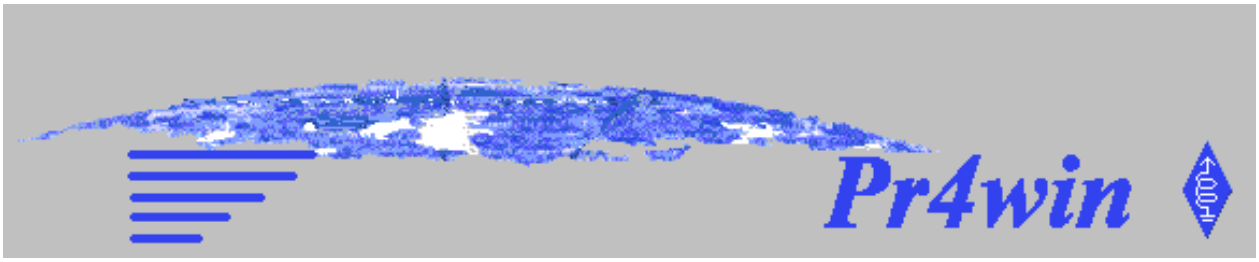
Packet Radio for Windows

Pr4Win

# Manual

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# Content

# Packet Radio for Windows

## *The Pr4Win project*

Pr4Win is a Packet Radio program, that uses the KISS protocol as an interface to any TNC or direct to another computer (serial line, modem or TCP/IP network). It was developed under Windows NT 3.51 (Windows NT 4.0 since mid 1996), using a SYMEK TNC3S, an Allinco DR-599 and a 100 MHz Pentium PC with 32 MB RAM. For testing I had some 1200 Baud Digipeaters (RMNC 3.3e with and without DAMA) available.

Pr4Win is a true 32-Bit Windows MDI application and is completely written in Microsoft Visual C++ 4.2 using the XVT 4.50 WIN32 DSC-libraries (for the 16-Bit version Microsoft Visual C++ 1.52 and XVT 4.50 WIN DSC-libraries have been used). The XVT-libraries makes it possible to write platform independent source code. These programs are easy to compile on different platforms, e.g. Windows, OS/2 or MAC. The project consists of approximately 80000 lines of C-source code.

Development of Pr4Win started in April 1994. The first usable Release 0.98 was available in September 1994. In March 1995 release 1.03 was uploaded to the PR Net. The version 2.10 has been available since October 1996. Pr4Win has been successfully tested under Windows NT 4.0, Windows NT 3.51 Windows-95 and OS/2 Warp 3.0 (WINOS/2 Box). With Pr4Win 3.0 the latest version is available.

At the moment of cevelopment I was responsible for strategic new technology projects (Internet and Java) at CSE Systems company We are the developers of CSE/WorkFlow, a Client-Server software for electronic business case handling.

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# Installation

## *16-Bit /32-Bit*

Pr4win is available both as a 16-Bit version for Windows 3.11 and Win/OS2 and a 32-Bit version for Windows 95, Windows 98 and Windows NT. The 16-Bit version will also work on Windows 95,98 and NT but for a better System performance you should use the 32-Bit version whenever possible.

There is no functional difference between the 16-Bit and the 32-bit version.

## *Setup Distribution*

The file SETUP.EXE contains a complete Installshield setup for Pr4Win 3.00 32-Bit. The directory “c:\Program files\pr4win” is suggested as default installation directory. All path statements in the pr4win.ini file are adjusted to the chosen installation directory automatically.

A “german” setup is available as SETUPG.EXE.

## *ZIP File Distribution*

The file p4w32300.exe File contains a self extracting archive of the c:\Pr4Win32.300 directory with all of the necessary sub-directories.

If you have chosen a different installation directory you have to adjust all path statements in the pr4win.ini file during the configuration.

Another difference to the setup distribution is that the Visual C runtime DLL (MSVCRT.DLL,…) are kept in the pr4win directory instead of copying them to the OS system directory.

During times with fast changes the ZIP method is preferred as it produces considerable smaller files to distribute.

The 16-Bit Version of Pr4win (p4w16300.zip) is only available as ZIP installation.

## *Directories, Files*

All directories used by Pr4Win.INI can be configured through entries in the configuration file Pr4Win.INI. This chapter describes the default configuration, which is also included in the installation set.

During the installation, Pr4Win will be installed in the directory C:\Program files\Pr4Win by default. If this installation directory is changed later, then all hard drive and path entries in the file Pr4Win.INI must also be changed.

```
...\Pr4Win
```

The root directory should be defined as the working directory in Windows. In any case you must ensure that Windows can find the X*.DLL's when the program is started. Usually they are in the same directory as the program file.

```
...\Pr4Win\Pr4Win32.EXE
```

This file is the program. The 16-bit version is named PR4WIN16.EXE. The 16-Bit and the 32-Bit version of Pr4Win may share the same directory structure and you can use them alternatively.

`...\Pr4Win\Pr4Win.INI`

This file is read by Pr4Win at the start of the program and it contains the configuration instructions. If you make any changes in this file, you will have to restart Pr4Win before the changes will take effect.

`...\Pr4Win\Pr4Win.BMP`

Background bitmap which is loaded in the MDI window. This bitmap will be repeatedly loaded until the entire window background is filled. You can replace this bitmap with a bitmap of your own choosing.

`...\Pr4Win\WELCOME.BMP`

During the start and the initialization of the program, this bitmap will be displayed in its own window which is centered in the MDI Window. After a few seconds, the welcome bitmap will disappear. You can replace this bitmap with a bitmap of your own choosing (e.g. with a MS-Paintbrush).

`...\Pr4Win\X*.DLL`

These files belong to XVT Runtime DLL's. They are a very thin abstraction layer which replaces the platform dependent event processing data structure and function calls with platform-neutral elements.

`...\Pr4Win\PWDTYP.DAT`

Contains description of mailbox and digi password procedures. Each procedure consist of a name, a password method and a password command.

`...\Pr4Win\TMP\`

Pr4Win creates files in this directory which are necessary during the running of the program. All the files in this directory may be deleted before or after Pr4Win runs. If files are still in the directory after a program or Windows crash (e.g. power outage), they do NOT have to be manually deleted. The method which creates the Pr4Win temporary files does not allow the number of files to continuously increase.

`...\Pr4Win\TMP\POS\`

`...\Pr4Win\TMP\POS\nnnn.POS`

Pr4Win saves the position, size and fonts of the individual windows when they are closed in these files. If you want to set the screen resolution from a higher to a lower setting, these settings and screen positions can be saved in these file which are outside of the monitor coordination (control panel). In this case you should delete the respective (or all) *.POS file. Afterwards, Pr4Win will take the default values of the window which is opened first. If you want to see the

number which represents the connection of the window, POS file and CNF file, press simultaneously Shift - Ctl - F3 in the active window. Pr4Win will then display in the window header the four character "window number".

...\Pr4Win\TMP\POS\nnnn.TLB

Pr4Win saves the column width for each list displayed in any window in a *.tlb file. The column width can be changed at runtime by clicking into the header an dragging the line between two columns.

...\Pr4Win\CNF\nnnn.CNF

Each individual window can be configured in a CNF files. A description of the syntax and functions of the CNF files would overwhelm the framework of a short overview. It was the task of Pr4Win project to prove the practical usability of this concept. **Important!** Each CNF file is secured through a check sum value. If a CNF file is changed with an editor, the file will no longer be accepted by Pr4Win and the program will be interrupted with an error message. The CNF filed do not contain any text that is displayed in an application window. Instead it contains references into the "WINDOW.TXT" file which exists in each language directory.

...\Pr4Win\english\

...\Pr4Win\french\

...\Pr4Win\german\

The synonym "…\Pr4Win\lang\" is used for one of the above defined language directories.

Any of this directories contains all files which belong to one language configuration. Presently, there exists a German (..\GERMAN\...) and an English (...\ENGLISH\..) configuration (The French configuration is presently rather incomplete and without native on-line help).

...\Pr4Win*lang*\WELCOME.TXT

The standard welcome message is contained in this file. The file may contain key words which will be replaced before a transmission. The text is transmitted when a station makes a connection with Pr4Win. When a script is defines for a station in the station database this script is executed instead of sending the welcome message.

...\Pr4Win*lang*\<call>.TXT

If you want to establish an individual greeting for a specific station, you only need to place the greeting's text in a file with the call of that station as the file name. SSID's of the opposite station are not considered.

...\Pr4Win*lang*\GOODBYE.TXT

The standard closing (good-bye) message is contained in this file. The file may contain keywords which will be replaced before a transmission. The text is transmitted when a station ends the connection with the "//Quit" command..

...\Pr4Win*lang*\HELP.TXT

The standard help message is contained in this file. The file may contain keywords which will be replaced before a transmission. The text is transmitted when a station requests helps with the "//Help" command.

...\Pr4Win*lang*\INFO.TXT

Standard information about the station's description is contained in this file. The file may contain keywords which will be replaced before a transmission. The information is transmitted when a station requests it through the "//Info" command.

...\Pr4Win*lang*\<CMD>.TXT

For each remote command there is a description file which explains the remote command. This description can be seen with the remote command “//help cmd” E.G. “//help dir” shows the ..\lang\dir.txt file.

...\Pr4Win*lang*\DIALOG.TXT

Contains the dialog text for error messages and user notes. The file format is described in the header of the DIALOG.TXT file.

...\Pr4Win*lang*\WINDOW.TXT

Contains all texts that are displayed by Pr4Win in any of its windows. For each window there is a section in this file. The file format is described in the header of the WINDOW.TXT file.

...\Pr4Win*lang*\PR4WIN.HLP

Contains the On-line Help which is in Microsoft Help format.

...\Pr4Win\PUB\

All files which have been created by other stations with the command "//CA Filename" will be placed in this directory. Files which are accessed by external stations with the commands "//Get Filename" and "//Dir Filter" will also be placed in this directory. You may create your own desired sub-directories and connected stations cannot leave this file tree (structure). If an individual working directory is created for a station in the station's root data, then this individually established directory (and sub-directories) are the valid working directory for that station.

...\Pr4Win\SAVE\

If you capture the monitor, spy or connect window, then the file which is created through this action will be placed in this directory or at least this

directory will be suggested. All files captured by auto7P, autoBin or autoUU are also placed in this directory

`...\Pr4Win\LOG\`

Pr4Win places permanent files (protocol files) in this directory.

`...\Pr4Win\LOG\USER.IDX`

`...\Pr4Win\LOG\USER.DAT`

The USER files contain the data management of all known stations. In the USER.IDX file a sorted double-linked list of calls is managed. The USER.DAT file contains the files which are saved to each call. A reorganization program is only required with corrupted files. Holes or breaks caused by deletions from station are automatically used again, i.e. the files cannot shrink.

`...\Pr4Win\LOG\<mycall>.LOG`

For each connection a data line with call port, frequency, beginning and ending times and comments (if there are any) will be added here. The log file can be edited in the logbook module.

`...\Pr4Win\LOG\<YYYYMM>.LOG`

The output from script command “//log text” is written to this log file. YYYY is the current year and MM the current month. New files are automatically created.

`...\Pr4Win\LOG\<boxcall>.LST`

Contents lists which were requested with "Check" and "List" to the call box will be placed here. The lists have to be deleted in the "Check Window" using the “delete” icon button, if you wish to delete these items.

`...\Pr4Win\MAILHOME\`

The local mail archive is contained in this directory and sub-directories. For each mail folder a new directory with the folder name is created.

`...\Pr4Win\MAILHOME\MAIL.DAT`

Contains a directory of mails for this folder. Mails which have been left by other stations or loaded from a box are kept in the root folder.

`...\Pr4Win\MAILHOME\MAIL0001.TXT`

An example of a mail left by another station.

`...\Pr4Win\SOUND\`

Pr4Win searches for sound files in this directory. This sound files have to be WAV format sound files. The remote command “//PLAY xxx” plays the file

"..\pr4win\sound\xxx.wav". The command "//PLAY" without any parameter lists all available sounds.

`...\Pr4Win\SOUND\Pr4Start.wav`

This sound is played whenever Pr4Win is started.

`...\Pr4Win\SOUND\Pr4End.wav`

This sound is played whenever Pr4Win is closed.

`...\Pr4Win\SOUND\Connect.wav`

This is the default sound when a station connects you.

`...\Pr4Win\SOUND\<Call>.wav`

This is the sound is played when the station "call" connects you.

`...\Pr4Win\BITMAPS\`

Contains some Bitmaps used by Pr4Win in list display. (hierarchical structure of folder, folder, box icon …)

`...\Pr4Win\SCRIPT\`

Pr4Win searches for script files in this directory. This directory also contains timer files.

`...\Pr4Win\SCRIPT\MONDAY.TIM, THUESDAY.TIM … SUNDAY.TIM`

Files containing timer events.

# Configuration

After Pr4Win has been installed it has to be configured to your call sign and your TNC. The configuration is done by editing the pr4win initialization file pr4win.ini with a text editor.

## *The Initialization File Pr4Win.ini*

The initialization file Pr4Win.INI contains the configuration data for the program and it is read once when the program is started. This file is divided into individual sections where the different aspects of the configuration are contained. Each section is separated from the others by a section name in brackets. Each section name has to be in its own individual line. All of the following lines are configuration entries which belong to this section. Only special configuration entries are allowed in each section.

Each configuration entry contains a description and a value which are separated by an = sign and each entry consists of exactly one line.

**[Pr4Win]**

The section [Pr4Win] contains the general program configuration.

```
MYCALL=OE8DJK-5,6,7
```

**Note:** Pr4Win accepts only connections with SSID's which match exactly those entered here. Connect attempts (SABM) to all other SSID's will be ignored (no DM-frames will be sent back either). Through this it is possible to communicate with more than one station with the same call sign but with different SSID's at the same time.

