



APX®/MAX TNT®

TAOS 11.0.2 Cumulative Release Note


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Contents



| | | |
|------------------|---|------------|
| | Customer Service | iii |
| Section 1 | Uploading Software | 1-1 |
| | APX 8000/8100 upgrade and downgrade procedures..... | 1-1 |
| | Requirements and recommendations | 1-1 |
| | APX 8000/8100 upgrade instructions | 1-3 |
| | APX 8000/8100 downgrade instructions (load command) | 1-6 |
| | APX 1000 and MAX TNT upgrade and downgrade procedures | 1-7 |
| | Requirements and recommendations | 1-7 |
| | APX1000 and MAX TNT upgrade instructions | 1-10 |
| | APX 1000 and MAX TNT downgrade instructions | 1-12 |
| | Adding a new shelf controller to an APX system | 1-13 |
| Section 2 | About this Release Note | 2-1 |
| | How to use this release note | 2-1 |
| | TAOS 11.0.2 firmware versions | 2-1 |
| | Firmware versions for digital modem modules | 2-2 |
| | Firmware versions for MultiDSP modules | 2-2 |
| | ETSI PRI/H323 | 2-2 |
| | Hash-code controlled features..... | 2-2 |
| | 11.0 Premium Feature Set | 2-2 |
| | SIP licensing | 2-3 |
| Section 3 | Enhancements and Corrections in TAOS 11.0.2 | 3-1 |
| | TAOS 11.0.2 enhancements..... | 3-1 |
| | Change request fulfilled in TAOS 11.0.2..... | 3-1 |
| Section 4 | Enhancements and Corrections in TAOS 11.0.1 | 4-1 |
| | TAOS 11.0.1 enhancements..... | 4-1 |
| | H.323 G.711 Transparent FAX enhancement..... | 4-1 |
| | Enabling transparent delivery of disconnect cause codes | 4-2 |
| | Change requests fulfilled in TAOS 11.0.1 | 4-2 |

Uploading Software



1

APX 8000/8100 upgrade and downgrade procedures 1-1

APX 1000 and MAX TNT upgrade and downgrade procedures 1-7

Adding a new shelf controller to an APX system 1-13

APX 8000/8100 upgrade and downgrade procedures

This section shows how to upgrade and downgrade the TAOS software of an APX 8000/8100 unit.

Requirements and recommendations

These recommendations for upgrading TAOS units help ensure a smooth upgrade. If you must downgrade from this release to an earlier TAOS release, please see “APX 8000/8100 downgrade instructions (load command)” on page 1-6.

Obtaining the TAOS 11.0.2 software

The TAOS 11.0.2 software for the APX 8000 consists of the following files:

| Filename | Descriptions |
|---------------------------------|--|
| apxsrb.bin | The boot loader. Both T1 and E1 loads use the same boot loader software. Install the appropriate boot loader for your release when upgrading or downgrading. |
| apxrel.tar and apxrel2.tar | Tar files (T1 load) that contain images for the shelf controller and all T1-compatible slot cards. |
| apxrele.tar and apxrele2.tar | Tar files (E1 load) that contain images for the shelf controller and all E1-compatible slot cards. |

If you need further assistance on how to obtain the TAOS 11.0.2 software, see “Customer Service” on page iii.

To identify the software that you need based on the slot cards that have been physically installed in your chassis, refer to the following table. This table lists the contents of the tar files that contain the most commonly used slot-card images.

Minimally, you must load the first tar file (apxrel.tar or apxrele.tar). If your APX 8000/8100 chassis contains additional slot cards (for example, a SWAN slot card), then you must also load the second tar file (apxrel2.tar or apxrele2.tar).

Uploading Software

APX 8000/8100 upgrade and downgrade procedures

The contents of the APX 8000 TAOS 11.0.2 tar files are listed in the following table:

Table 1-1. TAOS 11.0.2 APXC 8000 tar files

| Filename | Description | Slot-card images |
|--------------|-----------------------------------|----------------------------------|
| apxrel.tar | Shelf controller | apxsr |
| | Ethernet | tntenet2 tntenet3 tntenet3nd |
| | HDLC | tnthdlc2 tnthdlc2ec |
| | T1-specific images | tnt8t1 tntt3 tntut1 tntpctfit |
| | APX 8000 MultiDSP modem images | tntmadd tntmadd3 |
| | Ethernet | apxenet |
| apxrel2.tar | STM-0 | tntstm0 |
| | UDS3 | tntuds3 |
| | DS3-ATM, DS3-ATM-2 | tntds3atm tntds3atm2 |
| | OC3-ATM, OC3-ATM-2 | tntoc3atm tntoc3atm2 |
| | SWAN | tntswan tntswan2 |
| apxrele.tar | Shelf controller | apxsre |
| | Ethernet | tntenet2 tntenet3 tntenet3nd |
| | HDLC | tnthdlc2 tnthdlc2ec |
| | E1-specific images | tnt8e1 tntue1 tntpctfie |
| | APX 8000 MultiDSP modem images | tntmadd tntmadd3 |
| | Ethernet | apxenet |
| apxrele2.tar | E3-ATM | tnte3atm |
| | OC3-ATM, OC3-ATM-2 | tntoc3atm tntoc3atm2 |
| | SWAN | tntswan tntswan2 |

Local access to the unit recommended

Whenever you install system software, Lucent recommends that you access the unit through the shelf controller serial or LAN port rather than a slot card port.

