# The MAX TNT Command-Line Interface

*Ascend Communications, Inc.*
*Part Number: 7820-0549-003*
*For Software Version 7.0.0 or earlier*

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  Alameda, CA 94502-3002

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Visit Ascend's FTP site at `ftp.ascend.com` for software upgrades, release notes, and addenda to this manual.

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# Introduction

# 1



## What is in this guide

This guide shows you how to use the Ascend command-line interface. It describes how to enter commands to modify profiles and parameters, and provides useful tips on command-line shortcuts. It also shows how to view status information at the command-line interface.

This guide assumes that you have already installed the MAX TNT system, set up a PC with a serial connection, turned on the MAX TNT, and performed the recommended configuration steps that are displayed on the screen the first time you boot up. If you have not already finished those tasks, please see the *MAX TNT Hardware Installation Guide*.

## Related publications

The other guides in the MAX TNT documentation set provide technical information about configuring the unit. The MAX TNT documentation set includes the following manuals:

- *The MAX TNT Command-Line Interface* (this manual). Shows you how to use the MAX TNT command-line interface effectively.
- *MAX TNT Hardware Installation Guide*. Shows how to install the MAX TNT hardware and use the command-line interface to configure its slot cards for a variety of supported uses. Describes how calls are routed through the system. Includes the MAX TNT technical specifications.
- *MAX TNT Network Configuration Guide*. Describes how to use the command-line interface or RADIUS to configure WAN connections and other related features.
- *MAX TNT RADIUS Guide*. Describes how to install RADIUS and provides a reference for its authentication and accounting attributes.
- *MAX TNT Reference Guide*. An alphabetic reference to all MAX TNT profiles, parameters, and commands.
- *MAX TNT Administration Guide*. Describes how to administer the MAX TNT, including how to monitor the system and cards, troubleshoot the unit, and use SNMP.

# Documentation conventions

This section shows the documentation conventions used in this guide.

*Table 1-1. Documentation conventions*

| Convention | Meaning |
|---|---|
| `Monospace text` | Represents text that appears on your computer's screen, or that could appear on your computer's screen. |
| **`Boldface monospace text`** | Represents characters that you enter exactly as shown (unless the characters are also in ***`italics`***—see *Italics*, below). If you could enter the characters, but are not specifically instructed to, they do not appear in boldface. |
| *Italics* | Represent variable information. Do not enter the words themselves in the command. Enter the information they represent. In ordinary text, italics are used for titles of publications, for some terms that would otherwise be in quotation marks, and to show emphasis. |
| [ ] | Square brackets indicate an optional argument you might add to a command. To include such an argument, type only the information inside the brackets. Do not type the brackets unless they appear in bold type. |
| \| | Separates command choices that are mutually exclusive. |
| Key1-Key2 | Represents a combination keystroke. To enter a combination keystroke, press the first key and hold it down while you press one or more other keys. Release all the keys at the same time. (For example, Ctrl-H means hold down the Control key and press the H key.) |
| Press Enter | Means press the Enter, or Return, key or its equivalent on your computer. |
| **Note:** | Introduces important additional information. |
|  **Caution:** | Warns that a failure to follow the recommended procedure could result in loss of data or damage to equipment. |
|  **Warning:** | Warns that a failure to take appropriate safety precautions could result in physical injury. |

# Getting Started

# 2



## Logging in

The first step in accessing the MAX TNT command line is to log into the system. You can log in from a PC connected to the unit's serial port, or from a PC that has Telnet access to the system. When you log in, you are prompted for a user name:

```
User:
```

If you are logging in for the first time and need the default password assigned to the MAX TNT Admin login, see the *MAX TNT Hardware Installation Guide*.

If an administrator has already created a User profile for you and given you the name and password required to use it, you can log in by supplying that information. In addition to specifying a name and password, a User profile sets permissions that determine which classes of commands you can use. Alternatively, you might be able to log in as the Admin user, with full permissions. (For more information about permissions and command classes, see the next section.)

Typically, the name specified in your User profile appears as your system prompt. For example, if you log in as Admin, the following prompt appears:

```
admin>
```

This guide assumes that you have the permissions required to perform all of the tasks described. For sake of example, it shows the Admin login prompt, but the actual prompt on your screen could represent any login with comparable permissions. For example:

```
User: joann
Password: joann-password

joann>
```

You can display the name of the current User profile by entering the Whoami command:

```
admin> whoami
admin
```

# What commands are available?

To display the commands that your User profile makes available, enter the Help (or ?) command. The following example shows the commands available for the Admin login. The left column shows command names, and the right column shows the command *class*, which determines the permissions required to use the command. To list all commands, even if you do not have the required permissions, append the `-a` option to the Help command.

```
admin> ?
 ?                              ( user )
 arptable                       ( system )
 auth                           ( user )
 callroute                      ( diagnostic )
 clear                          ( user )
 clock-source                   ( diagnostic )
 clr-history                    ( system )
 connection                     ( system )
 date                           ( update )
 debug                          ( diagnostic )
 delete                         ( update )
 device                         ( diagnostic )
 dir                            ( system )
 dircode                        ( system )
 ether-display                  ( diagnostic )
 fatal-history                  ( system )
 format                         ( code )
 fsck                           ( code )
 get                            ( system )
 hdlc                           ( system )
 help                           ( user )
 if-admin                       ( diagnostic )
[More? <ret>=next entry, <sp>=next page, <^C>=abort]
```

The last line in the sample output:

```
[More? <ret>=next entry, <sp>=next page, <^C>=abort]
```

shows your options for displaying additional output:

- Press Return to display one more line of output.
- Press the Space key to display another page (22 lines) of output. If the status window is open, the Space key displays another 5 lines of output.
- Press Ctrl-C to cancel any further output from the Help (?) command.

Table 2-1 lists the command classes and associated permissions in a User profile.

*Table 2-1. Command classes and User profile permissions*

| Command class | Permission |
|---|---|
| System | `allow-system = yes` |
| Diagnostic | `allow-diagnostic = yes` |
| Update | `allow-update = yes` |
| Code | `allow-code = yes` |

For more information about commands, see the *MAX TNT Reference Guide*.

**Note:** An individual command line is limited to 80 characters (including the prompt).

# Getting help for a specific command

If you include a command name after the Help (or ?) command, the system displays a usage statement for the command name you specify. For example, to get information about the Dir command:

```
admin> ? dir
dir                              list all profile types
dir profile-type                 list all profiles of the specified type
dir profile-type profile-index   list the specified profile instance
```

Also, online help for a command that requires arguments appears if you enter the command without the arguments.

For more information about the Dir command, see Chapter 3, “Working with Profiles.”

# Command-line shortcuts

You can use abbreviations, edit existing command lines, and reuse previously entered commands to save keystrokes and time.

## Using abbreviations

When you enter a command, you can type just enough characters to specify a unique string. The MAX TNT fills in the rest of the name automatically. For example, the following two commands are equivalent, as shown by their output:

```
admin> iproute
usage:
iproute add    <destination/size> <gateway> [ pref ] [ metric ]
iproute delete <destination/size> [gateway]

admin> ipr
usage:
iproute add    <destination/size> <gateway> [ pref ] [ metric ]
iproute delete <destination/size> [gateway]
```

The same principle applies when you specify a profile name. For example, the following command:

```
admin> dir e
```

results in an error message, because the string is not unique. But the following command:

```
admin> dir ether
```

displays information about Ethernet profiles; for example:

```
88  08/14/1996 14:20:53    { shelf-1 controller 1 }
```

This principle applies to any command argument (except profile indexes, which must be specified fully). For example, the following two commands are equivalent:

```
admin> load boot-sr net host1 tntsrb.bin
admin> load b n host1 tntsrb.bin
```

## Editing a command line

Table 2-2 lists commands you can use to correct typing mistakes in a command line or to reuse and modify previous commands. If you cannot use an arrow key for a command that requires one, use the equivalent VT100 escape sequence.

