



Terminal Configuration Manual **TT1000 Series**

Version 1.1

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Terminal Configuration Manual

TT1000 Series

Version 1.1

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1 Content

1	Content	1-4
2	Terminal specification	2-6
2.1	Feature overview	2-6
3	Setting up the TT1000 Series terminal	3-8
4	Keyboard assignment	4-10
4.1	Key assignment - reduced keyboard (11 keys).....	4-10
5	Terminal start-up	5-11
5.1	Using the start-up prompts.....	5-11
5.2	Changing the start-up prompts.....	5-13
6	Parameter description	6-15
6.1	General parameter description.....	6-15
6.1.1	How to display the web interface.....	6-15
6.1.2	Configuration parameters.....	6-16
6.1.3	Configuration parameter groups – overview.....	6-17
6.2	Detailed parameter description	6-17
6.2.1	System configuration.....	6-18
6.2.2	Linux parameters	6-26
6.2.3	Network parameters.....	6-28
6.2.4	Readers	6-30
6.2.5	Peripheral devices	6-33
6.2.6	Communications parameters	6-36
6.3	Application parameters	6-42
6.3.1	Application parameter groups - overview	6-42
6.3.2	Resend bookings parameters	6-43
6.3.3	Reports parameters	6-44

7	Fingerprint terminals in practice	7-46
7.1	Introduction.....	7-46
7.2	Enrollment process.....	7-46
7.2.1	Calling the main menu.....	7-46
7.2.2	Enroll.....	7-47
7.2.3	Delete user.....	7-47
7.2.4	Delete all.....	7-47
8	Appendix for Developers	8-48
8.1	Linux commands.....	8-48
8.1.1	Connecting to the terminal.....	8-48
8.1.2	Basic Linux commands.....	8-48
8.2	Web interface page Database.....	8-53
8.3	Web interface page Java Statistics.....	8-55

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, Mi-fare, 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 or modifications 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

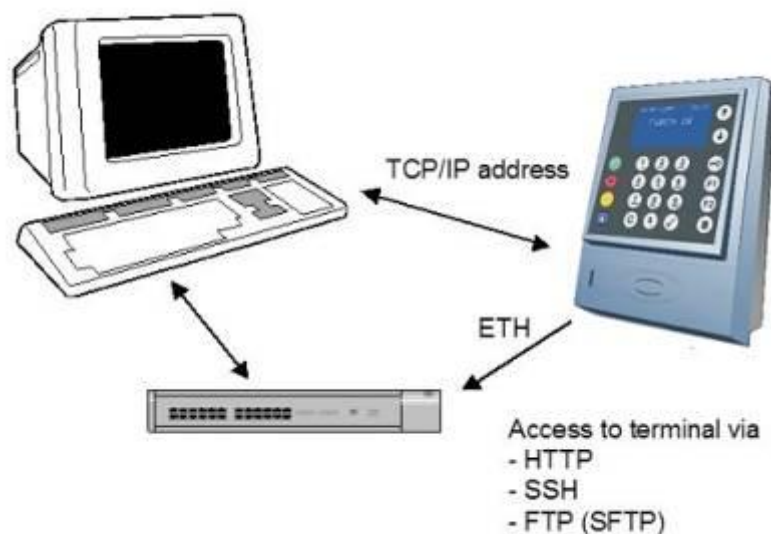
This device must accept all interference received, including interference that may cause undesired operation.

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**

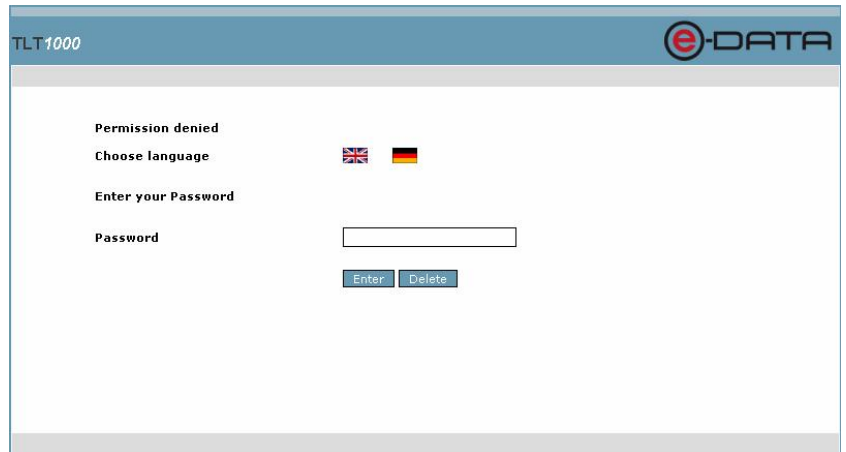
For transferring data to an FTP client (also SFTP possible).

