TC-SPY

Documentation
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– confidential –

tellitec

The Art of Content Distribution

tc-spy is designed to monitor requests handled by TELLINET. Data requests to web servers coming from the TELLINET Clients are sent to the TELLINET Server which then requests the data from the web servers. Therefore the recipients themselves are invisible at the web server. All data is sent encrypted on ETCP connections between TELLINET Server and TELLINET Client. The content of the transmission to the TELLINET Client is not logged in the TELLINET Server to secure the privacy of the customer. Therefore it is normally not possible to trace which data was requested and which recipient received it. That can lead to legal problems in some countries. Content providers have to be able to hand out traffic data to public authorities when misuse of the system is suspected. Therefore content providers have to log the content of client requests and store them for a certain amount of time to make sure that suspicious connections done with a TELLINET Server can be traced down to a certain recipient later. For that purpose tc-spy was developed.

For security reasons monitoring of Client connections is not done by TELLINET itself but by a separate software, tc-spy, that can be run on a different machine than the TELLINET Server and can be subject to enhanced security measures.

tc-spy can connect to one or multiple TELLINET Servers, request information on TELLINET connections and log the content of the transmission together with information on the Client requesting the data. The monitoring data is written into a data storage file.

This documentation describes the functionality and the necessary configuration of tc-spy for the operator of the system. The operator should also be familiar with the TELLINET software. Knowledge of the reader about the operation of that software is presumed.

Please note:

1. In the following the format for directories is given as used in Unix, i.e. directories separated with slashes (home/directory/file).
   If tc-spy is run on a Windows system, the slashes have to be replaced with back-slashes (home\directory\file).

2. Words that have to be entered into files/forms are quoted here in quotation marks for a better distinction from the text. Nevertheless the words have to be written into the files/forms without the quotation marks.

3. Pointed brackets in the description of the file/form entries indicate that the words written in the pointed brackets are not the entry itself but a description of the entry. If making the entry in the file/form, please substitute the description for the desired value without writing the pointed brackets. E.g. "<port number>" may result in an entry like "9201".

4. E.g. the file formats and configuration parameters as well as the system functionality might change for future releases.

5. Please note that individual features described within this document might require e.g. separate Application Module licenses and might be available only for certain operating systems.

6. This specification is subject to change without notice, is provided without guarantees, without engagement, and is subject to corrections.

7. All company or product names are trademarks or registered trademarks of the respective owners.

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Read less, achieve more!

This documentation is meant as a reference book to help you solve specific problems.

To get started with tc-spy, you should read the following pages:

Afterwards we recommend to consult the content index on the following pages to get an overview of the configuration and available functionality.

1 CONTENTS

2 FUNCTIONAL OVERVIEW

tc-spy is designed to connect to one or multiple TELLINET Servers and request information about data transfer on ETCP Associations from specific TELLINET Clients. The monitoring data received from the TELLINET Servers is written into a data storage file that is automatically created by tc-spy at the start of the program.

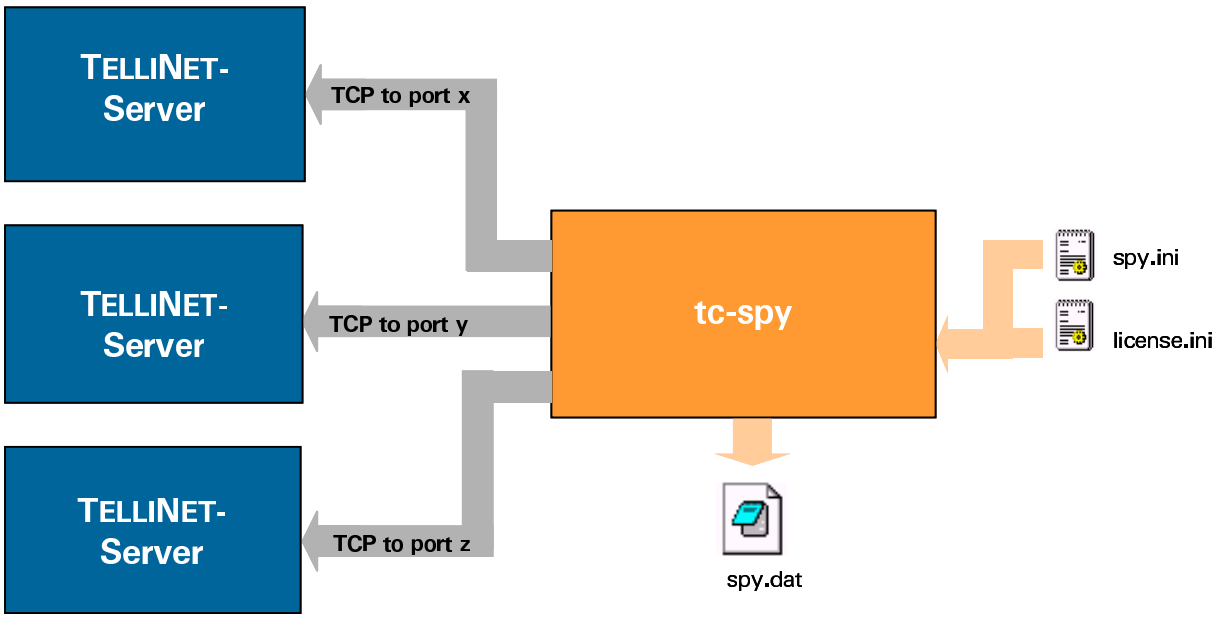
A central configuration file (spy.ini) contains the parameters for the monitoring of TELLINET processes and for the control of tc-spy.

The access parameters of at least one TELLINET Server have to be specified in the central configuration file prior to the start of the software. These parameters include an IP address (or DNS name) and port number for the encrypted TCP connection and a user name and password also configured at the respective TELLINET Server.

The central configuration file also has to contain rules that specify which Clients are to be monitored and what kind of information has to be written into the data storage file for each Client.

tc-spy connects automatically to the Server and requests information on TELLINET traffic in accordance with the configured rules.

All monitoring data from all TELLINET Servers is written into the same data storage file. It is possible to configure tc-spy to start a new data storage file at given intervals and store the content of the old data storage file to prevent large files and to archive the old monitoring data.



Picture 1: Overview over tc-Spy

3 INSTALLATION

3.1 SYSTEM REQUIREMENTS

Hardware:	Pentium II 400 (or higher); 64 MB RAM (or more)
Possible Operating Systems:	Linux, Solaris, FreeBSD, Windows 2000/XP/NT
Software:	Text editor (standard text editor) Web Browser (standard Web Browser, e. g. Netscape Navigator, MS Internet Explorer)[1]

3.2 SCOPE OF DELIVERY

The software is distributed as zip file. One zip file is delivered per operating system. Under the top level directory in the zip file for the corresponding operating system of your tc-spy host, the tc-spy software is located in the subdirectory:

tc-spy

The following files are part of tc-spy:

- the executable “tc-spy” (“tc-spy.exe” on Windows systems),
- the central configuration file spy.ini,
- the license file license.ini that contains the product license.

3.3 INSTALLATION

- Chose the top level directory corresponding to the operating system of your computer.
- Copy the content of the directory “tc-spy” to the hard disk of the tc-spy host.

[1] The browser is not necessary for the functionality of the tc-spy. It is only required if the process should be controlled via the web interface. Please note that java script has to be enabled for the web browser.

4 OPERATION

4.1 CONFIGURATION

Before starting tc-spy it is necessary to configure the software:

4.1.1 LICENSE

A valid license has to be available.
The product license is delivered by the distributor in a separate file, the license file. Normally this file is named license.ini and is located in the working directory of tc-spy. If the license file is delivered with a name other than license.ini or the file should be located in any other directory than the working directory of the server, the new name and/or path has to be specified in the central configuration file spy.ini in the section [locations] with the entry "license_file = <name of license file>".

4.1.2 CENTRAL CONFIGURATION FILE

A central configuration file has to be available which contains the parameters for the monitoring (for details about the configuration see chapter 5 and chapter 6).
The central configuration file is named spy.ini and has to be located in the working directory of tc-spy. The file format is described in chapter 8. The file can be altered using any standard editor.

4.1.3 OTHER INVOLVED COMPONENTS

The TELLINET Servers that have to send the information about the monitored connections to tc-spy have to be configured to accept incoming connections from tc-spy (for details see chapter 5).

4.2 STARTING THE SYSTEM

On Unix operating systems

- Go to the working directory of tc-spy (default: directory “tc-spy”).
- Type “./tc-spy”.

On Windows operating systems

- Go to the working directory of tc-spy in the Windows Explorer (default: directory “tc-spy”).
- Double click on the icon “tc-spy.exe”.

Command line options:

tc-SPY can be started with the following command line options under Unix as well as Windows operating systems.

Multiple command line options can be combined within the start command.

-h	Lists the command line options. If this command line option is given, tc-SPY is not started. This command line option is available for Unix operating systems only.
-v	Log messages are displayed in the command shell.
-s <spy.ini>	Sets the path to the main configuration file.
-l <license.ini>	Sets the path to the license file.

4.3 TERMINATION

On Unix operating systems

- Press “<Ctrl>+c” to terminate tc-spy.

On Windows operating systems

- Click with the right mouse button on the tc-spy icon in the tray bar. A menu opens.
- Click on “Exit tc-spy” in the menu.

5 MONITORING OF TELLINET REQUESTS

For the monitoring of TELLINET requests it is necessary

- to establish a connection to the TELLINET Server that handles the requests of the TELLINET Client of the recipient (see chapter 5.1.1) and
- to specify the recipient(s) that shall be monitored by IP address or user name (see chapter 5.2.2.)

All other functionality described in this chapter is optional and can be configured to improve the handling of the monitoring process.

5.1 CONNECTIONS TO TELLINET SERVERS

5.1.1 ESTABLISHING CONNECTIONS TO TELLINET SERVERS

tc-spy has to connect to the TELLINET Server to request the monitoring data for the TELLINET Client requests.

This connection has to be configured in the TELLINET Server and in tc-spy. When both applications are configured correctly, the connection will be established automatically after the start of tc-spy and the TELLINET Server.

To configure a connection at tc-spy, a section [server] has to be written into the central configuration file of tc-spy. The section has to contain the parameters "login" and "server_address".

With the login, the user name and password for the access to the TELLINET Server are specified in the format "login=<user name>:<password>". The parameter has to be identical with the login specified at the TELLINET Server.

With the parameter "server_address" the IP address and port of the TELLINET Server, that tc-spy shall connect to, has to be specified. Possible entries are "server_address=<ip address of the TELLINET Server>:<listen port at the TELLINET Server>" or "server_address=<ip address of the TELLINET server>". If no port is specified, the default port 30001 is used.

At the TELLINET Server, a section [spy_parameters] has to be written into the Server central configuration file. The section has to contain the parameters "activate" and "login".

By default the Server does not allow tc-spy connections. The data exchange with tc-spy has to be activated with the parameter "activate=1".

The login, with the format "login=<user name>:<password>" has to be identical with the login specified in the section [server] of the tc-spy central configuration file.