If a "*" is entered in place of a SSID, then Pr4Win will answer all SSID's.

```
RCALL=OE8XXX
```

Tells Pr4Win that it should only accept connections from OE8XXX. (Default is “RCALL=”) This definition is useful for remote controlled stations.

```
MYNAME=Bernd, JN76do
```

This information is send to stations requesting this information with the “ping” command.

```
LIC=4KAg8aBw oK5weXN4 4DnucXDx 8C5gs*Aq
```

The general license string contains information about the legal use of Pr4Win.

```
MYBBSPATH=OE8XPR OE8XPK
```

This line defines the connect path to the home box. This syntax corresponds to the syntax defined in the entry of the connect paths in the station's directory. The call sign of the receiving station must also be entered here.

A connect to the home box is started with a click on the home box icon in the tool box.

```
MYBBSPATH2=OE8XVK OE8XPK @myprog.scr
```

This line defines an alternative connect path to the home box. This syntax corresponds to the syntax defined in the entry of the connect paths in the station's directory. The call sign of the receiving station must also be entered here. The parameter “@myprog.scr” defines that the script “myprog.scr” should be executed when the connections has been established.

A connect to the home box using the alternative connect path is started with a double click on the home box icon in the tool box.

```
TCP/IP=Yes
```

The TCP/IP Socket-Server is turned on with this entry. The TCP/IP Socket-Server is responsible for accepting TCP/IP connects. In order to use TCP/IP

as a transport medium, the computer needs to be configured in a TCP/IP network (LAN or WAN) (host name, IP Address .....).

`TCP/IP-PORT=4795`

Pr4Win receives TCP/IP connects from this port. The port number is arbitrarily chosen. If a TCP/IP connect is established to another computer then the port number which is received over the Pr4Win connect to the other computer must be recognized. Thus, it is recommended not to change this number (many TCP/IP connections can be established to one socket).

`FLAGS=000100000`

Contains specialized internal AX25 - configuration instructions.

If Flag[0] = 0, then frames also with I-frames will be confirmed, otherwise, if necessary, a RR, RNR-frame before an I-frame will be sent for confirmation.

If Flag[1]=1, then during a rejection by the other station only individual frames will be repeated and wait for confirmation. This is recommended during poor connections.

If Flag[2]=1, then after the reception of an I-frame, the receiver's numerator will be evaluated and eventually open frames will be sent again. Otherwise this results only after RR or REJ-frames.

If Flag[3]=1, then every DAMA poll is answered with a RR final frame. Even if I-frames have been send.

If Flag[4]=1, then all user dialogs are automatically answered with "Yes". This is useful when running Pr4Win completely remote controlled.

If Flag[5]=1, When an I-Frame is resent after reveiving a REJ the NR field is not updated.

If Flag[6]=1, Do not poll by repeating the last I Frame with the poll-bit set. Use RR instead.

`CHRSET=8BITIBM`

Establishes the default character set for every active and passive connection.

Valid values are:

| | |
|---|---|
| 7BITGR | 7Bit ASCII German |
| 7BITUS, | 7Bit ASCII US |
| 8BITIBM | 8Bit ASCII with IBM 850 expansion |
| 8BITOEM | WINDOWS OEM character set |

UNTRANS  Characters will not be transformed (ANSII)

The font which is to be utilized can be determined separately for each window through the **Font** menu.

```
SAVEPATH=c:\Pr4Win\save\
```

All connect, monitor and spy records will be placed in this directory. Auto7PL AutoBin and UUENCODE transmissions will also be placed in this directory.

```
LOGPATH=c:\Pr4Win\log\
```

Pr4Win places files which are valid after the run time of the program here, e.g. the logbook, the checklists, the station's databases and mails which have been transmitted from other stations.

```
TMPPATH=c:\Pr4Win\tmp\
PUBPATH=c:\Pr4Win\pub\
MAILPATH=c:\pr4win\mailhome\
```

The mail archive is kept is this directory.

```
MAILEND=NNNN
```

Configures the mail termination line that is appended to each mail you write in the mail archive. Hexadecimal values are written as “<03>“

```
BACKGROUND=c:\Pr4Win\Pr4Win.bmp
WELCOME=c:\Pr4Win\welcome.bmp
```

The description of the path and the files which are placed there are in Chapter 1.1.

```
CNFPATH=c:\Pr4Win\english\
CNFPATH=c:\Pr4Win\german\
```

All (language dependent) configuration files are found in this directory.

```
EDITOR=c:\windows\notepad.exe
```

Here, you must enter an editor where transmitted messages can be read with the command //Mail and the freely formatted station information text can be edited.

```
7P_GO= go_7p+.
```

If this character sequence is found on the beginning of a line, Pr4Win recognizes the transmission of a 7Plus-coded data file and begins the 7Plus saving process. The blank between “=” and “go….” is important.

```
7P_STOP= stop_7p+.
```

If this character sequence is found at the beginning of a line, Pr4Win recognizes the end of a transmission of a 7Plus-coded data file and closes the 7Plus saving process. The blank between "=" and "stop…." is important.

```
GO_TEXT= go_text.
```

If this character sequence is found at the beginning of a line, Pr4Win recognizes the end of a transmission of a 7Plus COR or ERR file and begins the 7Plus saving process.

```
STOP_TEXT= stop_text.
```

If this character sequence is found at the beginning of a line, Pr4Win recognizes the end of a transmission of a 7Plus COR or ERR file and closes the 7Plus saving process.

```
PROMPT=%CR%%YOURCALL% de %MYCALL% (%DATE%)>
```

This line will be sent to the receiving station after the execution of a command. The transmission of the prompt can be controlled through the other station with the //Prompt command. When a station logs in Pr4Win, it will be automatically given the status "Send Prompt".

**[BITMAPS]**

Defines bitmap files that may be used in lists. The bitmap files are located in the \pr4win\bitmaps\ directory.

**[SERVICES]**

In this section all DLLs containing extensions to Pr4Win (called "services") have to be announced to the program.

```
SRV-0=ECHO;SRVDLL.DLL;Demo Echo Server
```

"SRV-n" announces service n. All services entries have to be numbered sequentially starting with 0.

"ECHO" is the name of the service. You have to use this name in the "//SRV service" remote command to connect to this service.

"SRVDLL.DLL" is the name of the DLL containing the service (extension to Pr4Win).

" Demo Echo Server" Description of the service.

**[LEVEL0]**

To each station you can assign a security level in the station's database. The security level regulates a logged-on station's capabilities to execute the remote commands which it possesses and the home-directory which can not be left with the "//cd" command. Security level 0 disables all remote commands and should be configures for all boxes to prevent "//echo …" viruses.

```
HOME=c:\Pr4Win\pub\
```

A station with this security level has access to only this directory and the underlying sub-directories.

```
ACCESS=00000010110001011010000000000000000000000
```

ACCESS Bits. The bits which are entered here regulate the rights of logged-on stations to execute remote commands.

```
# 0 .... Exit
# 1 .... Auto binary Modus
# 2 .... Capture Text
# 3 .... Del
# 4 .... Dir,PWD
# 5 .... CD
# 6 .... SCD,PSD,SDel
# 7 .... Get File (Binary)
# 8 .... Help,Info,Version,Access
# 9 .... Echo
# 10.... Bell,Minimize,Sound
# 11.... Mail
# 12 ... Prompt
# 13 ... Heard Liste
# 14 ... Name,QTH,LastCon,Rem
# 15 ... Statistic
# 16 ...
# 17 ... Port
# 18 ...
# 19 ...
# 20 ...
# 21 ... Connect
# 23 ... Services
# 23 ... Run
```

**[Px]** E.G. [P0]

The section [Px] contains the configuration data which is related o the logical port *x*. In the current version of Pr4Win there is a maximum of 16 logical ports available at the same time. A device (e.g. COM Port or TCP/IP Socket) will be assigned to these logical ports. In addition, a protocol (NONE, KISS, HOST) will be designated to each port, so Pr4Win should be used over this port. It is not necessary to start with port 0 but it is recommended.

```
TITLE=TNC3s
```

The text will be offered in the connect dialog for the selection of a port.

```
DEVICE=COM2:38400,n,8,1;4096,4096
```

The syntax of the configuration of the serial interfaces corresponds to the syntax entered in Windows for the configuration of COM Ports. Baud rates of 115200 Baud are possible depending on the ability of your computer and TNC in handling transmission speeds.

The example above initialises the COM2 interface with 38400 Baud, no parity bit, 8 data bits and 1 stop bit. A windows internal two 4096 Byte buffers are allocated as receive and transmit buffer.

In the Pr4Win Version 3.0 serial interfaces and TCP/IP connects can be configured DEVICE.

`DEVTYPE=TNC`

Determines the port type. Possible values are COM, TNC and TCPIP.

**TNC**

There is a TNC attached to this port. This configuration causes Pr4win to set the TNC parameter TXDELAY, TXTAIL, PERSIST, and SLOTTIME.

**COM**

COM differs from TNC by not sending the TNC parameters TXDELAY, TXTAIL, PERSIST, and SLOTTIME to the TNC. Youe should use this setting when you connect two PC's directly.

**TCPIP**

Configures a permanent TCP/IP connection to another PC (running Pr4Win too). The hostname and TCP/IP port number is set in the DEVICE= Entry.

`PROTOCOL=KISS`

Determines the protocol which should be used for this port. In the present version of Pr4Win only the KISS, SMACK, RMNC protocol can be entered.

**NONE**

(transparent mode) Defines that Pr4Win does not use any protocol on this port. Each line entered in the connect window is sent out directly to the port and each line received on this port is displayed immediately in the connect window.

Only one conect window at a time my use a port with no protocol.

**KISS**

The current version of Pr4Win Version supports the KISS, SMACK and the RMNC protokol. SMACK and RMNC are extensions to the KISS protocol, which uses uses additional CRC summs to verify KISS frames.

**DEKISS**

DEKISS is essentially the same as KISS with the difference that the initialisatioon of the TNC (swich to KISS mode) is delayed. A connection window is opened automatically to allow you to interact directly with your TNC.

This mode may be used to check the local mailbox in your TNC or switch the TNC interactively into KISS mode.

**HOST**

Not supported in the current Pr4Win Version (3.0).

**[PxCHANy]** E.G. [P0CHAN1]

The section [PxCHANy] contains the configuration data which relates to channel*y* of port *x*. Presently, a maximum of 8 channels per port is supported.

QRG=70cm

This text will be offered and can be edited in the connect dialog. It will also be entered in the logbook.

WINDOW=4

AX25 protocol window. After the *n*th package confirmation from the other station is expected. Range of values: 1..7

PACLEN=256

Data length of an I-frame. Maximum length is 512!**Attention!** Our Digis have a limit of 256 Bytes (hostmode).

T1=25

T1 is the time in seconds which after an I-frame one has to wait for confirmation from the other station. If no confirmation of I, RR, RNR or REJ-frames has been received after this time span, then Pr4Win will begin with the polling. The time between repeated polling is T1/2. After three unsuccessful attempts at polling, the disconnect will commence.

T2=2100

T2 is the time in milliseconds after receiving an I-frame one has to wait for the following frames. Only after the expiration of this time span will all of the received frames be confirmed (with RR,RNR,REJ). The value should be at least the time it takes to transmit the largest frame plus an average tx-delay plus some percent.

E.G: 1200 Bd = 1200 Bit/sec, 200 ms TxDelay, 20 ms TxTail, 256 Byte/Frame

(256 Byte Daten+20 Byte Header) * 8 = 2368 Bit
2368 Bit / 1200 Baud = 1840 ms
1840+200+20 = 2060 ms

`T2DAMA=1000`

T2DAMA is the time in milliseconds after receiving an I-frame one has to wait for the following frames. Only after the expiration of this time span will all of the received frames be confirmed (with RR,RNR,REJ). Because of the commonly higher transmission rates from TNC to computer, pauses develop also between the individual frames of a DAMA transmission. The confirmation will only follow after the last frame of the DAMA Digi has been received.

`T3=180`

T3 is the activity timer in seconds. If there are not any frames sent or received during this time frame, then a Poll-frame will be sent.

`RETRY=5`

States the number of repeated attempts of Poll-frames before a disconnect should be carried out.

`L2F=20`

States that during a Level 2 Digipeating Connect each Hop, the timers T1 and T2 should be extended by the factor L2F / 10.

`TXDELAY=220`

Determines the time in milliseconds that your TNC will wait after the sender is keyed and the actual data transmission begins. This time depends upon your radio equipment and should be kept at the lowest possible setting. You can determine this time by experimenting in the channel configuration window. You should attempt to lower the time in steps and each time to build the connection to your entry Digi. If this no longer reacts to the SABM frames which you have sent, then the time is already too short and you should use the time from the last used setting.

Pr4Win sends this setting to the TNC during the port initialization as a KISS frame in the form <C0,01,n,C0>.

`TXTAIL=20`

Establishes the time in milliseconds that your TNC keys the sender after the actual data transmission has already ended. Pr4Win sends this setting to the TNC during the port initialization as a KISS frame in the form <C0,04,n,C0>.

PERSIST=60

Persistence in percentage. States the probability which your TNC begins to send to the next slot time point after it has recognized a channel as free.

Pr4Win sends this setting to the TNC during the port initialization as a KISS frame in the form <C0,04,n,C0>.

SLOTTIME=80

Time in milliseconds. This time builds a framework for possible times when the transmission of a frame should begin. Pr4Win sends this setting to the TNC during the port initialization as a KISS frame in the form <C0,04,n,C0>.

**[PxINI]** E.G. [P1INI]

The contents of this section are sent to port *x* at the start of Pr4Win 1:1. Values which are separated by commas in brackets are hexadecimal. The end of a line in this section does**NOT** cause a CR,LF to be sent to the TNC, rather this must occur explicitly with <0A,0D>.