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

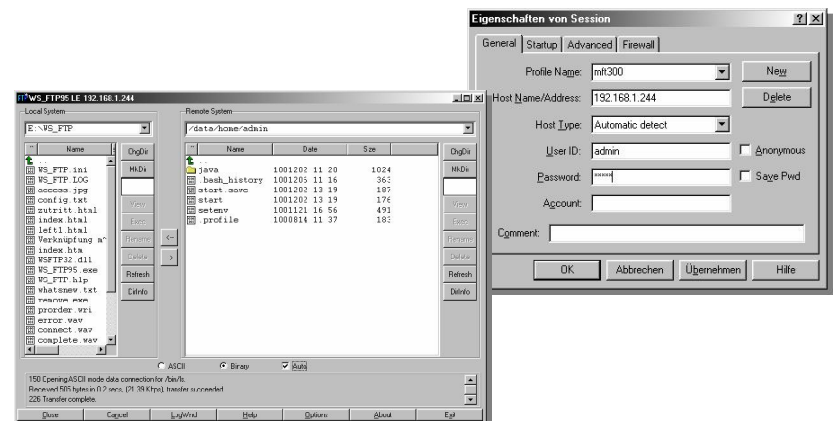
Start an SSH client and open a session to the terminal's assigned IP address. Log in as the user **admin** with the password **admin** (default).



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.

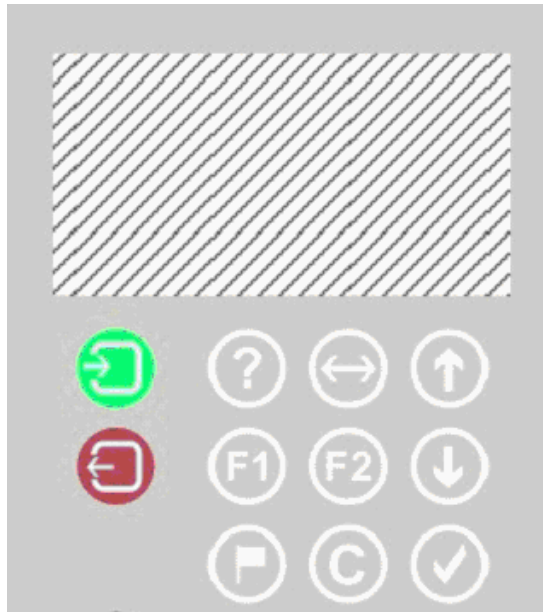


The initial directory displayed is **/mnt/hda1/admin**.

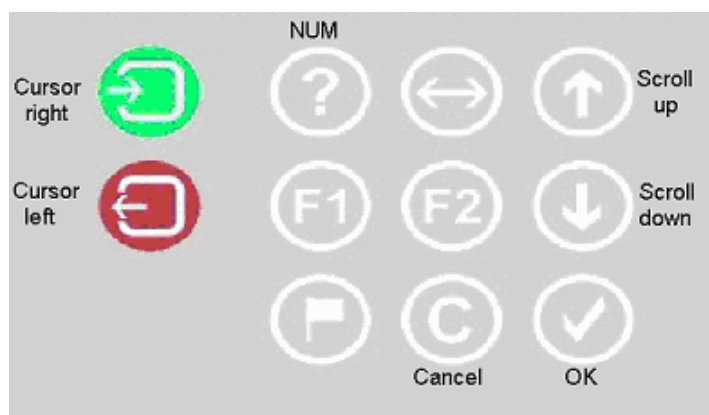
4 Keyboard assignment

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 ipconfig 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:

- ipconfn=keyboard – for the dialog “Define keyboard”
- ipconfn=serviceMode – for the dialog “Activate service mode”
- ipconfn=test – for the dialog “Activate test”
- ipconfn=deviceId – for the dialog “Logical device ID”
- ipconfn=networkIF – for the dialog “Interface” with the choices “eth0” and “wlan”
- ipconfn=dhcp – for the dialog “Use DHCP”
- ipconfn=ipAddress – for the dialog “TCP/IP address”
- ipconfn=gateway – for the dialog “Gateway address”
- ipconfn=subnetMask – for the dialog “Subnet mask”
- ipconfn=dns1 – for the dialog “DNS 1”
- ipconfn=dns2 – for the dialog “DNS 2”
- ipconfn=proxy – for the dialog “Proxy Server”
- ipconfn=proxyPort – for the dialog “Proxy Port”
- ipconfn=hostAddress – for the dialog “Host Address”
- ipconfn=hostPort – for the dialog “Host Port”
- ipconfn=rashw – for the dialog “RAS Hardware” with the choices “Modem” and “ISDN”
- ipconfn=rashNumber – for the dialog “RAS Number”
- ipconfn=rashUser – for the dialog “RAS User”
- ipconfn=rashPwd – for the dialog “RAS Password”
- ipconfn=rashDomain – for the dialog “RAS Domain”
- ipconfn=rashOption – for the dialog “RAS Option”
- ipconfn=rashTest – for the dialog “Test RAS Connection”
- ipconfn=timeSync – for the dialog “Time Sync Mode”
- ipconfn=timeZone – for the Time zone dialogs
- ipconfn=com.timelink.biometrics.fingerprint.IpSettings TemplatesErasure – for the dialog “Erase all templates?”
- ipconfn=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:

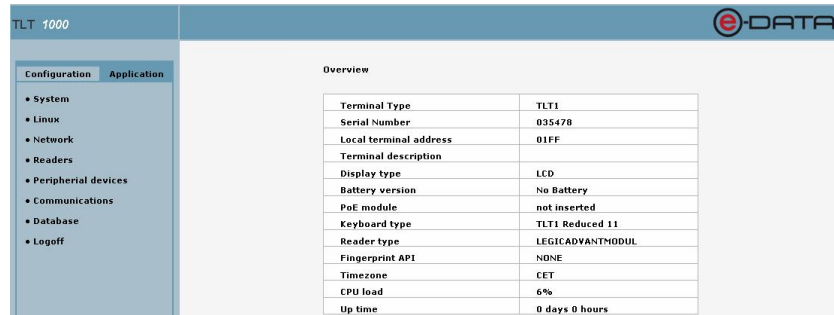
Example: http://terminal_ip_address where the “terminal ip address” is that of your TT1000 Series terminal.



The screenshot shows a web browser window with the title "TLT1000" and the "e-DATA" logo in the top right corner. The main content area displays a login interface. At the top, it says "Permission denied". Below that, there is a "Choose language" section with two radio buttons: one for English (represented by the UK flag) and one for German (represented by the German flag). Underneath, it says "Enter your Password" followed by a "Password" label and a text input field. At the bottom of the form, there are two buttons: "Enter" and "Delete".

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

The Overview page is opened.



Overview	
Terminal Type	TLT1
Serial Number	035478
Local terminal address	01FF
Terminal description	
Display type	LCD
Battery version	No Battery
PoE module	not inserted
Keyboard type	TLT1 Reduced 11
Reader type	LEGICADVANTMODUL
Fingerprint API	NDNE
Timezone	CET
CPU load	6%
Up time	0 days 0 hours

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.

Terminal	Date/Time	Trace	Status	Java Statistics	Remote update	Firmware
Local terminal address	<input type="text" value="01FF"/>					
Default language	<input type="text" value="English"/>					
Application Class	<input type="text" value="Application"/>					
Console Mode	<input type="text" value="COM1"/>					
Terminal version	TLT1000-2.614_none_7_6_DAD819120000_E81DA2100000_1.113_					
Polling Settings	<input type="text" value="100"/>					
Display switchoff	<input type="text" value="No"/>					
Service mode	<input type="text" value="Yes"/>					
Test application	<input type="text" value="No"/>					
Alarm mode	<input type="text" value="No"/>					
Terminal description	<input type="text"/>					
USB Stick Update	<input type="text" value="Yes"/>					

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.

Terminal	Date/Time	Trace	Status	Java Statistics	Remote update	Firmware
Timezone						
				EST Eastern Standard Time ▾		
Actual datetime				02.03.2009 14.05.34		
Set datetime				<input type="text"/>		
Time Synchronization				No ▾		
						Save Help

OR

Terminal	Date/Time	Trace	Status	Java Statistics	Remote update	Firmware
Successfully saved ...						
Timezone						
				EST Eastern Standard Time ▾		
Actual datetime				02.03.2009 08.06.22		
Set datetime				<input type="text"/>		
Time Synchronization				Host ▾		
Timeserver Address				<input type="text" value="130.149.17.21"/>		
Request Interval				<input type="text" value="10"/>		
						Save Help

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 FileManagerer 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

Terminal	Date/Time	Trace	Status	Java Statistics	Remote update	Firmware
Status						
Linux version	6.0.3					
Display type	LCD					
Battery version	No Battery					
Terminal description						
Keyboard type	TLT1 Reduced 11					
Reader type	LEGICADVANTMODUL					
CPU load	0%					
Up time	2 days 20 hours					
Condition Based Maintenance						
CBM Data	Info	Value	Unit	LimitValue		
Keyboard		0%	69		1100000	
Flashdisc		37%	44	MB	117	
Adapkom					10	






General information

Status	
Linux version	6.0.3
Display type	LCD
Battery version	No Battery
Terminal description	
Keyboard type	TLT1 Reduced 11
Reader type	LEGICADVANTMODUL
CPU load	0%
Up time	2 days 20 hours

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.

Terminal	Date/Time	Trace	Status	Java Statistics	Remote update	Firmware
Mainboard firmware update				No		
Subsystem firmware update				No		
Mainboard firmware version				TLT1000-2.614		
Subsystem firmware version				1.113		
Mainboard ID				DAD819120000		
Subsystem ID				E81DA2100000		
						Save Help



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

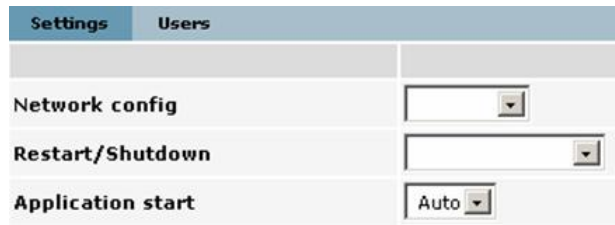
Read-only field for the unique ID of the subsystem For better tracking all boards have a unique ID which is also part of the version string (terminal parameter page).

