# DIGITAL MASTER

## 780

## USER GUIDE V4.0



Simon Brown, HB9DRV

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Sponsor:



Martin Lynch and Sons of London supplies all radios used by HB9DRV and GD4ELI.

Special thanks are due to Chris Taylor for his friendly and efficient service.



If you are looking for a new radio to use with digital mode software I recommend Kenwood's TS-480SAT. It offers excellent value for money, is very easy to use and has the best computer support available today.

## Contents

Introduction	7
Supported Modes	
Operating System Support	
VISTA	
Hardware Requirement	
Meet The Users	
Getting Started	11
Audio Interfacing	
Commercial Solutions	
DIY	
Tags	
Soundcard	
SignaLink USB	
USInterface Navigator	
Radio Control	
PTT	
COM Port	
Ham Radio Deluxe	
Soundcard / VOX	
Your First QSO	19
QSO Window	
More Detail	
Mode	
Transmitting	
Test Transmission	
Using Macros	
Add Log Entry	
Add	
More	
My Station	
Advanced QSO Options	27
Squelch	
AFC	
Signal Quality	
Multi-Channel Support	
I X Lock / Split Mode	
Weterfall	
vy autitali	
Favourites Toolbar	
Modes Toolbar	31
Markers	
Appearance	
Options	
-	

QSO Modes	
Wikipedia	35
Wikipedia DSK	
СМ	
Filter	
$\Omega > N$	
9->IN	
Opuons	
Helischreiber	۵۵
Bandwidth	
Dramma	
Browse	
	<i>ا</i> ک جر
Pela-Hell Club	
Options	
MF5K	
MITOS	
	ענ 20
K11Y	
Reverse	
Defaults	
Uos (Unsnift On Space)	
1 nrob	
SSTV	
	44
Quick Start	
First Steps	
Dedicated Soundcard	
Soundcard Calibration	
Receiving images	
Signal Detection	
I ransmitting	
More Options	
Template Editor	
Delault	45
Background	
Adding Text	45
Saving	
FIP	
Inlage window	
Trongmit Window	
Wahaam	
webcam	
Callsign Lookup	51
CD L column	51
OP7 com	
QINZ. COIII	
Subscriptions	
Web Browser	
Donations	
Logbook	53
Quick Log	
Main Logbook	
Layout	
ADIF	
Cabrillo	
Merge HRD	
Google Earth	

Index	97
WWV Updates	
Time Synchronisation	
Various	Q5
Release Notes	
Editing	
Favourites	
Radio Interface	91
Storage	
Themes And Skins	
	03
Program Ontions	90
Video ID Preview	
Radio Control	
Definition	
Editor	
Manager	
Macros	
Logfile	79
Options	
Identities	77
Text-To-Speech	
SuperBrowser Colours	
Match Text Testing Alarms	
Editor	
Manager	
Alarms	71
World Map	69
Web Browsers	67
PSK Propagation Reporter	
Operation	
Visual	
QSO Window	
Transfer To QSO Window	
Favourites Toolbar	
Options	
Super Provider	61
QSO Forwarding	
eQSL.cc	
Countries File	
Options	59

## Introduction

Digital Master (DM780) is a new program supporting the most commonly used digital modes, a replacement for PSK31 Deluxe. DM780 is closely integrated with Ham Radio Deluxe.

Too see what is new look at the Error! Reference source not ound. (page Error! Bookmark not defined.).

Q: What does 780 signify?

A: A tribute to one of the finest computers ever built, the VAX 11/780.



Q: Why write Digital Master 780?

A: Many reasons:

- Self-education,
- Encourage people to try the digital modes,
- Put something back into the hobby.

## **Supported Modes**

The first release supports the main digital modes as well as SSTV:

- PSK / QPSK,
- CW,
- DominoEx,
- Hellschreiber,
- MFSK,
- MT63,

- Olivia,
- RTTY,
- Throb.

The source for the digital mode DLL is available, if you can't find it on the Ham Radio Deluxe website just ask and I'll make sure it's available.

Copyright and credits is available from the Help menu in DM780.

In DM780 you find all the features you expect of a modern program such as an integrated logbook, world map and web browsers. The DM780 philosophy is to get the UI working properly before more modes are added.

A lot of the decoder code is taken from Fldigi, a fine digital mode program for Linux. For more information: http://www.w1hkj.com/Fldigi.html . The author of Fldigi, W1HKJ has kindly allowed me to use his code for these modes.

### **Operating System Support**

DM780 is designed for Windows 2000, XP and VISTA. Older versions of Windows such as Windows 98 are not supported.

There are *no* plans for Linux or Mac OS versions. The UI code cannot be made available; also it is not possible to port it to a UNIX-based operating system. If you want a UNIX / Linux solution either look at Fldigi (see above) or use WINE from http://winehq.org/.

#### VISTA

VISTA introduces a new API for soundcard access, fortunately the older NT / XP API is still available. DM780 uses the older API for the time being.

### Hardware Requirement

Although one member of the test team has satisfactory results using a 500 MHz CPU and Windows XP a realistic minimum system would be a 1 GHz Intel CPU and 512 MB of RAM.

A high-end soundcard such as the M-Audio Delta 44 or Edirol FA-66 is not essential but recommended (I have had problems with my Delta-44 on VISTA). Currently I am using a TS-480SAT with an Edirol FA-66 and VISTA-32 – a great combination.

Please consider the excellent Navigator from http://usinterface.com/ .

If you are using a laptop be aware that the internal soundcard may be very poor indeed, consider the SignaLink USB from Tigertronics http://www.tigertronics.com/.

## **Meet The Users**

The HRD and DM780 support forums are found at <a href="http://forums.ham-radio.ch/">http://forums.ham-radio.ch/</a> .

The homepage is http://www.ham-radio-deluxe.com/ .

You do not need to register to view the forums!

## **Getting Started**

Follow these steps to configure DM780 and enjoy your first digital mode QSO.

## **Audio Interfacing**

You need an audio interface to connect your rig's audio in/out to the computer's soundcard. This eliminates troublesome ground loops and prevents hum and noise from degrading the signals.

Audio interfacing can be done in so many ways that it would take days to plough through all the available information. It is possible to connect your radio directly to your soundcard without any form of isolating interface but this is not recommended.

#### **Commercial Solutions**

From England there are the ZLP Electronics DigiMaster interfaces, inexpensive, *very well made* and used with my TS-480SAT.



From Oregon USA, Tigertronics manufactures the SignaLink interfaces, used with my IC-703 and FT-817.



From Maryland USA the Navigator from USInterface.com is an excellent solution.



From Connecticut USA, West Mountain Radio provides the RIGBlaster solutions.



#### DIY

Here is a circuit recommended by Peter PH1PH (SK), this text was written by Peter in 2004.

"Here is a circuit that has proved its worth many times. It will work with any ICOM or Yaesu rig that has a 6-pin mini-DIN connector for external audio. It will of course work on just about any other rig that exists, but you will have to make changes to the connections to your radio. Please check the actual connections to the mini-DIN -I can accept no responsibility for damage to your rig should things go wrong. I have to say that the one that I built to this circuit worked perfectly well on my FT-817 and IC-703 without changes..."

"You should always use the rig's high-impedance audio output if there is one available: this supplies a constant signal level to the soundcard. Most rigs also have a TX audio connector independent to the microphone input: you are advised to use this input. Some commercial interfaces don't allow this: my recommendation is to avoid any interface requiring use of the microphone connector and speaker output unless there is no other option for getting signals in

#### and out of the radio."



## Tags

Enter values in the Tags window; these values are used in macros (shortcuts which save you entering the same text every time you

Tags	e
🖃 About Me	
Callsign	HB9DRV
Name	Simon
Age	95
Locator	JN46pt
QTH	Laax
E-Mail	simon@hb9drv.ch
HomePage	www.hb9drv.ch
Clubs	RSGB, G-QRP, ARRL

have a QSO). The values are saved automatically.

If you want more tags select the *QSO:General* page of the *Program Options* and enable the option:

[\_] Show multiple sets of tags (displays the Tags toolbar)

## Soundcard

Select your soundcard as follows:

Either:

- From the View menu select Soundcard,
- In the Soundcard pane press the *Options* button.

Or:

- Press *F8* to display the *Program Options* (or select *Program Options* from the *Tools* menu),
- Select the *Soundcard* page.

Soundcard				
_Input (Rece	eive)			
Device:	Creative Sound Blaster PCI			
Source:	Line In 💽 🛄			
Output (Tre	ansmit) Vse input device			
Source:	Wave			
-Output (Tra	ansmit)			
⊙ 0dB	○ 2.5dB ○ 5dB ○ 10dB ○ 15dB ○ 20dB			
Show s	Show sample rate in main status bar			

A good soundcard is recommended; some PC's come with very poor solutions built onto the mothercard (this is especially true for laptops). You can use the PC's default soundcard to get going, but the difference between a poor soundcard and a card such as the M-Audio Delta 44 or a Creative Audigy is like night and day. *You will be able to decode signals much better with a good soundcard.* 

### SignaLink USB

Tigertronics make a great external soundcard that you connect to a USB port on your computer; this is the SignaLink USB, which also provides an audio interface between the radio and PC to isolate your computer from your radio.

Available direct from Tigertronics and Martin Lynch & Sons (UK).



An advantage of a second soundcard is you can use the internal card for normal Windows sounds and the DM780 alarms.

### **USInterface Navigator**

- Just ONE USB cable to your computer controls EVERYTHING using ANY software.
- Everything is built into the Navigator including a high speed sound card and monitor.
- K1EL's newest Software Defined WinKey USB Keyer v21 is also built in.

- The Navigator has the lowest noise level on the market... bar none. Quit losing those weak signals and start working stations you couldn't copy before.
- MARS ALE users: The Navigator Interface meets Microsoft standards for an audio codec device. TRUE sampling rates can easily be set as high as 48 KHz.
- You can plug TWO (or more) Navigator Interfaces into the SAME computer while they each operate SEPARATE transceivers! No other interface can accomplish that.
- The case is 100% extruded aluminum. (No thin bent aluminum or metal here.) It's so robust you could put four more 706's on top.
- Laser engraved, milled and drilled front and rear panels. (No paint or decals.)



#### Navigator Console

DM780 has a special window for managing the Navigator. Operation should be obvious, below is the output from a Windows VISTA system.

For full information select the Help tab and read on...

SUS Interface - Navigator Manager (Changes are applied immediately)				
Navigator Connection Serial Ports Logfile Help				
COM8 Close	Port	Location	Description	
	🖉 сомі	<pre>Intel(R) ICH8DO LPC Interface Controller - 2814</pre>	Communications Port	
Firmware: Ver 1.00	<b>№</b> сомз	Navigator CAT	Navigator CAT & PTT CW Squelch	
	N COM4	Navigator PTT CW Squelch	Navigator CAT & PTT CW Squelch	
General	<b>№</b> сом5	Navigator WinKey	Navigator WinKey & FSK	
CH1 Attenuation: Normal 👻	<b>N</b> соме	Navigator FSK	Navigator WinKey & FSK	
CH2 Attenuation: Normal -	N COM7	Navigator RS232 Port	Navigator RS232 & Config	
RF Attenuation: Normal -	N COM8	Navigator Configuration	Navigator RS232 & Config	
WinKey PTT: Off 🔹				
LED Brightness: Dim 🗸				
CAT LED State: Polling 🔻				
FSK				
Polarity: Reverse -				
Sidetone: Off 🗸				
PTT: On 🔻				
Baud Rate: 45.45 🔻				
Stop Bits: 2				
Cours do Defect				
Restore Defaults				
Visit USInterface.com on the web				

## **Radio Control**

DM780 uses Ham Radio Deluxe (HRD) for radio control. To set up a connection between DM780 and HRD:

- In DM780 open the Radio display (select *Radio* from the *View* menu),
- Press Configure (the right-most button on the toolbar),
- Read the help text, this contains everything you need to know!

TS-2000	↓ # ×
14.23	35.000
S6 IIIIIIIII	
<ul> <li>Mode: LSB</li> </ul>	RX Filter
<ul> <li>Quick Mem: Ch 5</li> </ul>	Split: Simplex
▼ Various	]
TX A	Ant 1 Ant 2
	une
AF gain (main): 20	]
DSP low cut: 0 Hz	]
DSP high cut: 1400 Hz -	
RF power	

To configure the radio interface:

- Make sure Ham Radio Deluxe (HRD) is started and connected to a radio, you must use build 1317 or later.
- In HRD select IP Server from the Tools menu, make sure the IP Server is started and is configured to start when HRD starts.

The IP Server window also shows the addresses assigned to your computer. If connecting from another computer in your network you usually select the first address.

IP Server		
Configur	e the optional IP server	
Port: 7809 Default = 7809	Network name doubletrouble.hairy-creatures Addresses 	
OK Cancel		~

• In DM780 select *Radio* from the *View* menu, in the Radio pane press the *Configure* button.

In the Configure Radio Pane window:

- HRD address the address or name of the computer where HRD is running, localhost (or 127.0.0.1) if the local computer.
- HRD port the default port is 7809.
- Press Connect to HRD.

If a connection can be established:

- All buttons are enabled,
- The Dropdown buttons are automatically loaded with the dropdown buttons shown the HRD's display,
- The **TX** push button is automatically loaded (if available for your radio).
- TS-480SAT the **TX Alt** button is used for PTT via the rear connector.

To change a selection click on a button, then select an entry from the popup window. To clear the current selection, select the first entry '- - -'.

When you have finished defining your layout press *Save*. The definitions are saved in your local storage folder (from the Tools menu select Program Options, then select the Storage pane). For example, the IC-703 definitions are stored in DMRadioLayout\_IC-703.xml .

In the Radio pane press the *Connect* button 🕑 to connect to HRD.

## PTT

Normally you use HRD for PTT control, PTT is configured on the PTT pane of the Program Options (page 89).

