Terminal Configuration Manual

TT1000 Series

Version 1.1

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Terminal Configuration Manual
TT1000 Series
Version 1.1

1 Content

2 Terminal specification

2.1 Feature overview

- 400 / 600 MHz Xscale CPU with Linux OS and JAVA VM
- Monochrome graphics LCD with 128x64 pixels / 8x20 characters, adjustable brightness
- Custom keyboard layout with 11 keys
- 3kHz / 94dB Buzzer for acoustic feedback, two volumes
- Light bar with 6 RGB-LEDs, eight base colors, adjustable brightness
- Power-supply: mains operated 100 to 230 VAC. Optionally available PoE 802.3af or 10 to 26 VDC socket
- Ethernet (TCP/IP) 100 Mbps
- Optional integrated modem
- Support of all leading reader technologies (Legic, HID, Mifare, I-Code, EM, Hitag and ISO 15693, Magnetic stripe and Barcode, Fingerprint)
- Two optical sensors for sabotage detection
- Passive Infrared (PIR) motion sensor
- USB 1.1 Full speed

FCC Notes

This equipment complies with Part 15 of the FCC rules.
Any changes ormodifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC rules subject to the following two conditions:

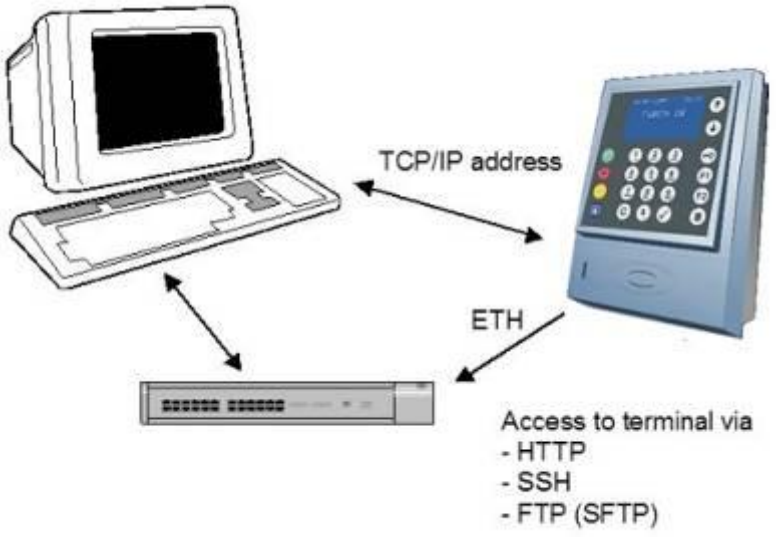
This device may not cause harmful interference

This device must accept all interference received, including interference that may cause undesired operation.

NOTE:
This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

3 Setting up the TT1000 Series terminal



Connecting

Connect the terminal to the power supply and (if using Ethernet) to a networking switch. The access from a PC to the terminal is then possible via HTTP, SSH and FTP (SFTP).

Accessing

- **HTTP**

  Accessing the web server on the terminal via HTTP is necessary if the administrator wants to change the configuration data.

- **SSH**

  For remote administration using an SSH client.

- **FTP/SFTP**

  For transferring data to an FTP client (also SFTP possible).

HTTP

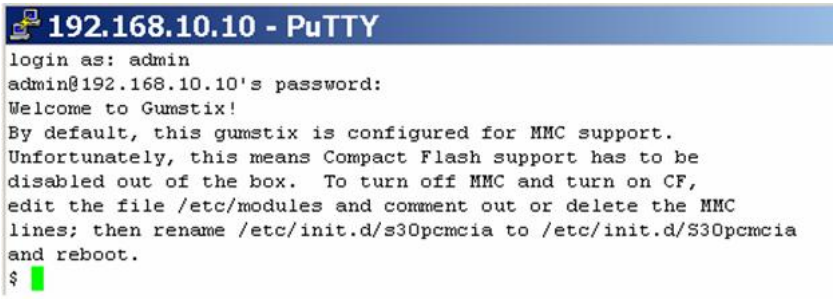
Open a browser of your choice and enter the following URL: http://terminal-ip-address:9999

Example: http://192.168.50.77:9999

The terminal web interface is displayed. Login with the password **admin**. From here you can change the configuration data.

SSH

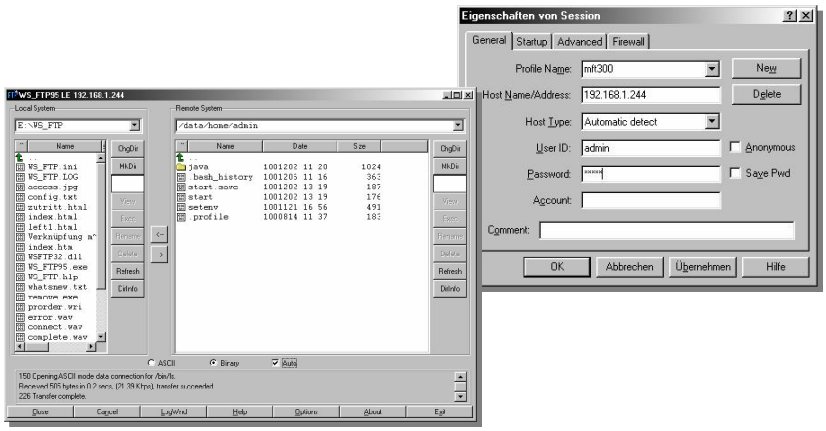
Start an SSH client and open a session to the terminal's assigned IP address. Log in as the user **admin** with the password **admin** (default).



FTP

Start an FTP client, e. g. WS_FTP.

In the field *Hostname/Address* enter the terminal IP address. Log in with the *User ID* **admin** and the *Password* **admin** and press OK.

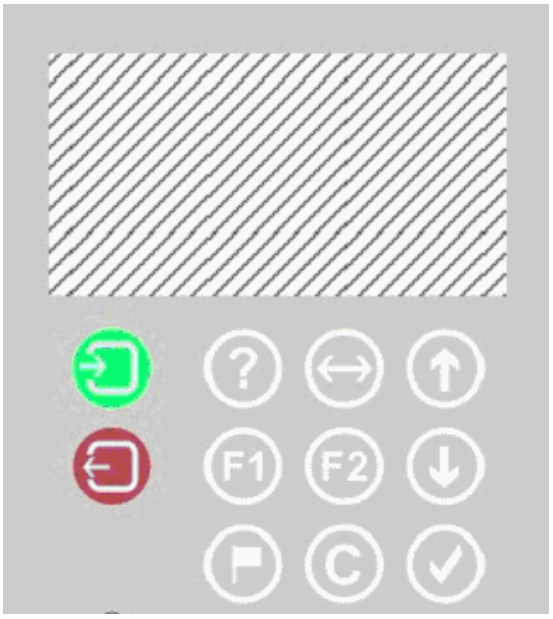


The initial directory displayed is **/mnt/hda1/admin**.

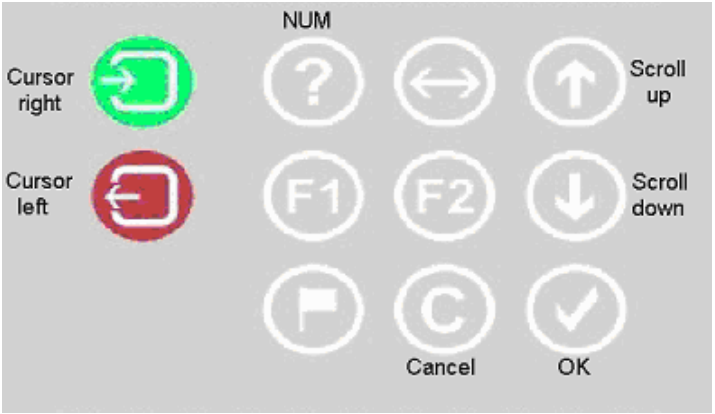
4 Keyboard assignment

4.1 Key assignment - reduced keyboard (11 keys)

The TT1000 series does not provide a numeric keypad, but only 11 keys.



For reduced keyboards 7 keys are assigned for the terminal start-up dialogs (for defining the IP address and different modes) OK, Cancel, Cursor left, Cursor right, NUM and both scroll keys. The terminal is being delivered with the following assignment:



5 Terminal start-up

5.1 Using the start-up prompts

With the key configuration shown above, the following sequence applies for the terminal start-up, if you e. g. want to change the IP address of the terminal manually (i. e. without a DHCP server):

The terminal beeps five times and prompts for the PIN code. Press four times the key assigned as the NUM key (the default PIN), usually  .

Then press the key assigned as OK key, usually  .

For the following prompts „**Define keyboard**“, „**Activate Servicemode**“, „**Activate Test**“ und „**Interface**“ always press the OK key to keep the settings.

To change a setting, it is possible to toggle between the choices using one of the scroll keys  or  and to confirm a choice with the OK key.

You can then change the logical terminal ID

The current ID is displayed, by default 01FF.

Using the cursor right key  you can position the cursor at the digit to be changed.

To change the value press the NUM key  , thus changing the digit to 0 (Null). Then press the NUM key as often as necessary to change the digit to the desired value. Note that the cursor might be moved to the right when the timeout occurs.

With the cursor left key  you can move the cursor to the left at any time.

Confirm the value with the OK key.

After that the prompt „Interface“ is displayed where you would press the OK key to confirm the value „**eth0**“.

If for the prompt „**Use DHCP**“ the setting „**YES** “is active, the terminal requests its IP address, router address and gateway through a DHCP server.

If you want to change the IP address manually, the value for „Use DHCP” should be set to „**NO**“.

Then you can change the terminal IP address:

The current IP address is shown.

Using the cursor right key  you can position the cursor at the digit to be changed.

To change the value press the NUM key  , thus changing the digit to 0 (Null). Then press the NUM key as often as necessary to change the digit to the desired value. Note that the cursor might be moved to the right when the timeout occurs.

With the cursor left key  you can move the cursor to the left at any time.

Define the IP address and confirm the value with the OK key. Define the gateway and subnet mask the same way. To finally store the values you have to confirm the following prompt with all three values with the OK key.

