

Display Launcher Oct 2019 The package includes the following programs:-

- 1. PC-HFDL-Display Which extracts the output from PC-HFDL log files and displays it on a grid.
- 2. ACARS-VDL2-Display Which extracts data from MultiPSK Pro QSO files in VHF Acars modes.
- 3. HFDL-Display Which extracts data from MultiPSK Pro QSO files in HF Acars mode.
- 4. GMDSS-Display Which extracts shipping data from MultiPSK Pro QSO files in GMDSS mode.
- 5. SBS3-ACARS-Display Extracts ACARS TCPIP data from the Kinetics SBS-3 receiver.
- 6. ADSB-Display Extracts ADS-B (Mode-S) data from ADSBScope
- 7. ACARSDeco-Display Extracts ACARS data from ACARSDeco2
- 8. AERO-Display Extracts L-Band ACARS from MultiPSK pro QSO files.
- 9. DumpVDL2-Display Extracts VDL2 data from DumpVDL2 on a Linux machine.

10. Tools - Includes utilities to extract aircraft routing data from the PP flight routes forum .sqb files into 'Flights.txt' for use with the above aviation programs. Also utilities to extract aircraft data into 'Aircraft.txt' from the Basestation.sqb file for use with ADSB, ACARS, HFDL and VDL2 traffic. And to extract aircraft data from Basestation.sqb to update the data files in AcarsDeco2.

This package includes completely new versions of all utilities.

The units to extract MultiPSK data for ACARS and VDL2 have now been merged into a single unit which can accept data from either ACARS or VDL2 or both for up to 6 copies of MultiPSK, see the appropriate pages.

A completely new module AERO-Display has been added which allows display of L-Band ACARS messages from the Inmarsat satellites to be displayed on the grids using the AERO option in the latest versions of MultiPSK.

Totally new is the module DumpVDL2-Display which takes the output of the Linux program DumpVDL2 by Tomasz Lemiech and displays it on a grid similar to the various modules which use MultiPSK data with the exception that the data from DumpVDL2 must be passed either via a LAN connection to the Linux PC, or by copying the DumpVDL2 log to a USB key and using that as input.

I have attempted to make all of the grids for displaying aircraft data very similar over all the modules, including improvements to the clock and to the Google Earth displays (where aircraft tracks are now shown as lines with an aircraft icon pointing in the direction of the plot at one end of the line).

The ability to use DX Atlas as the mapping program has now been added to both GMDSS and PCHFDL Display. DX Atlas is of course a commercial program, so this option is only available to users with the program.

Aircraft not in the DB are now indicated in red in the grid and an 'In DB' column added which gives Yes or No for this entry.

Please note that I have changed all modules to remove any preceding zeros in flight numbers and in the Flights.txt file, e.g. QF0001 will appear in all cases as QF1 this is because, even in the same airline, not all aircraft equipment is coded in an identical fashion, so some might show as QF0001 and others as QF001

The MultiPSK aviation modules for ACARS-VDL2, HFDL and GMDSS have all been rewritten to read their data from the MultiPSK\QSO folder log files rather than using the TCP/IP streams which were somewhat liable to errors. Since Patrick rewrote MultiPSK's QSO system to allow the QSO file to have a 'Regular back-up at 1 minute intervals' the logs are correctly written every minute, so the above 3 modules now read these logs at 1 minute intervals in the same manner as the PC-HFDL logs have

always been read.

To accomplish this, it is therefore necessary for all users to use MultiPSK v4.34.1.4 or later and to set up

the QSO files to be read at 1 min intervals (20 second intervals for the AERO option if reading multiple frequencies). It is also necessary to set up the paths to MultiPSK\QSO files In the Options menu of each of the above modules.

The ACARS-VDL2-Display and AERO-Display modules now use Tomasz Lemiech's 'libacars.dll' file and its associated modules. This enables the program to decode .ADS .AT1 and .CR1 sections of code within ACARS messages if they exist thus giving a greater amount of detail than was available from the 'human readable' sections of the messages. I have also added code to read the destination or origin of these ACARS messages where they are in the format such as MELCAYA - Melbourne airport.

Any queries or suggestions, please contact me at - virtualtrains@tpg.com.au

Notes about this new version Display-Launcher Sept 2019

Installation - Windows 7 or 8.1 or 10

- 1. Unzip to a temporary folder and run the Installer
- 2. If you wish, make a desktop icon pointing to Display-Launcher.exe
- 3. Click on the above icon and you are off and running.
- 4. Read the Help file.....

DESCRIPTION OF FOLDERS:-

1. GOOGLE - This folder will hold .kml files when you select an option to display position reports on Google Earth. Each .kml has a sequentially numbered file name so you can go back and check displays at a later date. If you use the Google Earth view option frequently, this folder might get very large, so you should clear unwanted entries from time to time.

2. LOGS - Some of the utilities save log files of data received from MultiPSK in this folder. The AllHeard.csv file is also held in this folder.

3. REPORTS - Here you can save Grids at any time during the day and name them as you wish, these can be reloaded for further checking at a later time.

4. GMDSS - Each ship copied by GMDSS-Display is added to the GMDSS\Ship Data\ShipData.txt file the first time it is heard.

CoastStations.txt and MMSI Country Codes.txt - Up to date lists of coast radio stations and country codes for use with GMDSS-Display.

The GMDSS\Ship Logs folder contains files listing Coast Stations heard and Coast Stations called each day.

5. TEMPLATES - This folder contains various files and databases used by the utilities. Do not edit or delete any of these files unless the entries below say it may be edited.

A) Files with the word 'Start' in them are templates used to produce .kml files for use with Google Earth.

B) Airlines.txt - A tab delimited list of 3 then 2 letter airline flight prefixes followed by the airline name - used by all the ACARS utilities, both HF and VHF - you may edit this file

C) Flights.txt - A list of airline Flight numbers and routes in 3 letter IATA format. As extracted from the Yahoo PP-Logs-and-Routes forum files section - users who prefer the 4 letter ICAO format may extract this themselves using the utility in the Tools section. The provided Flights.txt also includes several hundred routes I have added myself from this year's Qantas timetable and other sources

D) Aircraft.txt lists all aircraft in the format :- ICAO hex, Rego., Aircraft Type, Airline

This contains a list of most airliners likely to be using Mode-S, HFDL, Acars & VDL2 this list is extracted from my recent Basestation.sqb file . A tool is provided to extract suitable data from your Basestation.sqb file if you have one which includes aircraft not in this file.

6. INVALIDREGO.txt - This file can be used to correct registrations which are incorrect in some modes, e.g. U.S. Military aircraft in HFDL mode use rego like 60021B instead of 86-0021. Also you might see aircraft chartered with temporary calls like OO-TNF which was actually G-GDFE. Users may edit this file.

7. Aircraft-User.txt - is a file which the user can add extra data of their own to rather than resorting to editing the main Aircraft.txt file. This file is read during the program start-up following the reading of the Aircraft.txt file.

8. Flights-user.txt - like the above Aircraft-User.txt file, this is a user editable addition to the Flights.txt file to which you can add your own data.

HFDL-Display for MultiPSK

This utility reads the HFDL QSO file from MultiPSK (PRO version only) and displays the aircraft details from each message received on a spread-sheet type grid. The utility is capable of reading the output from 4 copies of MultiPSK simultaneously, giving the possibility of monitoring four ground station freqs at once.

RUNNING THE PROGRAM

1. If you only have 1 receiver, then run MultiPSK as usual and select HFDL from the Pro menu.

2. Tune your receiver to one of the HFDL freqs. And make sure that the buttons SPDU, MPDU, LPDU and HFNPDU are depressed in MultiPSK and that the paths to the MultiPSK QSO logs are set in the Options menu.

3. Run HFDL-Display and click Start in HFDL-Display and the messages from MultiPSK should appear in the HFDL-Display window.

4. If you have multiple copies of MultiPSK then you can set up to 4 of them so that each reads a different frequency. As each new aircraft is heard, it is added to the file 'Logs\AllHeard.csv' and it appears on the grid on the 'All Aircraft Heard' tab. This list is further described in a following page.

The screen should now look like the following:-

Star	t Status:	Total Entries	Clear Grid	Save Gri	Ld	View on Google Earth	Try resolve No-Reg	MultiPSK Lang.	04	M	ar 01:	17
Stop	p Conne	160		Load Gri	Ld	Read QSO File	Exit	English				
Monito	ring							() French		Te	ne UTC	
rrent Traffi	All Aircraft	Heard Freq. currently in	Not in DataE	Base	ICAD Hex	Lat Long		Boute	AC	IGS	Fred	In DB
\$755	Airbus A321 231	China Eastern Airlines	20170304 00:47:41	TR HOL	78071E	Edd, Cong		110010	206	5	17916	Yes
8230	Airbus A321 231SL	China Eastern Airlines	20170304 00:47:46		780E 3A					5	17916	Yes
D-REG		China Eastern Airlines	20170304 00:47:48	CES739		-21.400.135.100	PVG-ME	L	105	5	17916	Yes
817P	Airbus A320 214	Peach Aviation	20170304 00:49:24		86D2D9				85	5	17916	Yes
267	Airbus A321 231	China Southern Airlines	20170304 00:49:49		78010C		8		219	5	17916	Yes
937	Airbus A321 231	Sichuan Airlines	20170304 00:49:49		780867				219	5	17916	Yes
P-C8612	Airbus A320 214	Philippine Airlines	20170304 00:50:06	-	75809F				225	5	17916	Yes
-C8612	Airbus A320 214	Philippine Airlines	20170304 00:50:06		75809F				225	5	17916	Yes
-A862	Boeing 787 9	Vietnam Airlines	20170304 00:51:00		8880E0				231	5	17916	Yes
OSMC	Airbus A320 214	StarFluer	20170304 00:51:25		841EFE				236	5	17916	Yes
I-A681	Airbus A320 214	VietJetAir	20170304 00:51:25		8880B7				232	5	17916	Yes
P-C8612	Airbus A320 214	Philippine Airlines	20170304 00:51:25		75809F				232	5	17916	Yes
JIF	Boeing 747 467ERF	Cathay Pacific Airways	20170304 00:51:49		78021C				237	5	17916	Yes
3468	Airbus A330 243	Sichuan Airlines	20170304 00:51:49		78107A				237	5	17916	Yes
-A862	Boeing 787 9	Vietnam Airlines	20170304 00:51:49	8	8880E0				237	5	17916	Yes
8577	Airbus A330 343E	Air China	20170304 00:53:52		78103A					5	17916	Yes
8468	Airbus A330 243	Sichuan Airlines	20170304 00:57:19		78107A					16	21928	Yes
8468	Airbus A330 243	Sichuan Airlines	20170304 00:57:59		78107A					16	21928	Yes
8468	Airbus A330 243	Sichuan Airlines	20170304 00:58:48		78107A				_	5	17916	Yes
1833	Airbus A321 231SL	Air China	20170304 01:03:26	CA1554	780C46				122	16	21928	Yes
4-A691	Airbus A320 214	VietJetAir	20170304 01:05:00	VJ121	8880CD				5	5	17916	Yes
D-REG		Air China International	20170304 01:05:49	CCA173		-12.423.143.334	PEK-SY	D	77	5	17916	Yes
D-REG		Air China International	20170304 01:05:49	CCA173		-14.008.144.142	PEK-SY	D	77	5	17916	Yes
5933	Airbus A330 243	Air China	20170304 01:08:14		780846					16	21928	Yes
5933	Airbus A330 243	Air China	20170304 01:10:10		780846				-	5	17916	Yes
6637	Airbus A320 232	China Eastern Airlines	20170304 01:10:07	2	780603		2 1			16	21928	Yes
2022	Boeing 777 39PER	China Eastern Airlines	20170304 01:10:17		780D9E					5	17916	Yes
D.REG		Sichuan Airlines	20170304 01:10:44	CSC601		-10.256,132.112	CTU-ME	L	96	5	17916	Yes
TILU		Sichuan Airlines	20170304 01:10:44	CSC601		-12.622,132.603	CTU-ME	L	96	5	17916	Yes
D-REG		China Eastern Airlines	20170304 01:12:32		780D9E					5	17916	Yes
D-REG 2022	Boeing 777 39PER		20170204.01.12.00		7580B3					5	17916	Yes
2022 P-C8615	Boeing 777 39PER Airbus A320 214	Philippine Airlines	20170304 01:13:00				DVC VE	N			47040	
D-REG 2022 P-C8615 2022	Boeing 777 39PER Airbus A320 214 Boeing 777 39PER	Philippine Airlines China Eastern Airlines	20170304 01:13:02	MU739	780D 9E		PVU-ME	- ha	22	5	17916	Yes

ACARS-VDL2-Display for MultiPSK

This utility reads the ACARS(VHF) and VDL2 output from MultiPSK (PRO version only) and displays the aircraft details from each message received on a spread-sheet type grid. The utility is capable of reading the output from 6 copies of MultiPSK simultaneously, giving the possibility of monitoring say 4 ACARS freqs and 2 VDL2 freqs simultaneously if you have a SDR receiver like the SDRPlay RSP2 or similar.

RUNNING THE PROGRAM (First time)

1. Go to the options menu on the main screen and enter the paths to each copy of MultiPSK you are using. I suggest you install a single copy of MultiPSK in a folder named MultiPSK1 and then copy this folder up to 6 times, naming them MultiPSK2, MultiPSK3 etc and if using Virtual Audio Cards, associate VAC1 with MultiPSK1 and so on. This makes it easier to set things up.

2. Enter the frequencies of your normal ACARS and VDL2 stations in the boxes at the base of the main screen.

3. You may also 'Select site for photos' from the options menu, this allows you to see aircraft photos of any Rego. You click on from a selection of air-photo web sites. You can also select whether you save the ACARS text from VDL2 messages which contain ACARS text. This is shown on the ACARS text tab on the main screen. You may wish to ignore this text to save processing time/memory.

