

Terminal Control Facility

User Guide

Copy Restrictions

A This software and the accompanying written materials are copyrighted and are proprietary products of ALTA A/S. Copying of the software and of the written materials is prohibited. Subject to these restrictions, you may make one copy of the software for backup or archival purposes. That backup/archival copy must have a label placed on the magnetic media, showing the program name, and the copyright and trademark designation in the same form as the original software.

B You may not decompile, disassemble, reverse engineer, copy, transfer, or otherwise use the software except as expressly stated in this Agreement.

Disclaimer of Warranty

The software and accompanying written materials (including instructions for use) are provided "As Is" without warranty of any kind. ALTA A/S makes no warranties, express or implied, including but not limited to the implied warranties of merchantability and fitness for a particular purpose. No oral or written information or advice given by ALTA Copenhagen, its dealers, distributors, agents or employees shall create a warranty, and you may not rely on any such information or advice.

Limitation of Remedies

In no event shall ALTA A/S be liable to you for any damages, including any loss of profits, or other identical or consequential damages, arising out of your use of or inability to use the software or the written materials, even if ALTA A/S has been advised of the possibility of such damages.

Copyright

© 1994 - 2001 ALTA A/S
Nyhavn 61
DK 1051 Copenhagen K
Denmark

Windows is a registered trademark of Microsoft Corporation. Compaq NonStop™ Himalaya™ Tandem is a registered trademark of Compaq Computer Corporation. Java is a registered trademark of Sun Microsystems Inc. Macintosh is a registered trademark of Apple Inc.

Hotline

ALTA A/S, Copenhagen

Tel: + 45 33 36 08 00
Fax: + 45 33 36 08 01

Distribution

ALTA Software, Inc.

Tel: +1 781 530 3864
Fax: +1 413 793 5456
www.ALTA-USA.com

ALTA A/S

Tel: + 45 33 36 08 00
Fax: +45 33 36 0801
www.ALTA.dk

CHAPTER 1: INTRODUCTION TO TCF	1
WHAT IS TCF?	2
TCF OVERVIEW	2
<i>Terminal Surveillance</i>	3
<i>On Demand Sessions</i>	3
<i>Static Sessions</i>	3
<i>Terminal Operations</i>	3
<i>Logging User Activities</i>	3
<i>Autologoff Inactive Terminals</i>	4
<i>Broadcast</i>	4
<i>Hometerm Emulation</i>	4
<i>Reports</i>	4
CHAPTER 2: INSTALLING TCF	5
TCF DELIVERY	6
INSTALLING FROM A PC	6
INSTALLING FROM TAPE	7
PREPARING TCF FOR USE	7
CHAPTER 3: CONFIGURING TCF	8
BASIC CONSIDERATIONS	9
<i>Planning for the Monitors Setup</i>	9
<i>Each Monitor Has Its Own Set of Logfiles</i>	10
<i>Logfile Capacity</i>	11
<i>Number and Size of the Logfiles</i>	12
<i>Network Considerations</i>	13
SECURITY	14
<i>TCFMON</i>	14
<i>TCFCOM and the TCF Configuration File</i>	15
<i>TCF Logfiles</i>	16
<i>TCF and Safeguard</i>	17
<i>General Considerations</i>	17
CONFIGURING THE MONITOR	18

<i>Monitor Configuration</i>	18
<i>Monitor Text Exclusion</i>	27
CONFIGURING THE TERMINALS	29
<i>General Configuration</i>	29
<i>Terminal Configuration Screen</i>	30
<i>Configuring Static Terminals</i>	36
<i>Multilan Terminals</i>	37
<i>Safeguard Terminals</i>	38
<i>Pathway Terminals</i>	40
<i>Telnet Terminals</i>	42
CONFIGURING THE USER PROFILES	44
<i>User Profile Setup Screen</i>	44
SETTING UP REPORTS	47
SETTING UP HOMETERM EMULATION	54
CONFIGURING THE AUTOLOGOFF SETUP	60
SETTING UP THE EVENT MESSAGE TRIGGER	63
LIMITATIONS OF TCF	66
<i>Number of TCF Monitors</i>	67
<i>Number of Terminal Definitions</i>	67
<i>Number of Opens per Monitor</i>	67
<i>Monitor and Logfile Ownership</i>	68
<i>Number of User Profiles</i>	68
<i>Number of Exclusion Texts</i>	68
<i>Number of Programs Known to the Hometerm Emulator</i>	69
<i>Autologoff Setup Limits</i>	69
<i>Event Message Trigger Limits</i>	69
<i>Broadcast Limits</i>	69
<i>Number of Outstanding Hometerm Emulation Prompts</i>	70
CHAPTER 4: DAILY USE	71
SURVEILLANCE OF MONITOR STATUS	72
SURVEILLANCE OF TERMINAL STATUS	75
STARTUP AND SHUTDOWN OF MONITORS AND TERMINALS	80
<i>Startup and Shutdown from TCFCOM</i>	80
<i>Startup and Shutdown of Monitors</i>	80
<i>Startup and Shutdown of Terminals</i>	83
<i>Startup and Shutdown from TAACL</i>	85

ADDING, UPDATING AND DELETING MONITORS	87
<i>Adding a New Monitor</i>	88
<i>Updating a Monitor Configuration</i>	89
<i>Changing the Nonstop Parameters</i>	89
<i>Changing the Executing Priority</i>	89
<i>Changing the Logfile Names</i>	89
<i>Changing the Default User Profile Setup Parameters</i>	90
<i>Changing Other Setups</i>	90
<i>Deleting a Monitor</i>	90
ADDING, UPDATING AND DELETING TERMINALS	90
<i>Adding a New Terminal</i>	91
<i>Updating a Terminal Configuration</i>	91
<i>Deleting a Terminal</i>	92
LOGGING ERROR! REFERENCE SOURCE NOT FOUND. TERMINAL	
ACTIVITIES	92
<i>Who Should be Logged?</i>	93
<i>What Should be Logged?</i>	93
<i>How Much Data Should be Logged?</i>	93
READING THE LOGFILES	94
<i>The TCFREAD Utility</i>	94
<i>The TCFCOM Logfile Browse Screen</i>	95
<i>Command Line Commands</i>	98
<i>Logfile Read Setup</i>	108
<i>Logfile Search Limits and Positions</i>	109
<i>Display Fields Included</i>	111
<i>Logfile Setup</i>	113
<i>Search Criteria</i>	114
<i>Display Setup</i>	115
WAITING PROMPTS IN THE HOMETERM EMULATOR	116
GENERATING REPORTS	120
<i>Making a Broadcast</i>	122
USING ON-LINE HELP	125
CHAPTER 5: PROGRAM AND FILE DESCRIPTIONS	127
TCFBROAD	128
TCFCODES	129
TCFCOM	130

TCFCONF	135
TCFCONN	136
TCFDDL	138
TCFENF	138
TCFHELP	139
TCFLIC	139
TCFMON	139
<i>Changing the Environment of an Executing Monitor</i>	140
<i>Changing the Nonstop Parameters</i>	140
<i>Changing the Executing Priority</i>	141
<i>Changing the Logfile Names</i>	141
<i>Changing the Default User Profile Setup Parameters</i>	141
<i>Changing Other Setups</i>	141
<i>TCFMON Logfile Rollover Considerations</i>	141
<i>TCFMON Logfile Error Handling</i>	143
TCFREAD	144
<i>TCFREAD Commands</i>	146
<i>Running TCFREAD in Batch-mode</i>	160
TCREP	162
TCFSETUP	163
<AAAAANNNN> TCF LOGFILES	163
HELPGEN	164
CHAPTER 6: EVENT AND ERROR MESSAGES	165
CHAPTER 7 THE TCF QUICK STARTER	201
TRANSFERRING FILES FROM A FLOPPY DISK OR TAPE TO THE TANDEM SYSTEM	202
SETTING UP THE TCF ENVIRONMENT	202
CREATING A MONITOR	203
CREATING A TERMINAL	206
STARTING MONITOR AND TERMINAL	210
DEFINING USER PROFILES	210

Chapter 1: Introduction to TCF

This manual is a complete installation and reference guide to TCF. The manual will tell you what TCF is all about, how it operates on your Tandem and how to install and get started with TCF.

The chapter is organized as follows:

- What is TCF?
- TCF Overview

What is TCF?

TCF is an abbreviation of Terminal Control Facility. TCF will log and save information about terminal usage for months, even years. This makes TCF the ideal choice for system managers, users, auditors and others, who want complete control of their Tandem system, and who wish to monitor and log incorrect and unauthorized use of the system.

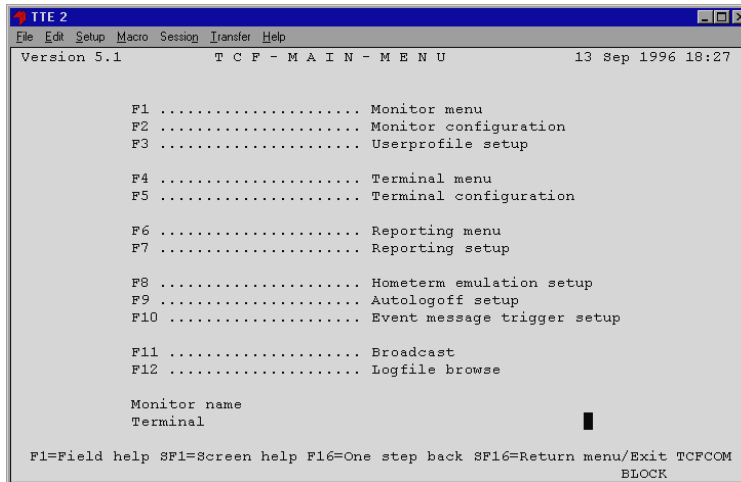


Figure 1.1: The TCF main menu gives access to all logging and surveillance features of TCF.

TCF Overview

TCF offers the following benefits:

Terminal Surveillance

Users can monitor who is logged on, and I/O to and from the terminal.

On Demand Sessions

Sessions created via TCP/IP and Multilan can be monitored.

Static Sessions

The control and monitoring of static terminals such as the Pathway Terminal, or permanently defined TACL terminals.

Terminal Operations

Start and abort as well as forced autologoff of terminals.

Logging User Activities

User activity is logged by following a defined user profile. This is important to most Tandem users, not only to those responsible to DP departments but also to ordinary users, in order to prove exactly what has been accomplished after a user such as Super.Super has been logged on. The information logged by TCF is:

- Date/time
- User name
- Terminal name
- Subsystems and programs the user is utilizing

- User commands
- The program and subsystem responses

Autologoff Inactive Terminals

Can be defined to individual user level or group level.

Broadcast

Allows the user to broadcast messages between specific users or terminals.

Hometerm Emulation

This allows applications that use terminal or console devices for event and error message reporting to be logged to TCF, with the option of logging those messages as EMS events. The TCF monitor emulates various physical devices such as the Tandem 6530 console.

Reports

Various reports can be produced, using the TCF logfiles, including users, terminals, time, commands and responses.

Chapter 2: Installing TCF

This chapter takes you through the installation procedure of TCF. You will learn how to install TCF from a PC and from a tape. Finally, the chapter will teach you how to prepare TCF for use.

The chapter is organized as follow:

- TCF Delivery
- Installing From a PC
- Installing from Tape
- Preparing TCF for Use

TCF Delivery

Depending on your requirements, TCF is delivered on either:

- a floppy disk, for installations from PC/Workstation,
or
- on a Standard Tandem Backup tape

Installing From a PC

To install TCF from a floppy disk, use the IXFLOAD file on the floppy disk. This is a DOS bat-file, containing IXF commands for uploading the programs to the Tandem computer. To run IXFLOAD, you must supply the Tandem Volume.Subvolume where you want TCF to reside on the Tandem in the following format:

```
IXFLOAD $<volume>.<subvolume>
```

The IXFLOAD bat-file assumes that it has access to the Tandem system using IXF.

If the IXFLOAD bat-file does not work, check the following:

1. Is IXF in the DOS path? If it is not then replace the IXF commands in the bat-file with complete file references.
2. If Multilan is use, check that the PC or Workstation is logged onto the Tandem using the RMPCCOM utility.
3. Check that IXF uses the correct PCT.INI file.

Installing From Tape

To install TCF from a tape, use the Tandem RESTORE utility:

```
RESTORE /OUT .../ $<tape-device>, *.*.*,  
LISTALL, ...  
... VOL $<volume>.<subvolume>
```

Use the RESTORE VOL option to specify the volume-/subvolume that TCF is to reside on.

Please refer to the Disk and Tape Utilities Tandem Manual for further explanation of the RESTORE utility.

Preparing TCF for Use

After installing the TCF software package on the desired subvolume, use the TCFSETUP TAFL macro to setup the environment of TCF. The macro executes the following:

- Alters the file codes if the files were installed from a PC or Workstation.
- Creates the permanently structured TCF data files TCFCONF and TCFHELP, if they do not already exist.
- Generates help text and loads it into the TCFHELP file.
- Installs the license codes in the TCFCONF file from the TCFCODES file.

Chapter 3: Configuring TCF

This chapter discusses the configuration of TCF. You will learn to configure monitors, terminals and user profiles and to set up the Event Message Trigger.

The chapter is organized as follows:

- Basic Considerations
- Security
- Configuring the Monitor
- Configuring Terminals
- Configuring User Profiles
- Setting Up Reports
- Setting Up Hometerm Emulation
- Configuring the Autologoff Setup
- Setting Up the Event Message Trigger
- Limitations of TCF

Basic Considerations

The TCF environment consists of a TCFCONF file, which allows you to define up to 16 TCF monitor definitions. Each TCF monitor definition has sub-definitions for terminal, user profiles and report definitions.

When a monitor definition is created, the sub-definitions are created at the same time with default values. The default values can be changed using various configuration screens.

Before configuring TCF, the following should be considered:

- How many terminals will be controlled by TCF. This has great influence on the number of monitors to be implemented.
- The TCF Hometerm Emulation facility. Do you want to capture program events and prompts from the applications?
- Security: Consider how to secure, how the users may be expected to work around applying the TCF system.

Please refer to section “Security” for more detail.

Planning for the Monitors Setup

The number of monitors depends on your requirements. You should consider using different monitors for differing purposes. Requirements such as the logging strategy may lead to more monitors. For performance and security reasons, it is preferably that each monitor should cover as few requirements as possible. The general rule is to configure one monitor for

one purpose, eliminating the risk of monitors becoming overloaded.

There are several physical limits that influence monitor configuration:

- One monitor can control a maximum of 50 terminals.
- The maximum number of opens that any monitors can handle, is 512.

Monitors controlling groups of heavily used terminals should be configured with fewer terminals to reduce the performance impact.

There may be performance reasons for dividing a pool of terminals between two and more monitors. If the Tandem system is running mixed development, test and production environments, then the monitor controlling the production environment should be given the highest priority.

It is recommended that you control performance at the application level, by setting correct TACL and Pathway priorities schemes.

Each Monitor Has Its Own Set of Logfiles

Users working within the same department, or in separate departments, but with the same or similar tasks, may be grouped in order to share monitors. This gives the following advantages:

- Security** There may be security reasons for having separate logfiles. The fact that two monitors use two different logfiles, may lead to the configuration of two monitors. By doing this it is possible to secure the logfiles separately.

For further information see the section "Security" in this chapter.

- Special applications** Monitors for special purposes. e.g. the Hometerm Emulator, can be configured separately. To run the Hometerm Emulation and, if required, the Hometerm EMS log option, simply set the monitor configuration to 'Y' for these tasks. To ensure that INSPECT traps are handled correctly, you should configure the INSPECT program that prompt the hometerminal. The default for this is `$$SYSTEM.SYSTEM.INSPECT`.
- Clearing** Another special task is the null collector (normally called \$NULL). This process can be used to 'throw data away', i.e., non significant output from the programs.
- Education** TCF monitors can also be used for training and demonstration purposes. This is made possible through the replay facilities in the TCFCOM logfile browse and TCFREAD utilities.

Logfile Capacity

The sizes of the logfiles used by a conventional, logging monitor, should be calculated before they are created. The exact amount of data may vary over time. The logfile setups may therefore have to be adjusted in size.

Two things to consider when sizing logfiles are the amount of disk space available for the TCF logfiles, and the time span that

the logged data needs to be available on-line. However, several other factors play an important role in the calculation, such as:

The number of users/terminals and their activity level

The amount of data depends directly on this. More or active users will fill the logfile faster.

How the monitor and user profiles are configured

The options Log user, Block mode, System messages, Null responses and Maximum response lines also influence the amount of data. I/O in block mode may transfer hundreds or even thousands of bytes between an application and the monitor process.

Disk space available


If a large amount of disk space is applied for logfiles, the logfile rollover occurs less often. This will give you a greater time span for data when data is on-line reports and for doing TCFCOM browse or TCFREAD analysis.

Number and Size of the Logfiles

The number and size of the logfiles are important. Small but many logfiles, may have a slight advantage, compared to large but fewer logfiles, as the amount of data erased at rollover time, will be smaller.

The monitor automatically creates a logfile, if it does not already exist, at rollover time and it also automatically allocates the logfile extents. These values are configure via monitor setup.

If the files are partitioned, then the logfiles will have to be created, or altered manually, using the Tandem FUP utility.

 **Caution** Be careful when creating a logfile manually. You must be absolutely sure that the file has the right parameters set, otherwise the Monitor process may not function correctly. Check the parameters against the monitor configuration and existing logfiles for further details.

Network Considerations

TCF fully supports the Tandem network concepts and it can remotely run all network components, without degrading the TCF functionality.

The TCF monitor controls the terminals, the processes and the applications remotely. All filenames specified on the terminal configuration screen (TCFCOM screen 5), are in network format. These filenames include the physical terminal device name, the command interpreter program filename and the in-, out- and hometerminal filenames.

Hometerminal Emulation and Autologoff Setup program filenames are then made in network format for the monitor in control.

The monitor will only react on the volume, subvolume and filename parts of the program filenames configured. This means that filenames such as S\$SYSTEM.SYSTEM.INSPECT are treated equally, independent of which node they prompt a Hometerm Emulator of a networked TCF monitor.

It is also possible to define the TCF logfiles remote from the monitor. However, you should consider this carefully as a heavily utilized network may impact the performance of the monitor considerably.

The risk that logfiles become unavailable to a monitor is greater for remote than for local sets of logfiles. If the logfiles become unavailable to an executing monitor, the monitor will consider this an unrecoverable error condition and abend. The logfiles should therefore be placed locally to the monitor to remove this possibility.

Security

Proper running of the TCF system is vital for the subjects it controls, i.e., the terminals and the applications. TCF logfiles can contain very sensitive data. You should therefore consider the confidentiality of the data when setting up the security scheme for the TCF environments.

TCFMON

TCFCOM is used, either in interactive or in batch-mode, to start one or more of the TCF monitors and terminals.

The TCFMON program should be secured so that only the owner of TCF can start it.

Apply the Prodigy security attribute for the TCFMON program. The monitor will then operate under this user-id (this is in Guardian terms called a process access id or, in short, PAID).

This user must also have write access to the to the logfiles.

⚠ **Warning** The Auto-restart option for terminal sessions causes a monitor to try to restart terminal sessions, which have been ended for any reason. If you are not starting TACL on these sessions, this will lead to application processes

being started with the same user-id as that of the executing monitor.

Auto-restarts of TACL sessions don't cause a security risk as TACL is always started in the logged off state.

TCFCOM and the TCF Configuration File

TCFCOM and the configuration files are used to manage and control of the entire TCF environment. When TCFCOM is started, a check of the user's access rights is performed by comparing it with the security settings of the configuration file. TCFCOM operates in two different modes, depending on the kind of access right of the user:

- Full mode, if the user has read and writes access to the configuration files (the default) or
- Read mode, if the user only has read access.

If a user tries to add, update or delete a configuration file in TCFCOM, without having the access rights for such operations, then the user will get an advisory message in line 25 of the terminal:

```
You do not have update access to
$<VOL>.<SUBVOL>.<FILE>
```

The filename is the name of the current configuration file, used by the TCFCOM session in read mode. Remember this when preparing the setup of various TCF environments and the corresponding security schemes.

From TCFCOM it is possible to start and shutdown monitors. You can also start, abort and do forced autologoff on terminal sessions. This works in the full and in the read access modes. Therefore, secure the TCF configuration files in such a way so

that only those users with authority are allowed to alter the file contents. Other users, i.e., operators, may be given the right to read the configurations and to assist and operate on the terminal sessions.

Usually the processes configured in the TCFCOM Terminal configuration screen are started from TCFCOM, either in interactive or in batch mode. The terminal sessions then start with the same process access id as that of the TCFCOM process. Remember this before securing the TCFCOM program.

It is possible to specify the Restart on stop option for a terminal session. This enables processes to get restarted through a controlling monitor, using its process access id (userid).

TCF Logfiles

All users running through a monitor, may, depending on the configuration, get information about their session logged in the corresponding set of logfiles. This means that the TCF logfiles may contain very sensitive data. You should consider carefully who should be given read access to the logfiles. A simple but reasonable strategy would be as follows:

1. Most logs, including production and operating logs, may be viewed by the auditors, only the System Management staff should be allowed to view the operating logs in case of major problems, failures or breakdowns.
2. Only the TCF owner should have write access to the logfiles, otherwise, it may be possible for certain users to tamper with, or erase, logged information.

The security of TCF logfiles has direct influence on the behavior of the TCFCOM Logfile browse, and the TCFREAD

programs. Both programs open the logfiles with the read only option.

The TCFCOM logfile browse does not open the logfiles belonging to a specific monitor, until the Logfile browse function is entered. This makes it possible to run TCFCOM without the Logfile browse function having access to one or more sets of logfiles. This depends on the security setup of the logfiles.

TCF and Safeguard

If Safeguard is available on the Tandem system it is possible to set up exactly the 'right' security scheme.

Every object can be secured and via the access lists, accessed exactly as desired on the system, i.e., not only the disk files. It is also possible to secure running TCF monitor processes with Safeguard.

If users are to be denied direct access to terminals that are not controlled by a TCF monitor, security must be set by using the Safeguard device security and ownership. Only the monitors will be then allowed direct access to terminal devices.

Using Safeguard alongside TCF ensures an even higher degree of security on a Tandem system.

General Considerations

It is likely that various security schemes and levels appear in different TCF environments. A copy of the TCF files on another subvolume enables each setup to be given a special security.

Configuring the Monitor

The monitor configuration appears on two screens, the Monitor configuration screen and the Monitor Text Exclusion screen.

The Monitor configuration is entered by pressing the F1 key in the TCFCOM Main Menu or in the Monitor menu screen.

Monitor Configuration

The Monitor configuration screen is used to configure a monitor process. The information entered is used by the monitor to set the executing environment, the default logging, autologoff and the hometerm strategies.

Detailed guidelines about this appear on the screens for Autologoff setup, Hometerm Emulator setup and User Profile setup. The User Profile setup information overrides the Default user profile setup in this screen for a specific user id or group.

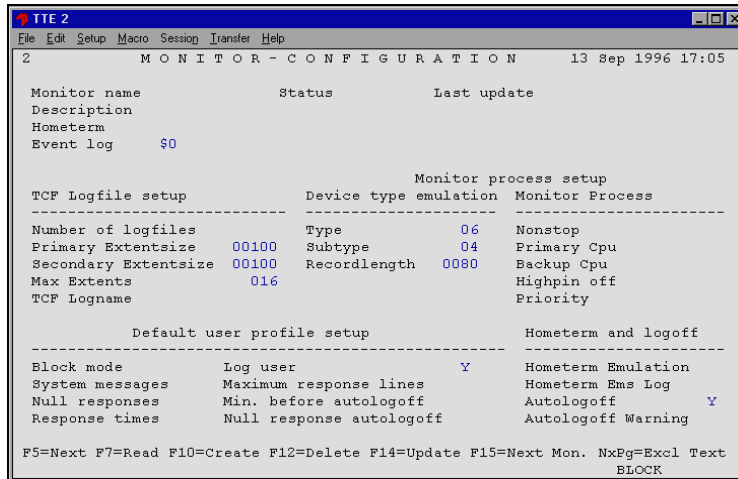


Figure 3.1: *The Monitor Configuration screen.*

Monitor configuration can be changed dynamically from the screen, without interfering with the processes executing through the monitor. This means that it is not necessary to stop a monitor to change its basic configuration.

The Monitor configuration screen is closely connected to the Monitor Exclusion text screen. Updates made on the Monitor configuration screen, also update the contents on the Monitor Exclusion Text screen.

Monitor Name (*open, input is optional*)

Name the Monitor as a standard Guardian Process name, i.e. a '\$' sign followed by a maximum five letters, example: '\$TCF1'. This also becomes the process name of the monitor process at routine operations.

Monitor status (*protected*)

Status of the monitor, if it exists, is either UP or DOWN.

Last update (*protected*)

The date of the last update on the monitor configuration. This is altered either through F10 Add or F14 Update.

Description (*open, input is optional*)

Free description text of the monitor. This field is entered as free text.

Hometerm (*open, input is optional*)

Hometerm name of the executing monitor process.

Event log (*open, input is optional*)

Out file for all events generated by the monitor and the event message trigger. If the file name refers to a EMS collector (usually the '\$O' collector), events are generated in event format by the monitor, otherwise in plain text.

Number of logfile (*open, input is optional*)

Number of logfiles used by the monitor. The monitors applies a 'wrap around' strategy (as the Tandem TMF subsystem does with its Audit Trails), so that when a logfile is full, it automatically rolls over to the next logfile until all are full. The value has to be between 2 and 99.

**Primary, Secondary extentsize and Max extents
(*open, input is optional*)**

The primary, secondary and maximum extentsizes of the logfiles. This should be defined with the assistance from a disk space administrator. The extent sizes must be between 2 and

9999 (in pages. A page is equivalent to 2Kb). Max extents must be between 16 and 978.

TCF logname (*open, input is optional*)

A four-letter logfile prefix specifying the first four letters of the TCF logfile names. When the monitor generates <nn> files then the number of files appear in the consecutive logfile numbering. For instance, if the value specified is \$\$SYS1.TCFLOGS.TCF1, the TCF monitor generates <nn> files such as:

```
$SYS1.TCFLOGS.TCF1000  
$SYS1.TCFLOGS.TCF1001  
$SYS1.TCFLOGS.TCF1002  
.  
.  
.
```

The logfile file code is 3333. When a monitor is started for the first time, i.e., before logfiles have been created, it automatically generates and allocates the reserved disk space for number of files requested.

Nonstop (*open, input is optional*)

'Y' (yes) or 'N' (no) depending on whether the monitor is intended to run Nonstop.

Primary CPU (*open, input is optional*)

Primary CPU number of the running monitor process. The number should be between 0 and 15.

Backup CPU (*open, input is optional*)

Backup CPU number of the running monitor process. The backup process takes over in case of a failure by the primary monitor process. If the primary CPU has failed, the primary process automatically swaps back from the backup to the primary CPU and creates a new backup process. This strategy ensures that the configuration always becomes honored by the monitor. If Nonstop is specified by 'N', that is if the monitor does not use the Nonstop facility, the field is optional. The number should be between 0 and 15.

Priority (*open, input is optional*)

Specifies the priority of the executing monitor process. The monitor is expected to run with a high priority, i.e., always higher than all the processes that are served by the monitor in question.

A reasonable level is the same priority level as the PATHMONs on the system. The number should be between 1 and 199.

Type, Subtype & Recordlength (*open, input is optional*)

The default Guardian device, subtype and record length. The monitor responds to a process requesting the monitor for this information. If a process requests the information from a device opened by the monitor, by its logical name, then the monitor responds to the information from that particular physical terminal device. This ensures that the monitor at any time emulates exactly those terminal devices that it controls. (This is the 'Deviceinfo' request dealt with in detail in the Tandem Guardian Programmers Guide concerning various device types).

The numbers for Device type, subtype and record length must be selected from 0 to 99 and from 0 to 4096 respectively.

If no specific device type emulation is wanted then use the default values.

Block mode (*open, input is optional*)

'Y' (yes) or 'N' (no) whether block mode application messages are logged or not.

System messages (*open, input is optional*)

'Y' (yes) or 'N' (no) whether the system messages from the processes to the device shall be logged or not. e.g. Open-, Close-, Setmode or Control messages.

Please refer to the Tandem Guardian Programmers Guide for information about system message types.

Null response (*open, input is optional*)

'Y' (yes) or 'N' (no) whether inactive or one-way applications (without user input) shall be logged or not. e.g. applications like Viewsys, which can be set to do an auto update every three seconds, will not be logged if this field is set to 'N'.

Response times (*open, input is optional*)

This is only used when, at the same time, Block mode is set to 'N'. If response times are set to 'Y', the information necessary to calculate the transaction response times is always logged, also for transaction in blockade (i.e. Pathway transactions). This includes date and time, user, terminal and program names, etc. If, however, Blockade is set to 'Y' the response time information is logged anyway. Response times are calculated by the TCFREP report utility.