Additionally, a listen port and an interface for the incoming tc-spy conncetions can be specified. By default the TELLINET Server listens on all available interfaces on port 30001 for incoming tc-spy connections. This can be changed with the entries "interface_address"=<ip address of the interface used to listen to tc-spy connections>" and "port=<port used to listen to tc-spy connections>".

 If a port other than the default port is specified in the TELLINET Server central configuration file, it is mandatory also to specify this port with the parameter "server_address" in the tc-spy central configuration file.

The tc-spy central configuration file has to contain at least one section [server] when tc-spy is started. Otherwise an error message is given and tc-spy is not working.

It is possible to specify multiple sections [server] to monitor connections from various TELLINET Servers.

Configuration of connections to TELLINET Servers			
spy.ini [server] login=company:secret server_address=172.27.2.1:4000	**File**	**spy.ini**	
	section	[server]	
	entry	login	User name and password for connections to the TELLINET Server. The Format is <user name>:<password> **Mandatory**
	entry	server_address	IP address and listen port at the TELLINET Server that tc-spy is connecting to. Format: <ip address> or <ip address>:<port number>, The port number has to be specified if a port other than the default port number is configured at the TELLINET Server. **Mandatory to specify IP address (but default for port= 30001)**
TELLINET Server **send.ini** [spy_parameters] activate=1 login=company:secret interface_address=172.27.2.1 port=4000	**File**	**send.ini**	
	section	[spy_parameters]	
	entry	activate	Activates the acceptance of tc-spy connections. 1 = tc-spy connections are accepted, 0 = tc-spy connections are not accepted. **Default: inactive**
	entry	login	User name and password for connections to the TELLINET Server. The Format is "<user name>:<password>" **Mandatory**
	entry	interface_address	IP address of interface used to listen to tc-spy connections. **Default: listening on all available interfaces**
	entry	port	Listen port for tc-spy connections. Has to be identical to the port number configured in section [server] at tc-spy. **Default: 30001**

5.1.2 INTERFACE AND PORT OF THE CONNECTION

tc-spy can be forced to use a specific local interface to connect to the TELLINET Server. This requires the specification of the IP address of the interface with the parameter "interface_address" in the section [server] of the tc-spy central configuration file.

This restriction is useful to guarantee the successful connection in case tc-spy is multi-homed and access to the TELLINET Server is restricted to a specific IP address in the TELLINET Server with the parameter "allowed_address" in the section [spy parameters] of the TELLINET Server central configuration file.

The port number used at tc-spy to send the data can also be specified with the parameter "source_port" in the section [server] of the tc-spy central configuration file.

Restriction of access to the log file			
spy.ini [server] interface_address=172.27.1.5 source_port=4556	**File**	**spy.ini**	
	section	[server]	
	entry	interface_address	Interface used to connect to the TELLINET Server. **Default: according to local routing table**
	entry	source_port	Port number used to connect to the TELLINET Server. **Default: dynamic port number**
TELLINET send.ini [spy_parameters] allowed_address=172.27.1.5	**File**	**send.ini**	
	section	[spy_parameters]	
	entry	allowed_address	IP address of host allowed to connect to this Server. **Default: no access restriction**

5.2 MONITORING RECIPIENTS

With tc-spy the content of the data sent over ETCP Associations can be monitored for one Client, for all Clients or for a group of Clients connected to a TELLINET Server.

To monitor one or multiple Client ETCP connections, a section [rule] has to be written into the tc-spy central configuration file. This section has to contain a specification of a recipient or a group of recipients and may contain a configuration of the level of log output.

Alternatively rules can be added with a form on the web interface of tc-spy. The data added into the form is written automatically into the tc-spy central configuration file.

The monitoring data is written into a data storage file. This file is by default called "spy.dat" and is located in the working directory of tc-spy. It is possible to configure tc-spy to use any other file for the logging of monitoring data. See chapter 5.3 for details about the data storage file.

All monitoring data of all recipients of all rules is written into the same data storage file in chronological order.

5.2.1 FORMAT OF THE MONITORING DATA

The data storage file contains all monitoring messages for all monitored TELLINET recipients.

Each message consists of one or multipe lines giving the following information, separated with colon:

- Message type
  There are three message types:
  - KEY-Messages = Information about the start and end of an ETCP Association and about the data key used for encryption.
  - REQ-Messages = Information about the requests to web servers made by TELLINET.
  - DAT-Messages = Information about the content that is transmitted to the TELLINET Client and to web servers.
- UTC date and time when the message was written in the format "<year-month-day hour:minutes:seconds>".
- IP address of the TELLINET Client requesting the data.
- User name of the recipient of the data.
  When authentication is not enabled, the user name of the recipient is not known to TELLINET and "unknown" is written into the message.
- The ID of the ETCP Association.
- The ID of the ETCP connection (an ETCP Association consists of various connections).

- The message text. The information given in the message is dependent on the message typ:
  - For KEY-Messages:
    When an ETCP Association is started, the message is "Successful connect". The key used to encrypt the connection and the multicast address used are displayed.
    When an ETCP Association is closed, the message is "Disconnect" without additional information.
  - For REQ-Messages:
    The protocol used for the connection.
    The IP address of the web server which receives the request.
    The DNS name of the web server which receives the request, written in brackets.
  - For DAT-Messages:
    The protocol used for the connection.
    The IP address of the web server which is hosting the data.
    The content sent to the TELLINET Client. The display of the content can be restricted to a specific number of bytes in the section [rule] of the central configuration file of tc-spy or at the web interface page “Rules”.

5.2.2 CHOICE OF RECIPIENTS

The recipients that shall be monitored can be specified in the tc-spy central configuration file by their user name or by the IP address of their TELLINET Client.

5.2.2.1 By user name

Recipients can be identified by tc-spy by their "user_name" in TELLINET. Precondition for the specification of a recipient by user name is the activation of authentication in TELLINET with the entry "activate_for_etcp=1" in the section [authentication] in the TELLINET Server central configuration file and the entry "authentication=1" in the section [etcp_parameters] in the TELLINET Client central configuration file.

To specify a user to be monitored by user name, a section [rule] has to be written into the tc-spy central configuration file. The section has to contain one entry "user_name", specifying the user name of the recipient. The user name has to be identical with the user name given with the parameter "user_name" in the section [recipient] of the TELLINET Client central configuration file and a TELLINET Server Recipient File.

Only one entry "user_name" is allowed per section [rule].

If a section [rule] contains a "user_name", it must not contain an entry "start_ip" and "end_ip".

Multiple recipients can be specified within one section [rule] by using an asterisk as wildcard in the user name. All recipients will be monitored, when "user_name=*" is written into the section [rule].

Groups of recipients can also be specified with the wildcard. If the entry is "user_name=Provider!*", all recipients with user names starting with "Provider!" will be monitored.

The level of log output can be specified in the section [rule] of the recipient(s) as described in chapter 5.2.3 and 5.2.4.

Choice of recipients by user name

spy.ini

```
[rule]
user_name=Testuser

[rule]
user_name=myprovider!*
```

File	**spy.ini**	
section	[rule]	
entry	user_name	TELLINET user name of the recipient to be monitored. An asterisk can be used as wildcard.

TELLINET Server

send.ini

```
[authentication]
activate_for_etcp=1
```

***.rcv**

```
[ recipient]
user_name=myprovider!Fulano

[recipient]
user_name=Testuser
```

File	**send.ini**	
section	[authentication]	
entry	activate_for_etcp	Activates authentication. Active authentication is a precondition for recipient authentication by user name. The entry has to be "1", i. e. active. **Default: 0, i. e. inactive**
File	***.rcv**	
section	[recipient]	
entry	user_name	User name of the Recipient. Has to be identical to the user name in the TELLINET Client and in tc-spy.

TELLINET Client

recv.ini

```
[etcp_parameters]
authentication=1

[recipient]
user_name=Fulano
user_name_prefix=myprovider!
```

File	**recv.ini**	
section	[etcp_parameters]	
entry	authentication	Activates authentication. Active authentication is a precondition for recipient authentication by user name. The entry has to be "1", i. e. active. **Default: 0, i. e. inactive**
section	[recipient]	
entry	user_name	User name of the Recipient. Has to be identical with the user name in the TELLINET Server and in tc-spy. (If user_name_prefix is used, the user_name at server side is identical to "<user_name><user_name_prefix>)
entry	user_name_prefix	Optional. May specify the first part of the user name separately. If this parameter is available, the user name is composed of "user name prefix" and "user_name".

5.2.2.2 By IP address

Recipients can be identified by tc-spy by their IP address.

To specify a user to be monitored by its IP address, a section [rule] has to be written into the tc-spy central configuration file. The section has to contain one parameter "start_ip" and one parameter "end_ip" to specify the first and the last IP address of a range of IP addresses of recipients to be monitored.

To specify a recipient by IP address, both parameters "start_ip" and "end_ip" are mandatory. If only one IP address shall be monitored, the IP address of the TELLINET Client is both start and end IP address.

Only one IP address range is allowed in one section [rule], i. e. the parameters "start_ip" and "end_ip" can only be given once.

Sections [rule] containing the parameters "start_ip" and "end_ip" must not contain the parameter "user_name".

The level of log output for the recipient(s) can be specified in the section [rule] as described in chapter 5.2.3 and 5.2.4.

Choice of recipient(s) by IP address

spy.ini

```
[rule]
start_ip = 10.0.0.0
end_ip = 10.255.255.255

[rule]
start_ip = 12.12.1.2
end_ip = 12.12.1.2
```

File	spy.ini	
section	[Irule]	
entry	start_ip	Specifies the start IP address of the range of IP addresses to be monitored. If only one IP address shall be specified, start and end IP address have to be identical.
entry	end_ip	Specifies the end IP address of the range of IP addresses to be monitored. If only one IP address shall be specified, start and end IP address have to be identical.

5.2.3 INFORMATION LEVEL

There are three message types written into the data storage file:

- KEY-Messages = Information about the start and end of an ETCP Association and about the data key used for encryption.
- REQ-Messages = Information about the requests to web servers made by TELLINET.
- DAT-Messages = Information about the content that is transmitted to the TELLINET Client and to web servers.

With the parameter "level" in the section [rule] it can be specified, whether all or only some of the message types are written into the data storage file for the recipient(s) specified with this rule.

Possible entries for "level" are KEY, REQ, DAT and ALL. If "level=ALL" is entered, all message types are written into the data storage file. This is also the default for the level.

To configure that two types of messages are written into the data storage file, the entry "level" has to be given twice in the same section [rule].

Message type displayed			
spy.ini [rule] level=REQ level=DAT	**File**	**spy.ini**	
	section	[rule]	
	entry	level	Specifies the type of message written into the data storage file. Possible entries are KEY, REQ, DAT and ALL (if all three message types shall be displayed). **Default: ALL**

5.2.4 AMOUNT OF LOGGED DATA BYTES

If DAT messages contain all the content transmitted to the monitored TELLINET Client and the web server, this can lead to extremely long entries in the data storage file of tc-spy. Therefore the maximum data length for DAT messages is by default restricted to 96 bytes.

To alter the amount of user data written into the data storage file, the parameter "max_user_data_length" has to be written into the section [rule]. This parameter specifies the maximum number of bytes that can be written into the data storage file for one DAT message.

If it is "0", the number of user data bytes written into DAT messages is not restricted.

