General

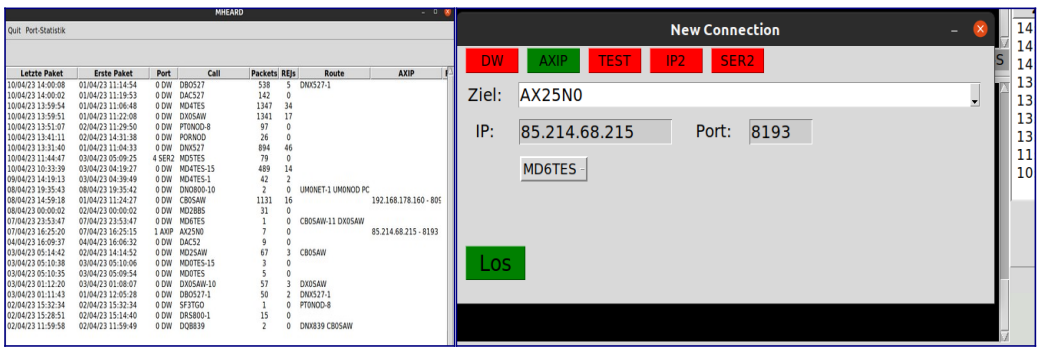
Keybindings:

ESC > New Connection ALT +
C > New Connection ALT + D
> Disconnect
F1 - F10 > Channel 1 - 10
F12 > Monitor Mode
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

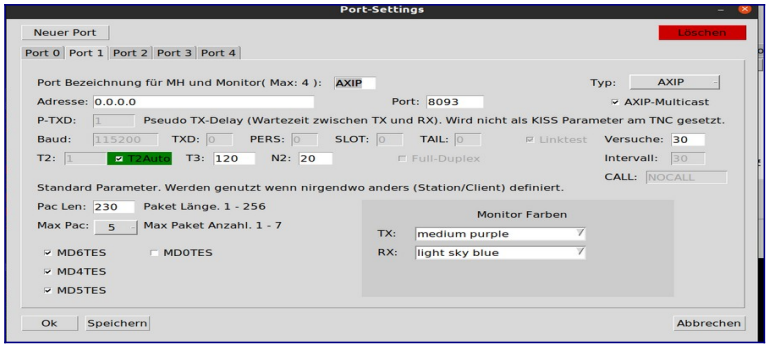
The AXIP procedure with PoPT works a little differently than what we are used to from flexnet32. The respective AXIP addresses are not permanently linked to a port, as with flexnet32, but to the associated call.
Accordingly, the AXIP addresses (IP, port) are stored together with the call in the MH list 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 (whether it's a 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 on a server.
The default IP address (0.0.0.0) says that the AXIP port can be reached on every IP address that the computer has.
If you changed the IP to e.g. 127.0.0.1, the port would not be accessible from outside but only via localhost.
So internally, from programs that run on the computer itself.
Or you have a computer with several network cards (virtual or real), i.e. several IPs, so you can only make the port accessible for one IP.



But in general you can leave the IP at 0.0.0.0.
It is also important that if you want to be connected to the Internet via AXIP, you have to open the set port on your router (Firtzbox or whatever).

PoPT RX Echo

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

With RX-Echo it is possible to route all 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 together
With the AXIP multicast function, the traffic from Direwolf, which is connected via KISSTCP, is forwarded 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 set text file, for example via cronjob.
Once PoPT reads the data in this file, it will be 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, as it is also possible to read the beacon directly from a text file.