If you terminate the IP configuration dialog with the Cancel key  any value you changed will not be saved.

5.2 Changing the start-up prompts

You can configure which prompts will appear in the start-up dialog and in which sequence they appear.

On the terminal, in the directory /java/vm/vame there is a system.prop file. The entries starting with “ipconf” are responsible for the start-up dialog. For example the entry **ipconf10=serviceMode** determines that the prompt “Activate Servicemode” is displayed with the scroll list options “Yes” and “No”. If you put an # sign in front of an entry it is inactivated.

With the number following ifpconfig you define the order number of the entry. The start-up dialog will start with the entry with the lowest number.

Following is a list of possible ipconf terms:

- ipconf*n*=keyboard – for the dialog “Define keyboard”
- ipconf*n*=serviceMode – for the dialog “Activate service mode”
- ipconf*n*=test – for the dialog “Activate test”
- ipconf*n*=deviceId – for the dialog “Logical device ID”
- ipconf*n*=networkIF – for the dialog “Interface” with the choices “eth0” and “wlan”
- ipconf*n*=dhcp – for the dialog “Use DHCP”
- ipconf*n*=ipAddress – for the dialog “TCP/IP address”
- ipconf*n*=gateway – for the dialog “Gateway address”
- ipconf*n*=subnetMask – for the dialog “Subnet mask”
- ipconf*n*=dns1 – for the dialog “DNS 1”
- ipconf*n*=dns2 – for the dialog “DNS 2”
- ipconf*n*=proxy – for the dialog “Proxy Server”
- ipconf*n*=proxyPort – for the dialog “Proxy Port”
- ipconf*n*=hostAddress – for the dialog “Host Address”
- ipconf*n*=hostPort – for the dialog “Host Port”
- ipconf*n*=rasHW – for the dialog “RAS Hardware” with the choices “Modem” and “ISDN”
- ipconf*n*=rasNumber – for the dialog “RAS Number”
- ipconf*n*=rasUser – for the dialog “RAS User”
- ipconf*n*=rasPwd – for the dialog “RAS Password”
- ipconf*n*=rasDomain – for the dialog “RAS Domain”
- ipconf*n*=rasOption – for the dialog “RAS Option”
- ipconf*n*=rasTest – for the dialog “Test RAS Connection”
- ipconf*n*=timeSync – for the dialog “Time Sync Mode”
- ipconf*n*=timeZone – for the Time zone dialogs
- ipconf*n*=com.timelink.biometrics.fingerprint.IpSettings TemplatesErasure – for the dialog “Erase all templates?”
- ipconf*n*=com.timelink.connection.webservice.ssl. GetCertificate – for the dialog „Use HTTPS?“ and if yes is chosen starting the certificate request.

6 Parameter description

6.1 General parameter description

All general framework parameters can be defined through the web interface supported by the terminal.

6.1.1 How to display the web interface

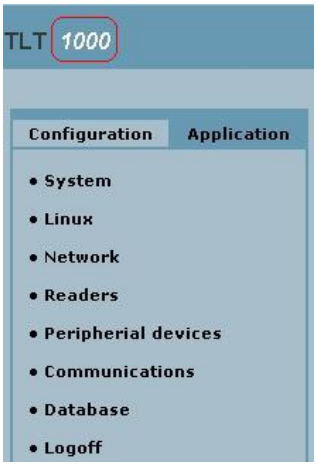
To connect to the web interface on an TT1000 Series terminal you must enter the terminal URL in a standard web browser:

Example: http://terminal_ip_address where the “terminal ip address” is that of your TT1000 Series terminal.

Enter the password *admin* and click on **Enter**.

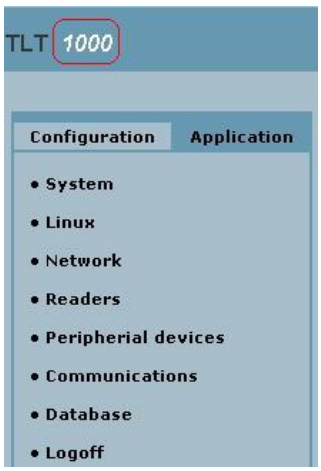
The Overview page is opened.

With a click on **1000** next to TLT in the upper left corner you can return to the Overview page any time.



6.1.2 Configuration parameters

To open the configuration parameter group list, click on **Configuration** in the left frame.



6.1.3 Configuration parameter groups – overview

System	Terminal, Date/Time, Trace, Status, Java Statistics, Firmware. (See chapter 6.2.1)
Linux	Parameters for the Linux operating system. (See chapter 6.2.2)
Network	TCP/IP, DHCP/BOOTP and RAS parameters. (See chapter 6.2.3)
Readers	Parameters for the available readers, barcode scanner and fingerprint reader (See chapter 6.2.4)
Peripheral devices	Display, Keyboard (See chapter 6.2.5)
Communications	Upload, download (See chapter 6.2.5.4)
Database	(See chapter 8.2)
Logoff	No matter what parameter page is opened in the right frame you can always log off by clicking on **Logoff** in the left frame.

6.2 Detailed parameter description

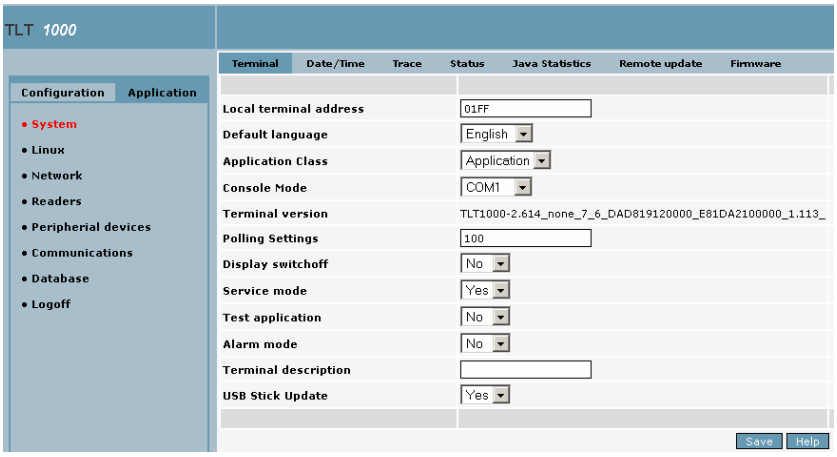
To display the individual parameter group pages click on the text link in the menu bar in the upper part of the right frame.

On all the parameter pages you will find the buttons **Save** and **Help**.

Save	This button will store your changes on the terminal.
Help	This button will display basic help text displayed in the right column. The button text changes to **Help off** when selected.

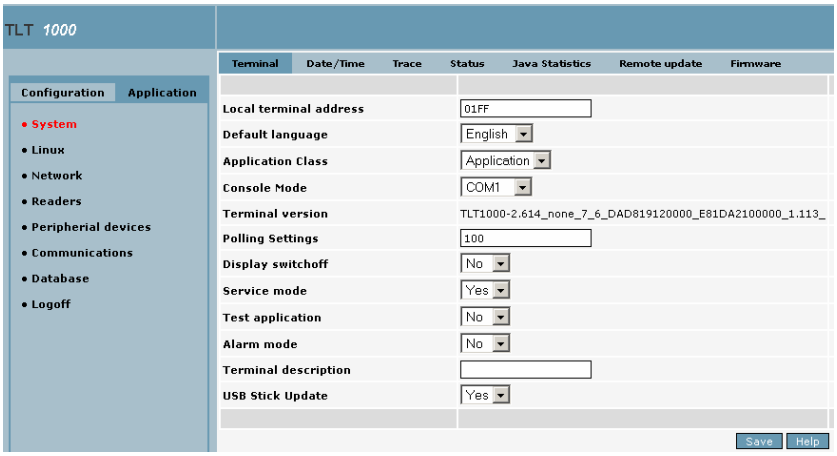
6.2.1 System configuration

To open the System configuration pages click on **System** in the Configuration menu in the left frame.



6.2.1.1 Terminal parameters

The terminal parameter page is the default page in the system parameter group.



Local terminal address — The terminal address (logical ID) that is sent to the host system. (Default **01FF**).

Default language — The preferred language for the web interface. English and German are available, default English.

Application Class — The application to be started on the terminal. There has to be a value defined for proper terminal operation.

Console Mode — The definition of the console mode. Choices are COM1, COM4 or Unused, default **COM1**.

Terminal version — Read-only field for the terminal board version information.

Polling settings — Sleep time (ms) setting for the internal polling of the Main board and Power-supply Board, default **100**.

Display switch-off — If this mode is active, the display is turned off automatically if for 30 seconds no motion has been detected by the motion sensor. If after that a motion is sensed the display is turned on again. Default **No**.

Service mode — If this mode is active the terminal is not automatically switched off in case of sabotage alarm (case opened). Default **No**.

Test application — If this mode is active the test application will be invoked and the original one will be saved. With the help of the test application you can test the communication between the hardware and the software: keys, display, acoustic signal, LEDs, badge reader.

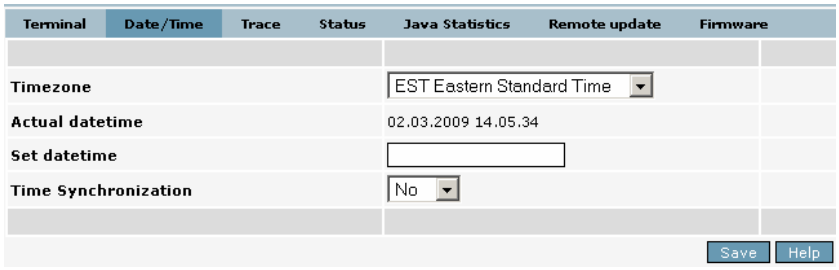
Default **No**.

Alarm mode — If this mode is active, CBM alarm messages are being sent to the host system. Also these messages are stored in a protocol file, if defined in the application.xml file. Default **No**.

