
"PSK31 - The Easy Way"

Part Two

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SYNOPSIS:

This paper builds upon the basic concepts of PSK31 discussed in Part One of "PSK31 The Easy Way" (1) by looking at recent developments in software, and using PSK31 on air. DigiPan PSK31 software (4) has become a commonly used computer program in recent times, and has identified many of the limitations (2 & 3) of the original front end, display, macro's and general ease of use by the wider Amateur Radio (AR) community.

A broad summary of PSK31 operating techniques is discussed with hints and tips for the newcomer with using keyboard-to-keyboard communications for DX hunting and general on air chatting with friends. Some questions remain, Eg: "Will PSK31 make RTTY obsolete?"

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1. Introduction

A year has passed since the publication of “*PSK31 – The easy Way*” (1). During this time, thousands of Amateur Radio (AR) operators worldwide have become active with this comparatively new data mode of communications, and more appear every day. Whilst debate about CW testing in the AR Licensing Requirements continues to appear in AR journals around the world, little discussion is offered about how PSK and other modes can supplement CW thereby furthering the interest and diversity of Amateur Radio for the benefit of all.

During a recent PSK contact with an overseas operator, the writer discovered that the DX station was deaf and had to give up AR operation because he could not hear CW and SSB stations. PSK came to the rescue, and now he can enjoy his beloved hobby once more. Other cases include “seniors” who find it difficult to use a Morse key because of limited hand agility but they find that a computer mouse “click” was easy to do, and whole sentences can be inserted into their PSK “overs” with little effort. There are many other examples where PSK31 has given AR operators the freedom to meet with other operators worldwide on equal terms.

The writer has been very active with PSK31 for almost two years, and has watched the vast uptake of the mode at first hand. Two years ago it was difficult to find anyone using the mode, yet today, a short CQ beaming Europe immediately causes a pile-up that can last for many hours and easily fills a full page in a logbook!

Bad operating habits plague PSK31 just the same as any other mode on the HF bands. Calling CQ right on top of your signal, when you are conducting a contact with a DX station might mean that you lose that illusive DX station - is all too common on today's crowded bands. However, good PSK operating practices should be upheld, and this paper highlights just a few of these to get you started.

One of the first software packages written by Peter Martinez, G3PLX (2 & 3) and offered free to AR operators was **psk31sbw.exe**. However, many skilled AR programmers have now developed new “front ends” using the same Varicode core written by G3PLX to improve the general “useability” of PSK software. At the time of writing, DigiPan (4) seems to have become almost the defacto software standard on the HF bands, and this paper deals with obtaining, setting up, and running DigiPan on your home computer.

2. DigiPan Software

DigiPan is a “freeware” computer program that can be quickly downloaded from the Internet (4). The downloaded file is less than 600Kb and will easily fit onto a 1.44Mb floppy disk as a back-up file, or to give to your friends to try. Named – **digipan6.exe**, for version six onwards, is a self-extracting file that can be installed in a Folder called (say) DigiPan in your Windows, Programs folder. Just copy the digipan6.exe file into your new folder and “click” the file to enter the installation and setup dialogue menus. On a Pentium 166 computer, the installation just takes a few seconds! Once the program has been installed on your computer, using My Computer, select the DigiPan folder and look for the file – DigiPan.exe. “Click” this file to open the DigiPan interface program.

If you have followed the instructions and build your own interface box (1), then you should have a computer serial port dedicated to PSK31 acting as a push-to-talk (PTT) line. This places your transceiver into the “transmit mode”. Note the Com port number ready to configure DigiPan to your own requirements. Next, “click” on the Configure – then Personal data ... options to bring the personal dialogue box up onto your screen.

This is the easy bit!. Fill in the boxes with your own call, your name, the QTH, and if you intend to use an automatic CW identification at the end of overs on PSK31. “Click” OK and you’re done.

If you are a Short Wave Listener (SWL) and do not intend to use DigiPan as a “transmitting” program. That’s fine. Enter your SWL number for the callsign and ignore the CW ID bits. The program works exceptionally well as a receive only program, and ideal as a SWL DX monitoring and logging program.

Select the Configure operation again and select Serial port...