Saving the system configuration

As a general practice, always save the system configuration before upgrading or downgrading system software. If you use TFTP to save the system configuration, the target file must exist on the TFTP server and you must have permission to write it. For example, the following commands executed on a TFTP server create a target file and set its permissions:

```
$ touch /tftpboot/config/testcfg.1
$ chmod a=rw /tftpboot/config/testcfg.1
```

Before you save the system configuration, you must enable the allow-password permission in the User profile to save the configured passwords. If you do not have allow-password permission enabled, you will be prompted to confirm that you wish to save the configuration without passwords. If you do so and then restore the saved configuration, all passwords in the configuration are wiped out. The following commands executed on the APX 8000/8100 unit save the system's configuration to the target file on the TFTP server and then restore the saved configuration:

```
admin> save network 10.10.10.10 config/testcfg.1
admin> load config network 10.10.10.10 config/testcfg.1
```



Note For additional information about the save command and its options, see the *APX 8000/MAX TNT Reference*.

Upgrade synchronization on systems with dual controllers

If you are logged into the primary controller and use one of the following commands, the effect is system wide:

| Command | Description |
|---------|---------------------------------------|
| load | Load a new software version. |
| nvramp | Clear NVRAM. |
| reset | Reset the system, dropping all calls. |

By default, when logged into the primary controller, these commands affect both controllers. However, you can specify command options to restrict the operation to a specific controller.



Note If you are logged into the secondary controller and use the nvramp or reset command, the operation affects only the secondary controller. The secondary controller cannot reset or clear the memory of the primary controller.

APX 8000/8100 upgrade instructions

These instructions show how to upgrade to TAOS 11.0.2 from an earlier TAOS version. The instructions apply to both single-controller and dual-controller APX 8000/8100 units.



Note Under certain conditions, the load tar command might recognize no slot cards and load only the shelf controller image during the upgrade procedure. If this

occurs, reset the system and load the tar files again. The second load tar command loads the appropriate slot-card images for the system.

Before you begin upgrading

Before upgrading the APX 8000/8100 unit, follow these preliminary steps:

- 1 **Log into the hard IP address of the primary controller and save its configuration to a TFTP server.**

This step is optional but strongly recommended. For details, see “Saving the system configuration” on page 1-10.

- 2 **When using the load command to upload binaries, verify that the load-select profile is configured to either automatically load only required binaries or to load only selected binaries.**

Upgrading an APX 8000/8100 unit (load command)



Caution The following steps are order sensitive. To help ensure a smooth upgrade first perform the preliminary upgrade steps described in the preceding section, and then perform the steps in the order in which they are shown.

To upgrade an APX 8000/8100 unit, proceed as follows.

- 1 **Log into the hard IP address of the primary shelf controller. Do not use the soft IP address. Use the `dir ip-interface` command to locate the primary controller's profile if needed to obtain the IP address.**

- 2 **Save the unit's configuration using the save command.**

- 3 **Load the boot loader. For example:**

```
admin> load boot-sr network 10.10.10.10 apxsrb.bin
```



Note If you only need the first required tar file, continue with step 4. If you need both tar files, go to step 5.

- 4 **Load the tar file. For example:**

```
admin> load tar network 10.10.10.10 apxrel.tar
```



Note Use the `ls` command to see if any of the slot cards on your system do not have the equivalent file on the flash card. If a slot-card image is missing, continue with step 4; otherwise continue with step 6.

- 5 **Load the tar files as follows:**

```
admin> load tar network 10.10.10.10 apxrel.tar apxrel2.tar
```

- 6 **Reset the system.**

```
admin> reset
```

The `reset` command on the primary controller resets both controllers, dropping all calls. The system should come up with the existing configuration intact. If so, go to step 6. Otherwise, if unexpected circumstances result with an incomplete configuration (such as, physically installed cards still not being reconfigured), continue with step 5.



Note If your unit is configured with DNIS and CLID passwords, after upgrading from TAOS 9.x to TAOS 11.0.2, the unit no longer recognizes the `dnis-password` and `clid-password` values that were set in prior releases and dial-in users may experience

a busy tone. See “Notice of parameter name changes in the External-Auth profile” on page 10-2 in the *TAOS 10.0 Release Note for APX 1000/APX 8000/MAX TNT* for additional information.

Upgrading an APX 8000/8100 unit (upgrade command)

The upgrade command enables the TAOS unit to copy new code to the flash file system, validate whether the new code is complete, and either load the new code at the next reboot (if complete) or load the previous code (if incomplete). Incomplete code images are typically the result of interruptions in the copying process due to network or power outages.



Note 11.0.0 introduces the upgrade command. You must use the load command (see “Upgrading an APX 8000/8100 unit (load command)” on page 1-4) to upgrade units with previous releases.

Unless the TAOS unit detects a complete code image after reboot, it aborts the upgrade/downgrade procedure and loads the previous code image.

