



TAOS

Command-Line Interface Guide

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About This Guide

What is in this guide

This guide shows you how to use the True Access™ Operating System (TAOS) command-line interface. It describes how to enter commands to modify profiles and parameters, provides tips on command-line shortcuts, and shows how to display status information at the command-line interface.

This manual hereafter refers to your product as a *TAOS unit*.

This guide assumes that you have already installed the TAOS unit and connected a workstation or an ANSI-compatible terminal to the controller's serial port. If you have not already finished those tasks, please see the unit's hardware installation guide.



Note This guide describes the full set of features for TAOS units running software version 9.4-185.1. Some features might not be available with earlier versions or specialty loads of the software.



Warning Before installing your unit, be sure to read the safety instructions in the *Edge Access and Broadband Access Safety and Compliance Guide*. For information specific to your unit, see the "Safety-Related Electrical, Physical, and Environmental Information" appendix in your unit's hardware installation guide or *Getting Started Guide*.

What you should know

This guide is intended for the person who will configure and maintain the TAOS unit. To use it effectively, you must have a basic understanding of your unit's security and configuration, and be familiar with authentication servers and networking concepts.





Documentation conventions

Following are all the special characters and typographical conventions used in this guide:

Convention	Meaning
Monospace text	Represents text that appears on your computer's screen, or that could appear on your computer's screen.

About This Guide

Documentation conventions

Convention	Meaning
Boldface monospace text	Represents characters that you enter exactly as shown (unless the characters are also in <i>italics</i> —see <i>Italics</i> , below). If you could enter the characters but are not specifically instructed to, they do not appear in boldface.
<i>Italics</i>	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 boldface.
	Separates command choices that are mutually exclusive.
>	Separates levels of profiles, subprofiles, and parameters in a hierarchical menu when the path to a menu item is referred to in the text.
:	Separates levels of profiles, subprofiles, and parameters in a pathname displayed in the command-line interface or referred to in text.
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 Ctrl key and press the H key.)
Press Enter	Means press the Enter or Return key or its equivalent.
 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.
 Warning	Warns of danger of electric shock.

Getting Started



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The login process determines which commands are available to you. You can easily list the commands, or get help for a specific command. When you become familiar with the interface, you can use command-line shortcuts to substantially lower the number of keystrokes you have to enter.

Logging in

The first step in accessing the command line is to log in to the system. When the TAOS unit is configured, you can log in from an ANSI-compatible terminal connected to the unit's serial port, or you can log in over the network by means of Telnet. When you log in, you are prompted for a username:

User:

If you are logging in to a new system for the first time, enter the default username (`admin`) and the default password (`Ascend`).

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. Most of the examples show 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>
```

Getting Started

What commands are available?

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` argument to the `help` command.

```
admin> ?
?                ( user )
arptable         ( system )
atmLines         ( system )
atmsvcroute      ( system )
auth             ( user )
bgp              ( system )
briChannels      ( system )
cadslLines       ( system )
callroute        ( diagnostic )
cat              ( system )
cgCtrl           ( system )
clear            ( user )
cleval           ( system )
clock-source     ( diagnostic )
clr-history      ( system )
connection       ( system )
dadslLines       ( system )
date             ( user )
debug            ( diagnostic )
delete           ( update )
device           ( diagnostic )
dir              ( system )
[More? <ret>=next entry, <sp>=next page, <^C>=abort]
```

The last line in the sample output shows your options for displaying additional output:

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

If you are not sure of the name of a command, type the first few letters of the command to generate a precise list. For example:

```
admin> ? de
debug          ( diagnostic )
delete        ( update )
device        ( diagnostic )
```

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

Table 1-1. 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



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 2, “Working with Profiles.”

Command-line shortcuts

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

Using abbreviations

When you enter a command, you can type just enough characters to specify a unique string. The TAOS unit 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 [-r vRouterName] <destination/size> <gateway> [ pref ]
[ metric ]
iproute delete [-r vRouterName] <destination/size> [gateway]

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

The same principle applies when you specify a profile name. For example, entering the following command results in an error message, because the string is not unique:

```
admin> dir ip
```

The prefix `ip` is common to both the `ip-route` and `ip-interface` profiles. You must enter the entire profile name to display information about these profiles. For example:

```
admin> dir ip-route
21 02/22/2001 15:58:17 default
14 08/27/2001 12:19:01 alameda
```

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 srb.bin
admin> load b n host1 srb.bin
```

Editing a command line

Table 1-2 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 1-2. Control sequences for editing command lines (page 1 of 2)

Control sequence	Effect
Ctrl-H, Backspace, or Delete	Erases the previous character.
Ctrl-D	Erases the current character.
Ctrl-W	Erases the previous (space-delimited) word.
Ctrl-U	Erases the entire line.
Ctrl-K	Erases the rest of the line, starting with the cursor position.
Ctrl-C	Echoes Control-C, terminates the input, and returns Control-C character input (aborts input).

