

General

keybindings:

ESC > New Connection ALT +

C > New Connection ALT + D

> Disconnect

F1 - F10 > Channel 1 - 10

F12 > Monitor Mode

SHIFT+F1 – SHIFT+F12 > F-Texts (Macro Texts)

CTRL + plus > Increase text size

CTRL + minus > Decrease text size

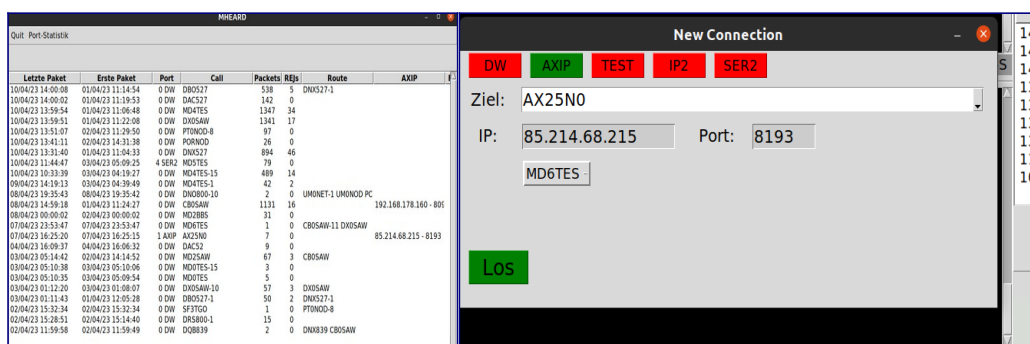
File extensions (data/usertxt/<USER CALL>):

- *.ctx > C-Text
- *.btx > Bye-Text
- *.atx > News-Text
- *.itx > Info-Text
- *.litx > Long Info-Text
- *.popt > Program Data Files (Do not change!)

PoPT AXIP

The AXIP procedure in PoPT works a little differently than what we are used to with flexnet32. The respective AXIP addresses are not permanently linked to a port as with flexnet32, but to the corresponding call.

Accordingly, the AXIP addresses (IP, port) are stored together with Call in the MH list or, if they are not yet known to the system, must be specified when establishing a new connection.



If the AXIP address is already known to the system, it no longer needs to be entered.

Or even simpler, a simple click on the MH list entry (regardless of whether it is the large MH list or the small one on the side) opens the "New Connection" window with all the necessary data pre-filled.

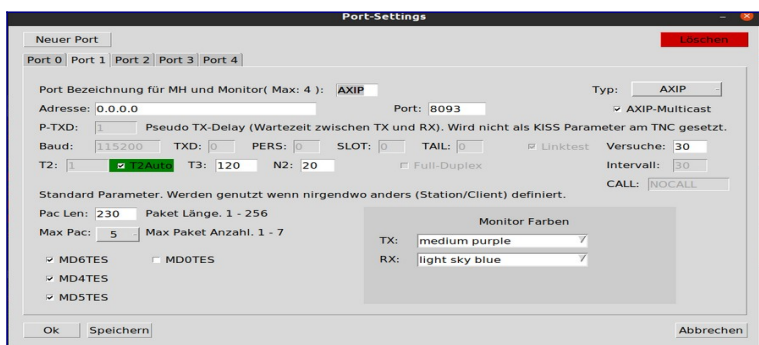
Accordingly, the settings in the "Port Settings" are to be understood differently. The AXIP port corresponds to an open port of a server.

The default IP address (0.0.0.0) means that the AXIP port can be reached on any IP address that the computer has.

If you were to change the IP to e.g. 127.0.0.1, the port would not be accessible from outside but only via localhost.

Internally, from programs that run on the same computer.

Or you have a computer with multiple network cards (virtual or real), i.e. multiple IPs, so you can make the port accessible for only one IP.



But in general you can leave the IP at 0.0.0.0.

It is also important that if you want to connect via AXIP from the Internet, you have to open the configured port on your router (Firtzbox or whatever).

PoPT RX-Echo

RX-Echo is a tool that some Linux users may be familiar with from the ax25-tools package.

With RX-Echo it is possible to forward the complete traffic or traffic filtered by call from one port to the others.

This function does not replace a digipeater or node, but can sometimes be useful for testing purposes or to

Use the AXIP multicast function to forward the traffic from Direwolf, which is connected via KISSTCP, to the flexnet32 application via AXIP.

It is also possible to share a device/port (TNC/Direwolf/AXIP) with several applications.

The tool can be used to create a "pipe" to external applications/scripts.

The tool checks a selectable file for content at adjustable intervals and sends it to the specified address using

UI frame (In unProto mode).

What is received from the address (pipe) is written to another selectable file.

A pipe can also be placed on an existing connection (proto mode).

For example, external programs can generate beacons with sensor data/weather data/... which are then sent by PoPT.

The "live" transfer of log files would also be possible.

unProto Pipe

Unlogged AX.25 pipe.

In the simplest case it can be used to send beacons by writing a text to the specified text file, for example via a cronjob.

Once PoPT reads the data in this file, it is sent to the preset address with the preset frame parameters and deleted from the text file.

However, this "beacon" function is easier to implement with the PoPT beacon function, since it is also possible to read the beacon directly from a text file.

Next, using the pipe function, it is possible to write data from a specific station into the preset file.

The application examples mentioned above are only the simplest ones.

Since the PIpe Tx and RX can output incoming raw data as well as send incoming raw data, it is possible to "pipe" applications using the AX25 protocol via HF or even write your own applications' protocols.

In order to be able to implement your own protocols, the AX.25 protocol already provides an extra PID protocol ID which you can select, among many others, for the pipe.