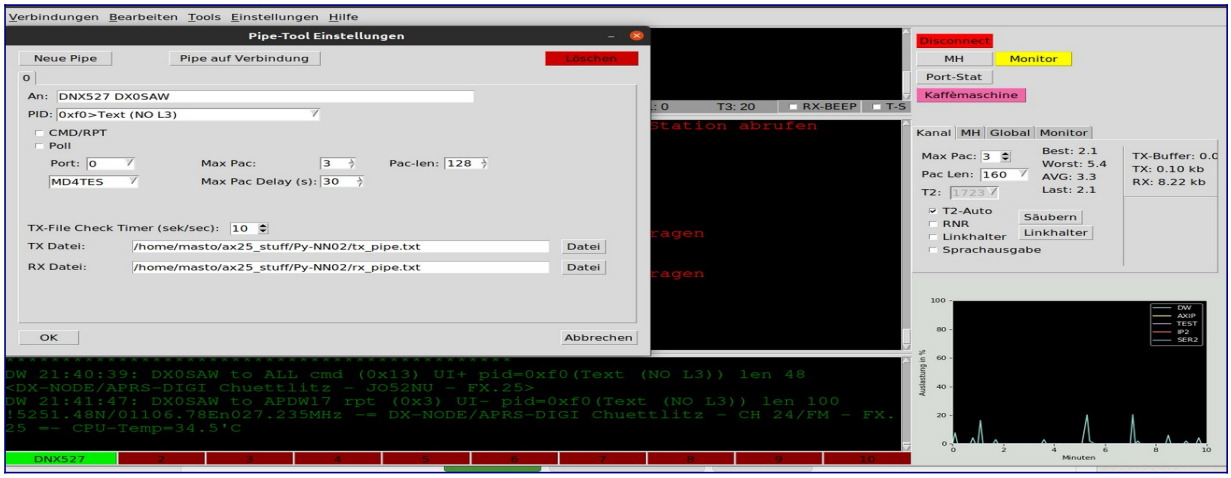
Next, with the pipe function it is possible to write data from a specific station to the preset file.

The application examples mentioned above are only the simplest.

Since the PIpe Tx and RX can output incoming raw data and send incoming raw data, it is possible to "pipe" applications using the AX25 protocol via HF or even write protocols for your own applications.
In order to be able to implement your own protocols, the AX.25 protocol already provides an extra PID protocol ID that you can select, among many others, for the pipe.

In order to be able to keep the external application in check and adapt it 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 period 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 said that the incoming data is successively broken down into the respective packets and sent unlogged.

Unlogged means that you have to make sure yourself that the data arrives completely at the other end.
The whole thing can be equated with a UDP connection, where lost packets are not requested again as with TCP (Logged connection / The pipe tool does too offers)

