   df –k
   ```

   Temporary disk space required during the application installation in the /tmp is up to 400 MB. If you do not have enough space in the /tmp directory, set the TMPDIR and TMP environment variables to specify a directory with sufficient space.

   For EMS installation and future upgrades we recommend that the /ACEMS directory have at least 20 GB of disk space allocated and the remainder of the disk space be allocated to the / (root) directory.

3. CD-ROM device - A CD-ROM drive capable of reading ISO 9660 format CD-ROM discs with RockRidge extensions

3.2 Installing the Solaris Operating System Using Nortel's CD

Note: The Nortel "proprietary" Solaris OS CD contains the Solaris 9 image customized for the EMS server which automates the system configuration setting (e.g. user account, system parameters/variables, permissions) necessary for the EMS software. Therefore, it is required that the Nortel Solaris 9 OS CD is used for all new EMS installs, even for the server that is already running Solaris 9.

➢ To install the Solaris 9 Operating System with Nortel's CD, take these steps:

1. Connect the SUN machine using the Serial Terminal window.
2. Insert the first Solaris CD into the CD-ROM .
3. Press `Alt+b` in the Terminal window to move to ok mode
4. Type `boot cdrom` and press `Enter`
5. In the 'Solaris Installation Program' screen, press F2 to continue
6. In the 'Identify This System' screen, press F2 to continue.
7. In the 'Network Connectivity' screen, choose 'Yes' and press F2.
8. In the 'DHCP' screen, choose 'No' and press F2.
9. In the 'Primary Network Interface' screen, place an "X" by the appropriate interface, press F2 to continue.
10. In the 'Host Name' screen, enter the required host name for the server. Press F2 to continue.
11. In the 'IP Address' screen, enter the IP address to be allocated to this server. Press F2 to continue
12. In the 'Subnet' screen, choose 'Yes' and press F2 to continue.
13. In the 'Net Mask' screen, enter the subnet mask appropriate to your network and press F2 to continue.
14. In the 'IPv6' screen, choose 'No' and press F2 to continue.
15. In the 'Set the Default Route' screen, choose 'Specify one' and press F2 to continue.
16. In the 'Default Route IP Address' screen, specify the router IP address. Press F2 to continue.
17. In the 'Confirm Information' screen, verify that the configuration is correct and valid. Press F2 to continue.
18. In the 'Name Service' screen, choose 'None' and press F2 to continue.
19. In the 'Confirm Information' screen, press F2 to continue.
20. In the 'Date and Time' screen, specify the date and the time. Press F2 to continue.
21. In the 'Confirm Information' screen, press F2 to continue.
22. Wait while the first CD is running. At the end of the process, choose 'Media[1] for CD/DVD' and press Enter.
23. Insert the second CD into the CD-ROM and press Enter.

24. Press Enter to end the installation. Remove the CD from the CD-ROM.
25. Press Enter to reboot the system.

4 Installing the EMS Server

4.1 Running the Installation Script

➢ **To run the installation script, perform the following procedures as acems user:**

1. Log in the EMS server using X-Browser as acems user with password acems.
2. Insert the 'EMS SW' CD.
3. Copy the file **emsServerDeploy_3.0.x_NT.tar** from /cdrom/ems/EMS Server Installation (UNIX) to acems user home directory. (Replace "x" with the appropriate minor version string from the real file name.)