COM Port	Ham Radio Deluxe	None
⊙ via Serial (COM) port Port: COM1 ▼	<ul> <li>via Ham Radio Deluxe - DM780 must be connected to HRD.</li> <li>Configure HRD connection</li> </ul>	⊙ via soundcard PT or radio VOX
On TX: I Set DTR (data-terminal-ready) I Set RTS (request-to-send)		See also: Mada:OA

### **COM Port**

To use a COM port for PTT:

- Select [X] via Serial (COM) port...
- Select the COM port; this must not be in use by another program,
- Select DTR, RTS or DTR and RTS.

When you switch to TX DTR and/or RTS are set (raised), when you return to RX they are cleared.

#### Ham Radio Deluxe

To use HRD the radio pane must be connected to HRD:

- In the View menu select Radio
- In the Radio pane press *Configure* and read the instructions!

#### Soundcard / VOX

If you are using a soundcard such as the SignalLink USB you can let the soundcard control the PTT or you can use the PTT built into your radio.

## **Your First QSO**

If a QSO window is not displayed just press the QSO button. A typical QSO window layout is shown below.



## **QSO Window**

The major components of the QSO window are:

#### Logbook (Add Log Entry) add an entry to DM780's logbook. Click on the tabs to select the pages.

Add More My Station QSL Help

- Macros, Tags, Modes:
  - Macros pre-defined text that you use when composing the text you want to send.
  - Tags information about yourself and your station, which is organized into fields, which in turn are used by macro definitions.
  - Modes add modes currently supported by DM780.
- Receive window decoded text is displayed here.



Transmit window – the text you send is composed here.



 Waterfall - at the bottom you see the Waterfall, the red stripes are PSK31 signals. To select a signal, just click on the stripe.

## **More Detail**

If the Waterfall is not displaying signals, check:

- Your radio is switched on,
- The correct soundcard is selected,
- The correct input source is selected and enabled,
- The cables are correctly connected to your radio and soundcard interface.

#### Mode

Select the correct mode. The default is PSK31, used in 95% or more PSK QSO's. Select the mode with either:

The dropdown option in the receive window, or

• The Modes pane.

#### Transmitting

Before you make your first test transmission you must decide how you will switch your radio between transmit and receive.

The options are:

- PTT using a serial (COM) port,
- PTT via Ham Radio Deluxe,
- VOX (depends on your radio and soundcard interface).

To select PTT open the PTT page of the Program Options (selected from the Tools menu).

#### **Test Transmission**

It is very important that you transmit a clean, linear signal. Never, ever use any compression or ALC.

To transmit just press either:

- Send (F1) starts sending, when all text has been sent press Stop (F4).
- Auto (F2) starts sending, stops when all text has been sent.

▶ Send (F1) ▶ Auto (F2) II Pause (F3) ■ Stop (F4)

When you start sending you will see the classic PSK 'tramlines' in the waterfall window:



When text is being sent the signal looks like this:

1300	M 1500	1700

If you have configured your radio interface correctly your radio will switch to transmit mode when you start sending.

To stop sending immediately, just press *Escape* on your keyboard.

#### **Using Macros**

To select a macro either:

- Select an entry from the Macros pane, or
- Click an entry in the Macros bar.

The macros bar is usually the most convenient option. In the picture below the macros bar is the second strip of buttons.



In this example the text that has been sent is displayed with a blue strikethrough font.

To directly edit a macro right-click on the button in the macros bar.

## Add Log Entry

Although you can type values into the fields in the Add Log Entry window, a faster option is to double-click on text in the receive window and select options from the popup menu.

X	Not Worked		
۲	www.qrz.com/detail/ur4up Callsign Lookup		
	Callsign		
	Name		
	QTH		
	Locator		
	Rcvd		
	Rcvd Rpt		
	Rcvd Exch		
	Remark		
	ΙΟΤΑ		
	Age		
	URL		
	Copy Ctrl+C		
4	Add Alarm		
G	Google 'UR4UP'		

In this example the text UR4UP has been selected.

(Because UR4UP is an alphanumeric string and possibly a valid callsign, the entries in the popup window include the callsign lookup / QRZ options.)

To copy UR4UP into the Callsign field in the Add Log Entry window just select *Callsign* from the popup menu.

Hint: if you press Shift while doubleclicking the selected text is copied into the Callsign field without displaying the popup menu.

The entries in the menu are:

- Worked status,
- Lookup using QRZ.com or DM780's Callsign Lookup window,

- The Add Log Entry fields the main fields are supported,
- Copy to clipboard,
- Add Alarm create an alarm from the callsign,
- Google for the callsign.

#### Add

Add Log Entry 🚽 🤻			
Start: 0	7:46	now	
End: 0	7:46	anow	
Callsign	: ✓	GD4ELI	
Name:		Simon Brown	
QTH:		Ramsey,	
Locator:		IO74th	
Country:		Isle of Man 🛛 👻	
Frequen	cy:	0	
Band:		40m 💌	
Mode:		PSK31	
Sent:		599 💌	
Revd:		599	
Remark	:		
Add Reset 😭			
Worked:		60m, 80m	
Add More My QSL Help			

This page contains the most commonly used fields.

#### **Start and End Times**

The times are usually shown using UTC, use the Program Options / Logbook pane to select either UTC or Local time. The time is always stored in the logbook using UTC.

#### Start

The start time for the QSO. If you check [\_] Now the start time is updated with the current time.

In the Program Options / Logbook pane optionally select:

Update when adding callsign - the time is updated when you add a new value in the Callsign field if previously empty,

Update when adding logbook entry.

#### End

The end time of the QSO. If you check [\_] Now the end time is updated with the current time. In the Program Options

/ Logbook pane optionally select:

Update when adding logbook entry.

#### Callsign

The station contacted. When you enter the callsign the *Country* is updated automatically. This field is mandatory.

#### Name

The operator's name, free-format text.

#### QTH

The operator's location, free-format text.

#### Locator

The Maidenhead locator, usually 6 characters, for example JN46pt.

#### Country

Updated automatically when you enter a callsign, the list shown corresponds to the latest DXCC list of countries.

#### Frequency

The current frequency, updated automatically from the Radio pane.

#### Band

The current band, determined from the frequency.

#### Mode

The current mode - the list contains the ADIF modes that are used for logbook import / export, awards, etc.

#### Sent

Sent has two fields: *Report* (example - 599) and *Exchange* (for contests).

#### Report

The standard, select from the dropdown or entered via the keyboard.

#### Exchange

To enable auto-incremented values in the Exchange field enclose the numeric value to be incremented inside square brackets. For example, if you enter [001] then the value added to the logbook and inserted in macros is 001 and this value is incremented to 002 when you press *Add*. The square brackets are ignored.

#### Remark

A free-format text field.

#### More

This page contains less frequently used fields.

Add Log Entr	у <del>т</del> Ф
Continent:	EU 💌
IOTA:	EU 🔽 666
CQ zone:	14
ITU zone:	27
County:	Lezayre
State/prov:	
ARRL sect:	<b>~</b>
Address:	Riverside, Glen Aulc
Age:	84
URL:	http://www.hb9drv.ch
Contest:	Spaniel roundup
Flux/A/K:	68 7 3
Adà Mo.	. My QSL Help

#### Continent

Select from the dropdown list.

#### ΙΟΤΑ

Islands On The Air reference – the IOTA hompage is: http://www.rsgbiota.org/ .

#### Contest

If the contact is made during a contest, enter the name of the contest here.

#### A index, K index, Solar flux

The current space weather information available from NOAA via WWV.

### **My Station**

This page contains information about your station. As you may have many configurations up to ten different station profiles are supported.

After you have entered values press Save.

Use the *Copy To* option to save the current values to a different profile.

Add Log Entry 🗸 🔻					
Callsign:	HB9DRV	SIG:			
Owner call:	HB9DRV	SIG info:			
Operator call:	HB9DRV	Locator:	JN46pt	<b>↓</b>	
Name:	Simon	Lat/Lon:	46.812500 9.291667		
Street:	Via Plauna 431B	CQ zone:			
City:	Laax	IOTA:			
County:	Kreis Ilanz	ITU zone:			
State:	GR	Power:	40w		
ZIP:	7031	Country	Switzerland	~	
Equipment	IC-703, TS-480SAT, T	-S-2000			
Antennas:	Dipole				
Profile: 1 2 3 4 5 6 7 8 9 10 Save CopyTo 1 🗸					
Note: these fields are not used in macros, instead use the Tags pane.					
Add More My Station QSL Help					

## **Advanced QSO Options**

## Squelch

The Squelch control operates in a similar way to the squelch on your FM receiver; the signal is only decoded when the strength is equal to or greater than the squelch setting.



In the above example the squelch threshold is set to 25 (the available range is 0 to 100), the actual signal level is significantly higher.

## AFC

Automatic Frequency Control ensures that you track a signal which may be drifting, also that your receive frequency is in the center of the signal.

## **Signal Quality**

The quality of the received signal is shown in the vector data display.

- Vertical lines like this indicate a good PSK signal.
- ☆ Random lines like this indicate a bad PSK signal.

## **Multi-Channel Support**

The standard QSO window supports 1, 2 or 3 receive channels.

- One channel (Main).
- Two channels, Main and Sub-A.
- Three channels, Main, Sub-A and Sub-B.

You can only transmit using the Main channel, Sub-A and Sub-B are receive only.

Use the  $\ensuremath{\scriptscriptstyle O}$  button to swap the contents of Sub-A or Sub-B with the Main channel.

An alternative to multi-channels is the SuperBrowser.

## TX Lock / Split Mode

To enable split mode operation just press the TX lock button <sup>6</sup>. Instead the main channel marker <sup>■</sup> is replaced with a transmit <sup>∞</sup> and receive <sup>™</sup> marker.

To change either frequency click on the marker, then drag over a signal trace.

### Repeats

To send text at a regular interval use the repeat option. Typically you use this option to send a CQ text on a normally quiet band such as 50 MHz.

There are two buttons associated with repeats:

- Or Select the repeat interval.
- ↔ Repeat Enable repeats.

When a repeat interval is selected a progress bar is displayed at the bottom of the transmit window (on the window's status bar).

For example, with an 8 second interval: 8 secs

## Waterfall

The waterfall is your tuning dial; you select the signal to decode and if in split mode your transmit frequency.

Waterfall			- 🥴 🔀
🛛 🔤 - 🖪 🥹 🔕 🐠 🚰 🕴 3.580   7.03	5 7.080 14.070 21.070 21.080	28.120 50.250 🔹 🕨 🕋 F	aves
BPSK-31 BPSK-63 BPSK-125 Modes			
14.070.10 14.070.50 14.070.90	M 14.071.30 14.071.70		14.072.90
	Presenta .	er de la company	
	alaras interior degrada agreena a na adreasa di barrangena agreena agree	alan bertekata bertekata Manan bertekata bertekat	
		A	
	🤹 a se se a se de data		-

The waterfall display consists of:

•	Main toolbar, İ 🖳 - Rî 😌   🗋 Center   🔕 🕮 🕕 🛛 া 🕋
•	Favourites toolbar,
	3.580 7.035 7.080 14.070 21.070 21.080 28.120 50.250 <b>4 b Arrow</b> Faves
•	Modes toolbar, BPSK-31 BPSK-63 BPSK-125 Modes
•	Markers,
•	Frequency,

	14.070.90 .   .   .   .		
•	Signal trace	es.	
	8-16-16-1		
	部和编建	<b>Sanda</b>	
	Carlos and	tion of the second	

Toggle the toolbar visibility by right-clicking in the waterfall and selecting *Show Toolbars* from the popup menu.

### Main Toolbar

The main toolbar options are:

- Display mode various algorithms to pull the signal trace out of the background noise. This does not affect the signal decoding. Shows the frequency spectrum.
- **R** Show radio frequency (frequency of radio + audio offset).
- ↔ Rewind the display replays the stored audio.
- Maximise the contrast (this does not affect the

signal decoding).

Enable decoder popups – the trace under the cursor is decoded, the result displayed in a small popup window.



Waterfall options.

#### **Center Frequency**

If you have a radio with a narrow filter you use this option to position the selected signal in the center of your filter.

In the main toolbar there are three buttons associated with this option:

Center Enables center frequency operation.



Click to apply center frequency.

Click to undo the last change.

When enabled, the **G** marker is displayed in the waterfall. Click and drag this to the center of your narrow filter.

To move the selected signal to the center frequency, click the button on the toolbar or double-click the marker in the waterfall.

#### **Favourites Toolbar**

The favourites toolbar contains the frequencies you commonly use, it is provided to make switching between these frequencies as painless as possible.

7.035	A favourite frequency (not selected).
14.070	The currently selected favourite frequency.
◀ ≪ » ►	Adjust frequency by +/- 500Hz or +/- 2kHz.
💝 Faves	Start the favourites manager.

#### **Modes Toolbar**

The modes toolbar contains the modes you commonly use.

BPSK-63A favourite mode (not selected).BPSK-31The currently selected mode.Image: ModesStart the modes manager.

#### Markers

The various markers you will see in the waterfall are shown below. To change a frequency click on, then drag the marker over a signal and release.

You must drag over the waterfall area where the signal traces are displayed, the cursor indicates the marker you are dragging.

To change the main channel frequency just click in the waterfall.

- 👖 A current Main channel frequency. Split mode < must be off.
- The current channel Sub-A (VFO-A) frequency.
- B The current channel Sub-B (VFO-B) frequency.
- **RX** The receive (RX) frequency if split mode is enabled.
- The transmit (TX) frequency if split mode is enabled.
- Center frequency see Center Frequency on page 30.

#### Appearance

The waterfall appearance is configured with the Waterfall:1 and Waterfall:2 pages of the Program Options (selected from the Tools menu).

			Waterfall:1
Mode Materfall Spectrum Input	Waterfall Options	Passband Min: 100 Y Hz Max: 3000 Y Hz	Speed Note: faster = higher CPU usage
Appearance Background Text Text	■ • • Jew	Maximise contrast Bold Italic	Other  Display radio frequency Erase when changing frequency Show soundcard in window title Only update if visible (less CPU)
Frequency Show RF frequency	ncy (radio + audio, requires ) + O - 0 Hz	<b>a radio connection)</b> (+9,999Hz to -9,999Hz)	Frequency Show radio control macros: Buttons O Popups
Waterfall Display Mo O Root - data is 4t O Log - data is 10l O Log (as above)	ode (Does not affect decodi h root of linear FFT power og() of FFT power with 10% to 90% baseline cl	ng) Smoothing min end	Use clipping to shift the data so that baseline noise is at the bottom of the screen, thus giving a larger viewing dynamic range.
Clipping: 10%	<u> </u>	max	Defaults



The most commonly used options are *Colour File* and the *Display Mode* settings.