All of the above settings are saved in Display-Launcher\AV2_Options.txt so you only need to do this once.

RUNNING THE PROGRAM

1. If you only have 1 receiver, then run MultiPSK as usual and select ACARS(VHF) or VDL2 from the Promenu.

2. Tune your receiver to one of the ACARS or VDL2 freqs. Then click the 'Start' button in ACARS-VDL2-Display and the status box should show 'Connected' and the program will read the MultiPSK\QSO folder logs every minute or so to grab new data and all traffic will appear in the ACARS-Display window.

3. If you have multiple receivers then run multiple copies of MultiPSK, do as above and as long as you have set up the correct paths in the ACARS-VDL2-Display/Options menu, then data will flow as above. Ensure that you enter the correct freqs for each RX in the boxes at the bottom of the screen.

Note: Clicking on any aircraft rego. In the first column will take you to the web site selected in the Options menu and show you full details and usually a photo of the aircraft in question, along with details of the route being flown.

The buttons 'Show ACARS text' and 'Show VDL2 text' display ACARS text contained within the messages, these messages are decoded using libacars to show the content of encoded messages such as .ADS .AT1 and .CR1 types giving a lot of extra details about the flights concerned.

As each message is received, it is searched for the aircraft's IATA code, Flight No. and Registration. The details are supplemented from the databases and added to the spreadsheet grid, along with other details from the message and the Position of the aircraft if this is included in the message.

The databases of IATA and ICAO codes, aircraft registrations and routes are held in the Templates sub folder in text files which the user can edit. The main Aircraft.txt file was extracted from my 'Basestation.sqb' file. If you have your own Basestation.sqb file, then there is a utility under 'Tools' on the startup screen which can be used to extract your own data.

If you have a number of Position entries in the spreadsheet, you can view them on Google Earth by simply clicking the 'View on Google Earth' button and they will appear as under. Clicking the icon for an aircraft will display the details from the entry. Where there several entries for the same aircraft they will be displayed as a coloured line track.



The program runs using UTC time.

At 2400 UTC, the program should save the grid automatically and clear the grid to start a new days traffic. If you have to close your system down, then restart it in the same 24 hour period, it will automatically read your MultiPSK/QSO log files and repopulate the grid before reading any new data. New messages will then be added to the bottom of the grid.

The messages in VDL-2 format only show the aircraft's registration and/or flight number if they include ACARS data, otherwise the only identification is the ICAO hex code. The program therefore needs a valid Aircraft.txt file in the Templates folder. The Aircraft.txt contents are in the format:-

ICAO, Registration, Aircraft Type, Airline, e.g. 7C6D22, VH-VUC, Boeing 737-8FE/W, Virgin Australia

I have included such a file with the program, which covers commercial aircraft seen worldwide. For those users with a suitable Basestation.sqb file, the Tools button on the main Display-Launcher form includes utilities to extract all of the aircraft from this file into Aircraft.txt

Similarly you may need to update the Flights.txt file to include route details for flights in your own area.

The column 'Destination' uses the file IATA.csv to convert 4 letter airport codes into understandable destinations where these are shown in the message, e.g. YSSY is shown as Sydney Intl. Please note that these airport names are truncated in some cases, you can edit the file to expand them if you wish, but there are just too many to do the whole thing by hand.

Note: All VDL-2 transmissions worldwide were originally sent on 136.975 MHz - in some areas with a lot of traffic on this channel, 136.875 MHz and 136.775 MHz have recently also come into use, mainly in Europe and others are also being seen, so for this reason I have modified the program to allow for up to 6 copies of MultiPSK to be checked, each on a different frequency.

n	View on Google Earth	Load Grid	Show ACAR	S text	Clear Grid	Date Format QSO-	1	Exit	Total heard today	41514			r -
p Disconnected	Read QSO File	Save Grid	Show VDL2	text		C Month/Day	Kill	MultiPSK	Total Heard all				l i
									L modes		I	ime UTC	
ffic All Aircraft He	sard Not in Database	Ground Station	Addresses	ICAO Hav	Lat Long	Boute	Mea No	Mag Turne	Dectination	GS Hav	1 Sec	Free In DR	_
eing 747 867F	Cathav Pacific Airways	20190103 03:27	47	780231	cot, cong	Toolo	in agrice	1	Contraction (1024FA	Up	Yes	VDL2
peing 747 867F	Cathay Pacific Airways	20190103 03:27	48	780231				BB		1024FA	Down	Yes	VDL2
eing 777 3FXER	Etihad Airways	20190103 03:27	53 DREQP	8962E6			- #M	H1		2CE 757	Up	Yes	VDL2
eing 777 FS2	FedEx Express	20190103 03:27	54	ABED10	44.200,-81.000			XID	MEMPHIS	1024FA	Down	Yes	VDL2
eing 777 3FXER	Etihad Airways	20190103 03:27	54 EY140	8962E6		YYZ-AUH	S49A	1		2CE757	Down	Yes	VDL2
eing 777 FS2	FedEx Express	20190103 03:27	55 FX5225	ABED10		CGN-MEM	L38A	B9		1024FA	Down	Yes	VDL2
eing 777 3FXEB	Etihad Airways	20190103 03:27	55	8962E6				BB		2CE 757	Up	Yes	VDL2
eing 777 FS2	FedEx Express	20190103 03 27	56 EXA T	ABED10			/ATS	A9		1024FA	Up	Yes	VDL2
eing 777 3FXEB	Etihad Airways	20190103 03 27	56	8962E6			1	1		2CE757	Up	Yes	VDL2
eing 777 ES2	FedEx Express	20190103 03:27	57	ABED10				BB		1024FA	Down	Yes	VDL2
eing 777 3FXEB	Etihad Airways	20190103 03:27	58	8962E6				1		2CE757	Up	Yes	VDL2
eing 787 9	Air Canada	20190103 03 27	58 AAC200	C038A3			603	H1		103044	Down	Yes	VDL2
eing 777 300EB	Emirates Airline	20190103 03 27	58 EK236	896454		OBD-DXB	1.244	BA		10190A	Down	Yes	VDL2
eing 777 3EXEB	Etihad Airways	20190103 03 27	59	8962E6		and and		1		2CE 757	Un	Yes	VDL2
mbardier DHC-8 402 NG	Air Canada Express	20190103 03:27	59	C0747C	1		-	1		103044	Up	Yes	VDL2
eing 777 FS2	FedEx Express	20190103 03:27	00 Ex5225	ABED10		CGN-MEM	5804	1		1024FA	Down	Yee	VDL2
eing 777 3EXEB	Etihad Ainuaur	20190103 03:28	00	896256		Source and an	JOUR	BB		205757	Down	Yes	VDL2
bus A321 211SL	Air Canada Boure	20190103 03:20	00	C01970				BB		103044	Down	Yes	VDL2
bus 6321 2115L	Air Canada Rouge	20190103 03:20	01	C01970			-	BB		103044	Un	Yes	VDL2
eing 777 300EB	Emirates Airline	20190103 03:20	01	896454				BB		101904	Down	Yet	VDL2
seing 777 FS2	FadEx Express	20190103 03:20	01 Ex5225	ABED10		CONMEM	5814	1		1024Eà	Down	Yes	VDL2
wing 737NG 7H4 Au/	Southwest Airlines	20190103 03:20	02	AD493P		Currint	301A	PP.		105464	Down	Vec	VDL2
eing 73/140 /m4/W	Air Canada	20190103 03:28	02	0038975	-		-	I		103464	Up	Vet	VDL2
eing 707 9	Air Canada	20130103 03:20	02 440200	C030A3			502	_1 11		103044	Down	Vec	VDL2
using 707 0	Air Canada	20190103 03:28	05 440.200	C030A3	-		303	1		103044	Uo	Var	V0L2
eng 707 0	Air Canada	20190103 03:28	05 CAC200	C030A3	-		E02	111		103044	Deven	Tes Var	VDL2
eng / 6/ 3	Kir Cahada Caraburat Aidaaa	20190103 03:28	05 LAC200	ADE040			303	27		103044	Down	Tes	VDL2
ang ro/MAX 8	Sournwest Ainines	20190103 03:28	06 WN281	ABF 343		-	MIJA	3/		10257A	Down	Tes	VDL2
eng / 6/ 9	Air Canada	20190103 03:28	00 545000	L038A3		CONTRACTO	0004	-		103044	Up	Tes	VOL2
eing 777 FS2	FedEX Express	20190103 03:28	06 6405	ABED10		LON-MEM	582A			1024FA	Down	Tes	VDL2
eing /4/ 86/F	Cathay Pacific Airways	20190103 03:28	05 12485	780231		JFN-ANL	M25A	32		1024FA	Down	Yes	VUL2
eing /// FS2	FedEx Express	20190103 03:28	07 04 0000	ABED10			500	MH		1024FA	Up	Yes	VDL2
eing /8/ 9	Air Canada	20190103 03:28	07 DAL200	LU38A3			503	HI		103044	Down	Yes	VDL2
eing /4/ 86/F	Lathay Pacific Airways	20190103 03:28	07	780231	-	000 010	1.051	HH		1024FA	Up	Yes	VUL2
	h murahan Airlina	20190103 03:28	07 EK236	896454	-	UHD-DXB	L25A	BA		10190A	Down	Yes	VDL2

MultiPSK does not decode the data strings within the ACARS sections of ACARS and VDL2 messages. Recently, Tomasz Lemiech has released new software libacars.dll with permission for it to be used within other programs providing the various files he included with it are all included. All of his files are now included with Display-Launcher and they are linked into the ACARS-VDL2-Display module and allow for all .ADS, .CR1 and .AT1 messages (both uplink and downlink messages) to be decoded where they appear in ACARS or VDL2 messages. These decodes are displayed on the ACARS text and VDL2 text tabs of my program as under:-



As you can see, these decodes show a lot more detail of the flight than the basic ACARS text shows.

I intend to include the possibility of decoding the ACARS data streams from some other modes in later versions of my program.

AERO-Display

This module allows for the display of ACARS messages received with MultiPSK from L-Band satellite transmissions via the Inmarsat satellites to be displayed on a grid. These transmissions are in the 1545Mhz band and require a suitable satellite antenna and LNA to receive them. I use a 'Patch' antenna from Outernet but I believe this is no longer available along with a Nooelec LNA specific to the 1545MHz band. Other patch antennae should be available if you try Google and there are alternative antenna models available for this band.

You should also note that Inmarsat are in the midst of changing the satellites they use for ACARS traffic, they currently use satellites 3F5, 3F3, 3F2 and 3F1, these will move to 4F3, 4F1, 3F5, 4AF respectively within 2018. A timetable is available from the Inmarsat site.

I use the SDRPlay RSP2 receiver with SDRUno software to receive this traffic set to 'Digital' with a bandwidth of 4000 Hz and a sample rate of 4MHz, which allows me to cover the whole band used for ACARS. This RX also has a Bias-T output which will power the LNA over the co-ax cable. Any other RX with similar specification should be usable (e.g. Airspy with SDR# software). The output from the RSP2 is routed via Virtual Audio Cable to MultiPSK - I currently run 3 copies of MultiPSK and have the SDRUno software set to cover the frequencies 1545.010, 1545.035 and 1545.045 and these are fed via 3 VACs to 3 copies of MultiPSK, however depending upon your PC, the software is capable of handling up to 10 copies of MultiPSK simultaneously.

Set each copy of MultiPSK in its 'Configuration' screen so that its 'Sound Card (Input)' is linked to the corresponding 'Output' device of the VRX chosen in the RSP2. I have set my MultiPSKs up in 3 folders named MultiPSK-1,2 and 3 - then use VAC1,2 and 3 for the sound cards to avoid confusion.

Configuration Adjus	1.1 RX/TX s	creen Thoma	s Simpson	9 Manu	II Church	-						
Configuration Adjus			a annipaari	2 1110/11	ven street	Pennt	th NSW 27	50 A	USTR	-		×
ropin tun and	stments Opti	ions Tools	PSKReporte	r Satellit	es Panor	amic	Help					
LP/IP SOR spectrum	Transceiver	Country/Loc	World QS	O Mail	Tune Be	acon		Level	35 %	GMDSS	ATIS	AC
1 1										SYNOP /	SHIP	1
Vhere? Number? Se	earch Look-up	p DXK DXView	Pathfinder \	Where?>	PSKReporte	er O	ptions are	n the logb	ook	RTTY 100	110	150
Call Name	Freq Mhz 🔺 Mo	ode Ur RST My	RST R S Lo	cator Q	TH No	otes	Clear Log	book QS	0->Log	SELCAL	110A	D
	▼ A8	ERO 599 59	9			<u>c</u>	luster L A	DXKeepe	ContF	COQUELE	4285	SI
MESSAGEID IX Tex	xt.								DK	IEC 870-5	HEDL	AR
	lopcal py p		n Pack	ets selectio		Smeesa	nes Fi	ing []	Others	AMTO ARC	BIS	PO
TX: none	MODE	RX: AERO	No. of	frame	1110111	- 1110 - 50	900			AIS VUL2	EPIKE	A
										OPPCOM	AFRO	
RX: 7/42	Speed (baud	ds) Weath	er messages	decoding	Explanation	ns AFC	Plane data	abase Fa	ast PC	ORDCOMIN	TAERU	
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Comprete ACAHS me: / Block: G (Uplink)Mr /PVGDCYA.FSI/FSM CPA055 RCD RECEIV REQUEST BEING PR STANDBY	ssage: Mode: essage: I 2250 180324 /ED IOCESSED	: 2 / Plane id 4 ZSPD	lentifier: B-L	no.: 12 Fr	om station : {NAK} /	82 [Pe Type: A	rth / Sanl A4 (Uplink	a Paula - Ackno	> sat. wiedge	POR (3-F3) departure o] towar	ds ce)
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Each copy of MultiPSK should be set up as in the illustration above, with AERO selected, also make sure AFC is selected and Spectrum is shown. Speed is normally 600bauds, however some freqs do use 1200bauds. To use with AERO-Display, you must set the MultiPSK QSO setting to 'Regular Backup 20 seconds' using the buttons in the bottom left of the QSO screen.