4. Unpack the file **emsServerDeploy_3.0.x_NT.tar** by running the command:
   `tar –xf emsServerDeploy_3.0.x_NT.tar`

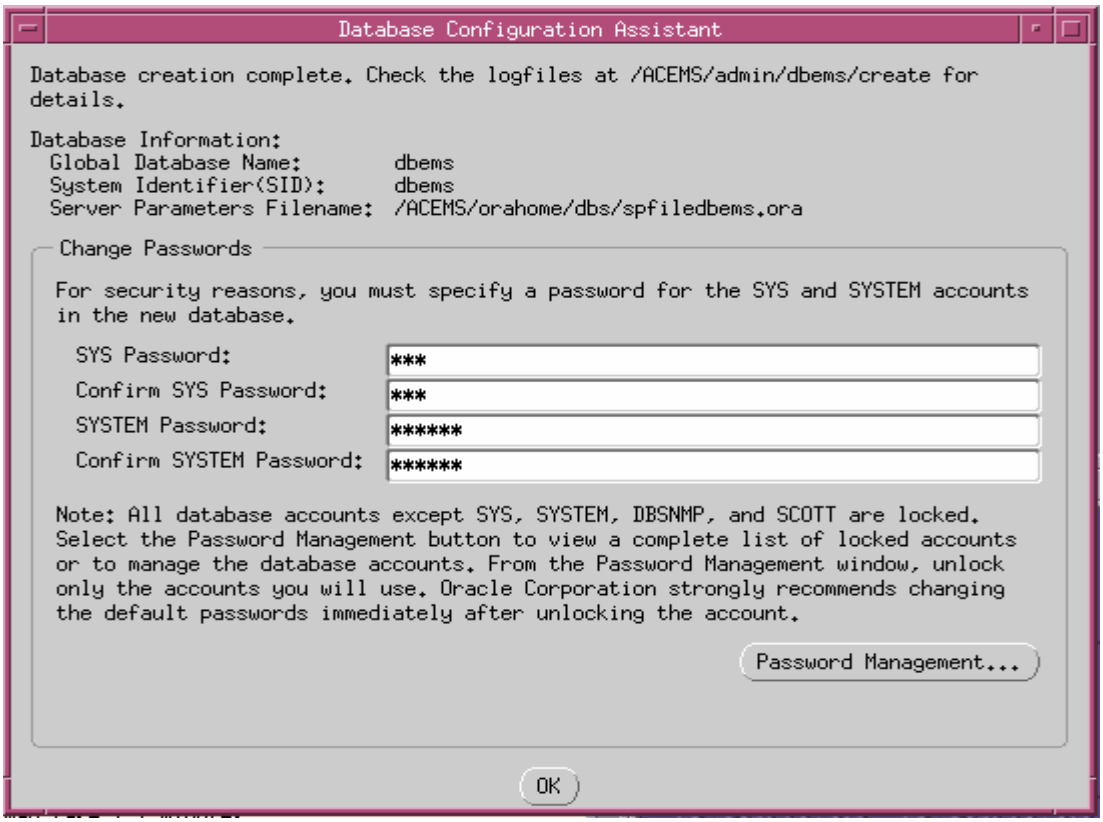
   A new directory named **EmsServerInstall** is created.
5. Run the installation script named **install** from its location under **EmsServerInstall** (it's important to run it from its location and not with a full path)
   `cd EmsServerInstall`
   `install`
6. The License Agreement must be accepted to continue with the installation. After reading it, accept it by pressing 'y' or 'yes'; pre-installation requirement checks are now carried out. The installation checks that the system holds up for the requirements. If any check fails, a detailed message is displayed with instructions on how to fix the problem. The installation cannot proceed without passing the requirements. If a problem is encountered, fix it as instructed and repeat the installation. Following pre-installation requirement checks, system checks are carried out: Operating System requirements, memory and disk size, Java™ version, etc.
7. Press ENTER to continue.
8. When you're prompted for the ORACLE_HOME directory, the default value defined in the prompt is /ACEMS/orahome. Press ENTER to use this value (recommended) or choose another location; Oracle variables verifications are performed.
9. Press ENTER to continue; when you're prompted for the database location, the default defined in the prompt is /ACEMS/oradata. Press ENTER to use this value (recommended) or choose another location; Oracle variables verifications are continued.
10. Press ENTER to continue; UNIX kernel parameters verifications are performed.
11. Press ENTER to continue.
12. X-window check: Press ENTER to continue.
13. When you're prompted for the EMS software location, the default value defined in the prompt is /ACEMS (recommended). If you choose another location, the location must be an existing directory under acems home directory with writing permissions for acems. This directory will be referred to as the EMS software directory.
14. In the EMS Software Installation section press Enter to continue and provide the root password when prompted.
15. In the Oracle Software Installation section press Enter to continue
16. When required, type 'eject' on a new console screen and insert the Oracle DB CD #1.
17. Provide root password when required.
18. When required, type 'eject' on a new console screen and insert the Oracle DB CD #2. Edit the edit box from /cdrom/orcl9201_1/ to: /cdrom/orcl9201_2/ and click OK

19. When required, type 'eject' on the console screen and insert the Oracle DB CD #3. Edit the edit box from /cdrom/orcl9201_1/ to: /cdrom/orcl9201_3/ and click OK
20. A new screen is displayed with an instruction to run root.sh

Figure 4-1: Run the root.sh Configuration Script

21. Open the Console screen as root user and run /ACEMS/orahome/root.sh; the script prompts for the full path name of your local bin directory. The default path is /usr/local/bin. Press Enter, and after the script is complete, click OK in the 'Setup Privileges' window.
