ConneXium

TCSEFEC Industrial Firewall
Command Line Interface Reference Manual

```
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                          TCSEFEC Release L3S-05.2.0x

                          (Build date 2012-02-17 08:08)



                    System Name:  TCSEFEC Name
                    Netw. Mode :  transparent
                    Mgmt-IP    :  a.b.c.d
                    Base-MAC   :  00:11:22:33:44:55
                    System Time:  FRI FEB 17 08:08:08 2012


EXAMPLE
        EXAMPLE
                EXAMPLE
                EXAMPLE

NOTE: Enter '?' for Command Help.  Command help displays all options
      that are valid for the particular mode.
      For the syntax of a particular command form, please
      consult the documentation.

*(Schneider Electric TCSEFEC) >
```

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Safety instructions

■ Important Information

Notice: Read these instructions carefully, and look at the equipment to become familiar with the device before trying to install, operate, or maintain it. The following special messages may appear throughout this documentation or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.

The addition of this symbol to a Danger or Warning safety label indicates that an electrical hazard exists, which will result in personal injury if the instructions are not followed.

This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

⚠ DANGER

DANGER indicates an imminently hazardous situation which, if not avoided, **will result in** death or serious injury.

⚠ WARNING

WARNING indicates a potentially hazardous situation which, if not avoided, **can result in** death or serious injury.

⚠ CAUTION

CAUTION indicates a potentially hazardous situation which, if not avoided, **can result in** minor or moderate injury.

PLEASE NOTE: Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel.
No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material.

■ Usage

The device may only be employed for the purposes described in the catalog, technical description, and manuals.

About this Manual

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All pertinent state, regional, and local safety regulations must be observed when installing and using this product. For reasons of safety and to ensure compliance with documented system data, only the manufacturer should perform repairs to components.

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Failure to use Schneider Electric software or approved software with our hardware products may result in improper operating results.

Failure to observe this product related warning can result in injury or equipment damage.

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Related Documents

Title	Reference Number
ConneXium TCSEFEC Industrial Firewall Configuration User Manual	S1B64663
ConneXium TCSEFEC Industrial Firewall Command Line Interface Reference Manual	S1B64695
ConneXium TCSEFEC Industrial Firewall Web-based Interface Reference Manual	S1B64648
ConneXium TCSEFEC Industrial Firewall Installation User Manual	S1B64656

The "Configuration" user manual contains the information you need to start operating the Industrial Firewall TCSEFEC. It takes you step by step from the first startup operation through to the basic settings for operation in your environment.

The "Command Line Interface" Reference Manual contains detailed information on using the Command Line Interface to operate the individual functions of the device.

The "Web-based Interface" reference manual contains detailed information on using the Web interface to operate the individual functions of the device.

The "Installation" user manual contains a device description, safety instructions, a description of the display, and the other information that you need to install the device.

Key

The designations used in this manual have the following meanings:

▶	List
☐	Work step
■	Subheading
Link	Cross-reference with link
Note:	A note emphasizes an important fact or draws your attention to a dependency.
`Courier`	ASCII representation in user interface

1 Introduction

1.1 Industrial Firewall

1.1.1 Application areas

The TCSEFEC industrial firewall/VPN system helps provide for the authentication, security and confidentiality of communication within production networks, but also beyond company boundaries.

The TCSEFEC supports the following network modes:
▶ Transparent Mode
▶ Router Mode
▶ PPPoE Mode

1.1.2 Operating Modes

This device helps you protect the internal network (INTERNAL port) from external influences (EXTERNAL port). These influences can include deliberate attacks or unauthorized access attempts, as well as interfering network events such as overloads.

■ **State on delivery**
On delivery, the device works in the Transparent Mode. In this mode, no network settings (e.g., for subnetworks) are required for operation.

The firewall has been preconfigured so that the IP traffic from the internal network is possible; however, traffic from the external network to the internal network is not possible. Thus, already the delivery state helps protect against attacks from the external network.

■ **Modes**

▶ **Transparent Mode**
In transparent mode, the Firewall transmits on level 2 of the ISO/OSI layer model. The IP address ranges before and after the Firewall are located in the same subnetwork.
In the state on delivery, you can access the device via address 192.168.1.1/24 without configuring the IP address.

▶ **Router Mode**
In router mode, the Firewall transmits on level 3 of the ISO/OSI layer model. The IP address ranges before and after the Firewall are located in different subnetworks. You will find a detailed description of the IP configuration in the "Configuration" user manual of the TCSEFEC.

▶ **PPPoE Mode**
In PPPoE Mode, the TCSEFEC works like in the router mode, with the difference that the PPPoE protocol is used at the EXTERNAL port. This enables Internet connections via a DSL modem, for example.

1.2 User interfaces

The device has three user interfaces, which you can access via different interfaces:

▶ System monitor via the V.24 interface (out-of-band)

▶ Command Line Interface (CLI) via the V.24 connection (out-of-band) or via SSH (in-band)

▶ Web-based interface via Ethernet (in-band)

1.3 Command Line Interface

The Command Line Interface enables you to use the functions of the device via a local or remote connection. This helps you to securely administer the firewall via V.24 or via the Secure Shell (SSH) protocol. You can also define rules to help secure the access and the administration.

The Command Line Interface provides IT specialists with a familiar environment for configuring IT devices. As an experienced user or administrator, you have knowledge about the basics and about using secure shell (SSH) connections.