To support the upgrade command, you must have installed the TAOS unit with a flash card with large enough capacity to hold the current code image simultaneously with the code image files to be upgraded/downgraded. If the flash card’s capacity is not large enough, you must use the load command to upgrade/downgrade the TAOS unit’s software.

The code image must be located on a network host that supports TFTP.

Upon entering the upgrade command, the TAOS unit:

- 1 Creates an /upgrade directory on the flash card, if it is nonexistent.
- 2 Deletes all files in the /upgrade directory.
- 3 Copies tar files from the TFTP host into the /upgrade directory.
The TAOS unit deletes tar files that do not load completely.
- 4 For redundant systems, copies tar files to the second shelf controller.
- 5 Loads the srb file.
- 6 For redundant systems, copies the srb file to the second shelf controller.

Upgrades/Downgrades fail unless both shelf controllers successfully load the new srb file.

If you are upgrading, you must reboot the TAOS unit to complete the upgrade. If you are downgrading to previous software version, you must enter the nvram command to complete the downgrade.

When the upgrade or downgrade is complete, the TAOS unit starts with the new srb code. Once srb is up, it compares its version of software to the version of software in the /current directory, and if there is a mismatch, srb looks for files in /upgrade directory. If the software versions of srb and /current are different and the new code image is in the /upgrade directory has the same version as srb, the TAOS unit moves the code from the /upgrade directory to the /current directory and boots with the new code image.

If the TAOS unit finds no files in the /upgrade directory (indicating that the TAOS unit did not successfully load a complete code image), the TAOS unit will boot with the previous code image (located in /current) and will report a log error:

"Code mismatch: BOOT version <x.y.z>, SR version <a.b.c>"



Note The upgrade command does *not* support engineering code images, sometimes referred to as e-loads.

APX 8000/8100 downgrade instructions (load command)

If you must downgrade, you must have serial access to the TAOS. See the APX 8000 TAOS 9.0, 9.1, 10.0, or 10.1 Release Note at <http://www.lucent.com/support>.

Because releases are not necessarily backward compatible, Lucent recommends that you always restore a backup configuration made under the previous version.



Note When downgrading from version 11.0.0 and later, you can use the upgrade command instead of the load command. For more information, see "Upgrading an APX 8000/8100 unit (upgrade command)" on page 1-5.

To restore the previous software version (TAOS 9.0.x, 9.1.x, 10.0.x, 10.1.x), proceed as follows:

1 Load the previous version of the boot loader.

For example:

```
admin> load boot-sr network 10.10.10.10 apxsrb.bin
```

2 Load the previous version of the tar file (via TFTP from a local host).

- If you are downgrading to a TAOS version prior to version TAOS 10.0.x, enter the following command:

```
admin> load tar network 10.10.10.10 apxrel.tar
```

- If you are downgrading to TAOS version TAOS 10.0.x, enter the following command:

```
admin> load tar network 10.10.10.10 apxrel.tar apxrel2.tar
```

3 Clear all profiles by entering the nvram command, for example:

```
admin> nvram
```

4 Log into the primary shelf controller via the serial connection. Open the ip-interface profile for the shelf controller and set the address.

For example:

```
admin> read ip-interface { { 1 right-controller 1 } 0 }
```

```
IP-INTERFACE/{ { shelf-1 right-controller 1 } 0 } read
```

```
admin> set ip-address = 10.10.10.2/24
```

```
admin> write
```

```
IP-INTERFACE/{ { shelf-1 right-controller 1 } 0 } written
```

5 Load a backup configuration made under the restored software version or one of its predecessors.

For example:

```
admin> load config network 10.10.10.10 config/backup-config
```

6 Reset the system as follows:

For example:

```
admin> reset
```

APX 1000 and MAX TNT upgrade and downgrade procedures

This section shows how to upgrade and downgrade the TAOS software of an APX 1000 or MAX TNT unit.

Requirements and recommendations

These recommendations for upgrading APX 1000 and MAX TNT units help ensure a smooth upgrade. If you must downgrade from this release to a previous one, please see “APX 1000 and MAX TNT downgrade instructions” on page 1-12.

Obtaining the TAOS 11.0.2 software

The TAOS 11.0.2 software for the APX 1000 consists of the following files:

| Filename | Descriptions |
|---------------|---|
| apx1ksrb.bin | The boot loader. Both T1 and E1 loads use the same boot loader software. Install the appropriate boot loader for your software release when upgrading or downgrading. |
| apx1krel.tar | Tar files (T1 load) that contain images for the shelf controller and all T1-compatible slot cards. |
| apx1krele.tar | Tar files (E1 load) that contain images for the shelf controller and all E1-compatible slot cards. |

To identify the software that you need based on the slot cards that have been physically installed in your chassis, refer to the following table. This table lists the contents of the tar files that contain the most commonly used slot-card images.