22. When required, type 'eject' on a new terminal window, insert the Oracle Patch CD and press Enter; the Oracle Universal Installer bar appears.
23. After the bar window disappears, press Enter in the terminal window (when required) to continue; the Installation of Oracle Patch 9.2.0.5 bar appears.
24. After the bar window disappears, press Enter when required; a new bar 'Loading Database Creation' appears.
25. The progress bar is closed. A new screen is opened to enter passwords for database users.

Figure 4-2: Screen to Enter Passwords for Database Users



26. Enter:

Change SYS Password (sys)
Change SYSTEM Password (system)

Note: It is important that you remember the password for SYS and SYSTEM users.

27. Wait 60-80 minutes while SQL configurations are performed. The database schema is created and Java classes are loaded to the database. The latter process takes a long time. Do not close it before the script is complete.

28. When prompted for the user root password, enter the correct password. If you do not have the root password, this step can be performed later by running the script **Create_StartShutScripts_InEtcDir_AndChangeOratab** manually from acems user, and provide the root password; you've now successfully completed the installation. Type 'eject' on a new terminal window and remove the CD.

29. Rebooting the server is recommended. (Note: Use root user to perform the reboot).

30. If you choose not to reboot the server, run the following script as root:

```
/ACEMS/server_x.y.z/watchDog_unix &
```

If the error "command not found" occurs when trying to run watchDog_unix or runServer_unix from the directory where it is located, the current directory(.) is not part of the search path. To check the path, run the command:

```
echo $PATH
```

If the current directory is not in the path, run the scripts as follows:

```
cd  /ACEMS/server_x.y.z
./watchDog_unix
./runServer_unix
```

Note: If you performed the procedure to start the EMS server automatically, check that the server is up after reboot and do not run it again.

31. Run the EMS client and connect the EMS server. The first-time Username and Password are acladmin and changeMe2004 respectively.
32. Create a new user for the EMS. Create the new user with your own password.

4.2 Activating the NTP Server / NTP Server and Client

The NTP script triggers the EMS server to synchronize its clock according to the clocks of other devices, and vice versa. (The other devices can be any device containing an NTP server or client, such as Media Gateway 3500).

The NTP server allows other devices to synchronize their clocks according to the EMS server clock.

The NTP client activates sychronization of the EMS server clock according to another (more accurate) NTP server clock.

➢ To run the NTP script, take these steps:

1. Log in to the EMS server as `root`
2. Change directory to the directory in which the script is located.
   For example:

   # cd /ACEMS/server_x.y.z/
3. Run the script command:

   ```
   # perl runNtp.pl
   ```
4. Choose 1 to start NTP services
5. For the EMS server to act as NTP server *and* NTP client, choose 'y'
6. If you choose 'y', enter the IP address of the NTP server according to whose clock the NTP client clock will synchronize.
7. If you choose 'n', only the NTP server is launched.

➢ To stop the NTP script, take these steps:

1. Log in to the EMS server as `root`
2. Change directory to the directory in which the script is located.
   For example:

   # cd /ACEMS/server_x.y.z/
3. Run the script command:

   ```
   # perl runNtp.pl
   ```
4. Choose 2 to stop NTP services

5 Upgrading the EMS Server

The installation script 'install' in step 7 below verifies whether it can perform upgrade procedure from your old version. If the EMS does not support upgrading from your old version, refer to Section 9, Reinstalling EMS Server Software, on page 29.

➢ To upgrade the EMS server, take these steps:

1. Login as root and stop the EMS Server application:
   ```
   #cd /ACEMS/server_x.y.z
   #./ServerShutdown
   ```

   Note:

   The ServerShutdown script may not kill server.jar and watchDog.jar successfully if java is not installed from root directory as recommended in step **Error! Reference source not found. Error! Reference source not found.** on page **Error! Bookmark not defined.**.