The "Command Line Interface" reference manual gives you step-by-step information on using the Command Line Interface (CLI) and its commands.

The commands in the Command Line Interface of the TCSEFEC Firewall can be divided into the following areas:
▶ Authentication
▶ Delete
▶ Copy
▶ Denial of Service
▶ Device Status
▶ Interface
▶ Logging
▶ NAT (Network Address Translation)
▶ Network
▶ Packet Filter
▶ Profiles
▶ Signal contact
▶ SNMP Trap (Simple Network Management Protocol)
▶ SNTP (Simple Network Time Protocol)
▶ Users
▶ Display

2 Access to CLI

2.1 Preparing the connection

Information for assembling and starting up your TCSEFEC Industrial Firewall can be found in the "Installation" user manual.

Information for configuring your TCSEFEC Industrial Firewall can be found in the "Configuration" user manual.

☐ Connect your Firewall with the network.
The network parameters must be set correctly for the connection to be successful.

You can access the user interface of the Command Line Interface with the freeware program PuTTY. This program is located on the product CD.

☐ If the required programs are not already installed on your PC, please install them.

2.2 CLI via SSH (Secure Shell)

☐ Start the PuTTY program on your computer.

PuTTY appears with the login screen (see fig. 1).
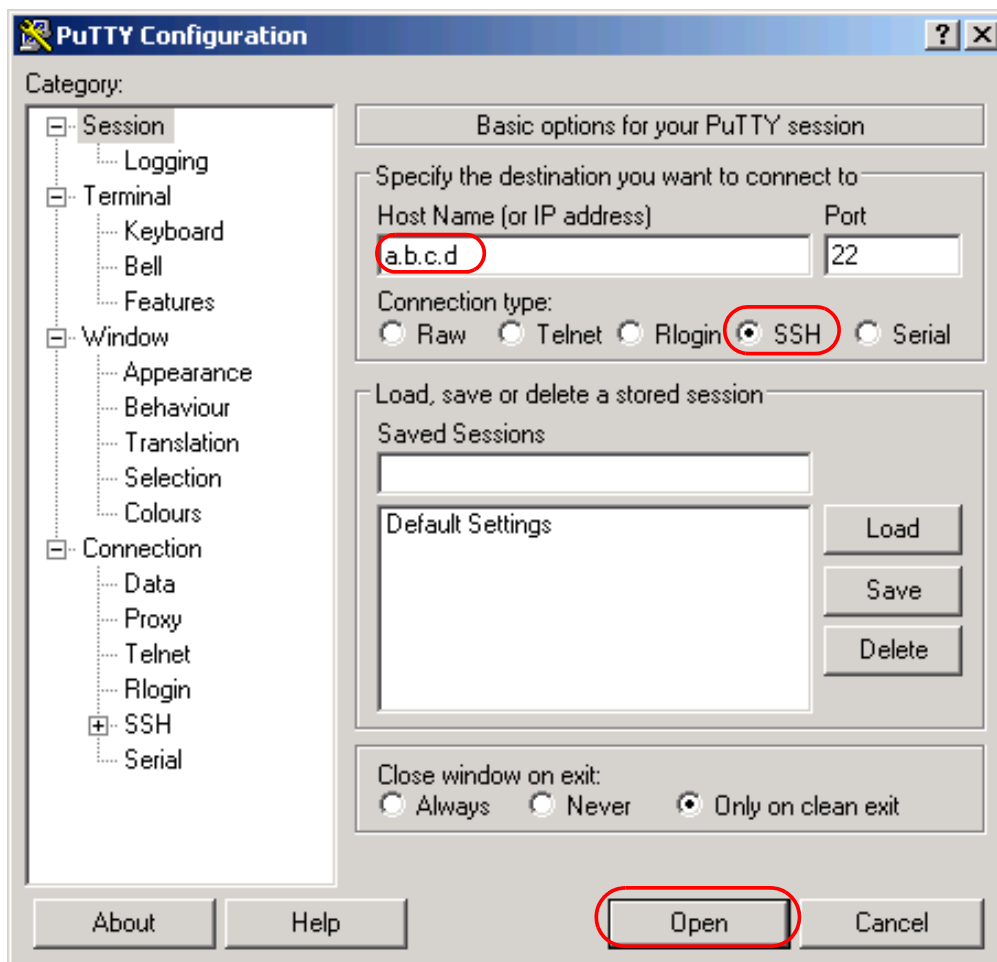
Figure 1:   PuTTY input screen

☐ In the `Host Name (or IP address)` input field you enter
   the IP address of your device.
   The IP address (a.b.c.d) consists of four decimal numbers with values
   from
   0 to 255. The four decimal numbers are separated by a point.

☐ To select a connection type, click on
   `SSH` under `Connection type`.

☐ After selecting and setting the required parameters, you can set up the
   connection via SSH.
   Click "Open" to set up the connection to your device. Depending on the
   device and the time at which SSH was configured, it can take up to a
   minute to set up the connection.

When you first login to your device, towards the end of the connection setup, PuTTY displays a security alert message and gives you the option of checking the fingerprint of the key.

Figure 2:   Security alert prompt for the fingerprint

☐ If the fingerprint matches that of the device key, click "Yes".

You can read the fingerprints of the device key with the CLI command "show login" or in the Web interface, in the "SSH access" dialog.

Note:
The OpenSSH Suite offers experienced network administrators a further option to access your device via SSH. To set up the connection, enter the following command:
```
ssh admin@10.149.112.53
```

`admin` represents the user name.
`10.149.112.53` is the IP address of your device.