Select the colour file that is best for you, (I prefer Scope 1).

The display mode settings adjust the data to make the signal traces more prominent; this has no effect on the decoding. The default setting is shown in the above screenshot.

## Options

There are three panes in the Program Options (page 89) used by the QSO window:

- QSO:General,
- QSO:Receive and
- QSO:Transmit.

Familiarise yourself with the options on these panes.

## **QSO Modes**

When you select a new mode the options specific to that mode are displayed on an extra toolbar. This section explains the options for these modes.

## Wikipedia

This is an excellent resource with a good description of digital modes.

## PSK

#### http://en.wikipedia.org/wiki/PSK31

PSK is the most commonly used mode, there are no special options. 95% of traffic uses PSK-31, the rest using mainly PSK-63. QPSK (a variant of PSK) is rarely used.

## CW

#### http://en.wikipedia.org/wiki/Continuous\_wave

CW is supported in four variants:

- Standard CW where the radio is keyed via a serial or parallel port,
- Modulated CW (MCW) where the tones are generated by the soundcard,
- Using the KY command with Elecraft, Kenwood and Flex-Radio radios (read the PTT information below),
- Using the K1EL Winkeyer.

All support the CW decoder.

CW		×
тх: 🦳	]	- 19 🔑 Winkey
Filter: 50 H	Hz 🔻 WPM: 1	.8.0   🔎 Signal 🗳 9->N 🚰 CW

#### Filter

The width of the software filter used to decode the incoming signal.

#### 9->N

When checked sends N instead of 9 in reports copied from the Sent field of the ALE (add Log Entry) window.

#### **Signal Analysis**

This window is designed to assist the development of the CW decoder.

#### **Options**

The Mode:CW page of the Program Options is used to:

- select the serial / parallel port used for keying your radio,
- enable PTT,
- control the waveform.

See the help text on the Mode:CW page for more information.

#### Winkeyer

DM780 supports all Winkeyer options with the exception of memory programming available with v2.0 and higher.

Winkeyer	X
	WinKey v 20
Keyer PTT / Sideto	ne Speeds Options Logfile Help
Port: COM10	
MAULO-CONNECC	
Speed	
<b>û</b>	19 wpm
Keyer Mode	
◯ lambic A	Ultimatic
⊙ lambic B	<ul> <li>Normal</li> </ul>
◯Ultimatic	O Dah priority
⊖ Bug	O Dit priority
Various	
Autospace	Breakin
Contest spacing	Buffer Full
Paddle echoback	Sending
Paddle watchdog	
Swap paddles	
Serial echoback	Test

Check Auto-connect if you want to automatically connect when the *CW* (*WinKey*) mode is selected.

Press *Test* to send the text TEST DE DM780.

#### **Prosign Key Assignments**

	RR	/	DN
\$	SX	:	KN
	WG	;	AA
(	KN	<	AR
)	KK	=	BT
+	AR	>	SK
-	DU	@	AC

## Hellschreiber

http://en.wikipedia.org/wiki/Feld-Hell


It is important to note that the output window is actually an image, not text so you cannot highlight any text!



### Bandwidth

The receiver bandwidth filter, the default is 245Hz which is usable in almost all situations.

### Screenshot

Takes a copy of the output window, displays this with the Windows default image viewer.

### Browse

Browse the default pictures folder for screenshots.

### Erase

Erases the output window.

### **Feld-Hell Club**

A link to the main Hellscreiber club, http://feldhellclub.org/index.php.

### Options

The other options are:

### Font

Select the transmission font from the list built into DM780.

Heitschreiber	Ponts 🛛
ОК	Cancel Hell v
7x7	ABCDEFGHIJKLMNOPQRSTUVWXYZ0123456789abcdef9hijKlmnopqrstuvwxyz
7x7n	ABCDEFGHIJKLMNOPQRSTUVWXYZ0123456789abcdefghijKlmnopqrstuvwxyz
DX	ABCDEFGHIJKLMNOPQRSTUVWXYZ0123456789ABCDEFGHIJKLMNOPQRSTUVWXYZ
Fat	ABCDEFGHIJKLMNOPQRSTUVWXYZ0123456789abcdefghijk1mnopqrstuvwxyz
HELL	ABCDEFGHIJKLMNOPQRSTUVWXYZ0123456789ABCDEFGHIJKLMNOPQRSTUVWXYZ
Little	ABCDEFGHIJKLMNOP9RSTUVWXY20123456789abcde£9hijk1mnopqrstuvwxyz
L08	ABCDEFGHIJKLMNOPQRSTUVWXYZ0123456789abcdefghijk1mnopqrstuvwxyz
Low	ABCDEFGHIJKLMNOPQRSTUVWXYZ0123456789abcdefghijklmnopqrstuvwxyz
Modern	ABCDEFGHIJKLMNOPQRSTUVWXYZ0123456789abcdefghijklmnopqrstuvwxyz
Modern8	ABCDEFGHIJKLMNOPQRSTUVWXYZ0123456789abcdefghijk1mnopqrstuvwxyz
Narr	ABCDEFGHIJKLMNOPQRSTUVWXYZ0123456789abcdefghijklmnopqrstuvwxyz
REAL	ABEDEFGHIJKLMNOPQRSTUVWXYZ0123456789ABEDEFGHIJKLMNOPQRSTUVWXYZ
Style	ABCDEFGHIJKLMNOP@RSTUVWXY20123456789abcdefghijklmnopqrstuvwx9z
Vert	ABCDEFGHIJKLMNOPQRSTUVWXYZ0123456789abcdef9hijklmnoPqrstuvwxyz
Wide	ABCDEFGHIJKLMNOPQRSTUPWXYZ0123456789abcdefghijk1mnoPqrstupwxyz

### DX Mode

Transmits wider characters, for example using the Hell font with HB9DRV transmitted normally then in DX mode:



### Hard Keying

When enabled transmits with a faster rise time (more 'clicky'), the default is soft keying.

#### Uppercase

Transmits all text in uppercase.

#### Blackboard

Black background, white text, for example receiving HB9DRV normally then with Blackboard on:

***************	***!!! D D D I V ***
HEGDEN	HEGDRV
μταπρι/	UEGUDIA

### Halfwidth

Displays half-width characters, rarely used.

••••IID JDINK	1 D	110KL INC	···!ID ) DIV	10	HULL WIDIN
HE9DRV	IS	NORMAL	HE9DRV	IS	HALFWIDTH
μεάποι/	ΤC	NORMOL	μταπρι/	IC	μαι επιτητή

### Small

Reduces the size of the displayed image by 50%. The first example is normal size, the second small.

...WRITING SOFTWARE IS GREAT FUN...

...WRITING SOFTWARE IS GREAT FUN....WRITING SOFTWARE IS GREAT FUN... INDITING COFTWARE IS GREAT FUN....WRITING COFTWARE IS GREAT FUN...

## MFSK

#### http://en.wikipedia.org/wiki/Multiple\_frequency-shift\_keying

The only options are *Reverse* and exclusive to MFSK 16 there is a picture option.

#### TX Picture

The picture size is restricted to 320 x 256 as suggested by Patrick F6CTE in MultiPSK.

Pictures are either colour or greyscale, greyscale being transmitted three times faster than colour.



In this example the 320 x 213 pixel picture of a young programmer and his dog takes 204.5 seconds to send (68,160 pixels).

To insert a picture enter the tag <send-pic> in the transmit window, for example 'Here is a picture of my dog <send-pic>'.

The picture is sent using the size shown in this window;

adjust the size by dragging the border of the window. Smaller pictures are obviously sent faster.

**MT63** 

#### http://en.wikipedia.org/wiki/MT63

The only option is the interleave, normally this is set to Long.

# Olivia

http://en.wikipedia.org/wiki/Olivia\_MFSK

Olivia				×
Tones: 4	▼ Bandwidth: 125	✓ Search: None	▼ Sync: Low	▼   Lock   -23.5 Hz

The Olivia options are above.

# RTTY

#### http://en.wikipedia.org/wiki/Radioteletype

The default RTTY setting is 45.45 baud, 170Hz shift. In Europe RTTY is generally send using USB irrespective of the frequency.

RTTY

### Reverse

In North America LSB is used on 7Mhz and below, hence the Reverse button.

### Defaults

Restores the default settings.

## **UoS (Unshift On Space)**

When this option is selected, received characters are switched from digits to letters after receiving a *Space* or *LineFeed* character.

## LtoF

When enabled the Letters to Figures popup window is displayed (5bit RTTY only).



# Throb

There are no special Throb options.

# SSTV

On December 14<sup>th</sup>, 2007 the bug bit thanks to MM-SSTV written by Makoto Mori, JE3HHT. Version 4 of DM780 contains the most common SSTV modes:

- Martin 1 and 2 by Martin Emmerson,
- Scottie 1, 2 and DX by Eddie Murphy,
- P3, P5 and P7 (the Pasokon 'P' modes) by John Langner.

More modes such as Robot 26, Black and White and the PD modes will be added later.

SSTV is actually an analogue mode with an optional digital header (the VIS code which is sent before the image, identifying the transmission mode used) and FSK footer which contains the sender's callsign.

For an excellent introduction see the Wikipedia entry for SSTV: http://en.wikipedia.org/wiki/Slow-scan\_television .

# **Quick Start**

If you just want to watch the pretty pictures:

- Tune your radio to 14.230Mhz USB,
- Make sure your filter covers at least 1,000Hz to 2,400Hz,
- Wait!

## **First Steps**

## **Dedicated Soundcard**

For SSTV and all soundcard modes in general it is strongly recommended that you use a second soundcard. With SSTV one often sees images transmitted with interruptions due to the SSTV soundcard playing Windows sounds created while the operator plays with other Windows applications. A soundcard dedicated to digital modes and SSTV is the best solution.

## **Soundcard Calibration**

When using SSTV it is essential that you calibrate your soundcard and enter the calibrated values in the *SSTV Options* pane *Calibration*.

Press the *Options* button on the SSTV toolbar or select *Options* from the SSTV menu. Select the *Soundcard Calibration* tab. Click *Calibration* and read the help text.

Soundcard Calibration	
Start Stop View NTP Client	
RX (Input): Creative Sound Blaster PCI	
○ TX (Output): Creative Sound Blaster PCI	
Calibrated Values	
RX: 8000.8461 Elepsed: 1:23:18.876	
Save as SSTV RX Save as SSTV TX Current RX: 8000.8429	
Results Logfile Help	
Rate Time ±0ffset	
RX: 8000.6311 0:05:00	
RX: 8000.7244 0:10:00 +0.0011874	
RX: 8000.7444 0:20:00 -0.000472%	
RX: 8000.7964 0:25:00 +0.000650%	
RX: 8000.8133 0:30:00 +0.000211%	
RX: 8000.8406 0:35:00 +0.000341%	
RX: 8000.8044 U:4U:0U -U.UU0452%	
RX: 6000.6029 0:45:00 -0.000019%	
RX: 8000.8541 0:55:00 +0.000088%	
RX: 8000.8289 1:00:00 -0.000316%	
RX: 8000.8567 1:05:00 +0.000348%	
RX: 8000.8711 1:10:00 +0.000179%	
RX: 8000.8497 1:15:00 -0.000267%	
AA. 0000.0401 1.20.00 -0.000040%	

**Receive Calibration** 

Soundcard Calibration				X
Start Stop	View <u>NTP Client</u>			
TX (Output): Creative Source				
Calibrated Values				
	TX: 7999.8466	Elepsed:	2:18:44.065	
0	0	0	774. 2000.0555	
Save as SSTV RX	Save as SSTV TX	Current:	IX: /999.8555	
Results Logfile Help				
Rate Time	±0ffset			<u>^</u>
TX: 7999.9644 0:25:00	+0.001500%			
TX: 7999.9007 0:30:00	-0.000796%			
TX: 7999.8756 0:35:00	-0.000315%			
TX: 7999.9133 0:40:00	+0.000472%			
TX: 7999.9398 0:45:00	+0.000330%			
TX: 7999.8756 0:50:00	-0.000802%			
TX: 7999.8933 0:55:00	+0.000222%			
TX: 7999.8785 1:00:00	-0.000185%			
TX: 7999.8995 1:05:00	+0.000262%			
TX: 7999.8718 1:10:00	-0.000347%			
1X: 7999.9153 1:15:00	+0.000544%			
IX: 7999.8767 1:20:00	-0.000482%			
IX: 7999.8960 1:25:00	+0.000241%			=
TX: 7999.8919 1:30:00	-0.000051%			
TX: 7999.0746 1:35:00 TX: 7000 0764 1:40:00	-0.000215%			
TX: 7999.0704 1:40:00	+0.000023%			
TV: 7000 0704 1:45:00	-0.000037%			
TV, 7000 0070 1.55.00	-0.000012%			
TY: 7999 8763 2:00.00	-0 000115%			
TY: 7999 8692 2:00:00	-0.000145%			
TX: 7999.8892 2:10:00	+0.000251%			
TX: 7999.8466 2:15:00	-0.000533%			
				$\sim$

Transmit Calibration

The Soundcard Calibration window measures the soundcard data throughput using a NTP (Network Time Protocol) server as the time reference. (In a worst-case scenario you may need a few hours for very accurate calibration.) When the calibration is finished enter the values displayed in the *Soundcard Calibration* window.

In the above examples the Creative Sound Blaster PCI card has returned very stable values after only five minutes. A tenth of a Hertz (0.1) accuracy is enough. What is also interesting is that the transmit and receive values are not the same – but this is a very old 16-bit card! On my Edirol FA-66 there is no difference.