   To check if server.jar and watchDog.jar are still running, use the following commands:

   ```
   #ps –ef | grep server.jar
   #ps –ef | grep watchDog.jar
   ```

   If any process is still running, then manually kill the process:

   ```
   #kill -9 <pid>
   ```

   Example:

   ```
   #ps –ef | grep server.jar
     root   471   451  0   Jan 05 ?       401:17 /j2sdk1.4.2/bin/java
   -Xms32m -Xmx200m -server -cp server.jar:externals:AdventNe
   #kill -9 471
   ```

2. Login the EMS Server as acems
3. Back up the current database and save the *dmp* file on another location (refer to Section 8.1, Backing up the Database, on page 27)
4. Insert the CD labeled 'EMS SW'.
5. Copy the file emsServerDeploy_x.y.z_NT.tar from /cdrom/ems/EMS Server Installation (UNIX) to the acems user home directory, e.g. /ACEMS. (Note: x.y.z is the EMS S/W release where 'x.y' indicates the major version and 'z' indicates the build number)
6. Unpack the archive file.
7. Run the installation script named install from its location under EmsServerInstall (it's important to run it from its location and not with a full path)

   >cd EmsServerInstall

   >install
8. Accept the license agreement
9. Press Enter when required
10. If there are NO database schema changes between the previous version and the required version, the following message appears :

    ```
    ================================================================
    =
    An old version - x.y.z - of EMS software was found. This script
    will run an upgrade patch. All your data will be preserved.
    ================================================================
    =
    ```

Press ENTER to continue.

In the event that there are database schema changes between the previous version and the required version, the following message appears:

```
==================================================================
=
An old version - x.y.z - of EMS software was found.
Back up the server before you continue with the upgrade
procedure (for detailed information on backing up, refer to the
documentation).
==================================================================
=
Press ENTER to continue.
```

(Note: Refer to Section 8.1, Backing up the Database, on page 27, for backing up the database).

11. When you're prompted for the EMS software location, the default value defined in the prompt is /ACEMS (recommended). If you choose another location, the location must be an existing directory under `acems` home directory with writing permissions for acems. This directory will be referred to as the EMS software directory.
12. Provide the root password when required.
13. Press Enter when required.
    If there are database schema changes please skip to step 15.
    ONLY if there are NO database schema changes between the previous version and the required version, the following message appears:

    ```
    Patch Upgrade Completed Successfully
    ```

Important: Do not perform the next step before you receive the message above.

14. The EMS server upgrade is now completed. Go to step 18.
15. Wait for the upgrade to complete.
16. Copy the folder '/tmp/ems_upgrade' to another permanent directory. These files include your old data of nodes, profiles and operators list. These files are only created if database schema changes were implemented above.
17. Press ENTER to continue.
18. Login as root and reboot the server.
19. Install the appropriate version of the EMS client. Refer to Section 10, Installing the EMS Client, on page 31.
20. Run the EMS client and connect to the EMS server with the default login user name and password (the password for acladmin should be preserved across upgrades).
21. If database schema changes were implemented above take the following actions:
    a. Add the relevant versions for the media gateways using the Software Manager. (This is the step where you would add back to the Software Manager any existing S/W loads of the media gateways being used in the network).

b. Take the files from the **ems_upgrade** folder in the EMS server and put them on the EMS client PC using FTP.

c. Add the Nodes tree to the new server:
- Right-click on the Globe
- Add Multiple MGs
- Browse for the file **nodes_upgrade.csv**
- Press OK

d. Add operators using the file **operators.csv**. Note that this file can be used as a list of operators and their details only; the operators must manually be added to the EMS.

e. Attach the profiles to the appropriate TP Boards using the file **profile_attachments.csv**. Note that this file can be used as a list of profiles and MGs only; the profiles must manually be applied to the TP Boards in the EMS:
- Lock the TP Board
- Right-click on the TP Board and choose 'Configuration->Apply Master Profile'.