You must load the tar file `apx1krel.tar` or `apx1krele.tar`. The contents of the APX 1000 TAOS 11.0.2 tar files are listed in the following table:

Table 1-2. APX 1000 TAOS 11.0.2 tar files (page 1 of 2)

| Filename | Description | Slot-card images |
|--------------|------------------|------------------------|
| apx1krel.tar | Shelf controller | apx1ksr |
| | Ethernet | tntenet3nd |
| | Hybrid Access | tnthdlc2ec |
| | T1 and T3 | apx1k24t1 tnt8t1 tntt3 |
| | MultiDSP | tntmadd tntmadd3 |
| | DS3-ATM | tntds3atm2 |
| | OC3-ATM | tntoc3atm2 |
| | Serial WAN | tntswan2 |
| | | |

Uploading Software

APX 1000 and MAX TNT upgrade and downgrade procedures

Table 1-2. APX 1000 TAOS 11.0.2 tar files (page 2 of 2)

| Filename | Description | Slot-card images |
|---------------|------------------|------------------|
| | Ethernet | apxenet |
| apx1krele.tar | Shelf controller | apx1ksre |
| | Ethernet | tntenet3nd |
| | Hybrid Access | tnthdlc2ec |
| | E1 | apx1k24e1 tnt8e1 |
| | MultiDSP | tntmadd tntmadd3 |
| | OC3-ATM | ttntoc3atm2 |
| | Serial WAN | tntswan2 |
| | Ethernet | apxenet |

The TAOS 11.0.2 software for the MAX TNT consists of the following files:

| Filename | Descriptions |
|------------------------------|---|
| tntsrbin | The boot loader. Both T1 and E1 loads use the same boot loader software. Install the appropriate boot loader for your software release when upgrading or downgrading. |
| tntrel.tar and tntrel2.tar | Tar files (T1 load) that contain images for the shelf controller and all T1-compatible slot cards. |
| tntrele.tar and tntrele2.tar | Tar files (E1 load) that contain images for the shelf controller and all E1-compatible slot cards. |

If you need technical assistance, see “Customer Service” on page iii.

To identify the software that you need based on the slot cards that have been physically installed in your chassis, refer to the following table. This table lists the contents of the tar files that contain the most commonly used slot-card images.

Minimally, you must load the first tar file (tntrel.tar or tntrele.tar). If your MAX TNT chassis contains additional slot cards (for example, an E3-ATM slot card), then you must also load the second tar file (tntrel2.tar or tntrele2.tar).

The contents of the MAX TNT TAOS 11.0.2 tar files are listed in the following table:

Table 1-3. TAOS 11.0.2 MAX TNT tar files (page 1 of 2)

| Filename | Description | Slot-card images |
|------------|------------------|------------------|
| tntrel.tar | Shelf controller | tntsr |

Table 1-3. TAOS 11.0.2MAX TNT tar files (page 2 of 2)

| Filename | Description | Slot-card images |
|--------------|-------------------------------|----------------------------------|
| | Ethernet | tntenet2 tntenet3 tntenet3nd |
| | HDLC | tnthdlc2 tnthdlc2ec |
| | T1-specific images | tnt8t1 tntt3 tntut1 tntpctfit |
| | MAX TNT MultiDSP modem images | tntcsmx tntcsm3v tntmadd |
| | SWAN | tntswan |
| | Ethernet | apxenet |
| tntrel2.tar | STM-0 | tntstm0 |
| | UDS3 | tntuds3 |
| | DS3-ATM, DS3-ATM-2 | tntds3atm tntds3atm2 |
| | OC3-ATM, OC3-ATM-2 | tntoc3atm tntoc3atm2 |
| | SWAN | tntswan tntswan2 |
| tntrele.tar | Shelf controller | tntsre |
| | Ethernet | tntenet2 tntenet3 tntenet3nd |
| | HDLC | tnthdlc2 tnthdlc2ec |
| | SWAN | tntswan |
| | E1-specific images | tnt8e1 tntue1 tntpctfie |
| | MAX TNT MultiDSP modem images | tntcsmx tntcsm3v tntmadd |
| | Ethernet | apxenet |
| tntrele2.tar | E3-ATM | tnte3atm |
| | OC3-ATM, OC3-ATM-2 | tntoc3atm tntoc3atm2 |
| | SWAN | tntswan tntswan2 |

Local access to the unit recommended

Whenever you install system software, Lucent recommends that you access the unit through the shelf controller serial or LAN port rather than a slot card port.

Uploading Software

APX 1000 and MAX TNT upgrade and downgrade procedures

If your unit is configured with DNIS and CLID passwords, after upgrading from TAOS 9.x to TAOS 11.0.2, the unit will no longer recognize the `dnis-password` and `clid-password` values that were set in prior releases and dial-in users may experience a busy tone.

Saving the system configuration

As a general practice, always save the system configuration before upgrading or downgrading system software. If you use TFTP to save the system configuration, the target file must exist on the TFTP server and you must have permission to write it. For example, the following commands executed on a TFTP server create a target file and set its permissions:

```
$ touch /tftpboot/config/testcfg.1
```

```
$ chmod a=rw /tftpboot/config/testcfg.1
```

Before you save the system configuration, you must enable the `allow-password` permission in the User profile to save the configured passwords. If you do not have `allow-password` permission enabled, you will be prompted to confirm that you wish to save the configuration without passwords. If you do so and then restore the saved configuration, all passwords in the configuration are wiped out. The following commands executed on the APX 1000 or MAX TNT unit save the system's configuration to the target file on the TFTP server and then restore the saved configuration:

```
admin> save network 10.10.10.10 config/testcfg.1
```

```
admin> load config network 10.10.10.10 config/testcfg.1
```



Note For additional information about the `save` command and its options, see the *APX 8000/MAX TNT Reference*.