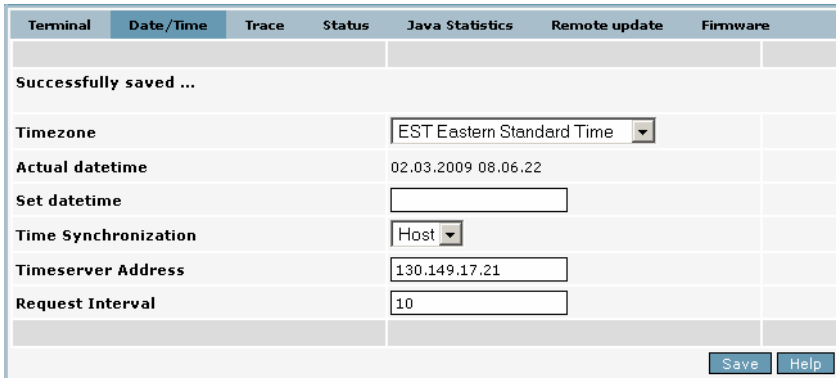
Terminal description	Input field for a description for the terminal, e. g. the location.
USB Stick Update	If this mode is active, updates can be performed via USB stick, e. g. a new application.xml file, or parameter changes through a systemParameters.xml file. Default **No**.

6.2.1.2 Date/Time

To open the Date/Time parameter page click on Date/Time in the menu bar in the upper part of the right frame.



or



Time zone The time zone definition of the terminal. Available choices are the standard time zones of America and Europe plus several explicit towns in America and Europe. (Default CET Central European Time.)

Actual datetime Read-only field of the actual date and time of the terminal in the time zone defined on the terminal.

Set datetime Here you can set the new date and time for the terminal. Follow the syntax shown in the Actual datetime field.

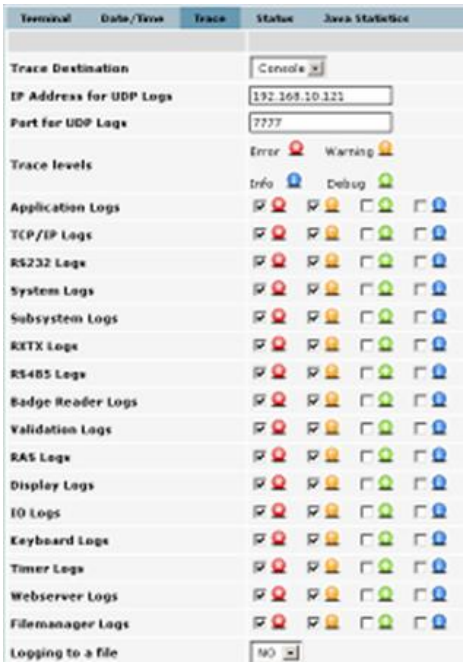
Time synchronization Time synchronization mode. Choices are **No**, **Interval**, **Host**. (Default **No**.) Interval mode uses an NTP Server for the time synchronization, Host mode uses the data connection server.

Time Server Address If Interval mode is used, the TCP/IP address of the NTP server.

Request Interval Interval of time requests in minutes, minimum 10 minutes, default 60.

6.2.1.3 Trace parameters

To open the Trace parameter page click on **Trace** in the menu bar in the upper part of the right frame.



Trace destination — Destination for trace messages. Choices are **Console** or **UDP** (default Console).

IP address for UDP logs — If UDP is used, the host TCP/IP address for the UDP logs.

Port for UDP logs — If UDP is used, the port number for the UDP logs.

Trace levels — The symbols for the different trace levels used in the list below. Red for Error, yellow for Warning, green for Debug, and blue for Info.

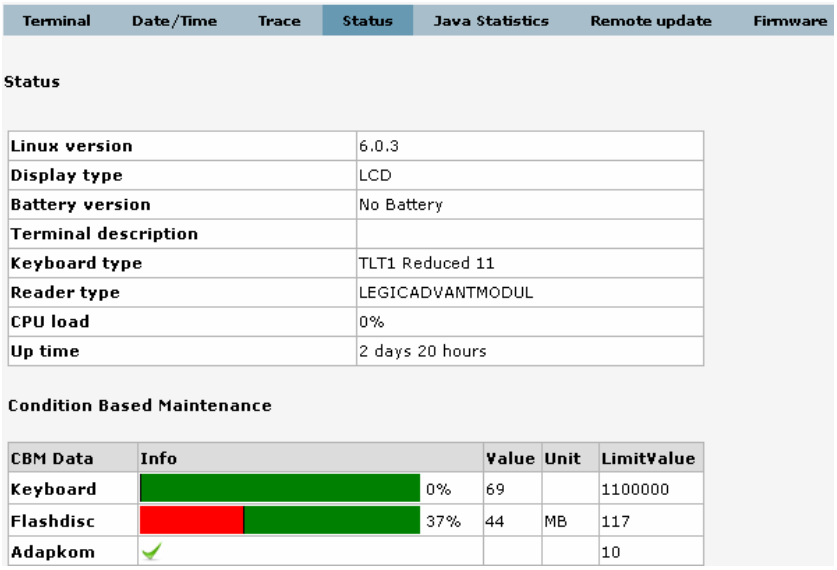
For Application logs, TCP/IP logs, RS232 logs, System logs, Subsystem logs, RXTX logs, RS485 logs, Badge Reader logs, Validation logs, RAS logs, Display logs, I/O logs, Keyboard logs, Timer logs, Webserver logs, and FileManager logs you can define the level of logs to be sent to the trace destination. Choices are **Error**, **Warning**, **Debug**, and **Info**. Default **Error**, **Warning**.

Logging to a file — If this value is set to Yes, trace messages are written into a file named **terminal.log** on the terminal. Default **No**.

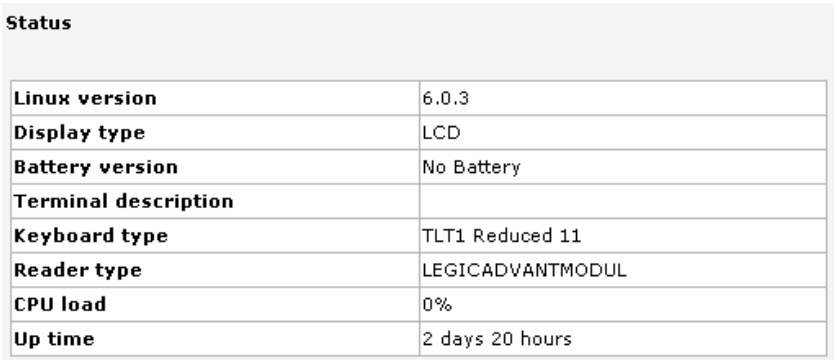
☞ **Note** — The file **terminal.log** might become quite big depending on the log levels chosen. A file that requires almost all flash disk space available might prevent the terminal from running. Therefore there is a limit of 10 MB for this file. If this limit is being reached the file will be re-written.

6.2.1.4 Status

To display the Status page of the terminal click on **Status** in the menu bar in the upper part of the right frame



General information



In the upper part of the page you will find general information about the terminal, like Linux version, display, rechargeable battery, keyboard and reader type.

Condition based Maintenance

The terminal provides Condition Based Maintenance Services, i. e. different subsystem components are being monitored and if a state is reached where the intervention of a service technician is required, this is shown in the Info column.

Condition Based Maintenance

CBM Data	Info	Value	Unit	LimitValue
Keyboard	0%	73		1100000
Flashdisc	35%	41	MB	117
Adapkom	✓			10
Host	OFL			
Display	4%	1914	hours	43680
Chargestate	⛔			
Memory	29%	38	MB	127
PoE	not inserted			
Reader	0%	2000		10000000
Temperature	⛔			

Jar Files

On the Status page you also find a summary of the software installed, with all the jar files and their version numbers

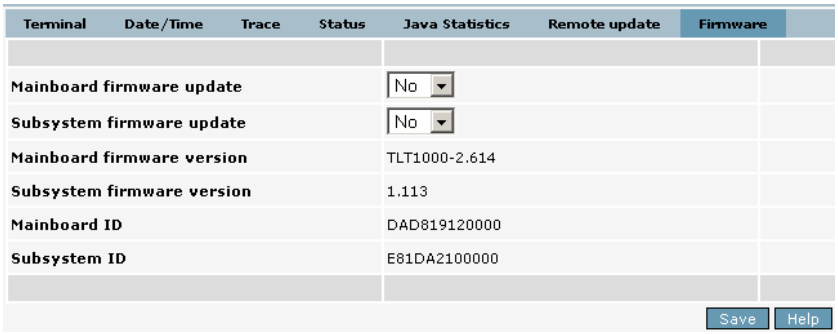
Jar Files

barcode-5-4-32.jar
barcodescanner-5-4-32.jar
wstl-5-4-32.jar
hidwieg-5-4-32.jar
iclass-5-4-32.jar
mifare-5-4-32.jar
timezones-5-4-32.jar
legic-5-4-32.jar

6.2.1.5 Firmware

The PIC software (firmware) on the motherboards (main board and subsystem) may now be updated through the web interface.

To open the Firmware Update parameter page click on **Firmware** in the menu bar in the upper part of the right frame.



☞ **Note**

The loadable firmware file has to be in the terminal directory /home/admin. The following names are fix:

V_bt_us_01.hex for the main board firmware

Vbt+us.hex for the subsystem firmware

Main board firmware update

If you set this parameter to YES, the terminal checks whether a loadable update file for the main board firmware exists (see note above) and if this is the case it reboots. During the reboot the new firmware is installed and activated by a further reboot.

Subsystem firmware update

If you set this parameter to YES, the terminal checks whether a loadable update file for the subsystem firmware exists (see note above) and if this is the case it reboots. During the reboot the new firmware is installed and activated by a further reboot.

Main board firmware version

Read-only field for the current firmware version of the main board.

Subsystem firmware version

Read-only field for the current firmware version of the subsystem.