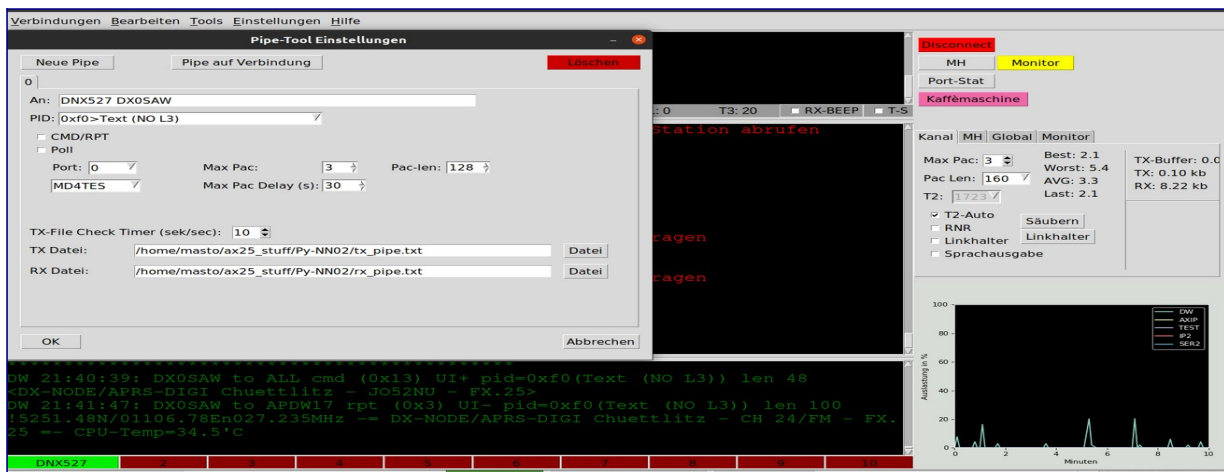
In order to keep the external application under control and to be able to adapt to the AX.25 protocol or the respective port parameters (baud, etc.), various parameters can be set.

Max-Pac: How many packets should be sent at once within the set delay. Max-Pac

Delay: Time until the next packets are sent.

Pac-Len: Maximum size of packets

TX-File Check Timer: Time interval (loop delay) in which the text file should be checked.



It should be noted that the incoming data is broken down into the respective packets one after the other and sent unlogged.

Unlogged means that you have to make sure that the data arrives completely at the other end.

The whole thing is the same as a UDP connection, where lost packets are not requested again like with TCP (Logged connection / Which the Pipe tool also offers) 😊

Proto Pipe

It's essentially the same as an unProt Pipe, except that you don't have to worry about whether the data reaches the receiver.

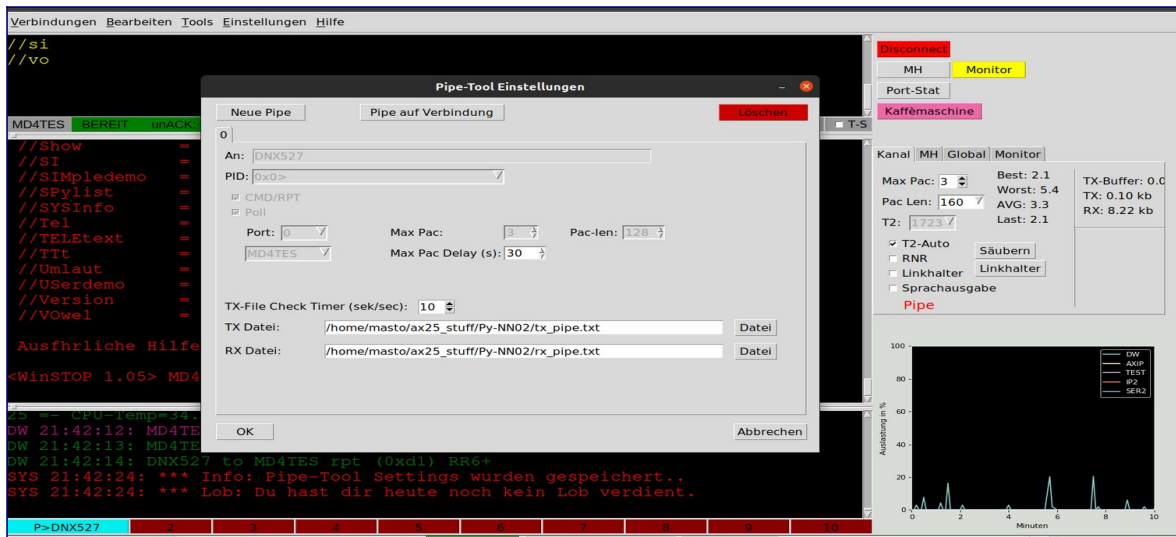
This is ensured by the AX.25 protocol, i.e. by the existing connection.

The simplest possible application for this would be to log a QSO.

It is also planned to be able to place the pipe directly on a station (call), which means that when this station is connected, everything is immediately routed through the pipe.

This means you can basically store your own processes, commands or whatever behind a call.

It would also be possible to output a text-based web page or directly query sensor data as soon as the station is connected.



Another possible application would be home automation. Turn on the pump or lawn sprinkler in the garden via PR.

I hope I was able to shed some light on this dark issue.

PpersonnelMailSsystem

- Foreword

The PMS is used to manage PR and bulletin mails that come from the home BBS (write, read, answer, save) and is not a replacement for a real BBS.

Currently, the PMS only uses the "Forward Protocol" in reverse-forward mode, not the "TSTHOST" protocol and does not currently support reading BBS beacons "unprot messages".

Therefore, the PMS can initially only connect to the home BBS to retrieve and send new emails according to adjustable schedules/intervals or manually triggered. Similar to the POP3 email protocol used to be.