CLI appears on the screen with a window for entering the user name.
Up to five users can access the Command Line Interface at the same time.

```
login as: admin
admin@a.b.c.d's password:
```

Figure 3:   Login window in CLI

a.b.c.d is the IP address of your device.
☐ Enter a user name. The default setting for the user name is **admin** . Press
   the Enter key.
☐ Enter the password. The default setting for the password is **private** .
   Press the Enter key.
   You can change the user name and the password later in the Command
   Line Interface.
   These entries are case-sensitive.

The start screen appears.

Note: This device is a security product. For your own security, change the
password during the first startup procedure.

```
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                          TCSEFEC Release L3S-05.2.0x

                          (Build date 2012-02-17 08:08)



                    System Name:  TCSEFEC Name
                    Netw. Mode :  transparent
                    Mgmt-IP    :  a.b.c.d
                    Base-MAC   :  00:11:22:33:44:55
                    System Time:  FRI FEB 17 08:08:08 2012



NOTE: Enter '?' for Command Help.  Command help displays all options
      that are valid for the particular mode.
      For the syntax of a particular command form, please
      consult the documentation.

*(Schneider Electric TCSEFEC) >
```

Figure 4:   Start screen of CLI.

Your Firewall appears with the input prompt
```
(Schneider Electric TCSEFEC) >
```

2.3 CLI via the V.24 port

A serial interface is provided on the RJ11 socket (V.24 interface) for the local connection of an external management station (VT100 terminal or PC with corresponding terminal emulation). This enables you to set up a connection to the Command Line Interface (CLI) and to the system monitor.

VT 100 terminal settings	
Speed	9,600 Baud
Data	8 bit
Stopbit	1 bit
Handshake	off
Parity	none

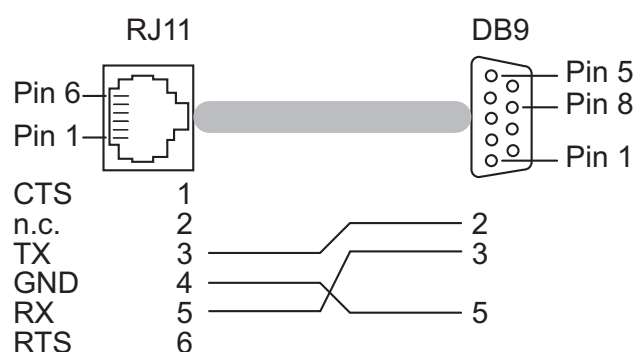The socket housing is electrically connected to the housing of the device.

Figure 5:   Pin assignment of the V.24 interface and the DB9 connector

You will find a description of the V.24 interface in the "User Manual Installation".

☐ Connect the device to a terminal via V.24 or to a "COM" port of your PC using terminal emulation based on VT100, and press any key.

After the connection has been made successfully, a window for entering the user name appears on the screen.

```
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                        TCSEFEC Release L3S-05.2.0x

                        (Build date 2012-02-17 08:08)

                   System Name:  TCSEFEC-000000
                   Netw. Mode :  transparent
                   Mgmt-IP    :  a.b.c.d
                   Base-MAC   :  00:11:22:33:44:55
                   System Time:  FRI FEB 17 08:08:08 2012


(Schneider Electric TCSEFEC)
User:
```

Figure 6: Logging in to the Command Line Interface program

☐ Enter a user name. The default setting for the user name is **admin** . Press the Enter key.
☐ Enter the password. The default setting for the password is **private** . Press the Enter key.
You can change the user name and the password later in the Command Line Interface.
These entries are case-sensitive.

The start screen appears.

```
NOTE: Enter '?' for Command Help.  Command help displays all options
      that are valid for the particular mode.
      For the syntax of a particular command form, please
      consult the documentation.

(Schneider Electric TCSEFEC) >
```

Figure 7:   CLI screen after login

Note: You can configure the V.24 interface either as a modem interface or a terminal/CLI interface.
However, to be able have at least limited access to the CLI interface in modem mode, you connect your terminal (setting on terminal: 9,600 baud) to the V.24 interface.
Press any key on your terminal keyboard a number of times until the login screen indicates the CLI mode.

3 Using the CLI

3.1 Mode-based command hierarchy

In the CLI, the commands are grouped in the related modes, according to the type of the command. Every command mode supports specific Schneider Electric software commands.

The commands available to you as a user at a specific time depend on your user status (admin, user) and the mode in which you are currently working. The commands of a specific mode are only available to you when you switch to this mode as a user.

The User Exec mode commands are an exception to this. You can also execute these in the Privileged Exec mode.