Table 1-2. Control sequences for editing command lines (page 2 of 2)

Control sequence	Effect
Ctrl-P or Up Arrow	Recalls the previous line from the command history buffer.
Ctrl-N or Down Arrow	Recalls the next line. This sequence is valid only if Ctrl-P or Up Arrow has been used to recall a previous line.
Ctrl-B or Left Arrow	Backs up the cursor one position without deleting a character. If you then type regular characters, they are inserted in the line.
Ctrl-F or Right Arrow	Moves the cursor one position to the right, unless at the end of a line.
Ctrl-A	Goes to the beginning of the line.

Reusing commands (command history)

The command history buffer is a file containing the last 20 command lines. When you press Enter to execute a command, the new command is added to the history buffer. If more than 20 commands have already been entered, the oldest command is discarded from the history buffer.

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 1-4.

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

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

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

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

The cursor is at the end of the line. If you want to replace the 1 in the interface address with a 2, for example, press the Left Arrow key until the cursor is at the right edge of the 1. Then, press Delete, and press 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

Chapter 2, “Working with Profiles,” describes how to work with profiles and set TAOS configuration parameters. It also provides an example of how to combine command-line shortcuts 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 2-13.)

Working with Profiles



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Commands for working with profiles

A profile is a group of configuration parameters related to a particular purpose. For example, Chapter 1, “Getting Started” introduced user profiles. You can set parameters in a user profile to define a user’s access to the TAOS unit.

Recall that TAOS recognizes multiple user profiles. Each user profile must therefore have an *index* to distinguish it from other profiles of the same type. You can work on only one profile at a time. Before you can modify a profile, you must make it the *working* profile by reading the profile into the system’s edit buffer. Within a profile, you might want to navigate through multiple levels of nested subprofiles, referred to as *contexts*. You can also create new profiles, but not new types of profiles.

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. Table 2-1 lists TAOS commands related to working at the directory level with profiles.

Table 2-1. Directory-level commands (page 1 of 2)

Command	Purpose
dir	Displays a directory listing of profiles.
delete	Deletes a profile.
get	Displays the contents of any profile or subprofile without modifying the working profile.
new	Creates a new default instance of a specified profile type and makes it the working profile.

Table 2-1. Directory-level commands (page 2 of 2)

Command	Purpose
read	Reads a profile into the edit buffer, where it can be modified. Reading a profile makes it the working profile.

Table 2-2 lists TAOS commands that operate only on the working profile.

Table 2-2. 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	Saves the contents of the edit buffer to flash memory.

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 or subprofile. For example, the following line identifies a `connection` profile. Because your system can save multiple `connection` profiles, the display includes the profile's index (in this case, `john`):

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

If you move to a subprofile, the message also includes the name of the subprofile. For example:

```
[in CONNECTION/john:ip-options]
```

When you create a profile by using the `new` command, the `list` message indicates that the profile is new. The listing also identifies the profile's index by displaying an asterisk (*) next to the parameter that specifies it. For example:

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

admin> list
[in CONNECTION/john (new)]
station* = john
active = no
encapsulation-protocol = mpp
called-number-type = national
dial-number = ""
subaddress = ""
clid = ""
ip-options = { yes yes 0.0.0.0/0 0.0.0.0/0 1 60 120 no no 0 0.0.0.0 +
ipx-options = { no router-peer both both no 00:00:00:00 00:00:00:00 "" no [+
bridging-options = { 0 no }
session-options = { "" "" no no 120 no-idle 120 "" 0 disabled autobaud +
telco-options = { ans-and-orig no off 1 no no 56k-clear 0 "" "" no no 0 any }
ppp-options = { no-ppp-auth none "" "" "" "" stac 1524 no 600 600 no +
```

```
mp-options = { 1 1 2 no no }
mpp-options = { "" quadratic transmit 1 1 15 5 10 70 }
fr-options = { "" pvc 16 "" transparent-link no "" 16 "" }
tcp-clear-options = { "" 0 "" 0 "" 0 "" 0 no "" 256 20 }
x75-options = { 7 10 1000 1024 }
usrRad-options = { global 0.0.0.0 1646 "" 1 acct-base-10 }
calledNumber = ""
dhcp-options = { no 1 4 }
shared-prof = no
max-shared-users = 0
framed-only = no
tunnel-options = { disabled atmp-protocol 0 rip-off "" "" 5150 "" "" "" "" +
vrouter = ""
atm-options = { aal5-llc 0 32 no "" none 1 { no { undefined "" { undefined {+
hdlc-nrm-options = { 2000 2 60000 5000 2 yes yes 255 }
visa2-options = { 10000 04 06 15 05 03 00:03:00:00 }
sdtn-packets-server = no
AT-string = ""
port-redirect-options = { none 0 0.0.0.0 }
modem-on-hold-timeout = conn-profile-use-global
priority-options = { none none 73 0 0 60 }
tos-copying = no
```



Note A plus sign at the end of a line indicates that more settings are contained in the subprofile than can be displayed on one line.

If you use a `set` command to change a profile, the message also indicates that the current profile has been changed. For example:

```
admin> set active = yes

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 a previously saved profile already uses the new index, the TAOS unit displays a 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 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 contents have changed.