- Select the appropriate profile from the list according to **profile_attachments.csv**
- Click OK
- Unlock the TP Board

5.1 Running Database Maintenance Tasks

To maintain the database in an optimum configuration, periodically perform the following tasks:

➢ To perform scheduling for the backup procedure, run:

backup_scripts/schedule_backup

6 EMS Server Security

6.1 Configuring the Firewall

➢ **To enable EMS Client ↔ EMS Server ↔ Managed Gateways communication according to Figure 6-1, define the following rules in the firewall:**

1. EMS Client ↔ EMS Server

   Open TCP ports 2001, 1044, 1616 for RMI communication between the EMS server and its clients.

2. EMS server ↔ All managed media gateways

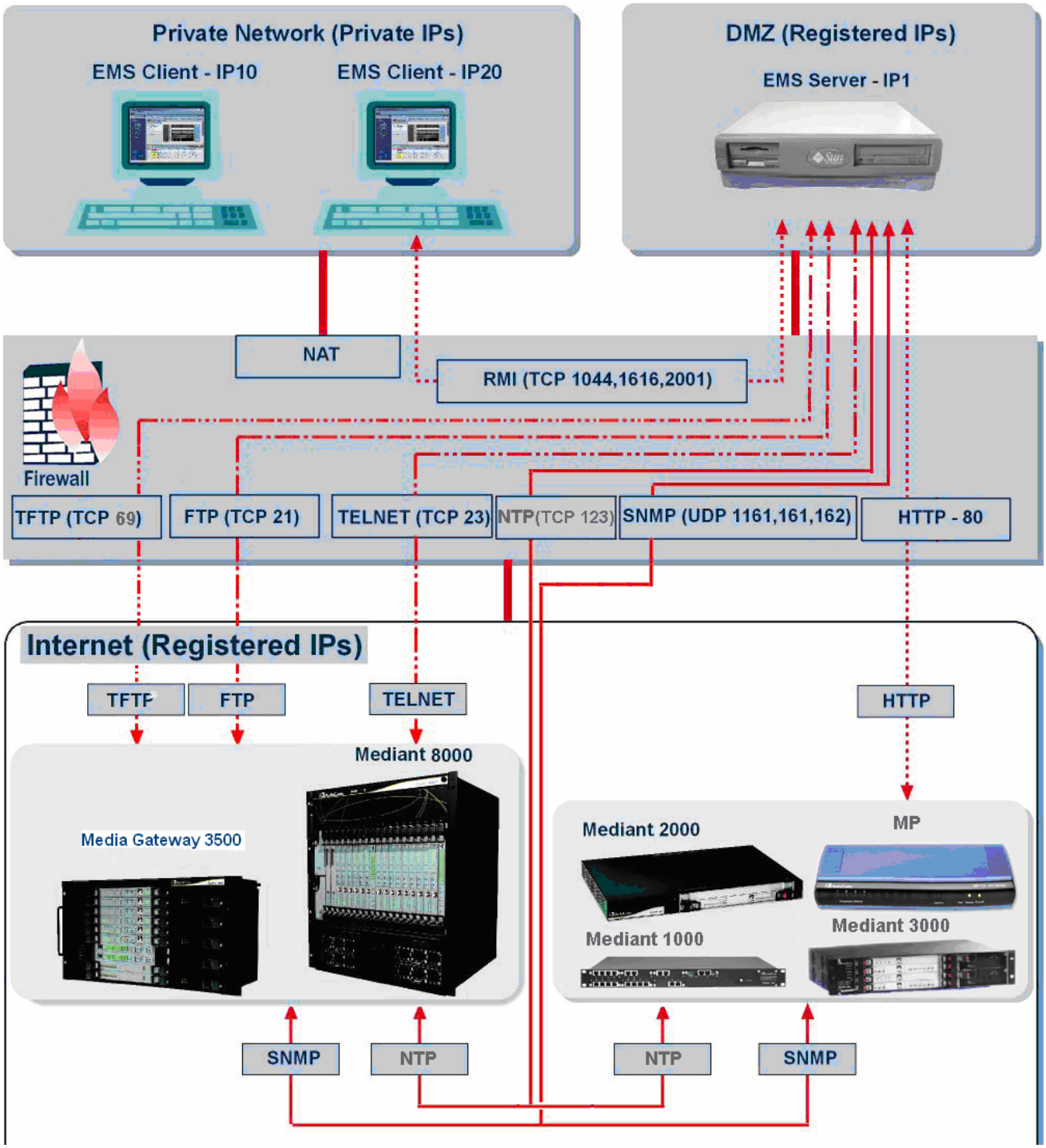
   Open UDP ports 1161 & 162 on the EMS server side for SNMP communication.