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

Settings	Users
root password	*****
Confirm root password	*****
admin password	*****
Confirm admin password	*****

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.

TLT 1000	
Settings SNMP	
Hostname	<input type="text" value="00:15:C9:11:40:D0"/>
Domain	<input type="text"/>
TCP/IP address	192.168.50.62
TCP/IP subnet mask	255.255.252.0
TCP/IP default Gateway	0.0.0.0
TCP/IP Adresse of the name server	0.0.0.0
Activate DHCP request	<input type="button" value="Yes"/>
The PIN for startup configuration	<input type="text" value="49;49;49;49"/>
Active Network Interface	<input type="button" value="RJ45"/>
DHCP-Parameter for Server IP	<input type="text" value="tlkserver"/>
RAS Mode	<input type="button" value="Inactive"/>

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 daemon 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 Mode	RAS Client ▾
RAS Debug	Active ▾
RAS COM Port	COM2 ▾
RAS on Demand	YES ▾
RAS Idle Time	120
RAS Hardware	ISDN ▾
RAS ISDN MSN Number	<input type="text"/>
RAS Number	<input type="text"/>
RAS User	<input type="text"/>
RAS Password	<input type="text"/>
RAS Domain	<input type="text"/>
RAS Option	nomagic
RAS Dialtone	NO ▾

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.

	Badge reader	Barcode scanner	Fingerprint
Configuration	Application		
• System			
• Linux			
• Network			
• Readers			
• Peripheral devices			
• Communications			
• Database			
• Logoff			
	Reader type	HID-Wiegand ▾	
	Offset instance number	0	
	Length instance number	0	
	Offset badge number	0	
	Length badge number	10	
	Number of data bits	Standard 37 Bit ▾	
	Offset data bits	10	
	Number of data bits	24	
	Data conversion method	com.titze.tools.DataCh,	
	Send raw data	No ▾	

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.

Badge reader	Barcode scanner	Fingerprint	Fingerprint masterslave
		Fingerprint API	Sagem ▾
		Delete All Templates	No ▾
		Size of Sagem database	500
		Free rows in Sagem database	490
		Process async messages	No ▾
		Process matching score messages	No ▾

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.

Display	Keyboard	Printer	Sound
Display Contrast			127
Graphical Display Driver			No ▾
Display Light			1023
rough Display Contrast			127
			Save Help

6.2.5.1 Display

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

Display	Keyboard	Printer	Sound
Display Contrast			127
Graphical Display Driver			No ▾
Display Light			1023
rough Display Contrast			127
			Save Help

Display Contrast

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

Graphical Display Driver

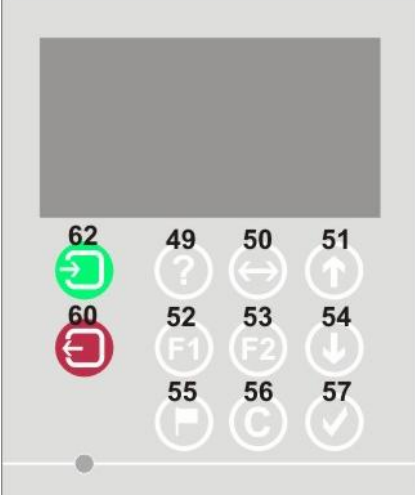
If you want to use Unicode characters for your display texts you have to switch to the graphical display driver. If you change this parameter to Yes, the terminal first verifies if the required libraries are installed. You have to reboot in order to load these libraries.

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



The diagram shows a terminal keypad with a grid of keys. The keys are arranged in four rows and four columns. The top row contains keys 62, 49, 50, and 51. The second row contains keys 60, 52, 53, and 54. The third row contains keys 55, 56, and 57. The bottom row contains a small circular key. The keys 62 and 60 are highlighted with green and red circles, respectively. The keys 49, 50, 51, 52, 53, 54, 55, 56, and 57 are shown with their respective symbols: a question mark, left and right arrows, up and down arrows, F1 and F2, and a checkmark.

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.

Display	Keyboard	Printer	Sound
Printer type			none ▼

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.

Display	Keyboard	Printer	Sound
Sound mode			Yes ▼

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.

Upload		Download
Configuration	Application	
• System		
• Linux		
• Network		
• Readers		
• Peripheral devices		
• Communications		
• Database		
• Logoff		
Connection Type	TCP/IP Client	
TCP/IP address	192.168.1.90	
TCP/IP port	1089	
Server Alive Check	180	
Timeout for hostreaction [ms]	10000	
Use time intervals for upload?	No	
Use time slots for upload?	No	
Message format	XML	

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.