Mainboard ID

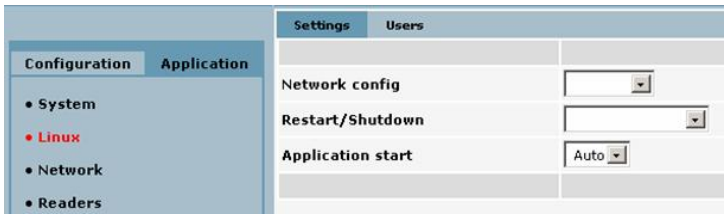
Read-only field for the unique ID of the main board. For better tracking all boards have a unique ID which is also part of the version string (terminal parameter page)

Subsystem ID

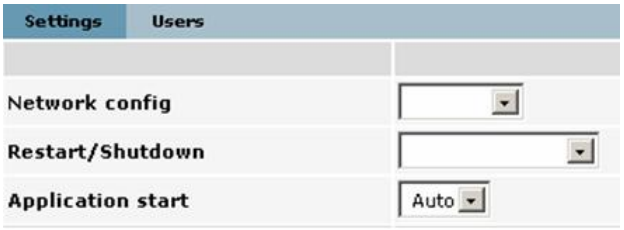
Read-only field for the unique ID of the subsystem For better tracking all boards have a unique ID which is also part of the version string (terminal parameter page).

6.2.2 Linux parameters

To open the Linux configuration pages click on **Linux** in the Configuration menu in the left frame.



6.2.2.1 Settings

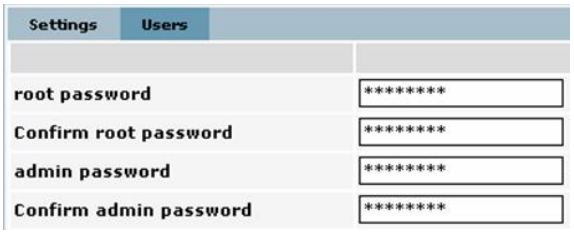


Network config — By selecting **Activate,** the network configuration in the operating system is activated. This is required after changing a network parameter.

Restart/Shutdown — By selecting **Shutdown linux**, **Reboot linux** or **Stop application,** the operating system or the application is restarted or stopped.

Application start — Value **Auto**, can not be changed. The application will be automatically started at system startup.

6.2.2.2 Users



root password The password of the user 'root' (default: root).

Confirm root password Re-enter the new root password.

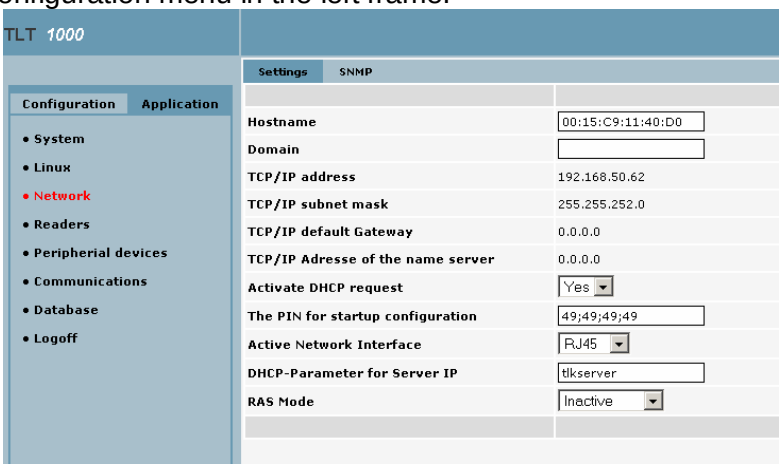
admin password The password of the user ‘admin’ (default admin).

Confirm admin password Re-enter the new admin password.

Note When you are logged in with the admin password, you are only authorized to change the admin password. To be able to change the root password, you have to log in with the root password.

6.2.3 Network parameters

To open the Network configuration page click on **Network** in the Configuration menu in the left frame.



Hostname — The host name for the terminal. (Default is the MAC address.)

Domain — The domain name for the terminal.

TCP/IP address — The TCP/IP address of the terminal.

TCP/IP subnet mask — The TCP/IP subnet mask of the terminal (default is 255.255.255.0).

TCP/IP default Gateway — The TCP/IP address of the default gateway. With the value set to NO, the default route to eth0 is used.

TCP/IP address of the name server — The TCP/IP address of the name server, if used.

Activate DHCP/BOOTP request — Allow or disallow the use of a DHCP/BOOTP Server for IP configuration. If this parameter is set to **Yes**, the four parameters above are disabled.

The PIN for startup IP configuration — The PIN to be entered at terminal startup to change the IP configuration for the terminal. The default for this terminal's reduced keyboard is four times the NUM key, i. e. 49;49;49;49) Leave blank to disable the start-up dialog.

Activate Network Interface — The network interface to be used, currently RJ45 only.

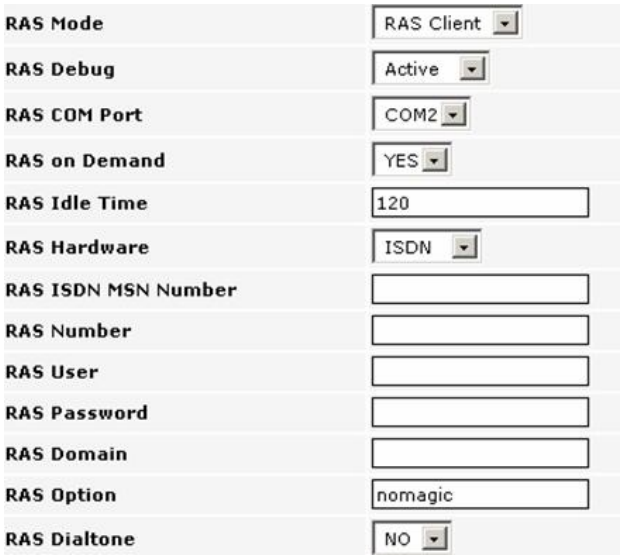
DHCP parameter for Server IP

In the DHCP configuration the DHCP parameter containing the host IP address which was sent by the DHCP server.

RAS mode

Activate or deactivate a pppd deamon as a client or in server mode. Default **Inactive**.

If you change the setting of the **RAS mode** parameter to **RAS Client**, further parameters become visible:



RAS Debug

Activate or deactivate the pppd daemon debug. Default **Active**.

RAS COM port

Sets the port the modem or ISDN device is connected to. Default **COM4**.

RAS on demand

Activates automatic dial-in (option Yes) or manual usage (option No). Default **No**.

RAS idle time

Defines the time (in seconds) to disconnect, when data traffic is idle. Default **120**.

RAS Hardware

Defines whether you have an ISDN or a Modem device. Default **ISDN**.

RAS ISDN MSN Number

Define your ISDN MSN Number.

RAS Number

The number that has to be dialed for the RAS connection.

RAS User

The authorized user for the RAS connection.

RAS Password

The password for the RAS User.

RAS Domain

The domain name to be used as prefix for the login user name.

RAS Option

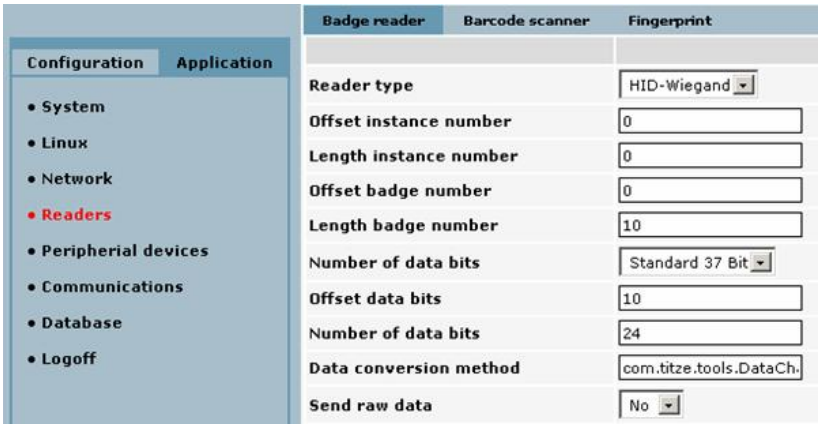
Optional field for the RAS connection.

RAS Dialtone

If the telephone system does not send a dial tone, set this parameter to **Yes** to send ATX1 to the modem. (Thus “busy” is not treated as error, as it would be the case when sending ATX3.) Default **No** (ATX4 = no carrier, no dialtone**,** busy lead to an error).

6.2.4 Readers

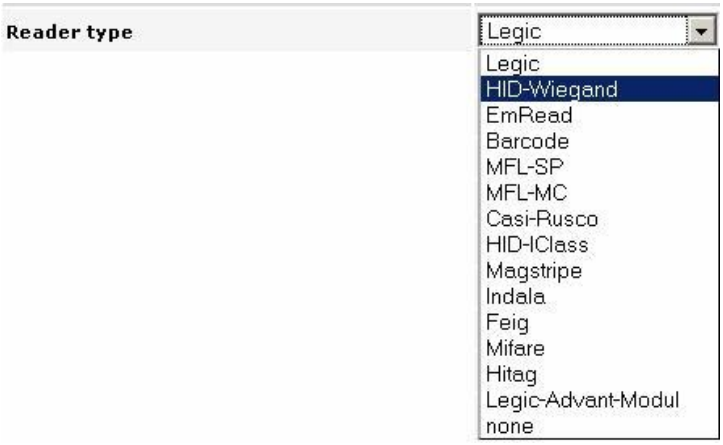
To open the Reader configuration pages click on **Readers** in the Configuration menu in the left frame.



6.2.4.1 Badge reader

The Badge reader parameter page is the default page in the reader's parameter group.

Reader type Type of badge reader installed in the terminal. Choices for the reader type:



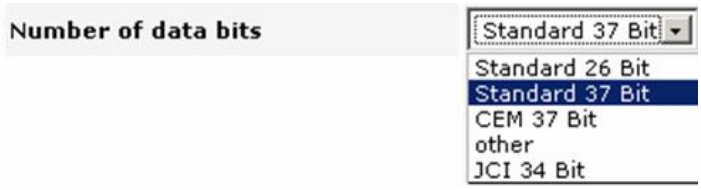
Offset instance number The offset of the instance number in the instance data string.

Length instance number The length of the instance number.

Offset badge number The offset of the badge number in the badge data string.

Length badge number The length of the badge number.

Number of data bits (HID-Wiegand only) Number of data bits on the badge. Available choices:



Offset data bits The index of the first valid data bit, starting with 0.

Number of data bits The number of valid data bits.