Tune your radio so that the Spectrum display is similar to the above and the blue region should move to the centre of the curve. You may find that as your RX heats up that you need to retune it by a few Hz to keep receiving traffic.



The above shows SDRUno receiving 3 ACARS frequencies along with one instance of MultiPSK. The next picture shows the data on the AERO-Display grid along with the other 2 copies of MultiPSK - I use two 27"

MULTIPSK V. 4.34.1 RX/TX screen Thomas Simpson 9 Maxwell Street Pen., -	AERO-Di	splay Version 1.0.14													- 0
Configuration Adjustments Options Tools PSKReporter Satellites Panoramic Help	Options Ale	erts Database About													
TCP/IP Sel? spectrum Transceiver CountryLoc World QSO Mail Tune Beacon ID CPU Level	Connection	n Details													
Where? Number? Search Look-up DXX DXView Pathfinder Where?>PSKReporter Options are in the logs		Start		6404	From Freid	1	~ I							20 M	ar 23:53
1 Call Name Freq Mhz A Mode Ur RST My RST R S Locator QTH Notes Clear Logbook QS		Step	Total Today.		Save orid	Clear .	WIII .	Rea	QSO File	S 8	Exit			2010	
When one the Tart		Monitoring	Heard	410	Doge of re	ALLS HU	Terrer							т	ime UTC
available based available based available based	-														
TX: none MODE R0 AERO No. of frame	Current	Traffic All Aircraf	t Heard Not in DataBas			L DAO NO		- E		a an a	Above De			ACADO DI	
RX: 563 / 3378 Speed (baude) - Weather messages decoding - Explanations 4FC Plane detabased	BHLM	Airbus A330 343K	Cathay Pacific Airways	20180320 23 49 2	2 7-salety	78018D	13 8	2 1545.010	Yes	PDB (3-F3)	Patient inte	2 (N	AK) A9	W	AKEATYA TI2AVHHH
Westher: 0 810 Hz 600 1200 10000 On Airport filter: Time display Satellities	HL7784	Boeing 777 3B5ER	Korean Air	20180320 23:49.3	4 7-solety	718F84	2 8	2 1545.010	Yes	PDR (3 F3)		2 B	1	F	
200 500 1000 1500 2000 2500 Seed	B-16333	Alibus A330 302K	EVA All Cathau Ractio Anumu	20180320 23:49:3	6 7-solety	8990D0 20010D	1 8	2 1545.010	Yes	PDR (3+3)	-	2 5	AN 1 44	0	DNATION CON DDST
MI M	B-HNN	Boeing 777 367	Cathay Pacific Airways	20180320 23:49:4	6 7-selety	780180	5 8	2 1545.010	Yes	POR (3-F3)	-	2 3	1	ĉ	HIMATION CONTINUE
	HL7784	Boeing 777 385ER	Korean Air	20180320 23:49:5	2 7-selety	718F84	8 8	2 1545.010	Yes	POR (3-F3)		2 9	Ĵ.	6	
berbfullet	B-HNN	Boeing 777 367	Cethay Pacific Airways	20180320 23:49:5	8 7-zalety	780180	7 8	2 1545.010	Yes	POR (3-F3)		2 4	1	D	
Call 1 F1 CU E2 Call 3 E3 Answer 24 BTC F5 Signoid E6 7% E7 Coord	RHIN	Althor 6330 3430	Cafear Parilie Aissan	20180320 23 50 0	6 7 - salety 8 7 - saleta	710F04 78018F	15 8	2 1545.010	Yes	PDB (3F3)	-	2 2	1	P	
	N575FE	McDonnell Douglas MD-1	FedEx Express	20180320 23:50.0	8 7-salety	A7617E	4 8	5 1545.03	Yes	PDR (3F3)		2 (N	NK) H1	c	+ #MDREQP0S0378
Complete ACARS mexrage: Mode: 2 / Plane identifier: 8-6535 / Ack : 0 / Type: 1 (General remonne	HL7700	Boeing 777 28EER	Asiana Airlines	20180320 23:50 2	0 7-solety	718F00	7 8	5 1545.03	Yes	POR (3-F3)		2 3	1	1	-
Demand mode. No information to transmit) / Block: S (Uplink)	N575FE	McDonnell Douglas MD-11 Regime 777 20000	1 FedEx Express	20180320 23:50:2	4 7-solety	A7617E	5 8	5 1545.008 5 1545.008	Yes	POR (3-F3)	-	2 5	1	0	
<20/03/18 23:52:54> Type: 7 (0)ther "safety") Reference on : 7 From station 82 (Perth / Santa Paula -	B.HNN	Boeing 777 200011	Cathau Paritir Airsonn	20180320 23:50 3	4 7 - selety 4 7 - selets	710F00	14 8	2 1545.010	Vet	P0P(3F3)	-	2 %	NK1 22	R	122 V01 EX 503 201803
sat. PDR [3F3]] towards plane 780A2C.	B-HNN	Boeing 777 367	Cathay Pacific Airways	20180320 23 50 3	2 7-salety	7801B0	11 8	2 1545.010	Yes	POB (3-F3)		2 (N	AK) 20	F	120,V02,3L139204 <3
Demand mode. No information to transmit] / Block: 1 [Uplink]	B-HNN	Boeing 777 367	Calhay Pacific Airways	20180320 23:50.4	0 7 - salety	7901B0	10 8	2 1545.010	Yes	PDR (3F3)		2 (N	AK) 21	G	121,V02,1,700899K,,001
(20.03.00.25.53.05). Terry 7.00 has Sudah 20.0 decrements of Free station 20.00 alt. (Free's Back	BHNN	Boeing 777 367	Cathay Pacific Airways	20180320 23:50:5	2 7-solety	790180	6 8	2 1545.010	Yes	PDR (3F3)	-	2 (N	AK) 22	H	122,V01,EX 503 201803
sat. POR [3:F3]] towards plane 780A89.	BHINN	Boeing 777 367	Cathay Pacific Airways	20180320 23:50:5	2 7 - colety	290180	12 0	2 1545.010	Yes	PDR (3+3)	-	2 D	SK1 21	- b	121 V02 * 200895K ~ 00
Complete ACARS message: Mode: 2 / Plane identifies: B-KQU / Ack.: (NAK) / Type: 18 / Block: R (Usink)	RP-C3441	Airbus A340 313K	Philippine Airlines	20180320 23:51:0	8 7-selety	758341	15 6	5 1545.008	Yes	POR (3-F3)	RPC3441	2 6	J	1	
[clame]	HL7700	Boeing 777 28EER	Asiana Airlines	20180320 23:51:1	0 7-salety	718F00	14 8	5 1545.03	Yes	POR (3-F3)		2 5		L	
TCPIP SdP spectrum Transceiver CountryLoc World QSO Mail Tune Beacon ID CPU Level	B-HNN	Boeing 777 367	Cethay Pacific Airways	20180320 23:51 1	8 7-salety	780180	1 8	2 1545.010	Yes	POR (3-F3)	-	2 (N	AK) 20	K	120,V02,3L139204 (3
Where? Number? Search Look-up DXK DXView Pathfinder Where? ->PSKReporter Options are in the logbo	BHNN	Roeina 777 367	Calhay Pacific Airways	20180320 23:51 2	4 7 - salety	780180	5 8	2 1545.010	Yes	PDB (3F3)	-	2 0v	ak) H1	L	#MDPw1AvD410.PDF
1 Cal Name Freq Mhz A Mode Ur RST My RST R S Lacator QTH Notes Clear Logbook QSC	B-HWM	Aibus A330 343E	Cathay Dragon	20180320 23:51:4	8 7-solety	78045A	8 8	2 1545.010	Yes	POR (3+3)		2 0	J	K	
0 VALERO S89 S89 Custer L A DXKeeper	BHLN	Aibu A330 343K	Cathay Pacific Airwayo	20180320 23:51:5	0 7-salety	79018E	7 8	2 1545.010	Yes	POR (3-F3)		2 (N	NK) 10	S	V1 131 (VHIN 125)
MHESSAGEID IX Text	HL7764 B.K.OU	Boeing 777 285ER Boeing 777 262EB	Kotean Ar Cathau Pacific Aisuan	20180320 23:51:5	6 0 - Non Salety 9 7 - ratety	718F64 7904/99	13 8	2 1545.045	Yes	P0P (3-F3)		2 (b)	IK1 19	8	
Call D RS D Video D ORGS RX RS D RX Call D Packata selection: ACARS messages Filling O	05-5149	Boeing C-17A Globernacte	United States Air Force	20180320 23 52 8	4 7-salety	AE1453	13 8	2 1545.045	Yes	PDB (3-F3)	55149A	2 4	10	E	
TX: none MODE RX: AERO No. of frame	RP-C3441	Aibus A340 313K	Philippine Airlines	20180320 23 52 0	6 7 - salety	758341	2 8	5 1545.03	Yes	PDR (3-F3)	RPC3441	2 7	J.	J	
RX: 569/3414 Speed (bauds) Weather messages decoding _ topianations AFC Plane database / re-	HL7700	Boeing 777 28EER	Asiana Airlines	20180320 23:52 0	8 7 - salety	718F00	1 8	5 1545.03	Yes	POR (3 F3)	-	2 7	1	M	NOT THE OWNER OF THE
Weather: 3 1323 Hz 600 1200 10500 On Airport filter: Time display Satellites	DO-EIM	Boeing 777 28EEH Boeing 727NG 961Au	Asiana Allines	20180320 23:521	2 7 - solety 2 7 - solety	C99002	9 8	5 1545.025	Yes	PUR (3+3)	-	2 0	AK) AU	K	ASLINE INALAPIN/PMPA
200 500 1000 1500 2000 2500 Spectrum	DOTON	Durg Torrid Corrie	1 Canada	20100020120.02.0	a i mary		0		1101	(Full (SFG)	-	15 JA		15	· ·
DEM TWA	08 a 0						-				_				
		88 182	182												
antheoreticeses antheoretister. Lock	Freq:	1545.035 1545.045	1645.010												
Call 1 Fi CG F2 Call 3 F3 Answer F4 BTU F5 Signoff FG TX F Come	No data					_			_		-				
Set 2 sets The INCOM CAN BY REAST OF TAX 13 THE FILL ON ADDITED	for:	0 Mins 0 Mins	0 Mins 0 Mins	1											
Demand mode. No information to transmit) / Block: 8 [Uplink]															
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sal. PDR [3 F3]] towards plane 780180:	1000		States and the states	- Internet	-		-	-	100		-	-			
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zat. PDR (3-F3)) towardz plane 718085:							1000		-		-		1	*	A REAL PROPERTY AND INC.
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Monitors to get enough screen space for all of this detail, 3 monitors would probably be better and allow for easy viewing of more copies of MultiPSK.

Most of the columns in the grid are identical to the other modes available in Display-Launcher except that there are columns to show ACARS messages received (you may need to stretch the window to see all of this column), and a new column 'Altern.Reg' - this column displays the aircraft registration received in the ACARS message where it is not the same as the one in the Aircraft.txt database. This mainly occurs with USAF (and Australian air force) aircraft where the database shows the full tail number, e.g. 05-5149 and the ACARS messages shows it as 55149A, similarly some civil registrations like RP-C3441 appears as RPC3441.

Before starting the program for the first time the user must go to the Options menu and enter the path to the QSO folder for each of the copies of MultiPSK he is using. Also each of the ACARS frequencies being used have to be entered manually in the Freq. row at the bottom of the screen. (It is not possible to read the frequencies from the RX automatically). The details are however saved for subsequent use of the program.