Upload	Download
Connection Type	TCP/IP Client
TCP/IP address	192.168.1.90
TCP/IP port	1089
Server Alive Check	180
Timeout for hostreaction [ms]	10000
Use time intervals for upload?	No
Use time slots for upload?	No
Message format	XML

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 <i>n</i> minutes, where <i>n</i> is the connection interval you specify in the next field. Default No .								
	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">Use time intervals for upload?</td> <td style="padding: 2px;"><input type="button" value="Yes"/></td> </tr> <tr> <td style="padding: 2px;">Upload connection interval</td> <td style="padding: 2px;"><input style="width: 100px;" type="text" value="10"/></td> </tr> </table>	Use time intervals for upload?	<input type="button" value="Yes"/>	Upload connection interval	<input style="width: 100px;" type="text" value="10"/>				
Use time intervals for upload?	<input type="button" value="Yes"/>								
Upload connection interval	<input style="width: 100px;" type="text" value="10"/>								
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 .								
	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">Use time slots for upload?</td> <td style="padding: 2px;"><input type="button" value="Yes"/></td> </tr> <tr> <td style="padding: 2px;">Upload interval 1 Start [HH:MI]</td> <td style="padding: 2px;"><input style="width: 100px;" type="text"/></td> </tr> <tr> <td style="padding: 2px;">Upload interval 1 End [HH:MI]</td> <td style="padding: 2px;"><input style="width: 100px;" type="text"/></td> </tr> <tr> <td style="padding: 2px;">Upload interval 2 Start [HH:MI]</td> <td style="padding: 2px;"><input style="width: 100px;" type="text"/></td> </tr> </table>	Use time slots for upload?	<input type="button" value="Yes"/>	Upload interval 1 Start [HH:MI]	<input style="width: 100px;" type="text"/>	Upload interval 1 End [HH:MI]	<input style="width: 100px;" type="text"/>	Upload interval 2 Start [HH:MI]	<input style="width: 100px;" type="text"/>
Use time slots for upload?	<input type="button" value="Yes"/>								
Upload interval 1 Start [HH:MI]	<input style="width: 100px;" type="text"/>								
Upload interval 1 End [HH:MI]	<input style="width: 100px;" type="text"/>								
Upload interval 2 Start [HH:MI]	<input style="width: 100px;" type="text"/>								
Interval <i>n</i> Start [HH:MI]	The time to go online in the format hh:mi.								
Interval <i>n</i> 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:

Upload	Download
Connection Type	
	FTP
FTP host IP address	
User name	
	admin
Password	
	•••••
FTP directory	
FTP file name	
	bookings.dat
Change file name	
	No
FTP send timeout	
	120000
Use SFTP	
	No
Use time intervals for upload?	
	No
Use time slots for upload?	
	No
Message format	
	XML

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:

		Upload	Download
<ul style="list-style-type: none"> • System • Linux • Network • Readers • Peripheral devices • Communications • Database • Logoff 			
Configuration		Application	
		Connection Type	WEB Service
		Timeout for hostreaction [ms]	10000
		Use HTTPS?	No
		Server Address	192.168.1.90
		Server Port	8080
		User	admin
		Password	•••••
		WEB Service Implementation	com.timelink.connectio
		Servlet name for Transactions	axis/services/Transacti
		Servlet name for Device Manager	axis/services/DeviceM
		Id to use for requests	Logical ID
		Heartbeat Interval [min]	10
		Heartbeat Reconnect Interval [s]	60
		Startup Connect Interval [s]	30
		Server Alive Check	180
		Use time intervals for upload?	No
		Use time slots for upload?	No
		Message format	XML

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.



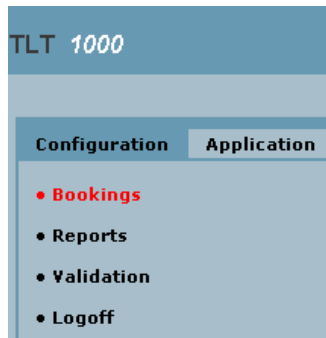
Note

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.

Configuration	Application	Transfer Punches From	<input type="text"/>
• Bookings		Transfer Punches Until	<input type="text"/>
• Reports		Badge Number	<input type="text"/>
• Logoff		Source file	<input type="text" value="bookings.dat"/>

- 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.

Configuration	Application																		
<ul style="list-style-type: none"> • Bookings • Reports • Logoff 	<table border="1"> <tr> <td>Report type</td> <td>Transactions</td> </tr> <tr> <td>Select filter 1</td> <td>NONE</td> </tr> <tr> <td>Filter expression 1</td> <td></td> </tr> <tr> <td>Select filter 2</td> <td>NONE</td> </tr> <tr> <td>Filter expression 2</td> <td></td> </tr> <tr> <td>Timestamp from</td> <td>01012000000000</td> </tr> <tr> <td>Timestamp until</td> <td>31122099240000</td> </tr> <tr> <td>Name of the storage</td> <td>bookings.dat</td> </tr> <tr> <td>Status Of Transactions</td> <td>Transferred</td> </tr> </table>	Report type	Transactions	Select filter 1	NONE	Filter expression 1		Select filter 2	NONE	Filter expression 2		Timestamp from	01012000000000	Timestamp until	31122099240000	Name of the storage	bookings.dat	Status Of Transactions	Transferred
Report type	Transactions																		
Select filter 1	NONE																		
Filter expression 1																			
Select filter 2	NONE																		
Filter expression 2																			
Timestamp from	01012000000000																		
Timestamp until	31122099240000																		
Name of the storage	bookings.dat																		
Status Of Transactions	Transferred																		

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 DDMMYY-YYYHHSS), badgeNo (badge number), deviceId (local terminal address), function (booking type) are defined.