Data conversion method The method to convert the data received (format: package.class.method).

Offset number (Casi-Rusco only) The value to manipulate the badge number will be subtracted from the fetched number.

Activate parity check (Casi-Rusco only) Activate the standard Parity Check (Length Parity of 40 Bit). Choices: Yes and No (default Yes).

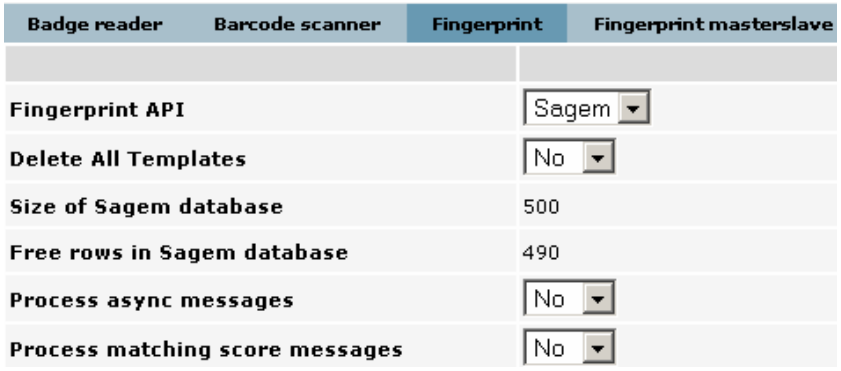
Send raw data (HID and Barcode only) Sends the data received from the reader as raw data. Default **No**.

☞ Note

There are additional parameters for the reader type **Legic-Advant-Module**, which are self-explanatory after clicking on the **Help** button.

6.2.4.2 Fingerprint parameters

To open the Fingerprint parameter page click on Fingerprint in the menu bar in the upper part of the right frame.



Fingerprint API — The choice of Fingerprint APIs may vary, depending on the fingerprint.jar files on the terminal. If there are no fingerprint.jar files on the terminal, only the choice **none** is available.

Delete all Templates — (Sagem only) With this parameter you can delete all existing templates in the Sagem internal database.

Size of Sagem database — (Sagem only) The current size of the internal database on the Sagem module. If this size is changed, all existing templates will be deleted.

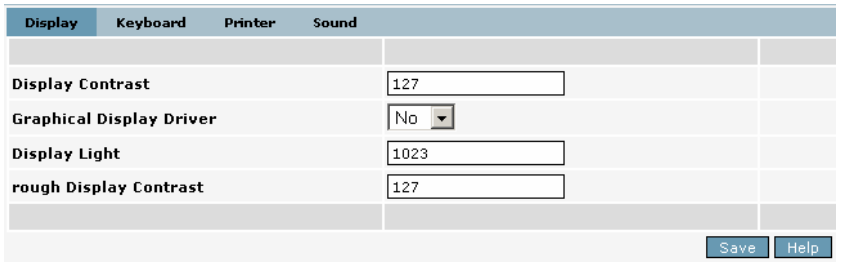
Free rows in Sagem database — (Sagem only) Shows the number of free datasets in the Sagem internal database.

Process async messages — If this parameter is set to NO, the dialog messages from the Sagem module such as “Press harder”, “Finger up” etc. are suppressed. The default is Yes.

Process matching score messages — If you need the matching score for the finger as a return value for your application, you can set this parameter to Yes. The default is No.

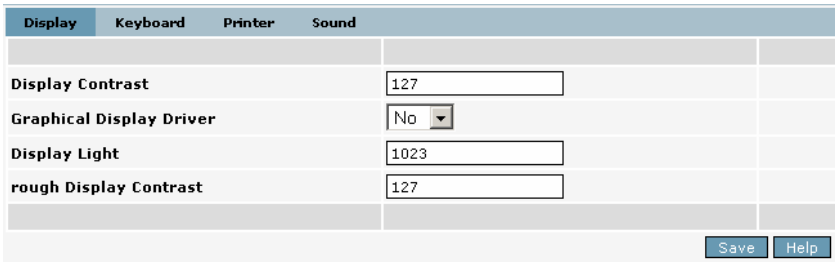
6.2.5 Peripheral devices

To open the configuration pages for peripheral devices click on **Peripheral devices** in the Configuration menu in the left frame.



6.2.5.1 Display

The Display parameter page is the default page in the parameter group for peripheral devices.

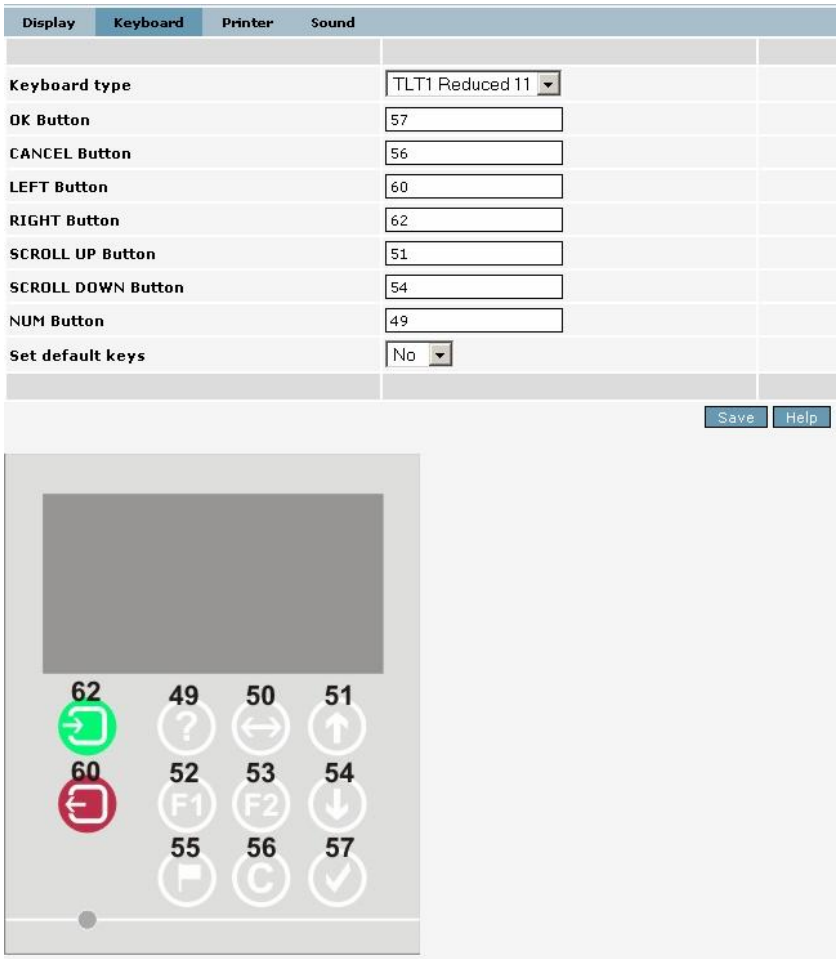


Display Contrast With this parameter you can change the display contrast of the terminal's display.

Graphical Display Driver If you want to use Unicode characters for your display texts you have to switch to the graphical display driver. If you change this parameter to Yes, the terminal first verifies if the required libraries are installed. You have to reboot in order to load these libraries.

6.2.5.2 Keyboard parameters

To open the Keyboard parameter page click on **Keyboard** in the menu bar in the upper part of the right frame.


Display
Keyboard
Printer
Sound
Keyboard type
TLT1 Reduced 11
OK Button
57
CANCEL Button
56
LEFT Button
60
RIGHT Button
62
SCROLL UP Button
51
SCROLL DOWN Button
54
NUM Button
49
Set default keys
No
Save
Help
62
49
50
51
60
52
F1
53
F2
54
55
56
C
57

Keyboard type

The type of keyboard used on the terminal.

Note

For the TT1000 with 11 keys only **TLT1 Reduced 11** is a valid choice.

OK button … SCROLL DOWN button

With the keyboard type **Reduced** you have to define at least 5 keys valid for the start-up procedure: OK, CANCEL, LEFT, NUMBER, and one of the SCROLL keys. Since your keyboard has more than 5 keys you can also define the RIGHT key and the second SCROLL key.

NUM button

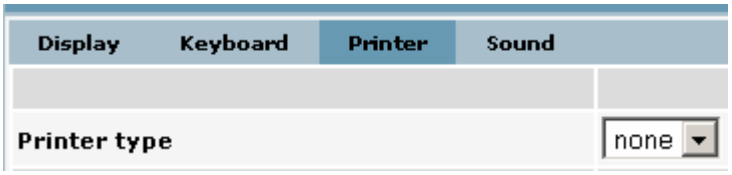
By default this button is used as the reduced keyboard PIN button for entering the start-up dialog. Instead of pressing the numeric buttons 1234 on a full keyboard you have to press 4 times the NUM button defined here.

Set default keys

If set to YES, the keys defined on this page are set, in particular the NUM button is set as PIN code (compare with Network parameter page).

6.2.5.3 Printer

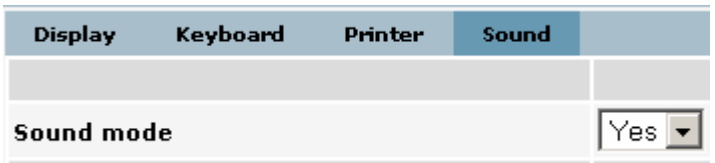
To open the Printer parameter page click on Printer in the menu bar in the upper part of the right frame.



You may connect a printer to the COM1 port of the terminal. The choice of Printer types may vary. If there is no printer.jar file on the terminal, only the choice **none** is available.

6.2.5.4 Sound

To open the Sound parameter page click on **Sound** in the menu bar in the upper part of the right frame.