Select the Com port for your own computer. The writer is using Com Port 4 with RTS and DTR checked as well. Once done, “click” OK and it’s done.

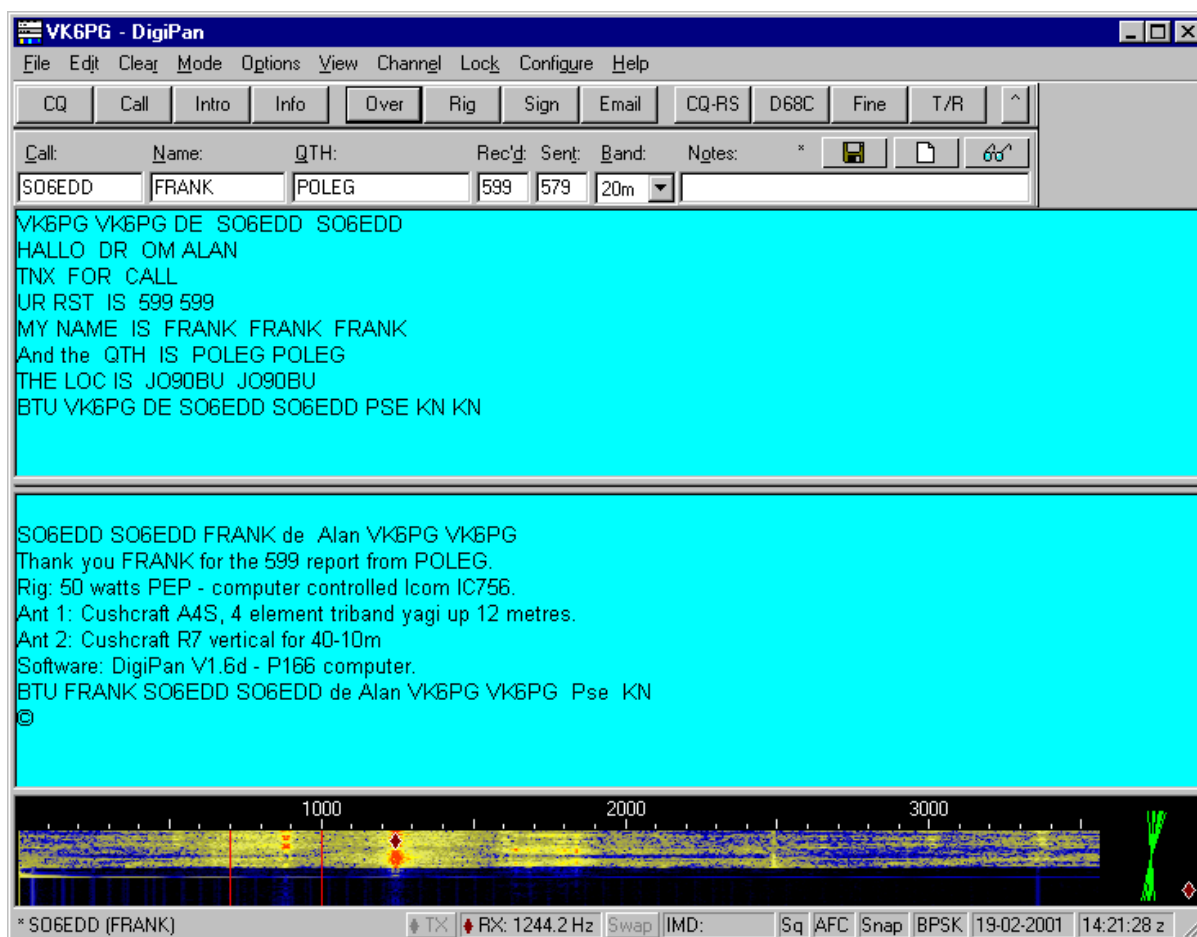
Readers might have computers with just two communications ports. Port 1 might have your mouse connected, and Port 2 may have an Internet modem or transceiver control software running automated logging etc. If so, you may need to buy a comport expansion card for your computer. These cards are available from most reputable computer stores for a small sum. Read the installation instructions carefully to avoid software conflicts, or ask a friend to help you with the installation of the card if you are new to computers.

DigiPan is now ready to run with your transceiver or receiver if you are a SWL.

