

# PTC-IInet Manual

## Introduction

The Linux section of the PTC-IInet is based on [µClinix](#). For interested users we provide patches against µClinix and the complete source code of the web interface for download at the [SCS Homepage](#).

All Linux source code developed by SCS released under the [GNU GPL](#).

Changes of the µClinix kernel and the web interface are documented in the [CHANGELOG](#).

[BUGS](#) informs about bugs and things to do.

The PTC-IInet is very similar to the PTC-IIusb. So please have a look at the [PTC-IIusb manual](#) too.

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## Power-on/Booting

After power on two things happen:

- the modem part copies the firmware into the RAM, this is indicated by the dotted tuning display.
- the Linux module needs to boot. This is indicated by a blinking power switch.

As soon as the Linux module boots up successfully and the modem has been initialized, the power switch stops blinking and lights permanently.

Now the PTC-IInet is ready to operate.

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## The Web Interface

The web interface is mainly selfexplaining. For every item an online help is available. Simply click on the label of the element you need help for.

The web interface of the PTC-IInet can be reached by entering its IP address as URL into your web browser, e.g. <http://192.168.0.100>. As username enter "root", as password "PTC2net". Please change the password immediatly after the login!

**The web interface of the PTC-IInet needs JavaScript!**

We test the web interface with: KDE Konqueror, FireFox (Linux/Windows), Opera (windows), Internet Explorer (XP).

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## Status

After successful log in the first thing you see is the status screen. The following is displayed:

- DHCP-jumper - if it is set (closed) or not set (open).
- the MAC address of the PTC-IInet.
- IP address, Subnet Mask, Gateway and DNS - either the current address assigned by DHCP or the fixed address as defined in the [Network Setup](#).
- the S38 register - very important, the clients must use the same setting!
- the electronic serialnumber of the PTC-IInet.

**SCS** **PTC-IInet Status**

Home/Status  
LAN Setup  
HF Setup  
Control  
Update  
User  
Terminal  
TRX Control  
System  
APRS

Sun Dec 25 18:29:20 2005

DHCP jumper: set

MAC Address: 02:80:AD:20:71:9A  
IP Address: 192.168.2.24  
Subnet Mask: 255.255.255.0  
Gateway: 192.168.2.1  
DNS: 192.168.2.1

S38 Setting: 3

Serial Number: 0100000AE308EDCB

**For help please click on the labels!**

Deutsches Handbuch English Manual

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## Network Settings

Here all network specific settings are entered.

All settings are only valid if the DHCP jumper is not set!

The PTC-IInet is delivered with the DHCP jumper set, which means that the PTC-IInet tries to obtain its IP address from a DHCP server. With the DHCP jumper set there is no fall back to fixed IP addresses if there is no DHCP server found.

Without the DHCP jumper and activated DHCP there is a timeout: if the PTC-IInet doesn't find a DHCP server within 60 seconds it will use the fixed IP addresses.

If you don't have a DHCP server in your network, you need to configure the PTC-IInet to a fix IP address. This is done by removing the DHCP jumper inside the unit, which is located close to the power-connector. The IP address is then pre-configured to 192.168.0.100, Netmask 255.255.255.0.

If a fixed IP address is used, you always need to enter a standard gateway as well as a DNS server to have a successful Internet connection.

**SCS** **Network Setup**

**Valid only with DHCP jumper removed!**

LAN IP:  Dynamic IP Address (DHCP)  
 Static IP Address

IP Address:

Subnet Mask:

Gateway:

DNS:

---

## Configuring the HF-Interface

Here the most important parameters for the radio/modem side are entered.

**Call Sign** is the callsign of the PTC-IInet.

### FSKA and PSKA

are the audio output levels of the PTC-IInet for the various operation modes. The two values are extremely important to achieve distortion free operation on the HF bands and depend on the transceiver that is used. The best way to evaluate the correct setting is to use a normal PTC-IIxxx model, because the web interface of the PTC-IInet does not provide sufficient support of this item yet. The exact procedure is described in the manuals of the PTC-IIxxx in the chapter "Installation".