Furthermore, control comments are possible which will control the conduct of Pr4Win during the initialization. These comments have to be entered in their own individual lines. The comment <DELAY>5 instructs Pr4Win to wait 5 seconds before it continues with the initialization. The comment <ANSWER>CONNECT tells Pr4Win to wait until the initializing port receives a character chain which contains the string CONNECT.

<1b>quit<0d,0a>

This line ends the host mode of my TNC.

rskiss.apl<0d,0a>

This line starts the KISS mode of the TNC (TNC3s) by calling the KISS application from within the TNC's operating system.

<1b>@k<0d,0a>

This line starts the KISS mode of the TNC from within the monitor program of the TNC.

**[PxDEINI]** E.G. [P1DEINI]

The contents of this section is sent to port *x* when Pr4Win 1:1 is ended. The line separation is NOT sent with. For this to occur, a line must end with <0d,0a>.

<C0,FF,C0>

<0d,0a>

The frame which is used here as an example ends the KISS mode and places the TNC in the command mode.

**[CONNECT]**

```
Connected to
Reconnected to
```

Contains a received line of this sub-string, so Pr4Win can determine the call which it is connected with from the rest of this line and then use the call as the call of the other station. You can also enter other partial strings here, e.g. "Connected to" "Reconnected to".

**[FAIL]**

```
> Failure with
```

Serves for the recognizing if a connect attempt has failed. As in the section [CONNECT] other variations can be entered in this section.

**[BOX-n]**

Pr4Win knows many different types of boxes. You can define your own box types according to your needs (e.g. different languages).

**[BOX-1]**

Each box type is defined by the following entries.

```
TYPE=The Box
```

Name of the box type. This name is offered in the station information. If the station which you are connected with is a box, then you can choose over these names which characteristics a box possesses.

```
C_START=Date   @MBX   Bytes
```

Pr4Win recognizes through this sub-string that a checklist follows.

```
C_LINE=!CNUM(8) !ABS(10) !DMY(10) !FILE(32).!FNUM(8) !DATUM(10) !MBX(10) !LEN(10)
!LTIM(8) !TITLE(64)
```

This line describes the format of the box's check line. Internally, Pr4Win uses a uniform format for ALL checklists and lists.

```
L_START=Nr Call   Date    Time
```

Pr4Win recognizes through this partial string that a list resulting from a "list" commands follows.

```
L_LINE=!FNUM(8) !ABS(10) !DATE(10) !DMY(10) !LEN(10) !TITLE(64)
```

This line describes the format of the box's list line. Internally, Pr4Win uses a uniform format for ALL checklists and lists.

```
L_FILE=Info-File:
```

Pr4Win recognizes through this sub-string that a list will follow after a "list" command.

```
PROMPT=(*) %MYCALL% de
```

Each is list finished, at the latest, when the opposing station sends the prompt.

```
READ=R !FILE !FNUM
```

Configuration for sending a "read" command after double-clicking a box entry in the check window.

```
DEL=E !FILE !FNUM
```

Configuration for sending a "delete" command to the connected box after double-clicking the “Delete” icon button in the check window.

```
IGNORE=------------------
```

If the list text in a box is underlined, then you can use this command to ignore a line.

```
[BOX-2]
TYPE=BayCom Mailbox
C_START=Date   @MBX   Bytes
C_LINE=!CNUM(8) !ABS(10) !DMY(10) !FILE(32).!FNUM(8) !DATE(10) !MBX(10) !LEN(10)
!LTIM(8) !TITLE(64)
L_START=Nr Call   Date   Time
L_LINE=!FNUM(8) !ABS(10) !DATUM(10) !DMY(10) !LEN(10) !TITLE(64)
L_FILE=Content directory for
PROMPT=) %MYCALL-0% de
READ=R !FILE !FNUM
DEL=E !FILE !FNUM

[BOX-3]
TYPE=Special Box
```

# *Check and List Configuration*

Pr4Win is in the position to save the results of a check or list command of a box and then to display it in an individual window, the check window. This list can be sorted in columns and it is not limited in its range. The check list serves the purposes of reading entries from the box later on.

Pr4Win is not designed for one specialized mailbox program, rather it can be configured as to how the results of check or list commands will be displayed.

You must create a configuration entry for each type of mailbox program which you read data from in the configuration file Pr4Win.INI.

For each box type, a section [BOX-*n*] will be created in the configuration file. "*n*" is a continuous number starting after 1. This numbering may not contain any gaps and should not be edited afterwards, because it is through these numbers that the box <-> box type assignments are accomplished. If you

change a number, then all the calls in a box which were previously assigned to one type will instantly possess another box type.

The following entries should be made within the section.

TYPE=

The name of the mailbox program should be entered here. These names will be offered in the form of a list in the station's list. One of the stations which have been entered in the station's directory will be configured to a mailbox through the selection of a box type.

C_START=

Describes the headline of a checklist as it will be given from the box. A significant portion of this headline should be entered here. The entire headline does not need to be entered. Each line which is received from a box will be compared with this line. If an entry is contained in these lines, then Pr4Win will expect the individual check entries to be contained in the following lines. You can get a valid character set in a very simple manner. Open the box which is to be configured, call the check command, and then copy the headline onto the clipboard. From there, you can paste the line into whichever editor that you are using to edit the Pr4Win.INI file. Ii is important that you maintain and keep the blank spaces between the text.

C_LINE=

Describes how a check line is constructed as it is sent from the box. The configuration line consists of triples which are formed from keywords for the expected information and followed by the entry length in parenthesis (e.g. "!DATE(10)."). The entry length is the maximum length which will be administrated by Pr4Win in this data field. If more data is delivered from the box in a column, then the additional data will be cut. The cut-off character will be given the value of the end character. In the example, a period is the cut-off character. Multiple cut-off characters will be skipped over. Usually, the box will deliver the individual columns separated by spaces. An exception to this is that the title of the message will sent as the last column and it may contain spaces.

L_START=

Corresponds to the C_START= entry. It describes the headline of a list command.

L_LINE=

Corresponds to the C_LINE= entry. It describes how a list line is constructed as it leaves the box.

L_FILE=

In the list output of most of the boxes, a news-group (file) column will not be given, because all output is connected to a file. Instead of this, the information will be outputted in its own individual lines before the list output. With this entry it is defined how the "file" line will be constructed. The character chain which follows this identification in the same line will be used as file information for the following list output.

PROMPT=

The end of a list can be recognized either by the closing empty line or the reception of a prompt line from the box. If the string which is entered here is contained in a received line, then the saving of the check or list command will be ended.

The prompt string may contain a “*” character do make room for a sequence of any characters. %MYCALL% may be used as a place holder for your own call sign.

READ=R !FILE !FNUM

Configuration for the transmission of a read command after a double-click on a box entry in the check window.

IGNORE=

When the list headline (check, list command) is underlined in a box, then you can ignore this line by using this entry.

## *Keywords for Check and List Outputs from Boxes*

!ABS

Call of the sender of the message.

!CNUM

Check number. This number remains blank by a list command.

!DATE

Date of the entry.

!DMY

Field is ignored.

!FILE

News-group to which the message belongs. It is given by the box read command. (It can also be given by the configuration of the read command.)

!FNUM

Number within the news-group. With this number ????? (It can also be given by the configuration of the read command.)

!LEN

Length of the message.

!LTIME

Lifetime of the message.

!MBX

Distributor of the message. (It can also be given by the configuration of the read command.)

!TITLE

Title of the message.

***Example of a box configuration:***

```
[BOX-1]
TYPE=The Box
C_START=Date   @MBX   Bytes
C_LINE=!CNUM(8) !ABS(10) !DMY(10) !FILE(32).!FNUM(8) !DATE(10) !MBX(10) !LEN(10)
!LTIM(8) !TITLE(64)
L_START=Nr Call   Date    Time
L_LINE=!FNUM(8) !ABS(10) !DATE(10) !DMY(10) !LEN(10) !TITLE(64)
L_FILE=Info-File:
PROMPT=(*) %MYCALL-0% de
```

# *TNC Configuration*

In order to work with Pr4Win a TNC has to be switched into KISS mode. This may be done with an additional program before Pr4Win is started or directly from within Pr4Win by entering the necessary commands into the [PxINI] Section. There is a section [PxDEINI] for de-initialization of your TNC too.

The contents of the [PxINI] section is sent to the TNC on port x when Pr4Win is started. If you enter multiple lines into this section the line separator CR-LF is NOT sent to the TNC. If you want to send a CR-LF (or any other non displayable character) to the TNC you have to write this character in hex notation surrounded by “<” “>”. E.G. <1B> for a ESC character. Multiple hex characters can be entered, separated by “,”. E.G. CR-LF can be written as <0D,0A>.

The contents of the [PxDEINI] section is sent to the TNC on port x when Pr4Win is terminated and should set your TNC back from KISS mode to any

desired mode. For non displayable characters you can use hex notation as in the initialization.

***Evaluating the TNC Configuration***

For evaluating the configuration entries for your TNC the following step by step model has proven successful.

**Step 1:** Read the manuals of your TNC to find out whether your TNC is capable of the KISS mode or not. The KISS mode is a very basic mode of connecting your TNC to a computer and it is very likely that your TNC supports the KISS mode.

You should find out how exactly your TNC is switched into KISS mode.

Maybe you will find the information you are looking for in the context of programs like NOS, TCP/IP and so on as all this programs rely on the KISS mode.

I have found two main types of TNC's,

a.) TNCs which switch from HOST mode into KISS mode using the host mode instruction "<ESC>@k". Usually this are all TNC2, TNC2H, TNC2S ... and similar types.

b.) TNCs which have an independent KISS mode implementation. The switch from an control mode into KISS mode or other modes. E.G. PK232, TNC3s, DSP1232…

**Step 2:** Check your TNC without Pr4Win. For this test you should use a simple terminal program under Windows-95 or Windows-NT. You should find one in the "Accessories" folder. (E.G. Hyperterm for Windows-95)

Configure this terminal program for a direct connect to the serial line your TNC is attached to. You should use the highest possible speed your TNC and PC supports. It should be at least twice the speed of your modem.

Execute the command you have found out to switch your TNC into KISS mode. In KISS mode the TNC will no longer accept input from you (you cannot send KISS frames manually) but you will see frames received by your TNC on the screen and may be able to read parts of information frames.

If you cannot switch your TNC into KISS mode or do not see any received frames something with the interrupt handling in your PC might be configured wrong. (Assuming you can work with other software and your TNC which proves the cable to be OK)

DOS Software and some Host mode software is polling your TNC and does not need correct hardware interrupt configuration (at least under Windows 96) as pr4win does.

**Step 3:** Check with Pr4Win.

Stop the terminal program leaving the TNC in KISS mode. Remove all lines from the [P0INI] section of your pr4win.ini file. Be sure you have set the COM port and speed in the DEVICE= line of the [P0] section.

Start pr4win and open the monitor window. You should see the traffic on the channel. Received frame information is displayed in blue lines, data is displayed in black lines. Otherwise the DEVICE configuration might be wrong.

Open the connect window and try to establish a connection. You should see red lines with SABM frames showing up in the monitor. With each SABM frame you should see your transmitter being activated.

If this happens but the other station does not answer your SABM frames with an UA frame you should check the configured TXDELAY.

In the [P0DEINI] section is the standard KISS frame to exit the KISS mode configured <C0,FF,C0>. After closing pr4win this frame is sent to the TNC.

You should start the terminal program once again to check whether the TNC is the desired mode. This is important as pr4win tries to switch the TNC into KISS mode with the next start. (Step 4)

**Step 4:** TNC KISS Initialization with Pr4Win

Enter the command you have found out in step 1 and step 2 into the [P0INI] section of your pr4win.ini file. Not displayable characters like ESCAPE are entered in their hexadecimal representation in angle brackets. (<1b> for hex 1b for ESC) Whenever you had to enter a Carriage Return you have to write <0d,0a> in the [P0INI] section.

After this step Pr4Win should be able to configure your TNC by itself.

**Step 5:** Final test.

Switch off your TNC and on again. Start Pr4Win open the monitor and check whether you can read received frames or not. Connect another station.

If this does not work the TNC initialization is bogus. Maybe you have mixed up <0d,0a> with <0a,0d> or vice versa or you have missed something.

Stop Pr4Win and start it again. If everything worked in your first attempt and did not work in the second the TNC de-initialization is bogus.

A problem with some TNC2 has been reported. When they receive the KISS termination command frame they exit the KISS mode before they have processed the hole frame leaving a hex C0 character in the input queue. This character is interpreted with the next start of pr4win and prevent the TNC from being switched into the KISS mode. Try to change [P0DEINI] from <C0,FF,C0> to <C0,FF> in this case.

***TNC2 Configuration***

```
[PxINI]
<1B>@k<0d,0a>

[PxDEINI]
<C0,FF,C0>
<0d,0a>
```

***TNC3s Configuration***

```
[PxINI]
<1B>quit<0d,0a>
rskiss<0d,0a>

[PxDEINI]
<C0,FF,C0>
<0d,0a>
```

# Operation

## *Windows*

The faultless usage of the mouse and keyboard are required. Concerning the MDI: The menu line will always display the menu of the active window. The active window has an emphasized title line and all keyboard entries will be successful in the active window. The MDI menu window displays all applications windows and allows the activation of a specific window either with the mouse or through keystrokes. The menu items "Cascade" or "Tile" will reposition the application windows in the MDI window.

## *Starting the Program*

After starting the program, the application window will appear with the welcome bitmap. The headline contains the working call sign and the toolbar shows up on the upper edge of the Application Window. A few seconds later the welcome bitmap will disappear. The menu line displays only the menu which belongs to the toolbar. The monitor icon button has the input focus (outlined edge). The input focus can be moved from one icon button to another with the TAB and SHIFT-TAB keys. Icon buttons react to clicks and double-clicks of the mouse. Pressing the spacebar has the same effect as a mouse click on an icon button which belong to the input focus and pressing the ENTER key corresponds to a double-click. Icons with a gray surface are inactive because they are locked due to a process of the program or there is not an underlying function in this program version.