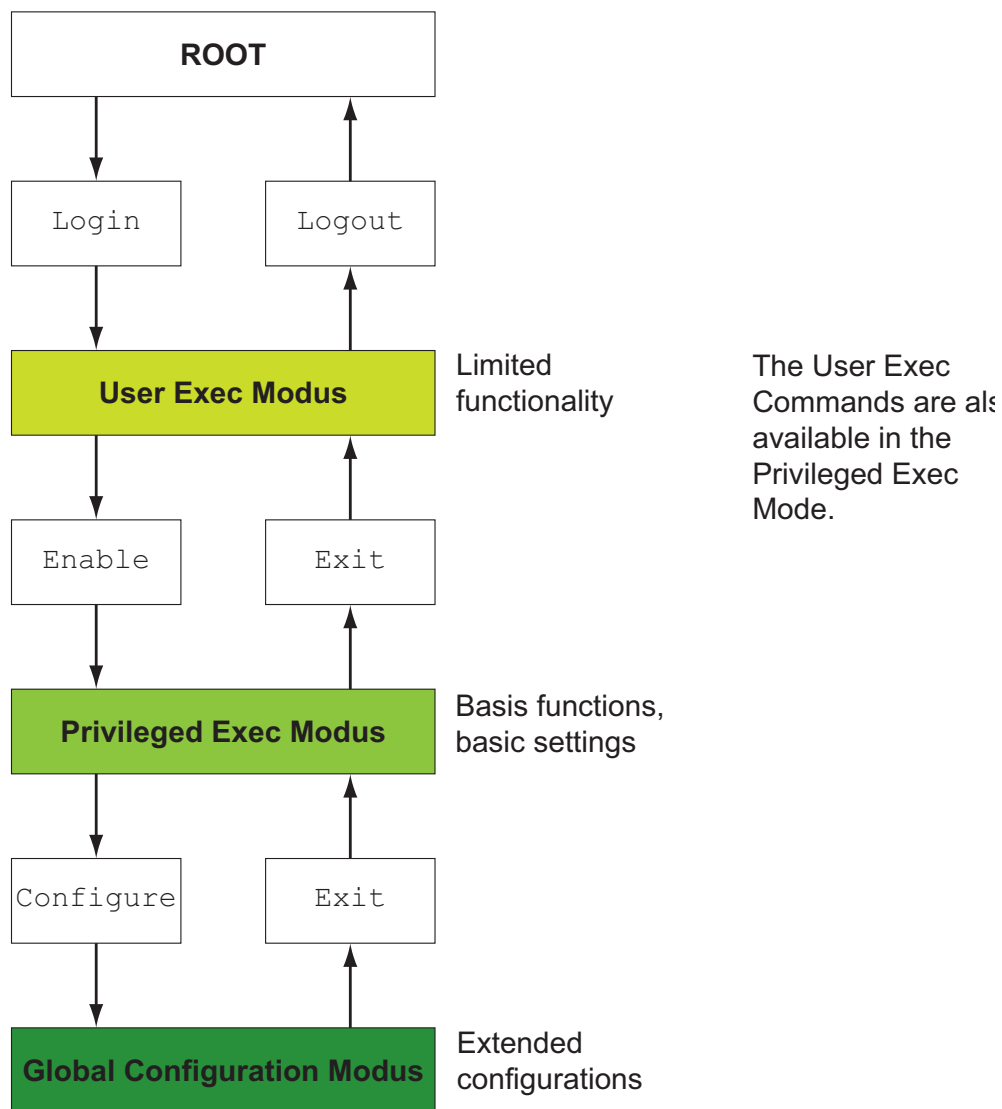The following figure shows the modes of the Command Line Interface.

```
          ┌──────────────────────────────┐
          │            ROOT              │
          └──────────────────────────────┘
            │                      ▲
            ▼                      │
    ┌──────────┐          ┌──────────┐
    │  Login   │          │  Logout  │
    └──────────┘          └──────────┘
            │                      ▲
            ▼                      │
    ┌──────────────────────────────────┐     Limited              The User Exec
    │        User Exec Modus           │     functionality         Commands are als
    └──────────────────────────────────┘                          available in the
            │                      ▲                                Privileged Exec
            ▼                      │                                Mode.
    ┌──────────┐          ┌──────────┐
    │  Enable  │          │   Exit   │
    └──────────┘          └──────────┘
            │                      ▲
            ▼                      │
    ┌──────────────────────────────────┐     Basis functions,
    │      Privileged Exec Modus        │     basic settings
    └──────────────────────────────────┘
            │                      ▲
            ▼                      │
    ┌──────────┐          ┌──────────┐
    │Configure │          │   Exit   │
    └──────────┘          └──────────┘
            │                      ▲
            ▼                      │
    ┌──────────────────────────────────┐     Extended
    │     Global Configuration Modus    │     configurations
    └──────────────────────────────────┘
```

Figure 8:   Structure of the CLI

The CLI supports the following modes:

▶ **User Exec mode**
When you login to CLI, you first enter the User Exec mode. The User Exec mode contains a limited range of commands.
Command prompt: `(Schneider Electric TCSEFEC) >`

▶ **Privileged Exec mode**
To access the entire range of commands, you enter the Privileged Exec mode. In the Privileged Exec mode, you can proceed as a privileged user authenticated by the login. From the Privileged Exec mode you can execute every Exec command.
Command prompt: `(Schneider Electric TCSEFEC) #`

▶ **Global Config mode**
This mode allows you to perform modifications to the current configuration. In this mode, general setup commands are grouped together.
Command prompt: `(Schneider Electric TCSEFEC) (config)#`

The following table shows the command modes, the command prompts (input request characters) visible in the corresponding mode, and the option with which you quit this mode.