*Table 2-2. Control sequences for editing command lines*

| Control Sequence | Effect |
|---|---|
| Ctrl-H, Backspace, or Delete | Erase the previous character. |
| Ctrl-D | Erase the current character. |
| Ctrl-W | Erase the previous (space-delimited) word. |
| Ctrl-U | Erase the entire line. |
| Ctrl-K | Erase the rest of the line, starting with the cursor position. |
| Ctrl-C | Echo ^C, terminate the input, and return ^C character input. |
| Ctrl-P or Up Arrow | Replace the line with the previous line from the command history buffer. Twenty previous lines are kept. |
| Ctrl-N or Down Arrow | Select the next line. This sequence is valid only if Ctrl-P or Up Arrow has been used to select a previous line. |
| Ctrl-B or Left Arrow | Back up the cursor without deleting a character. If you then type regular characters, they are inserted in the line. |
| Ctrl-F or Right Arrow | Move the cursor to the right, unless at the end of a line. |
| Ctrl-A | Go to the beginning of the line. |

## Reusing commands (command history)

The command history buffer is a file containing the last 20 command lines. Once the buffer is full, it discards the oldest command line when you add a new one by pressing Enter to execute a command.

To redisplay a command line, press Up Arrow or Ctrl-P until the command reappears on the screen. You can then re-execute the command by pressing Enter. To edit the command first, see “Editing a command line” on page 2-4.

For example, you might type the following command and press Enter:

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

Then, if you press the Up Arrow key, the command line reappears:

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

The cursor is at the end of the line. Say you want to replace the `c` in the interface address with a `2`. Press the Left Arrow key until the cursor is at the right edge of the `c`, then press Delete, then the 2 key:

```
admin> read ip-interface {{1 2 1}0}
```

Press Enter to execute the new command. The cursor can be positioned anywhere within the command line when you press Enter.

## Using command-line shortcuts to save time

The next chapter describes how to work with profiles and set MAX TNT configuration parameters. It also provides an example of how to combine the command-line shortcuts described in this chapter to see the range of possible values for a parameter and set the parameter quickly and efficiently. (For the example, see “Combining command-line shortcuts to set parameters” on page 3-12.)

# Working with Profiles

# 3



## Commands for working with profiles

A profile is a group of configuration parameters related to a particular purpose.

Some commands for working with profiles operate at a directory level, displaying information about any profile in the system. Other commands operate only on the *working* profile—the profile that has been read into the system's edit buffer.

Table 3-1 lists MAX TNT commands related to working at the directory level with profiles:

*Table 3-1. Commands related to profiles*

| Command | Purpose |
|---|---|
| Dir | Displays a directory listing of profiles. |
| Delete | Deletes a profile. |
| Get | Displays the contents of any profile or subprofile without reading the profile into the edit buffer. |
| New | Creates a new default instance of a specified profile type and makes it the working profile. |
| Read | Reads a profile into the edit buffer, where it can be modified. Reading a profile makes it the working profile. |

Table 3-2 lists MAX TNT commands that operate only on the working profile:

*Table 3-2. Commands related to the working profile*

| Command | Purpose |
|---|---|
| List | Lists the contents of the current context (nested level) in the working profile. |
| Set | Sets the value of a parameter in the working profile. |
| Write | Writes the contents of the edit buffer to flash memory. |

For information about each command, see the *MAX TNT Reference Guide*.

Profile listings displayed by using the List or Get command include a line that specifies the name of the profile and your current location within it. The system displays the message on the first line of a profile, subprofile, or array listing. The message has the following format:

```
[in profile:subprof:field[index]:subprof...]
```

In this format, *profile* is the profile type and index, for example:

```
[in CONNECTION/john]
```

If you move to a subprofile, the message also includes the name of the *subprofile*, and if you open an array field, it includes the name of the *field* and its *index*. For example:

```
[in T1/{ shelf-2 slot-2 2 }:line-interface:channel-config[1]]
```

When you create a profile by using the New command, the message indicates that the profile is new. If you use a Set command to change a profile, the message also indicates that the current profile has been changed. For example:

```
admin> new connection john
CONNECTION/john read

admin> list
[in CONNECTION/john (new)]
...

admin> set dial-number = 555-1212

admin> list ip-options
[in CONNECTION/john:ip-options (new) (changed)]
...
```

If a Set command changes the profile's index, the message shows the new profile name at the next List command. For example:

```
admin> set station = test

admin> list
[in CONNECTION/test]
...
```

If there is already a saved profile that uses the new index, a message is displayed warning of a possible overwrite. For example:

```
admin> new connection
CONNECTION/"" read

admin> set station = test
(New index value; saving will overwrite CONNECTION/test.)

admin>
```

If the settings of the current profile do not match the contents of the saved profile, the next List command message indicates that the contents have changed. For example:

```
admin> list
[in CONNECTION/test (new) (changed)]
...
```

If you make a series of changes to a profile, the last of which causes the profile to match a saved profile that has the same index, the next List command message no longer indicates that the profile content have changed.

# Profile types and indexes

Different *types* of profiles are supported. For example, Connection profiles contain parameters related to a WAN connection, and T1 profiles contain parameters related to configuring a T1 line. To see a list of profile types on your system, use the Dir command:

```
admin> dir
 ADMIN-STATE           SNMP Administrative State
 ADSL-CAP              Cap adsl line parameters
 ADSL-CAP-STAT         Cap adsl line status
 ADSL-DMT              Dmt adsl line parameters
 ADSL-DMT-STAT         Dmt adsl line status
 ANSWER-DEFAULTS       Answer profile
 ATALK-GLOBAL          Global Appletalk parameters
 ATALK-INTERFACE       Appletalk interfaces
 ATMP                  ATMP profile
 BASE                  System version and enabled features
 CALL-INFO             Active call information
 CALL-LOGGING          Call logging
 CALL-ROUTE            Call routing attributes
 CONNECTION            Connection (WAN) profiles
 DEBUG                 Debug Profile
 DEVICE-STATE          Device Operational State
 DS3-ATM               Ds3-Atm line parameters
 DS3-ATM-STAT          DS3 ATM line status
 E1                    DS1 line parameters
 ERROR                 Fatal Error log
 ETHER-INFO            Ethernet Interfaces Information
 ETHERNET              Ethernet Interfaces Configuration
[More? <ret>=next entry, <sp>=next page, <^C>=abort]
```

The left column shows a list of profile types in the system, and the right column describes the purpose of each profile type. In many cases, there are more than one profile of a given type. Each profile of the same type must have a unique *index*, which may be a name or an address within the system.

To list all profiles of a given type, specify the profile type on the command line. For example, to list the two User profiles that ship with the system:

```
admin> dir user
     9  07/07/1998 12:49:24  default
    33  07/08/1998 14:20:28  admin
```

In this command output, the leftmost column shows how many bytes of flash memory are used to store the profile. The second and third columns show the date and time the profile was last modified. The rightmost column shows the profile's index (in this case, a name).

## Profiles related to sessions and routes

Profiles related to connections and logins are created by the administrator, and the administrator deletes them when they are no longer needed. The maximum number of such profiles is limited only by flash memory. The profiles are indexed by a name assigned by the administrator. They include the following profile types:

```
CONNECTION            Connection (WAN) profiles
FILTER                Filter Profile
FRAME-RELAY           Frame-Relay link configuration
IP-ROUTE              Static IP routes
IPX-ROUTE             Static IPX routes
IPX-SAP-FILTER        IPX Sap Filters
USER                  Administrative user accounts
```

To display or create one of the profiles, you must specify its index on the command line. For example:

```
admin> get user default
[in USER/default]
name* = default
password = ""
active-enabled = yes
allow-termserv = no
allow-system = no
allow-diagnostic = no
allow-update = no
allow-password = no
allow-code = no
idle-logout = 0
prompt = *
default-status = no
top-status = general-info
bottom-status = log-window
left-status = connection-list
screen-length = 24
status-length = 18
use-scroll-regions = no
log-display-level = none
```

When you list a User profile's contents, you'll see an asterisk next to the Name parameter, indicating that this is the profile's index.