## *The MDI Mode*

MDI is the standard from Microsoft which was introduced with Windows 3.0. This standard sets the basis that several data windows in various Windows applications can be open simultaneously. The important points are: A main window or program manager which acts as a frame (MDI window) that contains all of the data windows and that none of these other windows can leave. The menu of each data window (Windows application) will be displayed as the menu of the main window. The icons of minimized data windows will also be displayed in the main window and each data window is executable from the "Windows" menu. If a data window is maximized to full size, then it will completely fill the main window and the main window's title line disappears. Contrary to MDI standards, the screens of non-Windows applications can be seen. Here, each window of an application are independent of other applications and it has its own individual menu.

Pr4Win supports the default settings of the MDI standard. If the call parameter /NOMDI is entered, then Pr4Win will act in its appearance as a non-Windows application.

## *3D Controls (Windows 3.1 only)*

To instruct Pr4Win to make use of the CTL3D.DLL for three dimensional look and feel, you have to use “/CTL3D” as a program parameter. This switch is only necessary for Windows 3.1 or Windows NT 3.51.

Windows95 and Windows NT 4.0 do not need CTL3D.

## *Cut, Copy and Paste*

Pr4Win supports Cut, Copy and Paste capabilities between all entry fields. In addition, selected lines in all buffered FIFO displays (monitor, spy, connect) can be placed on the Clipboard with the Copy command. The text which was placed on the Clipboard will be sent to the connect window (display area) through the Paste command.

Through Copy and Paste into and out of the display area of the connect window, received messages or NetNews which have been read can be easily copied into a Notepad, or a message which has been written in Notepad can be sent.

## *Fonts and Character Sets*

As a Windows program, Pr4Win uses the ANSI character set. In contrast, most DOS based programs use the ASCII character set (to be more precise, one of the many possible 8-bit IBM expansions). A few older programs and programs designed for more "exotic" computer systems still use the original 7-bit ASCII which exists in a few nationalized versions. Pr4Win supports different character sets per connect or spy window. The default settings will be taken from the configurations file. If a character set that is not ANSI (UNTRANS) is selected, then Pr4Win converts the received characters into ANSI-similar characters. Because ANSI does not contain graphic symbols, these symbols will be converted into letters.

If files are transmitted within Pr4Win, then NO character conversion will take place within these files.

The following character sets are available for selection:

7BITGR 7Bit ASCII German

7BITUS, 7Bit ASCII US

| | |
|---|---|
| 8BITIBM | 8Bit ASCII with IBM 850 Expansion |
| 8BITOEM | Depends on the installed code pages |
| UNTRANS | Characters will not be converted (ANSII) |

# *The Toolbar*


It is the central distributor for all program functions. From here, all other program components are called. All program components can be started independently from one another. The number of windows which you can have open simultaneously depends only upon your viewing capacity, i.e. the size of your monitor. There are some program functions which can be called several times (e.g. "Connection" will start each time a new connection) while there are some functions which can only be called once (e.g. there is only one station database which is available). If the station's database is already activated, then an additional call will only activate the already open window. Once a window is closed, then another open window will automatically be reactivated.

***The Toolbar icons***

The Monitor

The Connect

The Home box connect

The List of Heard Stations

The Station Database

The Message Archive

The Logbook

The Timer configuration

The AX25 Frame Kit (no icon)

The Device (Port) Manager

The Pr4Win Configuration

The On-line Help

Program Exit

## *The About Window*

Contains information about the current version (Release and build number), the actual creation (installation) date of the program, and the author of the program. The about window contains also the license information which consists of the license class (registered, unregistered or demo) the licensee (call sign or “public”) and the expiration date.

## *The Monitor*

The Monitor shows all of the packages on the radio channel that were correctly received or transmitted. Package headers that were received will be displayed in blue, those that were transmitted in red. Data that were transmitted with the packages are displayed in black. Each package header has the following format

```
PORT[:CAN:FROM] to TO [via [L2DIGI[*]]] FRAME(N(R)[,N(S)]) [Pid PID] P/F/C/M
[Bytes][DAMA]
DATA
0:VILL23 to OE8DJK-5 via OE8XPR-2* I(0,0) Pid F0 C [23][DAMA]
Welcome to ....
```

The Monitor window saves the last 100 displayed lines. You can scroll back and forward in the Monitor window using the Up, Down, PgUp, PgDn, Home and End keys and of course using the mouse and the scrollbar. If the Monitor window is scrolled backwards, then new received lines do not reposition the view. The Monitor will automatically be scrollable only after the DISPLAYED scroll buffer is filled again with new data. If the Monitor is positioned at the current end (use the End key), then the most current lines can be scrolled. Thus, it is possible in the Monitor window to scroll back without being constantly interrupted by newly received lines. If you click a line, then it will be marked. To select all lines at once, click and hold down the mouse key and move the mouse over the Monitor window. If you leave the upper (or lower) Monitor window edge then the Monitor window will scroll automatically. The selected lines can be copied onto the Windows Clipboard using the command “Copy” under the “Edit” menu. From there, the data can be “pasted” into other Windows programs.

All Spy and Connect windows possess the scrolling and selecting properties of the Monitor window.

You can change the size and position of the Monitor window and these changes will be saved when you close the Monitor window and will be used the next time the window is opened.

You can close the Monitor window with Ctl-F4, the menu command “Close” or with the system menu command “Close”.

***Menu: Font***

You can change the script and the size of the characters which appear in the Monitor window. The new font entries will be saved when the window is closed and used when the window is opened again.

***Menu: Monitor: Save as***

After a dialog, you can select a file name with which the Monitor should record the dialog. All monitor lines (ALSO THOSE IN THE BUFFER) will be saved in this file. The file MONITOR.TXT in the configured SAVE directory will be recommended. The active protocol of the monitor will be displayed in the title bar.

***Menu: Options***

In order to be able to use the Monitor during high-speed transmissions, the capability to insert filters which limit the types of frames displayed in the Monitor is possible.

Filters which are available:

**Only I-Frames:** Only data frames will be displayed.

**Only your own Frames:** Only those frames which contain your own call sign either as receiver or transmitter will be displayed.

**No Bin Frames:** If the first 20 characters of an I-Frame contain at least 9 characters of an ASCII code over 128, then this frame is considered as a binary frame and only a “...<BIN>...” will be displayed.

## *The Connect Dialog*

This is used for the selection of a port, a channel, the opposing station and the Level 2 Digipeaters which should be used for establishing a connection. The “OK” button will be enabled as soon as at least 3 characters of the target call have been entered. Level 2 Digipeaters are entered after the target call and separated from the call by a space.

# *The Connect Window*

A Connect window will be displayed when a connection has been established or when another station has established a connection. Version 2.01 supports 8 simultaneous open connections. Each connection window consists of a button bar with icons, a display surface with the same capabilities which are offered in the Monitor window, a status display, and an entry line.

The display window saves the last 100 lines. You can scroll in the display window using the Up, down, PgUp, PgDn, Home and End keys or, of course, with the mouse and the scrollbar. If the display window is scrolled back, then new incoming lines are not scrollable. Only after the DISPLAYED scroll buffer is filled with new data again, will the display window automatically scroll. If you position the pointer at the current end (“End” key), then you will scroll along with the newly incoming lines. It is thus possible in the display window to scroll back without be constantly interrupted by incoming lines.

If you click on a line, it will be selected. If you hold down on the mouse button and move over the display window, you can select all of the lines at once. If you leave the upper (or lower) edge of the display window, the display window will automatically scroll. The selected lines can be copied onto the Windows Clipboard by using the menu commands “Edit:Copy”. From there you can “Edit:Paste” the data in all Windows programs.

A double-click on a line will transfer it into the entry line. The line can be edited here and then transmitted by hitting the Enter key. Incoming data are displayed in black and outgoing data are displayed in red. Outgoing UI frames are displayed in blue.

### *Entry Line*

The entry line possesses the same functions which an Edit Control in a Windows application automatically possesses. Additionally, if you try to enter more than 80 characters, an automatic word-wrap will occur directly before the last typed word. The entry line will be transmitted and the separated part of the line remains in the entry line. You can leaf through the last 10 entry lines with the F3 and F4 keys. A double-click in the display window will copy the selected line in the entry line (but not transmitted). Each line is transmitted when the “Enter” key is pressed. If the input focus is in the entry line, then a line of text from the Clipboard can be pasted into the entry line.

### *Sending Unnumbers Information (UI) Frames*

If a line begins with “~” character, the line will be sent to the receiving station as an UI (unnumbered information) frame. There all UI frames will be displayed in the status bar on the lower frame of the application window.

It is not possible to send an UI frame outside an open connection.

***Sending Control Characters***

To send a control character to the connected station (E.G. a control C to end sending a mail) you have to enter a "^" followed by the character you want to be sent out as a control character. "^C" is sent out as a control C.

***The Remote Login***

Once a connection to another station has been successfully established, then immediately after the confirmation of the connection, the contents of the WELCOME.TXT file will be sent. The WELCOME.TXT file is located in the CNF-directory. The following keywords can be used in the WELCOME.TXT file.

***The keywords are replaced before the file is sent.***

%DATE%

Is replaced with the current date and time. The date format is DD.MM.JJJJ HH:MM "12.11.1994 18:34".

%LASTCON%

Date and time of the last connection.

%YOURCALL%

Call sign and SSID of the other station.

%YOURNAME%

Name of the other station from the saved station information. If a name is not entered here, then the call sign will be sent in this position.

%MYCALL%

Your call sign.

%VER%

Version number of Pr4Win Software.

The station to which the connection has been established will receive a "Prompt Line" after the welcome text. The contents are entered in the Pr4Win.INI and may contain the same keywords which are in the WELCOME.TXT file. A Connect Window will open and the application will be activated. Thus, if you are currently working in another program, Pr4Win will come to the forefront and be the active program.

***Directories***

Two directories are defined for each connection. The current working directory and the current save directory. The current working directory is defined with the privilege level of the logged in user. The current save directory (the directory where all transferred data are saved) is defined by the SAVE= entry in the Pr4Win.ini file. The rights for the remote commands to change the save directory should be choosen very carefuly.

***Remote Commands***

If the other station sends a text line that begins with two slashes ("//" ), Pr4Win will interpret this line as a Remote Command and will attempt to execute this command.

Capitalized letters in a command must be entered (i.e. case sensitive commands). Letters in pointed parentheses <OFF> are optional, character chains which are separated with | are to be entered as alternates. "//PR <ON|OFF>" means that //PR alone, //PR ON and //PR OFF are valid commands.

`//Access`

Determines the privilege string. This depends upon the security level of the other station.

`//Bell`

Calls the Sysop. This sets off an acoustic signal and the Connect Window will be maximized. The entire Pr4Win application will be placed in the foreground.

`//Binary <ON|OFF>`

Turns the automatic UUDECODE on (or off).

`//CApture <OFF/TextFile>`

Protocols (registers) the connection in the file "TextFile". "//CA OFF" ends the running protocol (registration) of the connection. "//CA" displays if and in which file the connection will be protocolled.

`//CD “Directory”`

Changes the working directory. "//CD .." switches to the next higher directory. "//CD foo" changes from the current directory to the lower directory foo. "//CD" displays the current working directory.

Only subdirectories can be selected which correspond to the security level of the given home directory.

`//Connect [PORT:[Channel:]]STATION [DIGI1…]`

The connection with the "station" on the port and the channel is established. If a non-configured port or channel is entered, you will receive an error message.

```
//Del “Filter”
```

Deletes all files matching “filter” from the working directory.

```
//Dir “[PATH]Filter”
```

Determines the file directory, e.g. "//D *.txt" delivers all files with the file extension ".TXT" in the current working directory. You can only enter paths which are relative to the working directory.

```
//Echo “text”
```

Sends "text" back. If the station which you are connected with is configured as a Box in the station's database, then the "//ECHO TEXT" command is automatically locked (deactivated).

```
//Esc
```

Interrupts the data transfer (//GET, //GB). The data which are already in the send buffer will be nevertheless transmitted.

```
//EXIT
```

Closes Pr4Win. Be careful

```
//Get “[PATH]Filter”
```

Sends all file whos names matches “filter”. You can only enter paths which are relative to the working directory.

```
//GB “[PATH]Filter”
```

Sends all files matching “filter” with #BIN# protocol. You can only enter paths which are relative to the working directory.

```
//GU “[PATH]Filter”
```

Sends all files matching “filter” with UUENCODING. The file is encoded on-line. You can only enter paths which are relative to the working directory.

```
//Help [topic]
```

Transmits the Help file CNF_*\HELP.TXT (if available).

```
//Info
```

Transmits the Station's Info file CNF_*\INFO.TXT (if available).

```
//Last
```

The last connection on <Date Time> will be given out. The date will be taken from the station information of the other station.

```
//Mail “Title”
```

Saves the text which follows and creates an entry with the call sign of the other station. The text save will conclude with the line "***END".

```
//Monitor
```

Transmits a list with the last 20 heard stations.

```
//Name [Name]
```

Asks for and gives names.

```
//Play [Name]
```

Plays the file “..\pr4win\sound\name.wav” on the audio device. I no sound name is specified a list of available sounds is returned.

```
//POrt
```

Transmits a list of all configured ports and channels in the form of a table.

```
//Prompt <on/off>
```

Prompt line on or off. The prompt line is in the configuration file (Pr4Win.INI), entry PROMPT= determination.

e.g. "PROMPT=%CR%%YOURCALL% de %MYCALL% (%DATE%)>"

```
//PSD
```

The current save directory which is given out.

```
//PWD
```

The current working directory which is given out.

```
//Quit
```

Ends the connection. The contents of the file WELCOME.TXT will be transmitted and after three seconds a disconnect will be carried out.

```
//QTh [QTH]
```

QTH request and enter

```
//REM “Text”
```

Enters “Text” as a comment into the logbook.

```
//RUN program
```

Starts program ! If “program” is a DOS Program, you have to start the Command.com and give the program as a parameter to the commando interpreter using /c option.

```
//SErvice [service]
```

Shows a list of installed services. If you specify a service this service is invoked and you are connected with this service.

```
//SCD “Directory”
```

Changes the path of the save directory. Privilege for this command should be chosen very carefully.

```
//SDel “Filter”
```

Removes files matching filter from the current save directory.

```
//SDir “Filter”
```

Shows all files matching “filter” in the current save directory

```
//STatistics
```

A report table will be generated which tells how many corresponding packets were received and transmitted for each AX25 frame type. The number of bytes transmitted and received will also be reported.

```
//Version
```

Displays the version number and compiler date of the Pr4Win.EXE which was used.