Profile types and indexes

A TAOS unit supports different types of profiles. For example, a connection profile contains parameters related to a WAN connection, and an ethernet profile contains parameters related to an Ethernet interface. To display a list of the profile types on your system, use the `dir` command. For example:

```
admin> dir
ADMIN-STATE-PERM-IF  SNMP Permanent Interface Admin State
ADMIN-STATE-PHYS-IF  SNMP Physical Interface Admin State
ANSWER-DEFAULTS      Answer profile
ATM-INTERFACE        ATM interface parameters
ATMP                 ATMP profile
ATMSVC-ROUTE         Static ATM SVC routes
BASE                 System version and enabled features
BGP-GLOBAL           BGP global profile
BGP-PEER             BGP peer profile
BGP-POLICY           BGP policy profile
BGP-SUMMARIZATION    BGP summary profile
CALL-LOGGING         Call logging
CALL-ROUTE           Call routing attributes
CALL-SWITCHING       Attributes for pass-through and net-to-net switching
CONNECTION           Connection (WAN) profiles
DEVICE-STATE         Device Operational State
DEVICE-SUMMARY       Device availability summary information
DNIS                 Configure call parameters based on the dialed number
DS3-ATM              Ds3-Atm line parameters
DS3-ATM-STAT         DS3 ATM line status
E3-ATM               E3-Atm line parameters
E3-ATM-STAT          E3 ATM line status
[More? <ret>=next entry, <sp>=next page, <^C>=abort]
```

When you use the `dir` command, the left column of the output shows a list of profile types in the system, and the right column describes the purpose of each profile type. In many cases, your system contains more than one profile of a given type. Each profile of the same type must have a unique index, which can 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 10/07/2001 12:49:24 default
33 10/08/2001 14:20:28 admin
```

In the 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, routes, and logins

Profiles related to sessions, routes, 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 administrator assigns names to index these profiles, which include the following types (shown as displayed by the help system):

CONNECTION	Connection (WAN) profiles
IP-ROUTE	Static IP routes
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-width = 80
screen-length = 24
status-length = 18
use-scroll-regions = no
log-display-level = none
```

When you list a user profile's contents, the asterisk next to the name parameter indicates that the name specification is the profile's index.

Systemwide 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. Systemwide profiles include the following (shown as displayed by the help system):

EXTERNAL-AUTH	External authentication info
IP-GLOBAL	Global TCP/IP parameters
SNMP	SNMP configuration
SYSTEM	System-wide basic parameters
TERMINAL-SERVER	Terminal server parameters

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

```
admin> get snmp
[in SNMP]
enabled = no
read-community = public
read-write-enabled = no
read-write-community = write
enforce-address-security = no
contact = ""
location = ""
queue-depth = 0
csm-modem-diag = no
snmp-message-type = v1-and-v3
security-level = none
enable-vacm = no
early-queue-discard = no
notification-log-age-out = 0
```

Profiles for configuring physical devices

Profiles related to configuring physical devices are created by the system when it first detects the presence of a particular slot card or module. These profiles are indexed by their physical address within the system. Each type of card or built-in port has a related profile type. For example:

ETHERNET	Ethernet Interfaces Configuration
SERIAL	Serial interfaces
T1	DS1 line parameters

For example, suppose you install an eight-port T1 card in slot 1 of a MAX TNT® unit. The system creates the following profiles:

```
admin> dir t1
162 01/13/2002 10:53:53 { shelf-1 slot-1 1 } ""
162 03/14/2001 15:01:33 { shelf-1 slot-1 2 } ""
162 03/14/2001 15:01:42 { shelf-1 slot-1 3 } ""
165 01/13/2002 10:53:53 { shelf-1 slot-1 4 } ""
165 01/13/2002 10:53:53 { shelf-1 slot-1 5 } ""
165 01/13/2002 10:53:53 { shelf-1 slot-1 6 } ""
165 01/13/2002 10:53:53 { shelf-1 slot-1 7 } ""
165 01/13/2002 10:53:53 { shelf-1 slot-1 8 } ""
```

Each device in the unit has a physical address composed of its shelf number, slot number, and item number. The shelf number is always 1.

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. You can also create new ip-interface profiles with unique logical-item numbers, and you can delete them when they are no longer needed.



Caution Although you can delete ip-interface profiles, you must 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.

Each ip-interface profile is indexed by an interface address within the TAOS unit.

Using ip-interface profiles on an APX™ unit

To list the ip-interface on your system, enter `dir ip-interface`. For example:

```
admin> dir ip-interface
 32 01/13/2002 10:52:39 { { any-shelf any-slot 0 } 0 }
 21 01/13/2002 10:52:39 { { shelf-1 slot-15 1 } 0 }
 21 01/13/2002 10:52:39 { { shelf-1 slot-15 2 } 0 }
 21 01/13/2002 10:52:39 { { shelf-1 slot-15 3 } 0 }
 21 01/13/2002 10:52:39 { { shelf-1 slot-15 4 } 0 }
 35 01/13/2002 15:56:06 { { shelf-1 left-controller 1 } 0 }
 35 01/13/2002 10:52:39 { { shelf-1 right-controller 1 } 1 }
```

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

```
{ { shelf-1 slot-N item-N } logical-item-N }
{ { shelf-1 left-controller item-N } logical-item-N }
{ { shelf-1 right-controller item-N } logical-item-N }
```

The shelf number is always 1. The logical-item number addresses a specific logical interface. The number is 0 (zero) for the default ip-interface profile created by the system. If you configure additional logical interfaces, the logical-item number of the profile index does not necessarily have to be contiguous, but it must be unique.