## System-wide profiles

Profiles related to the configuration of the unit itself, or to routing within the system, are present when the unit ships. These profiles do not require an index, because only one instance of the profile can exist. System-wide profiles include:

```
ANSWER-DEFAULTS       Answer profile
ATALK-GLOBAL          Global Appletalk parameters
ATMP                  ATMP profile
EXTERNAL-AUTH         External authentication info
IP-GLOBAL             Global TCP/IP parameters
IPX-GLOBAL            Global IPX parameters
L2-TUNNEL-GLOBAL      Layer 2 tunnel global profile
SNMP                  SNMP configuration
SYSTEM                System-wide basic parameters
TERMINAL-SERVER       Terminal server parameters
```

To display the contents one of these profiles, you simply specify the profile type on the command line. For example:

```
admin> get snmp
[in SNMP]
enabled = no
read-community = ******
read-write-community = *****
enforce-address-security = no
read-access-hosts = [ 0.0.0.0 0.0.0.0 0.0.0.0 0.0.0.0 0.0.0.0 ]
write-access-hosts = [ 0.0.0.0 0.0.0.0 0.0.0.0 0.0.0.0 0.0.0.0 ]
contact = ""
location = ""
queue-depth = 0
```

## Profiles for configuring physical devices

Profiles related to configuring physical devices (line profiles) are created by the system when it first detects the presence of a particular card. These profiles are indexed by their physical address within the MAX TNT system. Each type of card or built-in port has a related profile type, for example:

```
ADSL-CAP              Cap adsl line parameters
ADSL-DMT              Dmt adsl line parameters
DS3-ATM               Ds3-Atm line parameters
ETHERNET              Ethernet Interfaces Configuration
SDSL                  Sdsl line parameters
SERIAL                Serial interfaces
SWAN                  Swan line parameters
T1                    DS1 line parameters
```

and so forth, depending on the types of cards installed in the system. For example, if you install an eight-port T1 card in shelf 1, slot 13 of the MAX TNT, the system creates the following profiles:

```
admin> dir t1
    155  07/11/1998 15:50:31  { shelf-1 slot-13 2 }  ""
    152  07/07/1998 12:49:36  { shelf-1 slot-13 3 }  ""
    152  07/07/1998 12:49:36  { shelf-1 slot-13 4 }  ""
    152  07/07/1998 12:49:36  { shelf-1 slot-13 5 }  ""
```

```
152  07/07/1998 12:49:36  { shelf-1 slot-13 6 }  ""
152  07/07/1998 12:49:36  { shelf-1 slot-13 7 }  ""
152  07/07/1998 12:49:36  { shelf-1 slot-13 8 }  ""
320  07/08/1998 19:48:58  { shelf-1 slot-13 1 }  ""
```

When you list a T1 profile's contents, you'll see an asterisk next to the physical address parameter, indicating that this is the profile's index:

```
admin> get t1 {1 13 2}
[in T1/{ shelf-1 slot-13 2 }]
physical-address* = { shelf-1 slot-13 2 }
line-interface = { no d4 ami eligible middle-priority inband wink-start +
```

Each device in the MAX TNT has a physical address composed of its shelf number, slot number, and item number in the following format:

```
{ shelf-N slot-N item-N }
```

For a standalone system, the shelf number is always 1. In multishelf systems, the shelf number is from 1 to 9.

**Note:** For call routing purposes, an address can contain a zero for the shelf, slot, or item number. In a Call-Route address specification, a zero always means *any.*

Figure 3-1 shows how the slots are numbered on the back panel of a standalone shelf.

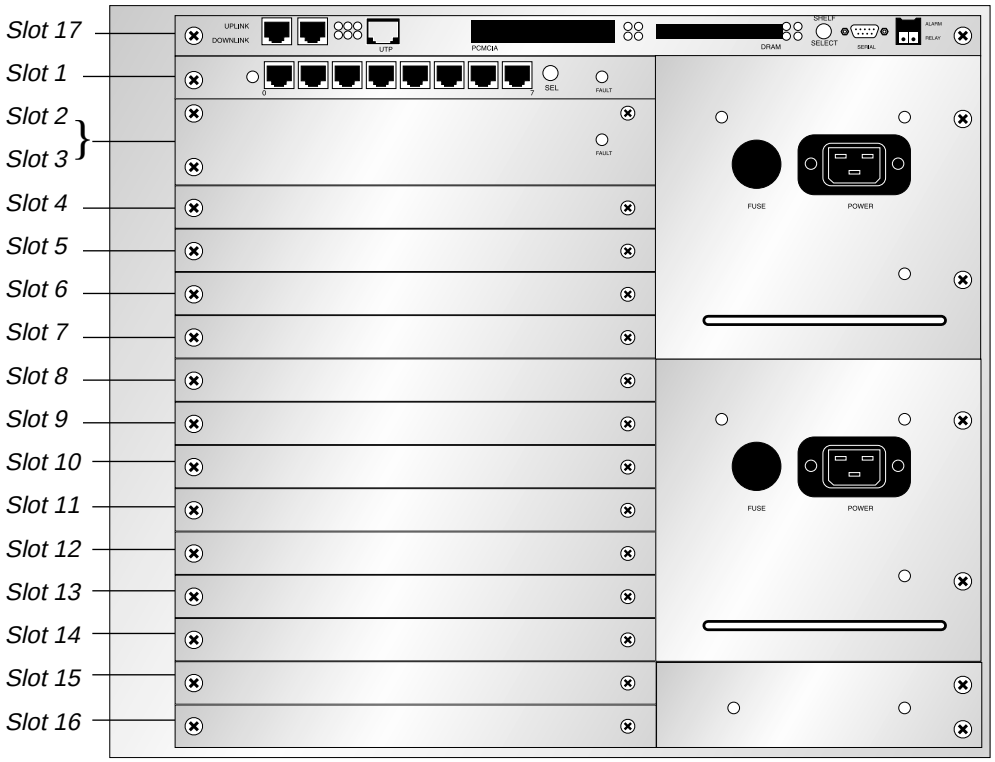


*Figure 3-1. Back panel of a MAX TNT shelf*

The shelf-controller at the top of the shelf is always assigned slot number 17. The shelf-controller can also be referred to as `controller` or `c`. For example, the following addresses are equivalent and all refer to the shelf-controller:

```
{ 1 controller 0 }
{ 1 c 0 }
{ 1 17 0 }
```

Expansion slots are numbered from 1 to 16, starting with the top expansion slot just below the shelf-controller. For example, the first slot on shelf 1 has the following address:

```
{ 1 1 0 }
```

A modem card that uses two slots (such as the card in slots 2 and 3 in Figure 3-1) is always addressed by the first of those slot numbers. For example, a digital modem card in the second and third slots has the following address:

```
{1 2 0}
```

The item number addresses a particular port or item on the specified slot card. An item-number of 0 (zero) denotes the whole slot.

Items start with number 1 for the leftmost item on the card. For example, Figure 3-2 shows the address of the third T1 line on a T1 card in slot #1 in shelf 1.

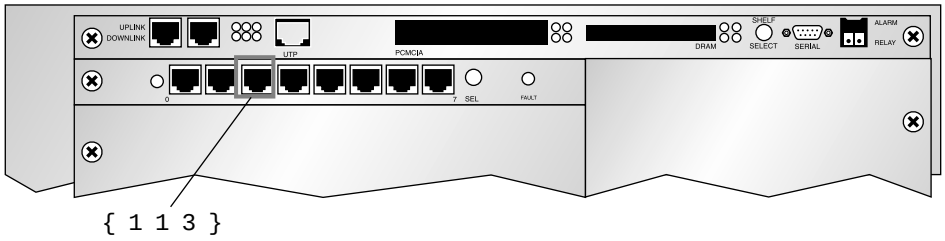


*Figure 3-2. Address of an individual T1 line*

**Note:** The T1 card faceplate numbers the lines from 0 to 7. However, the profile indexes number the lines from 1 to 8.

To read a T1 profile, you must specify its address as the profile index, for example:

```
admin> read t1 {1 1 3}
T1/{ shelf-1 slot-1 3 } read
```

## Profiles for configuring a local IP interface

When the system first detects the presence of an Ethernet port, it creates a default profile for configuring an IP interface on that Ethernet port. The administrator may also create new IP-Interface profiles with unique logical-item numbers (to assign multiple IP addresses to a single LAN port), and may delete them when they are no longer needed.

**Note:** Although the administrator may delete IP-Interface profiles, you should never delete the default IP-Interface profile created by the system. If you do, none of the other IP-Interface profiles created for that interface will work.