To what extent further settings can be made by the home BBS sysops or on the BBS itself via commands in order to get bulletin mails forwarded, I cannot say at this point, as I only have a limited range of options such as access to other BBS software, and cannot/do not want to change the BBS network by constantly creating new test calls on other BBSs or my home BBS.

The whole thing will be adapted in future versions of PoPT and the "TSTHOST" protocol will also contribute to compatibility with other BBS software

- Heimat-BBS

Since the procedures for triggering the reverse forward are different for each BBS software, only the automatic procedures for FBB and BayCom are currently implemented. However, the forwarding of the PMS can also be initiated manually as soon as the home BBS is in the corresponding mode.

* automatic procedure for other BBS software will be implemented gradually.

It is not necessary that you set up your own BBS right away, but when choosing your home BBS you should make sure that it is in your region (e.g. federal state) so that you can also receive regional bulletin emails (e.g. weather/weather warnings, regional information).

The call and regional code of your home BBS will then become part of your PR email address, which you can then use to send/receive private emails.

Example:

Sysop: MD2SAW

BBS: MD2BBS

BBS region: #SAW.SAA.DEU.EU

Resulting PR email address: [MD2SAW@MD2BBS](mailto:MD2SAW@MD2BBS.#SAW.SAA.DEU.EU) .#SAW.SAA.DEU.EU

Regio statement:

SAW(Salzwedel).SAA(Saxony-Anhalt).DEU(Germany).EU(Europe)

Please note that there is no WW or WWW in the regional/distribution addresses in order to be able to distribute intercontinental mails via corresponding "gateway" routes.

- Heimat-BBS(FBB)

In order to be able to trigger the reverse forward at FBB, the user must have the user status "PMS" or FBB must allow all stations to allow the forward. Please contact the BBS sysop in this case.

Procedure Set PMS Status:

In the FBB console with sysop status enter the following command: EU <USER CALL>
then follow the menu.

"Allow all stations forward" procedure:

In the file fbb.conf (! May have different names in other FBB versions)
ensure that **128: Accepts forwarding only from pre-declared BBS**
is turned off.

To explain everything here would go too far.

By the way, for CB stations, **"4096: Test of callsigns is less strict. "callsigns" as long as they all have one figure (0-9) anywhere in the callsign."**

This is an "AFU-CALL" filter.

New in 5.15c45-51: Parameters:

1 : A space is mandatory before the @ in a send message command : The length of
2 the fields of a hierarchical address is not
tested to be 6 characters
4 : The header line of a message is not truncated to the space before
the 79th character
8 : Header MBL/RLI
#16: If there is no BBS field, the callsign of the BBS is sent to the PMS
#32: Deletes the DATA messages sent to SYSOP
#64: Don't use the BID recovered from headers and use a new one
> 128: Accepts forwarding only from pre-declared BBS
#256: WP Messages are not held.
512: XForwarding protocole has priority on FBB protocole.
#1024: Generation of an alternate BID like F6FBB-12345 (for dual BBS site)
2048: Checksum unvalidated on XFwd.
#4096: Test of callsigns is less strict. Allows all "callsigns" as long
as they have one figure (0-9) anywhere in the callsign. fbbfwd = OK 5392

Addendum:

Unfortunately, I realized too late that every PMS user who wants to send/receive messages via the "forward protocol" also needs a forward entry.
This will no longer be the case once the "TSTHOST" protocol has been implemented in PoPT.

Accordingly, the PoPT PMS is initially more suitable for sysops and/or regular users of the respective home BBS.

Creating a forward in LinFBB:

In the fbb folder /fwd create the file <USERCALL>.fwd which looks like this.

```
A <USERCALL>
  F <USERCALL>
  G *
  R
  O 10
#
-----
```

Edit the forward.sys file in the fbb folder:

```
< fwd/<USERCALL>.fwd
```

insert.

In the fbb folder, edit the file bbs.sys and insert the USERCALL behind one of the serial numbers.

! The "empty" lines where only numbers are written must not be deleted. !
So:

```
02 MD2BBS
03 <USERCALL>
04
..
```

Please replace <USERCALL> with the user's call without the <>. LinFBB is "installed" by default in the folder /usr/local/etc/ax25/fbb.

- Home BBS (BayCom)

It is important that PoPT automatically identifies the MailBox/BBS using the "Identifier/Header" e.g.: [BayCom-1.02-AB1D1FHMRW\$]
recognized.

To do this, you have to connect "manually" and send the command "F>" to BayCom.
The following should now be sent back:

```
[BayCom-1.02-AB1D1FHMRW$]
>
```

If PoPT has recognized the remote station as a BBS and the software as BayCom, this will be displayed in the lower status bar in the main window.



Now a manual forward can be initiated for testing purposes in the upper main window menu under:
PMS > Start FWD

- Home BBS (BayCom login procedure)

Login to the home BBS via "BayCom Login"* is currently not supported by "AutoFWD" mode.

However, PoPT supports the "BayCom login procedure" itself.

Therefore, you must first log in to your home BBS and then start the forwarding with "Start FWD".

* FBB, TNN and various other PR applications also use this process.

Example:

```
MD2BBS-0 > 16 14 66 34 28 [1701195616] Ok
```

```
(1) MD2BBS BBS>
```

- Manual forward (menu bar: PMS>Start FWD)

The home BBS must be connected "by hand".

If an automatic procedure is available for the home BBS software and the BBS software has been recognized by PoPT at Baycom, the manual forwarding can be started.

Otherwise the box must first be put into reverse forward mode.

- PMS settings

Forwarding can only be initiated if the home BBS and user data have been stored in the PMS settings.