To access an ip-interface profile, you must specify its full interface address, as in the following example:

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

When you list the profile's contents, an asterisk appears next to the interface-address parameter, indicating that this value 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 ascend0 0 1 16777215 type-1+
multicast-allowed = no
multicast-rate-limit = 100
multicast-group-leave-delay = 0
directed-broadcast-allowed = yes
vrouter = ""
management-only-interface = no
```



Note The logical-item address syntax explained in this section also applies to individual items on a line or port. For example, the syntax applies to 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.

Using ip-interface profiles on a MAX TNT® unit

To list the ip-interface profiles on your system, enter `dir ip-interface`. For example:

```
admin> dir ip-interface
 32 01/13/2002 10:52:39 { { any-shelf any-slot 0 } 0 }
 21 01/13/2002 10:52:39 { { shelf-1 slot-15 1 } 0 }
 21 01/13/2002 10:52:39 { { shelf-1 slot-15 2 } 0 }
 21 01/13/2002 10:52:39 { { shelf-1 slot-15 3 } 0 }
 21 01/13/200210:52:39 { { shelf-1 slot-15 4 } 0 }
 35 01/13/2002 15:56:06 { { shelf-1 controller 1 } 0 }
 35 01/13/2002 10:52:39 { { shelf-1 controller 1 } 1 }
```

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

```
{ { shelf-1 slot-N item-N } logical-item-N }
```

The shelf number is always 1. The logical-item number addresses a specific logical interface. The number is 0 (zero) for the default ip-interface profile created by the system. If you configure additional logical interfaces, the logical-item number of the profile index does not necessarily have to be contiguous, but it 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 see an asterisk next to the interface-address parameter, indicating that this value 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 ascend0 0 1 16777215 type-1+
multicast-allowed = no
multicast-rate-limit = 100
multicast-group-leave-delay = 0
directed-broadcast-allowed = yes
vrouter = ""
management-only-interface = no
```



Note The logical-item address syntax explained in this section also applies to individual items on a line or port. For example, the syntax applies to 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.

Using ip-interface profiles on a Stinger® unit

To list the ip-interface on your system, enter `dir ip-interface`. For example:

```
admin> dir ip-interface
    32 01/13/2002 10:52:39 { { any-shelf any-slot 0 } 0 }
    21 01/13/2002 10:52:39 { { shelf-1 first-control-module 1 } 0 }
    21 01/13/2002 10:52:39 { { shelf-1 second-control-module 1 } 0 }
```

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

```
{ { shelf-1 slot-N item-N } logical-item-N }
{ { shelf-1 first-control-module item-N } logical-item-N }
{ { shelf-1 second-control-module item-N } logical-item-N }
```

The shelf number is always 1. The designations `first-control-module` and `second-control-module` refer to slot positions 8 and 9 respectively, not the primary or secondary status of each control module. The logical-item number addresses a specific logical interface. The number is 0 (zero) for the default `ip-interface` profile created by the system. If you configure additional logical interfaces, the logical-item number of the profile index does not necessarily have to be contiguous, but it must be unique.

To access an ip-interface profile, you must specify its full interface address, as in the following example:

```
admin> read ip-interface { { shelf-1 first-control-module 1 } 0 }
IP-INTERFACE/{ { shelf-1 first-control-module 1 } 0 } read
```

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

```
admin> list
[in IP-INTERFACE/{ { shelf-1 first-control-module 1 } 0 }]
interface-address* = { { shelf-1 first-control-module 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 ascend0 0 1 16777215 type-1 +
multicast-allowed = no
multicast-rate-limit = 100
multicast-group-leave-delay = 0
directed-broadcast-allowed = yes
vrouter = ""
management-only-interface = no
```



Note The logical-item address syntax explained in this section also applies to individual items on a line or port. For example, the syntax applies to 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.

Profiles for routing calls to a device or item

The system's 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.

The system has one default call-route profile that prevents it from disconnecting calls. In addition, when the system detects the presence of a host slot card or module (such as a modem or HDLC card), it creates a default call-route profile for routing calls to that slot. You can also create any number of call-route profiles, and you can delete them when they are no longer needed. An index for a call-route profile uses the following format:

```
{ { { shelf-1 slot-N item-N } logical-item-N } entry-N }
```

The entry number is zero unless you create additional profiles for the specified address. To display the list of call-route profiles, enter the dir command as in the following example:

```
admin> dir call-route
 30 01/13/2002 10:52:46 { { { any-shelf any-slot 0 } 0 } 0 }
 33 01/13/2002 10:52:46 { { { shelf-1 slot-1 0 } 0 } 0 }
 33 01/13/2002 10:52:46 { { { shelf-1 slot-2 0 } 0 } 0 }
 33 01/13/2002 10:52:46 { { { shelf-1 slot-4 0 } 0 } 0 }
 44 01/13/2002 10:52:46 { { { shelf-1 slot-16 0 } 0 } 0 }
```

To access a call-route profile, you must specify its full index. For example:

```
admin> read call-route { { { 1 2 0 } 0 } 0 }
CALL-ROUTE/{ { { shelf-1 slot-2 0 } 0 } 0 } read
```

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

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

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 2-20.