IP-Interface profiles are indexed by an interface address within the MAX TNT system. For example:

```
admin> dir ip-int
     8  07/14/1998 16:22:15  { { shelf-1 slot-4 1 } 0 }
     8  07/14/1998 16:22:15  { { shelf-1 slot-4 2 } 0 }
     8  07/14/1998 16:22:15  { { shelf-1 slot-4 3 } 0 }
     8  07/14/1998 16:22:15  { { shelf-1 slot-4 4 } 0 }
    19  07/14/1998 16:26:45  { { shelf-1 controller 1 } 0 }
```

An interface address is composed of a physical address and a logical-item number, in the following format:

```
{ { shelf-N slot-N item-N } logical-item-N }
```

The logical item number addresses a specific logical interface. It is zero for the default IP-Interface profile created by the system. If the administrator configures additional logical interfaces, the logical-item number of the profile index does not necessarily have to be contiguous, but must be unique.

To access an IP-Interface profile, you must specify its full interface address, for example:

```
admin> read ip-int { { 1 4 1 } 0 }
IP-INTERFACE/{ { shelf-1 slot-4 1 } 0 } read
```

When you list the profile's contents, you'll see an asterisk next to the interface address parameter, indicating that this is the profile's index:

```
admin> list
[in IP-INTERFACE/{ { shelf-1 slot-4 1 } 0 }]
interface-address* = { { shelf-1 slot-4 1 } 0 }
ip-address = 0.0.0.0/0
proxy-mode = Off
rip-mode = routing-off
route-filter = ""
rip2-use-multicast = yes
ospf = { no 0.0.0.0 normal 10 40 5 simple ******* 0 1 16777215 type-1
c0:00:00:+
multicast-allowed = no
multicast-rate-limit = 100
multicast-group-leave-delay = 0
directed-broadcast-allowed = yes
vrouter = ""
```

The logical-item address syntax explained in this section also applies to individual items on a line or port, such as the individual channels of a T1 line. However, for a T1 channel, the address syntax is not used as a profile index, but only as a way to address the channel in a Call-Route profile. For details, see the *MAX TNT Hardware Installation Guide*.

## Profiles for routing calls to a device or item

Call-Route profiles have a unique type of index, which specifies not only a channel or modem address but also an entry number in the call-routing database. The additional number is required because each WAN channel or host port (such as a modem or HDLC channel) can have multiple Call-Route profiles addressing it. For information about call routing, see the *MAX TNT Hardware Installation Guide*.

The system has one default Call-Route profile that prevents it from dropping calls. In addition, when the system detects the presence of a host slot card (such as a modem or HDLC card), it

creates a default Call-Route profile for routing calls to that slot. The administrator may also create any number of Call-Route profiles, and may delete them when they are no longer needed. Call-Route profile indexes use the following format:

```
{ { { shelf-N slot-N item-N } logical-item-N } entry-N }
```

The entry number is zero unless the administrator creates additional profiles for the specified address. To see the list of Call-Route profiles, enter the Dir command as in the following example:

```
admin> dir call-r
     9  07/07/1998 15:58:08  { { { any-shelf any-slot 0 } 0 } 0 }
    13  07/07/1998 15:58:20  { { { shelf-1 slot-2 0 } 0 } 0 }
    13  07/07/1998 15:58:21  { { { shelf-1 slot-6 0 } 0 } 0 }
    19  07/07/1998 20:57:07  { { { shelf-1 slot-3 0 } 0 } 0 }
```

To access a Call-Route profile, you must specify its full index, for example:

```
admin> read call-r { { { 1 3 0 } 0} 0}
CALL-ROUTE/{ { { shelf-1 slot-3 0 } 0 } 0 } read
```

When you list the profile's contents, you'll see an asterisk next to the index parameter:

```
admin> list
[in CALL-ROUTE/{ { { shelf-1 slot-3 0 } 0 } 0 }]
index* = { { { shelf-1 slot-3 0 } 0 } 0 }
trunk-group = 0
phone-number = ""
preferred-source = { { shelf-1 slot-2 3 } 0 }
call-route-type = any-call-type
```

# *Modifying the working profile*

This section explains how to modify an existing profile by setting its parameter values and writing the changes to flash memory. For information about creating profiles, see "Creating new profiles" on page 3-17.

## Reading and writing a profile

To modify an existing profile, you must first read it into the edit buffer by using the Read command. For example:

```
admin> read log
LOG read
```

The profile that has been read into the edit buffer is the working profile. It remains the working profile until another profile is read into the buffer.

When a profile has an index, you must specify the index in the Read command; for example:

```
admin> read conn tim
CONNECTION/tim read
```

f you issue a Read or New command that would overwrite the contents of the edit buffer when the buffer contains unsaved changes, the system displays a message prompting for confirmation. For example:

```
admin> read connection david
Reading will overwrite the changes you've made.
Read anyway? [y/n] y
CONNECTION/david read
```

You can avoid this prompt by using the –f flag on the Read or New command line.

The Write command writes the contents of the edit buffer to flash memory. For example:

```
admin> write
CONNECTION/tim written
```

The Write command does not clear the working profile out of the edit buffer. It simply saves any changes you have made. If you issue a Write command when the current profile has not been modified from the saved version, the write does not occur and the following message is displayed:

```
admin> write
Nothing new to write; nothing written.
```

You can force the write to occur by using the –f flag on the Write command line. Note that the write always occurs if the profile has not been written previously.

## Listing the working profile

The List command displays the contents of the working profile. For example:

```
admin> read user default
USER/default read
```

```
admin> list
[in USER/default]
name* = default
password = ""
active-enabled = yes
allow-termserv = no
allow-system = no
allow-diagnostic = no
allow-update = no
allow-password = no
allow-code = no
idle-logout = 0
prompt = *
default-status = no
top-status = general-info
bottom-status = log-window
left-status = connection-list
screen-length = 24
status-length = 18
use-scroll-regions = no
```

For more information about profile contents, see “Changing contexts in the working profile” on page 3-13.

## Parameter types and syntax

Table 3-3 shows parameter types with examples of correct syntax and descriptions of their use.

*Table 3-3. Parameter types and syntax*

| Type | Syntax | Description |
|---|---|---|
| Text | `station = test` | The maximum length of a text value varies. For some text values, the online help includes a list of valid characters. Some text values can be mixed case. Others (such as index fields) are converted to lower-case when set. When the value is allowed to contain spaces or quotes, it is displayed in quotes. Password fields are displayed as asterisks unless the user has allow-password permissions. |
| Number | `dial-number = 1212` | A numeric value is displayed as decimal, but you can set it in hex or octal by preceding the value with `0x` or `0`, respectively. |
| Enumerated | `rip = routing-off` | Supports a limited set of values, all of which are displayed in the on-line help. You can specify the minimum matching string or the full value name. |
| Boolean | `private-route = yes` | An enumerated field with only two allowable values, which are specified in the on-line help. The values may be true/false or yes/no. |
| Hexadecimal | `ase-tag  =  c0:00:00:00` | Must be entered in hexadecimal notation (*nn*:*nn*:*nn*:...:*nn*), where each *n* is a hexadecimal number from 0 to F. |
| IP address | `ip-address = 10.2.3.4/24` | An IP address is displayed and entered in dotted-decimal. A subnet mask is optional. |
| Complex | `mp-options = { 1 1 2 }`<br>*or:*<br>`pool-base-address = [0.0.+` | A complex parameter can be a subprofile or an array value. See “Changing contexts in the working profile” on page 3-13. |

## Setting parameters in the working profile

To modify the parameters of the working profile, use the Set command. For example:

```
admin> read log
LOG read

admin> list
[in LOG]
save-level = debug
save-number = 100
call-info = none
syslog-enabled = no
host = 10.65.212.10
port = 514
facility = local0
syslog-format = tnt

admin> set save-number = 250

admin> set syslog = yes

admin> set host = 10.2.3.4

admin> write
LOG written
```

## Combining command-line shortcuts to set parameters

If you are not certain of the values supported for a parameter in the working profile, you can display online help and then use the displayed information to quickly set the parameter by proceeding as follows:

**1** Use the Set command to display the supported values for the parameter. For example:

```
admin> set call-info ?
call-info:
 Specifies when call status changes are logged.
Enumerated field, values:
 none:  No call info will be displayed.
 end-of-call:  Call info will be displayed at the end of the call.
```

**2** Press the Up Arrow key or Ctrl-P to redisplay the Set command you just entered.

```
admin> set call-info ?
```

For information about command history and using the Up Arrow key, see “Command-line shortcuts” on page 2-3.