Log user (*open, input is optional*)

'Y' (yes) or 'N' (no) whether the users are to be included in the log or not. The total information logged will then be:

- Date/Time
- User
- Terminal
- Program
- Type of Application (Blockade or Conversational)
- I/O Errors
- Bytes written
- Bytes read
- Commands
- Responses

Maximum response lines (*open, input is optional*)

Number of response lines to be logged in conversational mode for a user. For instance, the response of the TACL command FILEINFO \$\$SYSTEM.*.* only consists of the number of lines defined in this field. If this is set to 20, only the first 20 lines of the response is logged.

Min. before autologoff (*open, input is optional*)

Number of minutes that the terminal is allowed to be inactive, before the monitor executes an autologoff plan, against the processes running on that terminal. To prevent the monitors from overloading the Tandem system by constantly checking if an autologoff is to be made on the terminals, an additional time space of 1-1½ minutes is made available for each time period defined. For instance, if this field is set to 4 minutes, the Autologoff will take place between 4-5½ minutes.

Besides Autologoff, it is possible in the Monitor configuration to define whether a user should be given a warning approximately 1 minute before autologoff actually takes place. The time before autologoff may be set between 2 and 9999 minutes.

Null response logoff (*open, input is optional*)

'Y' (yes) or 'N' (no) whether or not a user or user group have inactive one-way applications, such as Tandem VIEWSYS, logged off automatically.

Hometerm Emulation (*open, input is optional*)

'Y' (yes) or 'N' (no). If 'Y' it is not necessary to use the '#HOME' qualifier after a monitor name for the Hometerm Emulator.

Example

```
If 'N' - RUN MYPROG/IN $TCF1.#HOME, OUT  
$TCF1.#HOME,TERM $TCF1.#HOME/
```

```
If 'Y' - RUN MYPROG/IN $TCF1,OUT $TCF1,TERM  
$TCF1/
```

Hometerm Emslog (*open, input is optional*)

'Y' (yes) or 'N' (no). When starting a process through the Hometerm Emulator, all messages to and automatic responses from the monitor are copied to the TCF event file as well.

Autologoff warning (*open, input is optional*)

'Y' - The monitor gives a warning and sounds the terminal bell approximately one minute before autologoff is started against the terminal.

'N' - No warning.

Function Keys

- F5** Read the next monitor configuration matching approximately the name specified on the screen.
- F7** Read the monitor configuration matching exactly the name specified on the screen.
- F10** Create a monitor configuration under the name specified on the screen.
- F12** Delete the monitor configuration. The monitor must be in the stopped state before deletion.

- F14** Update the monitor configuration. If the monitor is viewed and running, the monitor receives the changes of the configuration and uses these immediately.
- F15** Read the next selected monitors from the Monitor menu screen, if more monitors are selected and if they are not yet processed.
- NxPg** Jump to the monitor Text Exclusion screen described on the following pages.

Monitor Text Exclusion

This screen is activated through the Monitor Configuration by pressing NxPg. From this screen it is possible to define prompts to which user-input should be excluded from logging, for example a TACL password prompt.

This screen is closely connected to the Monitor configuration screen. Updates to this screen are invoked through the Monitor configuration screen.

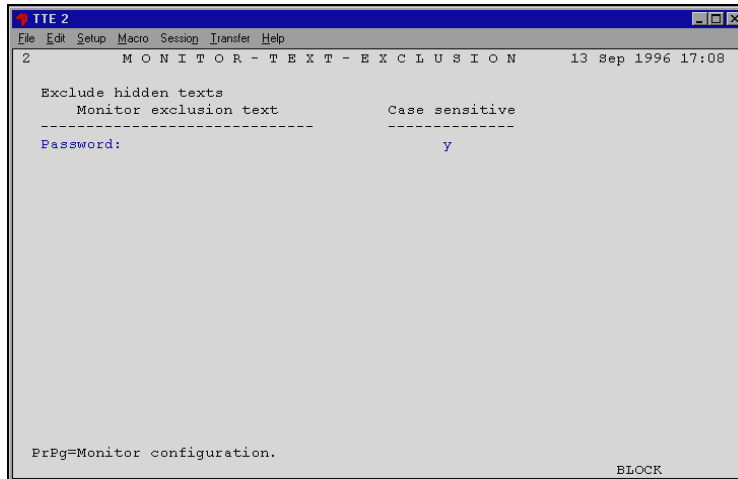


Figure 3.2: *The Monitor Text Exclusion screen.*

Exclusion text (open, input is optional)

Exclusion text - the monitor does not log the 'answers' to the exclusion text in the logfile. This means that each prompt has to be specified in cases where the replied answers are not to be logged.

This is a useful facility for passwords. If the exclusion text is "Password:" (as used by TACL) then the monitor does not log the answer because it is the actual password. Any time the monitor observes a terminal receiving the command "Password:", the response text will not be logged.

Example: Log file WITH exclusion of the text "Password:":

"Password:"

and WITHOUT exclusion text:

"Password: Superman"

It is possible to specify 18 lines of exclusion text. For each exclusion text it has to be specified if the match should be in the upper or in the lower case (next field).

Exclusion texts are written as plain text, that is without "" signs. Default is one exclusion text "Password:" with case sensitive 'Y'.

Case Sensitive (*open, input is optional*)

'Y' (yes) or 'N' (no). If 'Y' the monitor compares strictly whether upper or lower case letters appear and a case sensitive match is performed. If 'N' the command is ignored whether it is upper or lower case letters. If a value is specified then the exclusion text has to be specified as well.

Function Key

PrPg Returns to the corresponding Monitor configuration screen.

Configuring the Terminals

General Configuration

TCF may handle all terminal types and setups.

At first, the general configuration of terminals in TCF is explained.

Subsequently various kinds of terminals are detailed in each separate section.

These are normal static terminals, terminals running via Tandem Multilan, terminals known to the Safeguard security

subsystem, terminals running under the Pathway on-line transaction monitoring subsystem, and terminals connected via Telnet and TCP/IP.

Configuring terminals is carried out via TCFCOM screen 5, the Terminal Configuration Screen.

Terminal Configuration Screen

The Terminal Configuration Screen is entered either from the TCF Main Menu, the Monitor Menu or the Terminal Menu.

The configuration of all terminals, belonging to the current TCF monitor is performed from the TCFCOM Terminal Configuration screen.

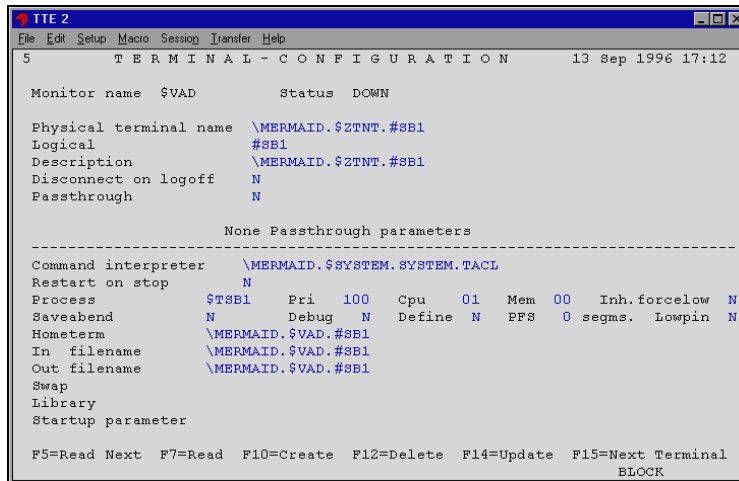


Figure 3.3: *The Terminal Configuration screen.*

The screen mainly reflects the parameters necessary to start a process, i.e., a program file, and a few internal TCF parameters, i.e., the Restart on stop option.

If more information about process start (newprocess) parameters is required, please refer to the Tandem TACL Reference Manual, section 2.

If one or more terminal configurations are updated, and the screen has been activated through the Terminal Menu, the Terminal menu screen is updated when returning by pressing F16.

Physical terminal name (*open, input is optional*)

Physical name of the terminal that has to be controlled by the TCF monitor. This name must be unique to the owners' monitor and can never be changed. If this field has to be changed, then you must delete and re-add the terminal definition (F12 and F10).

Logical (*open, input is optional*)

Logical name of the terminal. The TCF monitor identifies the terminal by this logical name. The name must begin with a '#' sign, followed by an alphabetic character, i.e., '#T02001'. This name must be unique to the monitor in control. It can never be changed, as long as the monitor is running (status UP). If it is necessary to change this name, the monitor must be shut down. To do this, use the Monitor menu.

Description (*open, input is optional*)

Description of this terminal. The description is a free text field, and anything may be entered, i.e., the location and user of this terminal (see the example on the above screen). If nothing is

entered, the name of the physical terminal is used as the default name.

Disconnect on logoff (*open, input is optional*)

'Y' (yes) or 'N' (no). If set to Y, then the monitor issues a modem disconnect when the session logs off, either by itself or by an autologoff. Set this option to on ('Y') if the session is Telnet.

Passthrough (*open, input is optional*)

The passthrough flag is used to tell TCF that the terminal is started from outside TCF, i.e., from either Safeguard or a Pathway terminal.

It is not necessary to specify the parameter options related to process startup for passthrough terminals.

Parameters for the Command interpreter through and Startup parameters are optional for passthrough terminals and are therefore ignored. The value is 'Y' (yes) if it is a passthrough terminal. Otherwise the value is 'N' (no).

The rest of the screen fields are all non-passthrough parameters and options. If the Passthrough option is set to 'Y' these fields should not be specified.

Command interpreter (*open, input is required if not a passthrough terminal*)

Name of the command interpreters program file to be started on the terminal. TCF.COM uses the default subvolume, when creating a new configuration.

Restart on stop (open, input is required if not a passthrough terminal)

Valid values are 'Y' or 'N'. This option enables the monitor to automatically attempt a session restart if this has ended for any reason. For example, if you have an important TACL session running under TCF control, the option should be set on 'Y'. To prevent the monitor from constantly trying to restart a 'sick' terminal configuration, the maximum number of attempts to auto restart a failed session has been set to three attempts per minute. If the monitor doesn't succeed in restarting a session after three attempts within the same minute, no more attempts are made.

Process (open, input is required if not a passthrough terminal)

Process name of the command interpreter as an executing process. (When the command interpreter program is started, the process name must be unique).

Pri (open, input is required if not a passthrough terminal)

Priority of the command interpreter. The value must be between 1 and 199.

Cpu (open, input is required if not a passthrough terminal)

The primary CPU of the command interpreter. Default is CPU 0.

Mem (open, input is optional)

Memory allocation of the command interpreter. Default is the same as the command interpreters program file specified above.

Saveabend (open, input is required if not a passthrough terminal)

'Y' (yes) or 'N' (no) specifies whether the command interpreter creates a save-abend file in cases of a process abend or a premature stop. This is usually set to 'N'.

Debug (open, input is required if not a passthrough terminal)

'Y' (yes) or 'N' (no) specifies whether the command interpreter is started in debug mode. Normally set to 'N'.

Define (open, input is required if not a passthrough terminal)

'Y' (yes) or 'N' (no) whether the command interpreter is started with DEFINE mode enabled. This should be set to 'Y' for TACL sessions, which typically utilizes the Tandem DEFINE facility.

Hometerm (open, input is optional)

Hometerm of the command interpreter. In a conversational session, i.e., a TACL session, it is normally not necessary to specify this parameter. TCF.COM builds the hometerm name by linking the owners' monitor process name and the logical name e.g. '\$TCF1.#TO2001'.

In-file name (open, input is optional)

The in-file of the command interpreter. If the session is conversational, i.e., a TACL session, this field is usually not specified. TCFCOM builds the in-file name by linking the owners' monitor process name and the logical name e.g. '\$TCF1.#T02001'.

Out-file name (open, input is optional)

The out-file of the command interpreter. If the session is conversational, i.e., a TACL session, this field is usually not specified. TCFCOM builds the out-file name by linking the owners' monitor process name and the logical name e.g. '\$TCF1.#T02001'.

Swap (open, input is optional)

The swap volume of the command interpreter. The default swap volume is the same as the program file name.

Library (open, input is optional)

The name of the library file of the command interpreter.

Startup parameters (open, input is optional)

Startup parameters and commands sent to the command interpreter at startup time. If this is a TACL session, the startup parameter is the backup CPU number.

The fields PRI through Library (newprocess parameters) are further described in the Tandem TACL Reference Manual, section 2.

Function Keys

- F5** Read the next terminal configuration matching approximately the name specified on the screen.
- F7** Read the terminal configuration matching exactly the name specified on the screen.
- F10** Create a terminal configuration under the physical and logical names specified on the screen.
- F12** Delete the terminal configuration. It is not possible to delete a terminal configuration when the terminal is active in a TCF monitor.
- F14** Update the terminals configuration. It is not possible to change the physical and logical names of a terminal configuration, when the terminal is active in a TCF monitor.
- F15** Read the configuration of the next selected terminal from the Terminal Menu overview screen, if more terminals were selected and have not yet been processed.

Configuring Static Terminals

Static terminals are terminals defined in the TCF configuration file. These are maintained via the TCFCOM utility. Static terminals may be TACL sessions, Pathway or Safeguard terminals, etc.

With static TCF terminals the physical name of the device remains the same (unlike, for instance, on a terminal connected as a Multilan dynamic WINDOW).

Multilan Terminals

PC and Workstations are connected to the Tandem Multilan subsystem in one of two ways:

- As a predefined, fixed WINDOW, where the name is defined by the user, and remains the same as for instance \$LAN01.#WIN001. As a dynamic WINDOW in which the name is given by the Multilan software when the session is started. For instance, \$LAN01.#ZWN3538.

Sessions running on predefined fixed windows are defined as normal, static sessions in TCFCOM.

- Dynamic WINDOW sessions are NOT defined in TCFCOM. Instead the TCFCONN utility is applied to perform a dynamic connection to a monitor.

A Multilan WINDOW has its configuration based on the PCT.INI file for the Tandem PCT product or on a PRM file for the Tandem TTE product.

Two parameters must be set in those files, i.e., the SPS and the RESOURCE_NAME parameters such as:

```
SPS=/CPU 0,PRI 100/ LOGICAL $TCF1.#WIN001,  
COMMAND $SYSTEM.SYSTEM.TACL,  
STARTUP /<tacl-keywords>/  
RESOURCE_NAME=$<VOL>.<SUBVOL>.TCFCONN
```

In this case LOGICAL specifies the name of both the monitor and the logical name itself, used by the monitor.

COMMAND is the program to run, in this case the TACL utility.

STARTUP is the startup parameter given to and used by TACL.

If a dynamic Multilan window is also required to run through the Safeguard logon procedure, the following parameters must be set in the PCT.INI or in the PRM file:

```
SPS=/CPU 0,PRI 100/ LOGICAL $TCF1.#WIN001,  
COMMAND $SYSTEM.SYSTEM.LOGON,  
STARTUP /<tacl-keywords>/  
RESOURCE_NAME=$<VOL>.<SUBVOL>.TCFCONN
```

The Safeguard LOGON program is used instead of the TACL command interpreter above.

Please refer to section 6.4 for a thorough description of the TCFCONN utility.

The difference between dynamic and static sessions, appears on the TCFCOM Terminal Menu screen. Dynamic WINDOWS are marked Type D - dynamic.

Safeguard Terminals

Defining Safeguard terminals in the TCF environment requires a slightly different configuration from conventional terminals, because the started program is not configured in TCF but in Safeguard. Safeguard no longer knows of the physical terminal, only the TCF terminal.

Example Terminal \$TERM02.#T001 is configured in Safeguard but is needed to run under both TCF and Safeguard. The terminal is run under the TCF monitor \$TCF1, with the logical name #T02001. To move this terminal from Safeguard to TCF, the following action has to be taken:

TCFCOM commands:

Add a terminal under TCF monitor \$TCF1, with the physical name TERM02.#T001 and the logical name #T02001. Set Passthrough flag to 'Y'.

By setting this flag to 'Y' the process startup parameters for the program filename (PRI, CPU, etc.) do not need to be filled in. The Passthrough flag prevents TCF trying to start the program belonging to the terminal.

SAFECOM commands:

```
ADD TERM $TCF1.#T02001, LIKE $TERM02.#T001
FREEZE TERM $TERM02.#T001
DELETE TERM $TERM02.#T001
THAW TERM $TCF1.#T02001
```

The terminal will then be defined in TCF and Safeguard.

To handle the terminal in Safeguard, the name \$TCF1.#T02001 must be used, because the old physical terminal name is no longer known to Safeguard.

Maximum Security with Safeguard

To ensure maximum security, by going through TCF, the physical terminal device must be defined in Safeguard.

The name of the physical terminal device must be defined with an access list, that only allows the TCF monitor to open the physical terminal.

To make this as secure as possible the TCF monitor must operate with a user-id which is controlled. The user-id should therefore be frozen in Safeguard to prevent any users from logging on with it. Define a user-id, kept in a frozen state in Safeguard, to be used by the monitor only.

To make the TCF monitor start with this user-id, the TCF monitor program file must be secured with the Prodigy option. This user-id should not be in the SUPER group, due to the risk that it may lead to security breaches.

If the TCF monitor is running as user-id 200,255, the command in Safeguard to exclude all users but 200,255 from getting access to a terminal is:

```
ADD SUBDEVICE \SYS.$TERM02.#T001,  
ACCESS 200,255 (W,R);  
DENY \*.*.* (W,R)
```

With a setup like this, maximum security is obtained, all terminal activities are logged and autologoff is guaranteed.

Pathway Terminals

TCF can be configured to run Pathway terminal access. The changes that have to be made in the Pathway configuration depend on the Pathway terminal type. Pathway has two types of terminal definitions, static and dynamic.

Dynamic Pathway Terminals

The user executes a PATHCOM 'RUN <program>' command, while running under TCF. The only change is that the terminal type must be specified in the run PATHCOM command. Assuming a Tandem 6530 terminal is being used, the PATHCOM run command would be:

```
RUN <program>, TYPE T16-6530
```

If the terminal type is not added to the command, Pathway will return the message 'Terminal type not defined for program'. This is a known bug in Pathway, accepted by

Tandem Computers Inc. The bug is corrected in future versions of Pathway.

Static Pathway Terminals

Static Pathway terminals may be configured in TCF by adding a passthrough terminal definition. It is recommended that the TCF monitors used for static Pathway terminals are only used for Pathway sessions. TCF monitors running static Pathway sessions shall have the autologoff feature disabled because the TCF monitor is unable to decide if a user is logged on or off. TCF cannot decide the user-id because Pathway TCPs always run with the same Guardian user-id. If the autologoff is not disabled the Pathway terminal ends in a suspended abort state because the autologoff plan will end with a TCF terminal abort.

Example The Pathway terminal TERM-01 in the Pathway system \$PM1, is to run under the TCF monitor \$TCF1. The Pathway terminal TERM-01 has a terminal file named \$TERM02.#T001.

TCFCOM commands

Add terminal under monitor \$TCF1 with the physical name \$TERM02.#T001, logical name #T02001 and the Passthrough option set to 'Y'. Make sure that the autologoff feature has been disabled for the Guardian user-id running the Pathway TCP.

This may be set either in the user profile setup or in the default monitor user profile. The TCP Guardian user-id may be determined by the TACL command STATUS \$PM1 (\$PM1 is the PATHMON name).

PATHCOM commands

```
OPEN $PM1
ABORT TERM-01
ALTER TERM-01, FILE $TCF1.#T02001
START TERM-01
```

Telnet Terminals

If Telnet terminal access is required through TCF, it is necessary to make some minor changes in the TCP/IP Telnet environment. There are two ways to run Telnet terminal access on Tandem systems. The first is with dynamic sessions, such as the 'TACL' service and the second is with static sessions.

Dynamic Sessions

Dynamic sessions must be changed to static sessions. This is done by adding new Static WINDOWS to the TCP/IP process with a new Service name.

Example The TCP/IP Telnet process is named \$ZTNT and users on a TCP/IP network are using Tandem through the dynamic TACL service.

The service that the users have access to is then 'TACL' with a maximum of three concurrent users. The TCF monitor, under which the new Telnet terminals have to run, is \$TCF1. The following are the necessary SCF commands:

```
ASSUME PROCESS $ZTNT
ADD WINDOW #TCF01, SERVICE "TCF"
ADD WINDOW #TCF02, SERVICE "TCF"
ADD WINDOW #TCF03, SERVICE "TCF"
START WINDOW *, SELECT NOT STARTED
```

In TCFCOM the following terminals must be configured:

```
Physical $ZTNT.#TCF01, logical #TCF01
Physical $ZTNT.#TCF02, logical #TCF02
Physical $ZTNT.#TCF03, logical #TCF03
```

If the terminal disconnects the session when the user logs off, then the Disconnect on logoff option must be set to 'Y' for each terminal. When users log off they will get a message such as 'Session disconnected from remote host'.

When the users connect to the Telnet server later, they have the option of selecting the 'TCF' service. This is selected when a TCF controlled session is desired.

If maximum security is needed the Telnet server must be stopped and restarted with the '-NOTACL' option. This prevents the users from using the non TCF TACL service 'TACL'.

For more information about the '-NOTACL' option please refer to the Tandem TCP/IP Application Users Manual.

As described in this manual, it is not possible to use the service name 'TACL' on WINDOWS defined in SCF. This service name is reserved by Tandem for internal use.

Static Telnet Sessions

For static sessions the terminal is configured as a conventional, static terminal in TCFCOM. If the session is disconnected when the user logs off, then the Disconnect on logoff option is set to 'Y'. For more information about configuring terminals in TCF, please refer to the section Terminal Configuration.

Configuring the User Profiles

User Profile Setup Screen

From the User Profile Set-up screen, it is possible to specify all controlling parameters and options on a user-id or group level.

If a program is running on a terminal with a user-id matching a defined user, or a defined group of users, the monitor in control will use these parameters, instead of using the default user profile, defined in the Monitor configuration screen.

A user-id, i.e., 255,255 overrides a group, i.e. 255,* (Super.Super overrides the SUPER group).

Monitor name	\$VAD	Status	DOWN							
UserId	Log user mode	Block msgs.	Sys- resp.	Null resp.	Resp. time	Auto- Logoff Minutes	Null resp. logoff	Max resp. lines		
050,+	y	y	n	y	n	y	0030	n	0030	
255,+	y	n	n	y	n	y	0010	n	0050	
255,255	y	n	y	n	y	y	0010	y	0030	

F14=Update NxPg=Next profiles PrPg=Previous profiles F15=Next Monitor
BLOCK

Figure 3.4: *The User Profile Setup screen.*

It is possible to specify a further four pages of user-ids or groups, with up to 15 lines each. This leaves room for a maximum of 60 different lines of user-parameters. If this

configuration is changed it is immediately used by the active TCF monitor.

User-id (*open, input is optional*)

User-id or group that need special options or parameters to be set. These are standard Guardian userid numbers, e.g., 255,255 for a user-id (Super.Super) or 255,* for a group (the SUPER group). Remember, a matching user-id overrides a matching group.

Log-user (*open, input is optional*)

Should the user be logged at all. 'Y' (yes) or 'N' (no). Default is the same as defined for the owner monitor's setup.

Block mode (*open, input is optional*)

Should the user have blockade transaction data logged. 'Y' (yes) or 'N' (no). Default is the same as defined for the owner monitor's setup.

SysMsgs (*open, input is optional*)

Should the user have system messages included in transactions logged. 'Y' (yes) or 'N' (no). Default is the same as defined for the monitor's setup.

Null resp (*open, input is optional*)

Should the user have null-response data logged. 'Y' (yes) or 'N' (no). Default is the same as defined for the owner monitor's setup.

Resp time (open, input is optional)

Should the user have response time information logged. If blockade transactions are excluded, this option is used to ensure response time information is logged even for blockade transactions. 'Y' (yes) or 'N' (no). Default is the same as defined for the monitor's setup.

Auto logoff (open, input is optional)

Should the user be logged off automatically after having left the terminal inactive for the number of minutes specified in the Minutes field. 'Y' (yes) or 'N' (no).

Minutes (open, input is optional)

Autologoff-time in minutes. Must be set between 1 and 9999 minutes. Default is the same as defined for the owner monitor's setup.

Null resp logoff (open, input is optional)

Can be set to 'Y' (yes) or 'N' (no). Specifies if the user terminal is considered inactive, if it has an application running which does not need user-input, that is, it only produces null response information. If this is the case then the terminal is logged off, as any other inactive terminal, in order to prevent the user from disabling the autologoff mechanism just by starting a 'null-response' program. Default is the same as defined for the owner monitor's setup.

Max resp lines (open, input is optional)

Specifies the maximum number of response lines that has to be logged when running in conversational mode. Default is the same as defined for the owner monitor's setup.

Function Keys

- F14** Update the user profiles. After an update the lines are sorted in user groups, followed by user-id orders. The monitor receives and uses the changes of the configuration immediately, while operating.
- F15** Presents the user profiles of the next selected monitor, if any.
- NxPg** Shows the next page. The last page is page 4.
- PrPg** Returns to the previous page.

In the example above, two groups, including the SUPER group and the Super.Super user-id have been defined.

The Super.Super user-id has fairly tight working conditions. For instance the autologoff time is ten minutes.

Users outside the 050- and SUPER groups have not been configured. These users have the default parameters and options set in the Monitor configuration to control their terminal sessions.

Setting Up Reports

Before entering the Report configuration screen it is possible to select a report in the TCF Reports screen. All reports on the screen have previously been defined with the Report Configuration screen.

Before referring to one or more reports, select by entering a non-blank character in the corresponding selection column.



Figure 3.5: *The TCF Reports screen.*

S (open, input is optional)

Select one or more reports by entering any character other than a blank in the corresponding column.

Report (protected)

Report number, uniquely identifying each report, defined for the current monitor. This number is specified, by adding the report configuration in the Report configuration screen (screen 7).

Description (protected)

Description of the report. This is specified as free text, when adding the report configuration in the Report Configuration screen (screen 7).

Function Keys

- F2** Enter the report configuration (screen 7) for the first selected report. It is possible to scroll through the selected reports by pressing the F15 (standard next) key. If only one report exists it is not necessary to select it. If the report overview screen doesn't show any reports, an empty Report configuration screen is displayed when the F2 key is pressed.
- SF10** Generate all the reports selected. This starts the TCFREP report generator program on the current monitor's Hometerm Emulator \$TCF1.#HOME. The monitor must therefore be operational, when a report is generated in this way.
- F15** Gives the reports under the next selected monitor, if any.
- PrPg** Gives the next set of reports, if any.
- NxPg** Gives the previous set of reports, if any.

The screen shows that the monitor \$TCF1 has two reports configured. Number one and two. According to the descriptions both are probably listing the activities performed in the SUPER and HELPDESK user groups.

Use the Report Configuration screen to define one or more of the four standard TCF reports that exist.

The screen is entered either from the TCFCOM Main menu or the Monitor menu (screen 1) by pressing the F7 key or from the above shown TCF Reports screen, by selecting a report and pressing the F2 key.

The four report types are the User-Terminal Summary report, the User-Terminal Detail report, the Program and Utility report and the very detailed Transaction report.

The reports may select certain users, terminals or program utilities. The reports are generated from the Report Menu screen by pressing the Shift-F10 key. The Report Configuration screen is TCFCOM screen 6, and has the following layout:

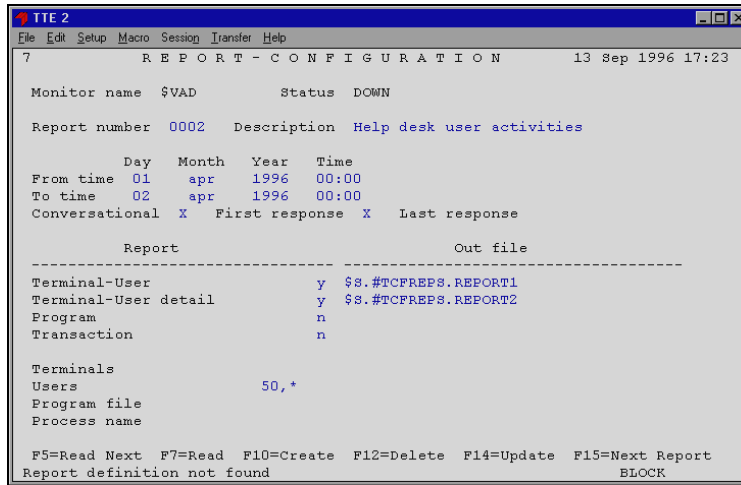


Figure 3.6: *The Report Configuration screen.*

Report number (open, input is optional)

The unique number of the reports, created under this specific monitor. The number must be specified by the user creating the report.

Description (open, input is optional)

The users own description of the report, in clear text.