Menu bar > PMS > Settings

The screenshot shows a window titled "Python other Packet Terminal 2.100.22dev" with two main panels. The left panel, "Eigene Station", contains fields for "CALL:" (MD2SAW), "Region:" (#SAW.SAA.DEU.EU), "MID: 463", and a "Set MID" button with the value 463. The right panel, "HomeBBS", has checkboxes for "AutoFWD" and "Single Conn", both checked. It includes "Neu" and "Löschen" buttons. Below is a section for "MD2BBS" with fields for "BBS Call:" (MD2BBS), "Regio:" (#SAW.SAA.DEU.EU), "Port ID:" (1), "VIA:" (CB0SAW), "AXIP:" (empty), and "AXIP-Port:" (0). There is a "Schedule" button next to the AXIP-Port field and a "Speichern" button at the bottom. At the very bottom of the window are "Ok", "Speichern", and "Abbrechen" buttons.

- PMS Settings (Region)

Region code/distribution list of the home BBS. The one in the PR email address.

- PMS Settings (Cancel)

Don't worry, nothing is really breaking here. The settings you made before just cease to exist. ;-)

- PMS settings (MID)

The MID (Message ID) is a serial number that is generated by the PMS itself.

Setting the MID is only necessary if the PMS database data has been lost/deleted.

If this is the case, make sure that the MID is greater than the MID/BID of the last message sent to the home BBS.

The MID and the call result in a "unique message/bulletin ID" which is used throughout the BBS network and, as the name suggests, must be unique.

If the MID/BID is already present at the home BBS or in the BBS network when forwarding, the message will be rejected by the home BBS when sent (flag: "S-")

- PMS settings (Single Conn)

If several home BBSs are created * it is ensured that only one BBS is forwarded at a time.

* Yes, that is also possible, you can operate e.g. "System-BBS" or "Private BBS" system via the e.g. Linux system messages or similar can be shared. Almost like a "private PR mail server".

- PMS settings (AutoFWD)

The home BBS is connected according to the set schedule/intervals to send/receive new mails

- PMS settings (AXIP)

If the AXIP address of the home BBS or the VIAS (NODE) PoPT is already known (see MH list) then the entry here is no longer necessary.

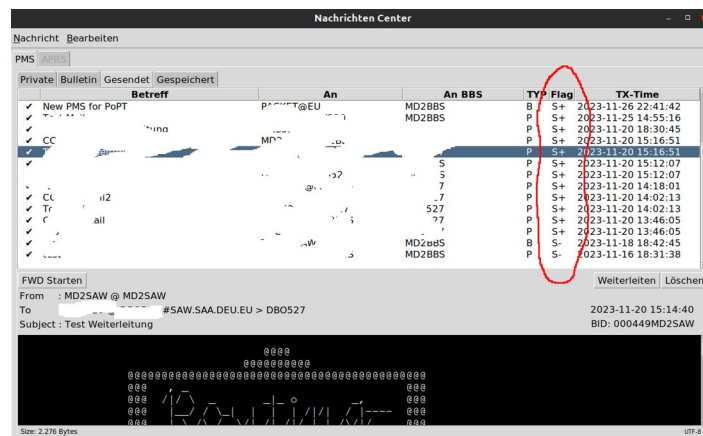
Please make sure and test beforehand whether the BBS can be reached via the route. So connect manually via this route and AXIP address.

- PMS settings (Schedule)

In the current version of PoPT it can still happen that the scheduler data is not adopted the first time a home BBS is created.

Here, after saving and closing the settings window, please open the window again and check the schedule settings.

- PMS(FLAGS)



F = Forward (Not yet forwarded) = Draft

E (Default)

S= = Sent (Home BBS is currently receiving this message from another source)

The message will be attempted to be transmitted again the next time you connect. S+

= Sent (Successfully sent)

S- = Sent (Home BBS already has a message with this MID/BID) H

= Sent (message was accepted by home BBS but set to "Held") = Reject (message was rejected

R by home BBS)

EE = Error

EO = OFFSET Error not implemented yet TO DO

The rest should be self-explanatory. I hope it encourages you to use PR Mail/Bulletin Mail more often.

user database (User-DB)

The user DB gets its data from various sources such as connects, owned APRS stations/beacons (optionally even from the APRS server itself)/weather stations, evaluation of the paths of PR, bulletin mails*, evaluation of "WP requests" from the home BBS or other boxes*.

Therefore, the user database should not be confused with a logbook*, because not all stations

PoPT uses the data in the user database to carry out evaluations, for example, on the distance to the other station, which is displayed on the monitor after a call (optional*). The PMS also gets its data from the user database and can therefore suggest known PR mail addresses and "auto-complete" but also control automatic processes, such as setting the correct text encoding/decoding, sending user-defined C texts, setting user/station-defined parameters, BayCom login procedures.

* planned if not yet available

- User DB (open)

The main User DB window can be opened in several ways.

1. Menu bar: Tools>User Database
2. By clicking on the lower status bar where the name, QTH, locator of the other station appears.