If you do not properly calibrate your soundcard then all received images will be displayed with a slant - although you can correct this yourself it becomes frustrating after a while. Also your transmitted images will be slanted – not what a good DM780 operator wants!

An alternate solution top using the NTP client is to adjust the slant on an image received from a station known for good calibration, for example VK6AAL. As you adjust the slant the sample rate used for decoding is shown in the slant window.

## **Receiving Images**

The fastest way to receive your first images is to tune your radio to 14.230 MHz USB, set your filter so that the passband is at least 1000Hz to 2400Hz and just wait for an image to be displayed. For example with my K3 I use the 1.8kHz filter from 800Hz to 2600Hz.

To adjust the incoming picture for slant either:

- make sure Auto-slant is checked, or
- use the // / | \ \\ buttons, or
- drag the image click on the received image with the left mouse button and drag left or right.

11	7		11
🗹 Auto-slant			

To adjust the horizontal offset use the << < | > >> buttons.

<< <		>	>>
------	--	---	----

### **Signal Detection**

Select the SSTV Options tab Detection.

- VIS codes a digital VIS (vertical interval signaling) code can be sent before the image, identifying the transmission mode used. All SSTV software supports this.
- Sync pulses if the VIS code is not detected due to QRM, fading or some other reason then the fall back solution is to detect the transmission mode by measuring the interval between consecutive 1200Hz sync pulses. Given enough sync pulses it is possible to compute and correct any slant.

Normally you have both options enabled.

# Transmitting

You first create a set of templates with at least one template for each phase of a QSO:

- Calling CQ,
- Replying to a CQ call,
- Sending QSO information (name, location RSQ),
- Signing off (73).

To see your templates select *TX: Templates* in the lower tab bar. Click *New* to create a new template or select an existing template and click *Edit*. (See Template Editor on page 45 for more information.)

To load a template just double-click on the template.

When you press **>** TX a wave file is created in memory with the data to be sent. Your radio is switched to transmit using the option selected in the *PTT* page of the *Program Options* (selected from the *Tools* menu).



In this example about 55% of the image has been sent.

### **More Options**

It is normal to:

- prefix the image with a digital VIS (vertical interval signaling) code which identifies the transmission mode used, and
- add your callsign in CW and FSK (frequency shift keying) after the image has been sent.

Sending the VIS code helps the other program detect the correct mode being used. If the VIS code cannot be detected or is missing then the only other solution is for the other program to attempt to detect the mode based on the sync pulses.

Sending in CW overcomes any legal requirements imposed on you by your licencing authorities, sending in FSK allows the other program to decode your callsign automatically and load it into the logbook.

In DM780 the VIS code is always sent, the CW and FSK identifications are enabled from the *SSTV Options* window (selected from the *SSTV* menu).

## **Template Editor**

Most SSTV formats are 320 x 256 pixels, DM780 allows you to create templates using double resolution 640 x 512.

## Default

A default template contains just a banner with:

- Locator
- Program Title
- Callsign

<Locator> Digital Master 78Ø <CALLSIGN>

## Background

To add a background image either:

- From the Background menu button Select File or
- Drag an image from Windows Explorer over the template.

Now decide whether the image should be stretched (or shrunk) to the template dimensions or just centered 'as-is'.



## **Adding Text**

Next add text areas. Just click anywhere im the template and drag to create a new area.

Terret Background* Barner* X Reset 2 View LCopy X Celete A + A Y A + A		×
Text   Text   Aab   Center   Bold   Auto   Center   Bold   Locator>   Digital Mail   Center   Italic   Verical   Uppercose   Shadow   None   Tags	RX Pic 🖗 Next	
Image: Sign zero (Ø) Operault       Auto Image: Sign zero (Ø) Operault       Outpercose         Sign zero (Ø) Operault       Auto Image: Operault       Operault         Image: Operault       Image: Operault       Operault         Image: Operault       Image: Operault       Image: Operault         Image: Operault       Image	aster 78Ø <callsig< th=""><th>_SIGN&gt;</th></callsig<>	_SIGN>
84 86 458 x84 96 344		

The new area is just above the two dogs. By default the text colour is black, the background is white. The default font is Arial.

Enter the text, for example **CQ de HB9DRV**.

Select special effects such as Border and / or Shadow. Be aware that a fancy template will not be as easy to read under poor conditions as a simple template.

SSTV Template Editor (640 x 512)			× 1
Template •   Background •   Banner •   🗙 Reset 🔑 View 🛅 Copy 🏅	🖌 Delete 🛛 🖛 🔺 🔻 🛤	🖬 🛣 🕱 🖬 🛧 🛛 🤂 🕍 🕅 RX Pic 🔛 Next	
Text	<locator></locator>	Digital Master 78Ø	<callsign></callsign>
The Arial AaBbCc •	Coutor		
Center 🕑 🗹 Bold Auto 💌 🗾	_	A CONTRACTOR	
Center 🔄 🗆 Italic 🔹 Vertical 🔹 Uppercase			
Slash zero (Ø) 💿 Default 🔿 Always 🔿 Never	I CO	HA HROI	DV4 /
Border: 4 💌 💶 - or -		ue neal	
Shadow: None 💌		ang na	anatananananananananananananananananana
CQ de HB9DRV			- B)
Background			and the second
<b>— — — — — — — — — —</b>	Citro -	No Contraction of the second s	1000
✓ Transparent			
84 59 521×109 60 319	FRA		1.0.2
OK Cancel			

In this example the text format has been modified:

- 4 pixel yellow border,
- Transparent,
- 8 pixel shadow,
- Centered horizontally.

You can use tags instead, for example for his callsign. Just click the Tags button and select from the popup menu.



Here tags are used for his callsign (the value is taken from the Add Log Entry window) and my callsign (the value is taken from the Tags).

## Saving

Now press OK - you are prompted for a filename. Enter something which describes the template's use.



The template is shown with the current tag values, in this example GD4ELI has been entered in the Add Log Entry window.



# FTP

To automatically upload received images to your web site using FTP select FTP from the toolbar.

SSTV FTP U	pload			$\mathbf{X}$
Received Image	Uploads	Transmitted Ima	ige Uploads	
Host name:	www.hb9drv.ch	Host name:	www.hb9drv.ch	]
User ID:	Upload	User ID:	Upload	Ĩ
Password:	•••••	Password:	•••••	1
Directory:	www.hb9drv.ch/sstv	Directory:	www.hb9drv.ch/sstv	Ĩ
File prefix:	SSTVRXImages	File prefix	SSTVTxImages	Ĩ
Image count	12 Number of images on the page	Image count	3 Number of images on the page	-
Jpeg quality:	90 V Lower quality = smaller files	Jpeg quality:	90 V Lower quality = smaller files	
Test Settings		Mahara anala	nd mooi od imagod	
Received Image	s		ad tecenetilited impages	
2008-05-05	175616 {20m} {Scottie 1}.jpg 🔽		aa transmitted images	
		Uveriay: MB	and Mode IImestamp	
Upload (H	Received) Upload (Transmitted)	OK	Cancel	
Indue New New				
Help Results	te configure sutemptic conving of received impa	es to the web s	to of your choice using CTD. You tunically	
create a HTML	table and put the images into the table cells. The	images are uplo	aded using the file format <prefix></prefix>	
cindex>.jpg where you specify the prefix (for example SSTVImages) and the index is set by DM780 with a value of 1 for the most recent image.				=
The second of the second				
For example, it	the prenx is assivimages and you are displaying	just + images ti	ien trie hienames are:	
• SSTVI	mages1.jpg			
• SSTVImages2.jpg				
<ul> <li>SSIVI</li> <li>SSIVI</li> </ul>	mages4.jpg			
The typical HTM	AL is:			
	ing are="someting" /s/td>			
	any sec- borrawayest. Jpy 7777 cur			
>				~

There are separate parameters for uploading transmitted and received images, both of which are optional. In the above example only received images are uploaded.

Press Upload (Received) and Upload (Transmitted) to test the settings.

Optionally overlay Band, Mode and Frequency on the uploaded images. Here's an example uploaded by G0HWC, a Scottie 2 image received on 20m on March  $5^{th}$ , 2008.



 $\mathsf{RX}$  and  $\mathsf{TX}$  upload are also enabled from the SSTV toolbar.

■FTP RX TX

# **Image Window**

The image window shows the received and transmitted images as well as optional webcam support.

### **Receive Window**

📡 On	Enable SSTV decoding
• AFC	Enable automatic frequency control (image must have started with a VIS code)
TX: Edit	Edit the TX template (or just double-click in the received image)
🔀 Autostop	Stop decoding when sync pulses are no longer detected
	Default the current image with the default Windows image viewer
0	Erase the window
<b>(9)</b>	Display the image with the experimental image post- processing
	Save the image to a file
<b>暗</b>	Enable image autosave
崎 Reset	Reset the decoder, erase current image
▶ TX	Start transmit

### **Transmit Window**

Edit	Edit the TX template (or just double-click in the received image)
$\mathbf{P}$	Default the current image with the default Windows image viewer
	Erase the window
<del>2</del>	Refresh the window
🦾 Image	Select a background image (or just double-click an image in the Saved Imaged window).
BBC	The famous BBC test card used from 1967 to 1999
Philips	Reset the decoder, erase current image
▶ TX	Start transmit

## Webcam

The webcam support uses the Windows AVICap video capture class, this supports most modern webcams.

Webcams are supported so that you can add a picture of your magnificent self to the transmit window with a single click.



In the above example an unknown programmer is shown slaving over a hot keyboard.

The options:

De Go	Start the webcam interface
🚰 Video 🝷	Select the webcam source and format
-	Live preview
	Save current image to the <i>TX: Background Images</i> window
Pic-in-Pic	Copy the current image to the TX template's picture-in picture field
<u></u> ТХ	Copy the current image to the transmit window

# **Callsign Lookup**

Throughout DM780 you will frequently want to find details of another station. DM780 supports bother file and internet- lookups using QRZ.com.

Select *Callsign Lookup* from the *Tools* menu to configure callsign lookup.

The callsign lookup sequence is:

- 1. CD HamCall,
- 2. CD QRZ.com,
- 3. Internet using QRZ.com's subscription interface,
- Internet using the QRZ.com detail page in a browser window.

As soon as any data is found the search stops.

## **CD** Lookups

The CD's from http://www.qrz.com/ and http://hamcall.net/ are supported. The HamCall CD provides more data than the QRZ.com CD. For best performance copy the files from CD to hard disk.

# QRZ.com

### Subscriptions

Access to the QRZ data online requires a valid subscriber login consisting of a username and password, and a current, active subscription with QRZ. You can use your QRZ.com username and password for seven days from the date of first lookup. For more information please visit http://online.qrz.com/.

### Web Browser

Lookups are performed by opening the callsign's detail page in an Internet Explorer browser which is built into DM780. This is not very efficient, the QRZ subscriptions method is far better.

## **Donations**

Just like Ham Radio Deluxe, QRZ.com has considerable costs associated with providing the online callsign database.

Please consider donating to QRZ.com by visiting http://www.qrz.com/i/donations.html. Another option is to subscribe to QRZ.com - this information is found by visiting the site.

# Logbook

Every modern program has a built-in logbook; DM780 is no exception. The database engine is taken from Ham R adio Deluxe; the operation will be familiar to anyone who has used Ham Radio Deluxe.

There are two logbook windows:

- Quick log a docking pane that shows the most recent entries, designed as a quick reference window.
- Main logbook this is the option you select for general logbook maintenance.

Whichever window you use – TAKE REGULAR BACKUPS!

# **Quick Log**

Select *Display Quick Log* from the *Logbook* menu or *Quick Log* from the *View* menu to display this window.

Much simpler than the main logbook window, this is a docking pane with only the most basic options available, selected from the toolbar.

Quick Log											👻 C 🔽
🕀 🔂 💥 🖂 (	9 <b>- Ķ </b>	👬 Find	laO	<b>T</b>							
Date 🗸	Start	End	Station		Band	Mode	Sent	Recv	Locator	Name	
31/Ø1/2ØØ7	Ø8:Ø9	Ø8:29	LAØHK		4Øm	LSB	59	59		Gerald	Markesc
26/ø1/2øø7	21:33	21:38	laøbx		8Øm	PSK31	599	599		Jonssor	1
Ø6/Ø1/2ØØ7	Ø8:Ø8	Ø8:19	LAØHK		4Øm	LSB	59	59		Gerald	Markesc
Ø2/Ø1/2ØØ7	Ø8:Ø8	Ø8:16	LAØHK		4Øm	LSB	59	59		Gerald	Markesc
18/11/2ØØ6	Ø8:11	Ø8:18	LAØHK		4Øm	LSB	59	59		Gerald	Markesc
15/11/2ØØ6	Ø8:17	Ø8:19	LAØHK		4Øm	LSB	59	59		Gerald	Markesc
Ø9/11/2ØØ6	Ø8:Ø6	Ø8:19	LAØHK		4Øm	LSB	59	59		Gerald	Markesc
<		ш									

- Fit to Text
- 🔁 Refresh
- 💥 Modify
- × Delete

- 🐵 Max Entries
- 🎊 Plot
- 🍇 Backup
- Enable Filter (find by callsign)
- Options

If the A Find option is enabled then any callsign entered in the Add Log Entry window is automatically applied here.

To try this:

- 1. Make sure the *Quick Log* window is displayed.
- 2. *A Find* must be selected.
- 3. In the *Add Log Entry* window enter a callsign in the *Callsign* field.

All previous QSO's with this station are now shown.

# Main Logbook

Select *Display Main Logbook* from the *Logbook* menu or press the *Logbook* button on the main toolbar.