Remote commands can also be executed locally. To do this, a "!" must be entered before the remote command. If you want to introduce yourself to an opposing station by transmitting the Info file, then the following entry "!//i" will execute the remote command "//i".

```
//XReceive “File”
```

Pr4Win is ready to receive a file using the XMODEM protocol. Pr4Win sends out “G” characters to instruct the sender to start the transfer.

```
//XSend “File”
```

Send file from the current working directory using the XMODEM protocol. Pr4Win waits until it receives a “G” character from the connected station before it starts the transfer.

***Executing scripts***

This menu functions opens a file dialog that allows you to select a script file from the …\pr4win\script directory and executes this script. While scripts are executed all input from the keyboard is disabled. Running scripts can be stopped with this menu function too.

### *Sending Mail from the local mailbox*

With this menu function Pr4Win starts sending all “new” mail from the local mailbox. After each mail Pr4Win waits for a prompt from the PR mailbox. If this prompt is received, the mail is marked as sent. While mails are sent Pr4Win does not accept input from the keyboard.


### *Stop and Go*

A click on this icon places Pr4Win in the "Not Ready to Receive" (RNR) status, i.e. the other station will not be able to transmit any more data at this moment. Click on the icon again to place Pr4Win back in the "Ready to Receive" (RR) status. With this function you can interrupt transmissions which are rather long and then continue the transmission later on. This function is turned off during a connection with a DAMA Master.

### *Save received Transmission*

A simple click on the "File Save" icon saves all data which has been received up to this point in a file which you choose. If you double-click this icon, not only will the transmission be saved, but also the last (maximum 100) lines which are currently displayed in the Connect Window. The on-going protocolling (registration) will also be displayed in the title line of the window.

### *Send Text or Binary Files*

Opens the standard Windows window (Open) for selecting files. The file ending "*.TXT" will be automatically chosen but you can overwrite this if you choose. The selected file will be transmitted as a Text file.

A double-click on the "Send File" icon will execute a binary file transmission. In the standard Open Window you can select which file should be transmitted and this file will be UUENCODEed during the transmission.

7Plus-coded files have always to be transmitted as Text files..

### *Station Information of the connected Station*

Displays the data of the station which you are connected with. These data are saved in the station's database. The call sign with the current SSID will be searched for in the saved station information. If this search is unsuccessful, then a search without the SSID will carried out. This search will always be

successful, because during the first connection an entry will automatically be made in the station's database. The call sign and the entry "Last Connection" will be given at the minimum.

 ***The Check Window***

If a check or list command is executed in a box, then Pr4Win will recognize this from the transmitted headline from the box (configurable for each type of box) and will save all data lines with an internal format in a file with the filename of the box and the file ending ".LST" in the LOG directory. The conversion from the box format to an internal format is also configurable. Thus, it is possible to save check as well as list entries in a list.

While data from the box are being transmitted to the internal list, the "MAILBOX" icon will blink. The list of box entries can also be viewed while the check or list command is running. A double-click on a column headline sorts the list alphabetically upwards after the column which was clicked. In columns with dates, the dates are sorted downwards so that the newest or "youngest" entry is at the beginning of the list.

A double-click on a line sends a read command to the box. Several lines can be selected simultaneously through Shift-Click actions and then read through the View icon via a read command.

The contents of a check list remains available even after the connection is ended and is still available for viewing after new connections have been made. More check or list commands add their results to the existing check list. If the results of a check list are interrupted by the box, then incomplete and also false entries can appear in the checklist.

 ***Format-free Information Text***

Pr4Win can save a desired text to each station with which a connection has been established. This text is called with "Infotext" icon and can be edited with Notepad. If the station does not have a text saved to it yet, the icon will be appear empty (paper clip without any paper). Text can be carried over from the Connect Window very easily with Copy and Paste. The infotext offers itself for the saving of the help text to boxes or for the saving of the board list.

 ***Authentification (Password)***

Pr4Win sends the password request command to the connected station. The connected stations sends a Password challenge back. Pr4Win calculates a

answer string with the challenge and the actual password according the password method and sends this string back to the connected station. The Password and password method for the connected station is configured in the station database.

***The Statistic Window***

Because Pr4Win is responsible for the AX25 Protocol itself, exact information is available at all times over all transmitted and received frames. These data can be displayed in the Statistic Window and can also be received by the opposing station in a table by using the "//STAT" command.

***Auto7Plus Save***

Turns the automatic recognition and saving of 7Plus coded data on. The data are saved in a file in the SAVE directory. The file name is taken from the 7Plus-header.

***AutoUU Save***

Turns the automatic recognition and saving of UU (UNIX to UNIX) coded data on. The data are saved in a file in the SAVE directory. The file name is taken from the UU-header.

UU coding is a coding used by UNIX to transmit binary data over terminal connects or to send binary data via Mail. UUEncode generates a data file which contains only representable characters (no control characters and no signs with placed most significant bits). The file name and the check sums are included in the file.

UU coding is comparable to 7Plus coding, but not as efficient (7Plus uses the highest valued bit) and it does not posses "Autocorrect" capabilities. It is still the UNIX standard and as such is widely used.

## *The Home Box Connect*

Establishes automatically a connection to your home box. The connect path which should be used is determined in the configurations file (Pr4Win.INI) under the entry MYBBS (e.g. "MYBBSPATH=0:1:VILL9 (OE8XPR-2) OE8XPK"). This example builds a connection to VILL9 on Port 0, Channel 1 via OE8XPR-2 (Level 2 Digipeating) in the first step and then from there to OE8XPK which is the home box.

# *The List of Heard Stations*

All I-frames which are heard during a program session will be entered in the list of heard stations. This list contains the 40 last heard stations and is continuously updated even while it is displayed. A double-click on a line in the heard list or selecting a line and then clicking on the Spy icon will open a Spy window for this connection. There is not a limit on the number of Spy windows which may be open simultaneously.

***Activating a Spy***

Opens a window where the data frames which are in the QSO stations are displayed. You can choose the character set in which the data is to be displayed. The data package which is sent from station A to station B will be displayed in black and the frames from B to A will be displayed in blue. Thus, a QSO can be easily followed, If only one of the two stations can be heard, then either only all black or all blue data packages will be displayed.

# *The Spy Window*

Displays all of the data frames which were sent from station A to station B in blue and all of the data frames which were sent from B to A in black. Spy windows can be recorded (protocolled) in files and lines can be selected and copied onto the clipboard. Spy windows like all windows can be reduced into icons and then restored to the original size when so desired.

***Data of the connected Stations***

Displays the station information of both connected stations. If an entry for a station does not exist in the station directory, then the window for the creation of a new station will be opened.

***Recording the Connection in a File***

The connection will be recorded in a file. A simple click on this icon saves all incoming lines from this moment on. A double-click will save those lines which are presently contained in the display buffer.

***Options***

You can select the character set for the connection by using the menu command “Options”. The standard setting is taken from the entry “CHRSET =“ from the configuration file Pr4Win.INI.

The menu command “Flow Control” evaluates the transmission sequence counter of the listened-to connection and prevents retransmissions leading to multiple displays of data frames. It may be advisable during poor reception conditions to turn the “Flow Control” off.

# *The Station Database*

Contains the list of all known stations. Stations are added to this list either through the function "Create a Station" or through a connect process with (or from) a station that was previously not in the station directory. The columns Call Sign, Name and Qth of a station will be presented in the station directory. You can sort the column entries of the station directory alphabetically by double-clicking the desired column heading.

***Creating a Station***

By using this icon, you can enter new stations manually in the stations directory. You will need to take the SSID of a station into consideration when you make a manual entry.

***Searching for a Station***

A click on this icon will open the station information window where you can enter the call sign of the station which you wish find. The search will be first carried out with an entered SSID and if this search is unsuccessful, then a second search will be executed using just the call sign without a SSID.

***Deleting a Station***

The selected station will be deleted from the station directory with this icon.

***Establishing a Connection***

This icon is only enabled after a station has been selected from the stations list either through a mouse click or by pressing the spacebar. A click of the icon

will establish a connection to the selected station and the connect path entry for this station will be utilized. If a connection cannot be established, a pop-up window with an error message will notify you of this fact.

## *The Station Information*

Contains the detailed data about a known station. When a connection to or from a station is established, the other station information are read from the station's database. If the call with the SSID cannot be found in the database, then the call without the SSID will be searched for. If this search is not successful, then a new entry WITHOUT SSID will be entered into the station's database. If you want an entry with a SSID (e.g. when Digi and Box use the same call with different SSID's), then these entries have to be made manually.

***Script***

In this field a script can be defined which is executed each time this station connect you. When a script is defined for a stations no welcome message is sent to this station.

***The Connect Path***

The connect path describes the individual connections that must be executed in order to connect the selected station. Each call in the connect path is separated by a space. If a connection should use a Level 2 Digipeater, then the call in parentheses separated by spaces will be attached to the connected call. If there several calls within the parentheses are executed, then the L2 Digipeating goes over all the given calls. A SSID can be given to each call. The call of the other station is NOT contained in the connect path and will be connected outgoing from the last entered station. If the connect path is empty, then it will be attempted when the connect button is confirmed to connect the station. The port number and the channel number (separated from the connect path by a colon) can be entered from the first call.

Example: If the following connect path is entered in the station information for station OE8XPK "0:1:VILL9 (OE8XPR-2) VILL23", then a connection will be established first on Port 0, Channel 1 (modem 1 on TNC) to VILL9 via OE8XPR-2. Afterwards, VILL23 will be connected and finally the target station OE8XPK.

If a connection in this connect path is thwarted, then you will receive an error message and the connection process will be immediately terminated.

You may also define a script with each connect path. In this case the script is executed when the connection to the station is established.

E.G. "0:1:VILL-23 @readmail.scr", establishes a connection to VILL-23 and executes the script "..\pr4win\script\readmail.scr".

***The Box Type***

Depending on this entry you can recognize during a connection if you are connecting with a box. In the list button selection all of the box types which have been configured in the configuration file Pr4Win.INI will be offered. An individual box type must be configured for each type of box which has a different format for data which is to be transmitted by a check or list command. Individual configuration entries must also exist for each language setting of a type from mailbox.

***The Password***

Opens the password definition window that allows you to define a password type and a password for this station. The password type defines the procedure to be executed and the method how the password request and password answer is handled.

The password types are defined in the PWDTYP.DAT File. See chapter "Box and DIGI Passwords" for a description of the implemented password algorithms.

***Establishing Privileges***

Each station will be assigned a privilege level in the station directory. In the present version there are three privilege levels which are supported. Level 0 will automatically be given by the entry of a new station (also by automatic entries) and it represents the lowest level. Each privilege level can have its own working directory and its own privilege profile. The privilege profile is a sequence of 0's and 1's. Each 0 or 1 decides if a remote command from the other station may or may not be executed. The position where the 1 is placed in this character chain determines which remote command is locked or enabled.

***The following positions configure the remote commands:***

```
# Position ... Remote Command
---------------------------
0 .... Exit
1 .... Auto binary Modus
2 .... Capture Text
3 .... Del
4 .... Dir,PWD
5 .... CD
6 .... SCD,PSD,SDel
7 .... Get File (Binary)
8 .... Help,Info,Version,Access
```

```
9 .... Echo
10.... Bell,Minimize,Sound
11.... Mail
12 ... Prompt
13 ... Heard Liste
14 ... Name,QTH,LastCon,Rem
15 ... Statistic
16 ...
17 ... Port
18 ...
19 ...
20 ...
21 ... Connect
22 ... Services
23 ... Run
```

***The Search for Stations***

An empty station information window will be displayed where you can enter the call of the station which you wish to find. A search including entered SSID's is first carried out. If this search does not provide positive results, then another search WITHOUT SSID's will be initiated. If this search is also unsuccessful, you will receive the corresponding message. It will be displayed if a station was once connected or if its data were manually entered. You can initiate an immediate connection following the connect path with the connect button.

The search for stations can be activated directly from the button box through a double-click on the stations list icon.

***Creating a new Station***

A new station information window will be opened where you can enter the data for the station which you wish to create. If this station information already exist, you will receive an error message after you have confirmed your "new" entry with the OK button. Call signs have to be at least three characters. Entered SSID's will also be differentiated by the manual entry of stations. Thus, situations can be configured where the Digipeater and the box differentiate themselves only through different SSID's. This differentiation in the station directory is an advantage because the box type must be entered for a box in order to achieve the automatic processing of check and list commands.

***Establishing a Connection***

A click on this button establishes a connection with a station and the connect path entry for this station will be evaluated. If a connection cannot be established, an error message in the form of a pop-up window will be displayed to inform you of this fact.

# *The local Mailbox*

The local mailbox window consists of two parts. A the mail folder window on the left side and the mail list window on the right side. The mail folders are set up in a hierarchical structure. You can define new folders or delete folders at any time and move mail from one folder to another. The root folder can not be deleted.