3. By clicking on the entry in the user table.

Menu bar: Tools>User-DB Tree

Call	Sysop	Typ	Locator	Distance	QTH	Land	Last Conn
ZH		SYSOP	JO51xx59	164	Halle	DE	23/11/23 20:13:42
(C)		APRS-WX	IN80dj63	1784			24/09/23 16:36:48
(C)		APRS-WX	JO70ef72	368			25/09/23 08:48:04
(C)		APRS-WX	JN89id37	564			24/09/23 16:33:31
(C)		APRS-WX	JO70dc16	373			24/09/23 16:33:29
(C)			IN89nk67	563			24/09/23 16:33:31
(C)							24/09/23 16:33:30
(C)							24/09/23 16:33:30
(C)							24/09/23 16:33:32
(C)			JN69p4	82			24/09/23 16:33:29
(C)		APRS-WX	JO60kef	18			24/09/23 16:33:29
(C)				611			24/09/23 16:33:31
(C)							24/09/23 16:33:29
(C)							24/09/23 16:33:30
(C)		APRS-WX	JN78fw17	491			24/09/23 16:33:29
(C)		APRS-WX	JN79gg05	461			24/09/23 16:33:29
(C)			JO64nb76	188			04/06/23 07:03:52
(C)		NODE		0	Dresden	DE	19/05/23 13:39:55
(C)			JO63wh35	188			06/06/23 09:43:54
(C)			JO99DH	840	Stockholm	SE	01/06/23 22:19:36
(C)			JO60xx02	282			03/06/23 18:20:20
(C)		APRS-WX	JN99ka68	687			24/09/23 17:00:07
(C)				0			06/10/23 22:37:23
(C)				0			25/09/23 15:30:48
(C)			KP31sk79	1369			25/09/23 15:38:05
(C)		APRS-WX	GG54jm33	10477			11/10/23 21:45:36
(C)		APRS-WX	GG54os02	10433			08/10/23 20:43:29
(C)		APRS-WX	GG55oi06	10364			11/10/23 21:44:20
(C)		DIGI		0			05/10/23 17:24:16
(C)			JO90os17	601			30/05/23 12:18:28
(C)			JN03ic32	1333			01/06/23 21:14:08
(C)			JN03ic32	1333			03/06/23 17:37:59
(C)			JO21eu44	474			03/06/23 17:37:59

- BayCom Login(Sys password)

The BayCom login process is not the most secure, so there are a few things you should keep in mind.

The only protection against a brute force attack is that the line is very slow, especially over RF.

The maximum possible password length should be used. A password generator should also be used.

I would avoid special characters because of the problems with decoding/encoding and they are not as important for the security of the password as the length and especially random characters that do not appear in any dictionary.

The password can be set in the user database in the respective station entry in the "Passwords" tab.



- BayCom Login (fake attempts)

To increase security, some systems, such as TNN, offer the option of logging in without receiving confirmation as to whether the login was successful. This can be used to send so-called “fake logins” in which not the correct password is transmitted but only a randomly generated number.

PoPT then sends the real password (the real login) when logging in among a series of sent fake logins

This makes it more difficult for the “attacker” to determine the real password.

- BayCom Login(response length)

Since the BayCom login procedure always asks for 5 digits of the password, it is relatively easy to “write down” the password over time, despite fake attempts (which is not supported by e.g. FBB).

To make this more difficult, the actual 5-digit password can be “hidden” in a randomly generated series of letters/numbers.

This procedure is supported by FBB and TNN (other software probably supports it too).

The whole thing looks like this.

```
MD2SAW de CB0SAW (20:53)>SYS
JO52NU:CB0SAW> 54 17 55 26 21
8is9VhsXJtbIdn6txP6qpRUnP0f61JlSsliqRhas3PoqlG0GnIYs9s3belYs1NFbCjjwrbfb2Q44yXxW
SYS
MD2SAW de CB0SAW (20:53)>JO52NU:CB0SAW> 31 76 33 30 80
q6PC8tb9eCC79B7X8OVGIr0xxAIYdXc8RRRxot3QIMbRjlsTSXJTnqWfsqc7dF2NAFVuDJ5EOiDrgW4d
SYS
MD2SAW de CB0SAW (20:54)>JO52NU:CB0SAW> 76 45 54 43 28
BlG1TzARqMgfQlGrcgdPyawfIKgMq5gD0FU3YJ8LNqncrF5uHjllUdjwBxsGvBZuZTAUyBKCBTbNZ84x
SYS
MD2SAW de CB0SAW (20:54)>JO52NU:CB0SAW> 65 59 50 74 55
zRF3PF45DQBxL8YZsmWWYnDH91DNjB7tAu0JckYxHlpt6JiuaPx8ACDFeNkyOH91PjAsNr2lgEhSCFo
SYS
MD2SAW de CB0SAW (20:54)>JO52NU:CB0SAW> 4 36 38 32 16
jtXl8zfcSEtwfQhbRCqFJEyvwZDJykCtdYAaDNEAiE5S1W5M5s8SnOcxDT683eQtQcG2gYEENQEHJ2O4
MD2SAW de CB0SAW (20:54)>
NODE-Manuel Salzwedel JO52nu94 NODE ----- S----- 0:01:39 UTF-8
```

The “S” in the bottom status bar shows you whether you are logged in or not. PoPT cannot check whether the login was successful, the “S” is more of an indicator that you have already logged in.

- BayCom Login (login command)

Here you can enter the command that must be sent to the other station to trigger a login.

For sysop login this is usually the command “SYS”.

Dual Port

With the “Dual Port” tool it is possible to combine 2 ports into one port.

In dual port mode, the two combined ports are evaluated as one port, and RX echoes and frames received by both stations (received twice) are filtered out.

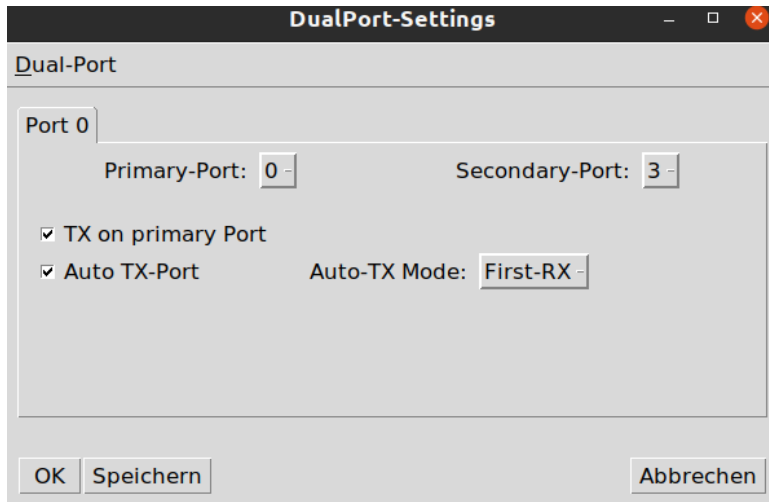
The station settings of the primary port apply.