3. Macro Editing and Linking

DigiPan has a wonderful macro feature. Macro's are short sentences or information used in regular on air sessions. Examples range from CQ, RIG, your NAME and QTH, QRA Locator number, Grid square, and many others which are personal to you own style of operation. At the top of the DigiPan toolbar, there are 12 buttons that represent the 12 function keys on your keyboard. To see each of these, select the first button and "right click" to see the macro editing window shown in to picture above. <TX> places the transceiver in the transmit mode, <CLEARWINDOW> clears old text from your lower transmit window, <MYCALL> inserts your own call from the Personal data entered previously, and <RXANDCLEAR> clears your transmit window ready for you to respond if called by another station. These macro commands can be selected from the right hand window and automatically inserted into your custom macro by "clicking" on the "<<" button. No programming experience is necessary!

Before you launch into a frenzy of PSK operation, write down on some scrap paper some examples of macros that you will need. Then place them in order from F1 through F12 to complete your final collection. Examples of some macros can be seen from the writer's DigiPan installation shown below.



Common macros might be **CQ, CALL, INTRO, INFO, OVER, RIG, SIGN, EMAIL** etc. Of course the most important macro will be **T/R** which switches your transceiver to **transmit** or **receive** when needed. However, even this can be "automated" with the <RXANDCLEAR> command. Because DigiPan has a fully integrated logbook that stores all your PSK contacts for you, you can end your **SIGN** macro with the <SAVEQSO> command! The combinations are extensive, feel free to write, edit and use your own complex macros.

On the right hand side of the 12 macro buttons, a small double ^ button allows the operator to select another 12 macro buttons. This gives you a total of 24 macro options. Again, do some advance planning especially when considering PSK contesting, rubber stamp contacts, rag chewing, QSL information, DX chasing, and personal details etc. In just a few days of operation and you will be back into editing and refining your macros – even when you are in the middle of a PSK contact!

Once you have written short macros such as the **CALL** macro and by first entering the callsign of the wanted station inside the CALL white box, then by “clicking” on the **CALL** button, the transceiver drops into the transmit mode, calls the station, adds the DE and your own callsign several times, finishes with PSE KN, drops back to receive and clears the window. Wow that’s fast and I only had to “click” once. It gets even better. Try an **INTRO** macro which automatically introduces the customary exchange of callsigns. Then a **FINE** macro which adds comments like: Hello <NAME> thank you for the report <MYRST> from <QTH> <NOTES>.

A full on air two-way contact can be made **without doing any typing** at all once the macros are fine tuned. For example, when you have answered a station with **INTRO**, add the **FINE**, add the **INFO**, “click” **RIG**, **QSL** and **OVER**. Just SIX “clicks” and you have almost finished. While you are digesting the information from the distant station in the receive window – “click” the **INTRO**, **TNX**, **SIGN** macro buttons, and when the “over” is passed back to you, just “click” the T/R button and complete the contact. The screen is automatically cleared and the contact information is saved in the DigiPan logbook. Nothing could be easier. The writer regularly has pile-ups on 14Mhz and can work 20-30 DX stations without typing **ONE WORD** on the screen except to enter the station Call, Name, QTH and reports into to white windows at the top of the DigiPan window.

4. On Air Contacts

The DigiPan waterfall window allows you to net onto a station by “clicking” on the yellow PSK31 signal seen on the screen and heard in your headphones. At weekends when the band is busy, the waterfall is full of yellow signals slowly wandering down your waterfall. Just “click” onto each one to read the mail, eavesdropping, or find out who is calling. Once the little diamond icon appears on top of the wanted signal, get ready with your **CALL** macro for a fast start before someone else grabs him! If he’s who you are looking for, enter the call in the white window, hit the **INTRO** macro and wait until he’s finished calling – then GO with the T/R button. If he answers, and while he’s transmitting to you, start “clicking” the macros in the desired order ending with the **OVER** macro. This process means that your characters are transmitted a full speed without the recipient seeing you pecking away at your keyboard with one finger. From then onwards, sit back and enjoy your contacts by just “clicking” the desired macro options. Linking macros as you go along is a pure delight and really is “*PSK31 – The Easy Way*”.