APX1000 and MAX TNT upgrade instructions

These instructions show how to upgrade to TAOS 11.0.2 from TAOS version 9.0 or later. If you are not sure which version the system is running, enter the `version` command:

```
admin> version
```

```
Software version 8.0.3
```



Note Under certain conditions, the `load tar` command might recognize no slot cards and load only the shelf controller image during the upgrade procedure. If this occurs, reset the system and load the tar file again. The second `load tar` command will load the appropriate slot-card images for the system.

Before you begin upgrading

Before you begin the upgrade procedure, follow these preliminary steps:

1 Log into the system and save its configuration to a TFTP server.

This step is optional but strongly recommended. For details, see “Saving the system configuration” on page 1-10.

2 When using the load command to upload binaries, verify that the load-select profile is configured to either automatically load only required binaries or to load only selected binaries.

Upgrading an APX 1000 or MAX TNT unit (load command)



Caution The following steps are order sensitive. To help ensure a smooth upgrade, first perform the preliminary upgrade steps described in the preceding section, and then perform the following steps in the order in which they are shown.

To upgrade a standalone unit, proceed as follows:

3 Load the boot loader.

For example:

```
admin> load boot-sr network 10.10.10.10 tntsr.bbin
```



Note If you are upgrading from TAOS 9.0 or later releases, proceed to step 5. Otherwise, continue with step 4.

4 Load the tar file.

For example:

```
admin> load tar network 10.10.10.10 tntrel.tar
```



5 Load the tar files.

For example:

```
admin> load tar network 10.10.10.10 tntrel.tar tntrel2.tar
```

6 Reset the system.

```
admin> reset
```



Note In this release, the dnis-password parameter in the password-profile subprofile of the external-auth profile has been changed to DNIS.

Upgrading an APX 1000 or MAX TNT unit (upgrade command)

The upgrade command enables the TAOS unit to copy new code to the flash file system, validate whether the new code is complete, and either load the new code at the next reboot (if complete) or load the previous code (if incomplete). Incomplete code images are typically the result of interruptions in the copying process due to network or power outages.



Note 11.0.0 introduces the upgrade command. You must use the load command (see “Upgrading an APX 1000 or MAX TNT unit (load command)” on page 1-11) to upgrade units with previous releases.

Unless the TAOS unit detects a complete code image after reboot, it aborts the upgrade/downgrade procedure and loads the previous code image.

To support the upgrade command, you must have installed the TAOS unit with a flash card with large enough capacity to hold the current code image simultaneously with the code image files to be upgraded/downgraded. If the flash card’s capacity is not large enough, you must use the load command to upgrade/downgrade the TAOS unit’s software.

The code image must be located on a network host that supports TFTP.

Upon entering the upgrade command, the TAOS unit:

- 1 Creates an /upgrade directory on the flash card, if it is nonexistent.

Uploading Software

APX 1000 and MAX TNT upgrade and downgrade procedures

- 2 Deletes all files in the /upgrade directory.
- 3 Copies tar files from the TFTP host into the /upgrade directory.
The TAOS unit deletes tar files that do not load completely.
- 4 Loads the srb file.
- 5 For redundant systems, copies the srb file to the second shelf controller.
Upgrades/Downgrades fail unless both shelf controllers successfully load the new srb file.

If you are upgrading, you must reboot the TAOS unit to complete the upgrade. If you are downgrading to previous software version, you must enter the nvram command to complete the downgrade.

When the upgrade or downgrade is complete, the TAOS unit starts with the new srb code. Once srb is up, it compares its version of software to the version of software in the /current directory, and if there is a mismatch, srb looks for files in /upgrade directory. If the software versions of srb and /current are different and the new code image is in the /upgrade directory has the same version as srb, the TAOS unit moves the code from the /upgrade directory to the /current directory and boots with the new code image.

If the TAOS unit finds no files in the /upgrade directory (indicating that the TAOS unit did not successfully load a complete code image), the TAOS unit will boot with the previous code image (located in /current) and will report a log error:

"Code mismatch: BOOT version <x.y.z>, SR version <a.b.c>"



Note The upgrade command does *not* support engineering code images, sometimes referred to as e-loads.

APX 1000 and MAX TNT downgrade instructions

Because releases are not necessarily backward compatible, Lucent recommends that you always restore a backup configuration made under the previous version or one of its predecessors.

If you must downgrade, you must have serial access to the APX 1000 or MAX TNT. See the *MAX TNT TAOS 9.0 Release Notes* at <http://www.lucent.com/support>.



Note When downgrading from version 11.0.0 and later, you can use the upgrade command instead of the load command. For more information, see "Upgrading an APX 1000 or MAX TNT unit (upgrade command)" on page 1-11.