All messages which are deposited with the remote command "//MAIL Title" or transferred from the check list are listed in the root folder. Messages which have not yet been viewed are displayed in red and those which have been viewed are displayed in black. New, not sent mail is displayed in blue. As long as the Mailbox contains unread messages, this icon will blink in the button box. If there are no messages in the list, the icon will be displayed "empty".

 ***Create a new Mail folder***

Created a new mail folder as a sub folder of the selected mail folder.

 ***Remove Mail folder***

Deletes the selected mail folder and all of it’s contents.

 ***Copy Mail to another Folder***

Moves the selected mail to the selected folder. Multiple mails might be moved with one click.

 ***Write a Mail***

With this icon button you can write a new mail. In the mail dialog you can enter the title and the address (including the distribution information for non private mails). The “Edit” button in the creation dialog starts the editor program and loads the signation file into the editor.

The signation file has your callsign as filename and a “.SIG” extension. The signation must exist in the language directory (E.G.…\pr4win\english) and contains information you wish to be attached to any mail you send.

If you have written your mail and closed the editor you can place the mail for later sending with the “Send” button in the mail dialog.

The mail is actually sent by a script or you can sent all written mails with he menu item “send mail” from the connect window when you are connected to a PR mailbox.

Mails waiting to be sent are displayed in blue color in the local mailbox.

 ***Reply to Mail.***

With this icon button you can reply to a selected mail. In the mail dialog the title field is filled with “Re:” and the subject of the selected mail. The address fiels is filled with the sender of the selected mail automatically. Clicking the “Edit“ button opens the editor and loads the selected mail. There is a “>” character placed in front of each line. The signation file is attached to the mail.

 ***Read Message***

Once a line in the mail list has been selected, the icon for "Read Message" will be active. Click the icon and the mail file will be opened in the editor which has been configured in the configuration file (Pr4Win.INI) ( e.g. "EDITOR=C:\WINDOWS\NOTEPAD.EXE").

 ***Delete Message***

Once a line in the mail list has been selected, the icon for "Delete Message" will be active. You can then delete the selected mail by clicking this icon.

# *The Logbook*

Each connection is entered in the file MYCALL.LOG in the LOG directory after the connection is ended. Call signs and SSID of the opposing station, used frequencies (from Pr4Win.INI or Connect dialog), beginning and ending times as well as any comments are saved in this file. Comments are entered by using the remote command "//REM Comments" (or locally "!//REM Comments"). The station to which the radio connection has actually been made will always be entered as the opposing station. This is the call of the first Digipeater during a connection over one or more Digipeaters. Connections which are being established while you are viewing the logbook will be displayed the next time the logbook is opened.

The logbook can be sorted like all lists in Pr4Win by double-clicking the column headline.

 ***Station Information***

Shows the station information entries from the station's database for both stations of the selected connection.

 ***Archive Logbook***

An archive dialog will be displayed. You just have to enter a valid date and all connections up to this date (including this date) are saved in an archive file. The file name is constructed from the archive date and the file extension ".LAR"

 ***View Logbook***

After choosing an archive file, this file will be displayed. If you want to switch back to the current log file you have to close and reopen the logbook window.

# *The Timer*

Pr4Win 2.10 allows automatic, timer controlled instructions. An “instruction” could be to establish a connection with subsequent execution of a script, or to start a program (windows or DOS programs can be executed), to execute an internal command, or even to terminate Pr4win itself.

Each Instruction has a start and a end time. In this time interval Pr4Win tries to execute this Instruction. This makes especially sense for a automatic connects. Pr4Win keeps trying to connect the specified station during all that time.

Periodic timers are repeatedly executed with a definable period.

For every day of the week there is a timer file in the "....\pr4win\script" directory. Timer files have the file extension ".TIM" and are maintained by the timer window. Timer files are ANSI text files, where each line defines one Instruction.

Clicking the icon for timers opens the file timer file for the current day.

 ***Setting up a new timer event.***

Each timer event has a start time and end time (interval for continuos events) and a command line. A new event is entered with the timer dialog.

 ***Changing a timer event.***

With this button you can change the selected timer with the timer dialog.

 ***Deleting a timer event.***

Deletes a timer event from the open timer file.

 ***loading a timer file.***

If you want to view, change or create timer events for a different day of week you can open a files dialog and load a different timer file with this icon button.

 ***Saving a timer file.***

With this button all deleted, changed or new timer events are written to the timer event file. With this action pr4win starts working with the new timer events.

***Timer Commands***

Timer events may invoke internal commands.

**$BEACON**

Sends out a UI (unnumbered Information) frame.

**$BEEP**

An acoustic “beep” is produced.

**$EXIT**

Terminates Pr4Win immediately.

# *The Port Manager*

All Pr4Win connections to the outside world are developed over ports. Each port can be connected with a serial interface or a TCP/IP connection. A TNC

with either a NULL-modem cable connected to another computer or a modem can be behind a serial interface.

You can choose during the construction of a PR-connection over which port the connection should be built. This is also true for the remote command "//C PORT:CHANNEL:STATION".

The Port Manager contains a list of configured ports. If the configuration of a port is changed, then the corresponding line will be displayed in red. Edited configurations can be saved in the Pr4Win.INI file.

The following sections [Px], [PxINI], [PxDEINI] and [PxCHANy] in the configuration file Pr4Win.INI are edited through the Port Manager.

***Port Configuration***

A double-click on a line in the port list will open the Port Configuration window. In this window you can configure a port (i.e. device, initialization and de-initialization). Changes in the port configuration do not take effect immediately. They are written in the Pr4Win.INI file and take effect the next time the program is called.


***TCP/IP Connect***

In order to build a TCP/IP connect, two things must be know: (1.) the computer name which you wish to build the connection with and (2.) the TCP/IP port number which the Pr4Win program takes from other computer. The port number which is currently connected with Pr4Win will be suggested.

***TNC (serial, Modem) Connect***

Pr4Win identifies the free COM interfaces and offers these in a selection list. Pr4Win can use all of the correctly installed interfaces which are presently on your computer. For this, each interface must possess its own individual interrupt.

The selection of a baud rate is also accomplished through a selection list. Pr4Win is programmed for baud rates up to 115 Kbaud. Using a 33 MHz 80486, I was able to work without any problems with 57.

You can select with a check box if a TNC or another computer (modem) should be connected on the serial interface. If a TNC is entered, then the channel configuration will be enabled and the TNC parameter will be entered in the TNC after the initialization.

It is also possible to configure a TNC without entering the option TNC. In this case, the entire configuration must occur during the initialization process.

The initialization data are entered in the entry field KISS-Ini (Connect). If characters which are not displayable are sent to the serial interface, then these characters will be entered as hexadecimal code in brackets. Several bytes can be entered separated with commas (e.g. <0A,0D> for CR,LF line endings and line indentations). Pay attention to umlauts as the characters represented here are ANSII coded. If you have ASCII umlauts in the initialization string, you can always enter them through the <HEX> method.

You can enter what is to be sent to the TNC when the port connection is severed in the entry field KISS-Exit (Disconnect).

**Configuration for a modem connect (waiting for a call).**

Connect:

"ATS0=1<0A,0D>"

Disconnect:

"ATH0<0A,0D>"

**Configuration for a modem connect (calling).**

Connect:

"ATDT 0123 343434<0A,0D>"

"<ANSWER>CONNECT"

Disconnect:

"ATH0<0A,0D>"

The entry fields "Connect" and "Disconnect" can remain blank during a direct connection with another computer.

 ***Ending a Port Connection***

This severs the connection between a port and a serial interface (TNC, computer or modem) or a TCP/IP or a TCP/IP connection. AX25 connects which are running over this port will not be automatically interrupted. If they were not ended in regular manner before, then they will run in a POLL time-out and then stopped.

### *Configuring TNC Channels*

This button is used for the configuration of the general data which belongs to each channel. Examples of general data are the channel name, default entry for the frequency logbook entry, AX25 protocol parameters like packet length, T1, T2, T3, etc. and TNC (Modem) parameters like TX-Delay, TX-Tail, Slot time and Persistence.

Pr4Win works with TNC's that are able to support several modems, e.g. like in this case TNC3S. Each modem is understood to be a channel of the TNC's and each channel of a TNC can be specially configured. Channels are differentiated through the higher valued half-byte of the first byte in each KISS-frame. This corresponds to the method implemented in TNC3S for multi-modem support.

<C0,01,20,C0> is a KISS frame which sets command 1 (TX-DELAY) on channel 0 (first modem) . The frame <C0,11,20,C0> sets the TX-Delay on channel 1.

### *Saving the Port Configuration*

This icon is only enabled when the configuration of the selected port has been changed (line is displayed in red).

Click here to save the current port configuration of the selected port in the Pr4Win.INI configuration file. The sections [Px], [PxCHANy], [PxINI] and [PxDEINI] will be written with this.

### *Deleting the Port Configuration*

The selected port will be deleted from the configurations file by clicking this icon.

## *On-line help*

Activates the Microsoft Help Viewer (which is what you are using right now). The On-line Help can also be activated by using "Help" Menu ("Index...").

You can get context sensitive help on any active window by pressing the "F1" key.

# *Exit Program*

If you confirm the exit dialog message with "Yes", Pr4Win will be closed immediately.

Open connections will not be closed before you exit the program, therefore you should close all connections before you exit Pr4Win.

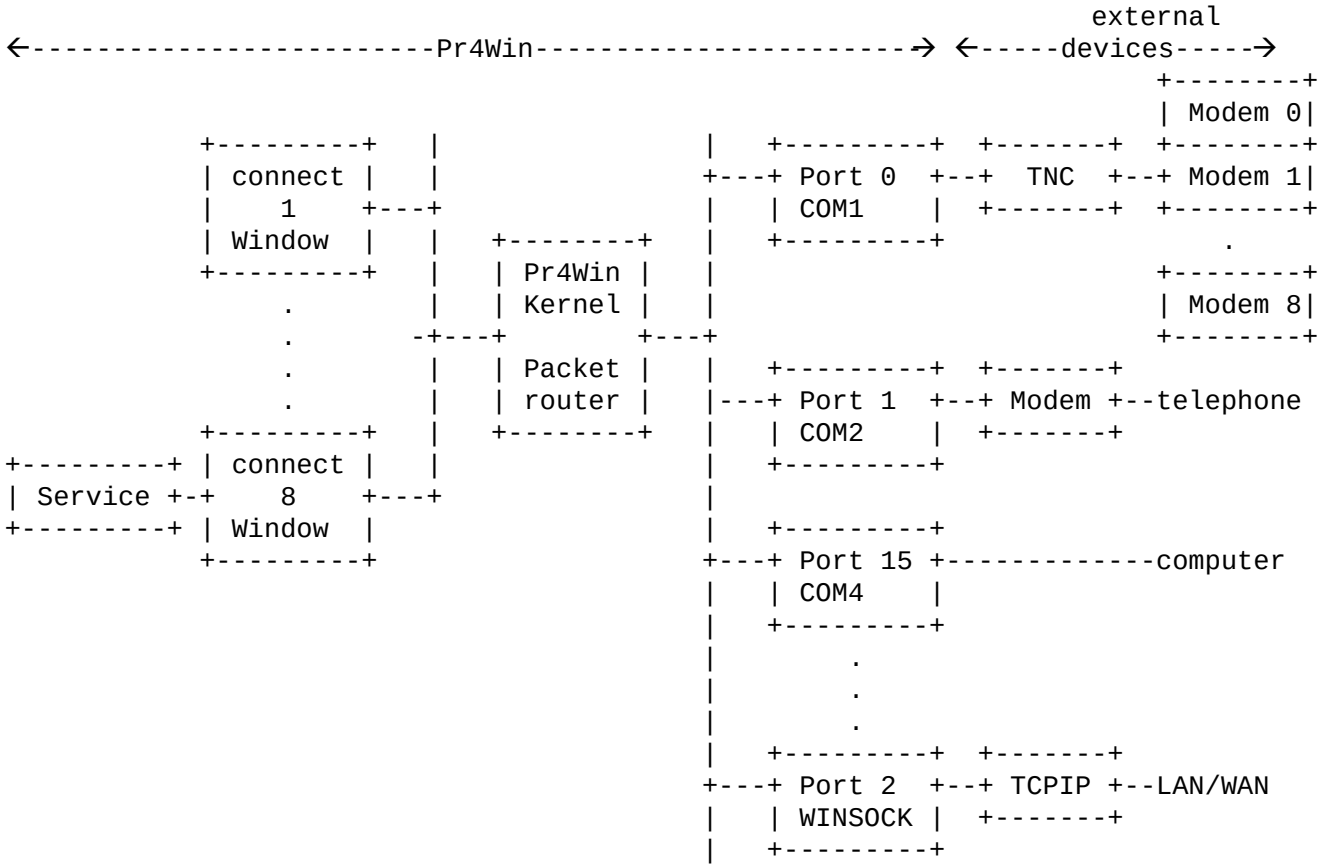
# Concepts

## *Abstract*

This Chapter describes design considerations that were taken during the development of Pr4Win and principle functions in Pr4Win.

## *Schematic Diagram*

This schematic diagram shows the major functional parts of pr4win.




***Port***

Each connection from Pr4Win to a physical device (TNC or another PC) is called port. Thus each serial interface or each TCP/IP connection my be a port. Each port has its own initialization and de-initialization. For each port you can define which protocol to use (NONE, KISS, KISS-SMACK, KISS-RMNC). Host Mode Ports are not supported by this release of Pr4Win.

***Channel (modem)***

If there is a TNC attached to your PC (using a serial interface) and this TNC supports more than one modem, each modem is called a channel. Each port has to have at least one channel.

As each modem on a TNC may have different AX25 and modem parameters there is a section for each channel and each port in the initialization file.