Maximum number of logged user data bytes

spy.ini

```
[rule]
max_user_data_length=200
```

File	spy.ini	
section	[rule]	
entry	max_user_data_length	The maximum number of user data bytes that can be written into a DAT message. **Default: 96 bytes**

5.3 STORAGE OF MONITORING DATA

5.3.1 DATA STORAGE FILE NAME AND LOCATION

At the start of tc-spy, the program is automatically creating the file "spy.dat" in the working directory of tc-spy and uses this file as data storage file for the log messages about the data sent to the monitored TELLINET Clients and to web servers.

If any other file shall be used as data storage file, the path to the file and the file name have to be specified with the entry "data_file" in the section [locations] of the tc-spy central configuration file. The path is relative to the working directory of tc-spy. If the new data storage file is located in the working directory, only the file name has to be written into the tc-spy central configuration file.

data storage file used			
spy.ini [location] data_file=../control/monitoring.dat	**File**	**spy.ini**	
	section	[location]	
	entry	data_file	Specifies the path and the name of the file that shall be used as data storage file for monitoring data. **Default: spy.dat**

5.3.2 DATA STORAGE FILE SIZE AND FILE SHIFTING

tc-spy will by default store the incoming monitoring data into the data storage file endlessly. That will result in big file size.

To avoid big file size or to get monitoring information for specific periods in separate files, tc-spy can be configured to shift the data storage file in given intervals.

When a data storage file is shifted, the data storage file is closed and stored under the name "<data file name>.<timestamp>.dat" where timestamp is the UTC date and time when the file was shifted in the format "year-month-day-hour-minutes-seconds". A new data storage file is opened at that time with the same name as the old data storage file.

The time when a data storage file is shifted can be configured in the central configuration file of tc-spy in the section [data_storage]. The shifting of the data storage file can depend on

- the size of the data storage file:
  With the parameter "max_file_size" a maximum size in bytes for the data storage file can be set. When the specified file size is reached, the file is shifted.
- a specific time of the day or the week:
  With the parameter "shift_time" the data storage file can be shifted at a specific time every day or once a week. E. g. it can be shifted at 5 pm every day with the entry "shift_time=17:00". With the entry "shift_time=17:00 mon" the file will be shifted at 5 pm every Monday, i. e. once a week. The time has to be specified in the format "hh:mm" and the day has to be specified with the first three letters of

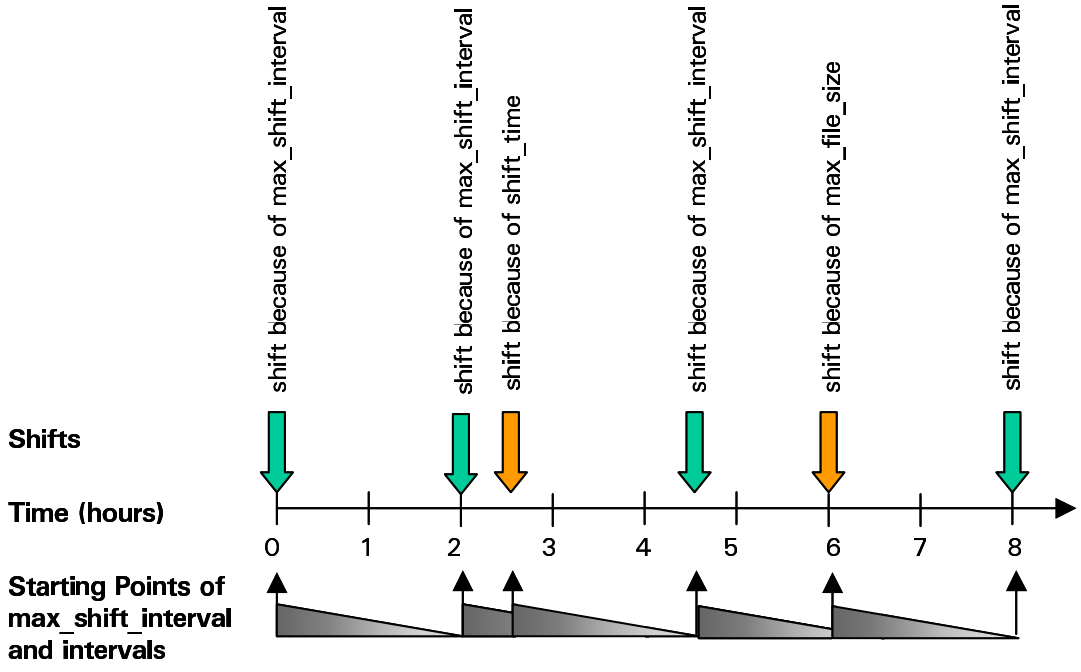
the english name of the day, separated from the time specification with a space. The parameter can be given multiple times, i. e. the data storage file can be shifted at different times on the same day.

- a specific time interval:
  With the parameter "max_shift_interval" a time interval in minutes can be specified for the shifting of the data storage file. E. g. with the entry "max_shift_interval = 240" the data storage file is shifted every 4 hours.

If none of the shift parameters is set, data is written into the data storage file endlessly and the file is not shifted.

If more than one shift parameter is set, a combination of all set parameters is valid to shift the data storage file. E. g. when a shift time is set at 11:00 and the maximum file size is set to 100000 bytes, the file is shifted at 11 am independent from the file size at that moment and it is additionally shifted whenever the maximum file size of 100000 bytes is reached.

Please note that the "max_shift_interval" is always started whenever the data storage file is shifted, independent from the reason of the shift.



Picture 2: Shifting of data storage files when all parameters are set

data storage file Shifting

spy.ini

```
[data_storage]
shift_time = 14:50
shift_time = 20:00 wed
max_shift_interval = 120
max_file_size = 200000
```

File	spy.ini	
section	[data_storage]	
entry	shift_time	Time of the day when the data storage file will be shifted in the format "hh:mm" (hour:minutes) or, when the shifting shall be limited to a specific day of the week, "hh:mm ddd" (hour:minutes day). Can be given multiple times.
entry	max_shift_interval	Maximum time interval between two shifts of the data storage file in minutes.
entry	max_file_size	Maximum file size of the data storage file in bytes. If this size is reached, the data storage file is shifted.

5.3.3 NUMBER OF STORED DATA STORAGE FILES

The number of data storage files that can be stored during file shifting under the name "<data file name>.<timestamp>.dat" can be restricted. For that purpose the entry "max_nr_of_files", specifying the maximum number of files that can be stored, has to be entered into the section [data_storage]. If the maximum number of files is already stored and a new data storage file is shifted, the oldest stored data storage file is deleted and the new data storage file is stored.

If no entry "max_nr_of_files" is available, the data storage files are stored without limits.

Maximum number of stored data storage files

spy.ini

```
[data_storage]
max_nr_of_files = 10
```

File	spy.ini	
section	[data_storage]	
entry	max_nr_of_files	Specifies the maximum number of shifted data storage files that can be stored. **Default: no restriction**

5.3.4 HANDING OVER OF DATA STORAGE FILES TO AN EXECUTABLE

tc-spy can be configured to execute an executable automatically whenever the data storage file is shifted, handing over the name of the shifted data storage file. This functionality may be used e. g. to send an email to the operator each time a file is shifted or to copy the content of a data storage file containing monitoring information to a storage device.

To start the executable automatically after shifting of the data storage file, the executable has to be specified with the entry "shift_execute" in the section [data_storage] in the central configuration file.

Please note that it is necessary to configure a shift parameter (shift_time, max_shift_interval, max_file_size; see chapter 5.3) in the section [data storage] to make the entry "shift_execute" work, because the executable is only executed when the file is shifted.

Handing over of the data storage file to executables

spy.ini

```
[data_storage]
shift_execute = file.exe
```

File	**spy.ini**	
section	[data_storage]	
entry	shift_execute	Specifies the name of an executable that will be executed when the data storage file is shifted. The file name is handed over to the executable. **The parameter is only valid in conjunction with a configuration of a "shift_time", "max_shift_interval" or "max_file_size".**

6 CONTROLLING OTHER SYSTEM FUNCTIONS

6.1 CONTROL VIA A WEB INTERFACE

tc-spy activity can be checked via a web interface. The web interface gives information about the status of tc-spy and provides help for the handling of the software. The content of the web interface pages is described separately in chapter 7. This chapter gives information about the handling of the web interface, i. e. the configuration and the access.

6.1.1 ACCESS TO THE WEB INTERFACE

6.1.1.1 Login

The web interface can only be accessed if a section [shell] with an parameter “login” is available in the central configuration file “spy.ini”.

If this parameter is “none”, the access is possible without limitations.

If this parameter has the format “login=<user name>:<password>”, a user name and password is requested by the browser before opening the web interface.

The parameter “login” in the section [shell] can be given multiple times. This allows the specification of multiple user names and passwords.

6.1.1.2 Changing the port number for access

Access to the web interface is by default possible on port 5000. To change the port number used to access the web interface, specify the new port number in the section [shell] of the central configuration file “spy.ini” with the parameter “port”.

6.1.1.3 Network interface selection

If the tc-spy host has multiple interfaces, the access to the web interface is by default possible through all interfaces. The access can be restricted to one interface only by specification of this interface in the section [shell] of the central configuration file “spy.ini” with the parameter “interface_address”. The parameter can only be given once.

6.1.1.4 Restriction of access to specific hosts

The permission to access the web interface can be restricted to specific hosts. The parameter “allowed_address” in the section [shell] of the central configuration file “spy.ini” specifies the IP address or DNS name of a host that should get permission to connect to the web interface. If the parameter is available, the access is restricted to the specified host. The parameter can be given multiple times to be able to access the web interface from multiple hosts. If “127.0.0.1" is entered, access is allowed from all available local interfaces.

If no parameter “allowed_address” is available, the access is possible from any host.

6.1.1.5 Open the web interface

To open the web interface, enter the URL "http://<host>:30000" in your favourite browser and replace "<host>" with the name of the server system.
If a port number for the access to the web interface is specified with an parameter "port" in the section [shell] in the central configuration file "spy.ini", replace "30000" with the specified port number.

If the web interface cannot be displayed in the browser although the host name and the port number are entered correctly, the reason can be that the parameter "login" in the section [shell] of the web interface is missing. This parameter is mandatory to access the web interface. It has to be "none" or "<user name>:<password>".

Please note that the use of "localhost:<port>" instead of "<ip address>:<port>" in the browser is not possible to access the web interface locally if the parameter "interface_address" is specifying the IP address of the local host. Instead, "localhost" or "127.0.0.1" has to be entered as interface_address to use "localhost:<port>" as address of the web interface.

Access parameters for the web interface

spy.ini

```
[shell]
login=user:secret
port=30000
interface_address=1727.2.4
allowed_address=localhost
allowed_address=172.27.2.3
```

File	spy.ini	
section	[shell]	
entry	login	Specification of log in parameters for the user of the web interface. Possible entries are "none" (access not restricted) or "<user name>:<password>". This parameter is mandatory to access the web interface.
entry	port	Access port for the web interface. **Default: 30000**
entry	interface_address	Restriction of remote access to the web interface to a specific interface of tc-spy. **Default: no restriction**
entry	allowed_address	Restriction of access to the web interface to the host specified with this parameter. The parameter can be given multiple times. **Default: no restriction**

6.1.2 UPDATE INTERVAL FOR THE WEB INTERFACE

The pages of the web interface are updated by tc-spy regularly every 5 seconds to ensure that the current values are shown.