Downgrading an APX 1000 or MAX TNT unit

To restore the previous software version (TAOS 9.0.x, 9.1.x, 10.0.x), proceed as follows:

1 Load the previous version of the boot loader.

For example:

```
admin> load boot-sr network 10.10.10.10 tntsrbin
```



2 Load the previous version of the tar file.

- If you are downgrading to a TAOS version prior to TAOS 9.0, enter the following command:

```
admin> load tar network 10.10.10.10 tntrel.tar
```

- If you are downgrading to a TAOS 9.0 and later releases, enter the following command:

```
admin> load tar network tntrel.tar tntrel2.tar
```

3 Clear all profiles by entering the nvram command.

For example:

```
admin> nvram
```

4 Log into the system via the serial connection. Open the ip-interface profile for the shelf controller and set the address.

For example:

```
admin> read ip-interface { { 1 controller 1 } 0 }
```

```
IP-INTERFACE/{ { shelf-1 controller 1 } 0 } read
```

```
admin> set ip-address = 10.10.10.2/24
```

```
admin> write
```

```
IP-INTERFACE/{ { shelf-1 controller 1 } 0 } written
```

5 Load a backup configuration made under the restored software version or one of its predecessors.

For example:

```
admin> load config network 10.10.10.10 config/801-config
```

6 Reset the system. This step is required.

For example:

```
admin> reset
```

Adding a new shelf controller to an APX system

The following procedure describes how to add a new shelf controller to an APX system running on a single shelf controller.

Before you begin, ensure that the new shelf controller has a serial port connection *and* that a flash card is not inserted in the new shelf-controller. Proceed as follows.

- 1 Insert the shelf controller properly in the APX unit. For more information about how to install a shelf controller onto an APX system, see the *Getting Started Guide* for your APX unit.
- 2 Connect a workstation to the serial port (labeled CONTROL) of the shelf controller.
- 3 When the new controller is at the BOOT prompt, provide network connectivity by connecting an Ethernet cable to the new shelf controller.
- 4 Configure the ip-interface profile for the new shelf controller.



Note Configure the ip-interface profile on the new shelf controller only. At this point, the primary controller's configuration is not synchronized with the new controller's configuration. If required, configure an IP route to reach a TFTP server.

- 5 Insert the flash card into new the shelf controller. See the *Getting Started Guide* for your unit for more information.
- 6 Format the flash card. For example:

Uploading Software

Adding a new shelf controller to an APX system

```
admin> format -f flash_card_slot
```

- 7 Use the `version` command to verify that the TAOS software version on the new shelf controller matches that of the primary shelf controller.

If the new controller's version matches that of the primary shelf controller, skip step 8 and proceed to step 9. If the software versions do not match, proceed to step 8.

- 8 Load the required boot image on new controller. For example:

```
admin> load -l boot network 30.30.30.1 /tftpboot/binaries/apxsrb.bin
```

- 9 Load the tar file onto the new controller. For example:

```
admin> load -l tar network 30.30.30.1 /tftpboot/binaries/apxrel.tar
```

- 10 Reset the new shelf controller.

```
admin> reset -f
```

Once the new shelf controller is active, the system synchronizes the profiles between the primary controller and the new controller.

- 11 When the profiles on the shelf controllers are synchronized, from the primary controller, configure the `ip-interface` profile for the new controller.



Note If redundancy is enabled for the system (that is, in the redundancy profile, the `sync-enabled` parameter is set to `yes`), the primary shelf controller will reset the new shelf controller.

About this Release Note

2

The True Access™ Operating System (TAOS) contains a foundation of built-in software features for WAN access environments, as well as optional extensions that require separate licensing to support a wide variety of WAN access environments.

TAOS 11.0.2 and 11.0.1 are maintenance releases for TAOS 11.0.0. This cumulative release note describes modifications to TAOS since the TAOS 11.0.0 software release for APX 1000, APX 8000, APX 8100, and MAX TNT units.

The section “Uploading Software” describes how to upgrade and downgrade your system software. A new procedure for adding a shelf controller to an APX system running on a single shelf controller is also provided in this release note.



Caution You must use the software procedures in the “Uploading Software” section to load this new version of software onto your system or to restore a previous version. Read the instructions carefully before upgrading or downgrading your system.

The APX family of products includes multiple platforms that differ in call capacity and hardware, but support the same operating system and similar configuration options. The APX family, which includes the APX 8100, APX 8000, and APX 1000 products, shares many features with its MAX TNT predecessor.

This release note documents the capabilities of MultiVoice Gateway software running on APX and MAX TNT units, collectively known as *TAOS units* when they support the same features. TAOS units running MultiVoice software are known as *MultiVoice gateways* or *universal gateways*.

How to use this release note

The Table of Contents on page v and the information in the following section list the TAOS features in this release.

For information about obtaining the software described in this release note, see “Obtaining the TAOS 11.0.2 software” on page 1-7.

TAOS 11.0.2 firmware versions

TAOS 11.0.2 includes the following versions of firmware for digital modem modules and MultiDSP modules.

Firmware versions for digital modem modules

The Mindspeed (formerly known as Conexant) firmware versions for the Digital Modem modules include support for V.90, K56flex, K56plus, and all slower, standard modem speeds. This release includes the following Mindspeed firmware:

- Series56 II Digital Modem modules (also called CSM/3, TNT-SL-48MOD-SGL and TNT-SL-48MOD-S-C) support V5.817 firmware.
- Series56 III Digital Modem modules (also called CSMV/3, TNT-SL-48MODV3-S-C) support V5.8175 firmware.