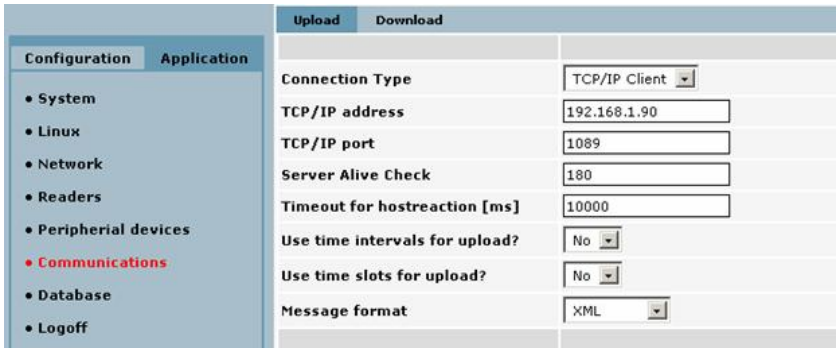


Sound mode

If you want to deactivate all acoustic signals, set the sound mode to NO (default YES).

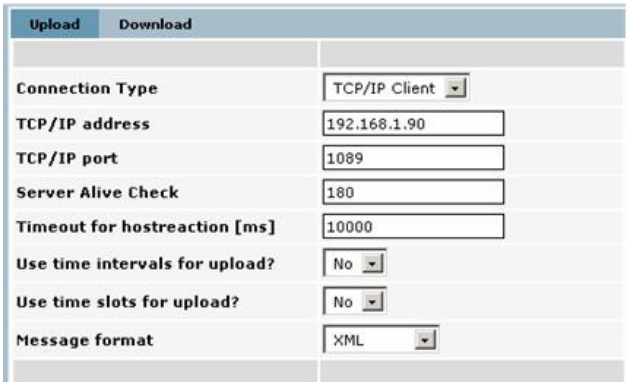
6.2.6 Communications parameters

To open the Communications configuration pages click on **Communications** in the Configuration menu in the left frame. With the Communications parameters you configure your host connection.



6.2.6.1 Upload

The Upload parameter page is the default page in Communications parameter group. It describes the communication from the terminal to the host.



Connection type — The protocol to be used for sending messages to the host. Choices are **FTP**, **TCP-Client**, **TCP-Server, TN3270** and **Web Service**. (A TCP-Server is waiting for a connection request and a TCP-Client is trying to open the connection.) Default **TCP-Client**.

TCP/IP address — The TCP/IP address used for the host data connection.

TCP/IP port — The TCP/IP port used for the host data connection, default 1089.

Server alive check — The interval in seconds between the server alive check, default 180.

Time-out for host reaction [ms] — Time-out interval for a confirmation message from the host (ms). Default **10000**.

Use time intervals for upload? — Currently only for the connection type FTP. If this option is set to **Yes**, the connection to the FTP server will be established every *n* minutes, where *n* is the connection interval you specify in the next field. Default **No**.

Upload connection interval — The time interval in minutes you want the connection to the FTP server to be established. Choose an interval not less than 10.

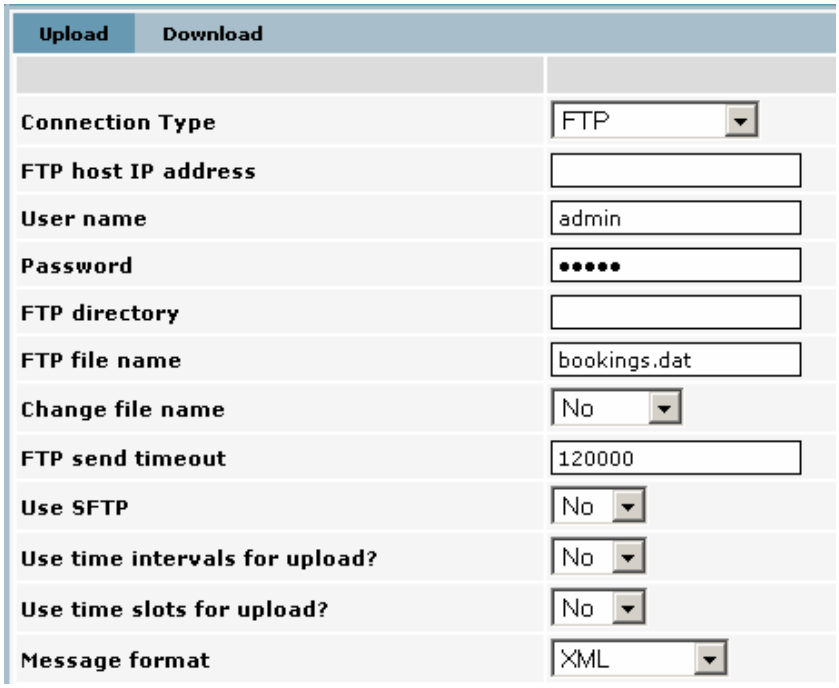
Use time slots for upload? — By using online time slots you can restrict the permanent host connection to the specified periods of time. If you set this parameter to Yes you have to at least define one start-end-pair, during which the connection to the host is to be established. You can define up to 10 time slots. Default **No**.

Interval *n* Start [HH:MI] — The time to go online in the format hh:mi.

Interval *n* End [HH:MI] — The time to go offline in the format hh:mi. If lower than the start time, the next day is assumed. Note that for the connection type FTP only the start time applies.

Message format — Defines the format in which the messages are to be sent to the host. Default **XML**.

After choosing and saving the Connection Type option **FTP**, the following parameters are added to the page:



FTP host IP address The IP address of the FTP server.

FTP user name The name of the authorized user on the FTP server. Default **admin**.

FTP password The password for the FTP user. Default **admin**.

FTP directory The directory on the FTP server to which the file transfer should take place. If this parameter is left empty, the connection will be established to the default directory set up for the user.

FTP file name The name of the FTP file. Default **bookings.dat**.

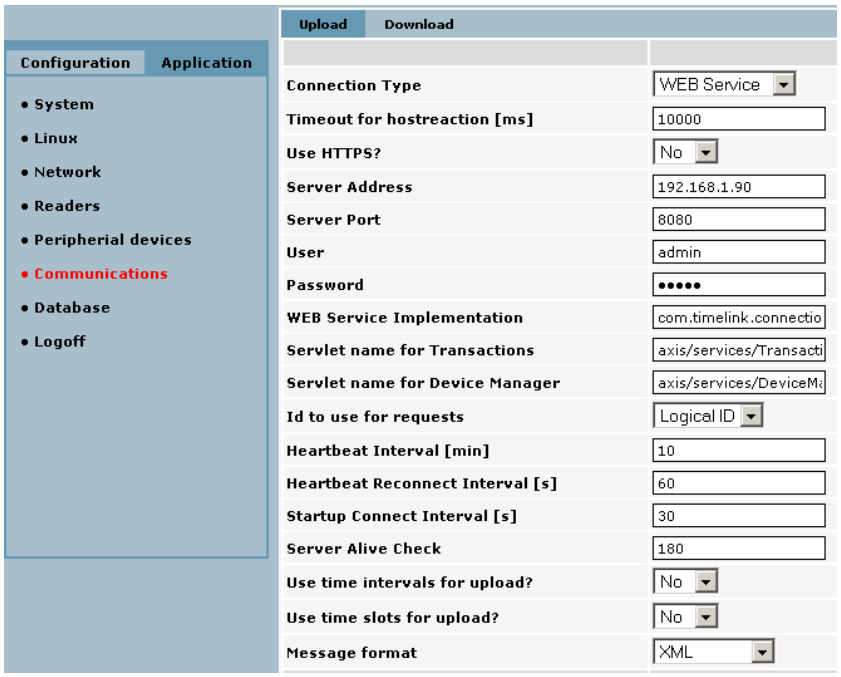
Change file name The rule for changing the file name on the FTP server. Either no change or change by adding a timestamp to the file name. Default **No**.

FTP send timeout The waiting time in case the previous version of the specified file has not been removed from the server. During this time the file will be resent. Default **120000** (ms).

Use SFTP If you set this parameter to **Yes**, all transfers are executed with Secure FTP. Default **No**.

☞ **Note** In order to activate the FTP connection either the parameter **Use time intervals?** or **Use time slots?** has to be set to **Yes**. When using time slots only the start time is considered, not the end time.

After choosing and saving the Connection Type option **Web Service**, the page content changes to the following:



Special web service parameters:

Use HTTPS? — If this mode is active, a secure communication is used. The terminal first has to request a certificate from the web server though. Default **No**.

Server Address — The IP address or the hostname of the server.

Server Port — The port of the server to connect to. Default **8080** for http.

User — The authenticated user for the web service.

Password — The password of the web service user.

Web Service Implementation — The class name of the web service implementation, default com.timelink.connection.webservice.WSServerConnectionTL.

(For USA more often used: …WSServerConnectionTLUS)

Servlet name for Transactions — The servlet (complete path) for receiving the transactions.

Servlet name for Device Manager — The servlet (complete path) for processes other device messages such as the heart beat.

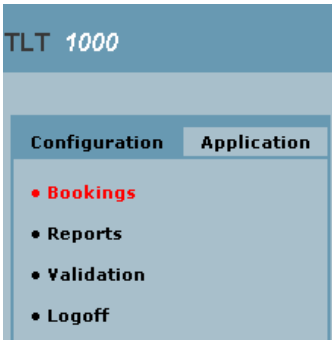
Id to use for requests — The ID used for server requests. This can be either the logical ID (the field **Local terminal address** on the terminal parameter page) or the name (the field **Hostname** on the network parameter page, by default the MAC address).

Heartbeat Interval — The interval between heart beat messages in minutes, minimum

	5 minutes, default 10 minutes.
Heartbeat Reconnect Interval	For the offline case: the interval between reconnection tries in seconds, minimum 10 seconds, default 60 seconds.
Startup Connect Interval	For the offline case at startup: the interval between reconnection tries in seconds, minimum 10 seconds, default 30 seconds.
☞ Note	It is recommended to set the parameter **Timeout for host reaction** to 45 seconds (value 45000). Also it is recommended to set the parameter **Server alive check** to 0, because the alive check with Web service is done by heartbeats.

6.3 Application parameters

To open the application parameter group list, click on **Application** in the left frame.



6.3.1 Application parameter groups - overview

Bookings If you want to resend bookings to the host system, that have already been transferred before.

Reports To show certain transaction according to your selection criteria.

6.3.2 Resend bookings parameters

If the transactions that are stored in the transaction booking file on the terminal are to be sent again to the host system, the desired period of time and/or the badge number can be specified. According to this value the transactions are extracted from the bookings files and resent to the host.