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| Airbus A330 343X | Cathay Pacific Airways | 20190305 05:16:02
 | 7 - safety | 780190

 | 2 | 82
 | 1545.035 | Yes | POR (4-F1)
 | 2 | {NAK}
 | A6 | G | Yes |
| Boeing 777 3DZER | Qatar Airways | 20190305 05:16:00
 | 7 - safety | 06A053

 | 8 | 50
 | 1545.150 | Yes | ASIAPAC (4-F1
 | 2 | 6
 | 1 | Z | |
| Airbus A320 251NSL | Chongging Airlines | 20190305 05:16:10
 | 7 - safety | 7814E8

 | 7 | 50
 | 1545.150 | Yes | ASIAPAC (4-F1
 | 2 | 5
 | 1 | C | |
| Airbus A330 323K | Korean Air | 20190305 05:15:50
 | 7 - safety | 71BD86

 | 10 | 50
 | 1545.145 | Yes | ASIAPAC (4-F1)
 | 2 | (NAK)
 | A3 | G | Yes |
| Airbus A330 323K | Korean Air | 20190305 05:16:00
 | 7 - safety | 71BF10

 | 7 | 50
 | 1545.145 | Yes | ASIAPAC (4-F1)
 | 2 | 3
 | J | Z | |
| Airbus A330 323X | Korean Air | 20190305 05:16:04
 | 7 - safety | 71BF10

 | 3 | 50
 | 1545.145 | Yes | ASIAPAC (4-F1)
 | 2 | {NAK}
 | A9 | A | Yes |
| Boeing 777 3B5ER | Korean Air | 20190305 05:16:16
 | 7 - safety | 71C218

 | 6 | 50
 | 1545.145 | Yes | ASIAPAC (4-F1)
 | 2 | 5
 | J | Н | |
| Airbus A319 115 | Air China | 20190305 05:16:18
 | 7 - safety | 798038

 | 3 | 82
 | 1545.180 | Yes | POR (4-F1)
 | 2 | 8
 | 1 | Z | |
| Boeing 777 3DZER | Qatar Airways | 20190305 05:16:22
 | 7 - safety | 06A053

 | 6 | 50
 | 1545.150 | Yes | ASIAPAC (4-F1)
 | 2 | 7
 | J | × | |
| Airbus A320 251NSL | Chongqing Airlines | 20190305 05:16:26
 | 7 - safety | 7814E8

 | 11 | 50
 | 1545.150 | Yes | ASIAPAC (4-F1)
 | 2 | 6
 | J | D | |
| Boeing 777 3DZER | Qatar Airways | 20190305 05:16:34
 | 7 - safety | 06A053

 | 15 | 50
 | 1545.150 | Yes | ASIAPAC (4-F1)
 | 2 | 8
 | 3 | Y | |
| Airbus A330 323X | Korean Air | 20190305 05:16:22
 | 7 - safety | 71BF10

 | 1 | 50
 | 1545.145 | Yes | ASIAPAC (4-F1
 | 2 | {NAK}
 | A9 | B | Yes |
| Airbus A330 342 | Cathay Dragon | 20190305 05:16:26
 | 7 - safety | 780126

 | 14 | 82
 | 1545.180 | Yes | POR (4-F1)
 | 2 | {NAK}
 | C1 | C | Yes |
| Boeing 777 367ER | Cathay Pacific Airways | 20190305 05:16:40
 | 7 - safety | 780A2D

 | 6 | 50
 | 1545.135 | Yes | ASIAPAC (4-F1)
 | 2 | {NAK}
 | AA. | V | Yes |
| Boeing 777 367ER | Cathay Pacific Airways | 20190305 05:16:48
 | 7 - safety | 780A62

 | 15 | 82
 | 1545.035 | Yes | POR (4-F1)
 | 2 | (NAK)
 | AA | C | Yes |
| Airbus A330 343E | AirAsia× | 20190305 05:16:52
 | 7 - safety | 750073

 | 12 | 82
 | 1545.035 | Yes | POR (4-F1)
 | 2 | 8
 | J | Y | |
| Airbus A320 251NSL | Chongging Airlines | 20190305 05:16:42
 | 7 - safety | 7814E8

 | 4 | 50
 | 1545.150 | Yes | ASIAPAC (4-F1
 | 2 | 7
 | 1 | E | |
| Boeing 777 3DZER | Qatar Airways | 20190305 05:16:48
 | 7 - safety | 06A053

 | 1 | 50
 | 1545.150 | Yes | ASIAPAC (4-F1)
 | 2 | 9
 | 1 | Z | |
| Airbus A319 115 | Air China | 20190305 05:16:58
 | 7 - safety | 780066

 | 4 | 82
 | 1545.180 | Yes | POR (4-F1)
 | 2 | 7
 | 1 | T | |
| Airbus A330 343E | AirAsia X | 20190305 05:17:02
 | 7 - safety | 7501E9

 | 1 | 82
 | 1545.180 | Yes | POR (4-F1)
 | 2 | 6
 | J | Z | |
| Boeing 777 367ER | Cathay Pacific Airways | 20190305 05:17:04
 | 7 - safety | 780A67

 | 15 | 50
 | 1545.135 | Yes | ASIAPAC (4-F1
 | 2 | 7
 | 1 | C | |
| Airbus A330 343E | AirAsia X | 20190305 05:17:08
 | 7 - safety | 750073

 | 1 | 82
 | 1545.035 | Yes | POR (4-F1)
 | 2 | 9
 | J | Z | |
| Boeing 777 367ER | Cathay Pacific Airways | 20190305 05:17:14
 | 7 - safety | 780A62

 | 10 | 82
 | 1545.035 | Yes | POR (4-F1)
 | 2 | 2
 | J | D | |
| Airbus A320 251NSL | Chongqing Airlines | 20190305 05:16:58
 | 7 - safety | 7814E8

 | 5 | 50
 | 1545.150 | Yes | ASIAPAC (4-F1)
 | 2 | 8
 | J | F | |
| Airbus A320 251NSL | Chongging Airlines | 20190305 05:17:16
 | 7 - safety | 7814E8

 | 3 | 50
 | 1545.150 | Yes | ASIAPAC (4-F1)
 | 2 | 9
 | 1 | G | |
| Airbus A319 115 | Air China | 20190305 05:17:12
 | 7 - safety | 780066

 | 2 | 82
 | 1545.180 | Yes | POR (4-F1)
 | 2 | 8
 | 1 | U | |
| Airbus A330 323E | Korean Air | 20190305 05:17:16
 | 7 - safety | 71C027

 | 8 | 82
 | 1545.180 | Yes | POR (4-F1)
 | 2 | 1
 | 1 | W | |
| Boeing C-17A Globernaster | United States Air Force | 20190305 05:17:14
 | 7 - safety | AE119C

 | 7 | 82
 | 1545.030 | Yes | POR (4-F1) 33119A
 | 2 | 0
 | 1 | P | |
| Airbus A330 342 | Cathay Dragon | 20190305 05:17:20
 | 7 - safety | 7801C6

 | 6 | 82
 | 1545.035 | Yes | P0B (4-F1)
 | 2 | 5
 | 1 | L | |
| Boeing 777 367ER | Cathay Pacific Airways | 20190305 05:17:30
 | 7 - safety | 780462

 | 5 | 82
 | 1545.035 | Yes | POR (4-F1)
 | 2 | {NAK}
 | A6 | E | Yes |
| Airbus A320 251NSL | Chongging Airlines | 20190305 05:17:32
 | 7 - safety | 7814E8

 | 12 | 50
 | 1545.150 | Yes | ASIAPAC (4-F1
 | 2 | 0
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| Airbus A330 323K | Korean Air | 20190305 05:17:18
 | 7 - safety | 71BD86

 | 9 | 50
 | 1545.145 | Yes | ASIAPAC (4-F1
 | 2 | 0
 | 1 | н | |
| 111 1000 0001 | Korean Air | 20190305 05:17:22
 | 7 - safety | 71BF10

 | 2 | 50
 | 1545.145 | Yes | ASIAPAC (4-F1
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Chongging Aifines 20190305 05 16:00 7: asley 780407 780 ubus A320 232X Korean Air 20190305 05 16:00 7: asley 718066 7 50 ubus A330 322X Korean Air 20190305 05 16:00 7: asley 718070 7 50 ubus A330 322X Korean Air 20190305 05 16:10 7: asley 718170 3 50 orign 777 305ER Qatar Anways 20190305 05 16:10 7: asley 716218 6 50 ubus A330 323X Korean Air 20190305 05 16:24 7: asley 708038 3 22 ubus A330 323X Korean Air 20190305 05 16:24 7: asley 708045 15 50 orign 777 367ER</td><td>All Aircraft Heard Not in DataBlase Upp Aircr Aircr District District CAU Party abus A30 943X Carbay Pacific Arways 20190305 05:16:00 7: rafely 780190 2 62 1545150 abus A30 943X Carbay Pacific Arways 20190305 05:16:00 7: rafely 780190 2 62 1545150 abus A30 225NISL Chongging Aifnes 20190305 05:15:00 7: rafely 781468 7 9 1545150 abus A30 322X Korean Air 20190305 05:16:00 7: rafely 718166 10 90.1545145 abus A30 322X Korean Air 20190305 05:16:10 7: rafely 7181670 7 90.1545145 abus A30 322X Korean Air 20190305 05:16:10 7: 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The button 'Display ACARS text' displays the text part of each message which includes readable ACARS text and where possible messages decoded through 'libacars'.

SBS3-ACARS-Display

The Kinetics SMS-3 receiver outputs ACARS data as a TCP-IP stream through port 30008. This program works like the other ACARS display modules, but displays a Freq. Column as well as the SBS-3 is capable of reading 4 ACARS channels at once and does send the Freq. Data through the TCPIP stream.

Connection Details			_			171	on Corre	1.0					
Address 127.0.0.1	Connect	#1 Status:	No data	for:	0 Mins	VIEW	Earth	re			16	Sep	01:
Port: 30008	Disconne	ct#1 Connected	Total	Entries:	802		Exit				_	Time U	TC
					1								
Benn Fk	Master Data Raw Data A	Aidea	Date-Time	mported	ICAN Hex	oratt Heard	Boute	Msg No	Block	Msn Tune	Mode	Freq	
N732AN	Boeing 777 323EB	American Airlines	20160916 01:31:19	AA72	A9D286	Location	1 I Come	S194	3		2	131 450	Ye
B-5975	Airbus A330 243	China Eastern Airlines	20160916 01:31:27	MU562	7803BE		-	S52A	9	1	S	131 550	Ye
8-5975	Airbust A330 243	China Eastern Airlines	20160916 01:31:29	MU562	7803BF		-	1904	0	RE	s	131 550	Ye
VHJAAN HT	Airbus 4321 231	Jototar Ainuaus	20160916 01:31:51	10510	7C6D7F	-34 583 149 801	-	M576	7	3	C C	131 550	Ye
VHJ/ZM	Boeing 737NG 838Au/	DANTAS	20160916 01:32:01	OF424	706DF0	-54.000,140.001	MEL-SYD	DB3B	6	H1	2	131 550	Ye
B-5951	Airbus A330 323F	China Southern Airlines	20160916 01:32:04	17326	780075		Disc of D	C724	5	H1	S	131 550	Ye
VH-VOW HT	Airbus A320 232	Jetstar Airways	20160916 01:34:04	JQ408	706046	-33,751,151,478		M454	2	31	S	131.550	Ye
B-5951	Airbus A330 323E	China Southern Airlines	20160916 01:34:27	17326	780075			S87A	6	SA	S	131 550	Ye
VH-ERM	Airbus A330 202	DANTAS	20160916 01:34:35	QE81	701470		ADL-SIN	M730	3	50	N	131 550	Ye
VH-EBM	Airbus A330 202	DANTAS	20160916 01:34:56	QE81	701470		ADL-SIN	M73A	3	50	N	131,550	Ye
VH-EBM	Airbus A330 202	DANTAS	20160916 01:35:02	QF81	701470		ADL-SIN	M734	3	50	C	131 550	Ye
B-5951	Airbus A330 323E	China Southern Airlines	20160916 01:35:04	07326	780C75	-33 462 150 599		1484	7	BO	S	131 550	Ye
B-5951	Airbus A330 323E	China Southern Airlines	20160916 01:35:09	02326	780C75	00.100,100.000		SBBA	8	1	S	131.550	Ye
B-5951	Airbus A330 323E	China Southern Airlines	20160916 01:35:20	(7326	780C75			589A	9	1	S	131 550	Ye
VH-EBM	Airbus A330 202	DANTAS	20160916 01:35:22	QE81	701470		ADL-SIN	M73A	3	50	c	131,550	Ye
B-5951	Airbus A330 323E	China Southern Airlines	20160916 01:35:22	(7326	780C75			S90A	0	1	S	131,550	Ye
B-5951	Airbus A330 323E	China Southern Airlines	20160916 01:35:23	02326	780C75			.1490	1	RA	S	131 550	Ye
B-5975	Airbus A330 243	China Eastern Airlines	20160916 01:35:25	MU562	7803BF			M97A	1	11	S	131 550	Ye
VH-EBM	Airbus A330 202	DANTAS	20160916 01:35:27	QE81	701470		ADL-SIN	M730	3	50	2	131 550	Ye
B-5975	Airbus A330 243	China Eastern Airlines	20160916 01:35:29	MU562	7803BF			M97A	1	11	S	131 550	Ye
B-5951	Airbus A330 323E	China Southern Airlines	20160916 01:35:32	CZ326	780C75			J49A	1	BA	S	131.550	Ye
VH-EBM	Airbus A330 202	DANTAS	20160916 01:35:34	QF81	701470		ADL-SIN	M73A	3	50	2	131.550	Ye
B-5951	Airbus A330 323E	China Southern Airlines	20160916 01:35:35	07326	780C75		THE CHIE	\$92A	2	1	S	131 550	Ye
B-5951	Airbus A330 323E	China Southern Airlines	20160916 01:35:36	07326	780C75			J50A	. 3	BG	S	131.550	Ye
B-5975	Airbus A330 243	China Eastern Airlines	20160916 01:35:39	MU562	7803BF		-	M97A	R 1	11	S	131.550	Ye
8-5975	Airbus A330 243	China Eastern Airlines	20160916 01:35:39	MU562	7803BF			\$53A	1	1	S	131.550	Ye
B-5975	Airbus A330 243	China Eastern Airlines	20160916 01:35:40	MU562	7803BF			M97A	2	11	N	131.550	Ye
8-5951	Airbus A330 323E	China Southern Airlines	20160916 01:35:42	CZ326	780C75			J51A	5	B6	S	131.550	Ye
VH-EBM	Airbus A330 202	QANTAS	20160916 01:35:43	QF81	7C1470		ADL-SIN	S45A	4	1	2	131.550	Ye
VH-VZM	Boeing 737NG 838/W	QANTAS	20160916 01:35:44	QF424	7C6DE0		MEL-SYD	D84A	7	H1	2	131.550	Ye
B-5975	Airbus A330 243	China Eastern Airlines	20160916 01:35:52	MU562	7803BF			M97A	2	11	N	131.550	Ye
VH-VXB	Boeing 737NG 838/W	QANTAS	20160916 01:35:54	QF517	7C6D8D		BNE-SYD	D56B	9	H1	S	131.550	Ye
B-5975	Airbus A330 243	China Eastern Airlines	20160916 01:36:00	MU562	7803BF			M97A	2	11	N	131.550	Ye
VH-VZM	Boeing 737NG 838/W	QANTAS	20160916 01:36:01	QF424	7C6DE0		MEL-SYD	\$95A	8	5V	2	131.550	Ye
VH-VXB	Boeing 737NG 838AW	QANTAS	20160916 01:36:02	QF517	7C6D8D		BNE-SYD	D57B	1	H1	S	131.550	Ye
B-5975	Airbus 4330 243	China Fastern Airlines	20160916 01:38:11	MU562	7803BE			\$546	3	00	N	131 550	Ye

To run the program, start the SBS-3 and choose your ACARS frequencies on the Built-in radio control panel and ensure that the ACARS data is being processed. Then start SBS3-ACARS-Display and click Connect. This should respond with 'Connected' and the raw ACARS data should appear in the top window and the details in the bottom grid.