Select filter 1	<div style="border: 1px solid black; padding: 2px;"> <div style="background-color: #e0e0e0; padding: 2px;">NONE</div> <div style="background-color: #000080; color: white; padding: 2px;">NONE</div> <div style="padding: 2px;">timestamp</div> <div style="padding: 2px;">badgeNo</div> <div style="padding: 2px;">deviceId</div> <div style="padding: 2px;">function</div> </div>
-----------------	---

Filter expression 1 | 2

The value for the filter 1 | 2.

Timestamp from

The start date for the list of transactions (format DDMMYYYY-YHHMISS).

Timestamp until

The end date for the list of transactions (format DDMMYYYY-YHHMISS).

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.

Status Of Transactions	<div style="border: 1px solid black; padding: 2px;"> <div style="background-color: #e0e0e0; padding: 2px;">All</div> <div style="padding: 2px;">Transferred</div> <div style="padding: 2px;">Not Transferred</div> <div style="padding: 2px;">Defective</div> <div style="background-color: #000080; color: white; padding: 2px;">All</div> </div>
------------------------	--

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

Report type	Transactions ▾			
Select filter 1	NONE ▾			
Filter expression 1	NONE			
Select filter 2	timestamp			
Filter expression 2	badgeNo			
Timestamp from	01012000000000			
Timestamp until	31122099240000			
Name of the storage	bookings.dat			
Status Of Transactions	All ▾			
amount of processed bookings	0			
amount of unprocessed bookings	4			
amount of dirty bookings	0			
timestamp	badgeNo	deviceId	function	State
06042006041959	000001	01FF	T10	unprocessed
06042006042038	000001	01FF	T10	unprocessed
06042006042336	000002	01FF	T10	unprocessed
06042006042451	000003	01FF	T10	unprocessed

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.

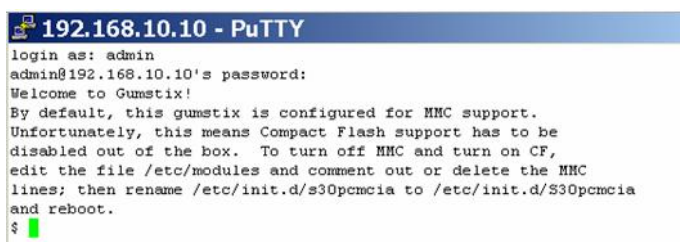
8 Appendix for Developers

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).



```

192.168.10.10 - PuTTY
login as: admin
admin@192.168.10.10's password:
Welcome to Gumstix!
By default, this gumstix is configured for MMC support.
Unfortunately, this means Compact Flash support has to be
disabled out of the box. To turn off MMC and turn on CF,
edit the file /etc/modules and comment out or delete the MMC
lines; then rename /etc/init.d/s30pcmcia to /etc/init.d/S30pcmcia
and reboot.
$ █

```

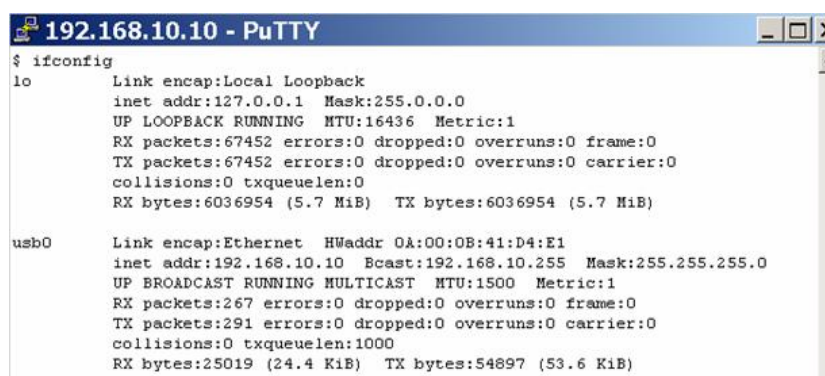
At this prompt you can enter basic Linux commands as described in the following. Note that different from other standard Linux distributions you can not call any help for the commands.