**Tx Delay** can usually be left at default value (4).

The remaining settings are described in detail in the document [Manual for the Professional Firmware](#).

From the settings made here the so-called "init-string" is assembled.

- Home/Status
- LAN Setup
- HF Setup**
- Control
- Update
- User
- Terminal
- TRX Control
- System
- APRS

**X = mandatory fields!**

Call Sign:	<input type="text" value="server"/>	X
FSKA:	<input type="text" value="60"/>	X
PSKA:	<input type="text" value="140"/>	X
Auto Power:	<input type="checkbox"/>	
Tx Delay:	<input type="text" value="4"/>	
CS Delay:	<input type="text" value="10"/>	
CW ID:	<input type="checkbox"/>	

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Free Signal:	<input type="checkbox"/>	
Free Duty:	<input type="text" value="2"/>	
Free ID:	<input type="text" value="PTC001"/>	
Free Power:	<input type="text" value="100"/>	
Free CW:	<input type="text" value="3"/>	
Optional CW ID String:	<input type="text" value="cq cq cq de server"/>	

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PACTOR-III:	<input checked="" type="checkbox"/>	
Equalize:	<input type="text" value="None"/>	

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Data Encryption:	<input checked="" type="checkbox"/>	
Add Call:	<input type="checkbox"/>	
Disable Port Limitation:	<input type="checkbox"/>	
UDP Support:	<input type="checkbox"/>	
Primary DNS Only:	<input type="checkbox"/>	

**Control**

**Reset PTC** - resets the modem part of the PTC-II.net.

**BIOS** - switches the modem part into the BIOS.

**Reboot** - boots the Linux controller.

- Home/Status
- LAN Setup
- HF Setup
- Control**
- Update
- User
- Terminal
- TRX Control
- System
- APRS

<input type="button" value="Reset PTC"/>
<input type="button" value="BIOS"/>
<input type="button" value="Reboot"/>

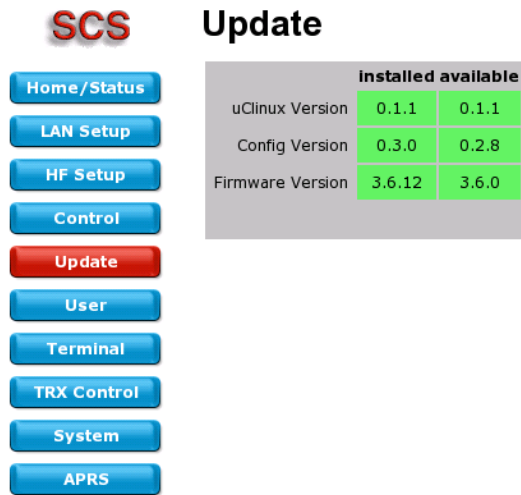
**Update**

The Update function of the PTC-II.net compares the current installed versions with the versions available on the SCS server. This requires a fully working internet connection for the update procedure!

The column **installed** shows the versions as currently installed on the PTC-II.net, the column **available** shows the versions available on the SCS server.

If there are newer versions on the SCS server, then the corresponding line is marked with red colour and under the list an **Update** button is displayed, which can be used to finally start the update procedure.

The update can take several minutes! So be patient.



The SCS Update interface features a vertical sidebar of navigation buttons on the left: Home/Status, LAN Setup, HF Setup, Control, Update (highlighted in red), User, Terminal, TRX Control, System, and APRS. The main content area is titled 'Update' and contains a table with two columns: 'installed' and 'available'. The table lists three components: uClinux Version (0.1.1 / 0.1.1), Config Version (0.3.0 / 0.2.8), and Firmware Version (3.6.12 / 3.6.0). The 'installed' column for all three components is highlighted in red, indicating that updates are available.