From time (*open, input is optional*)

The day (1-31), month (Jan-Dec), year 19xx, time (00:00-23:59) for starting to collect data.

To time (*open, input is optional*)

The day (1-31), month (Jan-Dec), year 19--, time (00:00-23:59) for stopping to collect data.

Conversational (*open, input is optional*)

'Y' (yes) or 'N' (no) whether to include conversational transactions. Blockade transactions such as Pathway applications, are always included in the reports. If 'Y' in conversational transaction two possibilities exist for calculating the transactions response times.

First response/last response (*open, input is optional*)

It has to be selected, whether the response time is to be calculated from the first line of the response, or from the moment a new prompt appears, after the whole transaction is completed.

Terminal-User Report (*open, input is optional*)

'Y' (yes) or 'N' (no). Y will produce a summary of terminal and user activities. If 'Y', the summations for the defined period is shown in the Terminal-User Report.

This report further contains information about how many different users have been logged on the system and for how long, as well as the average response time, per user and per terminal.

Terminal-User out file (open, input is optional)

Out file for the Terminal-User report. If it is a non-existing disk file, then an edit file (code 101) is created.

Terminal-User detail report (open, input is optional)

'Y' (yes) or 'N' (no). Y generates a report containing the terminal and user activities in detail. This report is a more detailed version of the first report, which makes it possible to see the names of the terminals from which various users have been logged on, as well as a summary of the average response times per user and per terminal.

Terminal-User out file (open, input is optional)

Out file for the Terminal-User detail report. If it is a non-existing disk file, then an edit file (code 101) is created.

Program Report (open, input is optional)

'Y' (yes) or 'N' (no) Y generates the program activity report, detailing the activities during the defined period are shown in the Program report.

The third report is a summary of all the programs and subsystems that were running on the system. It summarizes which subsystem the user has started, how many transactions executed and the response times. The response time section is divided into five transaction categories, depending on how fast the user got the response. The categories cover the following intervals: 0-1 seconds, 1-2, 2-4, 4-8 and greater than 8 seconds.

Program out file (*open, input is optional*)

Out file for the Program report. If it is a non-existing disk file, then an edit file (code 101) is created.

Transaction Report (*open, input is optional*)

'Y' (yes) or 'N' (no) If 'Y', then the Transaction report shows what has happened in the defined period.

The Transaction report describes every single transaction by user, subsystem wall-clock and response times.

This report offers an opportunity to build individual reports at will. The output is, unlike the first three reports, not generated in plain text. It has a non-textual, structured format for disk file use. The DDL description of the Transaction report is found in section 6.5, TCFDDL.

Transaction out file (*open, input is optional*)

Out file for the Transaction report. This has to be an unstructured disk file. If the file does not exist, TCF generates its own unstructured file with a code 180 (C data file).

Terminals (*open, input is optional*)

Selection of specific terminals, to be focused on in the reports.

Users (*open, input is optional*)

Selection of individual users or groups of users, to be focused on in the reports.

Programs (*open, input is optional*)

Selection of a specific program or utility, to be focused on in the reports.

Process name (*open, input is optional*)

Selection of a specific process, to be focused on in the reports.

Function Keys

- F5** Read the next report configuration matching approximately the number specified on the screen.
- F7** Read the report configuration, matching exactly the number specified on the screen.
- F10** Creation of a report configuration under the number specified on the screen.
- F12** Delete the report configuration.
- F14** Update the report configuration.
- F15** Read the configuration of the next selected report, from the Report Menu overview screen, if more reports are selected, which have not yet been processed.

Setting Up Hometerm Emulation

Hometerm Emulation is used to 'tell' a TCF monitor how to behave when a process prompts the monitor.

A prompt means that the process has issued a Filesystem Read or Writeread operations against the monitor. The process will then wait for the monitor to reply to that prompt.

Filesystem Writes (one-way messages) are not processed by the Hometerm Emulation, only Filesystem Writereads are (two-way messages or prompts).

Hometerm Emulation consists of programs that deal with text strings used to reply to prompting programs. The filenames of the programs may contain the standard wildcards '*' and '?'.

For the monitor to use a response, the program filename must exactly match that specified on the Hometerm Emulator screen.

When creating a monitor, the program defined as default for the Hometerm Emulator is the program `SSYSTEM.SYSTEM.INSPECT`. The default response to the `INSPECT` program is the text `"HIGH;SAVE ZZSA@HH@@MM@;STOP"`.

This Tandem program (`INSPECT`) is usually the one shown on a console, when a process uses the console as its hometerminal and traps. The Hometerm Emulator is therefore useful for programs that may enter a trap and use `INSPECT` as its trap handler, or otherwise issue a prompt against a terminal.

If a program prompts a monitor, and the program has not been specified in the Hometerm Emulator of that monitor, the program receives a Filesystem Error 66 (Device has been brought down) in response. The monitor then generates the event number 16:

```
PROGRAM <program>, PROCESS <process> ON  
HOMETERM EMULATOR PROMPTED, BUT NO  
AUTOREPLY FOUND
```

By specifying `<WAIT>` as response to a prompting process, the TCF monitor will hold that prompt unanswered until the prompting process stops or the prompt is answered from within the Waiting Prompts screen. The Waiting Prompts

screen is entered by pressing F2 in the Hometerm Emulator screen.

For further information on dealing with waiting prompts please refer to the section “Waiting Prompts in the Hometerm Emulator”.

The Hometerm Emulation is TCFCOM screen 8. The screen is entered, either from TCFCOM Main menu or from the Monitor menu screen, by pressing F8.

The Hometerm Emulation screen looks like this:

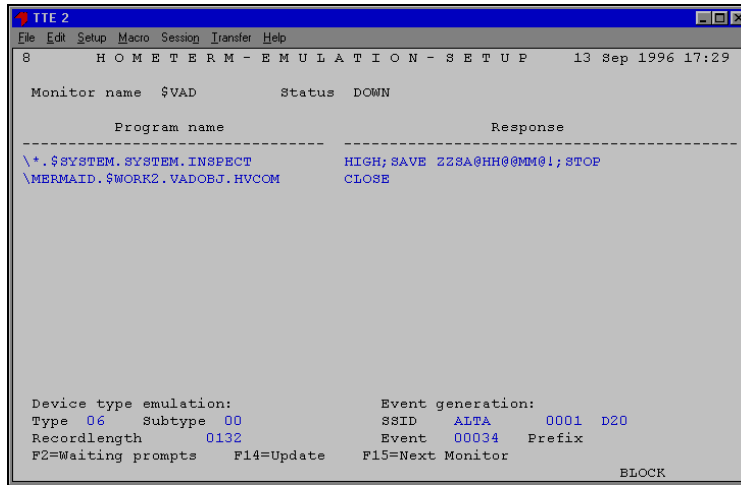


Figure 3.7: *The Hometerm Emulation screen.*

Program filename (open, input is optional)

Program name of the process prompting the Hometerm Emulator. The filename may contain the standard wildcards. These are a '*' (asterisk) for zero or more characters and '?' (question-mark) for exactly one character. The filename must be fully qualified with both a volume and a subvolume name.

Response (open, input is optional)

The response to the prompting program, specified in the corresponding Program filename field.

The TCF monitor supports certain types of text substitutions:

- @DD@** is substituted by the current day number as per two digits.
- @HH@** is substituted by the current hour as per two digits in 24 hours format.
- @MM@** is substituted by the current minute as per two digits.
- @SS@** is substituted by the current second as per two digits.
- @SY@** is substituted by the system-name-part of the program file of the prompting process, without the '\' (backslash) character.
- @VN@** is substituted by the volume-name-part of the program file of the prompting process, without the '\$' (dollar) character.
- @SN@** is substituted by the subvolume-name-part of the program file of the prompting process.
- @FN@** is substituted by the filename-part of the program file of the prompting process.

This feature is useful for specifying for instance saveabend filenames. These files always have names such as ZZSAnnnn, where nnnn is a four-digit number, specifying the creation time in hours and minutes.

If <WAIT> is specified as response to a prompt, the monitor in control will hold this prompt until the process stops or the prompt is answered from the Waiting Prompts screen. This screen is entered by pressing the F2 function key from within this screen.

Device type (*open, input is optional*)

The Guardian device type to be used by the Hometerm Emulation.

Device subtype (*open, input is optional*)

The Guardian subdevice type to be used by the Hometerm Emulation.

Recordlength (*open, input is optional*)

The Guardian recordlength of the device type to be used by the Hometerm Emulation.

A standard Tandem console device has the following values:

Type = 6, Subtype = 0, Recordlength = 132

These are the default values for the Hometerm Emulator as well.

SSID (*open, input is optional*)

The Guardian Event Subsystem ID (EMS SSID) used by the Hometerm Emulation. This Subsystem ID is used in every event generated and sent to the Tandem Event Management Subsystem (EMS), if the monitor configuration parameter Hometerm Ems Log is on (set to 'Y'). Default is ALTA .1.C30.

Event (open, input is optional)

The Tandem Event Management Subsystem (EMS) Event number.

This EMS Event number is used in every event generated and sent to the Tandem Event Management Subsystem (EMS), if the monitor configuration parameter Hometerm Ems Log is on (set to 'Y'). Default is the EMS Event number 34.

Prefix (open, input is optional)

Up to eight characters used as text prefixes used in every event generated and sent to the Tandem Event Management Subsystem (EMS), if the monitor configuration parameter Hometerm Ems Log is on (set to 'Y'). This prefix makes it possible to identify the events generated by different TCF monitors without having to invent more subsystem ids (SSIDs).

Function Keys

- F2** Waiting prompts. Presents the screen containing all outstanding, unanswered prompts held by the monitor in control. The Waiting Prompts screen is further outlined in the section "Waiting Prompts in the Hometerm Emulator".
- F14** Update configuration. The monitor receives the changes of the configuration immediately.
- F15** The next monitor selected on the previous screen if any.

Configuring the Autologoff Setup

The Autologoff Setup is used to 'tell' a TCF monitor exactly what to do when the monitor executes an autologoff against a terminal session.

When to execute autologoff is as specified in the Monitor configuration or in the User profile screen. This setting is based on the time a terminal session is to be left inactive while still being logged on.

What to do, in case of an autologoff, is defined in the Autologoff Setup screen. Also automatic autologoff, as autologoff forced through the TCFCOM Terminal menu.

The Autologoff Setup consists of the following three parts:

- Actions** These are texts and certain codes, such as the Shift-F16 function key, which the monitor uses in case of an autologoff.
- Programs** These are various programs that could be defined to have their own autologoff plan (next topic). If a program file has not been configured, the Default action plan is used depending on the terminal access mode being either conversational or block.
- Action Plans** The plans combine each program with one or more actions in a sort of vectors routine: the different programs point to one or more actions.

In cases of autologoff, the monitor uses the plans sequentially,

from left to right, until the session is logged off. The number of utilities running, i.e., TEDIT on SQLCI on TACL, is not important. Any utility is being logged off separately, either by its own or by the default plan.

If an autologoff plan is executed but the plan fails, the monitor generates event 38:

```
DEVICE <terminal-device>,USER <user-id>.
AUTOLOGOFF PLAN FAILED
```

The Autologoff Setup is TCFCOM screen 9. The function is entered, either from the TCFCOM Main menu or from the Monitor menu screen, by pressing F9.

The Autologoff Setup screen looks like this:

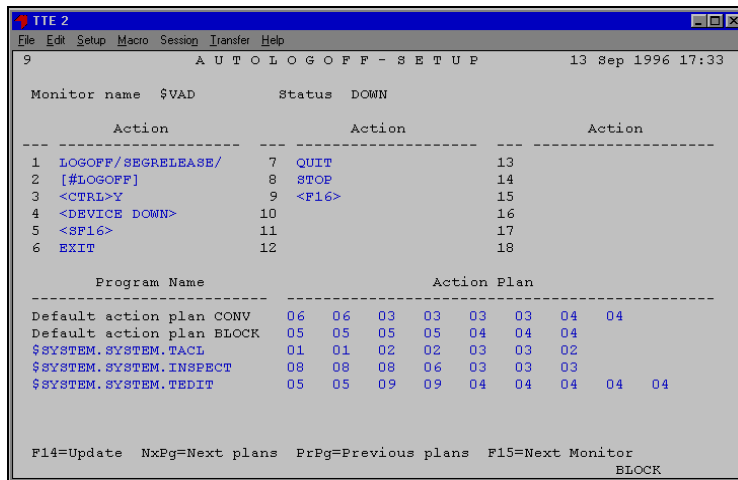


Figure 3.8: *The Autologoff Setup screen.*

Action (open, input is optional)

The actions that have to be carried out when a program is logged off automatically.

The action is specified as a response to the program being automatically logged off, for instance, for \$SYSTEM.SYSTEM.TACL, "#LOGOFF".

The monitor may be given the following non-textual parameters:

"<F16>"	the F16 key pressed.
"<SF16>"	the Shift F16 key pressed.
"<CTRL>Y"	the Ctrl+Y keys pressed (this is normally EOF).
"<DEVICE DOWN>"	the device has been brought down (Guardian Filesystem Error 66).
"<MODEM>"	modem error (Guardian Filesystem Error 140).

Program name (*open, input is optional*)

Name of the program for which a dedicated autologoff plan is desired. It is possible to specify 24 different program file names.

Use the NxPg and PrPg keys to scroll through the different program files and plans.

Action number (*open, input is optional*)

The action plan number referring to the action defined accordingly in the field Action.

Function Keys

- F14** Update configuration. The monitor receives the changes of the configuration immediately.

F15 The next monitor selected on the previous screen, if any.

In the above example all values are the default values except for the program names 'DIALIN' and the action <MODEM>.

In case of autologoff given to that program, the monitor issues the command QUIT twice. If the program remains logged on, a modem error (Filesystem Error 140) is issued to the persistent program.

Setting Up the Event Message Trigger

It is possible for the TCF user to define messages to be generated by the current monitor, when certain events occur.

The screen for controlling that such events may result in a message generation, is called the Event Message Trigger screen.

The different types of events are discussed along with the screen in the following:

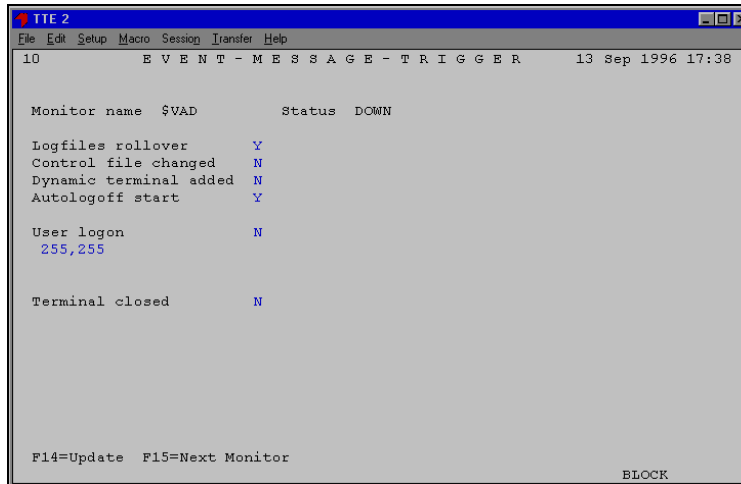


Figure 3.9: *The Event Message Trigger screen.*

Logfile rollover (*open, input is optional*)

'Y' (yes) or 'N' (no). If 'Y' then event message no 506 is generated, while the monitor performs a rollover of one of its logfiles:

```
LOGFILE ROLLOVER TO <new-logfilename>
```

Control file changed (*open, input is optional*)

'Y' (yes) or 'N' (no). If 'Y' then event message is generated while the monitor has its configuration updated. The event is the event no 26:

```
CONFIGURATION FILE <config-file> FOR TCF
MONITOR HAS BEEN CHANGED
```


Dynamic terminal added (*open, input is optional*)

'Y' (yes) or 'N' (no). If 'Y' then event message no 44 is generated, while a dynamic terminal session is started on the monitor. This could be a Multilan terminal using the TCFCONN utility.

```
DYNAMIC TERMINAL <logical> STARTED ON  
PHYSICAL DEVICE <physical>
```

Autologoff start (*open, input is optional*)

'Y' (yes) or 'N' (no). If 'Y' then event message no 50 is generated while autologoff is affecting a terminal:

```
DEVICE <terminal>, USER <user-id>.  
AUTOLOGOFF STARTED
```

User logon (*open, input is optional*)

'Y' (yes) or 'N' (no). If 'Y' then event message is generated while a specific user, matching a user-id or group of users, logs on the current monitor. The user-ids or groups are defined in the fields below.

Userid (*open, input is optional*)

'Y' (yes) or 'N' (no). If 'Y' then event message no 37 is generated while a user matching that specific user-id or group of users, logs on. The User logon has also to be set to 'Y'.

```
USER <user-id> HAS LOGGED ON <terminal>
```

Terminal closed (*open, input is optional*)

'Y' (yes) or 'N' (no). If 'Y' then event message is generated while a terminal stops and this terminal is defined in one of the fields below.

Terminal filename (*open, input is optional*)

'Y' (yes) or 'N' (no). If 'Y' then event message no 36 is generated while one of these terminals stops and at the same time the Terminal closed is set to 'Y'.

```
TERMINAL <logical> ON PHYSICAL DEVICE  
<physical> HAS STOPPED
```

Function Keys

- F14** Update configuration. The monitor receives the changes of the configuration immediately.
- F15** The next monitor selected on the previous screen, if any.

The screen examples above have all default values set. For instance, an event is generated when a logfile rollover occurs. Optionally, the TCF user may cause the monitor to generate an event message any time Super.Super (user id 255,255) logs on to the system.

Limitations of TCF

The Tandem architecture, its performance, the design and implementation of the TCF product in itself, impose a few limitations.

Number of TCF Monitors

The maximum number of TCF monitors per configuration file is 16. If it is necessary to use more than 16 monitors, use the Tandem FUP utility to define more configuration files (FUP CREATE LIKE ...).

Number of Terminal Definitions

The maximum number of terminal definitions per monitor is 50. Therefore more monitors have to be set up to control a larger number of terminals with TCF.

Number of Opens per Monitor

The maximum number of Filesystem Opens per monitor is 512. These include all kinds of opens:

- Opens via static or dynamic terminal sessions,
- TCFCOM opens,
- Opens via the Hometerminal Emulation feature

If a process tries to open a TCF monitor already having exactly 512 active opens, this process receives a Filesystem Error 12 - File in use - in return.

Note that one terminal session may have more than one Open, against the TCF monitor in control of that specific session. The user may for instance have a TACL session to run a SQLCI session running a TEDIT session, etc. Thus there is no limit to the number of Opens for session. The only limit is the 512 Opens on all active sessions.

A TCFCOM process controlling a particular configuration file, usually opens all the active Monitors configured in that particular configuration file.

Screen functions, such as the Monitor menu, the Broadcast and the Terminal menu, all open a running monitor. Note that a monitor is only opened once by each TCFCOM process.

Processes using the Hometerminal Emulation, may also open the TCF monitor in question. The number of Opens is dependent upon the behavior of each program, running against the Hometerm Emulator facility.

Each program may have a permanent Open against a monitor, or may even open this monitor more than once.

Monitor and Logfile Ownership

It is not possible for two or more monitors to share the same set of logfiles. Each monitor must have its own set of logfiles, that is, its own logfile name prefix.

If monitors share the same set of logfiles, the results - when rollover or purgedata occurs - are unpredictable and data may be lost.

Number of User Profiles

The maximum number of user and group profiles is 50.

Number of Exclusion Texts

The maximum number of exclusion text lines per monitor is 18.

Number of Programs Known to the Hometerm Emulator

The maximum number of programs known to the Hometerm Emulator is 14. This limit is only for processes actually prompting the monitor for input, i.e., an INSPECT or a DEBUG prompt. Executing programs only writing to the Hometerminal Emulator are all logged, the same as any other process generating events.

Autologoff Setup Limits

The maximum number of autologoff actions (texts or codes) is 18. The maximum number of programs, participating in the action plans is 24. The maximum number of action plans per program is 10.

Event Message Trigger Limits

The maximum number of user-ids or groups, triggering an event when logging on, is 16. The maximum number of terminal session names, triggering an event when shutting down is 12.

Broadcast Limits

The maximum number of target user-ids or groups is 14. The maximum number of specific target terminals or monitors is 6. Note that without any target terminals or monitors, all terminals under the monitors are considered to be target terminals.

Number of Outstanding Hometerm Emulation Prompts

The maximum number of outstanding Hometerm Emulation prompts that a monitor can handle is 40. If a process prompts a monitor already dealing with 40 outstanding prompts, and this process is configured to be waiting, the process will receive a Filesystem Error 66 condition in reply to that prompt (Device has been brought down).

Chapter 4: Daily Use

Chapter 4 describes all activities considered part of the daily routines when running the TCF subsystem. Daily activity includes TCF surveillance, monitor and terminal operation, such as setup and shutdown, terminal logging, extracting log information, etc.

The chapter is organized as follows.

- Surveillance of Monitor Status
- Surveillance of Terminal Status
- Startup and Shutdown of Monitors and Terminals
- Adding, Updating and Deleting Monitors
- Adding, Updating and Deleting Terminals
- Logging Terminal Activities
- Reading the Logfiles
- Waiting Prompts in the Hometern Emulator
- Generating Reports
- Using On-line Help

Surveillance of Monitor Status

All monitors, defined in the TCF configuration file, can be viewed from the Monitor menu screen in TCF.COM.

Monitor status information consists of the monitor process names, their states (UP or DOWN), the number of terminals configured and how many of these are in use, and have users logged ON or OFF. The Monitor menu screen also contains an operational part (startup and shutdown). See the section “Startup and Shutdown of Monitors and Terminals”.

Start the TCF.COM utility using the default configuration file TCFCONF:

```
$WORK TCF 12> run tcfcom
```

By pressing F1 from the TCF Main menu, the Monitor menu is displayed.

Select	Monitor	Status	Static	Dynamic	Logged on	Off
	STD201	DOWN	004	000	000	000
	\$VAD	DOWN	002	000	000	000

Terminal Update every seconds

F2-12=Screen 2-12 SF10=Start SF11=Start with terms SF12=Shutdown F14=Autoupdate BLOCK

Figure 4.1: *The Monitor Menu.*

Select (*open, input is optional*)

Select one or more monitors by entering any character different from a blank on the corresponding line.

Monitor (*protected*)

Defined monitor name.

Status (*protected*)

Status of monitor - UP, DOWN or FAIL. If the request to a running monitor for statistic information about its terminals and users fails for some reason, the word 'FAIL' is displayed in this field.

Static (*protected*)

Number of static terminals defined for each monitor.

Dynamic (*protected*)

Number of dynamic terminals started outside TCFCOM using the TCFCOM utility.

Logged on (*protected*)

Number of active terminals/users currently logged on.

Off (*protected*)

Number of active terminals currently logged off. If a static terminal is stopped it will not be accounted for in this field.

Terminal (*open, input is optional*)

Name of an existing terminal. Only useful for F5 - terminal configuration.

Update every - seconds (*open, input is optional*)

Autoupdate, the screen data will be updated every chosen second. To start auto-refresh, press the F14 keys. Values are 10 - 999 seconds.

Function Keys

- F1** Field help - press F1 after having placed the cursor at the field where help is needed..
- F14** Auto-refresh. The screen is refreshed every <nn> seconds. <nn> is the value specified in field 'Update every - seconds'. Press F14 without a value (or '0') in the field, and the screen is refreshed only once.
- F16** One screen back. Returns to the main menu.
- SF1** Screen help. Short description of this particular screen.
- SF10** Start of the monitors selected.
- SF11** Start of the monitors selected and all the terminals that are configured under those monitors.
- SF12** Shutdown of the monitors selected. Confirm this operation by pressing F12 twice.
- SF16** Return to the main menu.
- F2-F12** These function keys have the same meaning as in the TCF Main menu. For instance, the F2 key is Monitor Setup, F3 is User Profile Setup, etc. Before pressing F2 to F10 or F12, at least one monitor must be selected.

If no monitors exist (the last one has just been deleted), then leave this screen and re-enter a monitor configuration using the Monitor Setup in screen 2.

The operational function keys SF10, SF11 and SF12 are described in detail in the section "Startup and Shutdown from TCFCOM".

In the example above three monitors have been created. \$TCF1 and \$T255 are active but the second \$TCF2 is stopped.

Monitor \$TCF1 controls 25 terminals, 23 static, defined in TCFCOM, and 2 dynamic, started up using the TCFCONN utility. 17 out of these 25 active sessions are users currently logged on. The other 6 sessions are logged off. The difference between the 25 terminals and the 23 that are either "logged on" or "off" (17+6) are the stopped terminals. These are static terminals not yet started.

By selecting this monitor and pressing the F4 key, the user-ids and last I/O on the started and the stopped terminals can be surveyed.

The \$TCF2 monitor has 11 terminal configurations. These are static.

If a monitor is not running (status = DOWN), the status of dynamic, logged on and logged off terminals will always show '000'.

Surveillance of Terminal Status

All terminals, configured in a single TCF configuration file can be viewed from the Terminal menu screen in TCFCOM. The terminal status information consists of a description of the terminal, the logical name, terminal type and state, the current user-id logged on and last time the terminal was used.

All the static terminals on this screen have previously been defined in the Terminal Configuration screen (screen 5).

The Terminal Menu screen also contains an operational part (startup, force, logoff and abort). See the section “Startup and Shutdown of Monitors and Terminals”.

Start the TCFCOM utility using the default configuration file TCFCONF:

```
$WORK TCF 13> run tcfcom
```

By pressing F1 from the TCF Main menu, the Monitor menu screen (screen 1) is displayed. Select the monitor in question and press the F4 key. If the monitor is known directly, it is also possible to enter the monitor name in the TCF Main menu and jump to the Terminal menu directly by pressing F4.

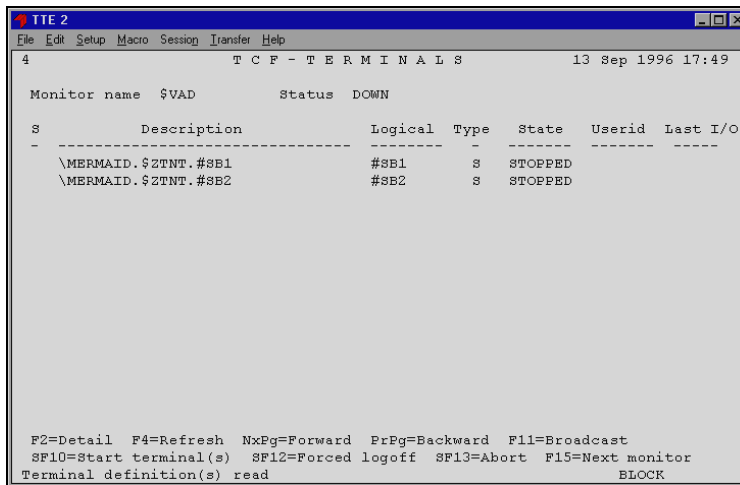


Figure 4.2: The TCF Terminal menu

S (open, input is optional)

Select one or more terminals by entering any character different from a blank in the corresponding column.

Description (protected)

The description of the terminal as text. The description is entered when the terminal configuration is created or later updated. For dynamic terminals, this field always contains the name of the physical terminal device.

Logical (protected)

The logical name of the terminal. This is the new hometerm name of the terminal. The name can be seen using one of the TACL commands WHO or STATUS *, TERM. For instance, the logical terminal name \$TCF1.#TO1003. #TO1003 is the logical name known to the TCF monitor \$TCF1.

Type (protected)

Type of Terminal, 'S' (Static) or 'D' (Dynamic). Static terminals are always predefined in TCFCOM (screen 5). Dynamic terminals are always shown first on the screen. These are started outside TCFCOM using the TCFCONN utility.

State (protected)

The current state of the terminal - STOPPED or STARTED. If the terminal type is dynamic, the state is always started. A static terminal is stopped when there are no processes (command interpreters) running on that specific terminal.

Userid (protected)

If the state of the terminal is STARTED, it shows the user-id of the user last executing a command. If it is a static, stopped terminal, this field is empty (blank).

Last I/O (protected)

Time or date of last terminal I/O done to or from the terminal. This could be a command, a system response, a Function Key pressed, etc.

If the terminal is in the started state, but has not been used since the day before, only the date will be listed. Otherwise, the time is listed. If it is a static, stopped terminal, this field is empty (blank).

Function Keys

- F2** Enter the terminal configuration (screen 5) for the first selected terminal. It is possible to scroll through all the selected terminals, one by one, in the terminal configuration screen. This is done by selecting more than one terminal, enter the Terminal configuration screen, and then pressing the F15 (standard next) key for each terminal. If the terminal status screen doesn't have any terminals on it at all, an empty terminal configuration screen will appear when pressing the F2 key. F2 is only valid for static terminal definitions.
- F4** Refresh status fields on the screen. This will request new information from the monitor.
- F11** Enter the Broadcast screen (screen 11). All the selected terminals will be transferred to the

Broadcast screen. Therefore, it is preferable to select at least one terminal.