Print Preview F	tto Text	<b>∂</b> Refresh N	X X Addify Delete Plot	🔛 Backup (	Soogle Earth	Analysis Layout (	Deptions Callsign	Advanced
			W:\Logbook.mdb	(1,244 KB)			Auto-Apply	Apply
Entries		Date	✓ <u>F</u> ilte	er 👘 🗖 Eg	<u>k</u> act	S <u>u</u> mmarise	Sort	
Max: 1,000	~	Today	Marka By:	Station	🖌 Ву	c Country 🕑	By: Date	<b>Y Y</b>
Loaded: 990		04/05/200	18 💌 =		An	d:	And:	
Date	Start	End	Station	Band	Mode	Sent	Recv	Name
09/10/2007	14:34	14:43	FR5GS	20m	OLIVIA	599	599	Jean
06/10/2007	12:32	12:40	RN4HGH	20m	THRB	599	599	Alex
06/10/2007	09:30	09:41	OH/DK4ZC	20m	OLIVIA	599	599	Fred
05/10/2007	17:07	17:15	TU5DR	20m	OLIVIA	599	599	Al
07/09/2007	19:54	19:56	R450KB	30m	RTTY	599	599	Victori
07/09/2007	19:50	19:53	SP9UH	30m	RTTY	599	599	Stan
07/09/2007	18:24	18:32	EB5DZC	30m	MFSK16	599	599	Juan
06/09/2007	17:46	17:52	UA1CAS	20m	MFSK16	599	589	Victor
24/08/2007	08:06	08:10	OE6HTG	30m	PSK31	595	599	Helmut
19/08/2007	15:17	15:19	RK6DL	20m	RTTY	599 009	599 349	Artem Yur
19/08/2007	15:13	15:14	UA6CE	20m	RTTY	599 008	599 701	Vlad Basht
19/08/2007	15:11	15:13	4X6UU	20m	RTTY	599 007	599 182	Paul Gross
19/08/2007	09:53	09:54	OM3RJB	20m	RTTY	599 006	599 489	
19/08/2007	09:15	09:16	7XORY	15m	RTTY	599 005	599 879	Frantisek
19/08/2007	09:00	09:00	Z31MM	20m	RTTY	599 004	599 459	Milosev Mo
19/08/2007	05:14	05:20	SP6CIK	30m	PSK31	599	599	Leszek
18/08/2007	21:58	21:58	7XORY	20m	RTTY	599 004	599	Frantisek
18/08/2007	21:55	21:56	IT9BB	20m	RTTY	599 003	599	
18/08/2007	18:59	19:01	DJ4WS	20m	RTTY	599 002	599 212	
18/08/2007	18:55	18:57	EA3FLS	20m	RTTY	599 001	599 112	Esteve Ar
18/08/2007	15:32	15:35	DLORUG/LH	20m	RTTY	599	599	Ron
18/08/2007	14:42	14:45	DAGEPC	20m	PSK31	599	599	Dieter

Note: The selection fields at the top of the window are enabled when the *Advanced* button is pressed.

All options are selected from either the Logbook menu, the context (right-click) menu or the toolbar.

### Layout

The column layout is user-definable. Select the columns and the order in which they are displayed.

Save up to four custom layouts.

📁 Column Layout	X
Check the columns to be shown in the Up and Down buttons to reorder the	e logbook display. Use the columns.
Column	
🗹 Date	Down
🔽 Start	
🗹 End	Show
🖌 Station	Hide
🖌 Band	
Mode	D <u>e</u> fault
Country	Reset
Locator	
Distance	
Bearing	
Frequency	Save
Sent	1 3
Name	
Address	
	Restore
USL Sent	🔗 1 🔗 3
USL VIA	
OK Cancel	

## ADIF

Amateur Data Interchange Format (ADIF) files are used to exchange QSO information between logging programs. In DM780 you can save (export) the logbook to an ADIF file and load (import) an ADIF file into the logbook.

### Export

Create and ADIF file to send your records to another logging program, Logbook of The World (LoTW) or eQSL.cc.

Export to ADIF				
Export logbook database to an AIDF file				
Filename C:\Documents and Settings\Simon.HAIRY-CREATURES\Applicat\Logbook.ADI				
Fields       O ADIF / LoTW only       All fields - note: non-ADIF fields are only supported by Ham Radio Deluxe and are ignored by other logbook programs.         O ADIF + Ham Radio Deluxe       ignored by other logbook programs.				
QSL comment:       [73's and good DX]         Entries				
O Selected				

After selecting the output file you select the fields to be included in the file.

- ADIF / LoTW: the fields supported by ADIF 2.0 (also required by LoTW).
- ADIF + Ham Radio Deluxe: all fields.
- EQSL: only the fields required by eQSL this makes the ADIF file smaller and the eQSL upload faster.

An example of an ADIF file containing a single record is shown below:

```
#++
#
#
    Digital Master 780 version 1.0 build 1431
#
   http://www.hb9drv.ch
#
   Free software for ever!
#
#
   Created: 28-Mar-2007 20:54:55
#
   Database: C:\Documents and Settings\...\HRD Logbook 19-
#
Mar-2007 230254.mdb
#
    Exported: 1 record
#
#--
<ADIF VERS:3>2.0
<PROGRAMID:14>HamRadioDeluxe
<PROGRAMVERSION:22>Version 1.0 build 1431
<EOH>
<call:5>NP2KW <qso date:8:d>20070201 <time on:6>091822
<band:3>40m <mode:5>PSK31 <rst sent:4>599 <a index:2>18
<cont:2>NA <dxcc:3>285 <freq:8>7.034500
<gridsquare:6>FK77np <iota:6>NA-106 <k index:1>4
```

<my\_city:8>Wickford <my\_cnty:5>Essex <my\_country:7>England <my\_cq\_zone:2>14 <my\_gridsquare:6>J001go <my\_iota:6>EU-005 <my\_itu\_zone:2>27 <my\_lat:8>51.60545 <my\_lon:7>0.54845 <my\_name:5>Terry <my\_postal\_code:8>SS11 8XN <my\_rig:33>Yaesu FT1000 MkV + Balanced tuner <my\_street:18>2 Coltishall Close <name:5>Manny <operator:5>G6CNQ <owner\_callsign:5>G6CNQ <qth:18>St Croix, Vi 00821 <rst\_rcvd:4>599 <sfi:2>89 <station\_callsign:5>G6CNQ <time\_off:6>092252 <tx\_pwr:8>40 watts <EOR>

#### Import

Use this option to load and ADIF file into your logbook database.

import from ADIF								
	Impor	t logbook c	latabas	e from aı	n AIDF file			
Filename C:\Documents and Settings\Simon.HAIRY-CREATURES\Applicat\Logbook.ADI								
Lines: 68 Records: 50	Rea ∭ ☑ C ☑ C	ady Compute ba Compute D>	und from	frequent n callsigr	⊏y n if DXCC fi	eld missing	3	
call	gso date	time on	band	mode	rst sent	a index	cont	
NP2KW	20070201	091822	40m	PSK31	599	18	NA	2
4X6UO	20070131	121848	20m	PSK31	599	23	AS	3
LAOHK	20070131	080939	40m	LSB	59	3	EU	2
ISOBWM	20070130	211947	40m	PSK31	599	23	EU	2
DK5MJ	20070130	171143	40m	PSK31	599	22	EU	2
SP2DVH	20070130	170622	40m	PSK31	599	22	EU	2
RV6HA	20070130	170034	40m	PSK31	599	22	EU	5
	20070130	165143 167620	40m 40m	PSKJI Devot	599 E00	22	EU	4
	20070130	104029 071926	40m		599 599	22 5	FU	
<								
(1) Load from File (2) Save to Database Cancel								

When importing an ADIF file the band information may be missing, if you check the option:

Compute band from frequency

the band is recomputed.

If the DXCC information is missing you can generate this by checking:

Compute DXCC from callsign if DXCC field missing

The first step is to load the file; the records are shown in the bottom half of the window. If you are satisfied that the information shown is correct you save this information to your database.

## Cabrillo

Many contests require the log in Cabrillo format (why they can't just load an ADIF file is a mystery).

🤗 Export to (	Cabrillo						×
Contest:	ap-sprint	Operator:	checklog	~	Assisted:	assisted	<b>~</b>
Callsion:	GECNQ	Band:	15m	~	Overlay:	band-limit	ed 🖌
Claimed score:	999999	Power:	qrp	~	Time:	12-hours	~
Club:	Spaniel Worriers United	Mode:	mixed	~	DX:	dxpeditior	n 💌
ABBL Section:	- Eoreign DX-						
Onerators:	HB9DBV GD4EU						
- ·					Namo:	Simon Bro	2440
Soapbox:	Groan				indine.		
				~	Address:	A planet ta	ar, tar away 🔄
Template:	ABBL CO Stew Perry Oceania	AP Sprint					
		i opini					
START-OF-LO ARRL-SECTIO CALLSIGN: H CATEGORY: AS CATEGORY-DX CATEGORY-DX CATEGORY-DX CATEGORY-TI CLAIMED-SCO CLUB: Spani CONTEST: AP CREATED-BY: NAME: Simon ADDRESS: A OPEDATOPS:	START-OF-LOG: 2.0 ARRL-SECTION: DX CALLSIGN: HB9DRV CALLSIGN: HB9DRV CATEGORY: CHECKLOG 15M QRP MIXED CATEGORY-OXENTION: DXPEDITION CATEGORY-OVERLAY: BAND-LIMITED CATEGORY-OVERLAY: BA						Entries ● All ○ Selected ▲pply Viewer Save Cancel
SOAPBOX: Gr QSO: 7034 QSO: 7130 QSO: 7034 QSO: 7034 QSO: 7034 QSO: 7034 QSO: 7034	Help         4 ?? 2007-02-01 0918 G6CNQ       599       NP2KW       591         0 ?? 2007-01-31 1218 G6CNQ       599       4X6U0       591         0 PH 2007-01-31 1218 G6CNQ       599       4X6U0       591         4 ?? 2007-01-30 2119 G6CNQ       599       ISOBWM       591         4 ?? 2007-01-30 2119 G6CNQ       599       ISOBWM       591         4 ?? 2007-01-30 1171 G6CNQ       599       DK5MJ       571         4 ?? 2007-01-30 1706 G6CNQ       599       SP2DVH       591         4 ?? 2007-01-30 1700 G6CNQ       599       RV6HA       591					Help	

Not all Cabrillo templates are supported - these are added as required.

## **Merge HRD**

You can load (import) records from another logbook providing it is already in the HRD format.

Typical use would be to import a database created during a contest of an expedition to an exotic location or while using your laptop from a portable site.

📁 Import HRD L	🖥 Import HRD Logbook 🛛 🛛 🔀				
Load entries from another HRD logbook, duplicate QSOs are ignored					
Current logbook:	C:\Documents and S\HRD Logbook 19-Mar-2007 230254.mdb				
Load From	C:\Documents and Settings\Simon.HAIRY-CRE\Logbook.mdb				
Load	Cancel				

Duplicate QSO's are ignored when you press Load.

## **Google Earth**

Selected entries can be sent to Google Earth, a fantastic program available for free download.

Export to Goo	xport to Google Earth 🛛 🔀					
🔺 Go	oogle Earth must b	pe installed!	<u>Visit Google Earth</u>			
Send co-ordinat	Send co-ordinates to Google Earth in this file C:\Documents and Settings\Simon.HAIRY-CREATURES\Application Data\GoogleEarthPlots.kml Browse Default					
Home (Defined	in Tags window) - Callsign:	000000	Various Title: Digital Master 780			
	Longitude: 0	,000000	Include connecting lines			
Take Co-ordina ✓ Lat / Lon ✓ Locator ✓ DXCC => Co	tes From	Plot O <u>A</u> ll ⊙ <u>S</u> elected	View Data File			

The interface to Google Earth is a Keyhole Markup Language (kml) file.

Note: Home information is taken from the *Tags* window shown in the QSO Windows.

Τá	Tags 🗸 🗸				
	About Me				
	Callsign	hb9drv			
	Name	Simon			
	Age	84			
	Locator	JN46pt			
	QTH	Laax			
	E-Mail	simon@hb9drv.ch			
	HomePage	www.hb9drv.ch			
	Clubs	Far too many			

# Options

The logbook options are selected from the Logbook entry. The options should be self-explanatory, a few of the more important options are discussed below.

## **Countries File**

Nothing stays the same forever, especially country prefixes. The *Countries File* option on the *Files, Backups* page is used to either load a new file or edit the current file.

## eQSL.cc

I use eQSL.cc as it has a simple and fast programming interface – try it.

## **QSO** Forwarding

Forward QSOs to DXbase as they are added to the DM780 logbook. Please note that the interface supplied by DXbase does not allow DM780 to send over date and time files, DXbase uses the current time.

# Analysis

The current analysis shows DXCC, IOTA, QSO and Grid squares by band and mode.



Printing is supported!

# **SuperBrowser**

The aim of the SuperBrowser is to display as many PSK QSO's as possible.

Not only display – you can have a QSO using the SuperBrowser!

A standard display is shown below. From left to right:

- Frequency,
- Waterfall,
- Active channels.

At the bottom you see the status bar, containing:

- Current soundcard selection,
- Active channel count / total channels,
- Hold time before a channel is no longer shown,
- Audio rewind when a new signal is detected,
- CPU used by the background SuperBrowser processing,
- Overload status (incoming signal level is too high),
- Current AFC setting.

BPSK-31	🗸 🔮 Signal 🗚 🖉 950 💷 😌 🗐 - 🔍 - Rf 🗳 - 🔕 👁 Info 🖉	3.580 7.035 7.070 14.070 14.080 21.070 21.080 28.120 🗸 « » 🕨 🂝 Faves
3000-		
2900-		
2800-	- Contraction of the second	
2700-		
2600-		
2500-		
2400-		
2300-		
2200-		
2100-	MY BEST WISHES WO YOU AND	tily, GOOD LUCK DR Angel AND BEST 73! IA EC2AIA DE 4L4KK AMIRAN SK! SK!
2000-		
1900-	and the second	
1800-		
1700-		
1600-		
1500-		
1400	UA3PPN ×	A CO D O CO de UA3PPN UA3PPN >A30 oA3PPN UA3PPN pse K. ss <sup>21</sup>
1200	UA3PPN × oi, (	Q CQ CQ t eUA3PPN UA3PPN UA3PPN CQ CQ CQ de UA3PPN UA3PPN UA3PPN pse K.
1100	RX1CV ×	X CQ CQ CQ de RX1CV RX1CV RX1CV CQ CQ CQ d 1CS <sup>⊠</sup>
1000		
900	RZJAIU × iti.	1LEP I1LEP de RZ3AIU RZ3AIU OK all fb copy my dear friend Luigi from Iv $^{\boxtimes}$
800-		
200-	P, PENTIOM - 3, MIX-W 2.1	TEMP 23 C, SUNNI QSO /MM NR 12541 QRU, VI /3, GB. GBLRS DE UR4Q1/MM SK-
600-		[s iØTXS de UA3QGT K i3 oetm tec] t1 ec e e $^{\boxtimes}$
500-		
400-	A CANADA AND A CANADA	
300-		
200-		
100-		
		Active: 8/20 Hold: 20 sers: Revind: 10 sers: Decoder: 1% Overload: 10:12

In this example the callsign RX1CV has been reliably identified, so is shown at the beginning of the channel.