5. Operating Practice

Like other AR modes of communication, PSK31 needs some personal discipline on your part. Do not be guided by some operators who insist on tuning up on air, call stations when they are already in contact, ignore the KN commands, and operate PSK31 without a proper exchange of call signs. Spend plenty of time listening (and watching) the traffic around

14.070Mhz and get some experience in proper procedures and practices, and modify your own macros accordingly to streamline your own PSK31 station.

Some good macro examples might be:

```
<TX>
<CLEARWINDOW>
CQ CQ CQ de <MYCALL> <MYCALL> <MYCALL>
CQ CQ CQ de <MYCALL> <MYCALL> <MYCALL>
PSE K K K
<RXANDCLEAR>
```

Use no more than three CQ's followed by three <MYCALL> commands then an ENTER on your keyboard followed by one repeat line is more than sufficient for the average CQ call.

QSL is OK via the bureau. Goodbye from Western Australia - Zone 29.
73's <NAME> and thank you again for the PSK31 contact from <QTH>.
 <CALL> <CALL> <NAME> de <MYNAME> <MYCALL> <MYCALL> AR SK
 <RXANDCLEAR><SAVEQSO>

Be polite but keep your messages and macros short. Avoid “waffle” and especially casual Australian “jargon” which some DX stations do not understand. In some countries, the word MATE means to have sex! Do I need to say more?

6. DX Hunting and Chatting

DXCC is very easy these days on PSK31. With the beam pointing on Europe or the USA your country score will rapidly climb to new heights. WAC can be achieved almost any Saturday or Sunday when the DX bands are open. At the time of writing, VK and ZL stations are still fairly rare to many foreign stations and even the DX-peditions like D68C and planned Spratly Island adventures are now including PSK31 in their inventory these days.

Hunting DX is very easy. Try the DigiPan **Options**, the **Arrows for seek**, and/or **Continuous seek** by ensuring there is a tick (T) along side these options. Then use the keyboard left and right arrow keys to let DigiPan find the stations for you! Try “clicking” on the pair of glasses to find out more about the stations that you have stored in the DigiPan logbook. DigiPan even finds duplicate contacts for you, and if you have programmed your own macros correctly, DigiPan will automatically enter the operator's name, QTH and other data when you work the same station again.

At your leisure, run through all the DigiPan options and check that all is well, and that you now feel confident to let yourself loose on the DX.

Chatting to your “regulars” or locals can be fun. This is when you have to do some typing to send casual information, the weather, how the XYL's operation went today, who you worked last night or the date and time of the next club meeting. Three or more AR operators can work in a round table with break-in operation, or indeed start your own local net. The options are almost unlimited – especially for young people who understand how to use a computer but will be amazed when they find that can actually chat to other operators without the added

line and service provider costs associated with the Internet. Computers are not a threat to AR - they now enhance the hobby.

7. Summary

This paper discussed the basic attributes of DigiPan and PSK31. Installation, setup and macro programming has been outlined with examples of simple macros commonly used on air by AR operators. With the continuing debate on the future of CW, PSK31 is offered as a welcome relief to operators looking for an easy way to enhance the hobby, and give personal fulfilment by joining in the fun of using data as an affordable communications medium.

Readers are referred to "*PSK31 – The Easy Way*" (1) for computer requirements, background details and constructional information. Copies of both Parts 1 & 2 may be obtained from the writer (pre-paid postage please), or downloaded from the Internet at:

<http://www2.tpg.com.au/users/vk6pg/vk6sig>

To assist Australian and New Zealand operators, the latest issue of DigiPan is also mirrored at the above Web Site. Readers in difficulty can always discuss their concerns with the writer on packet or email at the addresses shown.

Happy Hunting.

8. References

1. Gibbs, A. (VK6PG). *PSK31 – The Easy Way*. Amateur Radio Magazine. Vol 68/3. March 2000. pp. 36-40.
2. Martinez, P. (G3PLX). *PSK31: A new radio Teletype mode*. Part1. RADCOM 12/98. p14
3. Martinez, P. (G3PLX). *PSK31: A new radio Teletype mode*. Part 2. RADCOM 1/99. p 26
4. DigiPan Software mirrored at: <http://www2.tpg.com.au/users/vk6pg/vk6sig>

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