- F15** Gives the terminals under the next selected monitor, if any.
- SF10** Start all terminals selected. The monitor must be in the running state (status UP).
- SF12** Force logoff of the selected terminal. This operation must be confirmed by pressing Shift F12 twice. The monitor must be in the running state (status UP).
- SF13** Abortion of the selected terminal. This operation must be confirmed by pressing Shift F13 twice. The monitor must be in the running state (status UP).
- PrPg** Gives the next set of terminals, if any.
- NxPg** Gives the previous set of terminals, if any.

The operational function keys, SF10, SF12, SF13 are described in detail in section 5.3.1 Startup and shutdown from TCF.COM.

Before referring to one or more terminals, just point these out by entering a non blank character in the corresponding selection column.

In the example above, terminals controlled by the monitor \$TCF1 are listed. The monitor is up and 13 of the 15 terminals on the screen are currently active.

One of these, the ninth, is currently logged off. The user-id is 000,000 and last I/O to or from that terminal was 'yesterday'. (in the upper right corner the current date is the 1st April. Last terminal I/O was done on 31st March. Therefore, yesterday).

The first two terminals are dynamic. The rest are static terminals. Two of those are stopped, the 8 and the 11.

Another thing worth mentioning is the way that the descriptions have been used. It is obvious that the user of this TCF setup has used some sort of standard. The terminal type (i.e. PCs) connections to their Tandem system (i.e. ASYNC) and the names of the users have been used.

Startup and Shutdown of Monitors and Terminals

The startup of monitors and terminals may be done in either of two ways:

- From within TCFCOM
- From a TACL session

Please refer to one of those two sections. These are described next.

Startup and Shutdown from TCFCOM

Startup and shutdown of monitors and terminals are in TCFCOM controlled from two screens. On the monitor level the Monitor Menu screen (screen 1) is used, and on the terminal level the Terminal Menu screen (screen 4) is used.

Startup and Shutdown of Monitors

This is, as mentioned, done from the Monitor Menu screen. See section 5.1 surveillance of the monitors status for a description of this screen.

Select the monitors by entering a non-blank character in the select column. At least one monitor must be selected. One of the three function keys, Shift-F10, Shift-F11 and Shift-F12 are then used:

Shift-F10, Start Shift-F10 is used to start all the monitors selected in the select column. The monitors must be in the stopped (DOWN) state. The monitors are started based on their specifications in the Monitor Configuration setup.

After a successful startup, the message 'Monitor(s) started successfully' is displayed in line 25.

Shift-F11, Start with terms Shift-F11 does the same as the Shift-F10 key, except that all static terminal definitions for those monitors are started as well. The monitors must be in the stopped (DOWN) state.

After a successful startup, the message 'Monitor(s) and <n1> out of <n2> Terminals started successfully' is displayed in line 25. <n1> is the number of terminals that were started. <n2> is the number that were tried to start.

Shift-F12, Shutdown Shift-F12 is used to shutdown all the monitors selected in the select column. The monitors must be in the running (UP) state.

The operation must be confirmed by pressing the SF12 key twice, the second time after the message “Please press SF12 again to confirm Shutdown”.

If there are any running terminals (this is normally the case), these will automatically be logged off and aborted when a monitor has entered its shutdown procedures.

Note that no processes on terminals are stopped by the monitor. After all sessions having been auto-logged off, the monitor simply stops executing.

After an accept of the shutdown command, the message “Monitor shutting down” is displayed in line 25.

Here is an example of a monitor startup. The TCFCOM user has selected the second monitor \$B for startup:

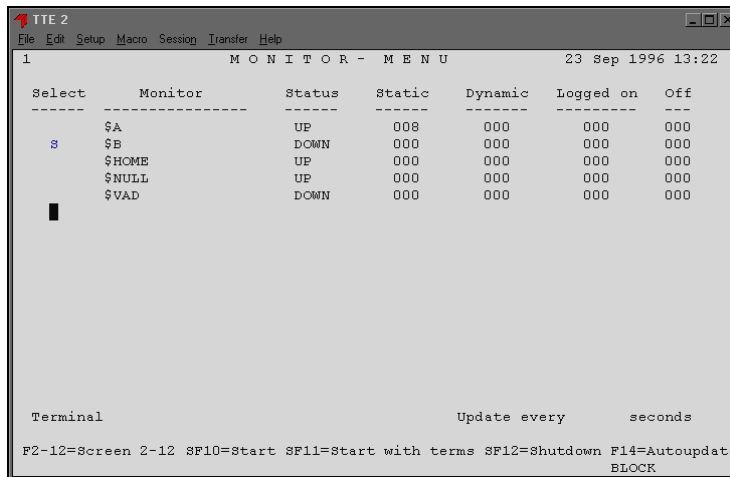


Figure 4.3: Sample monitor startup.

By pressing the Shift-F10 key, the monitor will be started without any terminals. If the Shift-F11 key is pressed, the 11 static terminals will also be started.

It is also possible to shutdown the monitor \$HOME. The 's' marker should then have been placed in the top select column, and the Shift-F12 key pressed twice. The 17 terminals logged on will receive autologoffs from their monitor \$HOME.

Startup and Shutdown of Terminals

This is controlled with the Terminal menu screen. See section 5.2 surveillance of the terminals status for a description of this screen.

Select the terminals by entering a non-blank character in the select column. At least one terminal must be selected.

The monitor in control must be running before starting any terminals. One of the three function keys, Shift-F10, Shift-F11 and Shift-F12 are used:

**Shift-F10,
Start
terminal(s)** Shift-F10 is used to start all the terminals selected in the select column. The terminals must be in the stopped state (state field says 'STOPPED'), before doing a start terminals operation. The terminals are started, based on their specifications in the Terminal Configuration setup.


**Shift-F12,
Forced
logoff** Shift-F12 starts the necessary autologoff sequences against the terminals selected. There is no difference between the automatic autologoff, triggered by the time a terminal is left logged on but

unused, and the force logoff operation. The monitor uses its Autologoff Setup by forced logoff as well.

The terminals must be in the started state (State field says 'STARTED'), before doing a forced logoff.

After a successful autologoff, the User-id field will switch to the user 000,000. This shows that the terminal is logged off.

Shift-F13, Abort Shift-F13 is used to abort all selected terminals. The terminals must be in the started state (state field says 'STARTED'), before an abort operation is executed.

 **Warning** This is a sensitive function. The monitor simply denies all processes running through these terminal sessions, access to the terminal device under its control. These processes will get I/O errors and normally ABEND or stop prematurely. It may therefore be a good idea, to first execute a forced autologoff, before starting the abort operation.

Forced logoff and abort operations must be confirmed by pressing one of the function keys twice.

After a successful terminal operation, the message 'Terminal operation completed successfully' is displayed in line 25.

Below is an example of a forced logoff on two TCF terminals.

The TCFCOM user has selected the monitor \$A, either in the TCF Main menu or the Monitor menu, and then entered the Terminal menu screen.

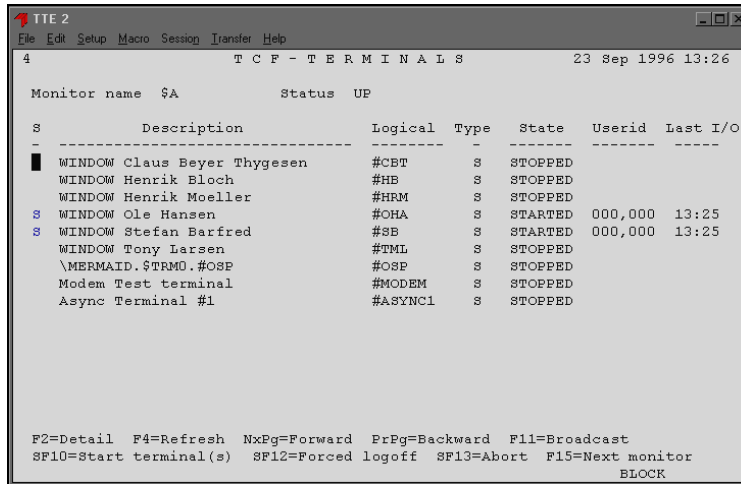


Figure 4.4: *The TCF Terminal screen.*

By pressing the Shift-F12 key twice, the monitor will start to autologoff the four last terminals. This is done according to its Autologoff Setup for the programs running on those terminals.

Startup and Shutdown from TACL

This TCF feature makes it possible to start and stop TCF monitors and terminals directly from TACL, instead of having to do it interactively by entering the TCFCOM menu.

Using TCFCOM directly from TACL, without using the block mode screens, is called batch mode.

Unlike TCFCOM operations, there is no difference between operating on monitors and terminals in batch mode. The TCFCOM batch mode has the following syntax:

```
TCFCOM [ /<startup>/ ] [<tcfconf>]
<operation><operation> ::= { STARTUP |
SHUTDOWN }
```

<startup> is the normal process startup parameters used by TACL, i.e., CPU, IN, OUT, etc.

The OUT parameter is used to create a file when stopping TCF. This file is then used to restart TCF later.

The IN parameter is used to restart TCF.

<tcfconf> is the name of the TCF configuration file to be used as basis for starting or stopping TCF. Default is the filename TCFCONF on the default sub-volume.

STARTUP this command starts all the monitors and terminals shutdown by TCFCOM.

SHUTDOWN this command stops all active monitors and forces autologoff of the terminals active under the monitors. The TACL prompt will reappear when all the terminals and monitors are stopped.

TACL Command to Shutdown TCF:

```
TCFCOM /OUT TCFIMAGE/ SHUTDOWN
```

The outfile created by the shutdown command contains a list of all the monitors and terminals stopped.

The outfile named TCFIMAGE could look like this:

```
MONITOR $TCF1 NOT RUNNING
MONITOR $TCF2 NOT RUNNING
STATIC 0SYS1.$TRMO.#OSP LOGICAL $TCFX.#TOO STOPPED
STATIC 0SYS1.$TRM2.#A LOGICAL $TCFX.#T2A STOPPED
MONITOR $STCF STOPPING
```

The outfile is later reused as input to startup the TCF monitors and terminals, which were active at the time of the last shutdown.

Command to Start Up TCF:

```
TCFCOM /IN TCFIMAGE/ STARTUP
```

This command starts all the monitors and terminals. The information used to start TCF is stored in the file named TCFIMAGE. TCFIMAGE was created last time TCF was stopped.

Adding, Updating and Deleting Monitors

Adding, updating and deleting of TCF monitors, is done from the TCFCOM screen 2, Monitor configuration screen:

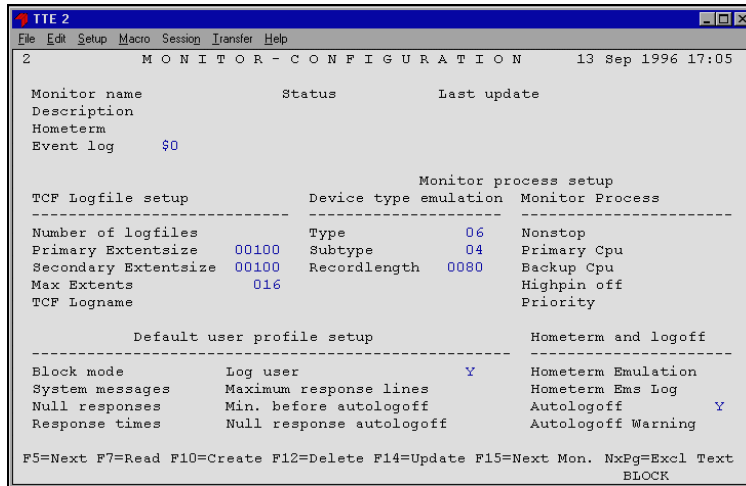


Figure 4.5: *The Monitor Configuration screen.*

Only TCF users with authority to run TCFCOM in full mode are allowed to add, update or delete a TCF monitor configuration.

Adding a New Monitor

Adding a new monitor is done by pressing the F10 key. When a monitor is added, all objects belonging to the monitor, except for the logfiles, will be created. This includes the Hometerm Emulation setup, autologoff plans and Event Message Trigger setup. The logfiles are created by the monitor at the first start up.

Please refer to the section 4, Configuring, for information about planning the environment of TCF monitors.

Updating a Monitor Configuration

Updating a monitor is done by pressing F14. A monitor may be running when the configuration is updated. Several things will take place instantly:

Changing the Nonstop Parameters

A monitor not running Nonstop may be changed to run as a Nonstop process pair and vice versa.

The monitor CPU configuration, for primary and backup CPU can be changed dynamically. After a short period, TCFMON will automatically switch CPU numbers to the new CPU configuration. If the monitor CPU configuration is changed while TCFMON is switching to a new CPU configuration, the latest configuration will be ignored. To avoid this condition, wait until TCFMON has switched to the latest configuration. Then update the monitor CPU configuration with function key F14 again.

Changing the Executing Priority

The Guardian priority for TCFMON is changed instantly, when the monitor priority is updated through the Monitor setup configuration in TCFCOM.

Changing the Logfile Names

The TCF logfile names can be changed dynamically, but the change will not have any effect before the next logfile rollover occurs. If the logfiles specified do not exist at the time of a rollover, new logfiles will be created.

Changing the Default User Profile Setup Parameters

All these parameters may be changed dynamically.

Changing Other Setups

All other setups, including User profiles, Hometerm Emulation setup, Autologoff plans and Event Message Trigger may all be changed dynamically, without stopping the monitor or terminals.

Deleting a Monitor

Deleting a monitor is done by pressing F12. A running monitor must first be shutdown before it is deleted. When a monitor is deleted, all objects belonging to that monitor, except for the logfiles, will also be deleted.

This includes the user profiles, terminals, reports, Hometerm Emulation setup, autologoff plans and Event Message Trigger setup.

Adding, Updating and Deleting Terminals

Adding, updating and deleting of terminals, is carried out from the TCFCOM the Terminal configuration screen:

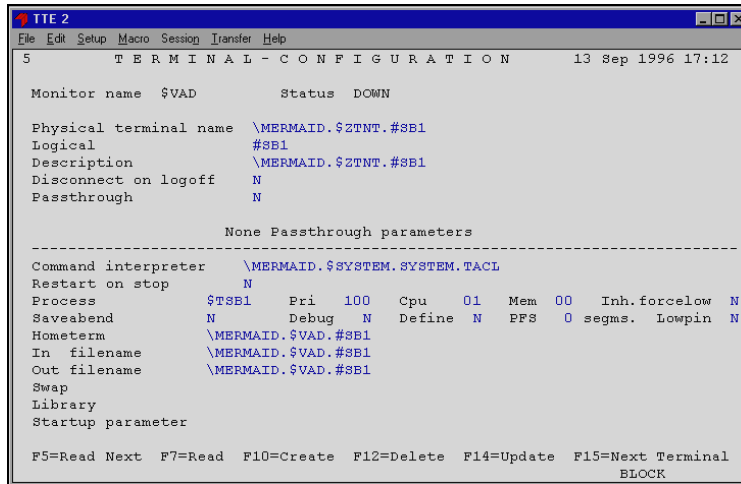


Figure 4.6: *The Terminal Configuration screen.*

Only TCF users with authority to run TCFCOM in full mode are allowed to add, update or delete a TCF terminal.

Adding a New Terminal

Adding a new terminal is done by pressing the F10 key. Please refer to the section 4.3, Configuring the terminals, for the information about configuring the different types of TCF terminals.

Updating a Terminal Configuration

Updating a terminal is carried out by pressing the F14 key. A terminal may be running when the configuration is updated. All parameters, except for Physical and Logical name, may be changed dynamically.

Although allowed, dynamic changes will only have effect for the Restart on stop and Disconnect on logoff parameters. Other parameters are not effective before the terminal is started again.

Deleting a Terminal

Deleting a terminal is carried out by pressing the F12 key. A running terminal must first be stopped before it is deleted. Forced logoff followed by abort will do this.

Logging **Error! Reference source not found.**Terminal Activities

There are primarily three things to be considered when logging TCF terminals:

- WHO should be logged
- WHAT should be logged
- HOW MUCH should be logged

Configuring the terminal logging parameters and options, is done from the TCFCOM screens 2 and 3, the Monitor- and User profile Setup screens.

The Default user profile setup of the Monitor configuration, will be overridden by the User profile setup. In the User profile setup there are two levels: The user group and user-id level. A matching user-id will override a matching user group.

Therefore, it is recommended that the most general profile is defined in the Default user profile setup, of the Monitor setup

(TCFCOM screen 2). User-specific parameters and options are then defined in the User profile setup.

Who Should be Logged?

This is controlled by the Log user parameters. Depending on this parameter, logging is done or not.

What Should be Logged?

The parameters Block mode, System messages, Null response and Response time controls the amount of data logged.

Block mode, System messages (normally not included) and Null response is either in or excluded from the logging.

How Much Data Should be Logged?

This is also depending on what is logged. For instance, block mode transactions contains rather large amounts of data. Primarily, the parameter Maximum response lines are used to control this. Maximum response lines could either be in or decreased. If disk space is a problem, a decrease in this parameter may help. Maximum response lines are only for conversational transactions.

Update may be done dynamically, on monitors already active. Only TCF users, with authority to run TCFCOM in full mode, are allowed to update these parameters.

Please refer to the Chapter 4 “Configuring TCF”, for information about how to change the contents of the parameters and options controlling terminal logging.

Reading the Logfiles

There are two ways of reading the different TCF logfile interactively:

- the TCFREAD utility.
- The TCFCOM screen 12, logfile Browse. This implies, at least, read-authority to the corresponding TCF configuration file. This is also known as using TCFCOM in read-mode.

The TCFREAD Utility

TCFREAD reads and deciphers the terminal activity logfile records. The TCFREAD utility runs in conversational mode.

After having issued the TCFREAD run command at a TACL prompt, a TCFREAD session initiation could look similar to the following example.

The screenshot shows a window titled 'TTE 2' with a menu bar (File, Edit, Setup, Macro, Session, Transfer, Help). The main area displays a table of terminal activity records with columns for Date, Time, User, Terminal, and a description of the activity. The records are sorted by date and time, showing activity from 05 SEP 1996 09:18 to 04 SEP 1996 09:09. The activity includes system messages like 'MATTERHORN - Service server \$MUMP' and various 'EXT?' commands such as 'set_utab_date', 'set_fbzu_date', 'get_venige_verb', etc. The window ends with the prompt '1996/09/04 BACKW ==>' and the text 'CONV' in the bottom right corner.

```

TTE 2
File Edit Setup Macro Session Transfer Help
Date Time User Terminal
05 SEP 1996 09:18 255,255 $HOME "MATTERHORN - Service server $MUMP"
" up"
05 SEP 1996 09:14 255,255 $HOME "05SEP96,09:14 $ZVPT: WARN - *11"
"40* DEFINES SPECIFIED AT PATHMON "
"CREATION ARE IGNORED"
05 SEP 1996 09:14 255,255 $HOME "05SEP96,09:14 $ZVPT: COPYRIGHT TA"
"NDEM COMPUTERS INCORPORATED 1980 "
"- 1985, 1987 - 1992"
05 SEP 1996 09:14 255,255 $HOME "05SEP96,09:14 $ZVPT: PATHMON - T9"
"153D20 - (31JAN94)"
" EXT?: set_utab_date"
04 SEP 1996 11:51 255,255 $HOME " EXT?: set_fbzu_date"
04 SEP 1996 11:51 255,255 $HOME " EXT?: get_venige_verb"
04 SEP 1996 11:51 255,255 $HOME " EXT?: get_ungmen_verb"
04 SEP 1996 11:51 255,255 $HOME " EXT?: get_tlos_liste_pltei_n2lag"
04 SEP 1996 11:51 255,255 $HOME " EXT?: get_sapi_liste"
04 SEP 1996 11:51 255,255 $HOME " EXT?: get_numod_verb"
04 SEP 1996 11:51 255,255 $HOME " EXT?: get_nronr_verb"
04 SEP 1996 11:51 255,255 $HOME " EXT?: get_konsi_liste"
04 SEP 1996 11:51 255,255 $HOME " EXT?: get_genive_verb"
04 SEP 1996 09:09 255,255 $HOME " EXT?: get_bmwi_event"
1996/09/04 BACKW ==>
CONV

```

Figure 4.7: A TCF session initiation.

The TCFCOM Logfile Browse Screen

The Logfile Browse screen is used to view the logs of the different TCF monitors.

As each monitor has its own set of logfiles, the user must select a monitor as 'current' before entering this screen. If the user wishes to view another set of logfiles, a new monitor must be selected, either from the monitor menu or the Main menu, and then re-enter the Logfile Browse screen.

The Logfile Browse works with the user, either via the function keys available, or interactively via the command line. This information is always shown in time wise ascending order, whether the browsing direction is forward or backward.

When pressing the F12 key in the TCFCOM Main menu or in the Monitor Menu, the Logfile Browse screen is presented:

```

TTE 2
File Edit Setup Macro Session Transfer Help
12 LOGFILE - BROWSE 23 Sep 1996 16:52
Monitor name $TCFX Status UP " Current logfile TCFX0001
Command REVIOUS
Time User Terminal
14:51 000,000 $TERM3.#D "TACL 1> logon jit.manager"
14:51 000,000 $TERM3.#D "Password: "
14:51 200,255 $TERM3.#D "TACL (T9205D30 - 26MAY95), Operating System "
14:51 200,255 $TERM3.#D "COPYRIGHT TANDEM COMPUTERS INCORPORATED 1985"
14:51 200,255 $TERM3.#D "(Retaining your existing variables)"
14:51 200,255 $TERM3.#D "CPU 1, process has no backup"
14:51 200,255 $TERM3.#D "September 23, 1996 14:51:52"
14:51 200,255 $TERM3.#D "(Invoking $SYSTEM.SYSTEM.TACLLOCL)"
14:51 200,255 $TERM3.#D "*****"
14:51 200,255 $TERM3.#D "M E S S A G E T O A L L "
14:51 200,255 $TERM3.#D "*****"
14:51 200,255 $TERM3.#D "Offene Taetigkeit"
14:51 200,255 $TERM3.#D "*****"
14:51 200,255 $TERM3.#D " "
14:51 200,255 $TERM3.#D " "
14:51 200,255 $TERM3.#D " "
14:51 200,255 $TERM3.#D " "
NxPg=Forw PrPg=Backw F10=Position F12=Config SF7=Begin SF8=End F16=Exit
BLOCK
    
```

Figure 4.8: *The Logfile Browse screen.*

Logfile Browse opens the logfiles when entering this screen, and closes the logfiles when leaving the Logfile Browse screen again.

Security problems with some logfiles will not prevent any user from running TCFCOM, if the user has the authority to do this. Only access to the logfiles are not permitted.

Current logfile (*protected*)

Name of the current TCF logfile. The name is without volume and subvolume qualification.

Command (open input is optional)

Command line. The command in this field is executed by pressing the RETURN key. As long as any other key is pressed, the command is ignored. The different commands are documented under 'Command line commands' on the next pages.

System response lines (*protected*)

The system response to a command executed or a function key pressed. Normally this is the logged data, as the user browses through the logs. Some advisory messages will appear in this field, i.e., I/O errors on the TCF logfiles and others.

Function Keys

NxPg Forward scroll through data. Pressing this function key has the same effect as the NEXT

command.

PrPg Backward scroll through data. Pressing this function key has the same effect as the PREVIOUS command.

F10 Position to the position time specified in the configuration screen. From here on the data is presented in forward mode.

F12 Enters the configuration screen. From the configuration screen, the user is able to specify all session control options, and parameters, used here in the Logfile Browse screen.

Note When leaving this screen (F16 or Shift-F16), some of these configuration options and parameters are reset to their default values.

SF7 Positions to the time specified in LIMIT BEGIN. If the LIMIT BEGIN time is before the first logged data at all, the positioning is done at the beginning of all logged data. From here on, data is read in forward mode. Pressing the Shift-PrPg function keys has the same effect, On a PC/Workstation keyboard, this is done by pressing Alt-PageUp.

SF8 Position to the time specified in LIMIT END. If the LIMIT END time is after the last logged data at all, the positioning is done at the end of all the logged data. This is also where the current logging takes place. From here on, data is read in backward mode. Pressing the Shift-NxPg function keys has the same effect. On a PC/Workstation keyboard, this is done

by pressing Alt-PageDown.

Command Line Commands

All the configuring commands can also be set in the Logfile Browse setup screen. This is done by pressing the F12 key from within the Logfile browse screen itself.

BEGIN

This command is used to list the oldest possible TCFMON transactions, logged in the current logfiles, and set Logfile Browse in Forward mode. The first possible information to list is set with the LIMIT BEGIN command. Default for the LIMIT BEGIN time is yesterday at 00:00. If information is needed to be listed before this time, use the LIMIT BEGIN command.

DISPLAY <subject> [OFF]

This command will control the number of fields that are displayed when the log information is shown on the out file. The following display subjects are available:

<subject>	Description.
Date	Date when the event was written to the logfile.
Time	Time when the event was written to the logfile.
User	User-id of the process controlled by TCF.
Process	Process-id or name of the processor who wrote the event to the logfile

wrote the event to the logfile.

Program	Program filename of the processor who wrote the event to logfile.
Terminal	Physical terminal name where process is running.
Error	Filesystem Error of the I/O operation.
I/O Type	The file system I/O type, such as Write, Read, etc.
Read	Number of bytes read from the terminal.
Write	Number of bytes written to the terminal.
Text	The text that was written and read to and from the terminal.
All	All will include the following subjects: date, time, user, error, write, read, terminal and text.
All Off	Will display the following subjects: date, time and text.

END

This command is used to list the latest possible log information, logged in the current logfile and sets Logfile

Browse in backward mode. The latest possible information to show it set with the LIMIT END command.

LIMIT { BEGIN | END } <time-spec>

This command is used to set the time interval that can be listed from the TCF logfiles. The LIMIT BEGIN is used to set the time for the first information, that can be listed from the TCF logfiles. The LIMIT END is used to set the time for the latest information, to be listed from the TCF logfiles.

The LIMIT BEGIN and END commands are useful for limiting a search to a specific time period and by reducing search time and thereby CPU consumption.

The default for LIMIT BEGIN is yesterday at 00:00 and LIMIT END is default set today at 23:59.

Syntax:

```
LIMIT { BEGIN | END } <time-spec>
```

```
<time-spec> ::= { <time-abs> | <time-rel> }
```

```
<time-abs> ::= <DD> [ <MMM> ] [ <[YY]YY> ]  
                <HH> : <MM> [ : <SS> ] ]
```

<DD> is a numeric date

<MMM> is an alphabetic month, i.e., Jan

<[YY]YY> is a numeric year

<HH>:<MM> is numeric hours and minutes

<SS> is numeric seconds

```
<time-rel> ::= D { + | - } <n>
```

```
[ <HH> : <MM> [ : <SS> ] ]
```

<n> is the number of days to go forward or back from today, i.e. D-7 to go back exactly one week.

<HH>:<MM> is numeric hours and minutes

<S> is numeric seconds

Examples

LIMIT BEGIN 1 Apr 1993

This will set the first information to be listed from the TCF logfiles. Any information prior to 1 Apr 1993 will not be listed. Trying to list any information before this date will result in the message:

```
*** BEGINNING OF FILE ***
```

```
LIMIT BEGIN D-10
```

This will set the first information to be listed from the TCF logfiles back 10 days. Any information prior to this date will not be listed. Trying to list any records before this date will result in the message:

```
*** BEGINNING OF FILE ***
```

```
LIMIT END 12:00
```

This will set the last information to be listed from the TCF logfiles at today at 12:00. Any records after this date will not be listed. Trying to list any records before this date will result in the message:

```
*** END OF FILE ***
```

LOG [<file-name>]

This command is used to start logging the output from Logfile Browse to a file, or to stop logging. If a filename is specified in the log command, logging will start to the filename specified.

If logging is already active and a filename is specified, the current logfile will be closed and the filename specified will become the current logfile.

The log command without a filename will close the current logfile. If logging is not active nothing will happen.

<file-name> must be a sequential type of file. For instance, a spooler, an entry-sequenced disk file, a process, etc.

NEXT

This command sets Logfile Browse in forward mode, and lists the next records.

PAGESIZE { <no-list-lines> | -1 }

This command is used to control the number of lines being listed between two command prompts. Valid values are from 1 to 255 lines or -1 as an infinite value. This value will list all TCFMON records, from the current position through to one of the file boundaries, depending on the current direction of browsing.

POSITION <time>

This command positions to a specific point of time in the logfiles. After a successful position, Logfile Browse will list the data logged, at the date and time specified.