Command mode	Access method	Quit or start next mode

User Exec mode	First access level. Perform basic tasks and list system information.	To quit you enter `logout`:
		`(Schneider Electric TCSEFEC) >logout`
		`Are you sure (Y/N) ?y`

Privileged Exec mode	From the User Exec mode, you enter the command `enable`:
	`(Schneider Electric TCSEFEC) >enable`
	`(Schneider Electric TCSEFEC) #`
		To quit the Privileged Exec mode and return to the User Exec mode, you enter `exit`:
		`(Schneider Electric TCSEFEC) #exit`
		`(Schneider Electric TCSEFEC) >`

Global Configuration mode	From the Privileged Exec mode, you enter the command `configure`:
	`(Schneider Electric TCSEFEC) #configure`
	`(Schneider Electric TCSEFEC) (config)#`
	From the User Exec mode, you enter the command `enable`, and then in Privileged Exec mode, enter the command `Configure`:
	`(Schneider Electric TCSEFEC) >enable`
	`(Schneider Electric TCSEFEC) #configure`
	`(Schneider Electric TCSEFEC) (config)#`
		To quit the Global Configuration mode and return to the Privileged Exec mode, you enter `exit`:
		`(Schneider Electric TCSEFEC) (config)#exit`
		`(Schneider Electric TCSEFEC) #`
		To then quit the Privileged Exec mode and return to the User Exec mode, you enter `exit` again:
		`(Schneider Electric TCSEFEC) #exit`
		`(Schneider Electric TCSEFEC) >`

Table 1: Command modes

If you enter a question mark (?) after the prompt, you receive a list of the available command and a short description of the commands.

```
(Schneider Electric TCSEFEC) >?
 enable            Turn on privileged commands.
 help              Display help for various special keys.
 history           Show a list of previously run commands.
 logout            Exit this session.
 ping              Send ICMP echo packets to a specified IP address.
 show              Display device options and settings.
 traceroute        Trace route to a specified host.
```

Figure 9:   Commands in the User Exec mode

```
(Schneider Electric TCSEFEC) >enable

(Schneider Electric TCSEFEC) #?
 clear             Clear several items.
 configure         Enter into global config mode.
 copy              Copy different kinds of items.
 debug             Service functions to find configuration errors.
 exit              Exit from current mode.
 help              Display help for various special keys.
 history           Show a list of previously run commands.
 login             Set login parameters.
 logout            Exit this session.
 network           Modify network parameters.
 ping              Send ICMP echo packets to a specified IP address.
 profile           Activate or delete configuration profiles.
 reboot            Reset the device (cold start).
 save              Save configuration.
 set               Set device parameters.
 show              Display device options and settings.
 traceroute        Trace route to a specified host.
```

Figure 10: Commands in the Privileged Exec mode

```
(Schneider Electric TCSEFEC) #configure

(Schneider Electric TCSEFEC) (config)#?
 authentication      Configure an authentication list.
 config-watchdog     Configure the Auto Configuration Undo settings.
 denial-of-service   Configure Denial of Service (flood protection)
                     parameters.
 device-status       Configure the device status settings.
 dhcp-relay          Modify DHCP Relay parameters.
 dhcp-server         Modify DHCP Server parameters.
 exit                Exit from current mode.
 flm                 Control the Firewall-Learning-Mode.
 help                Display help for various special keys.
 history             Show a list of previously run commands.
 interface           Configure the interface parameters.
 lldp                Configure the LLDP settings.
 logging             Logging configuration.
 nat                 Configure the NAT settings.
 packet-filter       Configure the packet-filter.
 packet-forwarding   Configure transparent mode packet forwarding
                     settings.
 ping                Send ICMP echo packets to a specified IP address.
 radius              Configure the RADIUS settings
 redundancy          Configure the redundancy settings.
 save                Save configuration.
 show                Display device options and settings.
 signal-contact      Configure the Signal Contact settings.
 snmptrap            Configure SNMPv3 traps.
 sntp                Configure SNTP settings.
 temperature         Configure the temperature limits.
 traceroute          Trace route to a specified host.
 user-firewall       Configure the user firewall settings.
 users               Manage Users and User Accounts.
 vpn                 Configure VPN settings.
```

Figure 11: Commands in the Global Configuration mode

Note: You will find information on the line feed of the help texts below .

3.2 Executing commands

3.2.1 Syntax analysis

After you login to the CLI session, you enter the User Exec mode. The
`(Schneider Electric TCSEFEC) >` prompt is displayed on the screen.

The CLI starts the syntax analysis when you enter a command and press the
<ENTER> key. The command tree is searched for the desired command.
If the command is not found, the message displayed informs you of the
detected error.

Example:
The user wants to execute the `show system info` command, but enters
this command with a misspelling and presses the <Enter> key.
The CLI then outputs an error message:

```
!(Schneider Electric TCSEFEC) >show system ino
Error[1]: Invalid command 'ino'
```

3.2.2 Command tree

The commands in CLI are organized into a tree structure. The commands,
and the related parameters if applicable, branch down until you reach the end
point. The CLI checks every input to see whether you have entered the
command and the parameters completely. Only then can you execute the
command with the <Enter> key.

After you have entered the command and the required parameters, the other
parameters entered are treated as optional parameters. If one of the
parameters is unknown, the CLI outputs a syntax error message.

The command tree branches for the required parameters until the required parameters have reached the end point.
With optional parameters, the command tree branches until the required parameters and the optional parameters have reached the end point.

Note: The command "show system commandtree" lists the entire command tree for you.

3.2.3   Structure of a command

This section describes the syntax, conventions and terminology, and uses examples to represent them.

■ **Format of commands**
Most of the commands are enhanced through parameters.
If the command parameter is missing, CLI informs you that the syntax of the command is incorrect.