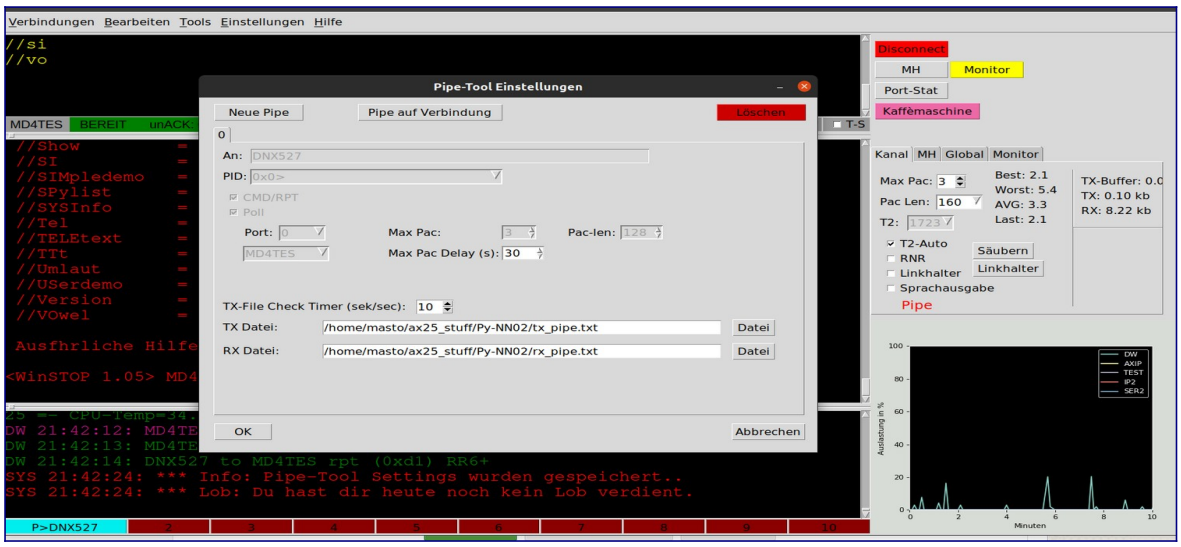
Proto Pipe

In the end it's the same as an unProt pipe, except that you don't have to worry about whether the data reaches the recipient.
This is ensured by the AX.25 protocol. So through the existing connection.

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

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

This means you can basically store your own processes, commands or whatever behind a call.
The output of a website prepared in text would also be conceivable or the direct query of sensor data as soon as this station is connected.



Home automation would also be a conceivable application. Switch on the pump or lawn sprinkler in the garden via PR.

I hope I could now shed some light on the dark pipe.

Ppersonnel**M**ail**S**system

- Preface

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

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

Therefore, the PMS can initially only connect to the home BBS according to an adjustable schedule/ intervals or manually triggered in order to query and send new emails. Similar to the POP3 email protocol in the past.

To what extent further settings are required from the home BBS sysops or on the BBS itself via commands in order to also have bulletin mails forwarded, I cannot initially say further, as I only have limited options such as access to other BBS software I can/want to change the BBS network by constantly creating new test calls on other BBS or my home BBS.

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

- Home BBS

Since the procedures are different for each BBS software to trigger the reverse forward, only the automatic procedures for FBB and BayCom are currently implemented.
However, the forward of the PMS can also be triggered manually as soon as the home BBS is in the corresponding mode.
* Automatic procedures for other BBS software will be gradually implemented.

It is not necessary that you have to set up your own BBS immediately, but when choosing your home BBS you should make sure that it is in your region (e.g. federal state) in order to be able to also receive regional bulletin emails (e.g. weather/weather warning , regional information).
The call and the region code of the home BBS then become part of your PR email address, which you can then use to receive/send “private emails”.
E.g.:
Sysop: MD2SAW
BBS: MD2BBS
BBS region: #SAW.SAA.DEU.EU
Results in PR email address:**MD2SAW@MD2BBS** .#SAW.SAA.DEU.EU

Declaration of region:
SAW(Salzwedel).SAA(Saxony-Anhalt).DEU(Germany).EU(Europe)
Attention, there is no WW or WWW in the regional/distribution addresses to be able to distribute intercontinental emails via corresponding “gateways” routes.

- Home BBS(FBB)

In order to trigger the reverse forward at FBB, the user must have the user status “PMS” or FBB must be allowed to allow all stations to use the forward. Please contact the BBS sysop here.

Procedure to set PMS status:
In the FBB console with sysop status the following
command: EU <USERCALL>
then follow the menu.

“Allow all stations forward” procedure:

In the file fbb.conf (! May have different names in other FBB versions)
make sure that**128: Accepts forwarding only from pre-declared BBS**
is switched off.
Explaining the whole thing here would go too far.
By the way, for CB stations “**4096: Test of callsigns is less strict. "callsigns" as long as they have one figure (0-9) anywhere in the callsign.**“ **allows all**
be switched on. 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
8th : 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 noticed too late that every PMS user who wants to send/receive their messages via the “forward protocol” also needs a forward entry.
This will no longer be the case later when the “TSTHOST” protocol has been implemented in PoPT.
Accordingly, the PoPT PMS is initially more suitable for sysops and/or permanent 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
   Oh 10
#
- - - - - - - -
```

Edit the forward.sys file in the fbb folder:

<fwd/<USERCALL>.fwd

insert.

Edit the bbs.sys file in the fbb folder and insert the USERCALL after one of the serial numbers.
! The “empty” lines where there are only numbers may not be deleted. !
So:

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

Please replace <USERCALL> with the user's call without the <>. By default, LinFBB is “installed” into the /usr/local/etc/ax25/fbb folder.

- Home BBS(BayCom)

It is important that PoPT automatically detects the MailBox/BBS based on the “Identifier/Header”
Example: [BayCom-1.02-AB1D1FHMRW$]
recognized.
To do this, you have to connect “manually” and send the command “F>” to BayCom.
Now the following should be sent back:

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

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

Now, as a test, a manual forward can be initiated 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.
You must first log in to the home BBS and then start the forward with “Start FWD”.

* FBB, TNN and various other PR applications also use this procedure.
E.g.:

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

(1) MD2BBS BBS>

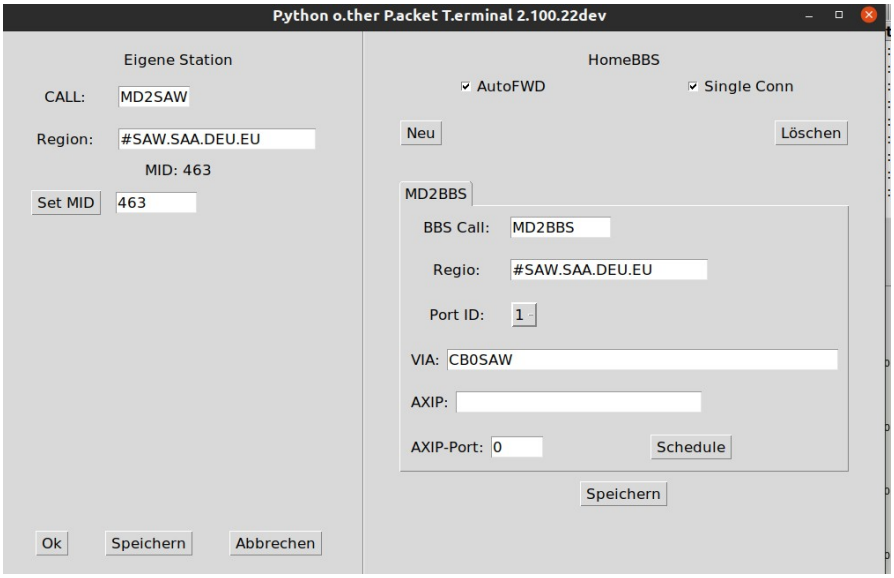
- Manual Forward (Menu bar: PMS>FWD Start)

The home BBS must be connected “manually”.
If an automatic procedure is available for the home BBS software and the BBS software has been recognized by PoPT at Baycom, the manual forward can be started.