Firmware versions for MultiDSP modules

This release includes the following Lucent firmware versions for the MultiDSP modules:

- 48-port MultiDSP modules (TNTP-SL-ADI-C or TNTV-SL-ADI-C) support Controller V0.2.42, Modem DSP V0.2018.0, and VoIP DSP V4.0.44 Lucent firmware.
- 96-port MultiDSP modules (APX8-SL-96DSP) support Controller V0.2.42, Modem DSP V0.2018.0, and VoIP DSP V4.0.44 Lucent firmware.
- 240-port MultiDSP modules (APX-SL-DSP-3-L) support Controller V0.2.42, Modem DSP V0.2018.0, and VoIP DSP V4.0.44 Lucent firmware.
- 288-port MultiDSP modules (APX-SL-DSP-3) support Controller V0.2.42, Modem DSP V0.2018.0, and VoIP DSP V4.0.44 Lucent firmware.

ETSI PRI/H323

With this release, the TAOS unit supports network-side and user-side ETSI PRI/H323.

Hash-code controlled features

TAOS units require hash codes to support certain features. Hash-coded features are categorized in the BASE profile. To identify the hash-coded features supported on the TAOS unit, use the `get base` command.

11.0 Premium Feature Set

The following features are enabled on the TAOS unit after installing the 11.0 Premium Feature Set hash code:

- SIP support (For additional SIP hash code requirements, see “SIP licensing”)
- V.92 usage reporting
- L2TP disconnect cause code as per RFC 3145
- Transparent HTTP proxy support
- TAOS unit sends progress code to the LNS
- MS-CHAP version 2 authentication

SIP licensing

Your TAOS unit must use licensed code to support the SIP protocol. To determine if a TAOS unit is licensed for SIP, enter the `get base` command:

```
admin> get base
[In BASE]
shelf-number = 1
software-version = 11
software-revision = 0
software-level = a
manufacturer = dba-ascend-mfg
...
...
...
sip = yes
admin>
```

If your TAOS unit is not licensed for SIP, you must provide the TAOS unit's serial number to your Lucent Technologies sales representative to obtain a *hash code update* text file.

To enable SIP, the TAOS unit must be installed with the following hash codes: SIP, TAOS 11.0 Premium Feature Set, and VOIP.

The easiest way to perform the update is to copy the text from the update file and paste it on the universal gateway command line. For example if the update file contains the line `102 4 4 TRUSP5X9]WI;LT`:

```
admin> update 102 4 4 TRUSP5X9]WI;LT
update command: command complete
admin>
```

You must reset the TAOS unit to load the hash codes.

Enabling SIP or H.323

A TAOS unit supports one protocol at a time. The TAOS unit uses the Session Initiation Protocol (SIP) only when the following two conditions are met:

- The TAOS unit has been loaded with the licensed software (see the previous section).
- There is at least one active SIP profile during boot-up time.

When SIP is disabled or an active SIP profile does not exist at boot-up, the TAOS unit uses H.323.



Note Switching between SIP and H.323 requires a system reboot to start the other protocol.

Enhancements and Corrections in TAOS 11.0.2 3

| | |
|---|-----|
| TAOS 11.0.2 enhancements | 3-1 |
| Change request fulfilled in TAOS 11.0.2 | 3-1 |

The following sections describe enhancements to TAOS and change request fulfilled in TAOS 11.0.2.

TAOS 11.0.2 enhancements

This software release includes a MultiDSP firmware upgrade from V0.2.39 to V0.2.42 and VoIP firmware upgrade from V4.0.43 to V4.0.44.

For affected MultiDSP modules, see “Firmware versions for MultiDSP modules” on page 2-2.

Change request fulfilled in TAOS 11.0.2

The following table lists change requests that have been fulfilled in this release.

| CR # | Description of problem |
|---------|--|
| 7010629 | On APX units, 64k clear transparent circuit-switched data (CSD) was not working for A-law. |

Enhancements and Corrections in TAOS 11.0.1



4

| | |
|---|-----|
| H.323 G.711 Transparent FAX enhancement | 4-1 |
| Enabling transparent delivery of disconnect cause codes | 4-2 |
| Change requests fulfilled in TAOS 11.0.1 | 4-2 |

TAOS 11.0.1 enhancements

TAOS 11.0.1 includes the following enhancements.

H.323 G.711 Transparent FAX enhancement

This release introduces the `g711-transparent-data-initiate-clc` parameter to ensure that the TAOS unit supports fax mode (G.711) to interoperate with previous versions of TAOS software, or to operate in compliance with H.323.

`g711-transparent-data-initiate-clc`

Description When switching to fax mode (G.711) the TAOS unit and the far end should exchange H245 messages to close the existing voice channels and open data channels for the fax data. This parameter enables you to direct the TAOS unit to support fax mode like previous versions of TAOS software, or to be compliant with H.323.

Usage Specify either yes or no. The default is no.

- Yes directs the TAOS unit to switch to G.711 fax mode according to H.323.
- No directs the TAOS unit to switch to G.711 fax mode according to previous versions of TAOS software.