Transfer Punches From The start date/time for the retransmission of bookings. The format is DDMMYYYYHHMISS, e. g. 15052005120000.

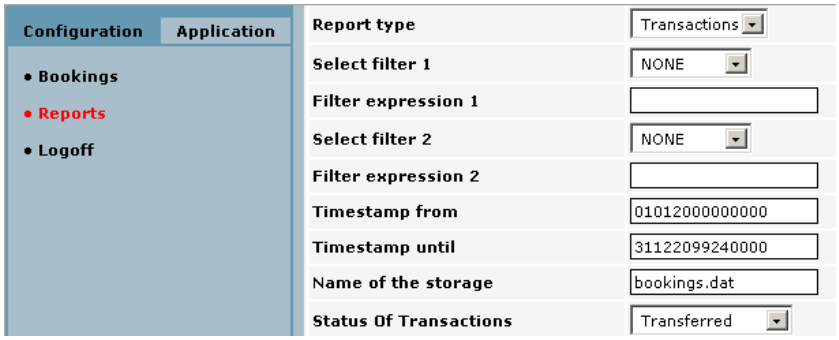
Transfer Punches Until The end date/time for the retransmission of bookings. The format is DDMMYYYYHHMISS, e. g. 15052005235959.

Source file The name of the file, from which the punches should be selected and sent again (as defined in the application.xml file, e.g. bookings.dat). Default **bookings.dat**.

Badge Number The badge number for which the bookings should be resent. If no badge number is entered, the transactions for all badge numbers are resent.

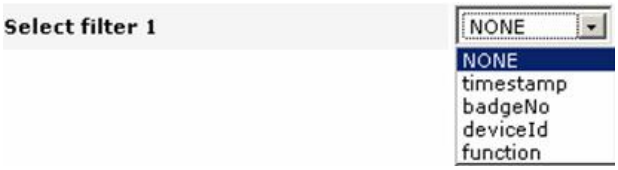
6.3.3 Reports parameters

To open the Reports parameter page click on **Reports** in the Application menu in the left frame.



Report type Currently Transactions only.

Select filter 1 | 2 The field in the transaction record by which the records will be filtered. The fields depend on the definition in the application.xml file. By default the fields timestamp (format DDMMYYYYHHSS), badgeNo (badge number), deviceId (local terminal address), function (booking type) are defined.



Filter expression 1 | 2 The value for the filter 1 | 2.

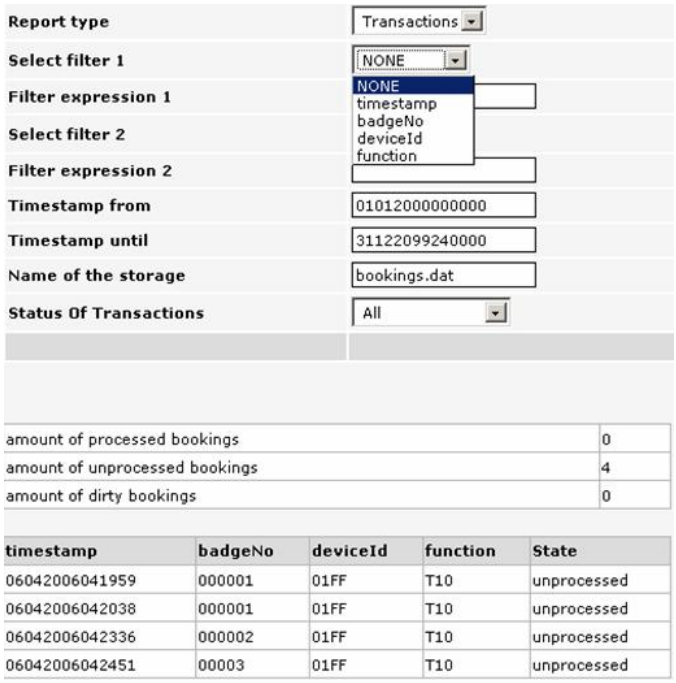
Timestamp from The start date for the list of transactions (format DDMMYYYYHHMISS).

Timestamp until The end date for the list of transactions (format DDMMYYYYHHMISS).

Name of storage The name of the transaction storage file (as defined in the application.xml file, e.g. bookings.dat). Default **bookings.dat**.

Status of Transactions The status of the transactions to be selected.

After clicking on **Save** the report will be shown in the bottom part of the page:



In the general part of the report the total amounts of processed, unprocessed and dirty bookings is listed, no matter what status of transaction has been chosen.

In the lower part the transactions meeting the selection criteria are shown.

7 Fingerprint terminals in practice

7.1 Introduction

Before performing transactions with a fingerprint terminal you have to collect (enroll) the templates of all users. The templates are stored in the Sagem fingerprint module.

If the internal data base of the module is empty and a user presses the key for e.g. Clock In, immediately the message “Invalid ID” is displayed. This is no error but a hint, that so far no user has been enrolled.

7.2 Enrollment process

The exact flow of the enrollment process is defined in the application.xml configuration file. In any case it is required to read 2 finger prints three times each, of which the best one for each finger is stored. Also it is required to specify an ID, under which the templates are stored and which is provided as the answer to a successful identify.

The dialog for the enrollment process is protected by a PIN code and should only be called by an administrator. Typically the key with the flag is assigned for calling this dialog.

7.2.1 Calling the main menu

After pressing the key with the flag symbol you are requested to enter the PIN code. It is the same PIN code as for the startup dialog, by default press 4 times the key with the question mark. (For information how to change this PIN code, see below.) After entering the correct PIN code and pressing the OK button the main menu is displayed:

Please select option:

(flag) Enroll admin

? Enroll user

F1 Delete user

F2 Delete ALL

For selecting an option press the key listed in the left column.

With the options **Enroll admin** and **Enroll user** new user are enrolled (depending on the application there may be an admin user with more privileges.). With the option **Delete user** you delete the templates for a single user ID, with the option Delete ALL the whole data base of the Sagem module, i. e. all templates enrolled.

7.2.2 Enroll

After pressing the key for **Enroll admin** or **Enroll user** you are requested to enter the ID for the enrollment. Press the key with the question mark to change the first digit to 0. Then press the ? key as often as necessary to change the digit to the desired value. The cursor is automatically moved right by a timeout. Furthermore you can control the cursor with the green and red button. Confirm the ID by pressing the OK button.

The fingerprint module is being activated; i. e. shows the red light. The user has to follow the dialog that instructs him to place one finger three times on the reader and afterwards a second finger three times. In doing so the red light turns off for a short time after each successful read. In case of a successful enroll a message is displayed. Otherwise an error message is displayed and the enrollment step must be repeated.

7.2.3 Delete user

After pressing the key for **Delete user** the administrator can delete the templates for a certain user, more precisely for a certain ID.

After entering the ID (again with the ? key) a confirmation screen is displayed. When confirming this screen with OK the templates for this ID are deleted from the Sagem module.

7.2.4 Delete all

With the option **Delete all** the administrator can delete all templates in the Sagem module. Use this option with care because after that all users have to re-enroll. Therefore the administrator is asked twice to confirm the delete request, before the templates are really deleted.

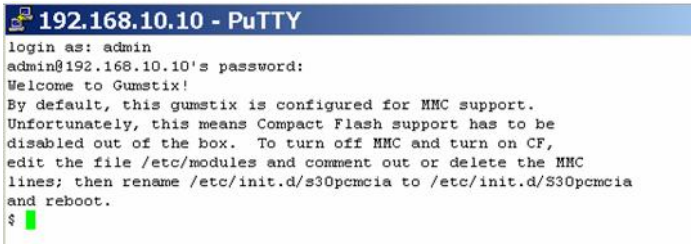
8 Appendix for Developers

8.1 Linux commands

8.1.1 Connecting to the terminal

SSH

Start an SSH client (e. g. putty) and log in as the user **admin** with the password **admin** (default).



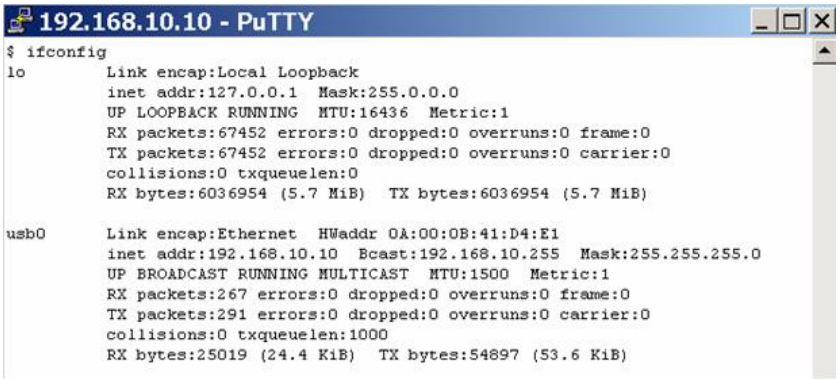
At this prompt you can enter basic Linux commands as described in the following. Note that different from other standard Linux distributions you can not call any help for the commands.

8.1.2 Basic Linux commands

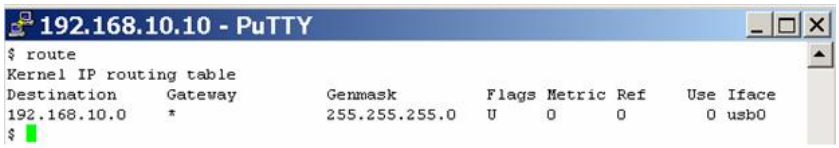
Display the network configuration

Command **ifconfig**. Shows the IP address, the MAC address and the subnet mask.

Output:



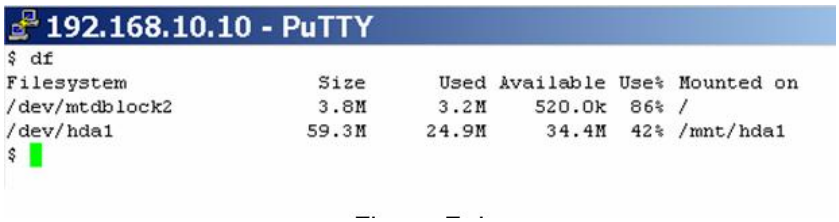
Command **route**. Shows routing information. Output:


192.168.10.10 - PuTTY
$ route
Kernel IP routing table
Destination Gateway Genmask Flags Metric Ref Use Iface
192.168.10.0 * 255.255.255.0 U 0 0 0 usb0
$

Display free disk space

Command **df**. Shows the partitions on the “Filesystem” and their usage.