   Open UDP port 161 for all media gateways for SNMP communication.

3. EMS Server ↔ Managed Media Gateway 3500

   Open TCP ports 21 and 23 between the EMS server and the above devices for FTP and Telnet communication

Figure 6-1: Firewall Configuration Schema



6.2 EMS Server Hardening

The purpose of the hardening procedure is to protect the EMS server from unauthorized access and hostile attack. It makes it hard to break in by closing all superfluous EMS server ports.

➢ To activate the hardening feature, take these steps:

1. Connect the server as acems, using secured shell (ssh).
2. Change user to root (su root) and supply the root password.
3. Run the script: *# perl server_x.y.z/emsHarden.pl*
4. Choose 1 to close unnecessary services
5. 'Enable HTTPS' is used to load files via secured communication. This is not required for the Media Gateway 3500 so choose 'No'.
6. 'Enable HTTP' is used to load files via unsecured communication. If you wish to use secured communication only in order to load files, choose 'No'; this closes the HTTP port.
7. 'Enable TFTP': This is not required for the Media Gateway 3500 so choose 'No'.
8. Choose a new password for the `root` user and for `acems` user. The default is 'letmein'. It is strongly recommended to change the default.

Note: Note and retain these passwords for future access. There is no way to restore these passwords or to enter the server without them.

9. The EMS server is hardened.

6.3 Roll Back from Hardened Server

➢ To roll back from a hardened server, take these steps:

1. Connect the server as `root`, using secured shell (ssh).
2. Run the script: *# perl server_x.y.z/emsHarden.pl*
3. Choose 2 for opening all services.
4. Restore the default passwords; the EMS server is rolled back to its default state.

Reader's Notes

7 Running the EMS Server

➢ To run the EMS server:

- Run script **watchDog_unix** under directory server_x.y.z

➢ To stop the EMS server from running:

- Run script **ServerShutdown** under directory server_x.y.z

Reader's Notes

8 Maintaining the EMS Server

8.1 Backing up the Database

Nortel provides a simple mechanism for data backup in the form of a script that uses Oracle import and export tools. The script can be scheduled to run periodically and can also be run manually.

It is highly recommended to back up the EMS data manually, especially after an extensive configuration process, to ensure safeguarding in the event of a malfunction.

➢ To back up the database manually:

1. Log in the EMS Server as `acems`

2. Run the script 'manual_backup' to manually export the data. (The script is located in directory '/ACEMS/backup_scripts'). From acems user home directory, e.g. /ACEMS, change directory to the directory in which the script is located and run the script:

   cd backup_scripts

   manual_backup

A file named EMSexport.dmp is created under this location, at the scheduled time or after manual export. You MUST store the file on a different server for safe storage each time backup is performed.

8.2 Recovery after Database Failure

Three kinds of failures are possible:

1. Total machine failure.

2. Database could not be started.

3. Database is started but the EMS schema is damaged.

The actions to be performed in each case are different. First establish what the case is, in order to follow the right procedure.

In all cases, when running the recovery script, check that the EMS server is down.

8.2.1 Total Machine Failure

Reinstall the EMS and database software (refer to Section 3, EMS Server Pre-Installation Requirements, on page 9). This brings the EMS to a state where the database is started and running. Thereafter, perform the procedure described in Section 8.2.2; the database is started but the EMS schema is damaged.

8.2.2 Database is started but the EMS Schema is damaged

1. Check that the database is up and that the EMS server is down.
2. Run the following recovery script:

   recovery_scripts/schema_recovery

3. Copy the backed-up software files to the location **server_x.y.z\emsSwFiles**. If this directory does not exist, create it.

8.3 Check Free Disk Space

The scheduled task for disk space performs basic maintenance. In addition, manually check the disk space from time to time to see if the disk is full and if other applications (like mail, loggers, etc.) are occupying some disk space that can be freed by deleting external files.

Run the command:

```
df -k
```

If disk usage is over 80%, some space must be freed. This task is very important because shortage of disk space can cause an application failure.