Data will be listed in forward mode. To see the TCF log information prior to these, just use the PREVIOUS command to turn the reading direction to backward mode.

When specifying a position before that of the first log information, the first log information will be listed. If specifying a position between two transactions, the latter is returned. If specifying a position beyond that of the last log information, an error message will be shown.

Syntax

POSITION <time-spec>

<time-spec> ::=+ { <time-abs> | <time-rel> }

<time-abs> ::= <DD> [<MMM>] [<[YY]YY>]
<HH> : <MM> [: <SS>]]

<DD> is a numeric date

<MMM> is an alphabetic month, i.e., Jan

<[YY]YY> is a numeric year

<HH>:<MM> is numeric hours and minutes

<SS> is numeric seconds

<time-rel> ::= D { + | - } <n>

[<HH> : <MM> [: <SS>]]

<n> is the number of days to go forward or back from today, i.e. D-7 to go back exactly one week.

<HH>:<MM> is numeric hours and minutes

<S> is numeric seconds

Examples

POSITION D-1

Will position the log pointer at yesterday at 00:00

POSITION D-4 12:00

Will position the log pointer at four days ago at 12:00

POSITION Apr 1 1993 09:10:20

Will position the log pointer at 1st April 1993 at 09:10:20

PREVIOUS

This command is used to list the TCF logfile information prior to the ones just listed. This sets Logfile Browse in backward mode. The command has the same effect, as pressing the Return key without a command, while in backward mode.

REPLAY {ON <terminal> | OFF }

<terminal> is a valid terminal device filename, to be used for the replay session. The terminal must be available, i.e., is not occupied by another program. If OFF is specified an active replay session is terminated and the replay terminal is released.

The Replay function repeats the transactions on the replay terminal. The terminal output is presented exactly in the same way as the original session. No kind of formatting is done.

Note A specific terminal should always be searched when the Replay function is active. If no terminal search is defined before using the Replay function, the replay session will

disrupt the session output. Especially if one or more transactions replayed are recorded while in block mode. If no search criteria are specified at all, the user receives a warning showing this.

Note The terminal to be used for replay must be of the same terminal type, as the terminal previously recorded. If not, device specific control characters and character sequences may disrupt the output presented. This is because the output is presented on the replay terminal in an unformed mode.

Note The replay terminal must not be occupied by any active programs. If a TACL is running on that replay terminal, it must be paused by the PAUSE command.

To obtain the best output it is recommended to use reading in forward mode.

Use the Replay function to follow a terminal for a specific period of time. Another possibility is to follow terminal session on-line. This might be interesting, in case of a demonstration of some commands executed from one terminal. The session is fully viewed on one or more terminals, thus enabling the users on those terminals to see exactly what is happening. To get the maximum out of a replay session, set up the parameters Auto-read and Pagesize to the appropriate values.

This is a very powerful tool. Only with the Replay function is it possible to view exactly what happened when the terminal session was working in block mode. For instance, changes to edit files done with the TEDIT editor.

SEARCH { <search-spec> [OFF] | ALL OFF }

This command makes it possible to select a subset of logged data matching the search criteria.

<search-spec> can be specified, as one or more of the following types of criteria:

- PROCESSNAME** Makes it possible to do process name search by specifying a valid process name, after this command. To disable process name search, specify OFF after the command PROCESSNAME.
- TERMNAME** Makes it possible to do terminal search by specifying a valid physical terminal name, after this command. To disable terminal search, specify OFF.
- USERID** Makes it possible to do a user-id search by specifying a valid user-id or user group, after this command. For instance, 55, 255 or 255,*. To disable user-id search, specify OFF.
- STRING** Makes it possible to do a text-string search by specifying a quoted text-string, after the search command. To disable text-string search, specify OFF.
- EXCLUDE** Makes it possible to exclude log information, containing certain text, by specifying the text to be excluded.

To disable all search criteria, specify SEARCH ALL OFF.

Syntax

SEARCH { <search-spec> | [ALL OFF] }

<search-spec> Termname <terminal> [OFF]

<terminal> is a valid terminal file name of a physical TCF terminal device

Processname <process> [OFF]

<process> is a valid Guardian processname of process that ran under TCF control

Userid <user-id> [OFF]

<user-id> ::= { <groupno>, <userno> | <groupno>, * }

<groupno> is a valid Guardian user group number, i.e., 255 for the Super group.

<userno> is a valid Guardian user number, i.e., 255 for a group manager

<string> [OFF]

EXCLUDE <string> [OFF]

<string> is a quoted string, i.e., "LOGON". The search done is NOT case sensitive

OFF will reset search of that specific information.

Examples

```
SEARCH USER 255,255
SEARCH "purge"
SEARCH ALL OFF
```

SYSTEMMESSAGES {INCLUDE | EXCLUDE }

This command is used to IN or EXCLUDE system messages. Typical, System messages are Control and Setmode, to manipulate terminal device behavior. The logfile Browse default is set to exclude these messages.

TIME

Displays the current date and time. The format is: DD/MM/YY HH:MM:SS

WRAP { ON | OFF }

The wrap command is used to control, if one transaction should be truncated and listed on one line or wrapped and fully displayed on more lines.

Logfile Read Setup

The Logfile Browse Setup is used to control the behavior of the Logfile Browse session. All these options and parameters can also be changed by entering the appropriate commands in the Logfile Browse command line. If this is done, the corresponding fields for the configuration screen are updated as well. Refer to the previous screen for a details of interactive commands.

If the Logfile Browse is exited, the configuration set-up is kept unaltered. If later re-entered, the set-up is still in effect. Except the Replay term, Log to file and Auto-read options. These are disabled by setting their corresponding on-off fields to 'No' (no).

The configuration screen is entered when pressing the F12 key in the Logfile Browse screen. When doing so, the following screen is presented:

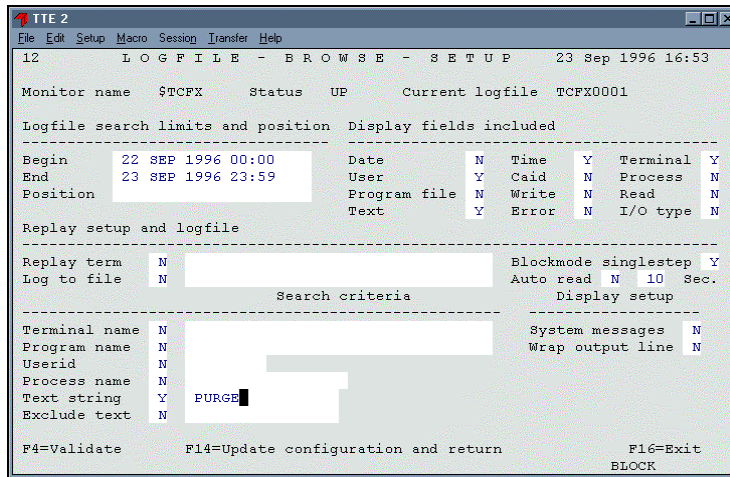


Figure 4.9: The Logfile Browse Setup screen.

Current logfile (*protected*)

Name of the current TCF logfile. The name is without volume and subvolume qualification.

Logfile Search Limits and Positions

These fields control the time window in which the user is currently working. A specific time has one of two formats:

[<DD>] [<MMM>] [<[YY]YY>] [<HH> : <MM> [: <SS>]]

<DD> is a numeric date

<MMM> is an alphabetic month, i.e., Jan

<[YY]YY> is a numeric year

<HH>:<MM> is numeric hours and minutes

<SS> is numeric seconds

D { + | - } <n> [<HH>:<MM>[:<SS>]]

<n> is the number of days to go forward or back from today, i.e. D - 7 to go back exactly one week.

<HH>:<MM> is numeric hours and minutes

<S> is numeric seconds

All fields have the current time as default if none are specified. Except hours, minutes and seconds. These default to 00:00:00 if none are specified.

Begin (*open, input is optional*)

This shows the start limit of the browse session. The BEGIN (SF7), PREVIOUS (PrPg) and POSITION (F10) commands are all backward limited by this time. Default is yesterday at 00:00.

End (*open, input is optional*)

This shows the end limit of the browse session. The END (SF8), NEXT (NxPg) and POSITION (F10) commands are all forward limited by this time. Default is today at 23:59.

Position (*open, input is optional*)

Is filled if the user wishes to position at a specific point in time. From this point in time the logs are viewed forward.

If the time is outside the LIMIT BEGIN or END time interval, or not in the logs at all, an error message is displayed, when returning to the browse session by pressing F14.

Display Fields Included

These fields control how the browse data is represented in the browse section. If a field setting is 'Y' the corresponding information is included. Otherwise ('N') this information is not shown at all. Any combination of fields can be used.

Date (*open, input is optional*)

Date when the data was logged.

Time (*open, input is optional*)

Time in hours and minutes when the user was logged.

User (*open, input is optional*)

User-id of the logged user.

Terminal (*open, input is optional*)

Physical terminal device name, at which the user was working, at the time the logging took place.

Process (*open, input is optional*)

Processname or Pid of the process used by the logged user.

Program file (*open, input is optional*)

Program filename of the program utility used by the logged user.

Error (*open, input is optional*)

Filesystem error code returned by the monitor when executing the logged transaction.

Write (*open, input is optional*)

Number of bytes written to the physical terminal device when executing this transaction.

Read (*open, input is optional*)

Number of bytes read from the physical terminal device when executing this transaction.

Text (*open, input is optional*)

The logged data. This includes both the data written and read by the monitor. In other words, both the commands executed and the response that the logged user got from the system.

I/O Type (*open, input is optional*)

I/O type done by the system for this transaction. This will either be 'RD' for a read, 'WT' for a write, 'WR' for a writeread operation or 'SY' for a system message.

This is very technical information. It may only be of interest to system management staff, when analyzing certain events which happened on the system.

System messages may not appear. This depends on the configuration of the monitor at the time logging took place.

Replay term (1) (*open, input is optional*)

'Y' (yes) or 'N' (no) for replay function ON or OFF. If 'Y' is specified for replay, the replay terminal filename must also be specified (replay term (2)).

Replay term (2) (*open, input is optional*)

Terminal device filename where the replay is done.

Auto read - Sec (1) (*open, input is optional*)

'Y' (yes) or 'N' (no) auto-read ON or OFF. Auto-read is used for viewing the logs sequentially until the auto-read is switched off again. The browse session presents one page of information, and will automatically continue to the next page, after a period of time, specified by the user (auto read (2)).

Auto read - Sec (2) (*open, input is optional*)

The time in seconds before Logfile Browse automatic begins reading, to generate the next page of information. Must be from 2 to 99 seconds.

Logfile Setup

The logfile is used to log the browse session. A sequential file is specified. All the information presented in the browse session, is unformed written to the logfile.

Log to file (1) (*open, input is optional*)

'Y' (yes) or 'N' (no) for browse session log ON or OFF. If 'Y' is specified for logging the log filename must also be specified (field 24).

Log to file (2) (*open, input is optional*)

Log filename where the logging of the browse session is done. The file must be a sequential type of file, i.e., a spooler, entry-sequenced disk file, a tape device, etc.

Search Criteria

The search criteria are used to limit the amount of output during the browse session. The user is able to set up search criteria on practically all information stored in the logfiles.

All search criteria consists of two fields. A field with the criterion itself, and an ON/OFF flag showing if used or not. If the flag is set to ON a criterion must also be specified.

If more criteria are specified all these must match the logged data before it is presented in the browse session.

Terminal name (1) (*open, input is optional*)

'Y' (yes) or 'N' (no) for search physical terminal device name ON or OFF.

Terminal name (2) (*open, input is optional*)

Name of the physical terminal device to be searched for.

Program name (1) (*open, input is optional*)

'Y' (yes) or 'N' (no) for search program filename ON or OFF.

Program name (2) (*open, input is optional*)

Name of the program filename to be searched for. The program filename must be fully qualified. The Logfile Browse screen uses its default to volume and subvolume for filenames not fully qualified. This gives the correct result.

Userid (1) (*open, input is optional*)

'Y' (yes) or 'N' (no) for search user-id or group ON or OFF.

Userid (2) (*open, input is optional*)

User-id or group to be searched for.

Process name (1) (*open, input is optional*)

'Y' (yes) or 'N' (no) for search process name ON or OFF.

Process name (2) (*open, input is optional*)

Processname of a process to be searched for.

Text string (1) (*open, input is optional*)

'Y' (yes) or 'N' (no) for search a specific text string ON or OFF.

Text string (2) (*open, input is optional*)

A specific text to be searched for. The text is searched in both upper and lower case (the search is not case sensitive).

Exclude text (1) (*open, input is optional*)

'Y' (yes) or 'N' (no) for exclude a specific text ON or OFF.

Exclude text (2) (*open, input is optional*)

A specific text to be excluded from the browse session. The text is excluded in both upper and lower case (the exclusion is not case sensitive).

Display Setup

Display setup controls some miscellaneous browse session formatting parameters. System messages can be in- or excluded in the presented data with either of 'Y' (yes) or 'N' (no). Exclude - 'N' - is the default.

System messages (*open, input is optional*)

'Y' (yes) or 'N' (no) for in- or exclude system messages.

Wrap output lines (*open, input is optional*)

'Y' (yes) or 'N' (no) for output line wrapping ON or OFF. If Wrap output lines are set to ON with 'Y' (yes), the output lines presented are wrapped. This enables the user to see all the logged data. Including data in very large transactions. If set to OFF, only the truncated line of data is shown for each transaction. Wrap off - 'N' - is the default.

Function Keys

- F4** Validate all fields without updating any options. If one or more options or parameters are not filled correctly, the user receives an appropriate error message.
- F14** Update the configuration. The configuration screen is exited, and control is passed back to the Logfile Browse screen.

The F14 key may be used directly without validating explicitly by pressing F4. Validation is always done when F14 is pressed.

Waiting Prompts in the Hometerm Emulator

The Waiting Prompts facility of the Hometerm Emulator makes it possible for an operator to manually answer waiting prompts controlled by TCF monitors.

By specifying a text string in the Response field of the Hometerm Emulation setup screen, the TCF monitor will automatically respond exactly that string to any prompt received by the monitor.

By specifying the <WAIT> parameter in the Response field of the Hometerm Emulation setup screen, the monitor will leave that prompt unanswered until the prompt is answered by an operator from within the Waiting Prompts screen, or the process that issued the prompt stops for some reason.

Programs that prompt on a terminal or console device could then be dealt with by the Hometerm Emulator by configuring these programs with the <WAIT> option. Programs prompting on their in or out-files, or their home-terminal, should be started up with the Hometerm Emulator of the appropriate TCF monitor as in and outfile:

```
RUN <prompting-program> / IN $TCF1.#HOME,  
OUT $TCF1.#HOME, TERM $TCF1.#HOME, ... /
```

If a prompt is held as waiting by a monitor, the monitor will generate an EMS action event. This is the event no 200:

```
PROMPT <process-id>, <program-filename> IS WAITING  
FOR OPERATOR REPLY
```

The operator should then deal with the prompt by using the TCFCOM Waiting Prompts screen. When a prompt is answered, the monitor in control will turn off the action-needed event via the EMS subsystem.

After the waiting prompt has been answered by an operator, the monitor will generate an EMS action turn off event. This is the event no 201:

```
HOMETERM PROMPT REPLIED BY OPERATOR FOR  
PROCESS <process-id>  
PROGRAM <program-filename>
```

If the prompting process stops for some reason, the EMS action turn off event no 202 is generated:

```
HOMETERM PROMPT CANCELED FOR PROCESS  
<process-id> PROGRAM <program-filename>
```

The Waiting Prompts screen is entered from the TCFCOM Hometerm Emulator screen by pressing the F2 key.

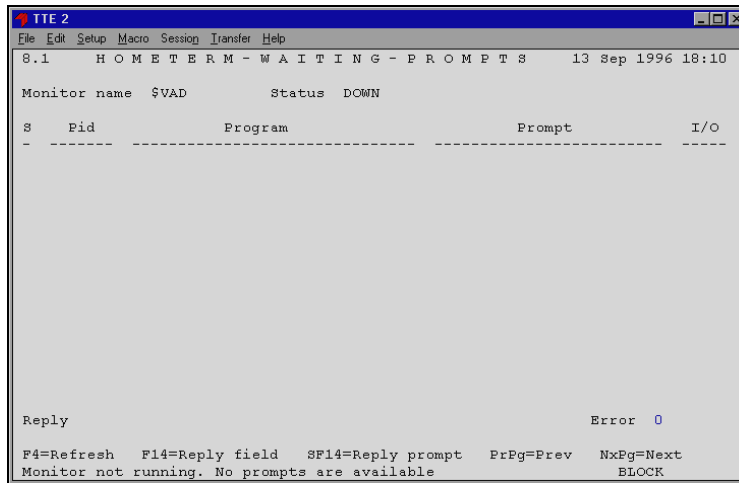


Figure 4.10: *The Waiting Prompts screen.*

S (open, input is optional)

Select one or more prompts by entering any character different from a blank in the corresponding column.

Pid (*protected*)

Process id of the process prompting the Hometerm Emulator. Names processes are shown as local names, that is, without the system name. If the prompting process runs remotely, the name of the remote system is shown in the Program column field.

Program (*protected*)

Program filename of the process prompting the Hometerm Emulator. If the prompting process runs remotely, the name of the remote system is shown here.

Prompt (*protected*)

The actual prompt text of the process prompting the Hometerm Emulator.

I/O (*protected*)

The time when the process prompting the Hometerm Emulator issued its prompt. If the prompt was issued on another day, the date is shown. Otherwise, the time is shown in hours and minutes.

Reply (*open, input is optional*)

In this case, the reply to the prompting process if specified as text. The Reply depends on the program has prompted the Hometerm Emulator. If nothing is entered at the time the Shift-F14 function key is pressed, an empty reply is sent back as response to the selected prompts.

Error (*open, input is optional*)

This is the Filesystem Error replied to the prompting process. A 0 (zero) implies a normal condition without any errors. All sorts of Filesystem Errors may be replied. Typically an error 66 (Device down) may be used to try to prevent a very persistent process from continuously prompting the Hometerm Emulator.

Function Keys

- F4** Refreshes the screen and moves to page number 1.
- F14** Moves the cursor to the Reply field.
- SF14** This will send the text, specified in the Reply field, with the Filesystem Error condition specified in the Error field, to each selected prompt as a reply. If a non-error condition is to be replied, specify a 0 (zero) in the Error field. At least one prompt must be selected before pressing the Shift-F4 function key.
- PrPg** Moves back one page of prompts.
- NxPg** Moves forward one page of prompts.

Generating Reports

There are two ways of generating a standard TCF report:

1. Using TCFCOM screen 6, the Report menu. This is normally the way of generating one or more reports.
2. Starting the TCFREP program directly from TACL. Please refer to section 6.10 TCFREP. Section 6.10 describes the TCFREP syntax and others.

The TCFCOM Report menu is entered by selecting a monitor. Either directly in the TCF Main menu or using the Monitor menu screen (screen 1). In both screens use the F6 key.

This menu gives an overview of all the reports defined under the monitor previously selected, if any.



Figure 4.11: The TCF Reports screen.

In the above example, the user has selected the \$A monitor. There are two reports defined, no 1, 2, 3 and 4.

When the Shift-F10 is pressed, the TCFCOM utility will activate the TCFREP program. TCFREP receives the necessary information and generates the reports. What exactly is generated has previously been defined in the Report setup screen (screen 7).

Making a Broadcast

There are two ways to make a broadcast in TCF:

1. Either in TCFCOM Broadcast (screen 11), or
2. Using the TCFBROAD utility

There is no difference between these two functions.

The Broadcast functions will send the broadcast text, as a request, to the monitor in charge. The monitor will present the message to the users between their concurrent transactions.

Because the monitor is in control of the terminal, the broadcast is presented as a whole message.

If the terminal device is running in conversational mode, the user receives information from whom and where the message was sent. A broadcast message, in conversational mode, could look like this:

```

TTE 2
File Edit Setup Macro Session Transfer Help

Code      EOF Last Modification  Owner  RWEP  PExt  SExt
CV         101      6160 29-Oct-93 12:57:30 255,3  "AAAA"  2    2
CV101     101      8180  8-Dec-94 16:35:51 255,3  "NNNN"  4   16
FORSOG    101      8686 14-Sep-94 13:54:10 255,3  "NNNN"  2    2
FQCSSTM   101      2410 14-Apr-94 10:33:17 255,3  "NONG"  4   16
FQHISTRY  101        688  4-Aug-94 12:04:22 255,3  "NNNN"  4   16
INSPCSTM  101      2676 13-Dec-93  1:11:59 255,2  "NNNN"  2    2
O         101      2210  1-Mar-93 17:51:59 255,3  "NNNN"  2    2
EM        101      2190 25-Mar-92 16:38:54 255,3  "AAAA"  4   16
SCFCSTM   101        144  6-Nov-92 22:46:05 255,3  "NNNN"  2    2
SX         101         28 10-Jan-94 17:28:52 255,3  "NNNN"  2    2
TACLCSTM  101      2198 18-Aug-92  9:43:11 255,3  "NNNN"  2    2
TACLKEYS  101      2786 23-Mar-94 11:07:04 255,3  "NNNN"  2    2
THOMAS    101     16430  6-Mar-96 10:53:11 255,3  "NNNN"  2    2
X          101     36662  4-Jul-95 10:48:17 255,255 "NNNN"  8   32
XXXXXXXXX 101     439400 14-Sep-94 12:04:42 255,3  "NNNN"  8   32
YY         101      2122 13-May-94 19:05:13 255,3  "NNNN"  2    2

$WORK1 TML 7>
*** Broadcast from 255,255 at $ML01.#ZWND006 *****
* Message to all Super users: You will be logged off in 5 minutes *
*****
$WORK1 TML 7>
CONV
    
```

4.12: *Sample broadcast message sent by TCF.*

The user (HELPDESK.HANSEN) is working in conversational mode with his TACL session. The broadcast message is shown between the two TACL prompts (number 13). The message is presented in a frame of asterisks. This frame also shows from whom and where the message was generated.

The TACL prompt number 13 is first canceled, the broadcast message presented, and the TACL prompt 13 is reissued.

Note: If a terminal in blockade receives this broadcast message, only the first line is shown in line 25.

Such a message is generated and sent from the Broadcast screen, either in the TCFBROAD or the TCFCOM utility.

It is possible to select specific monitors as target for a broadcast. All the terminals under those monitors will get the broadcast information.

If no target users, user groups, terminals or monitors are specified, all the active terminals, known to all TCF monitors, will receive the broadcast.

If more target criteria are specified, only the matching combination of these criteria will receive the broadcast message. For instance, the Super group (255,*) on all terminals controlled by the monitor \$T255.

The broadcast screen is detailed in the following example:

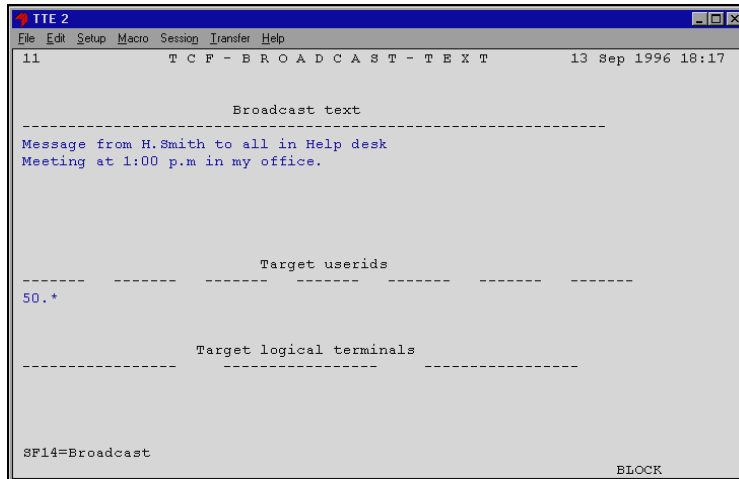


Figure 4.13: The TCF Broadcast screen.

Broadcast text (*open, input is optional*)

Any text from one to five lines will be displayed on the target terminals.

By pressing SF14, all the terminals targeted will receive the text. Note: If the receiving terminal is in blockade, only the first line of the text will be displayed in line 25.

Target userids (*open, input is optional*)

The target for the broadcast - either a specific Tandem user-id or user group. Up to 14 user-id or group targets may be specified.

Target logical terminals (*open, input is optional*)

The target for the broadcast - a specific logical terminal name, i.e., \$T255.#TERM1, or a whole monitor, i.e., \$T255.

If a logical terminal name is specified, only that terminal is qualified. When specifying a monitor, without the #-name extension, all terminals active under the monitor are qualified for the broadcast. Up to 6 logical terminal or monitor targets may be specified.

Function Key

SF14 By pressing SF14 all terminals targeted will receive the text.

Using On-line Help

On-line help in TCFCOM is divided into two parts:

- F1 = Field help
- Shift-F1 = Screen help

Use the F1 key - Field help - to request an explanation specific for the field currently containing the cursor.

Use the Shift-F1 key - Screen help - to request an explanation of the whole screen.

The subjects are shortly described for fast use. If further help is needed, please refer to this manual.

Depending on the complexity of the topic, the explanation is from very short, i.e., 'CPU number. From 0 to 15' or relatively more informative.

Short texts are displayed in line 25 without presenting a separate screen.

Larger explanations are displayed on a full page and contain up to 20 lines of information.

If the help text is not found in the TCFHELP file, one of the following messages will appear in line 25:

'No help found for this field' (F1, Field help)

'No help found for this screen' (SF1, Screen help)

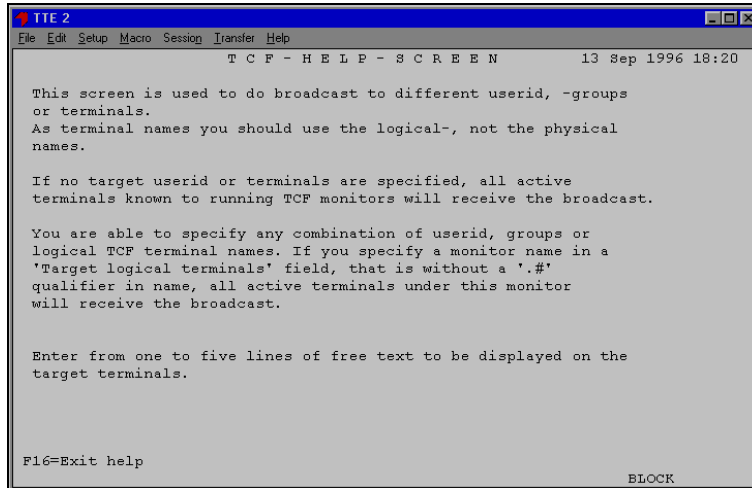


Figure 4.14: A TCF Help screen

There are no open fields on this screen.

Function Key

- F16** Use F16 to return to the screen from where help was requested.

Chapter 5: Program and File Descriptions

This chapter explains and gives an overview of all the programs and files in the TCF environment. Every section explains the purpose of that program or file, the relation to other TCF objects and the syntax of each program.

The programs and files are, listed in alphabetical order.

TCFBROAD

The TCFBROAD utility is used to broadcast to other users, connected to the TCF subsystem. There is no difference between the TCFCOM Broadcast screen (screen 11) and the TCFBROAD utility screen.

The TCFBROAD utility runs in blockade on one of the following Tandem terminal types:

- T16-6520
- T16-6526
- T16-6530

The TCFBROAD syntax is as follows:

```
RUN TCFBROAD [<tcfconf>]
```

<tcfconf> is a valid TCF configuration file, that contains the TCF monitors and terminals to which the broadcast should be done. The default file is a file named TCFCONF on the default subvolume.

The configuration file is opened for read only. The TCFBROAD user must therefore have read access to that file.

When running the TCFBROAD utility, the following screen is presented:

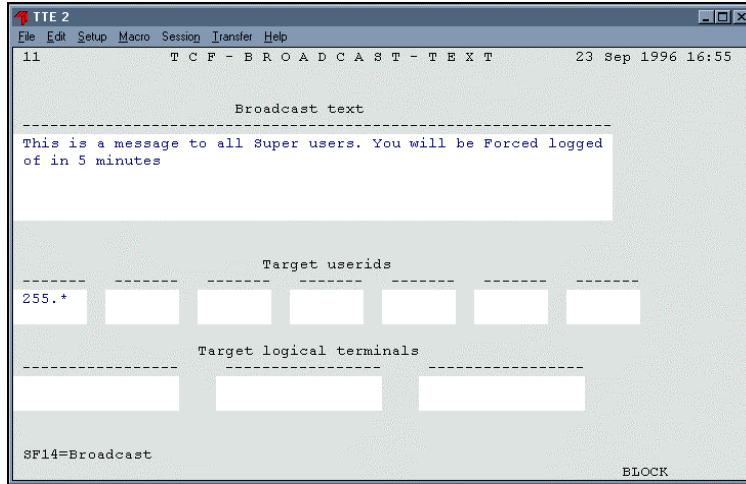



Figure 5.1: Enter your broadcast message in this screen.