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

- PMS settings

Forwarding can only be triggered if the home BBS and user data have previously been stored in the PMS settings.
Menu bar > PMS > Settings



- PMS settings (region)

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

- PMS Settings (Cancel)

Don't worry, nothing really breaks here. The previously made settings just cease to exist. ;-)

- PMS settings (MID)

The MID (Message ID) is a consecutive 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, care must be taken to ensure that the MID is greater than the MID/BID of the last message that was sent to the home BBS.
The MID and the call result in a “unique message/bulletin ID” which is used throughout the entire 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 BSSs are created * it is ensured that only one BBS is forwarded at the same time.
* Yes, that works too, for example you can operate a “System BBS” or “Private BBS” system via that
E.g. Linux system messages or the like can be shared. Basically as a “private PR mail server”.

- PMS settings (AutoFWD)

The home BBS is connected according to a set schedule/intervals in order to send/receive new emails if necessary

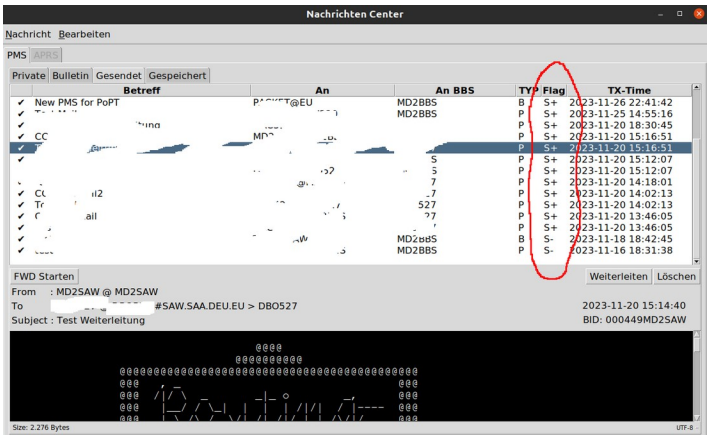
- PMS settings (AXIP)

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 pay attention and test beforehand whether the BBS can also 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 transferred the first time a home BBS is created.
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 (Sent Successfully)
S- = Sent (Home BBS already has a message with this MID/BID) H
= Sent (message was accepted by home BBS but set to "Hero") = Reject (message was rejected
R by home BBS)
EE = error
EO = OFFSET Error not implemented yetTO DO

The rest should actually be self-explanatory. I hope it encourages you to use the PR mail/bulletin mail more often again.

User database (User DB)

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

Therefore, the user DB should not be confused with a logbook*, as not all stations are

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

* planned, if not yet available

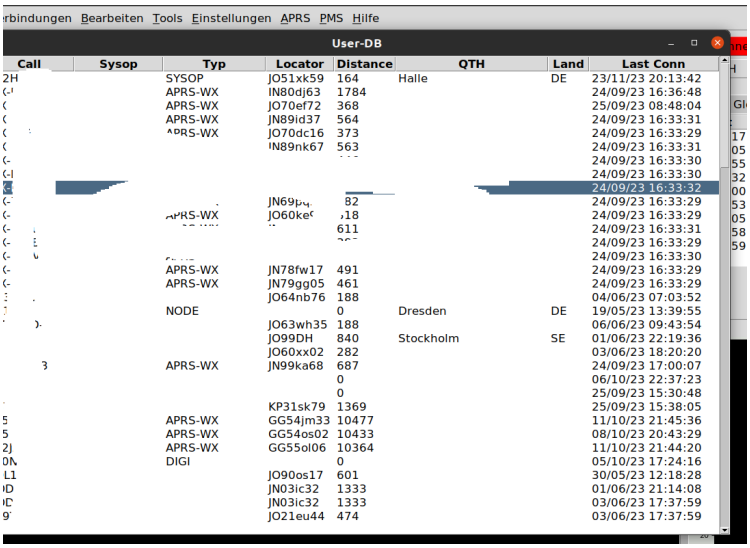
- User DB (open)