With this tool it is possible, for example, to operate 2 RTXs on different antennas on the same channel (e.g. antenna north vertical, antenna south horizontal) or to use an SDR as an additional receiver.

Basically, the tool is not intended to create gateways between two different channels/frequencies, since PoPT always treats the dual port as one port (e.g. MH list).

- Settings

Menu bar > Settings > Dual-Port



Select primary and secondary port.

- TX on primary port

Send on primary or secondary port.

- Auto TX port

The sending port is selected automatically depending on the mode selected.

- Auto-TX Mode First-RX

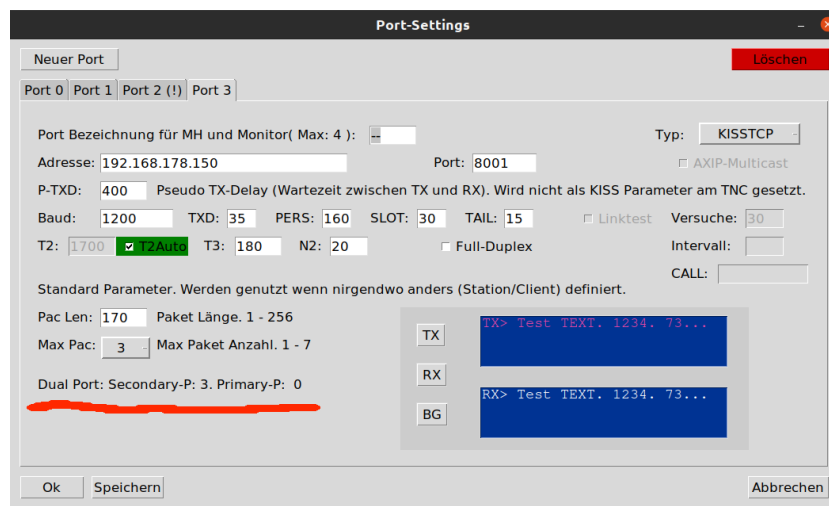
It is sent on the port on which the station was first received. If the station has not yet been recorded in the MH list, it is sent on the primary port.

- Auto-TX Mode Last-RX

It is sent on the port on which the station was last received. If the station has not yet been recorded in the MH list, it is sent on the primary port.

Attention! This mode can lead to FRMR in case of high transmission volumes, because PoPT cannot monitor the buffer of the individual TNCs.

For stations that can be heard via both antennas, packets can suddenly be sent via the second port on which the TNC buffer is still empty, thus sending packets out of sequence because TNC1 still has the previous packets in the buffer because it has not yet been sent.



text variables

\$ver = PoPT 2.xxx.x
\$time = 20:39:00
\$date = 03/03/2024
\$uptime = time since program start
\$channel = channel NR
\$portNr = Port NR
\$destName = Name of the remote station if known, otherwise call the remote station
\$destCall = Call of the other station
\$ownCall = Own call
\$lastConnDate = Last connect date
\$lastConnTime = Last connect time \$distance
= Distance to the other station \$connNr = Connect No.
\$parmMaxFrame = Max Frame Settings
\$parmPacLen = Packet Length Settings

- Bake
- Bake
- Bake
- Bake
- Bake
- Bake
- Bake
- Bake

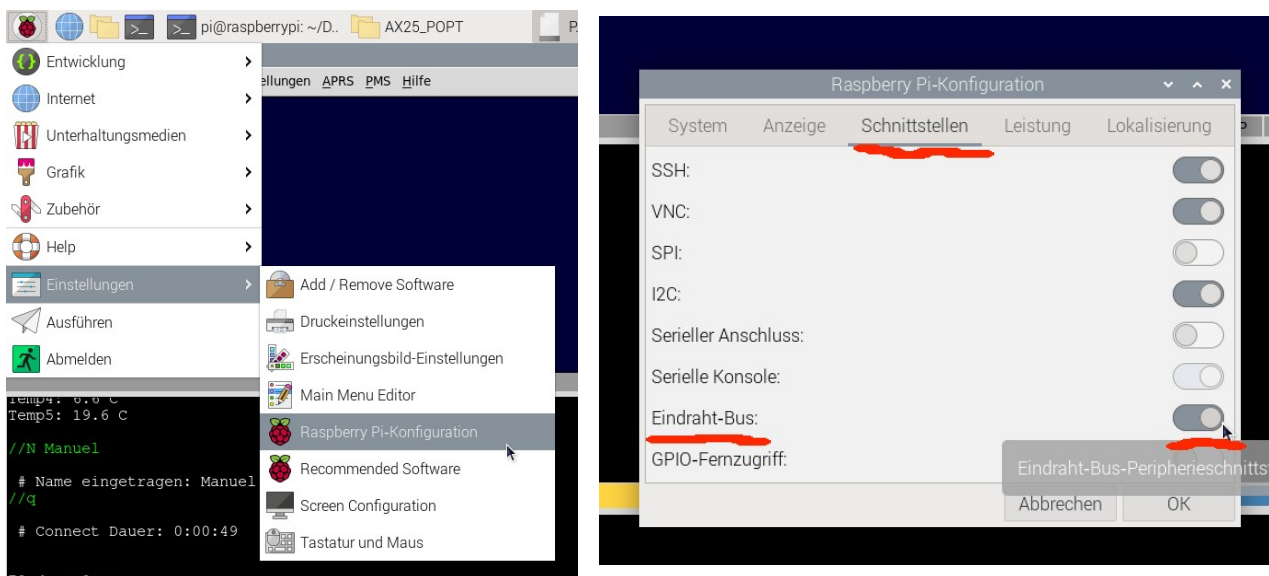
1Wire sensors

PoPT offers the possibility to read sensor data from devices that use the 1Wire bus and to integrate it as a text variable in C-Text/Bake/Info-Text/etc.