Reading 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, as in the following example:

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

If you issue a `read` or `new` command that will 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 appending the `-f` (force) argument to the `read` or `new` command.

Writing a profile

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 you have not modified the working profile from the saved version, the system does not perform the write operation, and the following message appears:

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

You can force the system to write the unchanged profile by appending the `-f` (force) argument to the `write` command. Note that the system always writes a profile that 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-width = 80
screen-length = 24
status-length = 18
use-scroll-regions = no
log-display-level = none

```

For more information about profile contents, see “Changing contexts in the working profile” on page 2-14.

Parameter types and syntax

Table 2-3 shows parameter types with examples of correct syntax and descriptions of their use.

Table 2-3. Parameter types and syntax (page 1 of 2)

Type	Syntax example	Description
Text	<code>station = test</code>	For some text values, the online help includes a list of valid characters. You can enter some text values in mixed case. Others (such as index fields) are converted to lowercase when set. When the value is allowed to contain spaces or quotation marks (" "), it is displayed in quotation marks by the <code>list</code> or <code>get</code> command. Password fields are displayed as asterisks unless the user has <code>allow-password</code> permissions.
Number	<code>dial-number = 1212</code>	Always displayed in decimal notation, but you can enter the value in hexadecimal if you precede it with <code>0x</code> , or in octal if you precede it with <code>0</code> . In either case, use a zero, not the letter <code>O</code> .

Table 2-3. Parameter types and syntax (page 2 of 2)

Type	Syntax example	Description
Enumerated	<code>rip = routing-off</code>	Supports a limited set of values, all of which are displayed in the online help. You can specify the minimum matching string or the full value name.
Boolean	<code>private-route = yes</code>	Allows only two values, which are shown in the online help. The values can be true/false or yes/no.
Hexadecimal	<code>mac-address = 00:c0:6c:4e:ac:5a</code>	Must be entered in hexadecimal notation (<i>nn:nn:nn:..:nn</i>), where each <i>n</i> is a hexadecimal number from 0 to F.
IP address	<code>ip-address = 10.2.3.4/24</code>	Always displayed and entered in dotted decimal notation. A subnet mask is optional.
Complex	<code>mp-options = { 1 1 2 }</code>	Represents a subprofile and its values. (See “Changing contexts in the working profile” on page 2-14.)

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> set host = 10.1.2.3
admin> set port = 500
```

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. Proceed 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 1-3.)

- 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, consider the following two values:

```
auth-server-1 = 10.12.253.1
```

```
auth-server-2 = 10.12.253.56
```

Proceed as follows:

- 1 Enter the first of the similar set commands. For example:**

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

- 3 Press Delete and then enter 56:**

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

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

```
admin> set auth-server-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 can also contain subprofiles, which themselves can contain subprofiles, creating several nested levels or *contexts* within the profile.

When you display a profile, a parameter that has a single value appears as follows:

```
parameter = value
```

A subprofile has multiple values enclosed in a single pair of braces:

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

To specify 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 display an example of profile contents that include subprofiles, read a connection profile into the edit buffer and list its contents. For example:

```
admin> read connection tim
```

```
CONNECTION/tim read
admin> list
[in CONNECTION/tim]
station* = tim
active = no
encapsulation-protocol = mpp
called-number-type = national
dial-number = ""
subaddress = ""
clid = ""
ip-options = { yes yes 0.0.0.0/0 0.0.0.0/0 1 60 120 no no 0 0.0.0.0 +
ipx-options = { no router-peer both both no 00:00:00:00 00:00:00:00 "" no [+
bridging-options = { 0 no }
session-options = { "" "" no no 120 no-idle 120 "" 0 disabled autobaud +
telco-options = { ans-and-orig no off 1 no no 56k-clear 0 "" "" no no 0 any }
ppp-options = { no-ppp-auth none "" "" "" "" stac 1524 no 600 600 no +
mp-options = { 1 1 2 no no }
mpp-options = { "" quadratic transmit 1 1 15 5 10 70 }
fr-options = { "" pvc 16 "" transparent-link no "" 16 "" }
tcp-clear-options = { "" 0 "" 0 "" 0 "" 0 no "" 256 20 }
x75-options = { 7 10 1000 1024 }
usrRad-options = { global 0.0.0.0 1646 "" 1 acct-base-10 }
calledNumber = ""
dhcp-options = { no 1 4 }
shared-prof = no
max-shared-users = 0
framed-only = no
tunnel-options = { disabled atmp-protocol 0 rip-off "" "" 5150 "" "" "" "" +
vrouter = ""
atm-options = { aal5-llc 0 32 no "" none 1 { no { undefined "" { undefined {+
hdlc-nrm-options = { 2000 2 60000 5000 2 yes yes 255 }
visa2-options = { 10000 04 06 15 05 03 00:03:00:00 }
sdtm-packets-server = no
AT-string = ""
port-redirect-options = { none 0 0.0.0.0 }
modem-on-hold-timeout = conn-profile-use-global
priority-options = { none none 73 0 0 60 }
tos-copying = no
```

Listing a subprofile

To move to the context of a subprofile, append the subprofile's name to the `list` command. For example, with a connection profile as the working profile, you can move to the `ip-options` subprofile, as in the following:

```
admin> list ip-options
[in CONNECTION/tim:ip-options]
ip-routing-enabled = yes
vj-header-prediction = yes
remote-address = 0.0.0.0/0
local-address = 0.0.0.0/0
routing-metric = 1
preference = 60
down-preference = 120
private-route = no
multicast-allowed = no
address-pool = 0
ip-direct = 0.0.0.0
rip = routing-off
route-filter = ""
source-ip-check = no
ospf-options = { no 0.0.0.0 normal 30 120 5 simple ascend0 0 10 1000 type-1 +
multicast-rate-limit = 100
multicast-group-leave-delay = 0
client-dns-primary-addr = 0.0.0.0
client-dns-secondary-addr = 0.0.0.0
client-dns-addr-assign = yes
client-default-gateway = 0.0.0.0
tos-options = { no 000 normal incoming precedence-tos 00 }
tos-filter = ""
client-wins-primary-addr = 0.0.0.0
client-wins-secondary-addr = 0.0.0.0
client-wins-addr-assign = yes
private-route-table = ""
private-route-profile-required = no
```

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, as in the following example:

```
admin> list ..
[in CONNECTION/tim:ip-options]
ip-routing-enabled = yes
vj-header-prediction = yes
remote-address = 0.0.0.0/0
local-address = 0.0.0.0/0
routing-metric = 1
preference = 60
down-preference = 120
private-route = no
multicast-allowed = no
address-pool = 0
```

```
ip-direct = 0.0.0.0
rip = routing-off
route-filter = ""
source-ip-check = no
ospf-options = { no 0.0.0.0 normal 30 120 5 simple ascend0 0 10 1000 type-1 +
multicast-rate-limit = 100
multicast-group-leave-delay = 0
client-dns-primary-addr = 0.0.0.0
client-dns-secondary-addr = 0.0.0.0
client-dns-addr-assign = yes
client-default-gateway = 0.0.0.0
tos-options = { no 000 normal incoming precedence-tos 00 }
tos-filter = ""
client-wins-primary-addr = 0.0.0.0
client-wins-secondary-addr = 0.0.0.0
client-wins-addr-assign = yes
private-route-table = ""
private-route-profile-required = no
```

As in a file system, the two periods 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 two periods repeatedly in the `list` command line.

Setting parameters in a subprofile

You can set a parameter in a lower-context subprofile by specifying both the subprofile and parameter names in the `set` command line. For example, you can set the `auth-port` parameter from the top level of the `external-auth` profile as follows:

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

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

```
admin> list rad-auth-client
[in EXTERNAL-AUTH:rad-auth-client]
auth-host-1 = ""
auth-host-2 = ""
auth-host-3 = ""
auth-port = 0
auth-src-port = 0
auth-key = ""
auth-pool = no
auth-timeout = 1
auth-rsp-required = no
auth-id-fail-return-busy = no
auth-id-timeout-return-busy = no
auth-sess-interval = 0
auth-ts-secure = yes
auth-send67 = yes
auth-frm-adr-start = no
auth-boot-host = 0.0.0.0
auth-boot-host-2 = 0.0.0.0
auth-boot-port = 0
auth-reset-time = 0
auth-id-max-retry-time = 0
```

Working with Profiles

Changing contexts in the working profile

```
auth-radius-compat = old-ascend
auth-keep-user-name = change-name
auth-realm-delimiters = /\@%
id-auth-prefix = ""
allow-auth-config-rqsts = yes
auth-req-delim-count = 0
auth-req-strip-side = none
auth-network-route-server = yes
id-auth-prefix-x25 = ""
allow-unencrypted-tunnel-password = no
auth-cli-user-dnis = ""
allow-nas-port-type-in-cli-user-auth = yes
admin> set auth-port = 514
```

Indexed parameters

Indexed parameters behave similarly to subprofiles in that you can list and set them, and then return to your previous context in the profile. However, indexed parameters are not nested.

Indexed parameter values

To display an example of profile contents that include indexed parameters, list the contents of the `auth-client` subprofile:

```
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
```

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 0.0.0.0 +
auth-key = [ "" "" "" "" "" "" "" "" "" ]
auth-radius-compat = old-ascend
```

Setting indexed parameter values

You can set an indexed parameter from a higher context by specifying both the subprofile name and the parameter index in the `set` command line. For example, you can specify `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 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 0.0.0.0 0.0.0.0 +
auth-key = [ "" "" "" "" "" "" "" "" "" "" ]
auth-radius-compat = old-ascend
admin> set auth-client 1 = 10.12.253.1
admin> set auth-client 2 = 10.12.253.56
```

Or, you can specify 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-serv-enable = no
rad-auth-client = { 0.0.0.0 0.0.0.0 0.0.0.0 0 0 "" no 1 no no no 0 yes yes +
rad-acct-client = { 0.0.0.0 0.0.0.0 0.0.0.0 0 0 "" 1 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 +
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 "" }
password-profile = { Ascend-CLID Ascend-DNIS ascend ascend ascend ascend+
local-profiles-first = lpf-yes
noattr6-use-termsrv = yes
cli-user-auth = local-then-external
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 indexed parameters and then specify their values by including an index with each `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

You can create a new profile in two ways:

- 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 a valid index, it is applied to the new profile, which is read into the edit buffer. For example:

```
admin> new ethernet { 1 8 1 }
ETHERNET/{ shelf-1 slot-8 1 } read
admin> list
[in ETHERNET/{ shelf-1 slot-8 1 } (new)]
interface-address* = { shelf-1 slot-8 1 }
link-state-enabled = no
enabled = yes
ether-if-type = utp
bridging-enabled = no
filter-name = ""
duplex-mode = full-duplex
media-speed-mbit = 100mb
auto-negotiate = no
```

If you do not specify an index for a profile that requires one, the system assigns the profile a default index. If you create a profile that requires a name for its index, and you specify no index, the system assigns the index a null value. For example:

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

If you create a profile that requires a physical or interface address for its index, and you specify no index, the system assigns the default index of any-shelf any-slot 0. For example:

```
admin> new ethernet
ETHERNET/{ any-shelf any-slot 0 } read
```

If you specify an invalid index, the system displays the messages that appear in the following examples:

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

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

Depending on the profile type, the index chosen can affect the factory default values. For example, if you specify the index `default` for a user profile with nondefault values, the factory default permission settings are changed:

```
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 = yes
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`, the 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 ports on the Ethernet card all have a similar configuration, you can copy the parameter settings from one line to the next. For example:

```
admin> read ethernet {1 8 1}
ETHERNET/{ shelf-1 slot-8 1 } read

admin> list
[in ETHERNET/{ shelf-1 slot-8 1 }]
interface-address* = { shelf-1 slot-8 1 }
link-state-enabled = no
enabled = yes
ether-if-type = utp
bridging-enabled = no
filter-name = ""
duplex-mode = full-duplex
media-speed-mbit = 100mb
auto-negotiate = no

admin> set interface-address = { 1 8 2}
(New index value; will save as new profile ETHERNET/{ shelf-1 slot-8 2 }.)

admin> write
ETHERNET/{ shelf-1 slot-8 2 } written

admin> set interface-address = { 1 8 3}
(New index value; will save as new profile ETHERNET/{ shelf-1 slot-8 3 }.)

admin> write
ETHERNET/{ shelf-1 slot-8 3 } written
```

Displaying Status Information



3

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TAOS provides commands for displaying information about the system and about specific slot cards and modules. You can also display a status window, which shows connection, general, and log status.

Commands for displaying status information

Table 3-1 shows commands for accessing system status and log information.

Table 3-1. Commands for displaying status information (page 1 of 2)

Command	Purpose
<code>fatal-history</code>	Displays the log of fatal errors that have occurred and the dates and times at which they occurred.
<code>debug</code>	Toggles display of diagnostic messages on the screen in real time.
<code>userstat</code>	Displays user-session status.
<code>show</code>	Shows which slot cards are installed and in which slots, or shows information about a specific card.
<code>status</code>	Displays or hides the status window.
<code>connection</code>	Displays connection status and interprets certain keystroke sequences to display additional connection status information.
<code>line</code>	Displays line status and interprets certain keystroke sequences to display additional line status information.
<code>log</code>	Displays event log information and interprets certain keystroke sequences to display additional log messages.

Table 3-1. Commands for displaying status information (page 2 of 2)

Command	Purpose
view	Specifies the area of the status window that displays a particular kind of status information. Or, redisplay general status information.

Some of the commands have options, which you specify by appending an argument to the command line. If you enter one of these commands with no arguments, the system displays a list of the available options.

Getting information about the system

Some TAOS commands display real-time information about system activities. Others report static information, such as the system software version. In addition, the TAOS unit maintains log buffers that record different levels of events. This section explains how to display different types of system information.

Checking the fatal error log

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

```
admin> fatal-history
SYSTEM IS UP: Index: 100 Revision: 9.2 Shelf 1 (tntsr)
           Date: 08/22/2001.      Time: 18:30:39
SYSTEM RESET OCCURRED: Index: 385 Revision: 9.2 Shelf 1 (tntsr)
           Date: 08/23/2001.      Time: 10:13:04
           Location: 100ab0f4 100aa130 102c01b8 102c0260 102c04f8 100a5d04
OPERATOR RESET: Index: 99 Revision: 9.2 Shelf 1 (tntsr)
           Date: 08/24/2001.      Time: 14:44:01
           Reset from 199.198.65.85, user profile admin.
SYSTEM IS UP: Index: 100 Revision: 9.2 Shelf 1 (tntsr)
           Date: 08/24/2001.      Time: 14:47:05
```

Each entry shows the system software version, 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 and debug message displays

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 specifies that messages indicating an error condition be displayed immediately.