The  $\bigstar$  icon indicates that you have not worked RX1CV on this band. If you have worked RX1CV the  $\checkmark$  icon is displayed.

# Options

## Main Toolbar

The main toolbar options are:

BPSK-31	Mode selection			
👷 Signal	Squelch level and decoding threshold			
	۵FC			
AFC *				
8 QSO	Display the QSO windows – you can transmit with the SuperBrowser!			
	Plot			
ۥ	Backup			
R	Show radio frequency			
4	Enable alarms			
8	Maximise contrast			
-	Waterfall display mode			
₽-	Number of channels			

Info Enable info popups showing station worked status (band, time etc.)

Options

## **Favourites Toolbar**

The favourites toolbar contains the frequencies you commonly use, it is provided to make switching between these frequencies as painless as possible.

7.035	A favourite frequency, not selected.
14.070	The currently selected favourite frequency.
4	Adjust frequency by +/- 500Hz.
💝 Faves	Start the favourites manager.

# **Transfer To QSO Window**

Double-click on a channel to transfer the settings and data to a main QSO window (not the built-in QSO window).

Press shift and click on a channel to open the SuperBrowser QSO window (if not already open) and select the channel.

### **QSO Window**

Press the SuperBrowser QSO windows:

- Add Log Entry,
- QSO: RX,
- QSO: TX.

These windows are the same as those in the main QSO window (page 19).

Click anywhere in the channel text (not the callsign or icons) to select a different channel.

Click anywhere in the waterfall to change the frequency of the current channel.

# Options

Press F8 to display the Program Options (or select Program Options from the Tools menu), then select the SuperBrowser:1 or SuperBrowser:2 page to view the available options.

## Visual

The SuperBrowser:1 page concentrates on the appearance of the SuperBrowser.

SuperBrowser:1	
A GD4ELI × CQ DX CQ DX	CQ DX de GD4ELI GD4ELI GD4ELI
$A HB9DRV \checkmark$ for the call, I am u	sing DM78Ø and an Electaft K
Appearance Slash zero: ✓Display Ø instead of 0 (zero) Text case: ● Default ● Lower ● Upper Font ♥ Bold ■ Italic Size: 12 The Courtier New	Locators ♥ Display distance and bearing from my locator (see Tags window) Units:  ♥ Kilometers  ♥ Miles ♥ ♥ See also: SuperBrowser.2 See also: Waterfall
Colours Display Callsign Channel Background Callsign Channel Background Background Text Border	OSO       Background       ▼       Text       ▼       Border
Use alternate colours for the SuperBrowser QSO channel (if selecte Custom colours are defined in alarm definitions, for example stations co	d) Jling CQ Defaults

## Operation

The SuperBrowser:2 page concentrates on the way the SuperBrowser operates.

	SuperBrowser:2
Show Channel	Waterfall Width
Show the channel when 10 v characters received containing a word of at least 4 v characters.	Waterfall width as a %age of total width
Rewind received audio:	
○ None         ○ 5 secs         ⊙ 10 secs         ○ 15 secs           ○ 20 secs         ○ 25 secs         ○ 30 secs         ○ All	- •
Hide Channel	Other
Hide an inactive channel after:	Display radio frequency
◯ 10 secs ◯ 15 secs ⊙ 20 secs ◯ 25 secs	
◯ 30 secs	PSK Automatic Propagation Reporter
And if less than 2 v characters are received in the last 4 v seconds.	Options Homepage
Search	
Free space algorithm: O Basic ③ Advanced	
Channel min separation: 5 Mz.	
See also: SuperBrowser.1  Defaults See also: Waterfall	

## **PSK Propagation Reporter**

This is a project to automatically gather reception records of PSK activity from the SuperBrowser window and then make those records available in near real-time to interested parties - typically the amateur who initiated the communication.

Idea and implementation by Philip Gladstone, N1DQ.

From the Tools menu select PSK Reporter, then Options.

💶 PSK Propagation Reporter			
<ul> <li>This is a project to automatically gather reception records of PSK activity from the SuperBrowser window and then make those records available in near realtime to interested parties - typically the amateur who initiated the communication.</li> <li>Destination Address and Port - use the default values.</li> <li>Enable updates - must be checked.</li> <li>Log update - if checked entries are added to the logfile (see View menu).</li> <li>Callsign, Locator and Antenna values com from the Tags window.</li> </ul>			
Destination address:     report.pskreporter.info     Port.     4739     Default     Test       Enable updates:     V     PSK Map Display			
Time Entry 10:29:25 Tags - Required 10:29:25 My Callsign: hb9drv 10:29:25 My Locator: JN46pt 10:29:25 My Antenna: Rhombic 10:29:25 Ready			

- Destination Address and Port use the default values.
- Enable updates must be checked.
- Log update if checked entries are added to the logfile (see View menu).

When a report is sent it uses the *Callsign*, *Locator* and *Antenna* values com from the *Tags* window.

The way that it works is that many amateurs will run a client that will monitor received traffic for callsigns (the pattern 'de callsign callsign') and, when seen, will report this fact. This is of interest to the amateur who transmitted and they will be able to see where their signal was received. The pattern chosen is typically part of a standard CQ call. The duplicate check is to make sure that the callsign is not corrupted.

The way that this would be used is that an amateur would call CQ and could then (within a few minutes) see where his signal was received. This can be useful in determining propagation conditions or in adjusting antenna and/or radio parameters. It will also

provide an archive of reception records that can be used for research purposes.

To show the current reports select *PSK Reporter*, then *Homepage*.

An example of the output is shown below. Here we see the stations received by HB9DRV on 20m on the morning of March  $6^{th}$ , 2008.



# Web Browsers

DM780 offers two styles of web browser:

- A fully featured full-sized browser, and
- A small docking mini-browser.

The options available in the mini-browser are a subset of those available in the full-sized browser.



Brow	srowser #1: SBB: Home - Online-Fahrplan, Ticket Shop, Reisen buchen, Online-Reisebüro 🗾 🗸 🗸			- <u>C</u> 🛛	
	http://www.sl	bb.ch/			¥ ->
	Von: Nach: Via: Datum: Zeit:	Laax Burnham-on-Crouch San Francisco Sa, 31.03.07 C Abfahrt C Ankunft	Beliebig 💌	Entdecken Sie urchige Völker. 5 Top-Angebote in der Region Wallis.	
		- Verbindung ouchon - Dr	oic/Dillott		

Both browsers use on the Internet Explorer engine, any settings you make with Internet Explorer are automatically applied here.

Options are selected from the toolbars and the *Browser* menu. As an experienced Internet user you will already be familiar with the operation of a web browser.

# World Map

The world map is used to:

- 1. Plot the greyscale line,
- 2. Show a locator square overlay,
- 3. Plot stations as you work them,
- 4. Plot locators as they are detected in the SuperBrowser.



The options are selected from the World map menu and the toolbar.

# Alarms

In the QSO windows you use alarms to monitor received text for special callsigns, locators or any string you want.

# Manager

Alarn	ns Manager			×
☆ Callsig	n New Copy	Edit Delete Up Down Test	land land land land land land land land	
	Title HB9DRV GD4ELI G6CNQ DM780 PSK31 Deluxe CQ CQ CQ DX VK and ZL	Match HB9DRV GD4ELI G6CNQ DM780 Digital Master 780 PSK31\s+Deluxe \sCQ\s+CQ\s \sCQ\s+DE\s \sCQ\s+CQ\s \sCQ\s+DE\s \sCQ\s+DX\s VK[0-9][a-z]{2,3} ZL[0-9][a-z]{2,3}	Comment HB9DRV out and about HB9DRV on holiday as GD4ELI Watch out, Terry's about Someone's using DM780 Someone's using PSK31 Deluxe Station calling CQ CQ or CQ DE Station calling CQ DX VK or ZL callsigns	

To define alarms select *Alarms Manager* from the *Tools* menu.

The options are selected from the toolbar.

- ☆ Callsign Create a 'quick' alarm definition from a callsign.
- New Create a new alarm definition.
- Copy Copy the currently selected definition.
- For Edit Edit the currently selected definition.
- × Delete Delete the currently selected definitions.
- ✤ Up Move the currently selected definition up.
- X Test Text the enabled definitions.

- Import Import from another Alarms set.
- Load Load from a file.
- Save Save to a file.

# Editor

The alarms editor is very simple to use, however you must pay attention to the regular expression syntax.

Alarm				
Title: *	HB9DRV		🗹 Enabl	ed
Match: *	HB9DRV			
Comment	HB9DBV out and a	about		
Comment		bout		
	* = input required			
Actions —				
Beep	SuperBrowse	r Colours 🛛 🗹 Te	ext to speech	🗌 Wave file
SuperBrowser Colours (matching channel)     Background   Text				
Text to Speech				
Speech:	HB9DRV is on the	air		0
Callsigns, (Alphanur	Locators, etc.: neric strings)	<ul> <li>○ Speak</li> <li>○ Spell (letters)</li> <li>⊙ Spell (phonetic</li> </ul>	alphabet)	
-Wave File				
C:\WINDOWS\Media\notify.wav				
ОК	Cancel			Test

## **Match Text**

The value in the Match field is a regular expression, examples are shown below. In the table \* represents any character, <spaces> matches one or more spaces.

Match Text	Description
HB9DRV	*HB9DRV*
\sGD[0-9][a-z]{2,3}\s	Any callsign following a space (\s) starting with GD, then a digit (0 to 9), then 2 or 3 letters (a to $z$ ).
DM780 Digital Master 780	*DM780* or ( ) *Digital Master 780*
PSK31\s+Deluxe	*PSK31 <spaces>Deluxe*</spaces>
$\sc{Q}s+C{Q}s+C{Q}s+D{E}s$ 

< <space>CQ<space>CQ<space> or <space>CQ<space>>DE<space> <space>CQ<space>>DX<space> Any VK or ZL callsign

\sCQ\s+DX\s VK[0-9][a-z]{2,3}|ZL[0-9][a-z]{2,3}

The most commonly used regular expression syntax is:

Expression	Matches
	Any Character
[]	Character in Range
[^]	Character Not in Range
^	Not
	Or
*	0 or More Matches
?	0 or 1 Matches
+	1 or More Matches
{2,4}	2 to 4 Matches

### Some Examples

\s	Single Space
\s+	1 or More Spaces
[a-z]	A to z
[a-z0-9]	A to z or 0 to 9
[abx]	a, b or x
[0-9]	0 to 9
[347]	3, 4 or 7
CQ\s*DX	CQ DX
[gm][a-z]?[0-9][a-z]{2,3}	A UK Callsign starting with G or M
hb9drv	HB9DRV
[a-z]{2}[0-9]{2}[a-z]{2}	Locator (e.g. JN46pt)



	•
Any Character	*
, Character in Range	?
Character Not in Range	+
Not	(
Or	)
0 or More Matches	{
0 or 1 Matches	}
1 or More Matches	l
2 to 4 Matches	Ĵ
Space	<
1 or More Spaces	Ŷ
a-z	<u> </u>
0-9	
a-z or 0-9	
a, b or x	
3, 4 or 7	
CQ DX	
G or M UK Callsign	
HB9DRV	
Locator	

If you use the dropdown menu you can build your own regular expressions.

Use the *Test* option to check your definitions.

## **Testing Alarms**

Use the *Test* option to compare a string with the enabled definitions.

Test Enabled Alarms					
Input (received) text:					
CQ CQ DX DE HB9DRV					
			<u> </u>		
Test 🗌 Inclu	ude sound effects				
		1			
Title Match		Comment			
BIN HB9DRV HB9DF	₹V I	HB9DRV out and about HB9DRV on holiday as CD4EU			
	2	Watch out, Terry's about			
X DM780 DM780	Digital Master 780	Someone's using DM780			
X PSK31 Deluxe PSK31	\s+Deluxe =+CO\el\eCO\e+DE\e	Someone's using PSK31 Deluxe Station calling CO CO or CO DE			
CQ DX \sCQ\s	s+DX\s	Station calling CQ DX			
X VK and ZL VK[0-9]	[a-z]{2,3} ZL[0-9][a-z]{2,3}	VK or ZL callsigns			
🧾 111 cq\s*d	x				
Cancel					

Enter text in the top window, then press Test. The alarm definitions which match are flagged with 2, those which do not match with  $\times$ .

Check [\_]Include sound effects if you want to hear the alarms.

## SuperBrowser Colours

Optional colours applied to the SuperBrowser channel which generated the alarm.

# **Text-To-Speech**

DM780 alarms use Microsoft's Text-to-Speech solution. This is usually installed by default on Windows XP and VISTA systems.

If you computer doesn't have Text-to-Speech installed you can download it from Microsoft's website.

# Identities

The concept of multiple identities used in DM780 is similar to that found in Outlook Express.

Typical use of multiple identities:

- At home,
- Portable,
- Contest.



All identities share the same logbook but are otherwise unique (macros, tags, layouts).

Identity support is selected from the File menu.

The Main Identity is used by default. To create / delete an identity use the *New* and *Remove* options.

Identities	$\mathbf{x}$
Each identity has its own registry settings and local file storage. Logbook settings are shared by all identities.	
Main Identity Simon	New
Terry	<u>R</u> emove
	<u>O</u> ptions
	Reset
	<u>S</u> elect
Close	

To reset an identity (remove all files and clear registry settings) press *Reset*. You cannot reset the Main Identity.