The following examples/screenshots refer to a Raspberry PI 3 / 4,
However, the 1Wire function can be used with any other device where the 1Wire bus is available.

PoPT gets the data from the folder structure '/sys/devices/w1_bus_master1'.

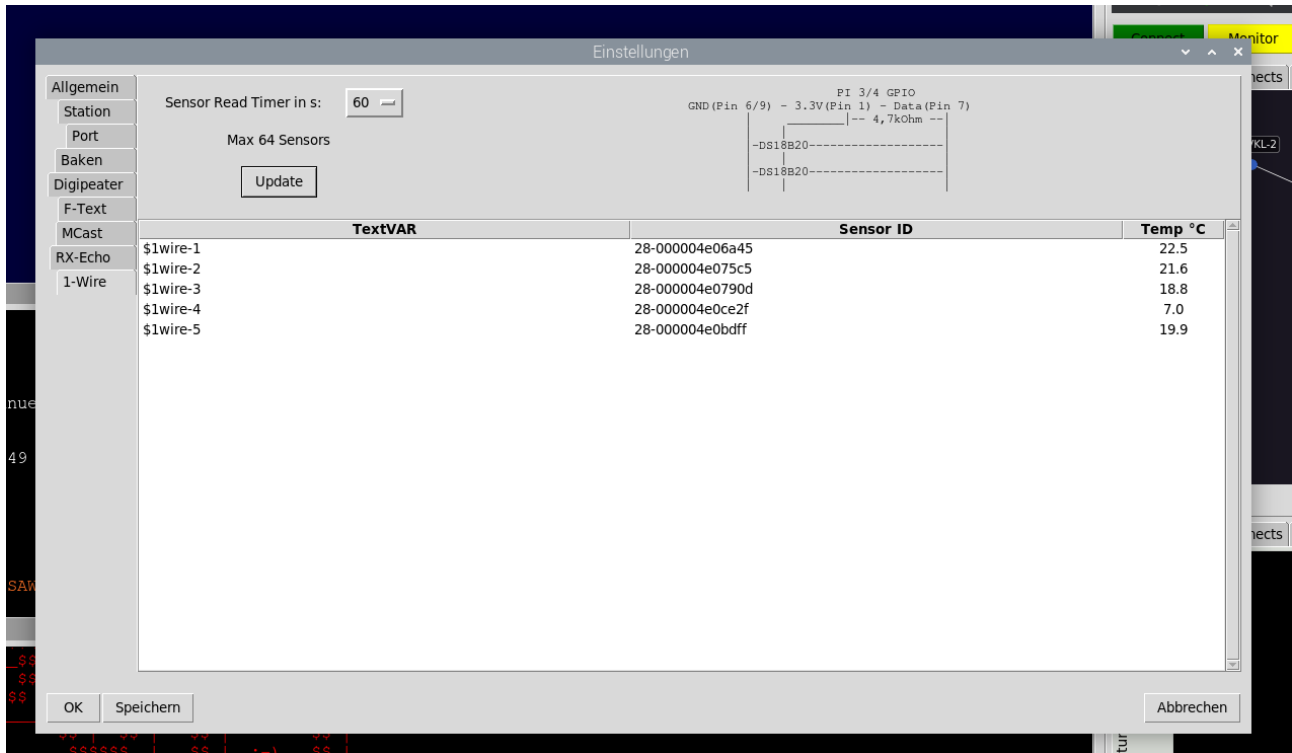
With Raspberry OS, the 1Wire bus must first be activated as follows.



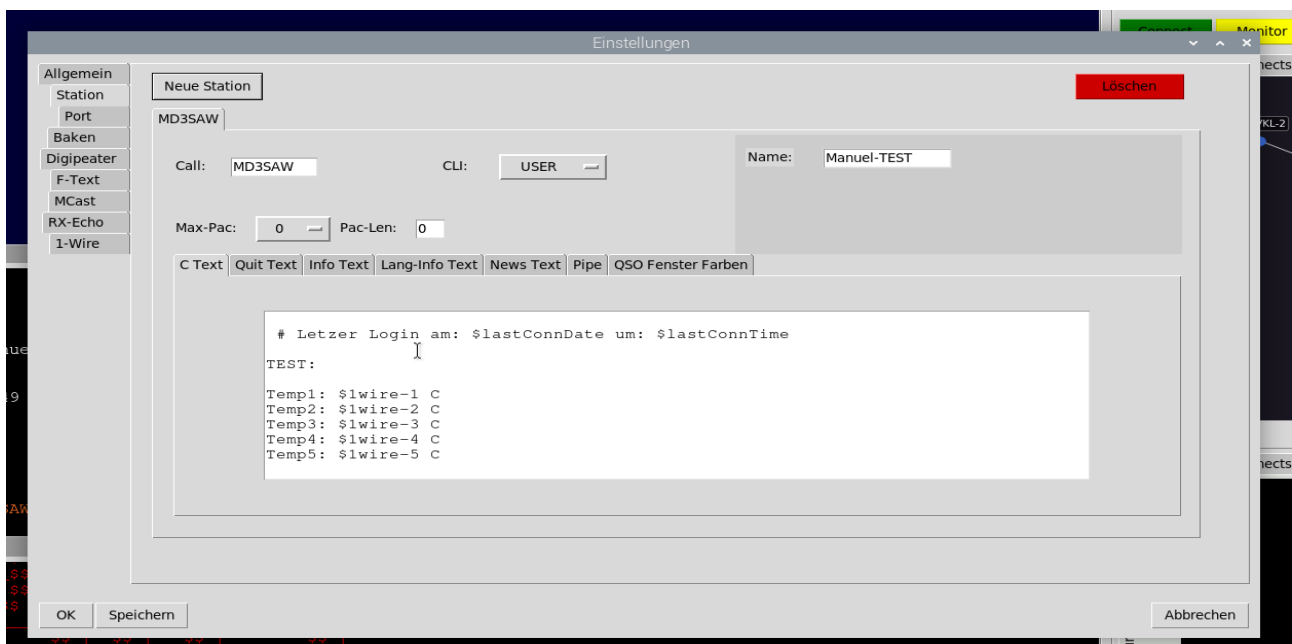
And then restart the PI.