**3** Press the Delete key to remove the question-mark.

```
admin> set call-info
```

**4** Type the appropriate value and then press Return. For example:

```
admin> set call-info = end
```

Similarly, suppose you are setting several parameters that have similar names and values. For example, the following two array values:

```
auth-client 1 = 10.12.253.1

auth-client 2 = 10.12.253.56
```

Proceed as follows:

1. Enter the first of the similar Set commands. For example:

   ```
   admin> set auth-client 1 = 10.12.253.1
   ```

2. Press the Up Arrow key or Ctrl-P to redisplay the Set command you just entered.

   ```
   admin> set auth-client 1 = 10.12.253.1
   ```

3. Press Delete and then enter 56:

   ```
   admin> set auth-client 1 = 10.12.253.56
   ```

4. Press the Back Arrow key or Ctrl-B to backspace to the 1, then press Delete and enter 2:

   ```
   admin> set auth-client 2 = 10.12.253.56
   ```

5. Press Return to execute the modified command.

# Changing contexts in the working profile

In addition to parameters, a profile may also contain subprofiles, which themselves may contain subprofiles, creating several nested levels or *contexts* within the profile. In addition, some parameters are array values, which also reside in a separate context within the profile.

- A normal *parameter* containing a single value appears as follows:

  ```
  parameter = value
  ```

- A *subprofile* contains multiple values enclosed in a single pair of braces:

  ```
  subprofile = { value-1 value-2 value-3 value-4 value-5 value-6 }
  ```

- If a parameter contains multiple *array values*, they are enclosed in a single pair of brackets:

  ```
  parameter =  [ array-element-1 array-element-2 array-element-3 array-e+
  ```

A plus-sign at the end indicates that more settings are contained in the subprofile or array than could be displayed on one line.

To set the value of a parameter or display its online help, you must either move to the context in which it resides, or specify the full path of that context on the Set command line.

## Subprofiles

To see an example of profile contents that include subprofiles, read the External-Auth profile into the edit buffer and list its contents. For example:

```
admin> read external-auth
EXTERNAL-AUTH read

admin> list
[in EXTERNAL-AUTH]
auth-type = None
acct-type = none
rad-id-space = unified
rad-id-source-unique = system-unique
rad-serv-enable = no
rad-auth-client = { 0.0.0.0 0.0.0.0 0.0.0.0 0 0 "" no 0 no no no 0 yes +
rad-acct-client = { 0.0.0.0 0.0.0.0 0.0.0.0 0 0 "" 0 0 acct-base-10 0 0+
rad-auth-server = { 0 no rad-serv-attr-any [ 0.0.0.0 0.0.0.0 0.0.0.0 0.+
tac-auth-client = { 0.0.0.0 0.0.0.0 0.0.0.0 0 0 "" 0 }
```

```
tacplus-auth-client = { 0.0.0.0 0.0.0.0 0.0.0.0 0 0 "" 0 0 }
tacplus-acct-client = { 0.0.0.0 0.0.0.0 0.0.0.0 0 0 "" }
local-profiles-first = lpf-yes
noattr6-use-termsrv = yes
```

## *Listing a subprofile*

To move to the context of a subprofile, specify its name in the List command. For example:

```
admin> list rad-auth-server
[in EXTERNAL-AUTH:rad-auth-server]
auth-port = 0
auth-session-key = no
auth-attribute-type = rad-serv-attr-any
auth-client = [ 0.0.0.0 0.0.0.0 0.0.0.0 0.0.0.0 0.0.0.0 0.0.0.0 0.0.0.0+
auth-netmask = [ 0.0.0.0 0.0.0.0 0.0.0.0 0.0.0.0 0.0.0.0 0.0.0.0 0.0.0.+
auth-key = [ "" "" "" "" "" "" "" "" "" ]
```

If a profile contains nested subprofiles, you can move directly to the nested subprofile by specifying multiple subprofile names on the List command line.

## *Moving back up to the previous context*

To move back up to the previous context, type a space and two periods after the List command. For example:

```
admin> list ..
[in EXTERNAL-AUTH]
auth-type = None
acct-type = none
rad-id-space = unified
rad-id-source-unique = system-unique
rad-serv-enable = no
rad-auth-client = { 0.0.0.0 0.0.0.0 0.0.0.0 0 0 "" no 0 no no no 0 yes +
rad-acct-client = { 0.0.0.0 0.0.0.0 0.0.0.0 0 0 "" 0 0 acct-base-10 0 0+
rad-auth-server = { 0 no rad-serv-attr-any [ 0.0.0.0 0.0.0.0 0.0.0.0 0.+
tac-auth-client = { 0.0.0.0 0.0.0.0 0.0.0.0 0 0 "" 0 }
tacplus-auth-client = { 0.0.0.0 0.0.0.0 0.0.0.0 0 0 "" 0 0 }
tacplus-acct-client = { 0.0.0.0 0.0.0.0 0.0.0.0 0 0 "" }
local-profiles-first = lpf-yes
noattr6-use-termsrv = yes
```

As in a file system, the `..` characters switch the context up one level. If you have moved several nested levels into a profile, you can move back up several levels at a time by specifying the `..` characters repeatedly in the List command line.

## *Setting values in a subprofile*

You can set the value of a parameter in a lower-context subprofile by specifying both the subprofile and parameter names in the Set command. For example, you can set the Auth-Port value from the top level of the External-Auth profile as in the following example:

```
admin> set rad-auth-server auth-port = 514
```

Or, you can list the subprofile and then set parameter values as usual. For example:

```
admin> list rad-auth-server
[in EXTERNAL-AUTH:rad-auth-server]
auth-port = 0
auth-session-key = no
auth-attribute-type = rad-serv-attr-any
auth-client = [ 0.0.0.0 0.0.0.0 0.0.0.0 0.0.0.0 0.0.0.0 0.0.0.0 0.0.0.0+
auth-netmask = [ 0.0.0.0 0.0.0.0 0.0.0.0 0.0.0.0 0.0.0.0 0.0.0.0 0.0.0.+
auth-key = [ "" "" "" "" "" "" "" "" "" ]

admin> set auth-port = 514
```

## Parameters with array values

Parameters with array values behave similarly to subprofiles, in that you can list them and set parameter values, and then return to your previous context in the profile. However, arrays are not nested.

To see an example of profile contents that include array values, list the contents of the Rad-Auth-Server subprofile of the External-Auth profile:

```
admin> list rad-auth-server
[in EXTERNAL-AUTH:rad-auth-server]
auth-port = 0
auth-session-key = no
auth-attribute-type = rad-serv-attr-any
auth-client = [ 0.0.0.0 0.0.0.0 0.0.0.0 0.0.0.0 0.0.0.0 0.0.0.0 0.0.0.0+
auth-netmask = [ 0.0.0.0 0.0.0.0 0.0.0.0 0.0.0.0 0.0.0.0 0.0.0.0 0.0.0.+
auth-key = [ "" "" "" "" "" "" "" "" "" ]
```

### *Listing an array*

To move to the context of the individual array values of the Auth-Client parameter, specify the parameter name in the List command:

```
admin> list auth-client
[in EXTERNAL-AUTH:rad-auth-server:auth-client]
auth-client[1] = 0.0.0.0
auth-client[2] = 0.0.0.0
auth-client[3] = 0.0.0.0
auth-client[4] = 0.0.0.0
auth-client[5] = 0.0.0.0
auth-client[6] = 0.0.0.0
auth-client[7] = 0.0.0.0
auth-client[8] = 0.0.0.0
auth-client[9] = 0.0.0.0
```

### *Moving back up to the previous context*

To move back up to the previous context, type two periods after the List command:

```
admin> list ..
[in EXTERNAL-AUTH:rad-auth-server]
auth-port = 0
auth-session-key = no
auth-attribute-type = rad-serv-attr-any
```

```
auth-client = [ 0.0.0.0 0.0.0.0 0.0.0.0 0.0.0.0 0.0.0.0 0.0.0.0 0.0.0.0+
auth-netmask = [ 0.0.0.0 0.0.0.0 0.0.0.0 0.0.0.0 0.0.0.0 0.0.0.0 0.0.0.+
auth-key = [ "" "" "" "" "" "" "" "" "" ]
```