Note: The logbook database and registry settings are never removed.

When you press *Select* DM780 closes and restarts using the selected identity.

# Options

When defining an identity you must decide whether to share common definitions with the main identity.

The definitions you can share are:

- Alarms,
- Favourites,
- Macros and
- Tags.

For example, here at the HB9DRV HQ a TS-480SAT and TS-2000 are both used with DM780, but only the TS-480SAT PTT is enabled via HRD whereas the TS-2000 is controlled via a SignaLink USB.

So I have two Identities that differ only in the *Program Options* (specifically the PTT page), otherwise they are identical.

# Logfile

The logfile window contains diagnostic information used when there are problems with DM780. You will not normally display this window.

- O 🖸 09:21:00 Digital Master 780 v1.0 Beta build 1432 09:21:00 Copyright © 2005 - 2007 by Simon Brown, HB9DRV 4 -09:21:00 Identity: name = Main Identity  $\mathbf{x}$ default = 1 reset = 0 09:21:00 09:21:00 = 0 09:21:00 PSK: Decoder / modulator developed by Moe Wheatley AE4JY as part of the PSKCore lib 09:21:00 Minor speed enhancements by Simon Brown HB9DRV. 09:21:00 There 256 decoders available 09:21:00 Windows sockets version 2.2 started 09:21:00 Default printer orientation set to landscape 09:21:00 Computer name ...: DOUBLETROUBLE 09:21:00 User name .....: Simon 09:21:00 System dir ....: C:\WINDOWS\system32 09:21:00 Windows dir ....: C:\WINDOWS 09:21:00 Processor architecture ..: Intel x86 09:21:00 Processor level .....: 00001000 09:21:00 Allocation granularity ..: 0001000 09:21:00 Processor level .....: 00000006 (6) 09:21:00 Processor revision .....: Model 00, Stepping 04 09:21:00 OS major version .....: 5 09:21:00 OS minor version .....: 1 09:21:00 OS build number .....: 2600 09:21:00 OS platform ID .....: 2 09:21:00 OS service pack .....: Service Pack 2 09:21:00 Copying file: 09:21:00 From ..: D:\Ham Radio\Digital Master\Release\ChangeLogRawData\_prev\_00000.xml 09:21:00 To ....: C:\Documents and Settings\Simon.HAIRY-CREATURES\Application Data\Simon F 09:21:00 Copying file: 09:21:00 From .: D:\Ham Radio\Digital Master\Release\DMChangeLogRawData\_prev\_00000.xml 09:21:00 To ....: C:\Documents and Settings\Simon.HAIRY-CREATURES\Application Data\Simon F 09:21:00 Copying file: 09:21:00 From ..: D:\Ham Radio\Digital Master\Release\DMChangeLogRawData\_prev\_00001.xml Waterfal Logfile

# **Macros**

Macros are used when composing text to be sent during a QSO. Using macros avoids repetitive typing thus ensuring fewer errors.

Typical uses for macros:

- Calling CQ,
- Information about your station, •
- Starting a reply. •

Macros are selected in the QSO windows from either the Macros window or the Macros toolbar.



## Manager

To define Macros start the Macros Manager:

- Select Macros Manager from the • Tools menu,
- Press Define in the Macros window, or
- Press Define in the toolbar (rightmost button).

Tools	_
Alarms Manager	
Favourites Manager	
Macros Manager	
🚰 Modes Manager	
WWV	
🚰 Program Options 🛛 F8	

Macros Manager								
New Copy Edit Delete Up Down Import- SetTitle Defaults Load Save As								
Call CQ Reply Closing								
Call CQ & 3 1) CQ x 3 2) QRZ	Enable         Group         Title           Call CQ         CQ x 2           Call CQ         CQ x 3           Call CQ         QR2	Short CQ×2 CQ QRZ	Modes         Definition           *         CQ CQ de <callsign> <callsign> \nCQ CQ de <ci< td="">           *         CQ CQ de <callsign> \nCQ CQ de <ci< td="">           *         QRZ QRZ QRZ de <callsign> &lt;</callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></callsign></ci<></callsign></ci<></callsign></callsign>					
Reply 🛞	Reply     Him de Me       Reply     Him de Me Pse K       Reply     Reply       Reply     Report, Name, QTH	Him de Me Him de Me - K RST, Name, QTH	<ul> <li><log:callsign> de <callsign></callsign></log:callsign></li> <li><log:callsign> de <callsign> <callsign> pse kn</callsign></callsign></log:callsign></li> <li><log:callsign> de <callsign>\n\nHi <log:nam< li=""> </log:nam<></callsign></log:callsign></li></ul>					
4) Him de Me Pse K 5) Report, Name, QTH 6) Station	Reply Station     Info WX     Closing BTU     Closing 73	Station WX BTU 73	<ul> <li><log:callsign> de <callsign>\n\n<log:name>,</log:name></callsign></log:callsign></li> <li>Weather here is <weather <temperatu<="" hermp="" is="" li=""> <li>So BTU <log:name>, <log:callsign> de <callsi< li=""> <li><log:callsign> de <callsign> 23 <log:name> ;</log:name></callsign></log:callsign></li> </callsi<></log:callsign></log:name></li></weather></li></ul>					
Closing	✓       Closing       73 (long)         □       Closing       73-Xmas         ✓       Closing       73 (video)         □       Various       Testing	73 73-Xmas 73 Testing	<ul> <li><log:callsign> de <callsign> 73 <log:name> e</log:name></callsign></log:callsign></li> <li><log:callsign> de <callsign> 73 and thanks for t</callsign></log:callsign></li> <li><ident73><log:callsign> de <callsign> 73 <log< li=""> <li>* Testing Testing Testing de <callsign> <callsign< li=""> </callsign<></callsign></li></log<></callsign></log:callsign></ident73></li></ul>					
	<b>«</b>							
	Macroset		Options     Send his first name only (LOG:NAME)     Show 'Send Immediately' toolbar icon     Show 'Erase TX Window' toolbar icon     Show 'Bradic Control' toolbar icon					
OK Cancel	⊖ Set 6 Toolbar style: ⊖ Buttons ⊙ Popups		Show macro set title					
OK Cancel								

Here you define the macros shown in the macros window *and* the macros toolbar.

The top toolbar contains the Manager options:



- New create a new macro,
- Copy copy the selected macro,
- Edit edit the selected macro,
- Delete delete the selected macro,
- Up, down move the selected macro,
- Import load definitions from another macro set,
- Set Title the title for the current macro set,
- Defaults load the default definitions shipped in DM780,
- Load load definitions from a file,
- Save save definitions to a file.

The next toolbar shows the enabled definitions as they are shown in the QSO windows.

Call CQ Reply Closing Macros -

# Editor

The Macro editor window is shown below.

Note: Right-click on an entry in the macros window or macros toolbar to launch the editor without starting the Macros Manager.

🔤 Macro					
Title:*	Station	✓ Enabled	Right-click on a Macro entry in edit the macro.	n the QSO window's Macros list to	
Short Title: *	Station	(Toolbar buttons)			
Group: *	Reply	~	Double-click a tag name to ad	dd it to the definition	
Definition: * (* = required)	#++ # All the toys in u # #- (LOG:Callsign> de <ca (LOG:Name&gt;, my statio Radio : (Radio&gt;, Software : HRD + <p Antenna : (Antenna Operator : Created My QSL is OK via eQSL BTU <log:callsign> de</log:callsign></p </ca 	se at my station. llsign> ^Power>, <interface> rogram&gt; 1957, licenced 1974 .cc or via the bureau. <callsign> kn <stop></stop></callsign></interface>	Uouble-click a tag name to ad	da itto me demnition	<ul> <li>Enable By Mode</li> <li>CW</li> <li>DominoEx</li> <li>Hell</li> <li>MFSK</li> <li>MT63</li> <li>OLIVIA</li> <li>PSK</li> <li>OPSK</li> <li>QPSK</li> <li>RTTY</li> <li>Throb</li> </ul>
	Tags (My Info) Calleign Name Age Locator QTH E-Mail HomePage Clubs Radio Antenna Power Computer Interface Accessories Send immediately Accessories Erses TX-Window (notif SHIFT Starton new line	Log (His Info) LOG:Callsign LOG:QTH LOG:QTH LOG:Dcator LOG:Band LOG:Sant LOG:Sent_Rpt LOG:Sent_Rpt LOG:Revd_Rpt LOG:Revd_Rpt LOG:Revd_Exch LOG:Revd_Exch InG:Remark ented sen() pressed or transmitting)	Special     Des       ddd-log     add       date     datk       date_utc     datk       erase     erad       erase     erad       gso-     decc       qso-mode     curr       qso-mode-count     tot       reset-log     ress       send-pic     stat       ston     eton       Load Textfrom File       InsertVidea ID	scription i to logbook te (local, ISO) te (UTC, ISO) sse tx window srement QSO (contest) counter rrement QSO (contest) counter rrement QSO (contest) counter trant mode (ADIF format) tal number of QSOs in the logbook for th tal number of QSOs in the logbook set logbook set logbook art sending a MFSK16 picture ne Sending	e current mode

#### The components of a macro are:

#### Title

As shown in the Macros window.

#### Short Title

As shown in the Macros toolbar.

#### Group

Macros are grouped together in the Macros window (shown in QSO windows).

#### [X] Enabled

Only enabled macros are shown in the Macros window and toolbar.

#### *Definition* See below.

*Enable By Mode* If you want the macro to be available for specific modes only.

#### Tags (My Info)

The tags shown in the Tags pane of the normal QSO window, this is information about yourself and your station.

#### Log (His Info)

The fields shown in the Add log Entry window where you enter the QSO details before adding to the logbook.

Special

Special tags such as date and time.

[X] Erase TX window... If enabled the contents of the transmit window are erase unless either Shift is pressed or you are transmitting.

[X] Send immediately

If enabled the macro is sent as soon as it is applied, typically used in a CQ macro.

[X] Start on new line

If enabled the macro always starts on a new line when added to the transmit window.

## Definition

```
#++
#
#
All the toys in use at my station.
#
#--
#
<LOG:Callsign> de <Callsign>
<LOG:Callsign> de <Callsign>
<LOG:Callsign> de <Callsign>
<LOG:Callsign> de <Callsign>
<Interface>
Software : HRD + <Program>
Antenna : <Antenna>
Operator : Created 1957, licenced 1974
My QSL is OK via eQSL.cc or via the bureat
BTU <LOG:Callsign> de <Callsign> kn <stop>
```

A macro contains free-format text and optional tags. A tag is an item of information, for example *his callsign* or your output *power*.

To insert a tag just double-click on an entry on one of the tag lists.

The currently supported tags are shown at the bottom of the editor window. There are three lists:

- Tags (My Info) These fields come from the Tags window in the QSO windows.
- 2. *Logbook (His Info)* These fields come from the *Add Log Entry* window.
- 3. *Special* These are pre-defined.

A tag is enclosed in <>. The actual substitution is made when the macro is selected into the transmit window.

Tags (My Info)		Logbook (His Info)		Special	Description
Callsign		LOG:Callsign		date	date (local, ISO)
Name		LOG:Name		time	time (local, ISO)
Age		LOG:QTH	=	date_utc	date (UTC, ISO)
Locator		LOG:Locator		time_utc	time (UTC, ISO)
QTH		LOG:Frequency		time_hhmm	time (UTC, HHMM)
E-Mail		LOG:Band		add-log	add to logbook
HomePage		LOG:Mode	_	reset-log	reset logbook
Clubs		LOG:Sent		erase	erase window
Radio		LOG:Sent_Rpt		repeat	enable repeats
Antenna		LOG:Sent_Exch		stop	stops sending
Power	~	LOG:Rovd		_	
		T 0 0 0 0 0 0			

## Special Tags

More information about the special tags.

date	Inserts the current date using local time and the user's Windows settings for short dates.
time	Inserts the current time using local time in ISO 8601 format (HH:MM:SS).
date_utc	Inserts the current date using UTC (GMT) time and the user's Windows settings for short dates.
time_utc	Inserts the current time using UTC (GMT) time in ISO 8601 format (HH:MM:SS).
Time_hhmm	Inserts the current time using UTC and the HHMM format.
add-log	The same as pressing the <i>Add</i> button in the <i>Add Log Entry</i> window – the QSO is added to the logbook.
Reset-log	The same as pressing the <i>Reset</i> button in the <i>Add Log Entry</i> window = the window contents are reset.
erase	Erases the transmit window.
repeat	The same as pressing the Repeat button.
stop	Stops sending.

## **Radio Control**

A radio control macro contains commands sent to Ham Radio Deluxe to configure your radio, for example to set a special filter. The text in the definition is not added to the input (TX) window. These definitions are specific to the radio you are using.

The tag {{RADIO-CONTROL must appear anywhere in the macro definition. If you have added this by mistake just remove the lines containing the tag.

The easiest way to add entries is to use the Radio window, as you select options in the Radio window the options are sent to Ham Radio Deluxe and the corresponding text is added to the definition (remember to press the Connect button in the Radio window). Only add one entry per line.

As with all macros lines starting with *#* are treated as comments and are not passed to Ham Radio Deluxe. Blank lines are ignored.

#### Commands

There are four command types:

• Center frequency on/off,

- Dropdown (menu) buttons,
- Normal press buttons,
- Sliders.

To simplify the command parsing any spaces in the button / slider names are replaced with a tilda ( $\sim$ ). Slider entries contain the radio title, this is for historical reasons.

**Center Frequency** 

- center-on
- center-on 1750
- center-off

To enable the current center frequency option in the waterfall enter center-on.

Note: the center frequency option must be enabled (checked). To specify the center frequency just add the frequency in Hz after the center-on tag, for example center-on 1750.

To undo the center frequency option and restore the previous radio frequency enter center-off.