The commands and parameters are displayed in the `Courier` font in this manual, and they must be used as they are shown in the manual.

■ **Parameters**
The sequence of the parameters is relevant for the correct syntax of a command. Adhere to the correct sequence.

Parameters can be required values, optional values, selections, or a combination of these things. You recognize this from the way they are represented, as follows:

▶
Pointed brackets indicate a required parameter.

▶ [parameter]
Square brackets indicate an optional parameter.
An entry can be made, but it is not required.

▶ Option1 | Option2
The straight slash indicates that one of the options can be selected. Both values cannot be selected at the same time.

▶ {list}
The {} curved brackets indicate that one parameter must be selected from a list of options.

The following list shows the possible parameter values within the Command Line Interface:

Value	Description
IpAddress	This parameter represents a valid IP address. The address consists of 4 decimal numbers with values from 0 to 255. The 4 decimal numbers are separated by a decimal point. The IP address 0.0.0.0 is a valid entry.
MacAddress	This parameter represents a valid MAC address. The address consists of 6 hexadecimal numbers with values from 0 to FF. The numbers are separated by a colon, for example, 00:F6:29:B2:81:40.
String	User-defined text with a length in the specified range, e.g. a maximum of 32 characters.
Character string	Use double quotation marks to indicate a character string, e.g. "System name with space character".
Number	Whole integer in the specified range, e.g. 0...999999.

Table 2: Parameter values in the Command Line Interface

■ **Network addresses**
Network addresses are required for the connection to a remote work station, a server or another network. You distinguish between IP addresses and MAC addresses.
The IP address is an address allocated by the network administrator. Do not use duplicate addresses in one network area.
The MAC addresses are assigned by the hardware manufacturer. They are unique worldwide.

The following table shows the representation and the range of the address types:

Address Type	Format	Range	Example
IP Address	nnn.nnn.nnn.nnn	nnn: 0 to 255 (decimal)	192.168.11.110
MAC Address	mm:mm:mm:mm:mm:mm	mm: 00 to ff (hexadecimal number pairs)	A7:C9:89:DD:A9:B3

Table 3: Format and range of network addresses

■ **Strings**
A string is indicated by quotation marks. For example, "System name with space character". Space characters are not valid user-defined strings. You enter a space character in a parameter between quotation marks.

■ **Examples of commands**

Example 1: clear arp-table
Command for deleting dynamic entries in ARP Cache.

`clear arp-table` is the command name. The command does not require any other parameters, and can be executed with <Enter>.

Example 2: signal-contact monitor EAM-removal
Command for displaying the removal of the Memory Backup Adapter.
```
(Schneider Electric TCSEFEC) (config)#signal-contact monitor EAM-
removal
enable                Enable the option.
disable (default)     Disable the option.
```

`signal-contact monitor EAM-removal` is the command name. The parameter is required. It can have the value `enable` or `disable`.

Example 3: nat 1to1 add
Command for adding a 1:1 NAT rule.

```
(Schneider Electric TCSEFEC) (config)#nat 1to1 add
[1..512]                NAT rule number.
[internal-net]          Internal network address.
[external-net]          External network address.
[netmask]               Network mask.
[comment]               Rule comment.
```

"nat 1to1 add" is the command name.
The parameters [1..512] (i.e. the number of the NAT rule to be added),
[internal-net], [external-net] , [netmask] and [comment] are optional.

3.3 Properties of the CLI

3.3.1 Input prompt

■ **Command mode**
With the input prompt, the CLI shows you which of the three modes you are in:

▶ `(Schneider Electric TCSEFEC) >`
User Exec mode

▶ `(Schneider Electric TCSEFEC) #`
Privileged Exec mode

▶ `(Schneider Electric TCSEFEC) (config)#`
Global Configuration mode

■ **Exclamation mark and asterisk**

Exclamation mark "!"
An exclamation mark "!" in the first position of the input prompt shows you that the password for the user "admin" is still on the default setting.
`!(Schneider Electric TCSEFEC) >`

Asterisk "*"
An asterisk "*" in the first or second position of the input prompt shows you that the settings in the volatile memory and the settings in the non-volatile memory are different.
`*(Schneider Electric TCSEFEC) >`

3.3.2   Key combinations

The following key combinations make it easier for you to work with the
Command Line Interface:

Key combination	Description
CTRL + H, Backspace	Delete previous character
CTRL + A	Go to beginning of line
CTRL + E	Go to end of line
CTRL + F	Go forward one character
CTRL + B	Go backward one character
CTRL + D	Delete current character
CTRL + U, X	Delete to beginning of line
CTRL + K	Delete to end of line
CTRL + W	Delete previous word
CTRL + P	Go to previous line in history buffer
CTRL + R	Rewrite or paste the line
CTRL + N	Go to next line in history buffer
CTRL + Q	Enable serial flow
CTRL + S	Disable serial flow
CTRL + Z	Return to root command prompt
Tab, <SPACE>	Command line completion
Exit	Go to next lower command prompt
?	List choices

Table 4: Key combinations in the Command Line Interface

With the Help command you can display the possible key combinations in CLI on the screen:

```
EES #help

HELP:
Special keys:

  Ctrl-H, BkSp delete previous character
  Ctrl-A  .... go to beginning of line
  Ctrl-E  .... go to end of line
  Ctrl-F  .... go forward one character
  Ctrl-B  .... go backward one character
  Ctrl-D  .... delete current character
  Ctrl-U, X .. delete to beginning of line
  Ctrl-K  .... delete to end of line
  Ctrl-W  .... delete previous word
  Ctrl-P  .... go to previous line in history buffer
  Ctrl-R  .... rewrites or pastes the line
  Ctrl-N  .... go to next line in history buffer
  Ctrl-Q  .... enables serial flow
  Ctrl-S  .... disables serial flow
  Ctrl-Z  .... return to root command prompt
  Tab, <SPACE> command-line completion
  Exit    .... go to next lower command prompt
  ?       .... list choices

EES #
```

Figure 12: Listing the key combinations with the Help command

3.3.3   Data entry elements

■ **Command completion**
To facilitate making entries, CLI gives you the option of command completion (Tab Completion), meaning that you can abbreviate key words.