## Setting array values

You can set an array value from a higher context by specifying both the parameter name and the array index in the Set command. For example, you could set Auth-Client addresses from the Rad-Auth-Server subprofile of the External-Auth profile as follows:

```
admin> list rad-auth-server
[in EXTERNAL-AUTH:rad-auth-server]
auth-port = 0
auth-session-key = no
auth-attribute-type = rad-serv-attr-any
auth-client = [ 0.0.0.0 0.0.0.0 0.0.0.0 0.0.0.0 0.0.0.0 0.0.0.0 0.0.0.0+
auth-netmask = [ 0.0.0.0 0.0.0.0 0.0.0.0 0.0.0.0 0.0.0.0 0.0.0.0 0.0.0.+
auth-key = [ "" "" "" "" "" "" "" "" "" ]

admin> set auth-client 1 = 10.12.253.1

admin> set auth-client 2 = 10.12.253.56
```

Or, you could set the addresses from the top level of the External-Auth profile, as in the following example:

```
admin> list ..
[in EXTERNAL-AUTH]
auth-type = None
acct-type = none
rad-id-space = unified
rad-id-source-unique = system-unique
rad-serv-enable = no
rad-auth-client = { 0.0.0.0 0.0.0.0 0.0.0.0 0 0 "" no 0 no no no 0 yes +
rad-acct-client = { 0.0.0.0 0.0.0.0 0.0.0.0 0 0 "" 0 0 acct-base-10 0 0+
rad-auth-server = { 0 no rad-serv-attr-any [ 0.0.0.0 0.0.0.0 0.0.0.0 0.+
tac-auth-client = { 0.0.0.0 0.0.0.0 0.0.0.0 0 0 "" 0 }
tacplus-auth-client = { 0.0.0.0 0.0.0.0 0.0.0.0 0 0 "" 0 0 }
tacplus-acct-client = { 0.0.0.0 0.0.0.0 0.0.0.0 0 0 "" }
local-profiles-first = lpf-yes
noattr6-use-termsrv = yes

admin> set rad-auth-server auth-client 1 = 10.12.253.1

admin> set rad-auth-server auth-client 2 = 10.12.253.56
```

Or, you can list the array and then set array values by specifying the array index in the Set command. For example:

```
admin> list rad-auth-server auth-client
[in EXTERNAL-AUTH:rad-auth-server:auth-client]
auth-client[1] = 0.0.0.0
auth-client[2] = 0.0.0.0
auth-client[3] = 0.0.0.0
auth-client[4] = 0.0.0.0
auth-client[5] = 0.0.0.0
auth-client[6] = 0.0.0.0
auth-client[7] = 0.0.0.0
auth-client[8] = 0.0.0.0
auth-client[9] = 0.0.0.0
```

```
admin> set 1 = 10.12.253.1
admin> set 2 = 10.12.253.56
```

# Creating new profiles

There are two ways to create a new profile:

- Use the New command to create a default instance of the profile type.
- Create a copy of a configured profile by specifying a new index value.

## Using the New command

The New command uses the following syntax:

```
new profile-type [ profile-index ]
```

If you specify the profile-index on the command line, it is validated before use. For example:

```
admin> new t1 { 12 2 3 }
error: bad index: unknown value "12"

admin> new system foo
error: profile has no index
```

If you specify a legal index, it is applied to the new profile, which is read into the edit buffer:

```
admin> new t1 { 1 2 3 }
T1/{ shelf-1 slot-2 3 } read

admin> list
[in T1/{ shelf-1 slot-2 3 } (new)]
physical-address* = { shelf-1 slot-2 3 }
line-interface = { no d4 ami eligible middle-priority inband wink-start+
```

Depending on the profile type, the index chosen can affect the factory default values set in the profile. For example, if you specify the index `default` for a User profile, the factory default permission settings are as follows:

```
admin> new user default
USER/default read

admin> list
[in USER/default (new)]
name* = default
password = ""
active-enabled = yes
allow-termserv = no
allow-system = no
allow-diagnostic = no
allow-update = no
allow-password = no
allow-code = no
idle-logout = 0
prompt = *
default-status = no
top-status = general-info
bottom-status = log-window
```

```
left-status = connection-list
screen-length = 24
status-length = 18
use-scroll-regions = no
log-display-level = none
```

If you specify the index `admin` instead, the profile's factory-default permissions are set as follows:

```
admin> new user admin
USER/admin read
(New profile differs from saved version with same index.)

admin> list
[in USER/admin (new)]
name* = admin
password = ******
active-enabled = yes
allow-termserv = yes
allow-system = yes
allow-diagnostic = yes
allow-update = yes
allow-password = no
allow-code = yes
idle-logout = 0
prompt = *
default-status = no
top-status = general-info
bottom-status = log-window
left-status = connection-list
screen-length = 24
status-length = 18
use-scroll-regions = no
log-display-level = error
```

## Specifying a new index value for a configured profile

Another way to create new profiles is to read an existing profile into the edit buffer, modify its index and any other parameters as required, and then write the new profile. For example:

```
admin> read connection tim
CONNECTION/tim read

admin> set station = dave
(New index value; will save as new profile CONNECTION/dave.)

admin> set ip remote-address = 10.2.3.4/24

admin> write
CONNECTION/dave written
```

This method can be especially useful for configuring lines and ports. For example, if the eight lines on a T1 card all have a similar configuration, you can copy the parameter settings from one line to the next. For example:

```
admin> read t1 {1 1 1}
T1/{ shelf-1 slot-1 1 } read

admin> list
[in T1/{ shelf-1 slot-1 }]
```

```
physical-address* = { shelf-1 slot-1 1 }
line-interface = { no d4 ami eligible middle-priority inband wink-start +

admin> set physical-address = { 1 1 2}
(New index value; will save as new profile T1/{ shelf-1 slot-1 2 }.)

admin> write
T1/{ shelf-1 slot-1 2} written

admin> set physical-address = { 1 1 3}
(New index value; will save as new profile T1/{ shelf-1 slot-1 3 }.)

admin> write
T1/{ shelf-1 slot-1 3} written
```

# Viewing Status Information

# 4



## Commands for viewing status information

Table 4-1 shows some of the commands available for accessing system status and log information:

*Table 4-1. Commands for displaying status information*

| Command | Purpose |
|---|---|
| Callroute | Display entries in the call-routing database. |
| Fatal-History | Display the log of fatal errors that have occurred and the dates and times at which they occurred. |
| Debug | Toggle display of diagnostic messages on the screen in real time. |
| Userstat | Display user session status. |
| Show | Show which slot cards are installed and in which slots, or show information about a specific card. |
| HDLC | Report the status of each HDLC channel on a card, or display only channels that are in use, that have failed, or that are available. |
| Modem | Report the status of each modem on a card, or display only modems that are in use, that are suspect, or that are available. |
| Status | Display or hide the status window. If no status window has been opened, this command opens the default status window. If a status window has been opened previously and then closed, this command opens that status window. If a status window is currently open, this command closes the window. |

*Table 4-1. Commands for displaying status information (continued)*

| Command | Purpose |
|---|---|
| Connection | Display connection status in the window and interpret certain keystroke sequences to display additional connection status information. |
| Line | Display T1 line status in the window and interpret certain keystroke sequences to display additional line status information. |
| Log | Display event log information in the window and interpret certain keystroke sequences to display additional log messages. |
| View | Specify which area of the status window should display a particular kind of status information. Or, redisplay general status information. |

For information about these and other diagnostic or system-level commands, see the *MAX TNT Reference Guide*. To display the list of options each command supports, enter the command with no options. For example:

```
admin> callroute
usage: callroute -option [ params ]
       -ad list (a)vail (d)ual (net and host) side call routing entries
       -ah list (a)vail (h)ost-side call routing entries
       -an list (a)vail (n)etwork-side call routing entries
       -d  list call routing tables by (d)evice
       -t  (t)oggle module debug level
       -?  display this summary
```

# Getting information about the system

Some MAX TNT commands display real-time information about system activities. Other commands report more static information, such as the system software version. In addition, the MAX TNT maintains log buffers that record different levels of events. This section describes the following commands:

Callroute

Fatal-History

Debug

Userstat

## Displaying the call-routing database

The call-routing database determines how the MAX TNT routes calls to a modem or to an HDLC card for host-side processing. To display the database, use the Callroute command. For example, the following command displays database entries that route calls to host (modem or HDLC) ports:

```
admin> callroute -ah
  device     #  source        type          tg sa phone
 1:16:01/3   0 0:00:00/0  digital-call-type  0  0
 1:16:01/4   0 0:00:00/0  digital-call-type  0  0
 1:16:01/5   0 0:00:00/0  digital-call-type  0  0
```

```
 1:16:01/6   0 0:00:00/0  digital-call-type  0  0
 1:16:01/7   0 0:00:00/0  digital-call-type  0  0
 1:16:01/8   0 0:00:00/0  digital-call-type  0  0
 1:16:01/9   0 0:00:00/0  digital-call-type  0  0
 1:16:01/10  0 0:00:00/0  digital-call-type  0  0
 1:16:01/11  0 0:00:00/0  digital-call-type  0  0
 1:16:01/12  0 0:00:00/0  digital-call-type  0  0
 1:16:01/13  0 0:00:00/0  digital-call-type  0  0
 1:16:01/14  0 0:00:00/0  digital-call-type  0  0
 1:16:01/15  0 0:00:00/0  digital-call-type  0  0
 1:16:01/16  0 0:00:00/0  digital-call-type  0  0
 1:16:01/17  0 0:00:00/0  digital-call-type  0  0
 1:16:01/18  0 0:00:00/0  digital-call-type  0  0
 1:16:01/19  0 0:00:00/0  digital-call-type  0  0
 1:16:01/20  0 0:00:00/0  digital-call-type  0  0
 1:16:01/21  0 0:00:00/0  digital-call-type  0  0
 1:16:01/22  0 0:00:00/0  digital-call-type  0  0
 1:16:01/23  0 0:00:00/0  digital-call-type  0  0
 1:16:01/24  0 0:00:00/0  digital-call-type  0  0
[More? <ret>=next entry, <sp>=next page, <^C>=abort]
```

For details about call routing, see the *MAX TNT Hardware Installation Guide*.

## Checking the fatal error log

All fatal errors are logged to the fatal error history log. To display the events logged there, enter the Fatal-History command:

```
admin> fatal-history

FATAL ERROR:  Index:   1  Revision: 7.0.0    Slot 13 (tnt8t1)
        Date: 02/16/1998.      Time: 12:01:10
        Location: 1006f87c 10000068 10068384 10067cec 100677e0 100585dc

FATAL ERROR:  Index:   1  Revision: 7.0.0    Slot 13 (tnt8t1)
        Date: 02/16/1998.      Time: 12:25:10
        Location: 1006f87c 10000068 10068384 10067cec 100677e0 100585dc
```

Each entry shows the system software version (7.0.0 in the sample entries above), the slot on which the error occurred, and the date and time at which the error occurred. To clear the log, enter the Clr-History command:

```
admin> clr-history
```

## Toggling real-time log message display

Each User profile contains a Log-Display-Level parameter, which specifies the level of messages to be displayed immediately in the interface (as well as written to a log buffer). The Admin User profile sets this level to `error` by default, which means that messages indicating an error condition should be displayed immediately.

If you are working in the interface and need to temporarily turn off unlogged diagnostic output, use the Debug command. For example:

```
admin> debug off
Diagnostic output disabled
```

To turn it back on:

```
admin> debug on
Diagnostic output enabled.
```

## Displaying user-session status information

To show user-session status, enter the Userstat command with the `-s` option:

```
admin> userstat -s
SessionID  Line/Chan  Slot:Item  Tx/Rx Rate  Svc Address       Username
228687860  1.01.02/01 1:03:01/01 56K/56K     PPP 10.100.0.1    barney
228687861  1.02.03/02 1:04:02/00 28800/33600 PPP 10.168.6.24   jake

<end user list>  2 active user(s)
```

The SessionID field shows the unique ID assigned to the session.

The Line/Chan field shows the physical address (shelf.slot.line/channel) of the network port on which the connection was established (for example, a T1 line/channel).

The Slot:Item field shows shelf:slot:item/logical-item of host port to which the call was routed (for example, to a modem or HDLC-channel).

The Tx/Rx Rate fields show the transmit and receive rate, respectively. Note that for digital connections, the transmit rate is the same as the receive rate. Usually only modems use asymmetric data-rate connections.

The Svc field contains a three-letter code that shows the type of service in use for the session. (For details, see the *MAX TNT Reference Guide*.)

# *Getting information about slot cards*

This section provides a few examples of how to check the status of slot cards and the individual ports or channels on the card. The examples use the following commands:

Show

HDLC

Modem

**Note:** The HDLC and Modem sections describe commands for viewing information about individual modems and HDLC channels. They are representative of the kinds of status commands available for a variety of slot cards. For more specific information about these and other commands related to slot cards, see your online help.

## Using the Show command

The Show command displays information about the status of installed slot cards. For example:

```
admin> show
Shelf 1 ( standalone ):
    { shelf-1 slot-1 0 }       UP       8t1-card
    { shelf-1 slot-2 0 }       UP       48modem-card
    { shelf-1 slot-3 }         OCCUPIED
```

```
{ shelf-1 slot-4 0 }       UP       4ether-card
{ shelf-1 slot-5 0 }       UP       128hdlc-card
```

The status of a slot can be one of the following:

- UP (Normal operational mode.)
- DOWN (Not in an operational mode.)
- OCCUPIED (Slot 2 of a two-slot card.)
- POST (The devices in the card are running power-on self tests.)
- LOAD (The card is loading code as part of coming up.)
- NONE (The card has been swapped out, but its configuration remains in flash space.)

To display additional information about a card, append the shelf and slot number to the Show command.

## Checking the status of HDLC channels

The HDLC command displays detailed information about each of the channels on the card. You can use the command to find out which channels are available, if any channels are disabled or failed, or which channels are currently in use. For example, to see which HDLC channels are available for use, use the `-a` option:

```
admin> hdlc -a
HDLC channels available for use:
                                    (dvOp  dvUpSt  dvRq  sAdm)
  HDLC { {  1  5  1 }  1 }      (Up    Idle    UP    UP  )
  HDLC { {  1  5  1 }  2 }      (Up    Idle    UP    UP  )
  HDLC { {  1  5  1 }  3 }      (Up    Idle    UP    UP  )
  HDLC { {  1  5  1 }  4 }      (Up    Idle    UP    UP  )
  HDLC { {  1  5  1 }  5 }      (Up    Idle    UP    UP  )
  HDLC { {  1  5  1 }  6 }      (Up    Idle    UP    UP  )
  HDLC { {  1  5  1 }  7 }      (Up    Idle    UP    UP  )
  HDLC { {  1  5  1 }  8 }      (Up    Idle    UP    UP  )
  HDLC { {  1  5  1 }  9 }      (Up    Idle    UP    UP  )
  HDLC { {  1  5  1 } 10 }      (Up    Idle    UP    UP  )
  HDLC { {  1  5  1 } 11 }      (Up    Idle    UP    UP  )
  HDLC { {  1  5  1 } 12 }      (Up    Idle    UP    UP  )
  HDLC { {  1  5  1 } 13 }      (Up    Idle    UP    UP  )
  HDLC { {  1  5  1 } 14 }      (Up    Idle    UP    UP  )
  HDLC { {  1  5  1 } 15 }      (Up    Idle    UP    UP  )
  HDLC { {  1  5  1 } 16 }      (Up    Idle    UP    UP  )
  HDLC { {  1  5  1 } 17 }      (Up    Idle    UP    UP  )
  HDLC { {  1  5  1 } 18 }      (Up    Idle    UP    UP  )
  HDLC { {  1  5  1 } 19 }      (Up    Idle    UP    UP  )
  HDLC { {  1  5  1 } 20 }      (Up    Idle    UP    UP  )
  HDLC { {  1  5  1 } 21 }      (Up    Idle    UP    UP  )
[More? <ret>=next entry, <sp>=next page, <^C>=abort]
```

This output shows the interface address of each HDLC channel (six groups of 32 channels), followed by the operational status, up-state, required-state, and admin-state of each channel.