Although the program adds the Date/Time in UTC time, please note that it calculates this based on the Local Time of your PC, but can't automatically distinguish between Daylight Saving and Standard time, so you must select in the Options menu whether you are currently using Daylight Saving time or not. This is saved and only needs to be rechecked when your local time changes.

Another feature I have added is the ability to click on any aircraft registration in the first column and you will automatically be linked to an internet site (assuming your PC is connected to the internet) which will display further details of the aircraft and also photographs where available.

Currently this links to Planespotters.net which seems to include more aircraft than some other sites, however after 40 links you do have to set up a free account to avoid your having to sign in from time to time. There is now an option in the 'Options' menu to select from 3 different sites.



From v1.0.32,

1. The buttons to Clear Grid etc have been moved to the Files menu.

2. A new window to display the incoming data in AirMaster format similar to ACARSD has been added.

3. The raw data and the AirMaster data is saved automatically in the logs folder.

4. Option to save list of aircraft not in database.

5. All windows are automatically cleared at 0000z for start of new day.

6. Aircraft not in DB are added to the end of it with code of 'FFFFFF' and with maker 'Unknown' and type 'zzzz'

7. An Aircraft Editor has been added to allow manual editing of the database.

8. A new tab and menu item have been added to allow import of raw data from either a previous days logs or from the Kinetic\Basestation\ACARS logs (assuming you have set up Basestation to save ACARS logs).

9. A new tool to allow the import of Aircraft data from Basestation.sqb is included. This puts a file named Aircraft.csv into the Display-Launcher folder. You may add this to the Aircraft.csv file in the Templates folder, (I use Ultra-Edit to do this, sorting the file, and selecting remove duplicates).

PC-HFDL-Display

This utility reads the log output from PC-HFDL logfiles and displays the aircraft details of each one heard. The package uses the database of aircraft 'Aircraft.txt' in the Templates folder. It was extracted from my Basestation.sqb file I use with the SBS-3, users can extract their own list from their own Basestation.sqb file if it is different to the one supplied using the option in the 'Tools' area on the main screen. The other databases are a list of airlines named Airlines.txt which shows - Airline 3 letter code, Airline 2 letter code, Airline name. This list is tab separated and will not change very often. Plus a database of routes, users may edit these as they require.

STARTING THE PROGRAM

Before running PC-HFDL_Display you should ensure that PC-HFDL is running and tune your RX to your strongest local HFDL Ground Station. The first time you run the program, go to the Options menu and select the path(s) to your PC-HFDL logs (if you have multiple receivers, you may run up to 25 copies of PC-HFDL and this program can be set up to check the logs from all instances simultaneously).

NOTE: As PC-HFDL-Display extracts data from the PC-HFDL log files, PC-HFDL must be set up by going to the System-Options/Logfile Configuration and ticking the HFDL logging to disk box or this program will not work.

In PC-HFDL, all the boxes in the Display frame must be ticked except H Acars, V Acars and Hex.

Star	Status:	Plot on Re Google Earth	ad Log File	Save	Grid	Clear Grid	Try resolve No-Reg	Exit	Today's Messages	2111	17	Jul 23:3	3
Stop Monit	Disconnected	Consolidate Logs Mul	Read ti-Logs	Load	Grid	Clear all Freqs	Show ACARS	Kill PC-HFDL	Total Acft Heard	2945		DateTime UTC	
irrent T	raffic All Aircraf	t Heard Freq. currently	in use No	ot in D	ataBase	ACARS Text							
Rego.	Туре	Airline	Msg	Time	FR-N	D. ICAO Hex	Lat, Long	Route	AC	GS	Freq	Time Processed	IN DB
P-C8612	Airbus A320 214	Philippine Airlines	20170404 0	39:29	PR221	75809F			A7	5 - Auckland	17916	20170717 23:29:27	Yes
5921	Airbus A330 243	China Eastern Airlines	20170404 0	1:06:00	MU777	7809B9			80	5 - Auckland	17916	20170717 23:29:27	Yes
5921	Airbus A330 243	China Eastern Airlines	20170404 0	1:07:01	MU777	7809B9			80	5 - Auckland	17916	20170717 23:29:27	Yes
6122	Airbus A330 243	China Eastern Airlines	20170404 0	1:07:28	CES728	7800EF	-33.3822,150.5289	SYD-NKG	FF	5 - Auckland	17916	20170717 23:29:27	Yes
6122	Airbus A330 243	China Eastern Airlines	20170404 0	1:08:25	MU728	7800EF		SYD-NKG	88	5 - Auckland	17916	20170717 23:29:27	Yes
D-REG		China Eastern Airlines	20170404 0	1:15:44	CES779	6	-19.1833,155.6350		55	5 - Auckland	17916	20170717 23:29:27	Yes
5917	Airbus A330 323X	China Southern Airlines	20170404 0	1:23:00	CSN326	780995	-32.9825,150.0731	SYD-CAN	FF	5 - Auckland	17916	20170717 23:29:27	Yes
D-REG		China Eastern Airlines	20170404 0	1:25:26	CES777		-23.0822,142.5686		B0	5 - Auckland	17916	20170717 23:29:27	Yes
5917	Airbus A330 323X	China Southern Airlines	20170404 0	1:26:34	CSN326	780995	-32.6531,149.7033	SYD-CAN	FF	5 - Auckland	17916	20170717 23:29:28	Yes
5973	Airbus A330 243	China Eastern Airlines	20170404 0	1:27:48	CE\$562	780DE5	-33.3681,150.5417	SYD-PVG	FF	5 - Auckland	17916	20170717 23:29:28	Yes
5973	Airbus A330 243	China Eastern Airlines	20170404 0	1:28:16	MU562	780DE5		SYD-PVG	C1	5 - Auckland	17916	20170717 23:29:28	Yes
5973	Airbus A330 243	China Eastern Airlines	20170404 0	1:28:48	MU562	780DE5		SYD-PVG	C1	5 - Auckland	17916	20170717 23:29:28	Yes
D-REG		Sichuan Airlines	20170404 0	1:31:54	CSC605		-32.4519,150.7167		AA	5 - Auckland	17916	20170717 23:29:28	Yes
D-REG		Sichuan Airlines	20170404 0	1:41:24	CSC605		-33.3497,151.0550		AA	5 - Auckland	17916	20170717 23:29:28	Yes
D-REG		China Eastern Airlines	20170404 0	1:45:38	CES779		-22.3286,158.3622		55	5 - Auckland	17916	20170717 23:29:28	Yes
6535	Airbus A330 243	Sichuan Airlines	20170404 0	1:46:42	CSC605	7807BD			AA	5 - Auckland	17916	20170717 23:29:28	Yes
D-REG		China Eastern Airlines	20170404 0	1:55:50	CES777		-26.5411,145.2369		80	5 - Auckland	17916	20170717 23:29:28	Yes
5921	Airbus A330 243	China Eastern Airlines	20170404 0	1:58:18	MU777	7809B9			80	5 - Auckland	17916	20170717 23:29:28	Yes
5921	Airbus A330 243	China Eastern Airlines	20170404 0	2:01:06	MU777	7809B9			80	5 - Auckland	17916	20170717 23:29:28	Yes
5921	Airbus A330 243	China Eastern Airlines	20170404 0	2:02:07	MU777	7809B9			80	5 - Auckland	17916	20170717 23:29:28	Yes
5938	Airbus A330 243	China Eastern Airlines	20170404 0	2:25:20	CES779	780B7F			55	5 - Auckland	17916	20170717 23:29:28	Yes
5938	Airbus A330 243	China Eastern Airlines	20170404 0	2:26:07	CES779	780B7F			55	5 - Auckland	17916	20170717 23:29:28	Yes
5921	Airbus A330 243	China Eastern Airlines	20170404 0	2:56:34	MU777	7809B9			80	5 - Auckland	17916	20170717 23:29:28	Yes
5921	Airbus A330 243	China Eastern Airlines	20170404 0	2:58:39	MU777	7809B9			BO	5 - Auckland	17916	20170717 23:29:28	Yes
5921	Airbus A330 243	China Eastern Airlines	20170404 0	2:58:59	MU777	7809B9			BO	5 - Auckland	17916	20170717 23:29:28	Yes
D-REG		China Eastern Airlines	20170404 0	3:02:54	CES777		-33.5150,151.0944	1	80	5 - Auckland	17916	20170717 23:29:28	Yes
D-REG		China Eastern Airlines	20170404 0	3:03:30	CES777		-33.5597,151.1017			5 - Auckland	17916	20170717 23:29:28	Yes
5921	Airbus A330 243	China Eastern Airlines	20170404 0	3:03:37	MU777	7809B9			BO	5 - Auckland	17916	20170717 23:29:28	Yes
5921	Airbus A330 243	China Eastern Airlines	20170404 0	3:03:37	MU777	7809B9				5 - Auckland	17916	20170717 23:29:28	Yes
5921	Airbus A330 243	China Eastern Airlines	20170404 0	3:04:34	MU777	7809B9			BO	5 - Auckland	17916	20170717 23:29:29	Yes
5921	Airbus A330 243	China Eastern Airlines	20170404 0	3:05:38	MU777	7809B9			BO	5 - Auckland	17916	20170717 23:29:29	Yes
5921	Airbus A330 243	China Eastern Airlines	20170404 0	3:06:27	MU777	7809B9			BO	5 - Auckland	17916	20170717 23:29:29	Yes
5921	Airbus A330 243	China Eastern Airlines	20170404 0	3:06:27	MU777	7809B9			BO	5 - Auckland	17916	20170717 23:29:29	Yes
								1					

- **1. Start** Starts PC-HFDL-Display monitoring the PC-HFDL log file(s) You have the option to start from the beginning of the day's logs (which might take a considerable time to load), or to start from NOW, I.e. Processing will only occur from the time you click the Start button.
- 2. Stop Monitoring Stops the program monitoring the logs
- **3.** Plot on Google Earth To use this option, click the 'Plot on Google Earth' button and GE will be started automatically and the display appears as under.



You can choose between Red or Blue aircraft icons which display single aircraft plots, coloured lines trace the route of the aircraft where there are multiple plots and red pins indicate Airinc Ground Stations. Click on icons or lines for more details.

- **4. Read Log File** Allows you to re-enter log file data from an earlier date. You must stop monitoring and clear the grid before you read in a historic log file.
- 5. Clear Grid Clears all entries from the grid
- 6. Consolidate Logs This option saves each entry as it is received from multiple copies of PC-HFDL and is saved in the Logs folder. This consolidated log will be named the same as the other logs, e.g. June15.txt This consolidated log may be used as the input log for PlanePlotter. Each entry is prefixed with a Change of Ground station header so it should not confuse Plane Plotter.

7. Try Resolve NO-REG - Many messages from aircraft are received with no registration or ICAO hex codes, only a flight number. These are displayed with the registration shown as 'NO-REG'. This option attempts to resolve the registration by checking other entries nearby with the same Flight number and adding any missing data.

8. Save/Load/Clear Grid - Should be self evident.

9. Clear all Freqs - Will clear all the 'Freq.' boxes at the base of the screen.

10. Read Multi-Logs - Allows you to input multiple logs into a single grid and sort them as you wish. This button brings up the following window:-

i,		Ap	oril 201	7		•	April01.txt
Sun	Mon	Tue	Wed	Thu	Fri	Sat	April03.txt
26	27	28	29	30	31	1	AprilU4.txt
2	3	4	5	6	7	8	
9	10	11	12	13	14	15	
16	17	18	19	20	21	22	
23	24	25	26	27	28	29	
30	1	2	3	4	5	6	~

Here you can select the dates you require to view, they need not be consecutive and can cover month ends, e.g. Mar 31, Apr 1 etc. The names of logs you wish to view are then shown in the list box on the right. On clicking OK all the logs (from up to 25 copies of PC-HFDL) are then read and the data placed in the grid, they will be sorted by the 'Msg Time' column but you can sort on any column once the reading has finished by clicking the grid heading.

11. Kill PC-HFDL - I have added this new button, when pressed it closes down ALL running copies of pchfdl.exe currently in memory. This will save you having to close up to 25 copies of PC-HFDL one after the other manually.

The 5 window tabs on the main screen show:-

- 1. Data from PC-HFDL, this will be the same as currently appears on the PC-HFDL screen which may be minimized.
- 2. A list of Rego. Or ICAO codes heard but not in the database.
- 3. A list of current frequencies in operation taken from the squitter messages.