Example set `g711-transparent-data-initiate-clc` = yes

Dependencies For this parameter to apply the TAOS unit must support Multivoice.

Location VOIP

Enabling transparent delivery of disconnect cause codes

This release introduces the cause-code-transparency parameter.

cause-code-transparency parameter

Description Enables or disables transparent delivery of the Q.931 (H.323 VoIP) or Q.850 (SS7) disconnect-cause codes generated by the far-end switched network. The codes are passed across the packet network from the far-end MultiVoice® gateway to the near-end MultiVoice® gateway, and then delivered to the local telephone company.

Usage Specify one of the following settings:

- **no** specifies that, because cause code transparency is disabled, the TAOS unit always sends Cause Code 16 (Normal Release) to the PSTN switch. When Busy, Local Busy Tone is played. **disable** is the default.
- **yes** specifies that the TAOS unit will derive the appropriate Cause Code from the call's release message, and send it to the PSTN switch. When Busy, Local Busy Tone is not played.
- **enable-until-connect** specifies that the TAOS unit:
 - For unconnected calls, derives appropriate Cause Code from release message and sends it to the PSTN switch and when Busy, does not play Local Busy Tone
 - For connected calls, sends Cause Code 16 (Normal Release) to the PSTN switch and when Busy, plays Local Busy Tone

Example `set cause-code-transparency = yes`

Dependencies For callers to hear both a busy signal and the call failure message, set `cause-code-transparency` to enabled whenever `h323-voice-ann-enabled` is set to **yes**.

Location `VOIP/{ "" "" }:pstn-attribute`

Change requests fulfilled in TAOS 11.0.1

The following table lists change requests that have been fulfilled in this release.

| CR # | Description of problem |
|---------|--|
| 7009057 | 1200 baud modem failed to connect to TAOS unit, generating a progress code 40 and disconnect code 25. |
| 7009319 | Failed Real-Time FAX calls caused TAOS unit to reset, generating a Fatal Error 40 message. |
| 7009366 | Tag 3D in RMPC had no effect if the tag 75 was not present in RMPC message And if Tag 0x75 was not specified in a subsequent RMPC after previously being enabled then it defaulted back to disabled. |
| 7009486 | Modem failed to handshake (V.22) successfully with a third-party modem |

| CR # | Description of problem |
|-------------|---|
| 7009497 | ISDN X.75 and ISDN V.120 TCP-Clear connections did not connect successfully. |
| 7009606 | Voice call generated bad sound quality. |
| 7009689 | Clear-call parameter in Terminal Profile did not work as expected |
| 7009805 | Problems with third-party modems making V.34 connections with TAOS unit. |
| 7009865 | Occasionally, TAOS unit blocks some E1 channels (R2 signaling) |
| 7009866 | dnis -a CLI command displayed incorrect number of failed calls. |
| 7009922 | MVAM 4.0 could not successfully register the second port of a dual port VoIP terminal. |
| 7009964 | Provisioning Server displayed errors 14 and 130 when creating lport |
| 7010053 | Problems with SIP voice quality. |
| 7010065 | Calls failed into TAOS unit. Following syslog message observed: TDMGR: failed to allocate a TDM timeslot, wanted 1, obtained 0 Cannot map channel: 1:01:82/24 to 1:09:80/0 [MBID 3293] |
| 7010092 | IPDC: AMPC reported codec=G.723 when G.711 A-law was requested. |
| 7010101 | TAOS unit returned incorrect SNMP information about Channelized OC3/DS3 LIM cards. |
| 7010110 | TAOS unit generated a Warning 179 message when Ethernet link was dropped. |
| 7010176 | Problems with third-party modem connecting to TAOS unit. |
| 7010255 | Ethernet LIM did not display in the output of show command (or via SNMP). |
| 7010256 | Problems with third-party V.92 modems (with QC enabled) connecting to TAOS unit. |
| 7010288 | TAOS unit's 24-port E1 module did not support DS1-MIB (RFC 2495) properly. |
| 7010319 | MultiVoice: When cause code transparency was enabled, TAOS did not pass proper disconnect value sent by Egress gateway to Ingress switch. |
| 7010339 | Occasionally, Telnet stopped functioning properly. |
| 7010372 | MultiDSP module resets, generation a Fatal Error 40 message |
| 7010391 | MAXTNT units did not reinitialize attribute State (24) after the first challenge response was entered incorrectly. |
| 7010401 | RADIUS records indicated that all STOP records associated with Analog calls which have negotiated Multilink have attribute 188 (Ascend/Lucent-Num-In-Multilink) propagated with incorrect values. |
| 7010558 | In the E1 profile, PRI-TUNNELING-ENABLED parameter did not work properly |
| 7010617 | When TAOS unit received SIP INVITE message without angle brackets (< and >) in the FROM header, the Egress GW sent Q.931 SETUP message without Calling Party Number Information Element. |
| 7010735 | TAOS unit reset, generating a Fatal Error 40 message. |

Enhancements and Corrections in TAOS 11.0.1

Change requests fulfilled in TAOS 11.0.1

| CR # | Description of problem |
|-------------|--|
| 7010929 | To initialize SIP, TAOS unit required an assigned IP address for the shelf controller's Ethernet port regardless if that port was in use or connected. |