The interval for updating of the web pages can be altered by specifying the desired time interval for the updates in seconds in the central configuration file "spy.ini" with the parameter "refresh" in the section [shell].

Manual refresh of the web pages can be done by clicking on the button "Refresh" in the menu of the web interface.

Update interval for the web interface

spy.ini	File	spy.ini	
[shell] refresh=4	section	[shell]	
	entry	refresh	Refresh interval for the data on the web interface in seconds. **Default: 5 seconds**

6.2 LOG OUTPUT OF TC-SPY

During operation tc-spy is writing status information into the log file “spy.log”. To control the behaviour of the system, open the log file with a text editor and read the information given about the system behaviour or go to the page “log file” of the web interface of tc-spy to read the log file content.

6.2.1 FILE FORMAT

Each line in the log file has the format:

<Severity>:< Date Time>:<Text>

The severity can be one of the following:

ERR:	An error occurred.
WRN:	An event not as severe as an error occurred (failure of non-essential functions).
INF:	Information about the program status.
MSG, VRB:	Additional details about the behaviour of the program. In the VRB (verbose) mode messages are more detailed than in the MSG (message) mode.

The time is the UTC time and date when the error or warning message was written into the log file in the format <year-month-day hours:minutes:seconds:milliseconds>.

The text is describing the problem/system behaviour.

6.2.2 LOG LEVEL

The log messages of tc-spy can have different levels of detaildness:

- none: nothing is written to the Log file.
- quiet: only error and warning messages are written to the log file.
- normal: error, warning and status messages are written to the log file together with information on the program behaviour.
- verbose: detailed information about the program behaviour is given.

The default for the level of log output is "normal". It can be altered at the page "log file" of the web interface of tc-spy or by specification in the configuration file spy.ini of tc-spy.

At the web interface, go to the page "log file" and choose a log level from the drop down list on top of the page.

To configure the level of log output in the configuration file of tc-spy, specify the desired log level in the section [logging] with the parameter "log_level".

Level of log output

spy.ini	File	spy.ini	
[logging] log_level = verbose	section	[logging]	
	entry	log_level	Level of log output. Possible entries are "none", "quiet", "normal" and "verbose" **Default: normal**

6.2.3 SIZE AND NUMBER OF LOG FILES

The size of the log file is by default restricted to 1000000 bytes. If the log file gets larger, it is stored as "<log file name>.1", a new log file is created for logging and all previous log files are shifted: the old "<log file name>.1" is renamed to "<log file name>.2" etc.

The maximum number of log files to be stored by default under this system is 4, including the currently used log file. If 4 log files are already existent and the log file is shifted again, the oldest log file is deleted.

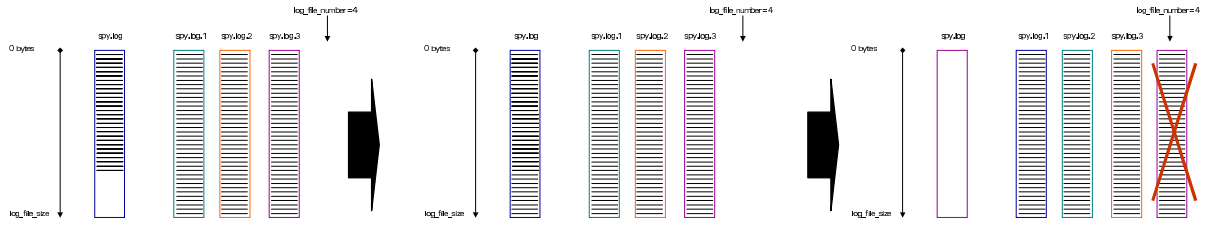


Figure 1: Shifting of log files

The maximum size of the log file and the maximum number of log files to be stored are configurable in the central configuration file spy.ini in the section [logging].

The maximum number of log files to be stored can be specified with the parameter "log_file_number" and the maximum number of bytes per file can be altered with the parameter "log_file_size".

Please note that on Unix operating sytems the log file is always stored as "<log file name>.tc-spy.<timestamp>" and a new log file is started if a core file of tc-spy is generated, independent from the size of the log file. "timestamp" is the UTC date and time when the log file is stored.

Shifting of log files

spy.ini

```
[logging]
log_file_size = 500000
log_file_number = 10
```

File	spy.ini	
section	[logging]	
entry	log_file_size	Maximum file size of the log file. If this size is reached, the log files are shifted. **Default: 1000000**
entry	log_file_number	Number of log files to be stored (shifted and currently used log files). **Default: 4**

6.2.4 LOG FILE NAME AND LOCATION

Log messages are written by default into the automatically generated log file “spy.log” in the working directory of tc-spy.

It is possible to configure tc-spy to write the log messages into any other file through specification of the name of the file with the parameter “log_file” in the section [location] in the central configuration file spy.ini.

If the new log file is located in any other than the working directory of the Server, the path has also to be specified (absolute or relative to the working directory of tc-spy) with the parameter “log_file”.

On Linux operating systems the log messages can also be redirected to the syslog daemon. The parameter has to be “log_file=|syslog” to redirect all log messages to the local syslog daemon.

To write log messages to the memory of the local host instead on storing it into a log file please specify "log_file=<memory>" (in this case the variable do not have to be exchanged by the according value but has to be written as a variable in pointed brackets). If log messages are written into the memory, they can only be read from the software internal web interface.

In case the log messages cannot be written into the specified log file, e. g. because the directory is not existing or the permission to write into that directory is denied, tc-spy is writing the log messages into the default log file “spy.log”. If this also fails, tc-spy tries to use the following files in descending order to write the log messages into:

- On Unix operating systems:
  <system tmp directory>/spy.log
  /tmp/spy.log
  <stderr>
- On Windows operating systems:
  $TMP\spy.log
  $TEMP\spy.log
  c:\temp\spy.log
  c:\tmp\spy.log
  c:\spy.log

($TMP means the value of the environment variable TMP. The same applies for other directory names containing “$”).

If it is not possible to write the log messages into one of the locations given above, the log messages are written into the memory of the local host. In that case they can only be read from the web interface of tc-spy.

If any other than the specified log file is used, a log message is written that informs about the new location of the used log file. The log file is automatically displayed at the web interface of tc-spy. Therefore the information about the location of the log file can be taken from the web interface. Log messages written into <stderr> cannot be displayed at the web interface. However a message is displayed that informs about the utilisation of <stderr>.

Change of log file name and location

spy.ini

```
[logging]
log_file = ../logging/messages.log
```

File	spy.ini	
section	[locations]	
entry	log_file	(Path and) name of the file that shall be used to write log output into. **Default: spy.log**

6.3 FEEDBACK MAIL

tc-spy includes the functionality "feedback mail" that provides a form in the web interface, that can be used to send an email with a description of the behaviour that occurred to the operator/support in case the user encounters a problem that he cannot solve himself.

The page "Feedback Mail" is part of the submenu "Help" of the web interface. It is only displayed if the feedback mail functionality is activated in the configuration file spy.ini (see chapter 6.3.1).

If an email is sent via the feedback mail form, the email recipient will receive all information entered in the form and the following additional information:

- executable name,
- version of the software,
- date of the last modification of the software (UTC time),
- size of the executable in byte,
- working directory of tc-spy,
- uptime (time elapsed since the start of the tc-spy process),
- UTC time when tc-spy was started,
- operating system of the tc-spy host,
- size of the working memory (RAM) of the tc-spy host in MByte,
- file index listing all attachments with the path (relative to the working directory, unless otherwise specified in the central configuration file), the file size in byte and the date of the last modification (UTC time) of each file.

6.3.1 ACTIVATION/CONFIGURATION OF THE FEEDBACK MAIL FUNCTIONALITY

6.3.1.1 Activation

The feedback mail is activated if the parameter "mail_server_address = <address of the mail server used as SMTP Server>" is available in the section [mail] of the central configuration file.

The section [mail] can only be given once.

6.3.1.2 Default sender and recipient

Optionally, the sender and recipient email address can be specified in the configuration file, section [mail] with the entries "sender_address" and "default_feedback_mail_recipient". The email addresses specified with these entries will appear as default values in the form of the feedback mail. They can be altered by the user in the form "Feedback Mail" in the web interface.

Only one sender address can be specified in the section [mail].

The parameter "default_feedback_mail_recipient" specifies one recipient of the feedback mail. If more than one recipient shall be specified, the parameter has to be given multiple times.

Activation/Configuration of feedback mail

spy.ini

```
[mail]
mail_server_address = mail.company.com
sender_address = user@company.com
default_feedback_mail_recipient = operator@company.com
```

File	**spy.ini**	
section	[mail]	
entry	mail_server_address	SMTP server for outgoing feedback mail. **Mandatory.**
entry	sender_address	Email address of the sender of the feedback mail. **Optional.**
entry	default_feedback_mail_recipient	Email address of the recipient of the feedback mail. **Optional, can be given multiple times.**

6.3.2 SENDING FEEDBACK MAIL

To send a feedback mail, the form on the page "Feedback Mail" in the Submenu "Help" on the web interface of tc-spy has to be filled in and send with the button "Send Mail" below the form.

The following entries are allowed in the form:

Sender:	Email address of the person sending the mail. If a sender email address is configured in the section [mail] of the central configuration file, that email address is displayed as default value. Please note that it is not possible to enter multiple sender email addresses. If multiple addresses are entered, the first email address is used and all other entries are ignored. This entry is **mandatory**.
Recipient(s):	Email address(es) of the recipients for the feedback mail. If recipient email addresses are specified in the section [mail] of the configuration file, these email addresses are displayed as default values. This entry is **mandatory**. If no email address is given in this field, the email can not be sent. If the email should be send to multiple recipients, the email addresses of the recipients have to be separated by commas, semicolons or spaces.
Subject:	Subject of the email. This entry will appear in the subject heading of the email.
Observed Behaviour:	A description of the behaviour that occured. This entry is **mandatory**.
How to repeat:	A description of the necessary actions to be taken to repeat the behaviour described above. This entry should allow the operator/support to reproduce the behaviour that occured. This entry is **mandatory**.
Comments:	Any remarks or comments.
Attachments:	In order to find the reason for the observed behaviour, it is helpful for the support to know the exact entries in the files involved. Setting a flag at one of the file names will cause tc-spy to send the file content as attachment with the feedback mail. The file size is given as additional information. Files without content are not included in the list. Clicking on the button "All Attachments" will include all possible files as attachment. Clicking on the button "No Attachment" will exclude all possible files from the attachment.

Send Mail:	Clicking on this button will submit the form and the email will be sent out to the recipient(s).

6.4 INTERNAL WATCHDOG PROCESS

The watchdog is a built-in process of tc-spy that keeps the overall performance of the tc-spy process under surveillance.

6.4.1 ACTIVATION / DEACTIVATION

The watchdog process is active by default and can be deactivated in the central configuration file spy.ini with the parameter "activate=0" in the section [watchdog]. Setting the parameter to "1" will activate the watchdog.