Please refer to the section “Making a Broadcast” for details of this screen.

Caution TCFBROAD uses the TCFHELP file. If the TCFBROAD utility is copied to another subvolume, the TCFHELP file must be copied to that subvolume as well.

TCFCODES

TCFCODES is the encrypted license to the TCF package. The license must be installed in the TCF configuration file TCFCONF. This is done by the TCFLIC program via TCFSETUP TACL macro.

 **Caution** Never change the contents of TCFCODES license file. If the contents are changed and the license is re-installed it may cause the TCF software to become non-executable.

TCFCOM

TCFCOM is the central utility controlling the entire TCF environment. The TCFCOM utility runs in blockade on one of the following Tandem terminal types:

- T16-6520
- T16-6526
- T16-6530

TCFCOM contains the following features:

- Gives an overview of all monitors and their states
- Gives an overview of all terminals and reports, defined for each monitor
- Enables the TCF user to start all the monitors, their terminals and to activate their predefined reports
- Makes it possible to add, delete and change monitors, terminals and report configurations
- Support the setup of action plans for autologoff. When an autologoff is required, the monitor send a series of commands to the processes executing on the terminal device.

- Controls definitions of replies to send to the processes prompting the monitor Hometerm Emulation
- Enables the TCF user to define the criteria to trigger an event. For instance, when a specific user logs on, or a dynamic terminal is started, using the TCFCOM utility.

TCFCOM has the following syntax:

```
TCFCOM [ /<startup>.../ ] [ <tcfconf> ]  
[ <operation> ]
```

- <startup>** is the normal TAFL startup options, i.e., CPU, NAME, NOWAIT, etc.
- <tcfconf>** is a valid TCF configuration that should be used. The default file is a file TCFCOM on the default subvolume.
- <operation> ::= {STARTUP | SHUTDOWN}** This will run TCFCOM in batch-mode and is used for the starting up or shutting down of TCF environments.

Please refer to the section “Startup and Shutdown from TAFL”.

TCFCOM may be run in two different modes, depending on the security settings on the <tcfconf> file, and the authority of the TCFCOM user:

1. Full mode. The user having authority to read and write to the configuration file, will run TCFCOM in full mode. Full mode means that all objects may be read,

written, updated and deleted. Start, stop and abort operations, on both monitors and terminals may also be executed.

2. Read mode. Users, who have authority only to read the configuration file, will run TCFCOM in read mode. Read mode means, that all objects may only be read. No changes to TCF objects are allowed in the read mode. Start, stop and abort operations are allowed in read mode as well.

TCFCOM is a menu driven utility. Any operation done from a TCFCOM screen, is activated by pressing one or more function keys.

A field is either protected or open. Protected fields cannot be entered or updated by the TCFCOM user, only open fields can be filled in.

Open fields may be required or optional. Required fields must be filled by the user before pressing one of the corresponding function keys. Optional fields do not have to be filled and may have default values, supplied by the system.

The following function keys have the same function throughout the TCFCOM utility:

- F1** Field help. Place the cursor in the field, where the help is needed, press F1 and a short explanation of that particular subject will appear on the screen.
- SF1** Screen help. Short description of the current screen.
- F15** Gives the next monitor, terminal or report, marked and selected on the previous screen, without first returning to the previous screen

and then select it.

F16 One step back. Returns to the screen before.

SF16 Returns to the Main menu or exit TCFCOM from the Main menu screen.

When starting up the TCFCOM utility, the TCF Main menu screen will appear on the terminal:

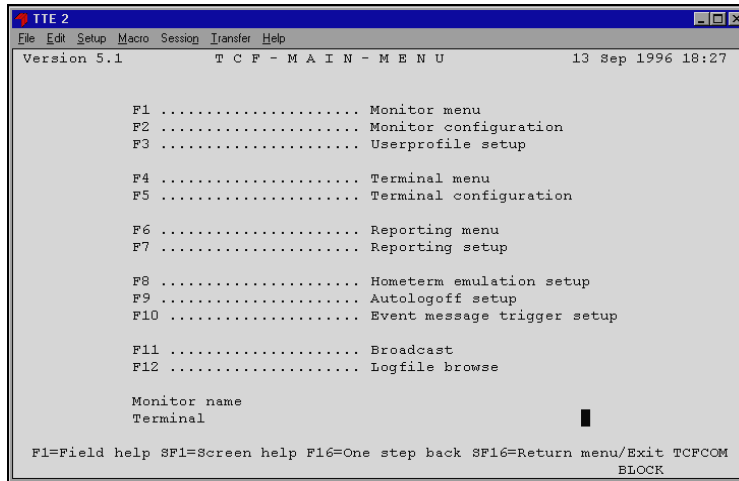


Figure 5.2: *The TCF main menu.*

The TCF main menu is the window to the entire TCF configuration. Choose a subfunction by pressing a function key.

By function key control, it is possible to create, modify or delete any monitor, terminal, report, Hometerm Emulation setup, Autologoff plan and Event Message Trigger setup.

The fields of the TCF menu are described in the following:

Upper right corner (*protected*)

Current date and time. Every screen in TCFCOM has this field present in the upper right corner of the screen.

Monitor name (*open, input is optional*)

Name of existing monitor. This field is required when entering F2 -to F10 or the F12 key. F1 gives a list of all the existing monitors. The name of the last monitor referred to will automatically appear in this field.


Terminal (*open, input is optional*)

Name of a TCF terminal. This is only relevant when entering terminal configuration, by pressing the F5 key. F4 gives the names of the existing terminals belonging to the monitor in the Monitor name field.

Function Keys

- F1** Gives the Monitor menu screen. In all other TCFCOM screens, this is field help. If no monitor exists, for instance, when first entering the TCFCOM utility, the Monitor configuration screen is entered directly although the F1 key was pressed. When the Monitor configuration screen is exited and a monitor has been created, the Monitor menu screen is presented.
- SF1** Screen help - short description of this screen.
- SF16** Returns to this Main menu, or exit TCFCOM from this screen.


F1-F12 Enters the different screens available to the TCF user. For instance, the F2 key is Monitor Setup, F3 is User Profile Setup, etc. Before pressing F2 to F10 or F12, an existing monitor must be specified in the Monitor name field.

 **Caution** TCFCOM expects to locate the TCFMON and TCFREP programs and TCFHELP file on the same subvolume as the TCFCOM program file. If the TCFCOM utility is copied to another subvolume, these files must be copied to that subvolume as well.

TCFCONF

TCFCONF is the configuration file containing all objects defined in TCF, i.e., monitors and terminals.

The configuration file does not need to be named "TCFCONF". It may be created as- or renamed to all kinds of filenames. It is recommended that the name TCFCONF is used, because the TCF utilities TCFCOM and TCFBROAD use this name as their default, thus making it easier when using these utilities.

 **Caution** TCFCOM does not use TMF when updating the contents of the configuration files. These files should therefore NEVER have the Audit flag set to On. If a TCFCOM session tries to update a configuration file with the Audit flag set to ON, TCFCOM receives Filesystem Error 75 (Requesting process has no current transid).

Please refer to the section "TCFDDL". This section documents the different TCF Objects.

TCFCONN

TCFCONN is a utility used to start terminals, that have not previously been defined, in the configuration file, using the TCFCOM utility.

A terminal session started through the TCFCONN utility, is in TCF known as a dynamic terminal session. Dynamic terminal sessions are only known to the monitor, as long as they are active. After a dynamic session is closed, it will cease to exist to the TCF system.

Static terminals are defined and started in TCFCOM. But if a dynamic Multilan WINDOW is to be started in TCF, the name of the physical terminal is not known until after it has been started. The TCFCONN utility does practically the same as defining and starting a static terminal session in TCFCOM.

The physical and logical names are sent to the monitor as a request. The monitor then allocates the logical name internally, and uses the physical name as the terminal device name.

The specified program is started, using these names. Finally, when the user ends the session, the monitor forgets about the terminal names, and the terminal no longer exists to the monitor (or any TCFCOM session).

The TCFCONN utility has the following syntax:

```
TCFCONN LOGICAL <logical-name>
        [ PHYSICAL <phys-name> ]
        ,COMMAND <program-file>
        [ STARTUP [ /<process-
        parm>.../ ] <startup> ]
```


[WAIT]

- <logical-name>** name used to open the TCF monitor. For instance, \$TCF1.#ZWN001. This will use the monitor \$TCF1. \$TCF1 will then use the name #ZWN001, as the logical name of that terminal session.
- <phys-name>** name of an existing, physical terminal device, as a standard Guardian filename. This name is used by the monitor as the actual terminal. Default is the same as the out-file for TCFCNN.
- <program-file>** name of the program file to run. A session is started, based on this program file. The default subvolume is \$SYSTEM.SYSTEM. There is no default for the whole command filename.
- <process-parm>** shows the standard, TACL-like process startup parameters and options, for the <program-file> program. For instance, CPU, PRI, SWAP, etc.
- <startup>** shows the standard TACL-like process startup string. For a TACL start, this is the backup CPU number.
- WAIT** If WAIT is specified, the TCFCNN utility will not stop, before the program, specified in COMMAND, is stopped as well. Otherwise, if WAIT has not been specified, TCFCNN will stop immediately after the process has been started.

WAIT is useful when a dynamic terminal session is started from TACL. The WAIT option will ensure that the terminal is only used by the program started by the TCFCONN utility.

Example

```
TCFCONN LOGICAL $TCF1.#ZWN001,COMMAND
$SYSTEM.SYSTEM.TACL,
STARTUP /CPU 1 ,PRI 100/ 0,WAIT
```

This will start a TACL under control of the TCF monitor \$TCF1. The monitor will use the logical name #ZWN001. As the physical, terminal device name, the monitor will use the same name as the out-file of the TCFCONN utility.

The TACL will access the file \$TCF1.#ZWN001, run with priority 100 in CPU 1 and this is TACL syntax, use CPU 0 for its backup process.

TCFDDL

The TCFDDL file contains DDL commands to create two dictionary records. One for the TCF logfile, and one for the outfile generated by the TCFREP report 4. This is the Transaction report.

TCFENF

The TCFENF file contains 3 ENFORM samples. These ENFORM reports are based on the DDL dictionary, describing the output generated by the fourth TCFREP report (the


Transaction report). The DDL Dictionary can be provided with the TCFDDL file.

The ENFORM samples are all response time reports, calculated by user-id, by date and time and by program filename.

The ENFORM reports require an ASSIGN definition for the TCFREP transaction report. This record is named 'TCF-REP4' in the TCFDDL file.

TCFHELP

The TCFHELP file is of little interest to the TCF user. The file is a key-sequenced file only used by the TCFBROAD and TCF utilities for this help information.

 **Caution** The TCFHELP file must be located on the same subvolume as the TCFBROAD and TCFCOM utilities. If these utilities are copied to other subvolumes, the TCFHELP file must be copied to the same subvolume as well.

TCFLIC

TCFLIC is the program that installs the license codes from the TCFCODES file into the TCF configuration file TCFCONF. TCFLIC is activated every time the TCFSETUP TAFL macro is executed.

TCFMON

TCFMON is the program that intercepts all the communication between the physical, terminal device, and the processes executing on these terminal devices.

Some of the functions done by the TCF Monitor are:

- Logging of the terminal activity in the logfile. The logging of terminal activity depends on the Monitor-and User Profile Setup of the monitor.
- Autologoff of inactive terminals still logged on.
- Automatic response to processes that uses the Hometerm Emulation feature.

Changing the Environment of an Executing Monitor

The monitor configurations are updated through the TCFMON utility. These configurations may be dynamically updated, even if the monitors are active.

Changing the Nonstop Parameters

A monitor not running nonstop may be changed to run as a Nonstop process pair and vice versa. The monitor CPU configuration, for primary and backup CPU can be changed dynamically. After a short period TCFMON will automatically switch CPU numbers to the new CPU configuration. If the monitor CPU configuration is changed while TCFMON is switching to a new CPU configuration, the latest configuration will be ignored. To avoid this condition, wait until TCFMON has switched to the latest configuration. Then update the monitor CPU configuration with function key F14 again.

Changing the Executing Priority

The Guardian priority for TCFMON is changed instantly when the monitor priority is updated through the Monitor Setup configuration in TCFCOM.

Changing the Logfile Names

The TCF logfile names can be changed dynamically, but the change will not have any effect before the next logfile rollover occurs. If the logfiles specified do not exist at the time of a rollover, new logfiles will be created.

Changing the Default User Profile Setup Parameters

All these parameters may be changed dynamically.

Changing Other Setups

All other setups including User profiles, Hometerm Emulation setup, Autologoff plans and Event Message Trigger may all be changed dynamically, without stopping the monitor or terminals.

TCFMON Logfile Rollover Considerations

When a TCF logfile has become full, the monitor initiates a rollover of its logfiles.

A rollover means that the monitor will start using the next logfile in the logfile sequence. Consider a monitor \$TCF1 with four logfiles:

```
$SYS.TCFLOGS.TCF10000
```

```
$SYS.TCFLOGS.TCF10001
```

```
$SYS.TCFLOGS.TCF10002
```

```
$SYS.TCFLOGS.TCF10003
```

If the current logfile TCF10002 is full, the monitor will start to use the file TCF10003. If the logfile full is the TCF10003 file, the monitor will start to use the file TCF10000 again.

At the time of a rollover, the monitor uses its Monitor Setup configuration. The four first letters, on the filename level, are always used when calculating the name of the next logfile. This ensures that the names may be changed dynamically for running monitors (see previous section).

If the file exists at the time of a rollover, the file is emptied (purgedata is done).

If the file does not exist at the time of a rollover, the file is first created. When a monitor creates a new logfile, it will also allocate all the extents, reserved by the Maxextents parameter.

The Filesystem Error 45, File is Full, and Error 43, Unable to obtain disk space for file extent, are both indicating that the logfile is full.

A Filesystem Error 43 is therefore handled. This is the case both for Allocate operations (after a logfile creation), and normal writes to the logfiles.

After a Filesystem Error 43, the monitor will generate an event. The case of an allocate operation, this is the event no 504:

```
UNABLE TO ALLOCATE EXTENTS IN LOGFILE  
<logfile> ERROR 043
```

After a normal write operation, which failed with Filesystem Error 43, the event no 508 is generated:

```
WRITE ERROR 043 ON LOGFILE <logfilename>
```

After a successful logfile rollover, if the Event Trigger Setup has the parameter Logfile rollover set to 'Y', a monitor event is generated. This is the event no 506:

```
LOGFILE ROLLOVER TO <new-logfilename>
```

TCFMON Logfile Error Handling

All errors against the logfiles are considered non-fatal by the TCF monitor. In other words, the monitor will not stop because of a logfile I/O error.

If a normal Write operation fails, the event no 507 is generated:

```
WRITE ERROR <filesystem-error> ON LOGFILE  
<logfilename>
```

If the monitor receives the same Filesystem Error after 10 consecutive times, logging is disabled for the next 100 write attempts with the event no 509:

```
LOGGING TO FILE <logfilename> DISABLED FOR  
THE NEXT 100 RECORDS
```

After that logging is retried with the event no 510:

```
LOGGING TO FILE <logfilename> ENABLED
```

If one of these retry operations succeeds, logging is turned back on as normal.

TCFREAD

TCFREAD reads and deciphers the terminals activity logfile information.

The TCFREAD utility has the syntax:

```
TCFREAD [/IN <infile>,OUT  
<outfile>,NOWAIT/] <log>
```

<log> is the name-prefix (first four letters) of the TCF logfiles to be viewed

The IN-, OUT- and NOWAIT options will cause TCFREAD to run in batch-mode. This is highlighted later in this section

Without these parameters, TCFREAD will run interactively with its user.

Example

```
$WORK TCF 15> run tcfread $SYS.TCFLOGS.TCF1
```

This will read information from the TCF1<nnnn> logfiles on the subvolume \$SYS.TCFLOGS.

An interactive TCFREAD session runs in conversational mode on any Tandem terminal.

After having issued the TCFREAD run command at a TACL prompt, a TCFREAD session initiation could look like the following example.


```

TTE 2
File Edit Setup Macro Session Transfer Help
Date      Time  User      Terminal
05 SEP 1996 09:18 255,255 $HOME      "MATTERHORN - Service server $MUMP"
" up"
05 SEP 1996 09:14 255,255 $HOME      "05SEP96,09:14 $ZVPT: WARN - *11"
"40+ DEFINES SPECIFIED AT PATHMON "
"CREATION ARE IGNORED"
05 SEP 1996 09:14 255,255 $HOME      "05SEP96,09:14 $ZVPT: COPYRIGHT TA"
"NDEM COMPUTERS INCORPORATED 1980 "
"- 1985, 1987 - 1992"
05 SEP 1996 09:14 255,255 $HOME      "05SEP96,09:14 $ZVPT: PATHMON - T9"
"153D20 - (31JAN94)"
04 SEP 1996 11:51 255,255 $HOME      " EXT?: set_utab_date"
04 SEP 1996 11:51 255,255 $HOME      " EXT?: set_fbzu_date"
04 SEP 1996 11:51 255,255 $HOME      " EXT?: get_venige_verb"
04 SEP 1996 11:51 255,255 $HOME      " EXT?: get_ungmen_verb"
04 SEP 1996 11:51 255,255 $HOME      " EXT?: get_tlos_liste_pltei_n2lag"
04 SEP 1996 11:51 255,255 $HOME      " EXT?: get_sapi_liste"
04 SEP 1996 11:51 255,255 $HOME      " EXT?: get_numod_verb"
04 SEP 1996 11:51 255,255 $HOME      " EXT?: get_nronr_verb"
04 SEP 1996 11:51 255,255 $HOME      " EXT?: get_konsi_liste"
04 SEP 1996 11:51 255,255 $HOME      " EXT?: get_genive_verb"
04 SEP 1996 11:51 255,255 $HOME      " EXT?: get_bmwi_event"
04 SEP 1996 09:09 255,255 $HOME
1996/09/04 BACKW ==>
CONV
    
```

Figure 5.3: A TCF session initiation.

The TCFREAD utility accepts the following commands:

- BEGIN
- COMMENT
- END
- ENVIRONMENT
- EXIT
- DISPLAY
- HELP
- LIMIT
- LOG
- NEXT

- PAGESIZE
- POSITION
- PREVIOUS
- REPLAY
- RUN
- SEARCH
- SYSTEMMESSAGE
- TIME
- WRAP

Generally it is only necessary to supply as many characters as to make the command issued unique among all commands. As an example, to issue the ENVIRONMENT command it is only necessary to type ENV.

The commands are issued to a prompt. The TCFREAD prompt itself provides information about:

- The date of information listed last
- The current reading direction, forward or backward
- Ex.01/01/93 BACKW ==>

TCFREAD Commands

All the commands known by TCFREAD, are alphabetically listed and explained in the following.

BEGIN

This command is used to list the oldest possible TCFMON transactions, logged in the current logfiles, and set TCFREAD in Forward mode. The first possible information to list is set with the LIMIT BEGIN command. Default for the LIMIT BEGIN time is yesterday at 00:00. If it is needed to list information before this time, use the LIMIT BEGIN command.

COMMENT

This command is used to comment a line. The rest of the line is ignored by TCFREAD. A '#' can be used instead of the comment keyword.

DISPLAY <subject> [OFF]

This command will control the number of fields that is displayed when the log information is shown on the out file. The following display subjects are available:

<subject>	Description
Date	Date when the event was written to the logfile
Time	Time when the event was written to the logfile
User	User-id of the process controlled by TCF
Process	Processid or name of the processor who wrote the event to the logfile
Program	Program filename of the processor who wrote the event to logfile

Terminal	Physical terminal name where processes were running
Error	Filesystem Error of the I/O operation
I/O Type	The file system I/O type, like Write, Read, etc.
Read	Number of bytes read from the terminal
Write	Number of bytes written to the terminal
Text	The text that was written and read to and from the terminal
All	All will include the following subjects: date, time, user, error, write, read, terminal and text
All Off	Will display the following subjects: date, time and text

END

This command is used to list the latest possible log information, logged in the current logfile and sets TCFREAD in Backward mode. The latest possible information to show it set with the LIMIT END command.

ENVIRONMENT

This command will show information about the environment of the current TCFREAD session. The environment display is presented as follows:

Current TCFREAD environment:

Current TCFREAD <direction>
mode

Current Pagesize	<pagesize>
Output Wrapping Mode	<wrap-ctrl>
Autoread Timeout	OFF <nn> seconds
Current log file	NONE \ <log-filename>
Display fields incl	<display-subjects>
System Messages	<sysmsgs-ctrl>
Current Search mode	<srch-ctrl>
Termopener Process Name	<proc-name>
Terminal Name	<term-name>
UserID	<user-id>
Search Textstring	"<text-string>"
Exclude Textstring	"<text-string>"
Current TCFMON File	<curr-TCFMON-filename>
Blocksize	<blk-size>
EOF	<eof-ptr>
Curr File Position	<curr-fpos>
Last File Position	<last-fpos-done>
Number of TCFMON Files	<TCFMON-file-cnt>

The parameters in brackets are explained next page:

<direction>	Current reading direction. Either FORWARD or BACKWARD
<pagesize>	Is the maximum number of lines listed between two command prompts. The default is 23 for a full page.
<wrap-ctrl>	Controls whether the information about transactions is fully listed - ON - or truncated on only one line - OFF.
<log-filename>	NONE, or the logfile currently in use. Logging to a file is set by the LOG command.
<display-subjects>	This will show the fields that are displayed when browsing through the logfile.
<sysmsgs-ctrl>	Controls whether System Messages are listed or not, Either IN or EXCLUDED.
<Srch-ctrl>	If no current search is active, this will have the value NONE SET. Otherwise no value.
<proc-name>	If set, only log-information from this process, will be listed.
<term-name>	If set, only log-information from this terminal will be listed.
<user-id>	If set, only log-information from this user will be listed.

<text-string>	If set, only log-information from this text-string will be listed.
<curr-TCFMON-filename>	Is the full name of the TCF logfile, currently being read from.
<blk-size>	The block size of the current TCF logfile.
<eof-ptr>	The end-of-file position of the current TCF logfile.
<curr-fpos>	The current TCF logfile position.
<last-fpos-done>	Last position taken, by the TCFREAD session, in the current TCF logfile.
<TCFMON-file-cnt>	The total number of TCFMON logfiles identified by the first four letters of their names. (Empty TCF logfiles are not included in the count).

EXIT

This command ends the TCFREAD session immediately. Ctrl-Y at the command prompt will have the same effect.

HELP [<command>]

The HELP command is used to obtain interactive Help, If supplied without, or with an unrecognized parameter, all commands will be listed. Otherwise a detailed help is listed for the command given.

LIMIT { BEGIN | END } <time-spec>

This command is used to set the time interval that can be listed from the TCF logfiles. The LIMIT BEGIN is used to set the time for the first information that can be listed from the TCF logfiles.

The LIMIT END is used to set the time for the latest information to be listed from the TCF logfiles.

The LIMIT BEGIN and END commands are useful for limiting a search to a specific time period and as such reducing search time and thereby CPU consumption.

The default for LIMIT BEGIN is yesterday at 00:00 and LIMIT END is default set today at 23:59.

Syntax

LIMIT { BEGIN | END } <time-spec>

<time-spec> ::= { <time-abs> | <time-rel> }

<time-abs> ::= [<DD>] [<MMM>] [<[YY]YY>]
[<HH>:<MM>[:<SS>]]

<DD> is a numeric date

<MM> is an alphabetic month, i.e., Jan

<[YY]YY> is a numeric year

<HH>:<MM> is numeric hours and
minutes

<SS> is numeric seconds

<time-rel> ::= =D { + | - } <n>
[<HH>:<MM>[:<SS>]]

<n> is the number of days to go

forward or back from today, i.e. D - 7

to go back exactly one week.

<HH>:<MM> is numeric hours and
minutes
<S> is numeric seconds

Examples

```
LIMIT BEGIN 1 Apr 1993
```

This will set the first information to be listed from the TCF logfiles. Any information prior to 1 Apr 1993 will not be listed. Trying to list any information before this date will result in the message:

```
**** BEGINNING OF FILE ****
```

```
LIMIT BEGIN D-10
```

This will set the first information to be listed from the TCF logfiles back 10 days. Any information before this date will result in the message:

```
**** BEGINNING OF FILE ****
```

```
LIMIT END 12:00
```

This will set the last information to be listed from the TCF logfiles at today at 12:00. Any records after this date will not be listed. Trying to list any records before this date will result in the message:

```
*** END OF FILE ***
```

LOG [<file-name>]

This command is used to start logging the output from TCFREAD to a file, or to stop logging. If a filename is specified in the log command, logging will start to the filename specified.

If logging is already active and a filename is specified, the current logfile will be closed and the filename specified will become the current logfile.

The log command without a filename will close the current logfile. If logging is not active nothing will happen.

<file-name> must be a sequential type of file. For instance, a spooler, an entry-sequenced disk file, a process, etc.

NEXT

This command sets TCFREAD in forward mode, and lists the next records.

PAGESIZE { <no-list-lines> | -1 }

This command is used to control the number of lines being listed between two command prompts. Valid values are from 1 to 255 lines or -1 as an infinite value. This value will list all TCFMON records, from the current position through to one of the file boundaries, depending on the current direction of browsing.

POSITION <time>

This command positions to a specific point of time in the logfiles. After a successful position, TCFREAD will list the data logged, at the date and time specified.

Data will be listed in forward mode. To see the TCF log information prior to these, use the PREVIOUS command to turn the reading direction to backward mode.

When specifying a position before that of the first log information, the first log information will be listed. If specifying a position between two transactions, the latter is returned. If specifying a position beyond that of the last log information, an error message will be shown.

Syntax

POSITION <time-spec>

<time-spec> ::= { <time-abs> | <time-rel> }

<time-abs> ::= [<DD>] [<MMM>] [<[YY]YY>]
 [<HH>:<MM>[:<SS>]]

<DD> is a numeric date

<MMM> is an alphabetic month, i.e.,

Jan

<[YY]YY> is a numeric year

<HH>:<MM> is numeric hours and
minutes

<SS> is numeric seconds

<time-rel> ::= D { + | - } <n>
 [<HH>:<MM>[:<SS>]]

<n> is the number of days to go

forward or back from today, i.e. D - 7

to go back exactly one week.

<HH>:<MM> is numeric hours and
minutes

<S> is numeric seconds

Examples

POSITION D-1

Will position the log pointer at yesterday at 00:00

```
POSITION D-4 12:00
```

Will position the log pointer at four days ago at 12:00

```
POSITION Apr 1 1993 09:10:20
```

Will position the log pointer at April the first at 09:10:20

PREVIOUS

This command is used to list the TCF logfile information prior to the ones just listed. This sets TCFREAD in backward mode. The command has the same effect, as pressing the Return key without a command, while in backward mode.

REPLAY {ON <terminal> | OFF }

<terminal> is a valid terminal device filename, to be used for the replay session. The terminal must be available, that is not occupied by another program. If OFF is specified an active replay session is terminated and the replay terminal is released.

The Replay function repeats the transactions on the replay terminal. The terminal output is presented exactly in the same way as the original session. No kind of formatting is done.

Note A specific terminal should always be searched when the Replay function is active. If no terminal search is defined before using the Replay function, the replay session will disrupt the session output. Especially if one or more transactions replayed is recorded while in block mode. If no search criteria are specified at all, the user receives a warning that shows this fact.

Note The terminal to be used for replay must be of the same terminal type, as the terminal previously recorded. If not, device specific control characters and character sequences may disrupt the output presented. This is because the output is presented on the replay terminal in an unformed mode.

Note The replay terminal must not be occupied by any active programs. If a TACL is running on that replay terminal, it must be paused by the PAUSE command.

To make the output as useful as possible, it is recommended using reading in forward mode.

Use the Replay function to follow a terminal for a specific period of time. Another possibility is to follow as terminal session on-line. This might be interesting, in case of a demonstration of some commands executed from one terminal. The session is fully viewed on one or more terminals, thus providing those terminal users to see exactly what is happening. To get the maximum out of a replay session, set up the parameters Auto-read and Pagesize to the appropriate values.

This is a very powerful tool. Only with the Replay function is it possible to view exactly what happened when the terminal session was working in block mode. For instance, changes to edit files done with the TEDIT editor.

RUN

This command is used to read from the current position and to the end-of-file, without the need for further user intervention. The RUN command will set TCFREAD in forward mode. The command is useful, when TCFREAD is running in batch-mode, and an entire interval, from LIMIT BEGIN to LIMIT END time, has to be listed. The RUN command is equivalent to issuing NEXT commands until the LIMIT END time is reached.