You should not be confused by some host mode programs calling a AX25 connection a channel.

***Packet router***

This is the central AX25 packet dispatcher. Packets received from any port are sent to the proper connect window if this packet belongs to an active connection. The packet router is also responsible for accepting incoming connections.

***Connect Window***

Is responsible for user interaction, interpreting remote commands, scripts, file transfer and some other things.

***Service***

Services are extensions to Pr4Win. A station connected to Pr4Win can further connect to a service. Examples for services are “a echo server”, “a cluster Server”, “Database gateway” …...

# *Pr4Win and TCP/IP*

Pr4Win is no TCP/IP software package like NOS programs (KA9Q, WNOS, JNOS ..) which implements TCP/IP protocol and TCP/IP services and send TCP/IP packages within AX25 frames over AX25 connects, or as AX25 Frames.

Pr4Win can send AX25 frames (encapsulated in KISS frames) across a TCP/IP connection. The TCP/IP connection which is used is a point-to-point stream socket connection. (UDP is planned but not yet implemented.)

Pr4Win can work as an INTERNET wormhole with limited number of users. But Pr4Win is designed to work in a local area network with WfW, WIN95, Windows NT and OS/2 computers using TCP/IP as the network protocol. Pr4Win on one computer with a TNC and radio equipment attached can be used from all other computers within the network (with the Pr4Win program) as a gateway to the PR net.

# *Timers*

Pr4Win allows automatic, time controlled actions. An action could range from a simple “beep” to establish a connection with subsequent execution of a script or to start a program (windows or DOS programs can be executed), or to execute an internal command, or even to terminate Pr4win itself.

Each action has a start time, an end time and an interval time. Starting with start time up to end time Pr4Win tries to perform this action. This makes especially sense for a automatic connects which may not succeed with the first attempt. Pr4Win keeps trying to connect the specified station during all that time. An action my occur once or periodically when an interval is defined.

For every day of the week there is a timer file in the "....\pr4win\script" directory. Timer files have the file extension ".TIM" and are maintained by the timer window. Timer files are ANSI text files, where each line defines one Instruction. They may be changed with any standard editor too.

For a special tasks a timer file with the desired date as filename may be created. (E.G. 19981231.TIM for Dec 31, 1998) This file has to edited with a text editor and is executed only at the desired date.

```
E.G. "monday.tim"
----
00:00 23:55 0:10 $BEACON *:*:ALL "cq de %MYCALL%"
07:00 11:00 1:00 $BEEP
12:30 12:35 0:00 OE8XPK (OE8XPR) @GetMail.scr
13:30 13:35 0:00 $c:\tools\program.exe
14:30 14:35 0:00 $EXIT
```

The first line sets up a periodic timer that send a beacon signal to the call ALL over all configured channels on all configured ports each 10 minutes. The second line sets up a periodic timer that will beep every hour starting at 7:00 o’clock until 11:00 o’clock. The third line in the sample timer file tries to establish a connection with OE8XPK using (OE8XPR) as level 2 digipeater beginning at 12:30 and ending at 12:35 if the connection could not be established. If the connection is established pr4win continues to execute the “GetMail.scr” script.

The syntax for defining a connect path is equal to the syntax used in Pr4Win to define the home box connect, or to define a connect path in the station database. $EXIT is a key word that causes Pr4win to terminate.

Scripts executed on a successful connection are identified by a leading "@" character. Programs that should be executed have to be marked started with a

"$" character and should be specified including the complete path if they do not reside in the Pr4Win directory.

$EXIT and $BEEP are special key words.

At 13:30 the program "c:\tools\program.exe" is started.

At 14:30 Pr4Win will be terminated.

The next time a time controlled instruction is scheduled is shown in the status bar of the main window.

## *Scripts*

Scripts can be used to automize standard procedures like retrieving youe mail from your box and delivering locally written mail to the box.

Scripts are files that contain special commands that are known and executed by Pr4Win in the context of an existing connection.

Each script is a ANSI text file where each line is terminated with CR-LF. Script files have an ".SCR" file name extension and are located in the "...\pr4win\script" directory. Each line of a script file contains one script instruction. Lines can be prefixed with blanks for easier reading. No TAB characters are allowed in script files. Script files can be written with any editor.

Scripts can be invoked in different ways.

1.) With the menu entry "execute script" from the connect window you can chose a script file with a file dialog and start the execution.

2.) Scripts can be invoked automatically by the timer function. Timers allow to initiate connects and start a script when the connect succeeds.

3.) The connect path configured in the station database can include a script which is started whenever this station is connected by initiating the connection from within the station database.

4.) The home box connect path may include a script which is executed when the home box is connected by clicking the “home-box” icon in the tool bar.

5.) When a script file is configured in the “script” field of a station in the database this script is executed when the station is connected or when this station connects you.

While a script is executed, the input line for this connection is disabled and the menu entry "execute script" is checked. The execution of the script can be interrupted by clicking the "execute script" menu entry again.

***Variables***

In scripts you can define and use symbolic names for strings or numeric values. Names of variables consists of up to 32 characters. Capital and small letters are distinguished.

Some variables are defined and filled with values from Pr4Win and can be used in any script, User variables are defined with an "set variable value" instruction.

The instructions ":label" or "readln %var%" can also be used to implicitly define variables.

***Predefined variables***

| | |
|---|---|
| %MYCALL% | Your call sign includingyour actual SSID. |
| %MYCALL-0% | Your call sign without any SSID. |
| %MYNAME% | The MYNAME= Entry from the pr4win.ini file. |
| %YOURCALL% | Call of the station you are connected to (including SSID). |
| %YOURNAME% | Name of the connected station from the station database. |
| %LASTCON% | Date and time of the last connect with the connected station. |
| %DATE% | Current Date and Time. |
| %DATE.MJD% | The current date in “Modified Julian” format. This is a floating point number. |
| %DATE.Y% | Only the year of the current date in four digits. |
| %DATE.YY% | Two digits year. |
| %DATE.M% | The month. |
| %DATE.D% | The day. |
| %DATE.HH% | The hour. |
| %DATE.MM% | The minute. |
| %DATE.DY% | The number of the day in the year. |

| | |
|---|---|
| %PROD% | The product name. “Pr4Win ….” |
| %VER% | Current version of Pr4Win. |
| %CR% | CR Carriage-Return |
| %LF% | LF Line-Feed |
| %CRLF% | CR-LF |
| %LFCR% | LF-CR |
| %NO% | A line is sent without CR or LF at the end of the line. |
| %TRANSFER% | "OK" or "ERROR" Last UU encode transfer state. |

***Predefined variables for steeping through a check list.***

Pr4Win scripts allow to process a “check” list received from a box.

After each execution of "if (CHECK_LIST_EMPTY) :label", which did not branch to :label the following variables are defined and filled with actual data by Pr4Win.

| | |
|---|---|
| %CHK_DATE% | Date of the check list entry |
| %CHK_CALL% | Station who uploaded the entry |
| %CHK_FILE% | News Group |
| %CHK_MBX% | Forward to |
| %CHK_FNUM% | File number |
| %CHK_TITLE% | Title of this check list entry |

***Script language instructions***

**# Remark**

Remark to make the script more readable. Only whole lines can be used as remark.

**:label**

Destination for an execution branch. Labels may be used in "goto","loop" and "if" instructions. The execution is continued with the line that follows a label when this label is used as a branch destination.

With each "label" there is a variable %label% defined automatically. This automatic variable contains a numeric value that tells how often this label has been executed. This variable may be used within loops to work as a loop counter.

```
.Start
:myLoop
  .Hello %MYNAME% !
  if (%myLoop%=10) :end
  goto :myLoop
:end
.Ready
```

**.Text**

"text" is displayed in the local connect window in blue lines. If "text" contains variables (surrounded by "%" characters) they, are substituted by there values.

**//COMMAND**

Executes "//COMMAND" on the connected station. The same result is made by "send //COMMAND". If "text" contains variables (surrounded by "%" characters) they, are substituted by there values.

**!//COMMAND**

Executes "//COMMAND" locally. All remote instructions can be executed as if they where entered by the connected station.

**call script.scr**

Calls "script.scr". The execution of the current script is suspended until a "return" instruction is executed in the called script.

**checklist**

The content of the check list window is transferred into a local check list progam structure which may be processed by the script using "if (CHECK_LIST_EMPTY)" instructions. The check list window might have been filled by an "send c 1-200" instruction before.

**clearlist**

Clears the check window contents. This instruction should be called before the check list window is filled with new mail box entries.

**delay seconds**

Waits "seconds" seconds until the next line of the script is executed.

**disconnect**

Sends the goodbye text and disconnects from the other station.

**export file**

Moves a file from the save directory to the export directory.

**goto :label**

The execution is continued with the line following the "label" instruction.

**if (%variable%) :label**

If %variable% is defined, the execution of the script is continued with the line following the "label" instruction.

**if (%variable%=word) :label**

If "word" is equal to the contents of the variable %variable%, the execution of the script is continued with the line following the "label" instruction. Both "word" and "%Variable%" may contain alphanumeric or numeric values.

**if (%variable1%=%variable2%) :label**

If the contents of both variables is the equal, the execution of the script is continued with the line following the "label" instruction.

**if (word~%variable%) :label**

If "word" is found within the value of %variable%, the execution of the script is continued with the line following the "label" instruction.

**if (CHECK_LIST_EMPTY) :label**

Is no entry left in the local check list, the execution of the script is continued with the line following the "label" instruction. Otherwise the next check list entry is read into the CHK_* variables.

**if (SEND_MAIL_EMPTY) :label**

If there is no mail to be sent in the local mail list, the execution of the script is continued with the line following the "label" instruction.

**ifn (.....) :label**

if not (....) conditions as above.

**inc variable offset**

The numeric value is increased by "offset". The "offset" may also be negative. If no offset is specified the variable is increased by +1.

**log text**

Substitutes any place holders in text and writes "text" to the log file. The log file is created in the log directory. For each month there is a new log file created with an filename consisting of the year and the month.
E.G....\pr4win\log\199612.log

**loop :label count**

The "loop" instruction branches count times to "label". then the loop is terminated and the instruction following the loop instruction is executed next. Attention! "label" might have been changed by an "inc label offset" instruction.

```
.Start
:myLoop
  .Hello %MYNAME% !
loop :myLoop 10
.Ready
```

**password challenge**

Calculates and sends the password answer to the “challenge” string according the configures password method and password for the connected stations.

**portinit n**

Initializes port n or all ports if n is omitted. Initializing a port is necessary when the TNC was switched off for some reason under program control.

(this command was implemented to support unattended remote stations)

**portdeinit n**

De-Initializes port n or all ports if n is omitted. De-Initializing a port is necessary when the TNC should be switched off for some reason under program control.

(this command was implemented to support unattended remote stations)

**readln %variable% [@timeout [:label]]**

reads the next line, sent by the connected station into the variable %variable%. Is this variable is not defined, it is defined by the readln instruction.

Optional:

If no line is received within time-out seconds the script is continued with the line following ":label". If ":label" is not specified the script continues with the next line.

**readmail readstring**

This command is used to transfer mail or news from a public mailbox to your local mail box. "Readstring" is sent to the connected station. If the execution of the script should wait until the specified mail or news is completely read, you should write a "waitfor PROMPT" instruction in the next line. If there are variables included in the "readstring" this variables are substituted by their values.

E.G. "readmail r %CHK_FILE% %CHK_FNUM%" is used to read a check list entry into the local mailbox.

**return**

The execution of a script that has been started with "call script.scr" is terminated and control is given back to the instruction following the call instruction.

**run Program**

Executes “program”.

**send text**

"text" is sent to the connected station. You could use this instruction to invoke remote commands on the connected station. E.G. "send //GB *.DAT" makes the connected station to send all files with the file extension ".DAT" from the current working directory. Each file is UUENDODED before it is sent. If there are variables included in "text" this variables are substituted by their values before the text is sent.

**sendmail**

Transfers new written mails, replies and news from your local mailbox to the connected mail box.

**set variable**

Clears the variable and removes the definition of the variable.

**set variable=value**

Defines a variable and assigns value to it. Value may be numeric or alpha-numeric.

**set PROMPT=promptString**

With this instruction the system variable PROMPT can be overwritten. If you are connected to a mail box, this variable is set from data in the database other wise you have to use this instruction before you can use "waitfor PROMPT".

**stop**

Terminates the execution of the scripts.

**tokenize %variable% [separator]**

Splits the contents of %variable% in up to 20 parts %T1%, %T2% ... by using "separator" if defined or blank otherwise.

**waitfor text [@timeout [:label]]**

Stops the execution of the script until a line from the connected station is received which contains "text". If there are variables included in "text" this variables are substituted by their values before the text is sent.

Optional:

If "text" is not received within time-out seconds the script continues with the line following ":label". If ":label" is not specified the script continues with the next line.

**waitfor PROMPT [@timeout [:label]]**

Stops the execution of the script until a line from the connected station is received which matches the description in the system variable PROMPT.

Optional:

If no PROPMT is received within time-out seconds the script continues with the line following the line containing ":label". If ":label" is not specified the script continues with the next line.

**waitfor %variable% [@timeout [:label]]**

Stops the execution of the script until a line from the connected station is received which contains the value of variable.

Optional:

If no line is received within time-out seconds the script continues with the line following the line containing ":label". If ":label" is not specified the script continues with the next line.