Activation of the watchdog process

spy.ini

```
[watchdog]
activate=1
```

File	spy.ini	
section	[watchdog]	
entry	activate	0 = deactivation of the watchdog 1 = activation of the watchdog **Default: 1, i. e. active watchdog**

6.4.2 INTERVAL FOR ALIVE CHECKS

The tc-spy process is sending alive messages to the watchdog in intervals of 30 seconds to communicate that the process is still running. If no alive messages are received by the watchdog process, tc-spy is terminated and restarted.

The interval for the sending of alive messages can be altered in the central configuration file spy.ini with the parameter "alive_check_interval=<number of seconds>" in the section [watchdog].

The minimum allowed interval is 30 seconds.

Interval for sending alive messages to the watchdog

spy.ini

```
[watchdog]
alive_check_interval=60
```

File	spy.ini	
section	[watchdog]	
entry	alive check interval	Interval for the sending of alive messages from the "working" process to the watchdog (in seconds). **Default: 30 seconds**

6.4.3 PERIODIC RESTARTS

The watchdog can be configured to restart the tc-spy process independent from the status of the software. This can be done at a specific time each day or at a specific time and day each week.

If the tc-spy process shall be restarted every day at a specific time, the parameter "restart_time=<hour:minutes>" has to be made in the section [watchdog]. E. g. if the tc-spy process shall be restarted at 6 pm, the parameter has to be "restart_time=18:00".

If the tc-spy process shall be restarted once a week at a specific time, the parameter "restart_time=<hour:minutes day>" has to be set in the section [watchdog]. The day is specified by the first three letters of the englisch name. E. g. if the tc-spy process shall be restarted at 5 am every Thursday, the parameter has to be "restart_time=05:00 thu".

The parameter "restart_time" can be given multiple times to restart the tc-spy process multiple times a day or on multiple days a week.

Periodic restarts

spy.ini

```
[watchdog]
restart_time=05:30
restart_time=17:30
restart_time=01:15 sun
```

File	spy.ini	
section	[watchdog]	
entry	restart_time	Time of the day (hour:minutes) or time and day of the week (hour:minutes day) when the watchdog will regularly restart the tc-spy process independent from the status of the software. **Default: no forced restart**

6.4.4 GUARDING OF MEMORY

The watchdog process is controlling the memory usage of the "working" process and if it exceeds 300 MByte, this is considered a program bug and the "working" process is terminated and restarted.

The amount of allowed memory usage can be altered in the central configuration file spy.ini with the parameter "max_memory_usage=<number of byte>" in the section [watchdog].

Maximum allowed memory usage

spy.ini

```
[watchdog]
max_memory_usage=2000000
```

File	spy.ini	
section	[watchdog]	
entry	max_memory_usage	Maximum allowed memory usage in bytes. **Default: 300 MByte**

6.4.5 GUARDING OF CPU

The watchdog process is controlling the CPU usage of the "working" process and if it exceeds 90% for a period of 120 seconds, this is considered a program bug and the "working" process is terminated and restarted.

The percentage of allowed CPU usage can be configured in the central configuration file spy.ini in the section [watchdog].
The parameter "max_cpu_usage = <percent cpu used>" specifies the maximum allowed CPU usage.
The parameter "max_cpu_usage_period = <number of seconds>" specifies the time that the "working process" is allowed to use more than the maximum percentage of CPU.

Guarding of cpu usage

spy.ini

```
[watchdog]
max_cpu_usage = 80
max_cpu_usage_period = 60
```

File	spy.ini	
section	[watchdog]	
entry	max_cpu_usage	Maximum allowed CPU usage in percent. **Default: 90 %**
entry	max_cpu_usage_period	Maximum time (in seconds) that the CPU usage is allowed to exceed "max_cpu_usage". **Default: 120 seconds**

6.4.6 ARCHIVING CORE FILES ON UNIX OPERATING SYSTEMS

If tc-spy is restarted by the watchdog process or if tc-spy is shutting down unforeseen on Unix like operating systems, core files consisting of a copy of the disabled process at the time it is terminated, are stored to allow debugging. As these files can have big file sizes, the number of core files archived is restricted by the watchdog process to 10 core files. If 10 core files are stored and a new core file has to be stored, the oldest core file is deleted.

The number of archived core files can be altered in the central configuration file spy.ini with the parameter "max_nr_of_core_files=<number of core files>" in the section [watchdog].

In order to make it possible to find the reason for the termination of the process, the log file is stored at the same time as the core file under the name "<log file name>.tc-spy.<timestamp>", where timestamp is the UTC time and date when the log file is stored, and a new log file is created.

Archiving of core files on Unix like operating systems

spy.ini

```
[watchdog]
max_nr_of_core_files=5
```

File	**spy.ini**	
section	[watchdog]	
entry	max_nr_of_core_files	Maximum number of core files archived on Unix like operating systems **Default: 10**

7 WEB INTERFACE

This section gives an overview over the pages of the web interface. Configuration of access parameters and of the frequency of the data input are described in the chapter: Control via a Web Interface (chapter 6.1).

7.1 STRUCTURE OF THE WEB INTERFACE

The web interface consists of various pages that give information about the monitoring processes at tc-spy and allow control of tc-spy. A choice between the pages can be made using the menu on the left side of the main area.

On top of the page the following information is given independent from the page chosen for the main area:

Host:	The tc-spy host.
Date:	Current UTC time and date at tc-spy in the format "<year-month-day hour:minutes:seconds>".

In addition to the online help on the pages of the Submenu "Help", help for the meaning of individual entries is available. Clicking on the entries written in colour on the main pages opens a new, small window that provides help for the meaning of the specific entry.

7.2 PAGE: OVERVIEW

This page gives an overview over the tc-spy state. It will be updated periodically.

Active server connections:	The number of connections to TELLINET Servers that tc-spy has currently opened.
Configured rules:	The number of rules configured for the monitoring with tc-spy. Rules specify the recipient(s) that are monitored and the amount of data written into the tc-spy data storage file for this recipient/these recipients. Rules can be added by writing a section [rules] into the tc-spy central configuration file or using the form on the page "Rules" of the web interface.
Overall server connections:	The overall number of connections from tc-spy to TELLINET Servers since start of tc-spy or the last reset of statistics.
KEY messages:	The number of KEY messages written into the data storage file since start of statistics (start of tc-spy or reset of statistics). KEY messages contain information about the start and the end of an ETCP Association, including information about the time of the start/end of the ETCP Association and the recipient and the key used for encryption.
REQ messages:	The number of REQ messages written into the data storage file since start of statistics (start of tc-spy or reset of statistics). A REQ message is written into the tc-spy data storage file each time a request is sent from the monitored TELLINET Client to the TELLINET Server.
DAT messages:	The number of DAT messages written into the data storage file since start of statistics (start of tc-spy or reset of statistics). DAT messages contain the content of the web pages transmitted from the TELLINET Server to the monitored TELLINET Client.
Most recent message:	The UTC date and time in the format "year-month-day hour:minutes:seconds" when the last monitoring message was written into the data storage file of tc-spy.
Counting statistics since:	The UTC date and time when the counting of statistic data was started in the format "year-month-day hour:minutes:seconds". Statistics start automatically when the tc-spy process is started. Statistics can be reset and restarted by clicking on the button "reset statistics".

At the bottom of the page the button "reset statistics" allows to set all values on this page to zero to restart the statistical calculation.

7.3 PAGE: CONNECTIONS

This page gives an overview over current configured TELLINET Servers and connections to that TELLINET Servers.

A table of the following format gives information about each connection:

Local Address	Remote Address	Connected Since	Status
172.27.1.1:44104	172.27.1.2:30001	2001-12-10 11:21:03	CONNECTED

For each TELLINET Server there is a line giving the following information about it:

Local Address:	The interface and port used at tc-spy to connect to the TELLINET Server.
Remote Address:	The interface and port of the TELLINET Server to which tc-spy is connected to or will connect to.
Connected Since:	The UTC date and time when the connection was started in the format "<year-month-day hour:minutes:seconds>".
Status:	The status of the connection. This can be: CONNECTING = The connection is currently established. CONNECTED =tc-spy is connected to the TELLINET Server.

7.4 PAGE: DATA

This page shows the content of the current data storage file of tc-spy. The data storage file contains all monitoring messages for all monitored TELLINET recipients.

The data storage file format is described in chapter 5.2.1.

7.5 PAGE: RULES

This page gives an overview over the rules configured for the monitoring with tc-spy. Rules specify the recipient(s) that will be monitored and the kind of messages and the amount of data written into the data storage file of tc-spy for the recipient.

A table of the following format gives information about the currently existing rules:

Username	Start IP	End IP	Max. data length	Level		
*	172.27.1.2	172.27.1.2	10000	ALL	change	remove

Username: The user name of the recipient that is monitored. If the rule does not contain a specification of a user name, because monitoring is based on IP addresses instead of the user name, an asterisk is displayed.

Start_IP: The start IP address of a range of IP addresses that is monitored.
If the rule does not contain a specification of a range of IP addresses because monitoring is based on a user name instead of an IP address range, an asterisk is displayed.

End IP: The end IP address of a range of IP adresses that are monitored.
If the end IP address is identical with the start IP address, only one TELLINET Client is monitored.
If the rule does not contain a specification of a range of IP addresses because monitoring is based on a user name instead of an IP address range, an asterisk is displayed.

Max. data length: The maximum number of user data bytes written into the data storage file of tc-spy per DAT message.

Level The information level for the monitoring. Possible entries are:

KEY = The start and the end of an ETCP Association are written into the data storage file of tc-spy with information about the time of start/end of the ETCP Association, the recipient and the key used on that ETCP Association. Detailed information on the format of the message is given in chapter 5.2.1.

REQ = A message is written to the tc-spy data storage file each time a request is sent from the monitored TELLINET Client to the TELLINET Server. Information on the format of the message is given in chapter 5.2.1.

DAT = The content of the web pages transmitted from the TELLINET Server to the monitored TELLINET Client is written into the tc-spy data storage file. The amount of web content that is written into the file can be restricted with the entry "user_data_len". Information on the format of the message is given in chapter 5.2.1.

ALL = KEY, REQ and DAT messages are written to the data storage file of tc-spy.

A button to open a form that allows to change the rule.

A button to delete the rule. The correspondig section [rule] is automatically deleted from the tc-spy central configuration file.

Below the table one or two buttons are displayed:

A button to delete all rules. The sections [rule] are automatically deleted from the tc-spy central configuration file.
This button is only displayed if multiple rules are configured.

This button leads to a web page that allows to add rules via the web interface.

7.6 PAGE: ADD RULES

This page allows to add a rule for the monitoring of recipients. It is not included in the menu and can be accessed by clicking on the button "add rule" on the page "Rules" of the web interface.

Recipients to be monitored can be specified by their user name (The "user_name" specified in the Client central configuration file of the TELLINET Client and a Recipient File of the TELLINET Server) or by their IP address.

Please note:

 Specification of recipients by user name is only possible if authentication is enabled in the TELLINET Server with the entry "activate_for_etcp = 1" in the section [authentication] of the TELLINET Server central configuration file and in the TELLINET Client with the entry "authentication = 1" in the section [etcp_parameters] of the TELLINET Client central configuration file. If authentication is not activated, the user names of the recipients are not used by the TELLINET Server.