8.1.2 Basic Linux commands

Display the network configuration

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

Output:



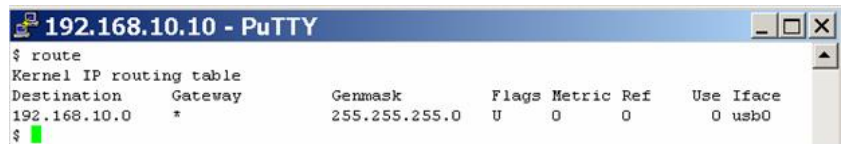
```

192.168.10.10 - PuTTY
$ ifconfig
lo          Link encap:Local Loopback
            inet addr:127.0.0.1  Mask:255.0.0.0
            UP LOOPBACK RUNNING  MTU:16436  Metric:1
            RX packets:67452 errors:0 dropped:0 overruns:0 frame:0
            TX packets:67452 errors:0 dropped:0 overruns:0 carrier:0
            collisions:0 txqueuelen:0
            RX bytes:6036954 (5.7 MiB)  TX bytes:6036954 (5.7 MiB)

usb0       Link encap:Ethernet  HWaddr 0A:00:0B:41:D4:E1
            inet addr:192.168.10.10  Bcast:192.168.10.255  Mask:255.255.255.0
            UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
            RX packets:267 errors:0 dropped:0 overruns:0 frame:0
            TX packets:291 errors:0 dropped:0 overruns:0 carrier:0
            collisions:0 txqueuelen:1000
            RX bytes:25019 (24.4 KiB)  TX bytes:54897 (53.6 KiB)

```

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



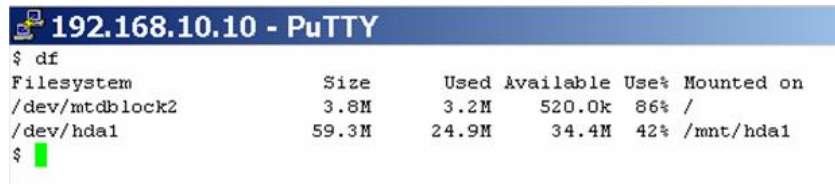
The screenshot shows a PuTTY terminal window titled "192.168.10.10 - PuTTY". The terminal displays the output of the 'route' command, which shows the kernel IP routing table. The output is as follows:

```
$ 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:



```

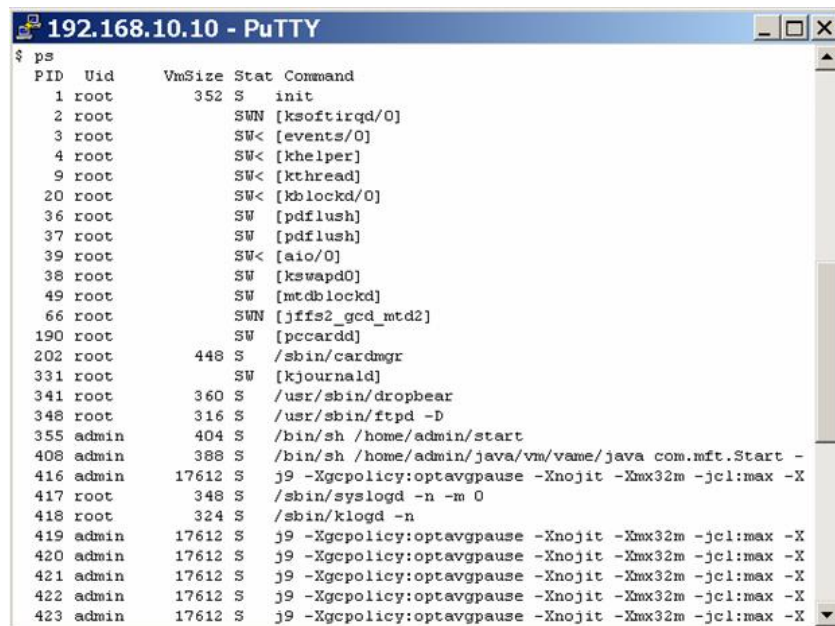
192.168.10.10 - PuTTY
$ df
Filesystem          Size      Used Available Use% Mounted on
/dev/mtdblock2      3.8M      3.2M    520.0k  86% /
/dev/hda1           59.3M     24.9M    34.4M  42% /mnt/hda1
$

```

Display active processes

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

Output:



```

192.168.10.10 - PuTTY
$ ps
PID  Uid      VmSize  Stat  Command
  1  root          352  S    init
  2  root          SWN   [ksoftirqd/0]
  3  root          SW<   [events/0]
  4  root          SW<   [khelper]
  9  root          SW<   [kthread]
 20  root          SW<   [kblockd/0]
 36  root          SW    [pdflush]
 37  root          SW    [pdflush]
 39  root          SW<   [aio/0]
 38  root          SW    [kswapd0]
 49  root          SW    [mtdblockd]
 66  root          SWN   [jffs2_gcd_mtd2]
190  root          SW    [pccardd]
202  root          448  S    /sbin/cardmgr
331  root          SW    [kjournald]
341  root          360  S    /usr/sbin/dropbear
348  root          316  S    /usr/sbin/ftpd -D
355  admin         404  S    /bin/sh /home/admin/start
408  admin         388  S    /bin/sh /home/admin/java/vm/vame/java com.mft.Start -
416  admin        17612 S    j9 -Xgcpolicy:optavgpause -Xnojit -Xmx32m -jcl:max -X
417  root          348  S    /sbin/syslogd -n -m 0
418  root          324  S    /sbin/klogd -n
419  admin        17612 S    j9 -Xgcpolicy:optavgpause -Xnojit -Xmx32m -jcl:max -X
420  admin        17612 S    j9 -Xgcpolicy:optavgpause -Xnojit -Xmx32m -jcl:max -X
421  admin        17612 S    j9 -Xgcpolicy:optavgpause -Xnojit -Xmx32m -jcl:max -X
422  admin        17612 S    j9 -Xgcpolicy:optavgpause -Xnojit -Xmx32m -jcl:max -X
423  admin        17612 S    j9 -Xgcpolicy:optavgpause -Xnojit -Xmx32m -jcl:max -X

```

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:

```

Mem: 30428K used, 32864K free, 0K shrd, 1416K buff, 8444K cached
Load average: 0.04, 0.05, 0.00 (State: S=sleeping R=running, W=waiting)

```

PID	USER	STATUS	RSS	PPID	%CPU	%MEM	COMMAND
12194	admin	S	17M	419	99.9	27.8	
483	admin	S	17M	419	0.0	27.8	
484	admin	S	17M	419	0.0	27.8	
487	admin	S	17M	419	0.0	27.8	
488	admin	S	17M	419	0.0	27.8	
489	admin	S	17M	419	0.0	27.8	
486	admin	S	17M	419	0.0	27.8	
446	admin	S	17M	419	0.0	27.8	
447	admin	S	17M	419	0.0	27.8	
419	admin	S	17M	416	0.0	27.8	
491	admin	R	17M	419	0.0	27.8	
421	admin	S	17M	419	0.0	27.8	
422	admin	S	17M	419	0.0	27.8	
423	admin	S	17M	419	0.0	27.8	
424	admin	S	17M	419	0.0	27.8	
439	admin	S	17M	419	0.0	27.8	
441	admin	S	17M	419	0.0	27.8	
443	admin	S	17M	419	0.0	27.8	
444	admin	S	17M	419	0.0	27.8	
416	admin	S	17M	408	0.0	27.8	
462	admin	S	17M	419	0.0	27.8	
465	admin	S	17M	419	0.0	27.8	
448	admin	S	17M	419	0.0	27.8	
420	admin	S	17M	419	0.0	27.8	

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 rtx*
```

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

```
192.168.10.10 - PuTTY
$ cat /proc/meminfo
MemTotal:      63292 kB
MemFree:       31968 kB
Buffers:       1416 kB
Cached:        8892 kB
SwapCached:    0 kB
Active:        23548 kB
Inactive:      4536 kB
HighTotal:     0 kB
HighFree:     0 kB
LowTotal:     63292 kB
LowFree:      31968 kB
SwapTotal:     0 kB
SwapFree:     0 kB
Dirty:         4 kB
Writeback:    0 kB
Mapped:       19492 kB
Slab:         1368 kB
CommitLimit:  31644 kB
Committed_AS: 51372 kB
PageTables:   280 kB
VmallocTotal: 581632 kB
VmallocUsed:  70436 kB
VmallocChunk: 4104192 kB
```

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.

Database queries

```
select parameter_name, default_value from terminal_param_defs
where parameter_name like '%SYNC_MOD'
and terminal_type = 'TLT3'
```

Result:

PARAMETER_NAME	DEFAULT_VALUE
@PARAM_DT_SYNC_MOD	NO

Transaction committed

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

Database queries

```
select * from terminal_params
where parameter_name like '%SYNC_MOD'
```

Import Export List Run

Result:

TERMINAL_ADRESS	PARAMETER_NAME	PARAMETER_VALUE	VISIBLE
1	@PARAM_DT_SYNC_MOD	HOST	1

Transaction committed

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.

Terminal	Date/Time	Trace	Status	Java Statistics	Remote update
Java statistics					
Date/Time	Tue Mar 21 15:09:49 CET 2006				
Free memory	535				
Total memory	20480				
Free Root Partition memory	3224				
Free Data Partition memory	23469				
Threads	Threadgroup system	Threadgroup main	Thread Finalizer thread Thread Thread-15695 Thread ShowTime Thread StateActivationThread Thread ApplEventHandler-1 com.timelink.device.application.events.ReaderEventHandler@26532653 Thread ApplEventHandler-1 com.timelink.device.application.events.FunctionKeyEventHandler@b2e0b2e Thread ForwardThread (ubookings.dat) Thread TerminalManager PnP reinit Thread XMLFileChecker Thread CBMDDataSagemFPReader Thread RXTX-Monitor Thread RS232SagemReceiveThread Thread CBMDDataLifetimeDisplay Thread CBMDDataMemory Thread CBMDDataFlashdisc Thread CBMUpdateThread Thread TerminalManager PnP Thread ReceiveThread Thread SendThread Thread RS232ClientReceiveThread Thread TLT3 HWS Thread RXTX-Monitor Thread RS232Polling Thread WebServe/ServeConnection Thread TzTimer Thread Thread-0		
Garbage collector					