☐ Type in the beginning of a keyword. If the characters entered identify a keyword, CLI will complete the keyword when you press the tab key or the space key.

After the first letters are entered, the Command Line Interface adds the rest of the possible command or parameter when you press the "Tab" or "Space" keys. If there is more than one option for completion, the system does not perform any completion. Only after one or more letters have been entered which uniquely identify the command or parameter does the system complete the command or parameter when "Tab" or "Space" is pressed again.

If you make a non-unique entry and press "Tab" or "Space" twice, the CLI provides you with a list of options.

■ **Possible commands/parameters**
You can obtain a list of the commands or the possible parameters by entering "help" or "?", for example by entering
`(Schneider Electric TCSEFEC) >show ?`

When you enter the command displayed, you get a list of the parameters available for the command `show`.

3.3.4 Line length

If you are using a terminal with a line length of 80 characters, the help texts are split up, as shown in the following screenshot (see fig. 13). For example, for the help text for "DSA Fingerprint for SSH", the remainder "df:3b:11" appears on the next line.

You can avoid this effect by using a terminal with a line length of 132 characters (see fig. 14).

```
!(Schneider Electric TCSEFEC) (config)#show login

Login parameters
----------------

Access per SSH...............................................enabled
SSH Access port number.......................................22
DSA Fingerprint for SSH......................................"0a:7f:06:05:27:35:53:dd:f2:61:db:fa:0f:
df:3b:11"
RSA Fingerprint for SSH......................................"6d:40:06:c3:f8:2d:cb:68:40:dc:09:7f:b3:
c2:d8:ee"
Access per Web (HTTPS).......................................enabled
Web Access port number (HTTPS)...............................443
SNMP version 1...............................................disabled
SNMP version 2...............................................disabled
SNMP port number.............................................161
Inactivity timeout Web (minutes).............................5
Inactivity timeout serial (minutes)..........................5
Inactivity timeout SSH (minutes).............................120
Login prompt................................................."Schneider Electric"
Login banner................................................."SAMPLE TEXT\n\t\tSAMPLE TEXT\n\t\tSAMPLE
TEXT\n\t\tSAMPLE TEXT"

!(Schneider Electric TCSEFEC) (config)#
```

Figure 13: "Show login" command with a line length of 80 characters

```
!(Schneider Electric TCSEFEC) (config)#show login

Login parameters
----------------

Access per SSH.............................................enabled
SSH Access port number.....................................22
DSA Fingerprint for SSH...................................."0a:7f:06:05:27:35:53:dd:f2:61:db:fa:0f:df:3b:11"
RSA Fingerprint for SSH...................................."6d:40:06:c3:f8:2d:cb:68:40:dc:09:7f:b3:c2:d8:ee"
Access per Web (HTTPS).....................................enabled
Web Access port number (HTTPS).............................443
SNMP version 1.............................................disabled
SNMP version 2.............................................disabled
SNMP port number...........................................161
Inactivity timeout Web (minutes)...........................5
Inactivity timeout serial (minutes)........................5
Inactivity timeout SSH (minutes)...........................120
Login prompt..............................................."Schneider Electric TCSEFEC"
Login banner..............................................."SAMPLE TEXT\n\t\tSAMPLE TEXT\n\t\tSAMPLE TEXT\n\t\tSAMPLE TEXT"

!(Schneider Electric TCSEFEC) (config)#
```

Figure 14: "Show login" command with a line length of 132 characters

4 Examples

4.1 Change timeout default setting

■ **Task assignment**
The following example shows how you find and execute a command for changing the default setting of the timeout value for your SSH connection. On delivery, this value is set to 5 minutes. This means that after this time has elapsed, the CLI logs off the user if no keys have been pressed. You can set a value for this timeout in the range from 1 to 120 minutes.

■ **Login to CLI**
  ☐ Login to CLI as described above (see on page 16 "Preparing the connection").

■ **Finding the command mode**
  You are in the User Exec mode (see on page 26 "Mode-based command hierarchy").

  ☐ Enter a question mark ? to get a list of the commands available in this mode (see fig. 9).

  The corresponding command is located in a different mode. The Privileged Exec mode provides a wider range of commands.

  ☐ To switch to the Privileged Exec mode quickly and easily, you enter "en" and a space. The CLI completes the command to "enable" (see on page 40 "Data entry elements"). Execute the command with <Enter>. The command prompt changes from (Schneider Electric TCSEFEC) > to (Schneider Electric TCSEFEC) #, thus informing you that you are now in the Privileged Exec mode.

```
(Schneider Electric TCSEFEC) >enable

(Schneider Electric TCSEFEC) #?
```

  ☐ Enter a question mark ? to get a list of the commands available in this mode (see fig. 10).