 It is not possible to specify IP addresses and user names in one rule. Accordingly separate tables are displayed at this page for the addition of rules specifying recipients by user name or by IP address.

 Only one range of IP addresses or one user name can be entered per rule into the form.

 For the specification of recipients by IP address both start IP and end IP have to be entered into the form. If only one recipient shall be specified, the IP address of the recipient has to be entered in both fields.

To add a rule, at least a user name or a start and end IP address have to be entered in the respecitve form and the form has to be submitted by clicking on the button "add rule" at the end of the form. The following entries can be made in the respective forms:

Username:	The user name of a recipient to be monitored. The user name has to be identical with the "user_name" specified in a Recipient File of the TELLINET Server and the central configuration file of the TELLINET Client in a section [recipient] with the entry "user_name". Only one user name can be entered into the form. If multiple recipients shall be monitored, an asterisk can be used as wildcard in the user name, e. g. "*" to monitor all recipients or "company*" to monitor all recipients with a user name starting with "company" (e. g. company1, company-sales, company-ceo).
Start_IP:	The start IP address of a range of IP addresses to be monitored.

End IP:	The end IP address of a range of IP adresses to be monitored. This entry is mandatory even if only one IP address shall be monitored. In that case the end IP address has to be identical to the start IP address.
Max. data length:	The maximum number of user data bytes written into the data storage file of tc-spy per DAT message. If "0" is entered, data is written into the data storage file unlimited.
Level	The information level for the monitoring. Possible choices are: KEY = The start and the end of an ETCP Association are written into the data storage file of tc-spy with information about the time of start/end of the ETCP Association, the recipient and the key used on that ETCP Association. Detailed information on the format of the message is given in chapter 5.2.1. REQ = A message is written to the tc-spy data storage file each time a request is sent from the monitored TELLINET Client to the TELLINET Server. Information on the format of the message is given in chapter 5.2.1. DAT = The content of the web pages transmitted from the TELLINET Server to the monitored TELLINET Client is written into the tc-spy data storage file. The amount of web content that is written into the file can be restricted with the entry user_data_len. Information on the format of the message is given in chapter 5.2.1.

7.7 PAGE: CHANGE RULE

This page allows to change an existing rule for the monitoring of recipients. It is not included in the menu and can be accessed by clicking on the button "change" in the line of the respecitive rule of the table on the page "Rules" of the web interface.

The format of the form displayed on this page is equal to the format of the forms on the page "Add Rule" (see chapter 7.6).

7.8 PAGE: LICENSE

This page gives the following information:

Version:	This section informs about: • the version of the software used, • the UTC time when the version was built in the format <year(4)month(2)day(2)hours(2)minutes(2)seconds(2) milliseconds(1-2)>, i. e. when the version was made on October 12th,2004 at 12:30 UTC time (12 seconds, 6 milli-secons), the displayed value will be: 200410121230126, • the operating system the software is working with.
Server Modules:	A table that lists all available product modules of tc-spy and indicates whether the modules are licensed and activated. The functionality of the present product is limited to the licensed modules. Licensed modules can be activated or deactivated by addition of a section [activations] in the license file.
License:	This section gives information about the license of the local tc-spy process. The information is taken from the valid license file.

7.9 PAGE: LOG FILE

This page shows the current log file of tc-spy. The file format is described in chapter 6.2.1.

On top of the lines giving the status information, a drop down list is displayed that allows to alter the level of the log output.

7.10 SUBMENU FOR HELP

7.10.1PAGE: WEB INTERFACE

This page gives explanations about all pages of the web interface.

7.10.2PAGE: OPERATION

This page describes how to operate tc-spy.

7.10.3PAGE: FILE FORMATS

This page describes the possible entries for the files that are necessary to run tc-spy.

7.10.4PAGE: FEEDBACK MAIL

This page allows to send an email to the operator/support to make any comments on the product or to get help in case problems occuring during operation can not be solved by the user. The feedback mail functionality is described in chapter 6.3.

7.11 REFRESH

Clicking on this button will update the content of the main area.

8 FILE ENTRY REFERENCE LIST

In the following a detailed description of all possible file entries of the files necessary to operate tc-spy is given. The functionality of the file entries is also described in chapters 5 - 6 in the context of their functionality. This chapter is meant as a reference book to give an overview over all possible configuration parameters.

8.1 FORMAT

The format is similar to the Windows ini-file format and the files can be written or modified with a standard text editor.

The file entries are structured as sections. The format is:

[<section_name>]
<parameter name> = <value>

e. g.:

```
[watchdog]
activate=1
max_cpu_usage=75
```

8.2 CENTRAL CONFIGURATION FILE

The central configuration file is named "spy.ini" and has to be located in the working directory of tc-spy. Please note: It is possible to change the name and location of the central configuration file with the command line options during start of tc-spy.

8.2.1 CONTENTS

8.2.2 FILE ENTRIES

[shell]	file spy.ini
This section allows to configure the program internal web interface. This web interface (which is normally used by the operators only) can be accessed locally or remotely using normal web browsers like e. g. the MS Internet Explorer or Netscape Navigator).	

login	section [shell]	file spy.ini
Password protection of the web interface.		
syntax login = <name>:<password> login = none	**example** login = miller:mysecret login = none	
Specifies a login for the web interface. This includes a username and a password and has to be written as: "<name>:<password>". To disable the username, password protection, "login = none" has to be configured. If no parameter "login" in given, the access to the web interface is not possible.		
unit **range** **default** no login allowed and web shell is deactivated	**this parameter is** ☒ optional ☐ mandatory ☒ repeatable **related entries** tc-spy - spy.ini - - [shell] - allowed_address	**read by system** ☒ at startup only ☐ continously

allowed_address	section [shell]	file spy.ini
Allows connections to the web interface only from the hosts listed (e.g. localhost).		
syntax allowed_address = <address> allowed_address = <DNS name>	**example** allowed_address = 127.0.0.1 allowed_address = serverhost	
Specifies the IP address or DNS name of a host that is allowed to connect to the web interface. The entry can be given multiple times to allow more than one host to connect to the web interface. If "127.0.0.1" is entered, access is allowed from all available local interfaces.		
unit **range** **default** access is permitted for all hosts - but login restrictions according to the login parameter apply	**this parameter is** ☒ optional ☐ mandatory ☒ repeatable **related entries** tc-spy - spy.ini - [shell] - login	**read by system** ☒ at startup only ☐ continously

port	**section** [shell]	**file** spy.ini
Port of the web interface. The port is part of the URL of the web interface. E. g. URL:http://localhost:30000.		
syntax port = <port number>	**example** port = 30000	
Specifies the port to be used for the web interface. To access the web interface, the name of the host and this port number have to be entered as address in a standard web browser in the format "http://<address>:<port>".		
unit **range** **default** 2516	**this parameter is** ☒ optional ☐ mandatory ☐ repeatable **related entries** tc-spy - spy.ini - [shell] - interface_address	**read by system** ☒ at startup only ☐ continously

interface_address	**section** [shell]	**file** spy.ini
IP address of the interface to that the web interface port is bound to.		
syntax interface_address = <interface name> interface_address = <ip address> interface_address = <dns name>	**example** interface_address = eth1 interface_address = 172.27.1.2 interface_address = control.company.com	
In case the host is equipped with more than one interface, this entry can be used to bind the web interface to a specific network interface only. Please note that the use of "localhost:<port>" instead of "<ip address >:<port>" in the browser is not possible to access the web interface locally when the entry "interface_address" is specifying the IP address of the local host. Instead, "localhost" or "127.0.0.1" has to be entered as interface_address to use "localhost:<port>" as address of the web interface. Please note: Specification of the interface name as interface_address is only possible under Linux operating systems.		
unit **range** **default** bound to all local network interfaces	**this parameter is** ☒ optional ☐ mandatory ☐ repeatable **related entries** tc-spy - spy.ini - [shell] - port	**read by system** ☒ at startup only ☐ continuously

refresh	section [shell]	file spy.ini
Time interval for automatic refreshes within various web pages of the web interface.		
syntax refresh = <seconds>	**example** refresh = 5	
Specifies the time interval between automatic refreshes within various web pages of the web interface.		
unit seconds **range**	**this parameter is** ☒ optional ☐ mandatory ☐ repeatable	**read by system** ☒ at startup only ☐ continously
default 5 seconds	**related entries**	

[locations]	file spy.ini
This section allows to customise the directory structure as well as file names for various configuration as well as output files.	

data_file	section [locations]	file spy.ini
Filename and path of the data storage file used to store the observed data.		
syntax data_file = <file name>	**example** data_file = ./spy.dat	
The path has to be given absolute or relative to the working directory.		
unit **range** **default** spy.dat	**this parameter is** ☒ optional ☐ mandatory ☐ repeatable **related entries** tc-spy - spy.ini - [data_storage]	**read by system** ☒ at startup only ☐ continously

log_file	section [locations]	file spy.ini
Location/name of log file for status/error/debug output.		
syntax log_file = <file name>.log log_file = <directory>/<file name>.log	**example** log_file = spy.log	
The log file that is created automatically at startup to write the debugging information into it during operation. On Linux operating systems the log messages can also be redirected to the local syslog daemon. In this case please specify "log_file = |syslog". To write log messages to the memory of the local host instead on storing it into a log file please specify "log_file = <memory>" (in this case the variable do not have to be exchanged by the according value but has to be written as a variable in pointed bra-ckets). If log message are written into the memory, they can only be read from the software internal web interface.		
unit **range** **default** spy.log	**this parameter is** ☒ optional ☐ mandatory ☐ repeatable **related entries** tc-spy - spy.ini - [logging]	**read by system** ☒ at startup only ☐ continously

license_file	**section** [locations]	**file** spy.ini
tc-spy license file.		
syntax license_file = <file name> license_file = <directory>/<file name>	**example** license_file = license.ini license_file = ../administration/license.ini	
The name of the license file containing the product license. This can include a path to the file in case it is not stored in the working directory.		
unit **range** **default** license.ini	**this parameter is** ☒ optional ☐ mandatory ☐ repeatable **related entries**	**read by system** ☒ at startup only ☐ continously

[logging]	file spy.ini
The section [logging] can be used to fine tune the log output.	

log_level	section [logging]	file spy.ini
Extent of logged debugging output: "none", "quiet", "normal", "verbose".		
syntax log_level = <value of range>	**example** log_level = normal	
Specifies the extent of logged debugging output. Possible values are: none = no debugging output quiet = only error and warning messages are logged normal = error and warning messages and information about important system functions are logged verbose = error and warning messages and detailed information about the behaviour of the program are logged		
unit **range** none, quiet, normal, verbose	**this parameter is** ☒ optional ☐ mandatory ☐ repeatable	**read by system** ☐ at startup only ☒ continously
default normal	**related entries**	

log_file_size	section [logging]	file spy.ini
Maximum size of a single log file in bytes.		
syntax log_file_size = <bytes>	**example** log_file_size = 1000000	
Specifies the maximum size of the log file in bytes. When the log file gets larger than "log_file_size", it is stored as "<log_file>.1", a new log file is created for new logging and all previous log files are shifted: the old "<log_file>.1" is renamed to "<log_file>.2" etc.		
unit byte **range**	**this parameter is** ☒ optional ☐ mandatory ☐ repeatable	**read by system** ☒ at startup only ☐ continously
default 1000000 = 1 MByte	**related entries** tc-spy - spy.ini - [logging] - log_file_number	

log_file_number	section [logging]	file spy.ini
Maximum overall number of logfiles (current + old).		
syntax log_file_number = <number of files>	**example** log_file_number = 4	
Specifies the number of log files to store. Each time a log file is shifted (shifting described with entry for "log_file_size"), it is stored with a higher number. When the new name will be "<log_file>.<log_file_number>", the file is removed.		
unit **range**	**this parameter is** ☒ optional ☐ mandatory ☐ repeatable	**read by system** ☒ at startup only ☐ continously
default 4	**related entries** tc-spy - spy.ini - [logging] - log_file_size	