The main User DB window can be opened in different 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



- BayCom Login (Sys password)

The BayCom login process is not the most secure, so a few things should be taken into account.
The only protection against a “brute force” attack is that the “line” is very slow. Special about HF.
The maximum possible length of the password should be
used. A password generator should also be used.
I would avoid special characters because of the problems with de/encoding and are not as crucial for the security of the password as the length and, above all, random characters that do not appear in any dictionary.
The password can be set in the user DB in the respective station entry in the “Passwords” tab.

- BayCom Login (fake attempts)

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

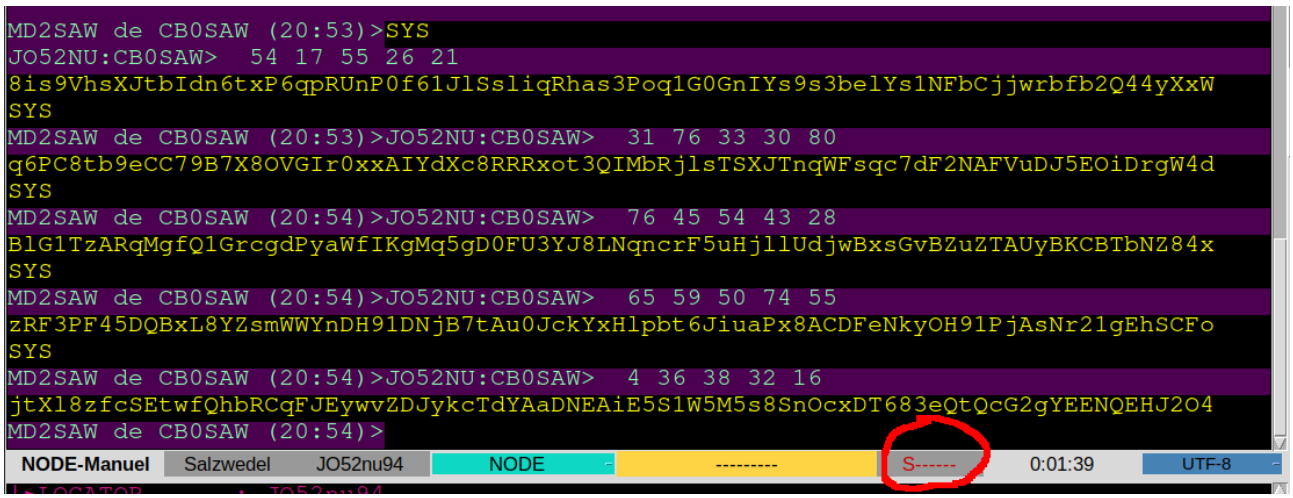
PoPT then sends the real password (the real login) when logging in among a series of sent fake logins.
This makes it more difficult for the “attacker” to determine the real password.

- BayCom Login (response length)

Since the BayCom login procedure always asks for 5 digits from 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 also supports this).

The whole thing then looks like this.



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 “SYS” command.

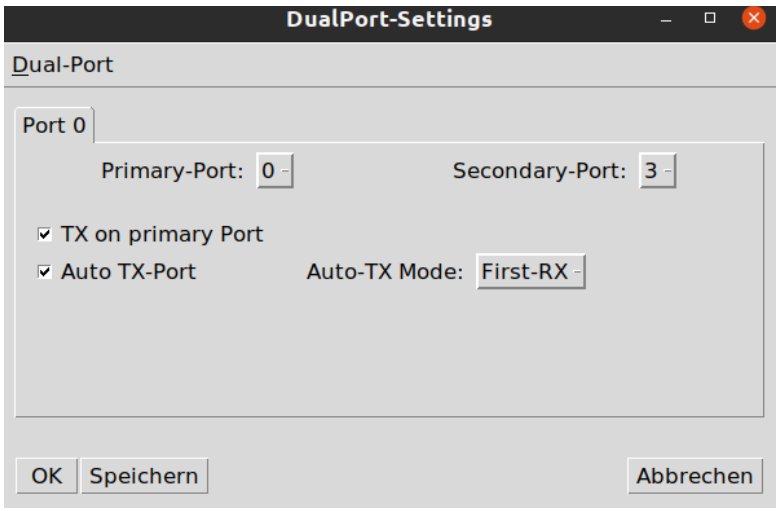
Dual ports

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, RX echoes and frames received (twice received) from both stations are filtered out.
The station settings of the primary port apply.
With this tool it is possible, for example, to operate 2 RTX on different antennas on the same channel (e.g. antenna north vertically, antenna south horizontally) or to use an SDR as an additional receiver.

Basically, the tool is not intended to implement 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 automatically selected depending on the mode set.

- 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 will be 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 will be sent on the primary port.
Danger ! This mode can lead to FRMR at 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 2nd port to which the TNC buffer is still empty and it therefore sends packets out of sequence because TNC1 still has the previous packets in the buffer because it hasn't been sent yet.