The center-on and center-off text must be the only entry on the line. Typically you combine these options with a filter setting, for example when enabling the center frequency option a narrow filter is selected, when undoing a normal (wide) filter is selected.

```
#++
#
#
     { {RADIO-CONTROL
#
#
     For the TS-2000
#
     Set the center frequency to 1250Hz, adjust DSP filtering
#
#
     to Low = 1000 Hz, High = 1400 Hz.
#
#--
center-on 1300
Set slider-pos TS-2000 DSP~low~cut 11 // DSP low cut = 11
Set slider-pos TS-2000 DSP~high~cut 0 // DSP high cut = 0
```

#### Dropdown-Button

When you select an entry from a dropdown button it is added to the end of the definition. Existing entries for the same dropdown button are not overwritten as a dropdown button can contain unrelated commands.

#### Press Button

When you press a button the editor first tries to replace an existing entry for this button; if there is no entry then a new entry is added to the end of the definition.

### Sliders

When you move a slider the editor first tries to replace an existing entry for this slider; if there is no entry then a new entry is added to the end of the definition.

## Video ID

A popular and most useful option is sending text at the beginning of you transmission where the text is displayed on the other station's waterfall.



Here the test HB9DRV PSK31 is being sent to identify the transmission mode.

To add video text at the start of the macro add <ident:HB9DRV PSK31>, this must be the first test in the macro.

Here is an example where 73 is sent using Video ID when signing off:

```
#++
#
#
The end of the QSO, 73 and thanks for the QSO.
#
#--
#
<ident:73>
<LOG:Callsign> de <Callsign> 73 ...
```

An alternative to adding a video ID to a macro is to use the Video ID button in the transmit window (which must be enabled in the Program Options page QSO:Transmit).

## **Preview**

The macro is displayed *as it will be sent* when the cursor is placed over an entry in the macros window or macros toolbar.

In the example below the cursor is over the Station button. Text derived from tags is shown in italics.

Him de Me Pse K Report, Name, QTH Station 73 73-Xmas 🐏 😭 GD4ELI de hb9drv Simon Brown, my station Radio : TS-480SAT, 40W Software : DM780 v1.0 Beta Antenna : Diamond CP-6 Home : www.hb9drv.ch Other : Created 1957, licenced 1974, RSGB, ARRL, G-QRP My QSL is OK via eQSL.cc or via the bureau. BTU GD4ELI de hb9drv K Ctrl+7, Erase TX window

# **Program Options**

DM780 is a fully featured program with many displays; as a result the level of user customization is very extensive.

Tools		Window	Help				
	Alarms Manager						
	Fa	avourites M	anager				
	М	acros Mana	ager	ł			
₽	М	odes Mana	ger	8			
	Na	avigator Ma	anager				
	Developers Only 🔹 🕨						
	PSK Reporter 🔹 🕨						
	wwv •						
	Disable Screensaver						
	Soundcard Calibration						
	Time Synchronisation						
	Callsign Lookup						
<b>P</b>	Logbook Options						
<b>P</b>	Program Options F8						

You can customize almost every part of DM780 by selecting *Program Options* from the *Tools* menu.

The Programs Options window is modeless – while it is displayed you can still use DM780, also any changes you make are applied immediately.

# eQSL.cc

The integrated logbook will automatically upload new contacts to eQSL.cc if enabled here.

eQSL.c	c	
eQSL.cc		
Upload when a in the logfile.	an entry is added to the logbook. Results are shown	Visit eQSL.cc
Username: *	HB9DRV	
Password: *	•••••	
QSL message:	73, thanks for all the fish	
* = required	Use eQSL.cc test account	

# **Themes And Skins**

The Theme and Skinning panes define the appearance of DM780. Although the defaults should be acceptable there is no harm in selecting an appearance you find more appealing.

Skins add an extra load on your CPU and graphics card, so if you are using an older PC (less than 1 GHz CPU) you may consider disabling skins.

## Storage

This pane provides easy access to the file and registry storage used by DM780. The folder names depend on the currently selected identity (page 77).

Don't mess around with the registry – if you don't know what you are doing leave it alone!

Storage
Installation Folder (Executable, DLLs, Defaults,)
D:\Ham Radio\Digital Master\Release\
Browse
Local Storage Folder (Your files)
C:\Documents and Settings\Simon.HAIRY-CREATURES\Application\Digital Master 780 ID {42-72-6F-77-73-65-72-54-65-73-74}\
Browse
Current Logfile
C:\Documents and Settings\Simon.HAIRY-CREATURES\Application Data\Simon Brown, HB\DMLogfile_05-May-2008 100018.txt
View
Registry Key
HKEY_CURRENT_USER\Software\Simon Brown\Digital Master\Options ID {42-72-6F-77-73-65-72-54-65-73-74}
<u>Regedit</u> <u>Text File</u>

# **Radio Interface**

The radio interface configuration is described in the section Radio Control on page 16.

# **Favourites**

Use favourite frequencies to switch between commonly used digital mode frequencies.

## Manager

From the toolbar select *Manager* from the *Favourites* menu:



The favourites manager is a simple list of frequencies that are displayed in the dropdown menu and in the favourites toolbar in the QSO transmit windows.

📥 Favou	rites Man	ager					
New Copy	Edit Dele	te Up Down	🦻 📝 Default Fre	S↓ S↓ auencv Mode L	ioad Save A	s	
			_				_
	All frequencies are USB A radio connection is required						
General Toolbar Layout							
<ul> <li>Ster</li> </ul>	ne: 🔽 50	0Hz 🔽 2kt	47	Buttons	(hy mode)	Popups (by band)	
			12	Bacons	(by mode)		
Enable	Modes	Full Title	Short Title	Frequency (Hz)			
$\checkmark$	CW	1.828.000 MHz	1.828	1.828.000			=
	CW	3.500.000 MHz	3.500	3.500.000			-
	CW	7.000.000 MHz	7.000	7.000.000			
Image: A start of the start	CW	10.110.000 MHz	10.110	10.110.000			
	CW	14.000.000 MHz	14.000	14.000.000			
Image: A start of the start	CW	18.075.000 MHz	18.075	18.075.000			
	CW	21.025.000 MHz	21.025	21.025.000			
	CW	24.895.000 MHz	24.895	24.895.000			
	CW	28.000.000 MHz	28.000	28.000.000			
	CW	50.100.000 MHz	50.100	50.100.000			
$\checkmark$	DominoEx	3.584.000 MHz	3.584	3.584.000			
	DominoEx	7.038.000 MHz	7.038	7.038.000			
	DominoEx	7.042.000 MHz	7.042	7.042.000			
	DominoEx	7.072.000 MHz	7.072	7.072.000			
	DominoEx	10.148.000 MHz	10.148	10.148.000			
	DominoEx	14.076.000 MHz	14.076	14.076.000			
	DominoEx	14.078.000 MHz	14.078	14.078.000			
	Hell	1.804.000 MHz	1.804	1.804.000			
	Hell	3.574.000 MHz	3.574	3.574.000			
OK Cancel							

Options are selected from the toolbar.

## Editing

Editing is simple – a definition consists of a title, a short title (used in toolbars), the frequency in Hertz and the modes which use the definition.

Favourite					
Title:	10.110.0	000 MHz			
	✓ Enabled				
Short Title:	10.110		(Used in Fa	avourites toolb	iar)
Frequency:	10.110.000		Hz		
Modes:	OAII				
	💿 Or	CW CW	MFSK	🗌 PSK	🗆 Throb
		🗌 DominoEx	🗌 MT63	RTTY	
		Hell	🗌 Olivia	SSTV	
ОК		Cancel			

# **Release Notes**

The release notes page is selected from the *Help* menu. It contains a detailed list of changes together with the change date.

			Release Notes
Build	N	umber	s
The rel downlo just loo	eas ad ka	e notes a a kit it is t the not	are updated as changes are made, not every time a new build is created. When you very normal for there to be no notes for the same build number you have downloaded, so es for previous builds.
The bui Deluxe	ld r soi	number i: urce code	s in fact the number of days since May 1st, 2003 - the day when the first line of Ham Radio was written.
So if th 2007 th	e re ne r	elease no nost rece	tes are updated on Saturday August 4th, 2007 but the kit is built on Sunday August 5th, int notes will be for build 1560 (Saturday), not 1561 (Sunday).
<b>Versio</b> 1.1 bui	n Id 1	.832 M	Date 1ay 2nd, 2008
	#	Туре	Description
	1	Change	The logic for the Next / Prev favourite buttons in the radio display and radio toolbar has been changed to try and show the next / previous value for the current mode.
			This is not an exact science as there can be mode than one mode active at a time, but anyway it's an attempt at least!
<b>Versio</b> 1.1 bui	n Id 1	.832 N	Date 1ay 2nd, 2008
	#	Туре	Description
	1	Change	Alarms window logic reworked to ensure new entries are displayed and highlighted, windows also made resizable (this includes the Alarms Test window).
	2	Change	The SuperBrowser QSO window now remembers its own squelch value rather than inheriting the general SuperBrowser value.
	3	Fix	When using the Video ID option with Olivia the current bandwidth / tones is now displayed.
	4	Change	If an image cannot be displayed in the SSTV folders (maybe it's corrupted) then a small red cross is displayed to indicate a bad image (as Windows does in various

# Various

A few other options worthy of mention are discussed here.

# **Time Synchronisation**

DM780 has a built-in NTP Client for exact time synchronisation.

Select Time Synchronisation from the Tools menu.

Time Synchronisation				
Synchronise time with a NTP server.				
Update every 1 hour				
Server 1:	time.windows.com			
Server 2:	time-a.nist.gov Test			
Server 3:	time-b.nist.gov Test			
Port:	7123 (for replies, usually 7123)			
Results are shown in the logfile				
OK Cancel				

Select the update frequency – every 6 hours should be fine.

Select three time servers; these will be tried in turn until one of them returns valid data.

Press Test to test the corresponding server. The logfile window shows output similar to that below.

```
10:50:32 NTP Client: Server address = time.windows.com
10:50:32 NTP Client: Server address = 207.46.197.32, port =
123
10:50:32 NTP Client: Receive port = 7123
10:50:32 NTP Client: Receive timeout = 10 seconds
10:50:32 NTP Client: Request sent
10:50:32 NTP Client: Reply received
10:50:32 NTP Client: Client ...: 08:50:32.392 UTC/GMT
10:50:32 NTP Client: Server ...: 08:50:32.405 UTC/GMT
10:50:32 NTP Client: Offset ...: 13 milliseconds
10:50:32 NTP Client: Computer time updated
```

Your Windows account must have the system-time privilege to be able to update the computer time.

# WWV Updates

From the Tools menu look at the WWV menu to enable display of Space Weather and Sunspot Data in the status bar.

wwv	×
į	Space Weather Updates
	WWV broadcasts space weather information which provides an indication of current propagation.
	This information is shown in the main status bar, for more information visit the <u>Space Environment Center website</u> .
	Enable automatic updates?
	⊙Yes
	○ No
	OK Cancel

# Index

## A

Add Log Entry, 20, 22, 23 ADIF, 55 Advanced QSO Options, 27 AFC, 27 Alarms, 71, 78 Apple, 8 Audio Interfacing, 11

## С

Cabrillo, 58 Callsign Lookup, 22, 51 Center Frequency, 30 Change frequency, 31 COM Port, 18 Creative Audigy, 14 CW, 7

## D

DigiMaster, 11 DIY interface, 12 DominoEx, 7

## Е

Edirol FA-66, 8 eQSL.cc, 55, 89 *Escape*, 21

## F

Favourites, 78, 91 Favourites Manager, 91 Favourites Toolbar, 31 Fldigi, 8 FTP, 48

## G

G4ZLP, 11 Getting Started, 11 Google, 23 Google Earth, 59 Greyscale, 69

### Н

Ham Radio Deluxe, 7, 18

Hardware Requirement, 8 Hellschreiber, 7 HRD IP Server, 16

I

Identities, 77

### Κ

Keyhole Markup Language, 59 kml, 59

### L

Layout, 55 Linux, 8 Logbook, 53 Logbook Analysis, 60 Logbook of The World, 55 Logfile, 79

## Μ

Mac, 8 Macintosh, 8 Macros, 20, 78, 81 Macros Manager, 81 Main Logbook, 54 Main Toolbar, 29 Markers, 29, 31 Martin Lynch, 2 M-Audio Delta 44, 8, 14 Merge HRD Logbook, 58 MFSK, 7 Mode, 20 Modes, 20 Modes Toolbar, 31 MT63, 7 Multi-Channel Support, 27 My Station, 26

### Ν

*N1DQ*, 65 Navigator, 8, 11, 14

## 0

Olivia, 8 Operating System Support, 8

## Ρ

*Philip Gladstone*, 65 Program Options, 89 PSK Propagation Reporter, 65 PSK31 Deluxe, 7 PSK31 signals, 20 PTT, 17

## Q

QRZ.com, 22, 51 QSO window, 19 QSO Window, 19 Quick Log, 53

### R

Radio Control, 16 Radio Interface, 91 Receive window, 20 Receiving Images, 43 Regular expression syntax, 73 Release Notes, 93 Repeats, 28 RIGBlaster, 12 RTTY, 8

## S

Signal Quality, 27 SignaLink, 11 SignaLink USB, 8, 14 Skins, 90 soundcard, 14 Soundcard, 13, 18 Soundcard Calibration, 42 Sourcecode, 8 Special Tags, 85 Split Mode, 28 Squelch, 27 SSTV, 7, 41 Storage, 90 SuperBrowser, 61 Support forums, 9 Supported Modes, 7

## Т

Tags, 13, 20, 78 Multple, 13 Template Editor, 45 Test Transmission, 21 Text-To-Speech, 75 Themes, 90 Throb, 8 Tigertronics, 11 Time Synchronisation, 95 Transmit window, 20 Transmitting, 21, 44 TS-480SAT, 2, 8, 17 *TX* push button, 17

### U

Using Macros, 22 USInterface, 14 USInterface.com, 11

### ۷

VISTA, 8 VOX, 18

### W

W1HKJ, 8 Waterfall, 20, 28 Web Browsers, 67 West Mountain Radio, 12 Windows 2000, 8 Windows 98, 8 Windows VISTA, 8 Windows XP, 8 WINE, 8 World Map, 69 WWV Updates, 96

## Ζ

ZLP, 11



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