4. A grid showing each aircraft heard - time is UTC - grid may be sorted on any column by clicking the title Bar.

5. ACARS Text - If you select the 'Show ACARS text' box then each HFDL message containing ACARS text is shown on this tab. The text can be saved with the 'Save ACARS' button on this tab. It is saved in the Display-Launcher\Reports folder with a name like ACARS-17Apr2017.txt

Start Status:	Plot on Google Earth	Read Log File	Save Grid	Clear Grid	Try resolution
Stop Monitoring	Consolidate Logs	Read Multi-Logs	Load Grid	Clear all Freqs	F Show ACAN
Current Traffic All Aircraft	Heard Freq. curre	ently in use N	Not in DataBas	e ACARS Text	
Message time: 20170401 00: HACABS mode: 2 Aircraft re Message label: Q0 Block id Message content:- <ty.scolc20072etv><svn>s</svn></ty.scolc20072etv>	05:21 on Freq: 17 g: B-6087 : O Msg no: S20A F1	916 kHz ight id: CSN30	7		
Message time: 20170401 00: HACARS mode: 2 Aircraft re Message label: SA Block id Message content:-	06:11 on Freq: 17 g: B-6087 : 1 Msg no: S23A F1	916 kHz ight id: CSN30	7		
<pre></pre>	16:01 on Freq: 17	916 kHz			
Message label: SA Block id Message content:- <stx>S96ACX01050LV001556SH</stx>	<pre>/ 9 Msg no: S96A F1 /<etx>g<us></us></etx></pre>	ight id: CPAl0	5		
Message time: 20170401 00: HACARS mode: 2 Aircraft re Message label: B6 Block id	28:03 on Freq: 17 g: B-6072 : 7 Mag no: J71A F1	916 kHz ight id: CA042	9		
Message content:- <stx>J71ACA0429/MELCAYA.AD</stx>	5.B-60720303D351 <et< td=""><td>X>a;</td><td></td><td>2</td><td></td></et<>	X>a;		2	
Message time: 20170401 00:	28:00 on Freq: 17 g: B-6072	916 kHz	9		
HACARS mode: 2 Aircraft re Message label: B6 Block id Message content:-	: 7 Msg no: J71A F1				

This version of the program is almost completely rewritten. The grid now contains extra columns:-AC - This is the decimal value of the Aircraft ID found in the log file (usually in hex)

GS - This is the Ground Station number it was heard on with its name.

Freq - Frequency heard on - it is up to the user to enter the frequencies in the boxes provided as I can't read your receivers frequencies.

Note: Each Ground Station gives new aircraft an ID number between 1 and 254 (255 indicates a Log On/Log Off by an aircraft and does not identify any particular aircraft).

It should also be noted that ID numbers are frequency specific, so if Auckland is working on 13315khz and 10084khz the ID numbers given out are from different lists, I.e. Aircraft ID 123 on 13315 is NOT the same aircraft as 123 on 10084.

The grid may be saved at any time for inspection, it can also be loaded back into the program if you clear the existing grid. Once you restart the program, the existing logs for the day are read back in and you may continue using the program.

If the No Data For... box turns red it indicates the GS is no longer being copied and it would be a good time to change freq.

Tips

1. PC-HFDL must be set up as follows:-

a. Logfile Configuration - HFDL Logging to Disk must be ticked

b. ALL of the boxes under 'Display' in PC-HFDL must be ticked except H Acars, V.Acars and HEX.

2. If it is necessary to run PCHFDL_Display, then stop it, then start it again. It might take a very long time to catch up with the data. Thus it is much faster to Save Grid before you stop the program, then when you restart it, use the Load Grid button to load the saved grid, this loads your data instantly, then click the START button and choose to only use new data from 'NOW'. This will be appended to the end of the grid you have just loaded.

3. At midnight UTC, your grid will be saved as e.g. PCHFDL_Display\Logs\June24-Grid.csv, you can open this file with a text editor or spreadsheet program for further investigation.

4. As each 'unknown' entry is placed on the list, the data from the window is appended to a file e.g. PCHFDL_Display\Logs\June24-Unknown.log which might make it easier for users to find the Unknown entries than having to search through very long log files.

Show Frequencies in use

This option keeps a log of frequencies used by Ground stations. As each squitter is received the data is added to the window 'Frequencies currently in use', this data is now saved hourly to a file with the name Reports\FreqsInUse.csv this file builds every day, if it gets too large rename it to something like FreqsInUse.May and a new FreqsInUse.csv will be built.

On the Database menu is 'Show Freqs Used'. Select this menu item and a blank window opens. Use the 'Load' button to populate this grid with the days freqs as under:

	S.Francisco	Molokai	Reykjavik	Riverhead	Auckland	Hat Yai	Shannon	Joburg	Barrow	Albrook	Santa Cruz	Krasnoyarsk	Al Muharrag	Agana	Canaria:
201305050500z	10081 8927	13324 13312 11312	8977 6712 5720	8912 6661	17916 10084	13270 5655	8942 2998	13321 4681	10093 5544	8894	13315 11318	17912 10087	21982 17967	21928 17919	8948 6525
201305050600z	10081 8927	13324 13312 11312	8977 6712 5720	8912 6661	17916 10084	13270 5655	8942 2998	13321 4681	10093 5544	8894	13315 11318	17912 10087	21982 17967	21928 17919	8948 6525
201305050600z	8927 6559	13324 13312 11312	11184 8977 5720	8912 6661	17916 10084	13270 5655	11384 6532	13321 4681	10093 5544	8894	13315 11318	17912 10087	21982 17967	21928 17919	8948 6525
201305050700z	8927 6559	13324 13312 11312	11184 8977 5720	8912 6661	17916 10084	13270 5655	11384 6532	13321 4681	10093 5544	8894	13315 11318	17912 10087	21982 17967	21928 17919	8948 6525
201305050800z	8927 6559	13324 13312 11312	11184 8977 5720	6661 5652	17916 10084	13270 5655	11384 6532	13321 4681	10093 5544	8894	13315 8957	17912 10087	21982 17967	17919 6652	17928 113
201 305050900z	8927 6559	13324 13312 11312	11184 8977 6712	6661 5652	17916 10084	13270 5655	11384 8942	13321 4681	10093 5544	8894	13315 8957	17912 10087	21982 17967	17919 6652	17928 113
201305051000z	8927 6559	13324 13312 11312	11184 8977 6712	6661 5652	13351 5583	13270 5655	11384 8942	13321 4681	10093 5544	8894	13315 8957	17912 10087	21982 17967	17919 6652	17928 133
201305051100z	8927 6559	13324 13312 11312	11184 8977 6712	6661 5652	13351 5583	13270 5655	11384 8942	13321 4681	10093 5544	8894	13315 8957	17912 10087	21982 17967	17919 6652	17928 133
201 305052200z	6559 5508	13324 13312 11312	11184 8977 6712	8912 5652	17916 13351	13270 5655	11384 8942	21949 13321	10093 5544	17901	21997 13315	17912 10087	21982 17967	17919 6652	21955 175
201305052300z	21934 13276	21937 13324 13312	11184 8977 6712	11387 8912	17916 13351	13270 5655	11384 6532	8834 3016	10093 5544	17901	21997 13315	10087 6596	17967 10075	21928 17919	13303 113
201 305060000z	21934 13276	21937 13324 13312	11184 8977 6712	11387 8912	17916 13351	13270 5655	11384 6532	8834 3016	10093 5544	17901	21997 13315	10087 6596	10075 8885	21928 17919	13303 113
201305060100z	21934 13276	21937 13324 13312	11184 8977 6712	11387 8912	17916 13351	21949 5655	11384 6532	8834 3016	10093 5544	10063	21997 13315	10087 8886	10075 8885	21928 17919	11348 894
201305060100z	21934 13276	21937 13324 13312	11184 8977 6712	11387 8912	17916 13351	21949 5655	11384 6532	8834 3016	10093 5544	10063	21997 13315	10087 8886	10075 8885	21928 17919	11348 894
201305060200z	21934 13276	21937 13324 13312	11184 8977 6712	11387 8912	17916 13351	21949 5655	11384 6532	8834 3016	10093 5544	10063	21997 13315	10087 8886	10075 8885	21928 17919	11348 894
201305060300z	13276 10081	21937 13324 13312	11184 8977 5720	8912 6661	17916 10084	21949 5655	11384 6532	8834 3016	10093 5544	10063	21997 11318	17912 10087	10075 8885	21928 17919	13303 894
201305060400z	13276 10081	21937 13324 13312	11184 8977 5720	8912 6661	17916 10084	21949 5655	8942 6532	8834 4681	10093 5544	8894	21997 11318	17912 10087	17967 10075	21928 17919	13303 894
201305060500z	10081 8927	21937 13324 13312	8977 6712 5720	8912 6661	17916 10084	21949 5655	8942 2998	8834 4681	10093 5544	8894	13315 11318	17912 10087	21982 17967	21928 17919	13303 894
201305060600z	10081 8927	13324 13312 11312	8977 6712 5720	8912 6661	17916 10084	13270 5655	8942 2998	13321 4681	10093 5544	8894	13315 11318	17912 10087	21982 17967	21928 17919	8948 6525
201305060700z	8927 6559	13324 13312 11312	11184 8977 5720	8912 6661	17916 10084	13270 5655	11384 6532	13321 4681	10093 5544	8894	13315 11318	17912 10087	21982 17967	21928 17919	8948 6525
201305060800z	8927 6559	13324 13312 11312	11184 8977 5720	6661 5652	17916 10084	13270 5655	11384 6532	13321 4681	10093 5544	8894	13315 8957	17912 10087	21982 17967	17919 6652	17928 113
-															

The grid can be saved into Excel or similar spreadsheet program with the Save button and further processed.

ADSB-Display

ADSB-Display is a module for displaying Aircraft details received using ADSBScope. ADSBScope is a freeware program which can be used by various SDR radios such as a RTL-dongle via either RTL1090, ADSBSharp or SDR# with the ADSB plug-in. ADSBScope decodes the data from these programs and displays the traffic on a map, however it has very limited data on each aircraft.

ADSB-Display reads the ADSBScope log files and extracts the data from then and produces a grid as shown below by extracting the aircraft data from the Templates\Aircraft.txt file:-

	Fourt		Data-Base			Fare	Status.	2	3:39
	Stop Monitoring		Read Log File		Load Grid		Connected		
			Incoming Data	from RTL1090				Not	in DataBase
5B4A VH-S	BG DH8C Bombardier DH	BC > 10:39:29							
								Sav	Clear
		1							
Lurrent Tr	Farric All Alferant Hea	ira							
Rego	Туре	Airline	Date-Time	Fit-No.	ICAO Hex	Position	Route	Msg.NO Msg.Ty	pe Freq
VH-VFQ	A320	Jetstar Airways	21/03/14 10:32:54		706814				
VH-QPF	A333	Qantas	21/03/14 10:32:58		7C5321				_
VH-OEF	B744	Qantas	21/03/14 10:33:06	QFA8	7C4775		DFW-BNE		
VH-VQK	A320	Jetstar Airways	21/03/14 10:33:11		706C9A				
ZK-NCI	B763	Air New Zealand	21/03/14 10:33:22	ANZ106	C80FAA		SYD-AKL		
VH-YQT	Boeing 717-2BL	Qantas Link	21/03/14 10:33:42		7C7BD3				
VH-VGR	A320	Jetstar Airways	21/03/14 10:33:50	JST405	706839		OOL-SYD		
VH-VXG	B738	Qantas	21/03/14 10:34:06	QFA1019	7C6D92		SYD-HBA		
VH-ZPI	E190	Virgin Australia	21/03/14 10:34:25	V0Z319	7C80B4		MEL-SYD		-
VH-OGL	B763	Qantas	21/03/14 10:34:43		7C47C3				
VH-QPC	A333 564	Qantas	21/03/14 10:34:43	QFA81	7C531E		SYD-ADL-S		
VH-VQA	A320	Jetstar Airways	21/03/14 10:34:48	JST223	706090				
VH-ZRZ	Saab 340B	Regional Express	21/03/14 10:35:04	RXA167	7C810D		NA.		
VH-END	Diamond DA 40	Angus Aircraft Pty Ltd	21/03/14 10:35:04	N	7C1617				
ZK-ZQD	Boeing 737-838/W	Qantas JetConnect	21/03/14 10:35:20		C81DD6				
9M-MTM	Airbus A332-323E	Malaysian Airlines	21/03/14 10:35:28	MAS123	750260		KUL-SYD		
VH-VZM	B738	Qantas	21/03/14 10:35:31		7C6DE0				
VH-LQH	De Havilland DHC8-402Q	Sunstate Airlines	21/03/14 10:35:49		7C39F7				
VH-UNF	Diamond DA40	The University Of New South	21/03/14 10:36:52		706719				
	Piper PA28-161	Schofields Flying Club Ltd	21/03/14 10:37:27		7C7F5C				
VH-ZFY	A333 1481	AirAsia X	21/03/14 10:38:31	XAX222	750334				
VH-ZFY 9M-XXP	A333	Asiana Airlines	21/03/14 10:38:33		71C259				
VH-ZFY 9M-XXP HL8259			21/02/14 10:29:29		7C5R4A				
VH-ZFY 9M-XXP HL8259 VH-SBG	DHC-8-311	Eastern Australia Airlines Pty.	21/03/14 10.33.23		1 9 9 9 11 1				1.1

Each new aircraft heard is added to the Logs\AllHeard.csv file.

You will not see any position reports in this mode as ADSBscope does not log these.

ACARSDeco-Display

I have recently been experimenting with RTL-Dongles which can be used with the program ACARSDeco2 by 'Sergsero' to decode ACARS traffic. This command line program when correctly set up gives excellent results in decoding ACARS.