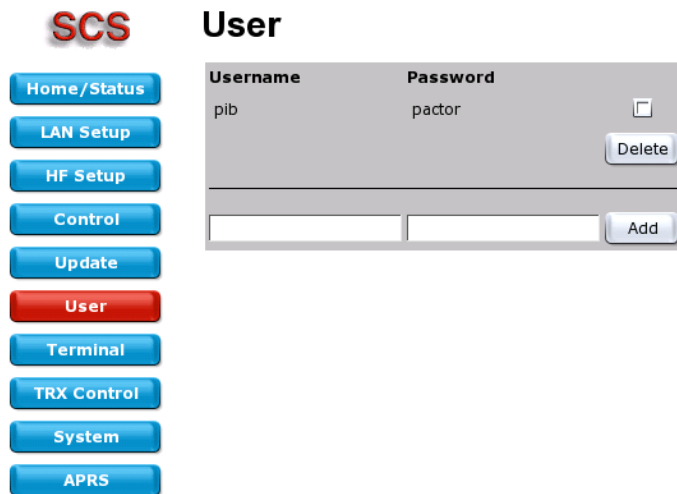
	installed	available
uClinux Version	0.1.1	0.1.1
Config Version	0.3.0	0.2.8
Firmware Version	3.6.12	3.6.0

## User Management

To prevent every average PTC-II owner to use the HF-Internet-Gateway, every user needs to login with his user name and password. Username and password need to be entered as follows.

Avoid spaces in username and password!

Username und password are case sensitive!



The SCS User interface features a vertical sidebar of navigation buttons on the left: Home/Status, LAN Setup, HF Setup, Control, Update, User (highlighted in red), Terminal, TRX Control, System, and APRS. The main content area is titled 'User' and contains a table with two columns: 'Username' and 'Password'. The table lists one user: 'pib' with password 'pactor'. There is a checkbox to the right of the password field and a 'Delete' button below it. Below the table, there are two empty input fields and an 'Add' button.

Username	Password
pib	pactor

User authentication can also be done with RADIUS. See the [RADIUS configuration](#) in the [System menu](#).

## Web-Terminal

With the Web-Terminal you gain access to the modem part of the unit (the real PACTOR controller).

First you have to start the Web-Terminal. Simply click on the **Start Terminal** button.

- Home/Status
- LAN Setup
- HF Setup
- Control
- Update
- User
- Terminal**
- TRX Control
- System
- APRS

The screenshot shows the 'Terminal' page with a 'Start Terminal' button at the top left. Below it is a text input field with an 'Enter' button to its right. Underneath the input field are three buttons labeled 'ESC', 'Ctrl-Y', and 'Ctrl-D'. To the right of these buttons is a 'Refresh' button. The main area of the terminal is a large, empty text box with a vertical scrollbar on the right side.

If the Web-Terminal starts successfully additional buttons will be activated and the PTC shows the well known cmd:.

With the buttons **ESC**, **Ctrl-Y** and **Ctrl-D** you can send the respective control characters to the PTC.

Please click on the **Stop Terminal** button when you're finished using the Web-Terminal.

- Home/Status
- LAN Setup
- HF Setup
- Control
- Update
- User
- Terminal**
- TRX Control
- System
- APRS

The screenshot shows the 'Terminal' page with a 'Stop Terminal' button at the top left. Below it is a text input field with an 'Enter' button to its right. Underneath the input field are three buttons labeled 'ESC', 'Ctrl-Y', and 'Ctrl-D'. To the right of these buttons is a 'Refresh' button. The main area of the terminal shows the output 'OK' followed by 'cmd:' on the next line. A vertical scrollbar is visible on the right side of the text area.

At the moment the Web-Terminal has one drawback: the receiving window scrolls only with FireFox or Internet Explorer! **By the way: you should use the Web-Terminal for debugging purposes only!**

### Transceiver Control

If you're not yet familiar with the excessive possibilities of the transceiver control system then we suggest that you first read chapter TRX of the [PTC-IIusb manual](#).

#### Type

In this first dialog the transceiver type and the resulting parameters are defined.

- Home/Status
- LAN Setup
- HF Setup
- Control
- Update
- User
- Terminal
- TRX Control**
- System
- APRS

The screenshot shows the 'TRX Control' dialog box with four tabs: 'Type', 'Scan', 'Timer', and 'Channels'. The 'Type' tab is selected. Under the heading 'Transceiver Type:', there are several dropdown menus and input fields. The first row contains 'ICOM NMEA', '4900', 'TTL', and 'Parity: None'. The second row contains 'ICOM Id: 6', 'VFO A', 'FT-890', and 'XK-2000'. At the bottom right of the dialog are 'Submit' and 'Cancel' buttons.