  The "login" command is used to perform this task.

  ☐ Enter "login".
    "lo" and a space character is not sufficient here, as it is not clear whether you want to execute the "login" or "logout" command. However, if you enter a space again, you get a list of the commands that begin with "lo".

```
!(Schneider Electric TCSEFEC) #lo
  login              Set login parameters.
  logout             Exit this session. Any unsaved changes are lost.
```

■ **Finding, completing and executing commands**
  ☐ After "login" enter a question mark to display the additional branches of the command.

```
!(Schneider Electric TCSEFEC) #login ?
  access                  Set login access parameters.
  timeout                 Set login timeout parameters.
```

The "login timeout" command is used to perform this task.

  ☐ After "login", enter a "t" and a space. The CLI automatically completes the command to "login timeout" .

  ☐ After "login timeout" enter a question mark to display the additional branches of the command.

```
!(Schneider Electric TCSEFEC) #login timeout ?
  serial                  Set login timeout for serial line connections.
  ssh                     Set login timeout for SSH connections.
  web                     Set login timeout for web connections.
```

The "login timeout ssh" command is used to perform this task.

☐ After "login timeout ssh" enter a question mark to display the possible parameters for the command.

```
!(Schneider Electric TCSEFEC) #login timeout ssh ?
  <1..120>              Enter a number in the given range.
```

☐ After "login timeout ssh" enter the value desired, in this case 120, to set the timeout to 120 minutes.

```
!(Schneider Electric TCSEFEC) #login timeout ssh 120
```

☐ Execute the command by pressing the <Enter> key.

■ **Checking the execution with the Show command**
☐ Enter `show` to display the possible show commands.

```
(Schneider Electric TCSEFEC) (config)#show
  authentication       Display ordered methods for authentication lists.
  config               Show configuration.
  config-watchdog      Configure the Auto Configuration Undo settings.
  denial-of-service    Show denial-of-service parameters.
  device-status        Show the device status settings and the current
                       device status itself.
  dhcp-relay           Show DHCP Relay parameters.
  dhcp-server          Show DHCP Server parameters.
  flm                  Show information about Firewall-Learning-Mode
  interfaces           Show interface parameters.
  lldp                 Show the LLDP information.
  logging              Display logging parameters.
  login                Show login parameters.
  nat                  Display the NAT settings.
  network              Show network data.
  packet-filter        Show the packet-filter configuration.
  packet-forwarding    Show transparent mode packet forwarding settings.
  radius               Show the RADIUS settings
  redundancy           Show the redundancy settings.
  running-config       Show the currently running configuration.
  signal-contact       Display Signal Contact settings.
  snmptraps            Display SNMPv3 traps.
  sntp                 Show SNTP configuration parameters and
                       information.
  system               Show system related items.
  temperature          Show temperature limits.
  user-firewall        Show the user firewall settings.
  users                Display users and user accounts information.
  vpn                  Show VPN settings.
```

☐ Then enter "login" to display your current login settings.

```
!(Schneider Electric TCSEFEC) #show login

Login parameters
----------------
Access per SSH..........................enabled
SSH Access port number..................22
DSA Fingerprint for SSH................."0a:7f:06:05:27:35:53:dd:f2:
61:db:fa:0f:df:3b:11"
RSA Fingerprint for SSH................."6d:40:06:c3:f8:2d:cb:68:40:
dc:09:7f:b3:c2:d8:ee"
Access per Web (HTTPS)..................enabled
Web Access port number (HTTPS)..........443
SNMP version 1..........................disabled
SNMP version 2..........................disabled
SNMP port number........................161
Inactivity timeout Web (minutes)........5
Inactivity timeout serial (minutes).....5
Inactivity timeout SSH (minutes)........120
Login prompt............................"Schneider Electric TCSEFEC"
!(Schneider Electric TCSEFEC) #
```

4.2 Login Banner

This dialog allows you to enter a login banner.
The device outputs the login banner when a user wants to login to the user interface (Web-based interface or CLI).
The login banner can be up to 255 characters long. The characters in the range ASCII code 0x20 (space character, " ") to ASCII code 0x7E (tilde, "~") are allowed, except the percent sign (%, ASCII code 0x25).
You can add a fixed line break to the banner with "\n" and a tab with "\t". These sequences count as 2 characters.

```
!*(Schneider Electric TCSEFEC) #login banner
 <string>                  Enter a user-defined text, max. 255 characters.

!*(Schneider Electric TCSEFEC) #login banner
EXAMPLE\n\tEXAMPLE\n\t\tEXAMPLE\n\t\tEXAMPLE

!*(Schneider Electric TCSEFEC) #
```

```
login as:
admin@a.b.c.d's password:


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                             All rights reserved

                          TCSEFEC Release L3S-05.2.0x

                        (Build date 2012-02-17 08:08)



                        System Name:  TCSEFEC-000000
                        Netw. Mode :  transparent
                        Mgmt-IP    :  a.b.c.d
                        Base-MAC   :  00:11:22:33:44:55
                        System Time:  FRI FEB 17 08:08:08 2012



EXAMPLE
        EXAMPLE
                EXAMPLE
                EXAMPLE

NOTE: Enter '?' for Command Help.  Command help displays all options
      that are valid for the particular mode.
      For the syntax of a particular command form, please
      consult the documentation.

!*(Schneider Electric TCSEFEC) >enable
```

A Index