	Status	Plot on	l pi	anlay	1	-					_	
gtart		Google Earth	Clear Grid Dat	a-Base Save Grid	i Cle	ar Grid			2'	1:46		
Stop Monito	Connected	Plot on Bing maps	Read Log File	Load Grid	1	Quit						
							Save	Clear				
urrent Tra	ffic All Aircraft	Heard										
Rego.	Туре	C/N	Arine	Date-Time	FIt-No.	ICAO Hex	Position	Route	Msg.NO	Msg Type	Freq	^
/H-EBM	Airbus A330 202	1061	QANTAS	20151225 21:38:54	QF0415	7C1470		SYD-MEL	M13A	5U	131.550	
/H-VNO	Airbus A320 232	4053	Tigerair Australia	20151225 21:38:54	TT0353	706032			\$34A	QO	131.550	
-5940	Airbus A330 323K	1519	China Southern Airlines	20151225 21:38:56	CZ0602	780BDA			JO3A	B6	131.550	
HJQG	Airbus A320 232	2169	Jetstar Airways	20151225 21:38:57	JQ0603	7C2FD6		SYD-AVV	M23A	QF	131.550	
'H-ZPG	Embraer EMB-190 AR	19000195	Virgin Australia	20151225 21:38:59	VA0308	7C80B2			M27A	QO	131.550	
-5938	Airbus A330 243	1479	China Eastern Airlines	20151225 21:38:59	MU0727	780B7F			SO9A	_d	131.550	
-5938	Airbus A330 243	1479	China Eastern Airlines	20151225 21:39:00	MU0727	78087F			J87A	B6	131.550	
'H-VNJ	Airbus A320 232	2982	Tigerair Australia	20151225 21:39:00	TT0514	7C6C2D			\$19A	QO	131.550	
/H-VNO	Airbus A320 232	4053	Tigerair Australia	20151225 21:39:01	TT0353	7C6C32			\$30A	SA	131.550	
H-EBM	Airbus A330 202	1061	QANTAS	20151225 21:39:01	QF0415	7C1470		SYD-MEL	S87A	QO	131.550	
HJQG	Airbus A320 232	2169	Jetstar Airways	20151225 21:39:02	JQ0603	7C2FD6		SYD-AVV	D00A	H1	131.550	
H-EBB	Airbus A330 202	522	QANTAS	20151225 21:39:04	QF0412	7C1465		MEL-SYD	M21A	5U	131.550	
H-VNC	Airbus A320 232	3275	Tigerair Australia	20151225 21:39:05	TT0511	706026			\$23A	QO	131.550	
/H-VZW	Boeing 737NG 838/W	39359	QANTAS	20151225 21:39:07	QF0507	7C6DEA		BNE-SYD	M18A	5U	131.550	
H-EBM	Airbus A330 202	1061	QANTAS	20151225 21:39:08	QF0415	7C1470		SYD-MEL	S87A	QO	131.550	
3-5938	Airbus A330 243	1479	China Eastern Airlines	20151225 21:39:08	MU0727	780B7F			J87A	B6	131.550	
/H-VNJ	Airbus A320 232	2982	Tigerair Australia	20151225 21:39:09	TT0514	7C6C2D			\$19A	QO	131.550	
Q-FJH	Boeing 737NG 8K2/W	29969	Fiji Airways	20151225 21:39:09	FJ0917	C88007			S76A	QO	131.550	
H-VNC	Airbus A320 232	3275	Tigerair Australia	20151225 21:39:09	TT0511	7C6C26			\$23A	QO	131.550	_
P-C3439	Airbus A340 313K		Philippine Airlines	20151225 21:39:10	PR0211	758340		MNL-SYD	S24A	QO	131.550	_
HJQG	Airbus A320 232	2169	Jetstar Airways	20151225 21:39:10	JQ0603	7C2FD6		SYD-AVV	M24A	80	131.550	_
H-EBM	Airbus A330 202	1061	QANTAS	20151225 21:39:11	QF0415	7C1470		SYD-MEL	\$88A	_d	131.550	_
/H-EBB	Airbus A330 202	522	QANTAS	20151225 21:39:11	QF0412	7C1465		MEL-SYD	M21A	5U	131.550	_
/H-VGU	Airbus A320 232	4245	Jetstar Airways	20151225 21:39:12	JQ0575	7C683C			\$31A	QO	131.550	-
/H-EBM	Airbus A330 202	1061	QANTAS	20151225 21:39:12	QF0415	7C1470		SYD-MEL	\$89A	SA	131.550	-
/H-VNJ	Airbus A320 232	2982	Tigerair Australia	20151225 21:39:14	TT0514	7C6C2D			\$19A	QO	131.550	-
(P-C3439	Airbus A340 313X		Philippine Airlines	20151225 21:39:17	PR0211	758340		MNL-SYD	S25A	QO	131.550	-
/H-VWY	Airbus A321 231	1408	Jetstar Airways	20151225 21:39:19	JQ0430	706080		MEL-OOL	M35A	3L	131.550	-
H-VNU	Airbus A320 232	4053	Tigerair Australia	20151225 21:39:19	110353	706032			SJUA	SA	131.550	-
/u-rJH	boeing / 3/NG 8K2/W	29969	r iji Airways Tionnair Australia	20151225 21:39:19	FJU917	205007			576A	00 0	131.550	-
/H-VNL	Airbus A320 232	32/5	rigerali Australia	20151225 21:39:20	110511	700020		CVD 414/	5238	00 3	131.550	
nvųu	AirOus A 320 232	2169	Jeistal Aliways	20151225 21:39.20	3120603	702506		STDAVV	M24A	80	131.550	
/H-VNO DQ-FJH /H-VNC /H-JQG	Aibus A320 232 Boeing 737NG 8×2Av/ Aibus A320 232 Aibus A320 232 No data for:	4053 29969 3275 2169 0 Mins	Tigerai Australia Fiji Airways Tigerai Australia Jetstar Airways Total today:	20151225 21:33:19 20151225 21:33:19 20151225 21:39:19 20151225 21:39:20 20151225 21:39:20	TT0353 FJ0917 TT0511 JQ0603	7C6C32 C68007 7C6C26 7C2FD6	_	SYD-AW	S30A S76A S23A M24A	SA Q0 Q0 80 351128-23	131.550 131.550 131.550 131.550	

Unfortunately although ACARSDeco2 can decode up to 3 ACARS frequencies simultaneously, dongles can only cover around 2.35 MHz at a time, so although it is fine here in Sydney where only 131.55 and 131.45 MHz are currently in use, it can't cover the European frequency range which goes from 131 to around 137 MHz. It does not appear to be possible to run multiple copies of ACARSDeco2 on the same PC, so maybe it is necessary to run on multiple PCs. I will see if I can work out some method of combining data from 2 PCs at a later date.

ACARSDeco2 comes with a basic set of data in its download package in the folder 'datasets' however I have included an up to date set of files in this package which you should use to replace the original files.

ACARSDeco2 runs from a batch file which the user may modify with Notepad to suit his/her own PC, however for use with ACARSDeco-Display, the batch file MUST include a '-logfile' setting to tell ACARSDeco2 where to store its logfiles because this is the data which my program uses to parse for the required data. The following is my batch file (But note that apart from the word 'pause' the remainder is all on one line):-

acarsdeco2.exe --gain 38.0 --freq-correction 59 --freq 131450000 --freq 131550000 --http-port 8090 --net 30009 --logfile "d:\Radio Utilities\Acarsdeco2\Logs\ACARS"

Pause

This batch file will run acarsdeco2.exe on a RTL dongle with the gain set to 38, the freq correction of 59 and listening to freqs of 131.45 and 131.55 MHz sending to the log file in the path shown.

The log files are renamed each time ACARSDeco2 is restarted, with a format like:-

'ACARS-20151128-000002.log'

ACARSDeco-Display always uses the latest log in the list. And moves on to the new log at 0001 UTC each day automatically.

The Logs\AllHeard.csv File

As each aircraft is heard, the file AllHeard.csv is searched for it, and if it has not been previously logged in the current mode (e.g. ACARS, VDL-2, HFDL or Mode-S), then it is added to the log. Even if you are running multiple receivers the data from each is added to the single AllHeard.csv file.

The AllHeard aircraft file is loaded into each loaded module of Display-Launcher and can be viewed from the All Aircraft Heard tab (however the version on any one particular module is only updated from those aircraft heard on that module, e.g. if you are looking at ADSB-Display, then it is only updated with Mode-S traffic on screen, however the underlying database is updated from all running modules. Some modules have a DB Update menu item and this will update everything for you.

ICAO hex	Rego.	Type	Airline	First Heard	Mode
780F3C	B-7369	Boeing 777 39PER	China Eastern Airlines	20170220 06:37:36	HFDL
780EC4	B-MCF	Airbus A320 232SL	Air Macau	20170220 06:38:36	HFDL
780558	B-6560	Airbus A320 232	China Eastern Airlines	20170220 06:38:36	HFDL
86D928	JA831A	Boeing 787 8	All Nippon Airways	20170220 06:38:36	HFDL
780450	B-6113	Airbus A330 243	Air China	20170220 06:46:36	HFDL
780F33	B-8378	Airbus A321 211SL	Sichuan Airlines	20170220 06:50:24	HFDL
780EBA	B-8163	Airbus A321 211SL	China Eastern Airlines	20170220 06:50:24	HFDL
78025D	B-2566	Boeing 767 36DER	Shanghai Airlines	20170220 06:54:07	HFDL
78084C	B-6877	Airbus A320 232	China Eastern Airlines	20170220 06:54:07	HFDL
78023D	B-KPQ	Boeing 777 367ER	Cathay Pacific Airways	20170220 06:56:13	HFDL
8880CD	VN-A691	Airbus A320 214	VietJetAir	20170220 06:56:13	HFDL
780F41	B-8397	Airbus A321 211SL	China Eastern Airlines	20170220 06:57:49	HFDL
780B88	B-6449	Airbus A319 133SL	Sichuan Airlines	20170220 07:01:01	HFDL
780734	B-6771	Airbus A320 232	Sichuan Airlines	20170220 07:03:43	HFDL
780B8C	B-9979	Airbus A320 214	Shenzhen Airlines	20170220 07:05:55	HFDL
780A8D	B-KQT	Boeing 777 367ER	Cathay Pacific Airways	20170220 07:10:01	HFDL
040048	ET-AOR	Boeing 787 8	Ethiopian Airlines	20170220 07:11:19	HFDL
780460	B-6346	Airbus A320 232	China Eastern Airlines	20170220 07:11:19	HFDL
78103C	B-7869	Boeing 777 39LER	Air China	20170220 07:12:25	HFDL
780D2C	B-2481	Boeing 747 89L	Air China	20170220 07:13:49	HFDL
780CA1	B-1861	Airbus A320 214SL	China Eastern Airlines	20170220 07:17:02	HFDL
71BE40	HL7640	Airbus A380 841	Asiana Airlines	20170220 07:17:44	HFDL
780B2D	B-5840	Boeing 737NG 89P/W	China Eastern Airlines	20170220 07:18:14	HFDL
78083C	B-6853	Airbus A320 232	Shenzhen Airlines	20170220 07:19:44	HFDL
780ADB	B-9921	Airbus A320 232SL	China Eastern Airlines	20170220 07:19:44	HFDL
780DAF	B-5966	Airbus A330 323E	China Southern Airlines	20170220 07:19:44	HFDL
780D93	B-5969	Airbus A330 343E	China Eastern Airlines	20170220 07:21:20	HFDL
780D1E	B-1613	Airbus A320 214SL	China Eastern Airlines	20170220 07:21:20	HFDL
8A0245	PK-GMR	Boeing 737NG 8U3/W	Garuda Indonesia	20170220 07:21:20	HFDL
80073D	VT-ANW	Boeing 787 8	Air India	20 70305 00:09:17	VDL-2
7C1C54	VH-FVQ	Avions de Transport Regional ATR 72 600	Virgin Australia Regional Airlines	20170305 00:48:28	VDL-2
7C7AB4	VH-YIU	Boeing 737NG 8FE/W	Virgin Australia	20170305 00:58:43	VDL-2
780873	B-6541	Airbus A330 243	Air China	20170305 01:00:05	VDL-2
7C7AA6	VH-YIG	Boeing 737NG 8FE/W	Virgin Australia	20170305 01:07:11	VDL-2
7C492B	VH-OQL	Airbus A380 842	QANTAS	20170305 01:19:00	VDL-2
780D75	B-2760	Boeing 787 8	Xiamen Airlines	20170305 01:37:54	VDL-2
A09FC4	N13954	Boeing 787 9	United Airlines	20170305 01:53:15	VDL-2
245329	AG-FFS	Roeing 777 F1H	Emirates livline	20170205 02-14-44	VDL-2

Each column can be sorted by clicking on the title bar of the column.

<u>Alerts</u>

Most of the modules in Display-Launcher now include an Alert system and an Alert Editor on the Menu bar.

You may use the Alert Editor (or any text editor such as Notepad or Wordpad) to type, for aircraft, a list of ICAO Hex codes which must be saved in the Display-Launcher folder as Alert.txt (the Alert Editor automatically saves to this file when you click on OK.

E.g. a list like :-

7c6db9

7c6c27

7c6c32

You may also use the "?" Questionmark symbol as a wildcard to replace any character in the code, e.g. 7C???? Will alert you for any Australian registered aircraft heard, whereas 7C6??? Will alert for codes beginning 7C6, note that there must always be 6 characters.

Will bring up an alert screen when any one of the above is heard in any of the aircraft modules.

A similar file named ShipAlert.txt may be provided for GMDSS-Display where the list is in the form of MMSI codes.

As above the "?" Is the wildcard, so 565????? Will alert on any Singapore registered ship and you must always show 9 characters for ship MMSI codes.