Here you can start the real scanning process.

**Dwell** defines the dwell time of the scanner in 100 ms steps. With a value of 30 the scanner stays for exactly 3 seconds on each channel.

**Wait** defines the time in seconds the scanner stays on the current channel after the end of a connection.

**Offset** defines a frequency offset which is applied to every frequency from the channel list.

## SCS TRX Control

Home/Status Type Scan Timer Channels

LAN Setup

HF Setup

Control

Update

User

Terminal

TRX Control

System

APRS

**Scanning Parameters:**

Scan:  Dwell: 30 Wait: 10 Offset: 0


Submit Cancel

### Timer

Here the time slots are configured for the timer controlled scanning. Up to 10 time slots can be defined.

A new time slot is defined by simply setting a start- and stop time and clicking the submit button. The new time slot is inserted at the first free place.

Click on  to edit a timer.

Click on  to delete a timer.

## SCS TRX Control

Home/Status Type Scan Timer Channels

LAN Setup

HF Setup

Control

Update

User

Terminal

TRX Control

System













APRS

**Timer:**

Start Stop

00 : 00 - 00 : 00


Submit Cancel


Timer	Start	Stop	
0	08:00	20:00	 
1	20:00	08:00	 
2	not defined		
3	not defined		
4	not defined		
5	not defined		
6	not defined		
7	not defined		
8	not defined		
9	not defined		

### Channels

Here the frequency list is generated. Up to 32 channels are possible.

With **Scan** you enable the channel to be used for a prospected scanning. If time slots are defined you can restrict scanning to the selected time slots only.

Click on  to edit a channel.

Click on  to delete a channel.



# TRX Control

Home/Status | Type | Scan | Timer | **Channels**

LAN Setup

HF Setup

Control

Update

User

Terminal

**TRX Control**

System

APRS

**Channel:**

Frequency (Hz)	Scan	Timer	0	1	2	3	4	5	6	7	8	9
<input type="text"/>	<input type="checkbox"/>	Disabled	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
		Normal	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
		Priority	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Submit Cancel

Frequency (Hz)	Scan	Timer		
3.975.000	✓	T0		
3.875.000	✓	T1		
7.028.000				

## System

Various system settings:

### Misc

Define the hostname of the PTC-II-net.

The PTC-II-net can obtain date and time from an Internet time server.



# System Configuration

Home/Status | **Misc** | Passwords | Logs | Access | Radius

LAN Setup

HF Setup

Control

Update

User

Terminal

TRX Control

**System**

APRS

**Hostname:**

Hostname:

---

**Time Server:**

Time Server:

Get Time Now

Submit Cancel

### Passwords

Change the passwords for the web interface and telnet.

Passwords are case-sensitive ("A" is a different character than "a") and must be between 5 and 8 characters in length.



# System Configuration

Home/Status | Misc | **Passwords** | Logs | Access | Radius

LAN Setup

HF Setup

Control

Update

User

Terminal

TRX Control

**System**

APRS

**Web Interface:**

New Password:

Confirm Password:

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**Telnet:**

New Password:

Confirm Password:

Submit Cancel

### Logs

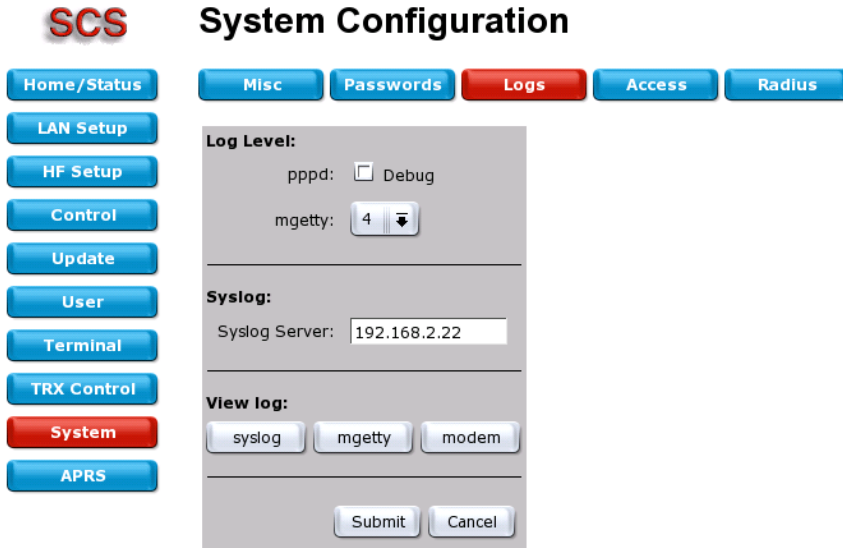
For debugging the PTC-II-net generates two log files. The main system log, the so-called Syslog and the log of the mgetty process.

If you check PPPD Debug, the ppp daemon logs all details of the ppp link establishment.

With mgetty you can choose between 7 levels. Level 0 means no logging (or logging of only fatal error messages). Level 4 is a good compromise for debugging. Level 6 is really verbose.

The log files are kept in RAM and therefore cleared at power up and reboot.

Therefore you can forward the Syslog to a distant computer, the Syslog server.

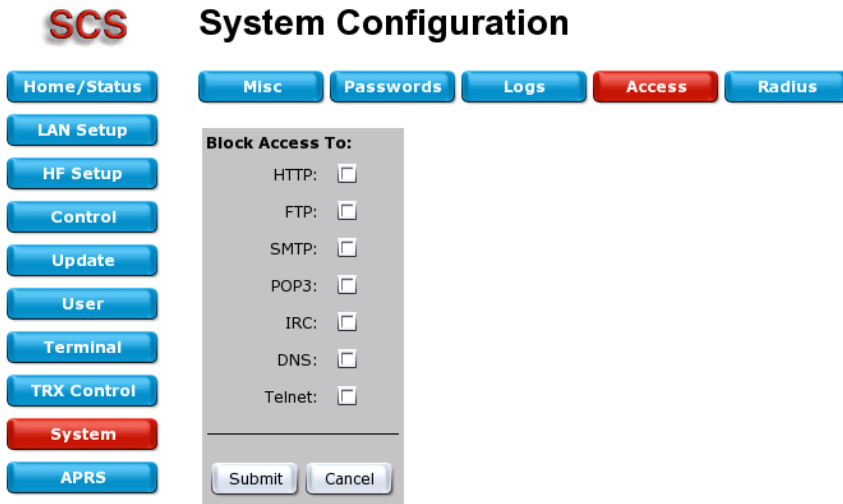


The screenshot shows the SCS System Configuration interface. On the left is a vertical menu with buttons for Home/Status, LAN Setup, HF Setup, Control, Update, User, Terminal, TRX Control, System (highlighted in red), and APRS. At the top are horizontal tabs for Misc, Passwords, Logs (highlighted in red), Access, and Radius. The main content area is titled 'Log Level:' and contains the following fields: 'pppd:' with a checkbox for 'Debug' (unchecked), and 'mgetty:' with a dropdown menu set to '4'. Below this is a 'Syslog:' section with a 'Syslog Server:' text input field containing '192.168.2.22'. A 'View log:' section contains three buttons: 'syslog', 'mgetty', and 'modem'. At the bottom are 'Submit' and 'Cancel' buttons.

### Access

For special applications it can be necessary to block some internet protocols.

E.g. if you check HTTP users can not browse the web.



The screenshot shows the SCS System Configuration interface. On the left is a vertical menu with buttons for Home/Status, LAN Setup, HF Setup, Control, Update, User, Terminal, TRX Control, System (highlighted in red), and APRS. At the top are horizontal tabs for Misc, Passwords, Logs, Access (highlighted in red), and Radius. The main content area is titled 'Block Access To:' and contains a list of protocols with checkboxes: HTTP, FTP, SMTP, POP3, IRC, DNS, and Telnet. All checkboxes are currently unchecked. At the bottom are 'Submit' and 'Cancel' buttons.