[mail]	file spy.ini
This section can be used to send an email in case of errors, warnings or restarts caused by the watchdog, to the user (runtime error mail) and to send an email to the operator / technical support in case the user needs help with the system (feedback mail). Runtime error mail will be sent if "mail_server_address", "sender_address" and "runtime_error_mail_recipient" are specified. To use the feedback mail it is sufficient to specify the "mail_server_address".	

mail_server_address	section [mail]	file spy.ini
SMTP server for feedback mail		
syntax mail_server_address = <ip address> mail_server_address = <dns_name> mail_server_address = <ip address>:<port> mail_server_address = <dns name>:<port>	**example** mail_server_address = 172.33.33.33 mail_server_address = mail.company.com mail_server_address = 172.33.33.33:1200 mail_server_address = mail.company.com:1200	
Address of the mail server that is used as SMTP-Server for outgoing mails. This entry is necessary to activate the functionality of feedback mail.		
unit **range** **default**	**this parameter is** ☒ optional ☐ mandatory ☐ repeatable	**read by system** ☒ at startup only ☐ continously
	related entries tc-spy - spy.ini - [mail] - sender_address tc-spy - spy.ini - [mail] - default_feedback_mail_recipient	

sender_address	section [mail]	file spy.ini
default originator shown in feedback mail		
syntax sender_address = <email address>	**example** sender_address = user@company.com	
Email address of the sender of "feedback mail". It is not possible to specify more than one sender email address or more than one section [mail], i. e. the entry can not be given multiple times. The entry is optional, as the sender email address can also be specified directly in the feedback mail form of the web interface. The sender email address specified here is given as default value in the respective field of the form.		
unit **range** **default**	**this parameter is** ☒ optional ☐ mandatory ☐ repeatable	**read by system** ☒ at startup only ☐ continously
	related entries tc-spy - spy.ini - [mail] - mail_server_address tc-spy - spy.ini - [mail] - default_feedback_mail_recipient	

default_feedback_mail_recipient	section [mail]	file spy.ini
Default recipient for feedback mail.		
syntax default_feedback_mail_recipient=<email address>	**example** default_feedback_mail_recipient=support@company.com	
Destination email address of the recipient of the "feedback mail", which allows to communicate e. g. some comments / problem descriptions to the operator / technical support of the software via a form in the web interface. The entry can be repeated if more than one person should be notified. Recipients can also be specified directly in the feedback mail form of the web interface. The recipients specified here are given as default values in the respective field of the form.		
unit **range** **default**	**this parameter is** ☒ optional ☐ mandatory ☒ repeatable	**read by system** ☒ at startup only ☐ continously
	related entries tc-spy - spy.ini - [mail] - mail_server_address tc-spy - spy.ini - [mail] - default_feedback_mail_recipient	

[watchdog]	file spy.ini
This section allows to configure a built-in software watchdog.	

activate	section [watchdog]	file spy.ini
Activates or deactivates the program internal watchdog.		
syntax activate=<value of range>	**example** activate=1	
Activates the program internal watchdog. Possible entries are: 1 = the watchdog is activated. 0 = the watchdog is not activated.		
unit **range** 0/1	**this parameter is** ☒ optional ☐ mandatory ☐ repeatable	**read by system** ☒ at startup only ☐ continously
default 1=on	**related entries** tc-spy - spy.ini - [watchdog]	

alive_check_interval	section [watchdog]	file spy.ini
The "working" process has to send an alive message to the watchdog process in the specified interval.		
syntax alive_check_interval=<seconds>	**example** alive_check_interval=40	
The “working” process has to send an alive message to the watchdog process in the given interval (of minimum 30 seconds). If the alive message is not received for multiple intervals, the "working" process is restarted.		
unit seconds **range** 30 or more	**this parameter is** ☒ optional ☐ mandatory ☐ repeatable	**read by system** ☒ at startup only ☐ continously
default 30 seconds	**related entries** tc-spy - spy.ini - [watchdog] - activate	

restart_time	section [watchdog]	file spy.ini
Force a restart at given times.		
syntax restart_time = <hh:mm> restart_time = <hh:mm ddd>	**example** restart_time = 05:15 restart_time = 00:00 Sun	
The watchdog can be configured to restart the "working" process at a given time of each day or of a specific day per week. This entry specifies the UTC time of the day when the"working" process is restarted in the format "<hh:mm>" (hour:minute) or "<hh:mm ddd>" (hour:minute day). The day has to be given as the first three letters of the english name of the day, e. g. “Mon” for Monday or “Thu” for Thursday. If only the time is specified, the process is restarted every day. The entry can be given multiple times, i. e. it is possible to restart the process several times during one day.		
unit **range** **default** no forced restart	**this parameter is** ☒ optional ☐ mandatory ☒ repeatable **related entries** tc-spy - spy.ini - [watchdog] - activate	**read by system** ☒ at startup only ☐ continously

max_memory_usage	section [watchdog]	file spy.ini
Maximum amount of memory the "working" process is allowed to allocate.		
syntax max_memory_usage = <byte>	**example** max_memory_usage = 300000000	
Maximum amount of memory the process is allowed to allocate. Allocation of more memory is considered a program bug and the "working" process is restarted.		
unit byte **range** **default** 300000000 = 300 MByte	**this parameter is** ☒ optional ☐ mandatory ☐ repeatable **related entries** tc-spy - spy.ini - [watchdog] - activate	**read by system** ☒ at startup only ☐ continously

max_cpu_usage	section [watchdog]	file spy.ini
Maximum percent of CPU the "working" process is allowed to use over a period of time (see max_cpu_usage_period.		
syntax max_cpu_usage = <value of range>	**example** max_cpu_usage = 75	
In case the CPU usage exceeds the given amount for a period of approximately "max_cpu_usage_period" the process is restarted. Please note that it is not possible to check cpu usage when using WIN9x operating systems due to restrictions in these operating systems. Therefore this parameter is ignored under WIN9x operating systems.		
unit percent **range** 1-100 **default** 90%	**this parameter is** ☒ optional ☐ mandatory ☐ repeatable	**read by system** ☒ at startup only ☐ continously
	related entries tc-spy - spy.ini - [watchdog] - activate tc-spy - spy.ini - [watchdog] - max_cpu_usage_period	

max_cpu_usage_period	section [watchdog]	file spy.ini
Calculation period for max_cpu_usage.		
syntax max_cpu_usage_period = <seconds>	**example** max_cpu_usage_period = 120	
In case the CPU usage exceeds the amount given with "max_cpu_usage" for the configured period, the process is restarted by the internal watchdog. Please note that it is not possible to check cpu usage when using WIN9x operating systems due to restrictions in these operating systems. Therefore this parameter is ignored under WIN9x operating systems.		
unit seconds **range** **default** 120	**this parameter is** ☒ optional ☐ mandatory ☐ repeatable	**read by system** ☒ at startup only ☐ continously
	related entries tc-spy - spy.ini - [watchdog] - activate tc-spy - spy.ini - [watchdog] - max_cpu_usage	

max_nr_of_core_files	section [watchdog]	file spy.ini
Under Unix like operating systems the watchdog will archive the given number of possibly existing core files.		
syntax max_nr_of_core_files=<number>	**example** max_nr_of_core_files=10	
This parameter restricts the storage of possibly existing core files on Unix like operating systems. If the number of core files exceeds the configured number, the oldest stored core file is deleted each time a new core file is stored. Whenever a core file is generated, the current log file is stored under the name "<log file name>.tc-send.<timestamp>" and a new log file is opened. “timestamp” is the UTC date and time when the core file and the log file have been stored.		
unit **range** **default** 10	**this parameter is** ☒ optional ☐ mandatory ☐ repeatable **related entries** tc-spy - spy.ini - [watchdog] - activate	**read by system** ☒ at startup only ☐ continously

[data_storage]	file spy.ini
The section [data_storage] specifies the parameters for the storage of the data storage files. Data storage files are the files in which the monitoring data from the TELLINET Server is written. The monitoring data is written into the file spy.dat. In order to prevent an extremly big file size, a new data storage file can be started at time intervalls specified with the parameters given in this section. The old data storage file is stored as "spy.<timestamp>.dat", where timestamp is the UTC date and time when the file was stored, in the format "year-month-day-hour-minutes-seconds". A new data storage file is started at that time with the same name as the old data storage file. In the following this mechanism is called shifting of data storage files.	

shift_time	section [data_storage]	file spy.ini
Generates one or multiple new data storage files per day.		
syntax shift_time=<hh:mm> shift_time=<hh:mm ddd>	**example** shift_time=00:00 shift_time=12:00 fri	
Specifies the UTC time in the format "<hh:mm>" (hour:minute) or "<hh:mm ddd>" (hour:minute day) when the data storage file is stored as "accounting-pxp.<time>.dat" and a new data storage file is started. The day has to be given as the first three letters of the english name of the day, e. g. “mon” for Monday or “thu” for Thursday. If a day is specified, the data storage file is shifted once a week and when it is not specified, the data storage file is shifted every day at the given time. The parameter "shift_time" can be given multiple times to shift the file multiple times a day. No default is given for this and the other entries concerning the shifting of files. If none of these entries is made, the data storage file is not shifted and data is written into the file endlessly, resulting in very big files.		
unit **range** **default** undefined=never	**this parameter is** ☒ optional ☐ mandatory ☒ repeatable	**read by system** ☒ at startup only ☐ continously
	related entries tc-spy - spy.ini - [data_storage] - max_shift_interval tc-spy - spy.ini - [data_storage] - max_file_size tc-spy - spy.ini - [data_storage] - max_nr_of_files tc-spy - spy.ini - [data_storage] - shift_execute tc-spy - spy.ini - [locations] - data_file	