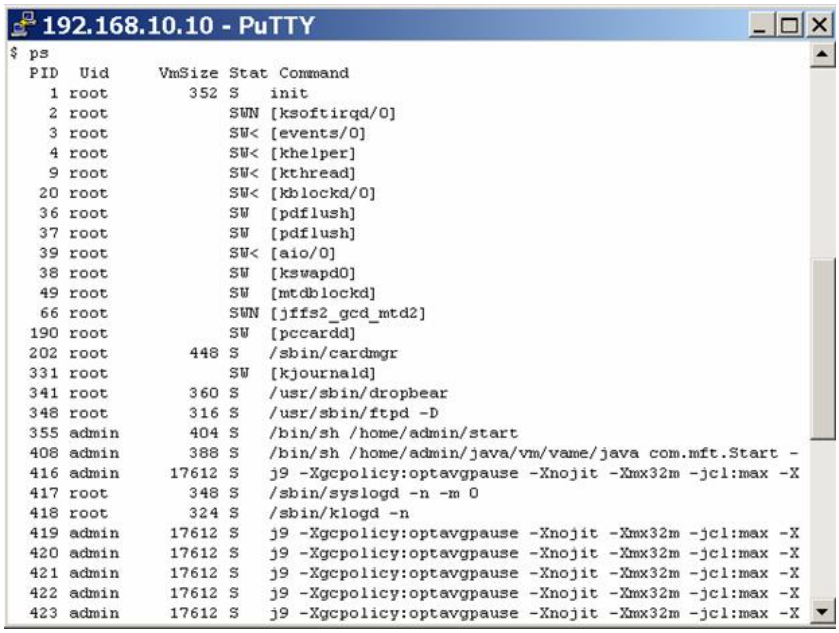
Output:



Display active processes

Command **ps**. Shows all active processes.

Output:



Relevant for the terminal application are the start process and the j9 processes.

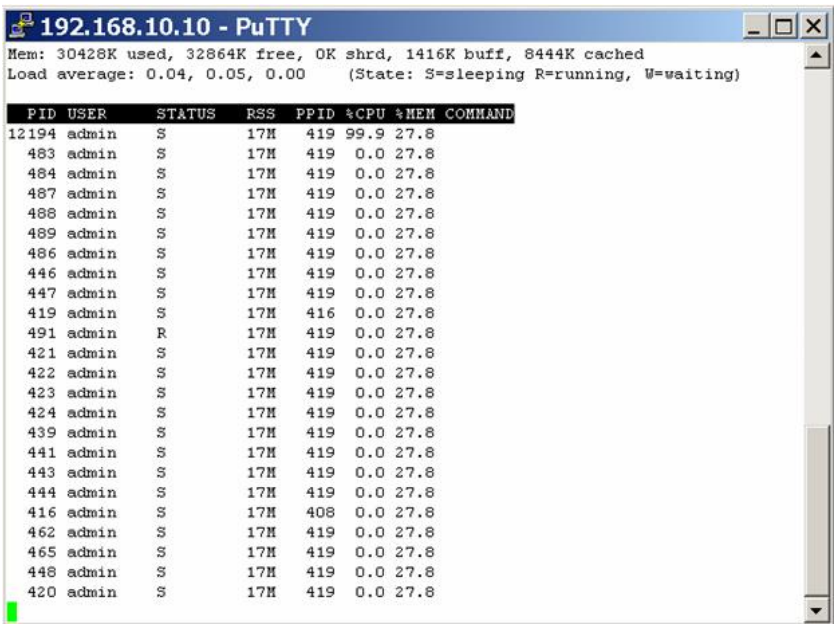
Stop application processes

Command **killall start start2 j9**. Stops all processes with the name start, start2, and j9. After that e. g. the software can be updated and the terminal can be restarted with the command reboot.

Display the current process activities

Command **top**. Shows the processes at runtime and the system load.

Output:



The command top will continue until you terminate it with Ctrl+C.

Restart the terminal

Command **reboot**. The running application will be terminated and then restarted.

Halt the Linux system

Command **halt**. With this command the operating system will be stopped. The terminal can then be switched off. In contrast to stopping the application processes (kill) you can not access the terminal (via ftp or ssh) after issuing this command.

Delete files and directories

Command **rm**. Deletes (with the option–rf even recursively) files and directories.

Example for deleting the database with terminal parameters. Enter these commands from the directory /java/apps:

rm –rf database*

rm –rf http*

rm –rf rxtx*

Check the Compact Flash for errors

First use the command df to get the partition names. Then log in as user root with the correct password (default root).

After stopping the application issue the command **badblocks** for the existing partitions.

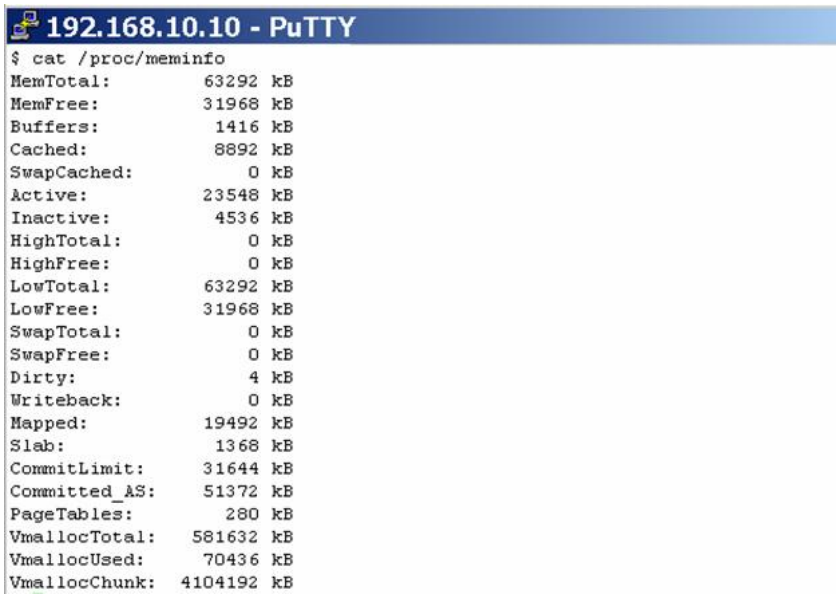
Example: badblocks /dev/hda1 and

badblocks /dev/mtdblock2

Important: This command does not return any message if no bad blocks are found.

Check the memory usage

A simple way to query the memory usage, is to show the content of the file meminfo, entering the command **cat/proc/meminfo**



8.2 Web interface page Database

With the option **Database** of the Configuration menu you can open a window in which SQL command can be passed directly to the terminal database.

The table **TERMINAL_PARAM_DEFS** contains default parameter definitions depending on the terminal type, here the terminal type is **TLT3**.

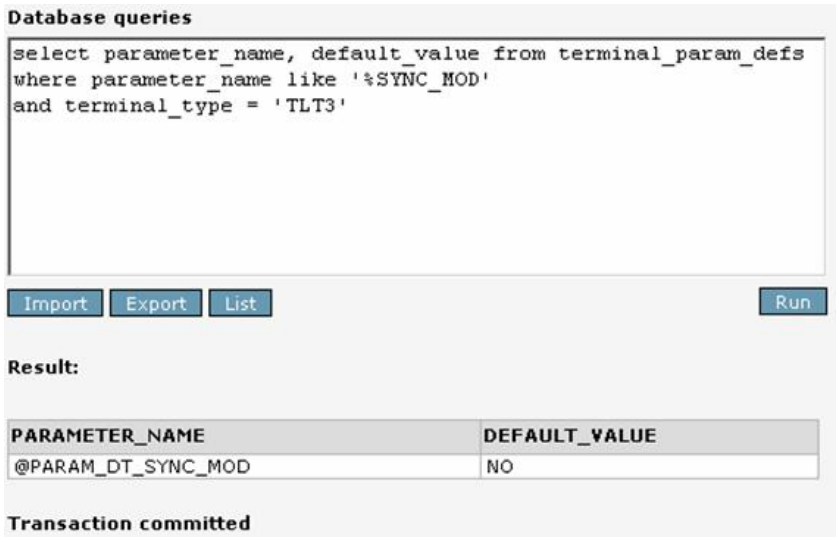
The table **TERMINAL_PARAMS** contains the actual values for the terminal-type-based parameters.

Note

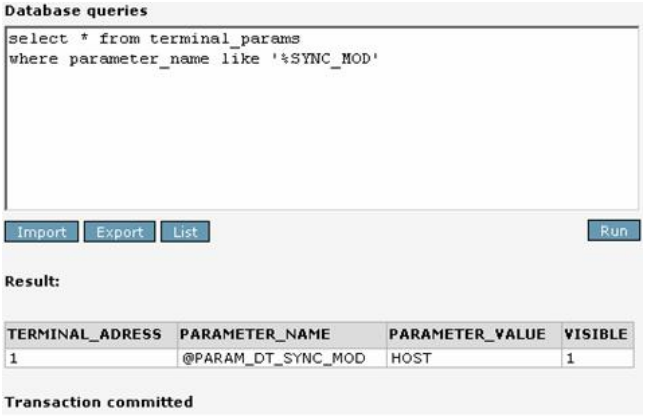
Use the percentage sign (%) as a wildcard instead of the asterisk (*) in your queries.

Example

Select the default value for the Date/Time parameter Time Synchronisation.



Select the actual value for the Date/Time parameter Time Synchronisation.



Note that the default value is NO, whereas the actual value is HOST.

8.3 Web interface page Java Statistics

With the menu option **Java statistics** in the System menu bar in the upper part of the right frame you can open a window in which the status of the virtual machine is displayed. All the active threads as well as the memory values are shown. The Garbage Collector can be activated manually using the button at the bottom.