SEARCH { <search-spec> [OFF] | ALL OFF }

This command makes it possible to select a subset of logged data matching the search criteria.

<search-spec> can be specified, as one or more of the following types of criteria:

PROCESSNAME

Makes it possible to do process name search by specifying a valid process name, after this command. To disable process name search, specify OFF after the PROCESSNAME command.

TERMNAME

Makes it possible to do terminal search by specifying a valid physical terminal name, after this command. To disable terminal search, specify OFF.

USERID

Makes it possible to do a user-id search by specifying a valid user-id or user group, after this command. For instance, 255,255 or 255,*. To disable user-id search, specify OFF.

STRING

Makes it possible to do a text-string search by specifying a quoted text-string, after the SEARCH command. To disable text-string search, specify text OFF.

EXCLUDE

Makes it possible to exclude log information, containing certain text, by specifying the text to be excluded.

To disable all search criteria, specify SEARCH ALL OFF.

Syntax

```
SEARCH { <search-spec> | [ALL OFF] }
```

<search-spec> Termname <terminal> [OFF]

<terminal> is a valid terminal file name of a physical TCF terminal device

Processname <process> [OFF]

<process> is a valid Guardian processname of process that ran under TCF control

Userid <user-id> [OFF]

<user-id>::={<groupno>,<userno> | <groupno>,*}

<groupno> is a valid Guardian user group number, i.e., 255 for the Super group.

<userno> is a valid Guardian user number, i.e., 255 for a group manager

<string> [OFF]

<string> is a quoted string, i.e., "LOGON".

EXCLUDE <string> [OFF]

OFF will reset search of that specific information.

Examples

```
SEARCH USER 255,255
SEARCH "purge"
SEARCH ALL OFF
```

SYSTEMMESSAGES {INCLUDE | EXCLUDE }

This command is used to IN or EXCLUDE system messages. Typical, System messages are Control and Setmode, to manipulate terminal device behavior. The TCFREAD default is set to exclude these messages.

TIME

Displays the current date and time. The format is: DD/MM/YY HH:MM:SS

WRAP { ON | OFF }

The wrap command is used to control, if one transaction should be truncated and listed on one line or wrapped and fully displayed on more lines.

Running TCFREAD in Batch-mode

TCFREAD supports standard IN and OUT operations. TCFREAD may therefore be used in batch-mode. In batch-mode TCFREAD will sequentially operate on an in file, the same as other interactive Tandem utilities, i.e., TACL processing an obey file.

The following is a sample of how to produce a list of all activities accomplished by Super.Super in the last 24 hours.

This report could typically be a part of the normal end-of-day batch jobs, and then be printed via the spooler system.

```
DISPLAY ALL OFF
DISPLAY DATE
DISPLAY TIME
DISPLAY TERM
DISPLAY TEXT
## The DISPLAY commands above will make
## sure that the printed fields are only
## Date, Time and Text.
LIMIT BEGIN D-1 00:00
## The LIMIT BEGIN command will set the
## first information to be listed to
## yesterday at 00:00.
LIMIT END D-1 23:59:59
## The LIMIT END command will set the last
## information to be listed, from the TCF
## logfiles, to be yesterday at 23:59:59.
SEARCH USERID 255,255
## The SEARCH command will make sure it is
## only operations by Super.Super that will
## be listed.
PAGESIZE 60
## To make the output more suitable for
## printing, the PAGESIZE is set to 60
## lines.
BEGIN
## BEGIN reading the TCF logfiles from the
## LIMIT BEGIN time.
RUN
## Read and print, until EOF is reached.
EXIT
## Stop TCFREAD and close the output file.
```

To generate this report, the following TACL command must be issued:

```
TCFREAD /in INFILE,out $S.#TCF,nowait/
<TCF-log>
```

<TCF-log> is the name-prefix (first four letters) of the TCF logfiles in question.

TCREP

TCREP is a utility that generates the reports by using the information from the TCF logfiles. The TCREP generates four different kinds of reports:

1. Summary of terminal and user activities.
2. Detailed view of terminal and user activities.
3. Program activities.
4. The Transaction report, one record for each transaction.

TCREP program has the following syntax:

```
TCREP <tcfconf> $<monitor> <repno>
```

<tcfconf> is the TCF configuration file containing the <repno> report. There is no default file name.

\$<monitor> is the name of the TCF monitor connected to this report.

<repno> is the number, uniquely identifying the report.

The output destinations are defined for each report in the TCF configuration file. The destinations are maintained using TCFCOM.

Example

```
$WORK TCF 16> run tcfrep TCFCONF $TCF1 2
```

This will generate the reports number 2 defined for monitor \$TCF1.

Normally the TCFREP is started automatically from within the TCFCOM utility. This is done in the Report menu, TCFCOM screen 6.

Please refer to the section “Generating reports”, for an explanation of generating a standard report from within the TCFCOM utility.

TCFSETUP

TCFSETUP is a TACL macro file. It is only used when installing the TCF product. This subject is further explained in section 3, Installation.

<AAAAnnnn> TCF logfiles

The TCF logfiles are written and maintained by its TCF monitor. There is always exactly one monitor, writing one set of logfiles.

A TCF logfile is identified in TCF by its first four letters, i.e., <AAAAnnnn>. 'AAAA' is the name part, beginning with an alphabetic character. 'nnnn' is the sequence number used by the monitor when rolling over to the next logfile. The first number is always '0000'. The last number depends on the amount of logfiles defined for the monitor. A set of logfiles may consist of minimum 2 and a maximum of 99 logfiles.


Several Filesystem parameters may be set by the user. Please refer to section 4.2, Configuring the monitors, for a further discussion of Filesystem parameters for the logfiles.

The TCF logfile is an Enscribe, entry-sequenced file with the filecode 3333. A TCF logfile has a block size of 4096 and a maximum record-length of 4000 bytes. The monitors write the logfile records in variable length. The minimum record-length is 102 bytes.

Please refer the section “TCFDDL”. This section describes the TCF logfile using the Tandem DDL language.

To speed up the writing of the logfiles, these files should always have the Buffered flag set to ON. This is the default, if the files are created by the TCF monitor.

Please refer to the section “Planning for the Monitors”, for further information on logfiles.

 **Caution** TCFMON does not use TMF when writing its logfiles. These files should NEVER have the Audit flag set to ON.

If a monitor receives a Filesystem Error while writing its logfiles, and the error condition is considered fatal, the monitor will abend.

HELPGEN

This program is used by the TCFSETUP TACL macro when TCF is installed. It reads the unstructured HELPBASE file, and then loads the structured file TCFHELP.

Chapter 6: Event and Error Messages

This chapter is a complete reference guide to all event and error messages in TCF. Each message is listed with its cause, effect, and means of recovery.

If the Monitor configuration parameter Event log is a Tandem EMS collector (Guardian device-type, subtype is then 1,0), the TCF monitor supports logging in event format. The events from TCF monitors are then generated and logged, to the Tandem EMS subsystem, in standard, Tandem, tokenized event-message format.

If the Event log parameter is of other types, the events are written as pure text.

Normally the EMS collector on all Tandem systems, is the '\$0' collector.

In the event and error message, the tokens below are replaced by error numbers, file names, process names, etc.

Example

'@FE@' could be replaced by '48'. 48 is the Filesystem Error which can be looked up in the System Procedure Errors and Messages Manual.

The following tokens may be present:

@SC@	Subcode number in octal, ex. CPU number or Newprocess Error. The subcode number is a 16 bit integer.
@SC@	Subcode number in decimal, ex. CPU number or Newprocess Error. The subcode number is a 16 bit integer.
@FN@	File name. The name can be any file such as a terminal name, log file, etc. The file name is on Fname32 format.
@FE@	Filesystem Error. The error number can be looked up in the Tandem System Procedure

Errors and Messages Manual under "Filesystem Errors".

- @PN@** Physical terminal name. The event is concerning a terminal, and @PN@ is the physical terminal name. The file name is on Fname32 format.

- @VN@** Logical terminal name. The event is concerning a terminal, and @VN@ is the logical terminal name. The file name is in Fname32 format.

- @RP@** Requesting process. This is the process which caused the event. The format is a standard process name.

- @RF@** Requester program file. This is the program file name of the process which caused the event.

- @UN@** User name. This is Guardian userid in numeric form which shows the userid that caused the event.

1 PRIMARY STOPPING BACKUP PROCESS IN CPU @SC@

- Cause** The CPU numbers in the TCFCONF file has changed. This cause TCFMON to stop the backup process and restart it in a different CPU.

 - Effect** The primary monitor process stops the backup process. The Subcode contains the CPU number which indicates where the backup process is running.
-

Recovery None. Informative message only.

**2 CREATING BACKUP PROCESS IN CPU
 @SC@**

Cause The CPU numbers in the TCFCONF file has changed. This causes TCFMON to start and stop the backup process, or a CPU came up where the backup process is supposed to run.

Effect The primary monitor process starts the backup process. The Subcode contains the CPU number that indicates where the backup process will be running.

Recovery None. Informative message only.

**3 PROCESSINFO ERROR @SC@ ON OWN
 PROCESS**

Cause A primary process was about to start a backup process but the backup process could not be started.

Effect While creating a backup process, the primary process failed, when requesting a processinfo on itself. The subcode contains the processinfo return code.

Recovery The monitor will retry the backup start procedure at a later time. if the error persists then stop and restart the monitor.

4 UNABLE TO CREATE BACKUP PROCESS.

NEWPROCESS ERROR @SC@

- Cause** The Newprocess function returned an error condition. The subcode is the error number from the Newprocess procedure.
- Effect** The monitor backup process was not started due to the Newprocess Error. The monitor will continue but will not be running nonstop.
- Recovery** The Tandem System Procedure Errors and Messages manual contains more information about possible error codes. Recovery to be done according to this manual.

5 CHECKPOINT FAILURE. ERROR @SC@

- Cause** The backup process was stopped or an error occurred while checkpointing data. Subcode is the error number returned from the Checkpointmany procedure.
- Effect** The backup process will be stopped.
- Recovery** The Tandem Systems Procedure Errors and Messages manual contains more information about error codes from the Checkpointmany procedure. The backup process will be started again at a later time.

7 INVALID DATATYPE CHECKPOINTING, DATATYPE @SC@

- Cause** An unexpected event caused the monitor to checkpoint an invalid data type. The subcode is
-

	the invalid data type.
Effect	The primary monitor process will abend.
Recovery	None. The backup process will take over. The monitors automatic CPU-switching scheme will after a few minutes switch the monitor back to the original primary CPU and create the backup process.

8	FATAL INTERNAL ERROR @SC@
Cause	An unexpected event caused the monitor an internal error. The subcode is the internal error number.
Effect	The primary monitor process will abend.
Recovery	None. The backup process will take over. The monitors automatic CPU-switching scheme will after a few minutes switch the monitor back to the original primary CPU and create the backup process.

9	CHECKOPEN @FN@ ERROR IN BACKUP. ERROR @FE@
Cause	The backup process was stopped or an error occurred while doing a Checkopen. @FN@ is the filename that could not be checkopened. @FE@ is the Filesystem error.
Effect	The backup process will be stopped.
Recovery	The Tandem Systems Procedure Errors and Messages manual contains more information

about error codes from the Checkopen procedure. The backup process starts again later.

**10 CHECKSETMODE @FN@ ERROR IN
 BACKUP. ERROR @FE@**

Cause The backup process was stopped or an error occurred while doing a Checksetmode. @FN@ is the filename that could not receive the Checksetmode. @FE@ is the Filesystem Error.

Effect The backup process will be stopped.

Recovery The Tandem Systems Procedure Errors and Messages manual contains more information about error codes from the Checksetmode procedure. The backup process starts again later.

**11 SWITCH FROM PRIMARY TO BACKUP
 PROCESS**

Cause The CPU configuration has changed or a CPU previously down came up.

Effect The primary process will now be backup process and vice versa.

Recovery None. Informative message only.

12 UNABLE TO GET I/O CONTROL BLOCK

Cause Too many processes were doing I/O at the same time.

Effect	Primary process will abend.
Recovery	Reduce the number of active terminals. The current monitor supports a maximum of 512 opens against active devices at the same time. The backup process will take over. The monitor will automatically follow its CPU scheme. Therefore, after a few minutes switch back the monitor to the original primary CPU.
<hr/>	
13	CONFIG FILE @FN@ OPEN ERROR @FE@
Cause	The monitor started but was unable to open its configuration file. @FN@ will be the name of the configuration file and @FE@ the Filesystem Error.
Effect	If the monitor has already read a configuration the monitor will continue. If the monitor has not read a configuration, the monitor will abend.
Recovery	Recovery is dependent upon the Filesystem Error. Restart monitor if it has stopped.
<hr/>	
14	CONFIG FILE @FN@ KEYPOSITION ERROR @FE@
Cause	A Filesystem Error was returned when the monitor was trying the position for a Read in the configuration file. @FN@ is the name of the configuration file and @FE@ the Filesystem Error.
Effect	The primary monitor process will abend.
Recovery	Recovery is dependent upon the Filesystem Error. Restart monitor.

Error. Restart monitor.

15 CONFIG FILE @FN@ READ ERROR @FE@

Cause A Filesystem Error was returned when the monitor was trying to read the configuration file. @FE@ the Filesystem Error.

Effect The primary monitor process will abend.

Recovery Recovery is dependent upon the Filesystem Error. Restart monitor.

16 PROGRAM @RF@, PROCESS @RP@ ON HOMETERM EMULATOR PROMPTED, BUT NO AUTOREPLY FOUND

Cause The process @RP@, with program file name @RF@, was doing Writeread operation on the Hometerm Emulation feature of TCF, but the program file name has not been configured in the configuration file.

Effect The process' Writeread operation fails with a Filesystem Error 66 (Device down).

Recovery Specify the filename of the prompting program in the Hometerm Emulation setup in TCFCOM, or stop the program from prompting on its hometerminal

17 UNABLE TO OBTAIN CONFIGURATION FROM CONFIG FILE @FN@

Cause	The monitor process was trying to read the configuration file, when it discovered that there were no records for this monitor.
Effect	The primary monitor process will abend.
Recovery	Set up a configuration for the monitor with TCFCOM.
<hr/>	
18	SETMODE @SC@ ERROR ON @PN@. ERROR @PE@
Cause	The process requested break key handling on device @PN@ and the Filesystem Error @PE@ was returned.
Effect	Break key handling was not enabled on a device.
Recovery	The operation will be retried after a short period of time.
<hr/>	
19	PROCESS @RQ@, PROGRAM @RF@ ISSUED A SETMODE 12 WITH PARM 1=@SC@
Cause	The process @RP@ with program file name @RP@, that issued the Setmode operation 12, was not conforming to Tandem standard. This states that Param in a Setmode 12 operation, must be either 0 or 1.
Effect	The Setmode operation will return Filesystem Error 2 (Operation not allowed on this type file).Break key handling was not enabled on a device.
Recovery	The application must be corrected to conform to Tandem standard.
<hr/>	

20	PROCESS @RQ@, PROGRAM @RF@ ISSUED A SETMODE WITH AN UNKNOWN COMBINATION OF PARAMETERS
Cause	The process @RP@ with program file name @RF@, was using an unknown combination of Setmode parameters.
Effect	The Setmode operation will be done, but the result might be wrong.
Recovery	The application must be corrected to conform to Tandem standard.
<hr/>	
21	TOO MANY STATIC TERMINALS DEFINED (@SC@)
Cause	Too many static terminals were defined, in the configuration file, using TCFCOM. The subcode is the maximum number of static terminals that the monitor supports.
Effect	The rest of the static terminals will be ignored.
Recovery	Delete some of the static terminals from the monitor configuration by using TCFCOM.
<hr/>	
22	CONTROL 27 ON CONFIG FILE @FN@ FAILED. ERROR @SC@
Cause	A Filesystem Error was returned when the primary monitor process was issuing the Control 27 operation on the configuration file. @SC@ is

	the Filesystem Error returned.
Effect	The primary monitor process will abend.
Recovery	Error recovery is dependent upon the Filesystem Error. Restart monitor.
<hr/>	
23	UNABLE TO CREATE LOGFILE @FN@ ERROR @FE@
Cause	A Filesystem Error was returned when the log files were created. @FN@ is the filename. @FE@ is the Filesystem Error.
Effect	Some of the logfiles needed by the monitor process were not created.
Recovery	Error recovery is dependent upon the Filesystem Error. If necessary, use the File Utility Program (FUP) to create the monitor log file.
<hr/>	
24	CPU NUMBERS IN CONFIG FILE HAS BEEN CHANGED TOO SOON
Cause	The monitor was in the state of switching primary and backup process. The CPU numbers in the config file was changed once too often. To secure a safe change between the CPUs, the Monitor has to ignore rapid changes in its CPU numbers.
Effect	The monitor will not switch according to the latest change in CPU numbers.
Recovery	Wait one minute, and do the update function once more in TCECOM

once more in TCFCOM.

25 CONFIG FILE AND MONITOR VERSION MISMATCH

Cause The config file was created with a different version of TCFCOM.

Effect The monitor will abend.

Recovery Use correct version of TCFCOM and TCFMON.

26 CONFIGURATION FILE @FN@ FOR TCF MONITOR HAS BEEN CHANGED

Cause The Event Message Trigger option Control File Change in TCFCOM was set to yes, and the configuration was changed for this monitor process. @FN@ is the name of the configuration file.

Effect A running monitor has read a new configuration.

Recovery None. Informative message only.

30 CONFIG FILE @FN@ IS NOT A LEGAL DISK FILE

Cause The monitor process was started with the name @FN@ as its in-file. This is not a disk file.

Effect The monitor process will abend.

Change the in-file to be a legal, TCF

Recovery configuration file, and restart the monitor.

31 OPEN FILE @FN@ ERROR @FE@

Cause The monitor was trying to open file @FN@ and Filesystem Error @FE@ was returned.

Effect The monitor process will abend.

Recovery Recovery is dependent upon the Filesystem Error. Restart monitor.

32 SETMODE @SC@ FILE @FN@. ERROR @FE@

Cause The monitor was trying to do Setmode function @SC@ on file @FN@ and Filesystem Error @FE@ was returned.

Effect The monitor process will abend.

Recovery Recovery is dependent upon the Filesystem Error. Restart monitor.

33 PROCESSINFO ON @RP@ ERROR @SC@

Cause The processinfo procedure returned an error @SC@ , when it was trying to locate the process @RP@. This is normal when the requester process is stopped or abended, before the monitor was able to locate it.

Effect The monitor will log invalid userid and program file name on the process indicated.

Recovery None. Informative message only.

34 HOME TERMINAL TEXT

Cause A program has written a message to the Hometerm Emulation feature of the monitor. At the same time, the Hometerminal EMS log was set to yes in the configuration file. This will cause the monitor to log all messages received through its Hometerm Emulation feature.

Effect Unknown. depends on the program writing the event.

Recovery Depends on the program writing the event.

**35 SETPARAM @SC@ ERROR ON @FN@.
ERROR @FE@**

Cause The monitor was trying to do Setparam function @SC@ on file @FN@ and Filesystem Error @FE@ was returned.

Effect The monitor process will abend.

Recovery Recovery is dependent upon the Filesystem Error. Restart monitor.

**36 TERMINAL @VN@ ON PHYSICAL DEVICE
@PN@ HAS STOPPED**

Cause The last process on the terminal device has stopped executing. At the same time, the Event Message Trigger has the Terminal closed set to

yes and exactly that terminal specified. The monitor then considers the terminal as stopped.

Effect A device controlled by the monitor has stopped.

Recovery None. Informative message only.

37 USER @UN@ HAS LOGGED ON @FN@

Cause A userid @UN@ was configured in the Event Message Trigger setup in the configuration file.

Effect A specific user logged on terminal @FN@.

Recovery None. Informative message only.

38 DEVICE @FN@, USER @UN@. AUTOLOGOFF PLAN FAILED

Cause The programs that were running on device @FN@ were not set up correctly in the Autologoff setup, or the programs were not stopping according to the commands defined.

Effect The monitor will wait one minute, then retry the autologoff plan.

Recovery Change the autologoff plan by using TCFCOM or abort the terminal by using TCFCOM Abort Terminal in Terminal Menu screen. It is not possible to use that terminal before the user has been logged off.

39 REQUEST FROM @RP@, @RF@ HAD AN UNKNOWN I/O TYPE @SC@

UNKNOWN I/O TYPE @SC@

Cause A process @RP@ with program file name @RF@ did I/O operation that was not known to the monitor process.

Effect The monitor will abend

Recovery Restart monitor and check the application program for errors.

40 BACKUP PROCESS @RP@ HAS STOPPED

Cause The backup process @RP@ stopped because of CPU switching.

Effect The monitor will for a short time run without any backup process.

Recovery None. The backup process will be started again by the monitor.

41 BACKUP PROCESS @RP@ ABEND

Cause The backup process @RP@ abended.

Effect The monitor will for a short time run without any backup process.

Recovery None. Check the saveabend dump from the backup process and find the cause of abend. The backup will be started again by the primary monitor process.

42	TERMINAL TABLE FULL. PROCESS @RP@ RECEIVED A FILESYSTEM ERROR 12 ON OPEN
Cause	A process @RP@ was trying to open a logical device but there was no space left in the monitor control tables.
Effect	The opening process @RP@ receives a Filesystem Error 12 (file in use) from the Open procedure.
Recovery	Reduce the number of opens on the monitor. This could be done by moving some terminals to another monitor.

43	OPEN @FN@ ERROR @FE@
Cause	An Open operation on file @FN@ failed with Filesystem Error @FE@.
Effect	The requesting process receives the Filesystem Error condition when trying to use that file.
Recovery	Recovery is dependent upon the Filesystem Error. Restart monitor.

44	DYNAMIC TERMINAL @VN@ STARTED ON PHYSICAL DEVICE @PN@
Cause	A dynamic terminal was started by use of the TCFCONN utility. The Event Message Trigger setup option, Dynamic terminal added, was at the same time set to yes.
Effect	None.

Recovery	None. Informative message only.
-----------------	---------------------------------

45	DEV D TABLE SPACE OVERFLOW
Cause	An Open from a process needed a new entry in the monitor device table, but none was available.
Effect	The monitor process will abend.
Recovery	Reduce the number of opens on the monitor. This could be done by moving some terminals to another monitor.

46	SEND BREAK MESSAGE TO @RP@ ERROR @SC@
Cause	The break key was pressed on a terminal, but the break message failed to reach the user-process.
Effect	The break key has no effect.
Recovery	None. Informative message only.

47	BREAK @SC@ RECEIVED BUT NONE WANTED
Cause	The processes running on the virtual terminal do not accept the break message.
Effect	The break message is lost. @SC@ is the index to device table.
Recovery	None. Informative message only.

48	BREAK FROM UNKNOWN SOURCE
-----------	----------------------------------

RECEIVED. TAG @SC@

- Cause** A break message was received but the monitor could not identify the source terminal.
- Effect** The break message is lost. @SC@ is the break tag.
- Recovery** None. Informative message only.

50 DEVICE @FN@, USER @UN@. AUTOLOGOFF STARTED

- Cause** Autologoff was started for user @UN@ on device @FN@ and the Event Message Trigger setup option, Autologoff start was set to yes.
- Effect** The user will be logged off.
- Recovery** None. Informative message only.

51 BROADCAST TERMINAL @FN@ CANCEL ERROR @FE@

- Cause** A broadcast message was destined for device @FN@ but a Cancel operation failed.
- Effect** The broadcast message to that terminal is lost.
- Recovery** Retry the broadcast operation at a later time.

52 MESSAGE ALREADY PENDING ON BROADCAST TERMINAL @FN@

- Cause** A broadcast message was destined for device @FN@ but a message was already pending for
-

	that device.
Effect	The broadcast message to that terminal is lost.
Recovery	Retry the broadcast operation at a later time.

53	BROADCAST TERMINAL @FN@ WRITE ERROR @FE@
Cause	A broadcast message was destined for device @FN@ but the write operation failed with Filesystem Error @FE@.
Effect	The broadcast message to that terminal is lost.
Recovery	Retry the broadcast operation at a later time.

54	BACKUP PROCESS STILL RUNNING
Cause	The monitor tried to start a new backup process, but the old backup process was still running.
Effect	A new backup process is not started.
Recovery	If the problem persists check that the backup process is in a stoppable state, i.e., it is not hanging in INSPECT or has been suspended.

55	MONITOR SHUTDOWN
Cause	The monitor was stopped with the TCFCOM Shutdown function.
Effect	The monitor stops.

Recovery None. Informative message only.

56 CANCEL ATTEMPTED WITHOUT ANY OUTSTANDING OPERATIONS

Cause A process did a Filesystem Cancel against the monitor, but the monitor was unable to find the request to cancel.

Effect The Cancel operation is ignored.

Recovery None. Informative message only. This message might occur if the system is extremely busy.

57 READUPDATE @FN@ ERROR @FE@

Cause A readupdate operation on @FN@ failed with Filesystem Error @FE@.

Effect The monitor process will abend.

Recovery Recovery is dependent upon the Filesystem Error. Restart monitor.

58 READ @FN@ ERROR @FE@

Cause A Read operation on @FN@ failed with Filesystem Error @FE@.

Effect The monitor process will abend.

Recovery Recovery is dependent upon the Filesystem Error. Restart monitor.

59	UNABLE TO IDENTIFY REQUEST FROM @RP@
Cause	A process @RP@ did an I/O operation on the monitor but the process @RP@ could not be found in the monitor open table.
Effect	The I/O operation is ignored and the process receives a Filesystem Error 60 (server has failed and been replaced by a different process with the same name since it was opened) on the I/O operation.
Recovery	None. Informative message only. This message might occur when the monitor has been restarted or a terminal abort has taken place.

61	REPLY @FN@ ERROR @FE@
Cause	A Reply operation on @FN@ failed with Filesystem Error @FE@.
Effect	The reply operation is ignored.
Recovery	None. Informative message only. This operation might occur when a take-over from primary to backup process has taken place because of the checkpointing scheme.

62	INVALID STATE ON PROCESS @RP@, OPEN @VN@ I/O STATE @SC@
Cause	An unexpected I/O operation completed.
Effect	The primary monitor process abends.

Recovery	None. The backup process will take over.
-----------------	--

63	INVALID STATE ON PROCESS @RP@ STATE @SC@
Cause	An unexpected I/O operation completed.
Effect	The primary monitor process will abend.
Recovery	None. The backup process will take over.

64	TAKEOVER BY BACKUP. NEW PRIMARY CPU IS @SC@
Cause	A CPU went down or primary process abended.
Effect	The backup process will take over. The backup process will switch back to the primary CPU, when this becomes available again.
Recovery	None. Informative message only.

65	FATAL SETMODE @SC@ ERROR @FE@ ON FILE @FN@
Cause	A setmode operation @SC@ on file @FE@ failed with Filesystem Error @FE@.
Effect	The primary monitor process will abend.
Recovery	None. The backup process will take over.

66	RECEIVE TABLE INCONSISTENCY
-----------	------------------------------------

Cause After a backup process take over the backup process discovered that the information in the monitor receive control table is inconsistent.

Effect The monitor will not be able to continue.

Recovery Restart monitor.

67 OPEN TABLE INCONSISTENCY

Cause After a backup process take over the backup process discovered that the information in the monitor open control table is inconsistent.

Effect The monitor will not be able to continue.

Recovery Restart monitor.

68 I/O TABLE INCONSISTENCY

Cause After a backup process take over the backup process discovered that the information in the monitor I/O control table is inconsistent.

Effect The monitor will not be able to continue.

Recovery Restart monitor.

69 DEVICE TABLE INCONSISTENCY

Cause After a backup process take over the backup process discovered that the information in the monitor Device control table is inconsistent.

Effect The monitor will not be able to continue.

Recovery Restart monitor.

70 TAKEOVER OPEN @FN@ ERROR @FE@

Cause After a backup process take over the backup process failed to do a Filesystem Open on a terminal device. The Filesystem Open failed with the error condition shown.

Effect The terminal device is now in the stopped state.

Recovery Restart terminal from within TCFCOM.

71 TERMINAL @VN@ ON PHYSICAL DEVICE @PN@ NOT STARTED. RESTART COUNT EXCEEDED

Cause The terminal restart on stop parameter was specified but the terminal was already unsuccessfully restarted twice in the last 60 seconds.

Effect

The terminal will not be restarted by TCFMON.

Recovery

Restart terminal from within TCFCOM.

72 TERMINAL @VN@ ON PHYSICAL DEVICE @PN@ NOT STARTED. CONFIG FILE @FN@ READ ERROR @FE@

Cause The terminal restart on stop parameter was specified but the monitor was unable to locate the terminal configuration in the config file.