max_shift_interval	section [data_storage]	file spy.ini
Automatically shifts the data storage file after the given number of minutes.		
syntax max_shift_interval = <minutes>	**example** max_shift_interval = 60	
Data storage files can not only be shifted at given times of the day but also in given intervals, e. g. every two hours. This entry specifies the interval between two shifts of the file in minutes. Please note that the interval given is a maximum interval. The data storage file can be shifted in shorter time intervals if a "shift_time" is specified that lays inside the interval or if a "maximum_file_size", at which the file is shifted, is configured and that file size is reached during the shift interval. If a shift time is specified that lays inside the shift interval, the accounting file is not only shifted at that time although the interval is not finished, but the next time interval starts at the shift time. E. g. if the shift interval is 20 minutes and the shift time is reached 10 minutes after start of the interval, the next shift after the shift caused by the "shift_time" parameter is not 10 minutes after the "shift_time" but 20 minutes after the "shift_time". No default is given for this and the other entries concerning the shifting of files. If none of these entries is made, the data storage file is not shifted and data is written into the file endlessly, resulting in very big files.		
unit minutes **range**	**this parameter is** ☒ optional ☐ mandatory ☐ repeatable	**read by system** ☒ at startup only ☐ continously
default undefined = never	**related entries** tc-spy - spy.ini - [data_storage] - shift_time tc-spy - spy.ini - [data_storage] - max_file_size tc-spy - spy.ini - [data_storage] - max_nr_of_files tc-spy - spy.ini - [data_storage] - shift_execute tc-spy - spy.ini - [locations] - data_file	

max_file_size	section [data_storage]	file spy.ini
Automatically shifts the data storage file when the size exceeds the given size.		
syntax max_file_size = <bytes>	**example** max_file_size = 100000	
The maximum file size in bytes allowed for a data storage file. When the maximum file size is reached, the data storage file is shifted, i. e. the content of the data storage file is stored as "<data storage file name>.<timestamp>.dat" where timestamp is the UTC date and time when the file was shifted in the format "year-month-day-hour-minutes-seconds". A new data storage file is started at that time with the same name as the old data storage file. Please note that the data storage files can be shifted at smaller sizes than the given maximum file size in case a "shift_time" or a "max_shift_interval" are specified. In that case the data storage files are shifted at the specified times independent from the file size reached. No default is given for this and the other entries concerning the shifting of files. If none of these entries is made, the data storage file is not shifted and data is written into the file endlessly, resulting in very big files.		
unit bytes **range** **default** undefined = unlimited file size	**this parameter is** ☒ optional ☐ mandatory ☐ repeatable	**read by system** ☒ at startup only ☐ continously
	related entries tc-spy - spy.ini - [data_storage] - shift_time tc-spy - spy.ini - [data_storage] - max_shift_interval tc-spy - spy.ini - [data_storage] - max_nr_of_files tc-spy - spy.ini - [data_storage] - shift_execute tc-spy - spy.ini - [locations] - data_file	

max_nr_of_files	section [data_storage]	file spy.ini
Maximum overall number of data storage files.		
syntax max_nr_of_files = <number>	**example** max_nr_of_files = 15	
Specifies the maximum number of shifted files that can be stored for this data storage file. When the overall number of stored files, including the file currently used to write the data in, has reached the number specified with this entry, the oldest stored data storage file will be deleted each time a file is shifted, to keep the number of stored files at the value of "max_nr_of_files". If the entry is "0", the shifted data storage files are stored without limitations.		
unit **range** **default** 0	**this parameter is** ☒ optional ☐ mandatory ☐ repeatable	**read by system** ☒ at startup only ☐ continously
	related entries tc-spy - spy.ini - [data_storage] - shift_time tc-spy - spy.ini - [data_storage] - max_shift_interval tc-spy - spy.ini - [data_storage] - max_file_size tc-spy - spy.ini - [data_storage] - shift_execute tc-spy - spy.ini - [locations] - data_file	

shift_execute	section [data_storage]	file spy.ini
tc-spy will execute the given executable whenever the data storage file is shifted.		
syntax shift_execute = <executable>	**example** shift_execute = file.exe	
The name of an executable that will be automatically executed at the time when a data storage file is shifted. The absolute name of the shifted dat storage file is handed over to the executable. This entry can be used e. g. to send an email message to the operator each time the data storage file is shifted.		
unit **range** **default** undefined = off	**this parameter is** ☒ optional ☐ mandatory ☐ repeatable	**read by system** ☒ at startup only ☐ continously
	related entries tc-spy - spy.ini - [data_storage] - shift_time tc-spy - spy.ini - [data_storage] - max_shift_interval tc-spy - spy.ini - [data_storage] - max_file_size tc-spy - spy.ini - [data_storage] - max_nr_of_files tc-spy - spy.ini - [locations] - data_file	

[server]	file spy.ini
The section [server] specifies the parameters that are neccessary for tc-spy to connect to a Server. In case tc-spy shall monitor more than one Server, a new section [server] has to be added for each Server that tc-spy shall connect to.	

login	section [server]	file spy.ini
username:password needed for accessing the tc-send server.		
syntax login = <username>:<password>	**example** login = company:secret	
Specifies a user name and password required to access the TELLINET Server. This entry has to be identical with the entry "login" in the section [spy_parameters] in the send.ini file of the TELLINET Server.		
unit **range** **default**	**this parameter is** ☐ optional ☒ mandatory ☐ repeatable	**read by system** ☒ at startup only ☐ continously
	related entries tc-send - send.ini - [spy_parameters] - login	

server_address	section [server]	file spy.ini
Listen address of the tc-send server.		
syntax server_address = <ip address>:<port> server_address = <ip address>	**example** server_address = 172.27.1.2:4000 server_address = 172.27.1.2	
IP address and listen port for tc-spy connections at the TELLINET Server. This entry has to be identical with the entries "port" and "interface_address" in the section [spy_parameters] in the send.ini file of the TELLINET Server.		
unit **range** **default** port 30001; ip address specification is mandatory	**this parameter is** ☐ optional ☒ mandatory ☐ repeatable	**read by system** ☒ at startup only ☐ continously
	related entries tc-send - send.ini - [spy_parameters] - port tc-send - send.ini - [spy_parameters] - interface_address	

interface_address	section [server]	file spy.ini
IP address of the interface used to connect to this tc-send server.		
syntax interface_address = <ip address>	**example** interface_address = 172.27.1.2	
Specifies the IP address of the interface at tc-spy used to connect to the TELLINET Server. This entry has to be made if tc-spy is multihomed and the access to the listen port at the TELLINET Server is restricted to a specific IP address with the parameter "allowed_address" in the section [spy_parameters] in the send.ini file of the TELLINET Server.		
unit **range** **default** according to local routing table	**this parameter is** ☒ optional ☐ mandatory ☐ repeatable **related entries** tc-send - send.ini - [spy_parameters] - allowed_address	**read by system** ☒ at startup only ☐ continously

source_port	section [server]	file spy.ini
Local port used to connect to tc-send server.		
syntax source_port = <port>	**example** source_port = 30002	
unit **range** **default** dynamic port number	**this parameter is** ☒ optional ☐ mandatory ☐ repeatable **related entries** tc-spy - spy.ini - [server] - interface_address	**read by system** ☒ at startup only ☐ continously

[rule]	file spy.ini
The section [rule] specifies the recipient(s) that will be monitored and the amount of data written into the data storage files during monitoring for that recipient(s).	

user_name	section [rule]	file spy.ini
Request all data of a specific recipient.		
syntax user_name = <user name>	**example** user_name = Mickey	
The user name of the recipient as specified in the recv.ini file of the TELLINET Client with the entry "user_name" or with the entries "user_name" and "user_name_prefix". Please note: the user name can only be used to identify the recipient if authentication is activated at the TELLINET Server and the TELLINET Client. Please note: if the parmeter "user_name" is specified in a section [rule], the parameters "start_ip" and "end_ip" are not allowed in that section.		
unit **range** **default** default	**this parameter is** ☒ optional ☐ mandatory ☐ repeatable	**read by system** ☒ at startup only ☐ continously
	related entries tc-send - send.ini - [authentication] - activate tc-recv - recv.ini - [etcp_parameters] - authentication tc-recv - recv.ini - [recipient] - user_name tc-recv - recv.ini - [recipient] - user_name_prefix tc-send - *.rcv - [recipient] - user_name	

start_ip	section [rule]	file spy.ini
Request all data for a scope of IP addresses. Beginning of IP address scope.		
syntax start_ip = <ip address>	**example** start_ip = 10.0.0.0	
Please note: the parameter "start_ip" is only valid if the parameter "end_ip" is also given. Please note: if the parmeter "user_name" is specified in a section [rule], the parameters "start_ip" and "end_ip" are not allowed in that section.		
unit **range** **default**	**this parameter is** ☒ optional ☐ mandatory ☐ repeatable	**read by system** ☒ at startup only ☐ continously
	related entries tc-spy - spy.ini - [rule] - end_ip	

end_ip	**section** [rule]	**file** spy.ini
Request all data for a scope of IP addresses. End of IP address scope.		
syntax end_ip = <ip address>	**example** end_ip = 10.255.255.255	
Please note: the parameter "end_ip" is only valid if the parameter "start_ip" is also given. Please note: if the parmeter "user_name" is specified in a section [rule], the parameters "start_ip" and "end_ip" are not allowed in that section.		
unit **range** **default**	**this parameter is** ☒ optional ☐ mandatory ☐ repeatable **related entries** tc-spy - spy.ini - [rule] - start_ip	**read by system** ☒ at startup only ☐ continously

level	**section** [rule]	**file** spy.ini
Request only data of a given information level.		
syntax level = <value of range>	**example** level = REQ	
The following information levels can be configured: KEY-Messages = Information about the start and end of an ETCP Association and about the data key used for encryption. REQ-Messages = Information about the requests to web servers made by TELLINET. DAT-Messages = Information about the content that is transmitted to the TELLINET Client and to web servers. ALL = All message types are displayed.		
unit **range** KEY, REQ, DAT, ALL **default** ALL	**this parameter is** ☒ optional ☐ mandatory ☒ repeatable **related entries** tc-spy - spy.ini - [rule] - max_user_data_length	**read by system** ☒ at startup only ☐ continously

max_user_data_length	**section** [rule]	**file** spy.ini
Maximum number of user data bytes logged per message.		
syntax	**example** max_user_data_length = 96	
unit bytes **range** **default** 96 bytes	**this parameter is** ☒ optional ☐ mandatory ☐ repeatable **related entries** tc-spy - spy.ini - [rule] - level	**read by system** ☒ at startup only ☐ continously

9 CONTACT

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10 ABBREVIATIONS AND DEFINITIONS

C		
	client	The client part of a client-server architecture. Typically, a client is an application that runs on a personal computer or workstation and relies on a server to perform some operations.
	Client	Software of the TELLINET system responsible for data reception.
D		
	d	day
	DNS	Domain name system; an Internet service that translates domain names into IP addresses
	DNS name	A name that identifies one or more IP addresses under the domain name system.
E		
	e. g.	example given
	etc.	et cetera; and so on
H		
	h	hour
	HTML	HyperText Markup Language, the authoring language used to create documents on the World Wide Web.
I		
	i. e.	id est, that is
	IP address	A numeric identifier for a computer or device on an IP network.
M		
	m	minute
R		
	RAM	random access memory
S		
	server	A computer or device on a network that manages network resources.
	Server	Software of the TELLINET system responsible for data sending/transmission.
	SMTP	Simple Mail Transfer Protocol; a protocol for sending email messages between servers.
T		
	TCP	Transmission Control Protocol; enables two hosts to establish a connection and exchange data.
U		
	UTC	Universal Time Coordinated. UTC is equal to the Greenwich Mean Time (GMT).
W		
	watchdog	Internal process of Tellitec's products that controls the software performance.
	web interface	HTML pages of tc-spy.