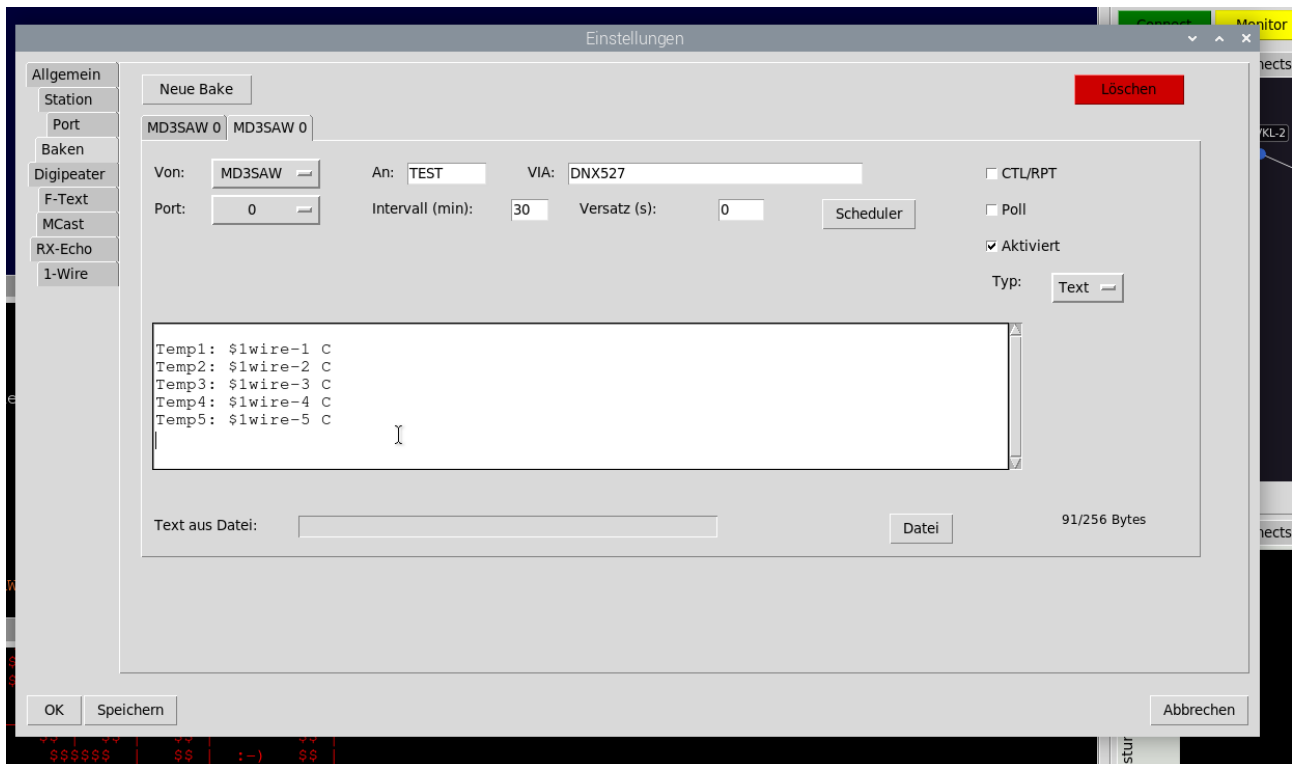
You can check whether the activation was successful by checking whether the path `/sys/devices/w1_bus_master1` exists with,
`ls -la /sys/devices/w1_bus_master1`
or simply by opening the settings in PoPT.

A new tab "1-Wire" should now appear there.



In the first column of the table you will find the respective text variables that were assigned to the sensors.
You can now insert these into your texts, as you can see in the following examples.

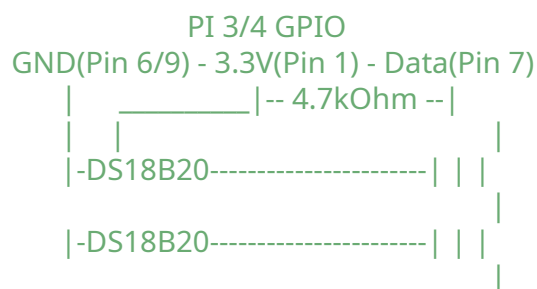




Since querying the sensors via the 1Wire bus can take several seconds, the sensors are not read directly when the respective texts are called up, but in a continuous loop.

The update rate/polling rate can be set under 'Sensor Read Timer in s:'.

The sensors are connected as follows.



Further information can be found at: <https://st-page.de/2018/01/20/tutorial-raspberry-pi-temperaturmessung-mit-ds18b20/>

Version 2.114.x:

Currently only 1Wire temperature sensors are supported.

If there are other sensors where it would make sense to implement them, please let us know.