Effect	The terminal will not be restarted by TCFMON.
Recovery	Check that the terminal definition is defined in the config file. If not, define and start it with the TCFCOM utility.
<hr/>	
73	TERMINAL @VN@ ON PHYSICAL DEVICE @PN@ NOT STARTED. NEWPROCESS ERROR @SC@
Cause	The terminal restart on stop parameter was specified but the monitor received an error condition when restarting that terminal.
Effect	The terminal will not be restarted by TCFMON.
Recovery	Error recovery is dependent upon the Newprocess error code. It may require further operations from within the TCFCOM utility.
<hr/>	
74	UNEXPECTED I/O COMPLETION. I.O TAG @SC@
Cause	An I/O request or message of an unknown type was received by the monitor.
Effect	None. The monitor will ignore the request.
Recovery	If this problem is persistent, please contact your TCF representative.
<hr/>	
75	PRIMARY PROCESS STOPPED BEFORE ANY CHECKPOINTS TOOK PLACE
Cause	After a backup process takeover, the backup process discovered that it had never been

updated (checkpointed) by the primary process.

Effect The backup process is unable to continue and abends.

Recovery Check for any EMS event-messages or reasons why the primary process has stopped. Restart the monitor.

80 MONITOR STARTED. (c) 1993 ALTA COPENHAGEN ApS

Cause A monitor process was started.

Effect The monitor is running.

Recovery None. Informative message only.

81 PROCESS MUST BE NAMED WHEN RUN

Cause A monitor was started without a process name.

Effect The monitor process will stop.

Recovery It should not be possible to start a monitor process without a name, because the program file has a subtype. Check that the subtype of the monitor program file has not been changed with the BINDER. The monitor must have a subtype to function properly.

82 LICENSE HAS EXPIRED. PLEASE GET NEW LICENSE @SC@

Cause The license control logic of TCFMON discovered that the TCF monitor software has expired.

Effect	The monitor process stops executing.
Recovery	Please get a new license for the TCF product.
<hr/>	
83	TCF IS NOT LICENCED FOR THIS SYSTEM
Cause	The license control logic of TCFMON discovered that the TCF monitor is running on a system without a license for that system.
Effect	The monitor generates this event constantly until the license is updated.
Recovery	Please get a new license for the TCF product for that system.
<hr/>	
84	LICENSE FILE OPEN ERROR. CONFIG FILE OPEN ERROR @SC@
Cause	The license control logic of TCFMON failed to do a Filesystem Open on the TCF configuration file. The Filesystem Open failed with the error condition shown.
Effect	The monitor process stops executing.
Recovery	Recovery is dependent upon the Filesystem Error, and restarting the monitor process.
<hr/>	
85	LICENSE FILE KEYPOSITION ERROR. CONFIG FILE KEYPOSITION ERROR @SC@
Cause	The license control logic of TCFMON failed to do a Filesystem Keyposition on the TCF

Effect a Filesystem Keyposition on the TCF configuration file. The Filesystem Keyposition failed with the error condition shown.

Recovery The monitor process stops executing.
Recovery is dependent upon the Filesystem Error, and restarting the monitor process.

86 LICENSE FILE READ ERROR. CONFIG FILE READ ERROR @SC@

Cause The license control logic of TCFMON failed to do a Filesystem Read of the TCF configuration file. The Filesystem Read failed with the error condition shown.

Effect The monitor process stops executing.

Recovery Recovery is dependent upon the Filesystem Error, and restarting the monitor process.

87 LICENSE IS INVALID

Cause The license control logic of TCFMON discovered that the license information is invalid for some reason.

Effect The monitor process stops executing.

Recovery Re-install the license by running the TCFSETUP TAACL macro and restart the monitor process. If this problem is persistent, please contact your TCF representative.

200 PROMPT @RP@ @RF@ IS WAITING FOR

OPERATOR REPLY

- Cause** The monitors Hometerm Emulator has an outstanding prompt from the process and program specified in the EMS event-message.
- Effect** The prompt is left unanswered until it is answered by an operator or the prompting process stops for some reason. This event is sent to the EMS subsystem as an action-needed event.
- Recovery** The prompt should be answered from within the TCFCOM Waiting Prompts screen.

201 HOMETERM PROMPT REPLIED BY OPERATOR FOR PROCESS @RP@ PROGRAM @RP@

- Cause** The monitors Hometerm Emulator had an outstanding prompt on behalf of the process and program specified in the EMS event-message and the prompt was answered by an operator.
- Effect** The action-needed event no 200 previously sent is turned off by this event.
- Recovery** None. Informative message only.

202 HOMETERM PROMPT CANCELED FOR PROCESS @RP@ PROGRAM @RP@

- Cause** The monitors Hometerm Emulator had an outstanding prompt on behalf of the process and program specified in the EMS event-message but the prompting process stopped for some reason.
-

Effect	The action-needed event no 200 previously sent is turned off by this event.
Recovery	None. Informative message only.
<hr/>	
203	HOMETERM PROMPT TABLE FULL. WAIT FOR OPERATOR IGNORED FOR PROCESS @RP@ PROGRAM @RF@
Cause	The monitors Hometerm Emulator received a prompt from a program specified with the <WAIT> parameter, but the maximum number of waiting prompt entries are already allocated.
Effect	The prompt request is ignored with a Filesystem Error 66 condition (device down).
Recovery	Answer some of the outstanding prompts from within the TCFCOM Waiting Prompts screen.
<hr/>	
500	UNABLE TO OPEN LOGFILE @FN@ ERROR @FE@
Cause	A Filesystem Error @FE@ was returned when the monitor was opening the TCF logfile @FN@.
Effect	The monitor will stop, because it is not able to do logging.
Recovery	Recovery is dependent upon the Filesystem Error, and restarting the monitor process.
<hr/>	
501	LOGFILE @FN@ IS NOT ENTRY SEQUENCED

	SEQUENCED
Cause	The monitor opened the logfile @FN@ then discovered that file was not of the correct type.
Effect	The monitor process will stop, because it is not able to do logging.
Recovery	Correct the logfile names with TCFCOM monitor configuration or purge or rename the logfiles and let TCFMON create them. Restart monitor process.

502	LOGFILE @FN@ FILEINFO ERROR @FE@
Cause	The monitor was trying to locate a new logfile @FN@ but the Filesystem returned the error @FE@.
Effect	The monitor process will stop, because it is not able to do logging.
Recovery	Recovery is dependent upon the Filesystem Error, and restarting the monitor process.

503	UNABLE TO CREATE LOGFILE @FN@ ERROR @FE@
Cause	The monitor was trying to create a new logfile @FN@ but the Filesystem returned the error @FE@.
Effect	The monitor process will stop, because it is not able to do logging.
Recovery	Recovery is dependent upon the Filesystem

Recovery Error, and restarting the monitor process.

504 UNABLE TO ALLOCATE EXTENTS IN LOGFILE @FN@ ERROR @FE@

Cause The monitor was trying to allocate extents on a new logfile @FN@ but the Filesystem returned the error @FE@.

Effect The monitor process will stop, because it is not able to do logging.

Recovery Recovery is dependent upon the Filesystem Error, and restarting the monitor process.

505 UNABLE TO PURGEDATA IN LOGFILE @FN@ ERROR @FE@

Cause The monitor was trying to purgedata on a new logfile @FN@ but the Filesystem returned the error @FE@.

Effect The monitor process will stop, because it is not able to do logging.

Recovery Recovery is dependent upon the Filesystem Error, and restarting the monitor process.

506 LOGFILE ROLLOVER TO @FN@

Cause The monitor switched to new logfile @FN@ and the Event Message Trigger Logfile rollover was set.

Effect	Logging from the monitor process is now occurring to the logfile @FN@.
Recovery	None. Informative message only.

507	FATAL WRITE ERROR @FE@ ON LOGFILE @FN@
Cause	The monitor was trying to write to its logfile @FN@ but the Filesystem returned the error condition @FE@.
Effect	The error condition is considered by the monitor to be fatal. The monitor will stop, because it is not able to do logging.
Recovery	Recovery is dependent upon the Filesystem Error, and restarting the monitor process.

508	WRITE ERROR @FE@ ON LOGFILE @FN@
Cause	The monitor was trying to write to its logfile @FN@ but the Filesystem returned the error condition @FE@.
Effect	The error condition is considered by the monitor to be non-fatal. The monitor process will execute its rollover logic, in order to do logging to the next logfile. This is normally the case for a Filesystem Error 43 (unable to obtain disk space for file extent).
Recovery	Recovery is dependent upon the Filesystem Error.

509 LOGGING TO FILE @FN@ DISABLED FOR THE NEXT 100 RECORDS

Cause The monitor encountered the same error condition on 10 consecutive logging attempts on one of its logfiles.

Effect Logging is disabled for the next 100 transactions.

Recovery Recovery is dependent upon the Filesystem Error in the previous logging error message.

510 LOGGING TO FILE @FN@ ENABLED

Cause Logging to logfiles @FN@ was disabled (with event no 509) and after 100 transactions without logging, the logging mechanism is turned back on.

Effect After 100 transaction logging is turned back on and retried with this event.

Recovery None. Informative message only.

Chapter 7

The TCF Quick Starter

This chapter provides an example of how to set up a minimum TCF environment. The environment consists of a monitor, \$TCF1, and two terminal sessions. Only the USER profile setup is changed. Other setups are left unchanged. In this example, the TCF package is installed on the subvolume \$WORK.TCF.

The chapter is organized as follows:

- Transferring Files from a Floppy Disk or Tape to the Tandem System
- Setting up the TCF Environment
- Creating a Monitor
- Creating a Terminal
- Starting Monitor and Terminal
- Defining User Profiles

Transferring Files from a Floppy Disk or Tape to the Tandem System

On a PC or Workstation with a DOS prompt, enter the following commands:

```
C:\>a:  
A:\>IXFLOAD $WORK.TCF
```

On the Tandem computer the RESTORE utility is used:

```
RESTORE /OUT $$.#RESTORE/ $<tape-device>,  
*.*.* , LISTALL, VOL $WORK.TCF
```

Setting up the TCF Environment

Logon as the appropriate TCF user. Go to the subvolume containing the TCF installation:

```
TACL 1> logon tcf.manager  
Password:  
  
$WORK MYSUBV 1> volume $tools.tcf  
  
Run the TCFSETUP installation macro:  
  
$WORK TCF 2> run tcfsetup  
  
TCFSETUP: Creating configuration file  
TCFCONF  
  
CREATED - $WORK.TC.TCFCONF
```

```
TCFSETUP: Creating TCF help file TCFHELP
CREATED - $WORK.TCF.TCFHELP
Help text file $WORK.TCF.TCFHELP load
success>>

Number of lines read from input file:4920

Number of text records written:0150

Number of pointer records written:0407

Number of records written total:0557

TCFSETUP: Licencing the TCF package for
install>>

TCFLIC: LICENCE TRANSFERRED TO TCFCONF FILE
```

Creating a Monitor

Start the TCFCOM utility. Default configuration file is the file TCFCONF on the current subvolume, which is \$WORK,TCF:

```
$WORK TCF 3> run tcfcom
```

The TCF main-menu is now presented on the terminal:

Terminal Control Facility

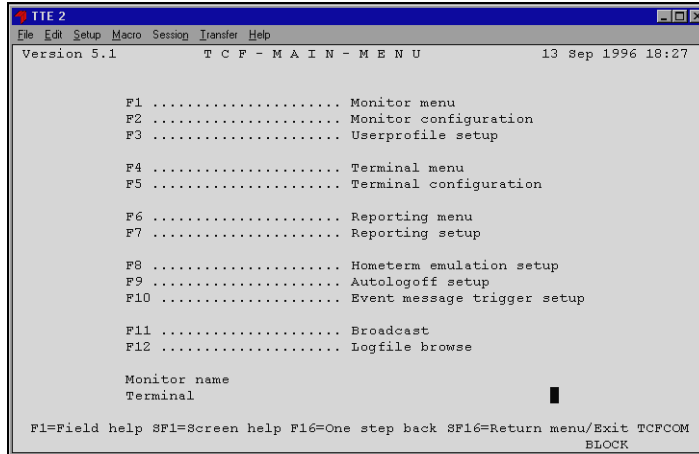


Figure 8.1: The TCF main menu.

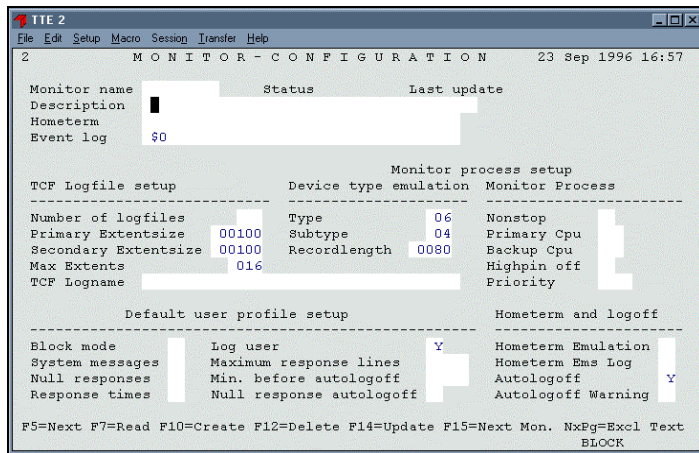


Figure 8.2: The Monitor Configuration screen.

The Monitor configuration is filled in:

Terminal Control Facility

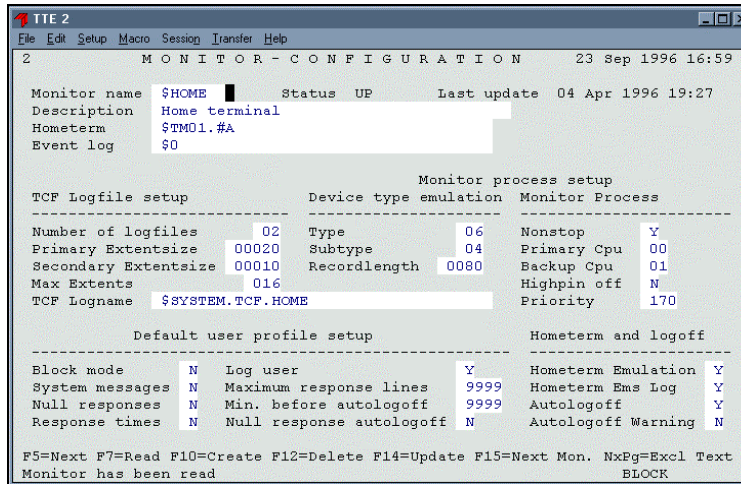


Figure 8.3: The relevant information is entered in the Monitor Configuration screen.

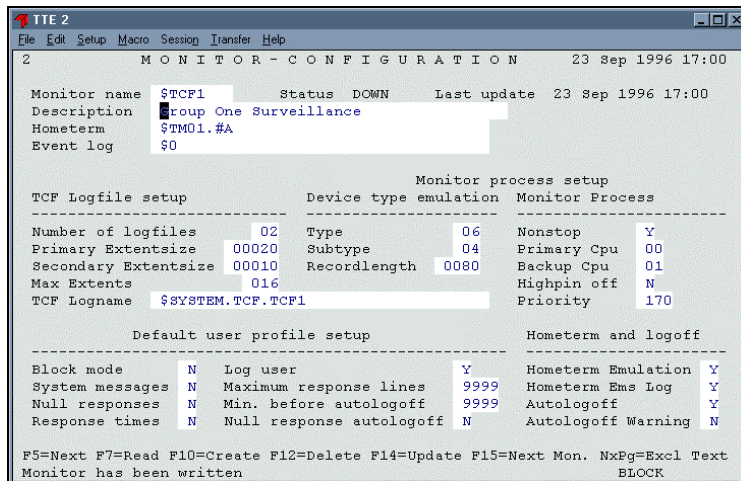


Figure 8.4: Press F10 to create the monitor.

Creating a Terminal

Now it is time to create a terminal. By selecting the monitor and pressing the F4 key, the Terminal menu screen is displayed:

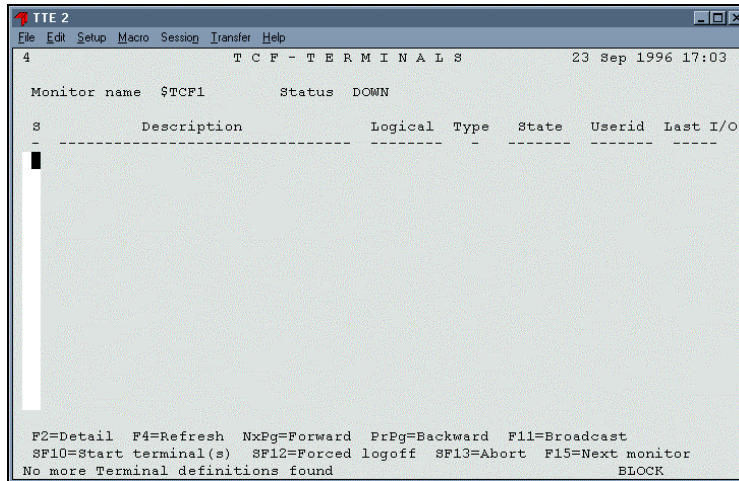


Figure 8.5: *The TCF Terminal Menu.*

The newly created monitor has no terminal sessions defined yet. Press F2 to get the Terminal configuration screen:

Terminal Control Facility

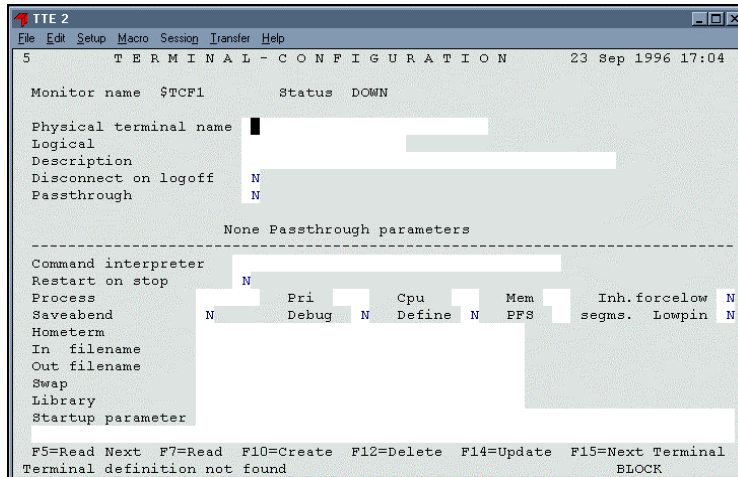


Figure 8.6: The Terminal Configuration screen.

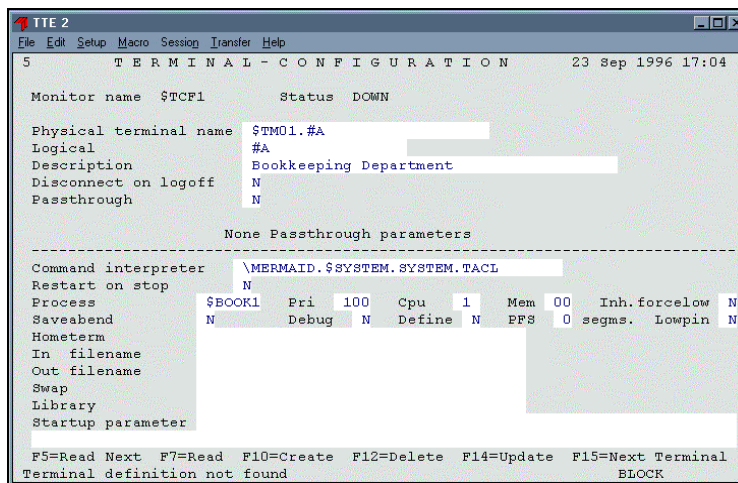


Figure 8.7: A terminal session is defined for the \$TCF1 monitor.

Press F10 to create this terminal session. Note that the in-, out- and hometerminal filename fields are now filled in:

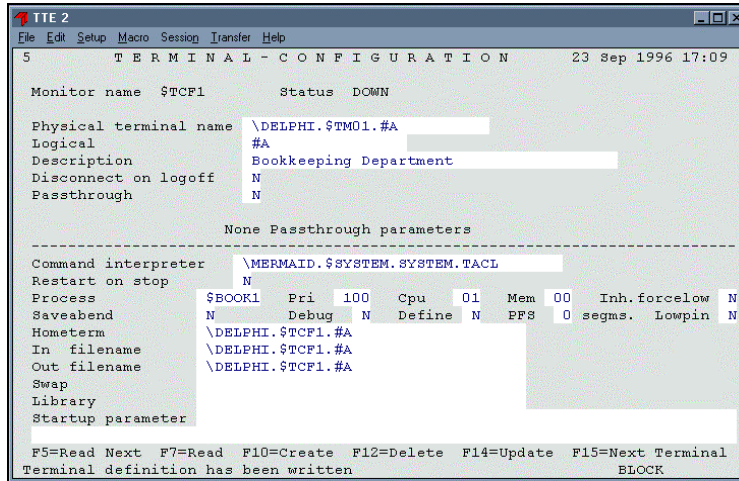


Figure 8.8: Press F10 to create the terminal.

Follow this method to create more terminals if desired. There is no need to leave the Terminal configuration screen between creates.

Return to the Terminal menu by pressing F16. The new terminal is shown:

Terminal Control Facility

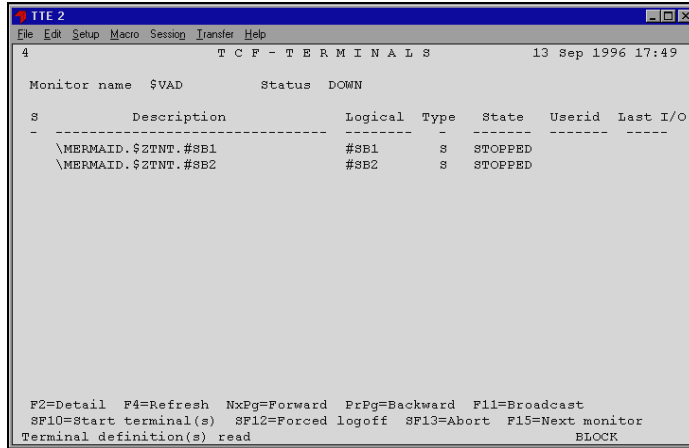


Figure 8.9: The new terminal will appear on the TCF Terminal Menu

Press F16 again to return to the Monitor menu. Select the monitor by entering a character in the select column:

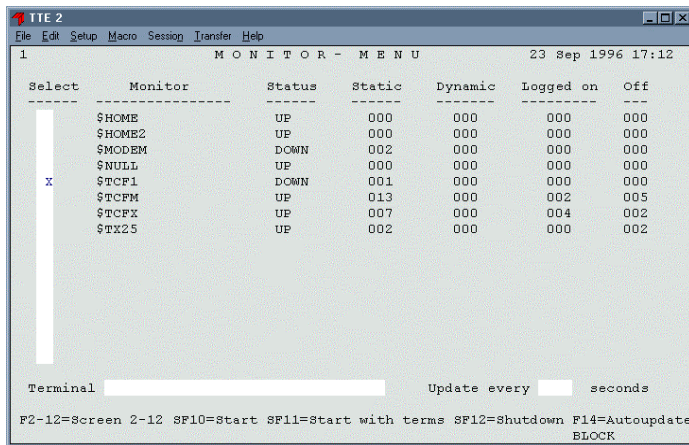


Figure 8.10: Select the monitor by pressing a non-space character.

Starting Monitor and Terminal

Now it is time to start the monitor and the terminal. Press Shift-F11 to do this. If the operation succeeds, TCF will display a message at the bottom of the screen.

Defining User Profiles

The last thing to do for this minimum setup is to configure the user profiles of the \$TCF1 monitor. Again, the monitor is selected, the F3 key is pressed and the User profile setup screen is shown:

UserId	Log user mode	Block mode	Sys- msgs.	Null resp.	Resp. time	Auto- Logoff Minutes	Null resp. logoff	Max resp. lines
100,+	Y	N	N	N	N	N	9999	0002
255,+	Y	N	N	N	Y	Y	0010	0020
255,001	Y	N	N	N	N	Y	0030	0005
255,255	Y	Y	Y	Y	N	Y	0005	0050

F14=Update NxPg=Next profiles PrPg=Previous profiles F15=Next Monitor
User-profile setup has been updated BLOCK

Figure 8.11: The User Profile Setup screen.

The monitor \$TCF1 now runs with a minimum configuration.

Index

- <
- <AAAAAnnn> TCF logfiles, 169
- A**
 - autologoff, 26
 - autologoff inactive terminals, 4
 - autologoff setup
 - configuring, 62, 63
- B**
 - basic considerations, 9
 - broadcast, 4
 - making, 127, 128, 129, 130
- C**
 - configure
 - TCF, 8
- D**
 - Display setup, 120, 121
- E**
 - Error Messages, 171, 172, 173, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 188, 189, 190, 191, 192, 193, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 207
 - Event Message Trigger
 - setting up, 65, 66, 68
 - events, 171, 172, 173, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 188, 189, 190, 191, 192, 193, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 207
- H**
 - HELPGEN, 170
 - hometerm emulation, 4, 55, 57, 121, 122, 123, 124, 125
 - Hometerm Emulation screen, 57
- I**
 - installing
 - from a PC, 6
 - from tape, 7
 - TCF, 5
- L**
 - logfile number, 12

logfile size
 factors, 12
logfiles, 16
 appearance, 116, 117
 defining remotely, 13
 positions, 115
 reading, 97
 search limits, 115
 setup, 118, 119, 120
Logfiles, 97
logging
 date and time, 3
 subsystem response, 4
 terminal activities, 95, 96, 97,
 99, 101, 102, 103, 104,
 106, 107, 108, 109, 110,
 111, 113, 114, 115, 116,
 117, 118, 120, 121
 terminal name, 3
 user activities, 3
 user commands, 4

M

monitor
 configuring, 18
 logfiles, 10
monitor setup
 planning, 9
monitor shutdown, 83, 84, 85,
 86, 87, 88, 89, 90
monitor startup, 83, 84, 85,
 86, 87, 88, 89, 90
monitor status
 surveilling, 74, 75, 76, 77
monitor text exclusion, 27
monitors
 adding, 90, 91, 92, 93
 deleting, 90, 91, 92, 93
 updating, 90, 91, 92, 93

Multilan terminals, 37

N

network considerations, 13

O

on demand sessions, 3
on-line help, 130, 131

P

Pathway terminals, 41

R

Report Configuration screen,
 51, 52, 53, 54
reports, 4
 generating, 125, 126, 127,
 128, 129, 130
 setting up, 48, 49

S

Safeguard terminals, 38
security, 10, 14
static sessions, 3
static terminals
 configuring, 36

T

TCF
 and Safeguard, 17
 basic considerations, 9
 configuring, 8

- daily use, 73, 74, 75, 76, 77, 78, 79, 82, 83, 85, 86, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 99, 101, 102, 104, 107, 108, 109, 110, 113, 115, 116, 117, 118, 119, 120, 121, 122, 124, 125, 127, 128, 129, 130, 131
 - installing, 5
 - introduction to, 2
 - logfiles, 16
 - overview, 3
 - preparing for use, 7
 - purpose of, 2
 - the TCF package, 6
 - TCF Quick Starter, 208, 209, 210, 211, 213, 215, 216, 217
 - TCFBROAD utility, 133
 - TCFCODES, 134
 - TCFCOM, 15, 135
 - configuration file, 15
 - TCFCOM Logfile Browse
 - screen, 98, 99, 100, 101, 102, 103, 106, 107, 108, 109, 110, 111, 113
 - TCFCONF, 140
 - TCFCONN, 141
 - TCFDDL, 143
 - TCFENF, 144
 - TCFHELP, 144
 - TCFLIC, 144
 - TCFMON, 14, 145, 146, 147, 148
 - TCFREAD, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 164, 165, 166, 167, 168, 169
 - TCFREAD utility, 97
 - TCFSETUP, 169
 - TCREP, 168
 - Telnet
 - static sessions, 44
 - terminals, 43
 - terminal activities
 - logging, 95, 96, 97, 99, 101, 102, 103, 104, 106, 107, 108, 109, 110, 111, 113, 114, 115, 116, 117, 118, 120, 121
 - Terminal Configuration
 - screen, 30, 31, 32, 33, 34, 35, 36
 - terminal operations, 3
 - terminal shutdown, 83, 84, 85, 86, 87, 88, 89, 90
 - terminal startup, 83, 84, 85, 86, 87, 88, 89, 90
 - terminal status
 - surveilling, 77, 78, 79, 82
 - terminals
 - deleting, 93, 94, 95
 - updating, 93, 94, 95
 - terminals
 - adding, 93, 94, 95
 - configuring, 29
 - Multilan, 37
 - Pathway, 41
 - Safeguard, 38
 - Telnet, 43
- ## U
- User Profile Setup screen, 45, 46, 47, 48
 - user profiles
 - configuring, 45

W

waiting prompts, 121, 122,
123, 124, 125