### Radius

RADIUS (Remote Authentication Dial-In User Service) is a protocol to perform user authentication utilizing a central data base. This is really useful if you build a network with more than one PTC-II-net.

Home/Status	Misc	Passwords	Logs	Access	<b>Radius</b>
LAN Setup					
HF Setup					
Control					
Update					
User					
Terminal					
TRX Control					
<b>System</b>					
APRS					

**Radius:**

Enable Radius:

Radius Server:

Radius Secret:

NAS Name:

Enable Accounting:

Submit    Cancel

## APRS

APRS, the Automatic Position Report System, is a protocol to transfer position data of moving and fixed objects.

To receive APRS with the PTC-II net you have to specify the (radio-) baudrate, the URL of the server to which the position data shall be forwarded for further processing and which kind of data shall be forwarded. Then you store your settings with "Submit".

Home/Status	<p>Baudrate: <input type="text" value="1200"/></p> <p>URL: <input type="text" value="http://www.test.localnet/setpos.php"/></p> <p style="text-align: right;">Submit    Cancel</p> <p style="text-align: center; margin-top: 10px;"><b>Start APRS</b></p>
LAN Setup	
HF Setup	
Control	
Update	
User	
Terminal	
TRX Control	
System	
<b>APRS</b>	

To finally start the APRS reception, just click on the button "Start APRS". The PTC-II net now enters the APRS-mode. All other functions are disabled now!

Home/Status	<p>Baudrate: <input type="text" value="1200"/></p> <p>URL: <input type="text" value="http://www.i1.net/setpos.php?sourc"/></p> <p style="text-align: right;">Submit    Cancel</p> <p style="text-align: center; margin-top: 10px;"><b>Stop APRS</b></p>
LAN Setup	
HF Setup	
Control	
Update	
User	
Terminal	
TRX Control	
System	
<b>APRS</b>	

Received position data are passed on simply as HTML form inputs to the server indicated in the URL input field. For that you also need to specify the name of the script that shall process the data, as well as the parameters to be processed. This is given behind the URL in the entry field, so that a possible URL entry field may look as the following example:

```
http://www.myurl.localnet/setpos.php?src=$SOURCE&lat=$LATITUDE&lon=$LONGITUDE
```

Here the parameters Call, Longitude and Latitude are passed along to a PHP script with the name setpos.php. The script expects the parameter in the variables src, lat and lon. The expressions \$SOURCE, \$LATITUDE and \$LONGITUDE are substituted by the actual values before they get transmitted. Generally the format for the URL entry field is formatted as follows: `http://my_server_url/script_name?script_variable=$_expression&script_variable=$_expression&...`

Hereby is

my_server_url	the URL of the server where the PTC-II-net shall send the positionsdata to
script_name	the name of the CGI/PHP script which receives and processes the position data on the server
script_variable	name of the variable the CGI/PHP script expects
\$_expression	one of the PTC-II-net variables

For better readability the PTC-II-net provides the following variables. They are substituted by the actual values before the position data gets transmitted to the server:

Variable	Bedeutung
\$SOURCE	Source Call Sign
\$LATITUDE	Latitude
\$LONGITUDE	Longitude
\$ALTITUDE	Altitude
\$SPEED	Speed
\$COURSE	Course
\$SYMBOL_TABLE	Symbol Table
\$SYMBOL_CODE	Symbol Code
\$COMMENT	Comment

Call, Latitude and Longitude are always available. All other parameters are only available when they have been transmitted by the position sending station!

Certainly it does not necessarily need to be a PHP script. Generally every CGI script in Perl, Python or C can do the job too. It just needs to be able to process the data respectively.

What the CGI-script is finally doing with the position data received just depends on your dedicated application!

As an example we provide a small application which saves all received position data in a MySQL database and displays the positions in a map using Google Maps. You can [download](#) this small demo application directly from the SCS home page. To use this application you need access to a web server with PHP and MySQL installed. For the installation please have a look at the README file!

## Telnet

Besides the web interface the PTC-II-net provides Telnet access. Username is "root", the default password is "PTC2net".

After successful login you can use most of the usual Linux commands.