### Sample script

The following example of a script reads my private mail from the mail box, and sends my local written mail to the box. Then the connection is closed.

```
# Test script 1.0 for Pr4Win script language
# automatic mail transfer.
#
# Set PROMPT=%MYCALL-0% de %YOURCALL-0%

.Mail is transferred from the box
clearlist
send l %MYCALL-0% 1-
waitfor PROMPT @60 :error

checklist
:check
   if (CHECK_LIST_EMPTY) :ende
   readmail r %CHK_FNUM%
   waitfor PROMPT @300 :error
   goto :check
:ende
clearlist

.Mail Deleting mail in the box
send e %MYCALL-0% 1-
waitfor PROMPT @60 :error

if (SEND_MAIL_EMPTY) :nomail
.Mail is transferred to the box
sendmail
waitfor PROMPT @300 :error
:nomail

.Connection will be closed !
send quit
waitfor *** reconnected @60 :error
disconnect
stop

:error
log Error reading mail !
stop
```

# *Remote Commands*

(see connect window description)

## *Dynamic Pr4Win extensions (Services)*

allows the dynamic extension of the Pr4Win functionality using external libraries (DLL's). This extensions are called Services. Each user who is connected to a Pr4Win station, can connect to any installed Service and use the features of this service. The remote command "//SRV" lists all available services. "//SRV SERVICENAME PARAMETER" connects a station with a service. Some service may need additional parameters.

With Pr4Win two examples of services are included.

***TELNET (SRVTEL.DLL)***

SRVTEL allows a connected station to open a Telnet session to any TCP/IP computer identified by Host:port. The Telnet session is opened using the TCP/IP connection of your computer!

```
//SRV TELNET [host[:port]]
```

If no port number is specified port 23 (the Telnet port) is assumed. If no host name is specified the host name is read from the SRVTEL.CNF file.

***ECHO (SRVDLL.DLL)***

A very simple example of an echo service. Each line entered by a connected station is echoed back.

## *Beacon*

The timer function in Pr4Win can also be used to send out beacon frames. Different texts and a different time interval may be chosen for each channel and port if needed. The beacon text can include placeholders which are substituted by their true values before the text is sent out. Beacons can be sent over level 2 digipeaters too.

```
00:00 23:55 0:10 $BEACON *:*:ALL "cq de %MYCALL%"
```

Defines a beacon which is sent out every 10 minutes on all channels on all ports to the call "ALL". No digipeaters are involved.

```
00:00 23:55 0:15 $BEACON 0:*:ALL OE8XPR "cq de %MYCALL%"
```

Defines a beacon which is sent out every 15 Minutes on all channels (modems) of port 0. The UI frame is sent to the call "ALL" and "OE8XPR" is used as a L2 digipeater.

***Predefined variables***

| | |
|---|---|
| %MYCALL% | Your call sign including your actual SSID. |
| %MYCALL-0% | Your call sign without your actual SSID. |
| %MYNAME% | The line MYCALL= defined in the PR4WIN.INI file. |
| %DATE% | Current Date and Time. |
| %PROD% | The product name. |
| %VER% | Current version of Pr4Win. |
| %CRLF% | CR-LF |

# *Box and DIGI Passwords*

In this Version Pr4Win knows the Flexnet the new DieBox and the Baycom password method. The file PWDTYP.DAT can be used to define subtypes of the known basic passwords types. This subtypes may send different commands to the connected station and may embed the answer string in a sequence of random characters or not.

Format of the PWDTYP.DAT file. Each line defines one Password type and is terminated with CR-LF.

"SEND=TYP:NAME<0D,0A>"

SEND, command that should be send to the connected station.

TYP, the internal number of the password method.

0….Flexnet, RMNC

The connected stations sends a password challenge "(n) blank m1 m2 m3 m4 m5" where mx are digits, leading 0's may are omitted. Pr4Win answers with a calculated sum. The formula is result = m1*p1+m2*p2+m3*p3+m4*p4+m5*p5 where px are digits defines in the password. Leading 0's are omitted in the password definition.

1….Baycom, TNN, DieBox (DF3AV) (md5)

The connected station send a password challenge "station> blank m1 blank m2 blank m3 blank m3 blank m4 blank m5" where mx are numbers between 1 and 80. These numbers are indices into the password string. Pr4Win answers with the characters addressed by the password challenge. Pr4Win does not care about how many mx terms

are sent in the challenge. The characters calculated as the answer may be embedded in random characters.

11….Baycom, TNN, DieBox with random characters
The baycom password string calculated from the password challenge is embedded in random characters. The total length of the password string including the random characters is 60 characters.

2.…"new" DieBox (DL2BCS, DL5FBD and DL1BDY)
The new DieBox mechanism uses a 1620 byte long password contained in a text file and the login time to calculate a 5 character password.

12…"new" DieBox with random characters
The DieBox password string calculated from the password is embedded in random characters. The total length of the password string including the random characters is 60 characters.

NAME, the name for this password method that is used in the station database to select a password method for a Box or a Digipeater.

For each station you can define a password method and a password in the station database.

The authentication process is started with the password icon (two keys) from the connect window or handled by the connect script.

## *Mailbox listings*

Pr4Win is able to save the output of a "check" or "list" command of a box in a local file for later viewing and processing. For each box type you can define a "header" line and the format of the content lines of both check and list output. The header line is used to recognize the beginning of a check or list output and the configuration line allows Pr4Win to convert the box output into the Pr4Win internal data format.

To put this to work you must configure the box type in the station database for each box you want to connect. (before the connection is established)

It might be necessary to change the check and list configuration according to your local language. See the section "Check and List Configuration" in this manual.

The local check list can be sorted by any column you want. You can read entries by double clicking them, you can select multiple lines and read the selected entries or you can transfer (save) the selected entries into the local mailbox for later (off-line) reading.

When multiple mails or news entries are read, the check list window must remain open otherwise the transfer or read sequence is stopped.

# *Off-line reading and writing mail or news*

Pr4Win has a build in mailbox witch allows you to read and write mail (or news) off-line. Off-line means without a connection to a PR mailbox. There is also a simple way to reply to mail and news in your local mailbox. When replying to a mail or news the mail is copied into the editor and on each line a ">" character is inserted at the first column. The signature file is attached to the copy of the mail. When writing a new mail an editor is opened and the signature file is copied into the editor. The signature file is a file with your callsign plus a ".sig" extension in the language directory "…\pr4win\german" or "…\pr4win\english".

A line containing the mail termination is appended to the mail automatically.

The mail termination is configured by the "MAILEND=" entry in the pr4win.ini file. "MAILEND=***END" appends a line with "***END" to your mail. "MAILEND=<03>" appends a CTRL-C character (HEX 03)

Pr4win allows you to transfer mail and news automatically from and to your mailbox. This is not done by the store and forward protocol but by standard read and send commands. There is no need to have special privileges on your mailbox.

The transfer from the PR box into the local mailbox is done either manually by selecting the desired news or mail entries in the check list window and clicking the transfer button or automatically by a script. This script may be started by a timer event at a regular interval.

The transfer from the local mailbox to the PR box is initiated with the "send mail" menu item in the connect window or also automatically with a script.

# *File transfer*

***Text file transfer***

(to be completed)

***UU coded file transfer***

(to be completed)

***7Plus file transfer***

(to be completed)

***XMODEM file transfer***

(to be completed)

***#BIN# file transfer***

(to be completed)

# *Transparent Ports*

Each connection from Pr4Win to other devices is called port. A serial interface or a TCP/IP connection could be a "port" Normally in KISS frames embedded AX25 frames are sent and received over such a port. With this method KISS TNCs or other computers running a KISS able PR program (Pr4Win or others) can be attached to Pr4Win. The AX25 protocol allows multiple connects running over a single port. The connections are distinguished by the Call sign of the connected station.

Across a transparent port characters are sent without any protocol. Thus such a transparent port can only be used for one connection at a time.

E.G. If you have an Hays compatible modem attach to your serial interface 3, you could configure a transparent port for this serial interface.

Any station logged in to your computer can use the "//PORT" remote command to view a list of al configured ports. Transparent ports show a "NONE" value in the protocol column. Now this station could connect this port using the remote command "//C PORT:CALLSIGN" Any six letter word can be used as call sign.

If the connected station now enters "AT" this characters are directly sent to the modem causing in to answer "OK". Now the station enters "ATDT 908 2121….."

This is just an example of using transparent ports. If you configure a TCP/IP connection to a UNIX computer using port number 23 (Telnet port) you may get an UNIX login prompt when connecting this port !

# *Sounds in Pr4Win*

Pr4Win can play a sound as a reaction to a certain event. Sounds you want to be played have to be recorded in standard windows WAV format files and this files have to be placed in the "…\pr4win\sound" directory. The connection of what sound is played for what event is made by the filename of the sound. The "pr4start.wav" file is played when you start pr4win. "Pr4end.wav" is played when you close pr4win. When you put a sound in a file with an amateur radio call as filename (e.g. OE8DJK.WAV), this file is played whenever this station

connects you. The file “connect.wav” is played when a station connects you and there is no special sound file for this station.

Another way to play sound files is by using the remote command “//paly file.wav” “file.wav” is take from the current working directory of the logged in station. Remember remote commands can also be invoked locally and in scripts. The remote command “//play” without any filenames shows you all sound files in the current working directory.

## *Station Database*

Pr4Win has a build in database for all stations you have ever had a connection with. Stations are automatically inserted into this database at your first connection or manually from the station database window. Stations are normally inserted into the database without distinction of the SSID. If you wand to distinct different SSIDs you have to insert this entries manually from the station database window. (E.g. Digi has a call sign DB0PV, the BOX has a call sign DB0PV-8)

Pr4win stores general information for each station like name, QTH, date and time of last connection, comment and others. Pr4win stores also information with each station that is used by Pr4Win in other functions.

You can define a connect path for each stations and establish a connection using this connect path direct from within the station database window.

The “last connect” field is automatically maintained by Pr4win, the Name and QTH fields can be set by the connected station using the remote instruction “//name” and “//QTH”.

In the “script” field you can define a script which is executed automatically when you connect this station or this station connects you. The script is executed instead of sending the “welcome.txt” text file.

A Permissions (security level 0..5) is also stored in the station database for each station. Security levels define the home directory and the right to use various remote instructions for a station. A security level 0 should be assigned to mail boxes which disables all remote commands and prohibits “remote command viruses”. A security level 1 is assigned initially to all new stations at their first connection. This level should allow a minimum set of remote commands like //help //quit and so on.

The station database is also used to configure which station is a mailbox (what type of mailbox) and which station (DIGI or BOX) has a password (password method and password) assigned. It is necessary to configure mailboxes in the station database to make Pr4Win aware of check and list output recognition.

The database stores information in the "…\pr4win\log\USER.IDX" and "…\pr4win\log\USER.DAT" file.

## *Log book*

Pr4Win automatically maintains a logbook for all your connects. Each physical connect (the station you have a direct RF connect, not all further connects) is entered in this logbook. Call sign, Start time, end time, the used QRG and an optional remark is saved with each entry. The remark can be entered by the connected station with the "//REM TEXT" remote command. The QRG is taken from the channel configuration and may be changed with the connect dialog.

The Logbook window allows you to view the logbook. The logbook can be archived to any file you want in any time interval you want. Archives can be viewed later. The logbook can be sorted by any column in the logbook window.

# Changes

This section describes changes from one release to another.

## *Release 3.0*

***User Interface***

The user interface has changed with version 3.0. The toolbox has become a toolbar and all icons have become small icons. Icon Buttons display their boarder only when the cursor is in the button area.

***Pop up Help***

With each icon button a pop up help text may be associated.

***Time***

The current time is displayed in the MDI status bar.

***Multiple language support***

All texts uses in all windows are now included in a "windows.txt" file in each language directory.

***Password methods***

The new "DieBox" password method has been implemented. And the embedding of password in random characters is supported now.

***Beacon***

Release 3.0 supports a beacon with different text for each port/channel the text may contain keyword that are substituted before the text is sent.

***//play***

The remote "//play wavfile" command now always refers the …\pr4win\sound directory. "//play ?" or "//play" lists all available sound files.

***MAILEND***

When a mail is sent in the offline mail window the end of mail characters that are attached to the mail automatically are configurable in the PR4WIN.INI file by the "MAILEND=NNNN" entry.

# Glossary of Terms

***AX25***

A protocol to handle connection oriented data transfer. AX25 is a variation of X25 which uses different addresses (Radio amateur call signs).

***CHANNEL***

Each modem in a multi-modem TNC is assigned a channel within its port.

***CRC***

Cyclic redundancy check. A 16 or 32 bit number evaluated over a number of bytes to realize errors in the transmission of these bytes.

***CSMA***

Carrier Sense Multiple Access. A set of rules when to access a shared RF channel.

***KISS***

Keep It Simple Stupid, Serial Protocol for TNC <-> Computer communication.

***MAC***

Media Access Control. Rules when and how data is to bee sent out on the RF channel.

***MDI***

Multiple Document Interface

***PORT***

Each connection to a physical device is called a port.

***REJ***

Reject, The connected station requests the retransmission of packages.

***RNR***

Receive Not Ready. The connected station acknowledges received packages, but is not ready for further packages.

***RR***

Receive ready. The connected station acknowledges received packages and is ready to receive more packages.

***SABM***

Set Asynchron Balanced Mode. AX25 frame to initiate a connection.

***SSID***

Secondary Station Identifier. Each AX24 Address contains 16 sub-addresses. These sub-addresses are specified by attaching a number (from 0 to 15) to the AX25 address.

***TNC***

Terminal Node Controller. TNC's contain the necessary hard- and software to handle the MAC layer. (This is only true for the KISS mode. In HOST Mode the TNC also handles connection oriented data transfer (AX25)).

***UI***

Unnumbered Information frame. A special type of AX25 frame.

***UUDECODE***

Standard UNIX procedure to convert binary files to text files.

***XMODEM***

A procedure to transfer binary data. The binary data is sent in 128 Byte blocks. Each block contains a 16-Bit CRC checksum and in acknowledged by the receiving station.

***XVT***

XVT Company Boulder USA

***YMODEM***

Same as XMODEM but uses 1024 byte long blocks of data. This reduces the necessary acknowledges.

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