## Checking modem status

The Modem command reports the status of individual modems. You can use the command to find out which modems are available or in use, if there are any failed or suspect modems, and to obtain a list of modems that have been verified as not suspect and are available for use. For example, to list the non-suspect (good) modems, use the `-g` option:

```
admin> modem -g
Non-suspect modems available for use:
                        (dvOp  dvUpSt  dvRq  sAdm  mDis)
  Modem {  1 11  1 }    (Up    Idle    UP    UP    ENABLE  )
  Modem {  1 11  2 }    (Up    Idle    UP    UP    ENABLE  )
  Modem {  1 11  3 }    (Up    Idle    UP    UP    ENABLE  )
  Modem {  1 11  4 }    (Up    Idle    UP    UP    ENABLE  )
  Modem {  1 11  5 }    (Up    Idle    UP    UP    ENABLE  )
  Modem {  1 11  6 }    (Up    Idle    UP    UP    ENABLE  )
  Modem {  1 11  7 }    (Up    Idle    UP    UP    ENABLE  )
  Modem {  1 11  8 }    (Up    Idle    UP    UP    ENABLE  )
  Modem {  1 11  9 }    (Up    Idle    UP    UP    ENABLE  )
  Modem {  1 11 10 }    (Up    Idle    UP    UP    ENABLE  )
  Modem {  1 11 11 }    (Up    Idle    UP    UP    ENABLE  )
  Modem {  1 11 12 }    (Up    Idle    UP    UP    ENABLE  )
  Modem {  1 11 13 }    (Up    Idle    UP    UP    ENABLE  )
  Modem {  1 11 14 }    (Up    Idle    UP    UP    ENABLE  )
  Modem {  1 11 15 }    (Up    Idle    UP    UP    ENABLE  )
  Modem {  1 11 16 }    (Up    Idle    UP    UP    ENABLE  )
[More? <ret>=next entry, <sp>=next page, <^C>=abort]
```

This output shows the address of each modem, the operational state (UP or DOWN) the status (Idle or Active), SNMP interface information, and whether the modem has been disabled.

# *Working with the status window*

The MAX TNT generates a continuous stream of statistics about its activities. You can specify in a User profile that these statistics should always be displayed when a user logs in with that profile. Or, you can simply display the status window on demand.

You can also specify in a User profile which status information to display in each of the three areas of the status window. Figure 4-1 shows the default settings.

To display the status window and control what information is contained in which part of the window, use the following commands:

Status

Connection

Line

Log

View

**Note:** Opening the status window requires an 80-column by 24-row VT100 window.

## Opening and closing the status window

The status window has three main areas:

- Left—the left side of the window
- Top—the upper-right side of the window
- Bottom—the lower-right side of the window

To redraw your VT100 window to display the status window, enter the Status command:

```
admin> status
```

The system prompt moves to just below the status window. To close the status window, enter the command again:

```
admin> status
```

If the system prompt is not visible below the status window, press Escape to display it.

## Default contents of the window

Figure 4-1 shows the default contents of the status window:

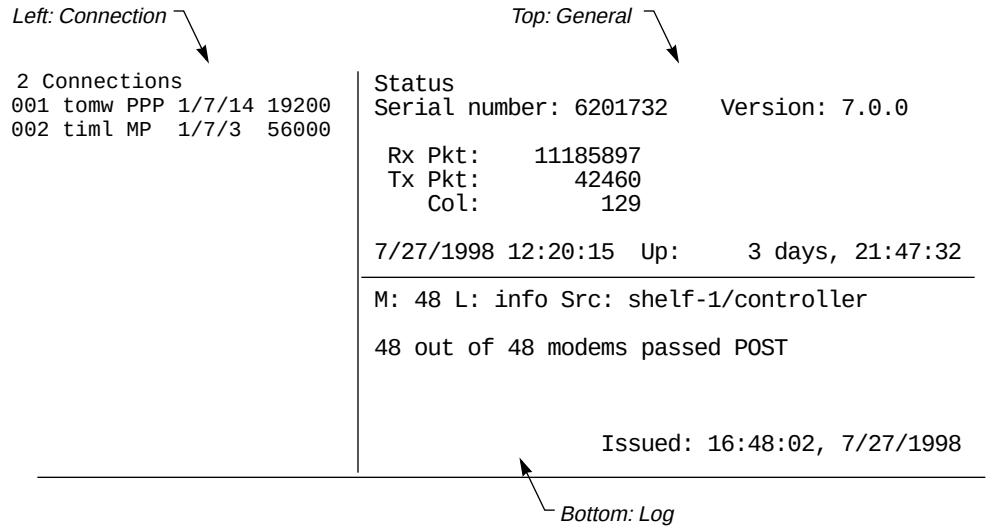


*Figure 4-1. Information in the status window*

The default contents are determined by the following settings in a User profile:

```
left-status = connection-list
top-status = general-info
bottom-status = log-window
```

You can change these defaults by modifying your User profile.

## Connection status information

With the default setting in a User profile, the left area of the status window initially displays connection information, as shown in Figure 4-1. One line appears for each active connection, showing the user or station name, type of connection, T1 shelf/line/channel on which the call was placed or received, and the bandwidth or baud rate of the connection.

If the status window is not already displayed, the Connection command opens it with the connection-status information displayed:

```
admin> connection
```

In effect, this command puts the window in connection-status mode, with the following message displayed below the status window:

```
[ Next/Last Conn: <dn/up arw>, Next/Last Page: <pg dn/up>, Exit: <esc> ]
```

This message indicates the keystroke sequences you can use for displaying additional information in the Connection status area. The Down Arrow and Up Arrow keys display the next or previous connection in the list of active connections. The Page Down and Page Up keys display the list a screen at a time.

When the connection-status mode message is displayed, the system prompt does not appear at the bottom of the window. Press the Escape key to exit this mode and return to the system prompt.

## General status information

With the default setting in a User profile, the top area of the status window initially displays general status information about the MAX TNT, including its serial number, the version of system software that is running, and the number of packets transmitted and received. This area also shows the current system date and time and how long the system has been up.

If the top of the status window is displaying another kind of information, such as T1 line information, you can redisplay the general status information with the View command:

```
admin> view top general
```

## Log messages

With the default setting in a User profile, the bottom area of the status window initially displays the most recent message from the MAX TNT log buffer. The number of system event messages stored in the log is specified by the Save-Number parameter in the Log profile.

If the status window is not already displayed, the following Log command:

```
admin> log
```

opens it, with log-message information displayed in the bottom of the window.

Or, you can use the following command to specify that log messages appear in the top of the window instead, replacing the general status information:

```
admin> log top
```

In effect, these commands put the window in log mode, which displays the following message below the status window:

```
[ Back:<up arw>, Forward:<dn arw>, Start:<pg up>, End:<pg dn>, Exit: <esc> ]
```

This message indicates the key sequences you can use for displaying additional information in the Log area. The Down Arrow and Up Arrow keys display the next and previous message in the buffer, respectively. The Page Up and Page Down keys display the last and first message in the buffer, respectively.

When the log-mode message is displayed, the system prompt does not appear at the bottom of the window. Press the Escape key to exit this mode and return to the system prompt.

## T1 line information

To view information about WAN lines and channels (for example, T1, E1, SWAN, T3, and so forth), use the Line command. Because space is so limited for this graphical display of line and channel status information, the line-status window uses identifiers and codes. For example, the line's link status uses a two-character code such as LA (link active), RA (red alarm), YA (yellow alarm), and so forth. For details, see the *MAX TNT Reference Guide*.

If the status window is not already displayed, the following Line command opens it with T1 line status information displayed in the bottom (lower-right) of the window:

```
admin> line
```

Or, you can use the following command to specify that the line-status information appear in the top of the window instead, replacing the general status information:

```
admin> line top
```

You can view information about all T1 lines installed in the system if you wish, but the default is to show information only about enabled lines. To view the status of all lines:

```
admin> line all
```

In effect, the Line commands put the window in line-status mode, which displays the following message below the status window:

```
[ Next/Last Line: <dn/up arw>, Next/Last Page: <pg dn/up>, Exit: <esc> ]
```

This message indicates the key sequences you can use for displaying additional information in the line status area. The Down Arrow and Up Arrow keys display the next or previous T1 line in the list. The Page Down and Page Up keys display the list a screen at a time.

When the line-status mode message is displayed, the system prompt does not appear at the bottom of the window. Press the Escape key to exit this mode and return to the system prompt.

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