The system can also generate debug messages. The debug messages are not sent to the log server, but are printed on the console and in all Telnet sessions currently established with the system. Thus, if an operator on one Telnet session or console enables debug output, debug information will be printed out on all Telnet sessions and on the console. To 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` argument:

```
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 MP 10.100.0.1 barney  
228687861 1.02.03/02 1:04:02/00 28800/33600 MP 10.168.6.24 jake  
  
<end user list> 2 active user(s)
```

The output includes the following information:

Field	Description
SessionID	The unique ID assigned to the session.
Line/Chan	The physical address (<i>shelf.slot.line/channel</i>) of the network port on which the connection was established.
Slot:Item	The <i>shelf:slot:item/logical-item</i> of the host port to which the call was routed.
Tx/Rx Rate	The transmit rate and receive rate. Note that for digital connections, the transmit rate is the same as the receive rate.
Svc	A code indicating the type of service in use for the session.

Getting information about slot cards and modules

The `show` command displays information about the status of installed slot cards or modules. For example, on an APX™ unit, the information shown in the following example appears:

```
admin> show  
Controller { left-controller } ( PRIMARY ):  
  
           Req'd Oper  Slot Type  
{ shelf-1 slot-1 0 } DOWN RESET 8t1-card  
{ shelf-1 slot-2 0 } DOWN RESET 8t1-card  
{ shelf-1 slot-3 0 } DOWN RESET ether3-card  
{ shelf-1 slot-4 0 } DOWN RESET csmx-card  
{ shelf-1 slot-19 0 } UP    UP    hse-card
```

Displaying Status Information

Working with the status window

Table 3-2 explains the terms that the system displays to indicate the status of a slot, slot card, or module.

Table 3-2. Slot-card status

Status	Description
UP	Normal operational mode.
DOWN	Not in an operational mode.
POST	The devices in the card are running power-on self tests (POSTs).
BOOT	The card is running boot code. Under normal conditions, the LOAD status follows.
LOAD	The card is loading code as part of starting up.
RESET	The card is being restarted.
OCCUPIED	Slot 2 of a two-slot card.
NONE	The card has been removed, but its configuration remains in flash memory.

Working with the status window

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

In a user profile, you can also specify which status information to display in each of the three areas of the status window. Figure 3-1 shows the default settings. To display the status window, use the `status`, `connection`, `line`, `log`, and `view` commands. (For command descriptions, see Table 3-1 on page 3-1.)

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 current 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:

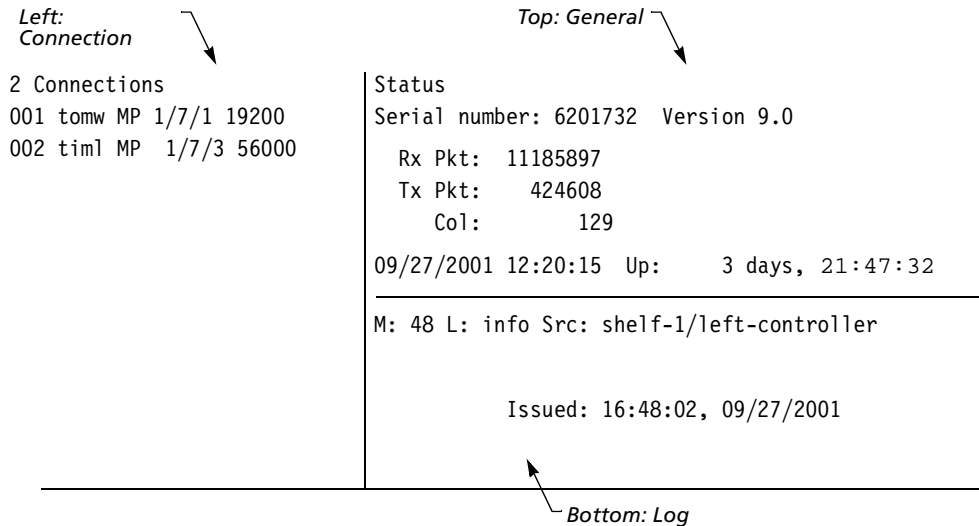
```
admin> status
```

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

Default contents of the window

Figure 3-1 shows an example of the default contents of the status window.

Figure 3-1. Information in the status window



The default contents are determined by the settings in a user profile. The profile for the user who displayed the status window shown in Figure 3-1 has the following settings:

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

Connection-status information

With the default settings in a user profile, the left area of the status window initially displays connection information, as shown in Figure 3-1. One line appears for each active connection, showing the username or station name; type of connection; shelf, line, and channel on which the call was placed or received; and 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 key sequences you can use for displaying additional information in the connection-status area. The Down Arrow and Up Arrow keys display the next and previous connection, respectively, in the list of active connections. The Page Down and Page Up keys display the list a screen at a time.

Displaying Status Information

Working with the status window

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 settings in a user profile, the top area of the status window initially displays general status information about the TAOS unit, 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 operating.

If the top of the status window is displaying another kind of 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 TAOS 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 `log` command 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, replacing the general status information:

```
admin> log top
```

In effect, these commands put the window in log mode, which causes the unit to display 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-message 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 first and last 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.

Line information

To display information about WAN lines and channels, 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 signal), YA (Yellow Alarm signal), and so forth. For complete information on line-status codes, see your product's reference manual.

If the status window is not already displayed, the following `line` command opens it with 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 appears in the top of the window, replacing the general status information:

```
admin> line top
```

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

```
admin> line all
```

In effect, the `line` commands put the window in line-status mode, which causes the unit to display 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 and previous line, respectively, 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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