9 Reinstalling EMS Server Software

Note: This procedure does NOT preserve data previously saved in the EMS server. Before taking this step, it is advised to back up the EMS server and make sure that the installation procedure is well understood and that all pre-requirements are met. Refer to Section 3 EMS Server Pre-Installation Requirements, on page 9

To upgrade the EMS from version 1.6 Beta 2 or 2.1 to version 3.x, the database must be reinstalled. To install the new software version, first remove the previous software version.

9.1 Removing the Previous Software Version

➢ To remove the previous software version, take these steps:

1. Log in the EMS-Server as root user
2. Remove all the data under the acems user home directory. Run the command:

   ```
   rm –r /<acems_home_dir>/*
   ```

3. Remove Oracle definition. Run the command:

   ```
   rm –r /var/opt/oracle
   ```

4. Remove (with root permissions) the EMS autorun script:

   ```
   rm /etc/rc2.d/S99EmsServer
   ```

5. Reboot the system (mandatory).

9.2 Installing the New Software Version

1. Refer to Section 4, Installing the EMS Server, on page 12 to install the server.
2. It is recommended to reboot the system after the installation is finished and verify automatic startup.

Reader's Notes

10 Installing the EMS Client

10.1 Installing the EMS Client on a Client PC

1. Insert Nortel's EMS installation disk.
2. Double-click the EMS Client Installation file (PC)/setupwin32.exe) and follow the installation instructions.
3. As a result of the installation process, the EMS Client icon is added to the desktop.

10.1.1 Running the EMS on a Client PC

➢ **To run the EMS on a client PC:**

- Double click the EMS Client icon on your desktop, or run Start>Programs>EMS Client.

10.1.2 First-Time Login

1. Log in as user 'acladmin' with password 'changeMe2004'.

   Note that User Name and Password are case-sensitive. If you incorrectly define these or the field Server IP Address, a prompt is displayed indicating that the fields should be redefined correctly.
2. In the main screen, open the 'Users List' and add new users according to your requirements.

10.2 Installing the EMS Client on a Client PC using Java Web Start (JAWS):

Java Web Start (JAWS) enables you to install the EMS client (compatible with your EMS server version) without using any CDs.

➢ **To install the EMS client on a client PC using JAWS:**

1. Open Internet Explorer and type the EMS Server IP in the Address field and add /jaws as suffix, for example:

   http://10.7.6.5/jaws/
2. Follow the online instructions.

Reader's Notes

11 Appendix A - Frequently Asked Questions (FAQs)

11.1 Pre-installation

Q: Kernel Parameters for semaphores was added to the system file, but not shown when running sysdef command

A: Run the following command:

```
ipcs -s
```

Run sysdef command to verify that the parameters were updated.

11.2 Installation

Q: "Out of Memory" error encountered while creating database

A: The system parameters were not defined. Refer to Section **Error! Reference source not found.** on page **Error! Bookmark not defined.** and verify that all the required parameters are defined and that the syntax is correct.

Q: "Cannot write file…" error encountered during software installation

A: If you didn't define the location of ORACLE_HOME under the **acems** user home directory, then you might have forgotten to give the **acems** user writing permissions to this location.

11.3 Post-installation

Q: When trying to run watchDog_unix or runServer_unix from the directory where it is located, there is an error "command not found".

A: The current directory(.) is not part of the search path. To check the path, run the command:

```
echo $PATH
```

If the current directory is not in the path, run the scripts as follows:
./watchDog_unix
./runServer_unix

Note: If you performed the procedure to start the EMS server automatically, check that the server is up after reboot and do not run it again.

11.4 After Rebooting the Machine

Q: The database is not starting automatically after the machine is rebooted.

A: Check:

1. The syntax in var/opt/oracle/oratab: the file should end with an empty line.
2. That the symbolic link "S90dbstart" under /etc/rc2.d is not broken
3. That all scripts have execute permissions for **acems** user
4. That the default shell for **acems** user is tcsh.

11.5 Changes Not Updated in the Client

Q: After successful installation, multiple add operation as well as changes made by other clients are not updated in the client.

A: Check the configuration of the date on the server machine. This problem occurs when the daylight-saving configuration is defined incorrectly.

Reader's Notes