GMDSS-Display for MultiPSK

This utility reads the GMDSS output from the MultiPSK (PRO version only) QSO files and displays the ship/shore station details of each message received in a spread-sheet grid. The utility is capable of reading the output from 4 copies of MultiPSK simultaneously, giving the possibility of monitoring multiple frequencies at once.

RUNNING THE PROGRAM

1. If you only have 1 receiver, then run MultiPSK as usual and select GMDSS from the Pro menu. Ensure that Options/Timestamp is turned off.

- 2. Tune your receiver to one of the GMDSS freqs. And make sure that the buttons HF and AFC are depressed in MultiPSK and that the QSO option is set to 'Regular Backup 20 sec' this ensures that the QSO file is always up to date.
- 3. Run GMDSS-Display and click Start and the messages from MultiPSK should appear in the grid of GMDSS-Display. You may now minimize the MultiPSK screen if you wish, all traffic will appear in the GMDSS-Display window.
- 4. If you have multiple receivers or a receiver capable of covering a large bandwidth such as the SDRPlay RSP2 which will cover 10MHz and can be set in the SDRUno software to have 4 VRX covering a number of the GMDSS frequencies and the corresponding copies of MultiPSK, do as above for each, enter each receiver's frequency in the corresponding 'Freq:' box at the bottom of the screen.

nection Details														
Start Stat	us RX #1:		Total Entries	Read QSO File	Go	View on sogle Earth	Save Grid		V Automatic update of	E DB	Kill Mul	tiPSK	27 Aug 0	0:20
Stop C Monitoring	onnected		1631			View in C DX-Atlas	lear Grid Load Grid		Checksum	Bad	Exit		Time UTC	
sages Coast Station Le	gs \ Group	Messages Da	tabase Vie	ever Database Editor										
AMSI From	Cal	Nationality	MMSI	То	Call	Nationality	Type	Category	Telecommand 1	Tele2	Checksun	Position	Date/Time	S/N
375000 PANCON VICTORY		Korea	004310801	Maizuru MRCC Maizuru		Japan		Safety	Test	No info	Good		20180723 17:27:50	
656000 UNAM PIONEER		Korea	004122100	Shanghai MRCC Shanghai/M	1	China		Safety	Test	No info	Good	6	20180723 17:33:38	
848000 SUN GRACE	Cargo	Korea	004401004	Pusan Radio MRCC Pusan		Korea		Safety	Test	No info	Good	10 C	20180723 17:34:08	
298000 ATLAS	URCD	Ukraine	002171000	Unknown Coast Stn.				Safety	Test	No info	Good	6	20180723 18:19:36	
689000 CAPE SAMPAGITA	3FLV3	Panama	377634000	QMS SUPPORTER	1	Saint Vincent & Grenadi	OFFSHORE	Safety	J3E telephony	No info	Good	10 million (1997)	20180723 18:23:37	
896000 HIGHLAND GUIDE	-	Panama	005030001	Charleville/Wiluna RCC Austr	l .	Australia		Safety	Test	No info	Good		20180723 18:23:50	
056000 MAERSK EMDEN		Denmark	005671000	Bangkok (Nonthaburi) RCC B		Thailand		Safety	Test	No info	Good		20180723 18:28:20	
231000 C.GALAXY	3FSE8	Panama	004122100	Shanghai MRCC Shanghai/M		China		Safety	Test	No info	Good		20180723 18:28:36	
162019 Chilung RCC Keelung		Taiwan	416260000	Wan Hai 202	BLBX	Taiwan	Cargo	Safety	Test	No info	Good	C	20180723 18:33:01	
221111 Alexandria RCC Cairo		Egypt	006221111	Alexandria RCC Cairo		Egypt		Routine	J3E telephony	No info	Good	<u></u>	20180723 18:34:15	
352260 ALEKSANDR SHEMAGI	N Tanker	Russian Fed.	004231000	Baku MRCC		Azerbaijan		Safety	Test	No info	Good		20180723 18:34:35	_
USBUUU MAERSK EMDEN	0114 4001	Denmark	0056/1000	Bangkok (Nonthaburi) RUL B	-	I hailand		Safety	Test	No info	Good		20180/23 18:34:48	
UUSUUU KALAMATA THADER	SHA4061	Malta	005030001	Charleville/Wiluna HLL Austr	î.	Australia		Safety	Test	No info	Good		20180/23 18:35:12	
COSCION HORNING COCUM	COTMO	United Kingdom	004122200	Qingdao MHSC Qingdao	-	China		Safety	Test	No info	Good	-	20180723 18:43:06	
240000 ZUONC WALKEN NAM	LDIMD	China	002371000	Olympia JHCC Piraeus		China		Sarety	Test	No info	Good		20100723 10:43:46	
240000 ZHUNG WAI TUN NAN	0114 2007	Unina Vialia	004122100	Shanghai MRCC Shanghai/M		China		Cafety	Test	No info	Good	-	20100723 10:54:27	
740000 HELLAS FIGHTEN	3043337	Mata Naro	477212600	MADLE ODAL	Cargo	Hong Kong (China		Safety	Test	No info	Good		20100723 10:03:40	
975000 AL THAKHIDA	CELITE	Palaman	4/7213600	Ohmoia IRCC Pinanua	Cargo	Floring Kong (China		Cafely	Test	Noinfo	Good		20100723 13:03:34	
260000 ML THANHINA	DLDV	Taiwan	416259000	WAN HAL162	PI P7	Taiwan	Caroo	Cafety	Test	No info	Good		20100723 13:06:13	
015029 MSC PVL0S	A9VD4	Liberia	0050200001	Charleville Aufluora BCC Austr	DLDL	Australia	cayo	Safety	Test	No info	Good		20100723 19:03:00	
656000 LINAM PIONEER	MOID4	Korea	004122100	Shandhai MBCC Shandhai/M		China		Safetu	Test	No info	Good	-	20100723 19 17:00	
051000 GEORGIS NIKOLOS	SXPX	Greece	240290000	DELTA VICTORY	S7MX	Greece	Tanker	Safetu	Teet	No info	Good		20180723 19:17:36	
178000 SHAGANG HONGEA	9/9138	Singanore	005030001	Charleville Aviluna BCC Austr	JENTS	Australia	TORINO	Safetu	Test	No info	Good		20180723 19:22:46	
032000 SEA MANSION	DSOP5	Korea	004194406	Mandanam MBCC Chennai		India		Safetu	Test	No info	Good		20180723 19:26:09	
352260 ALEKSANDE SHEMAG	N Tanker	Bussian Fed	004231000	Baku MBCC		Azerbaijan		Safetu	Test	No info	Good		20180723 19 28 15	
016152 OMIBOS L	Cargo	Liberia	636016152	OMIBOS L	Cargo	Liberia		Safetu	Test	No info	Good		20180723 19:33:41	
130779 MMA PINNACLE		Malavsia	005671000	Bangkok (Nonthaburi) BCC B		Thailand		Routine	J3E telephony	No info	Good	1,2167,103,7333	20180723 19:36:08	++
016152 OMIROS L	Cargo	Liberia	002241022	Coruna MRCC Finisterre		Spain		Safety	Test	No info	Good		20180723 19:37:50	
241022 Coruna MRCC Finisterre		Spain	636016152	OMIROS L	Cargo	Liberia		Safety	Test	No info	Good	0	20180723 19:38:27	
352260 ALEKSANDR SHEMAG	N Tanker	Russian Fed.	002711000	Istanbul MRCC Ankara		Turkey		Safety	Test	No info	Good		20180723 19:41:01	
331110 CAPELLA	UBCF7	Russian Fed.	002711000	Istanbul MRCC Ankara		Turkey		Safety	J3E telephony	No info	Good	(*)	20180723 19:49:50	
014929 LIWA-V	A8×1.9	Liberia	005741040	Hai Phong MRCC Hai Phong		Viet Nam		Safety	Test	No info	Good	1	20180723 19:52:02	
516000 STELLA CHARLENE	9V9084	Singapore	477655100	GOLDEN BEIJING	VRGC6	Hong Kong (China	Cargo	Safety	Test	No info	Good	1	20180723 19:52:13	
840000 SIAM SUCCESS	3FLW3	Panama	005742030	Da Nang MRCC Da Nang		Viet Nam		Safety	Test	No info	Good	£	20180723 19:55:43	
		No Data			ata -		N	lo Data ,				- No Data -		

As each message is received, it is searched for the code of the Coast Station and for the ship's code and the details are added to the spreadsheet grid, along with other details from the message and the Position of the vessel if this is included in the message.

The lists of MMSI Country codes and of Coast Station codes are held in the GMDSS\Ship Data sub folder. These are both text files which the user can edit. However note that the Coast Station codes have a comma between the code and station name, whereas the Country Codes need a TAB between. The first number on the first line of each file is the number of entries in the file, so if you add 5 entries, you will need to increment this number by 5 or the last 5 items will not work in the program. Similarly if you delete entries, you must decrement the figure.

In the past, MultiPSK searched the ITU database for the ships name and added it to the incoming message, but this is no longer possible, ITU no longer allows 3rd party programs to interrogate its database. Similarly, MarineTraffic.com and VesselFinder.com tend to block automated extraction of data from their systems. Therefore, ships not in the database are now handled as follows:-

- 1. MMSI not in database the MMSI is sent to the APRS.FI site and if it is found there, it is added to the grid along with details of the message. Ship data is also added to the second panel of the DataBase Editor screen. Users can click the 'Add All to DataBase' button to add all data in this panel to the main DataBase file.
- 2. If the MMSI is not found at APRS.FI it is added to the first panel in the DB editor screen as 'Unlisted', clicking on the MMSI in this screen will open the Browser window and clicking the 'Open vesselfinder.com' button will open your default browser and display vessel details if found. You will have to manually copy this data into the DB Editor screen. You can edit multiple 'unlisted' entries in this manner. When you finish, select each one you have found, then right click it and it will be moved to the 2nd panel. After which clicking the 'Add all to DataBase' will add the item to the DB.
- 3. If you still have 'Unlisted' MMSI items, you can then try the 'Open MarineTraffic.com' button which will take you to their site from which you can select the 'Vessels' menu and enter the MMSI manually in their search box and press Enter. If found then proceed as above to enter the data. The MarineTraffic.com screen is now very messy but does include data and photos of many vessels. It is unfortunate that all the main sites are now fully commercial no more free lunches ...

The previous option to just click on any ship's MMSI in the incoming message grid and see a photo of the ship no longer works because of the above, however you can manually open the browser and select the MarineTraffic.com site to look for photos.

Tabs on main screen

- 1. Messages Is the main message grid
- 2. Coast Station Logs Has 2 grids, the first one displays those Coast Stations heard calling in the current session. The second one displays those Coast Stations called by ships (or other Coast Stations) in the current session.
- 3. Group Messages Displays the text of broadcast messages transmitted by Coast Stations in the current session.
- 4. Database Viewer Has 2 grids, the first one will display the whole ShipData.txt file database which lists all ships currently in the DB. This is a view only database, but you can search it for ships. It may also be sorted by columns by clicking for instance on the Ships Name column. The second grid is a list of all Coast Stations heard, when first heard and on what frequency. So a CS might be listed several times with different frequencies. This list is updated each time a new CS is heard for the first time.
- Database Editor See top of this page for instructions for searching for unlisted MMSI codes and adding them to the ShipData.txt file.
- 6. Also on the main screen are check boxes 'Automatic update of DB' this is set on by default as this allows for automatic updating by checking the APRS.FI site for unknown codes, but you can turn this off if you work offline or do not wish to use this feature.

The other one is 'Include bad checksums' which then lists everything heard in the grid, but is not a good idea as this will fill your grid with possibly invalid data as a single character in the MMSI which is incorrect will give a completely wrong ships name or coast station.

If you have a number of Position entries in the spreadsheet, you can view them on Google Earth by simply clicking the 'View on Google Earth' button and they will appear as under. Clicking the icon for a ship will display the details from the entry:-



NOTES:- The program runs with UTC time.

At 2400 UTC, the program will save the grid automatically and clear the grid to start a new days traffic, if this does not work, you can save it manually. Daily logs are saved in GMDSS-Display\Logs with names like January26Grid.csv - You can load these into the grid with the Load button.

If you have to close your system down, then restart it in the same 24 hour period, you can save the grid before closing down, then reload the grid and continue from where you left off. New messages will be added to the bottom of the grid.

Users with multiple copies of MultiPSK can disconnect from any copy at any time if using the program for some other purpose.

A new column S/N has been introduced, this gives the Signal/Noise ration from MultiPSK during reception of this message.

The Freqs in the boxes under the grid have to be entered manually and are not saved, they are just there as a reminder as to which RX you are using.

The Read QSO button enables you to re-read a MultiPSK QSO from the QSO folder (assuming you are saving these files in MultiPSK).

Tools

The Tools button on the startup-screen now covers 3 tools:-

1. Extract aircraft from Basestation.sqb to Aircraft.txt - You may use the copy of any Basestation.sqb file used with the Kinetics SBS-1 or SBS-3 radios, or if you are a user of PBLink you may use the Basestation.sqb file supplied with that program.

2. Extract aircraft from Basestation.sqb for use in AcarsDeco2 - AcarsDeco2 ships with 2 files in its 'datasets' folder named Aircrafts_p.txt and Aircrafts_s.txt - these quickly get out of date, this utility allows you to extract uptodate data from your Basestation.sqb file to use instead.

3. Extract Routes - Allows users to extract route data from the PlanePlotter group route .sqb files on Yahoo. However note that most of the routes are for European airlines so users in other areas will have to add their own data if they can obtain it.

Extraction Programs	\times
Calast Breasan	
 Extract Aircraft from Basestation.sqb to Aircraft.txt Extract Aircraft from Basestation sqb for use in AcarsDeco2 	
Extract Routes from PP .sab files to http://www.sab.ite.txt	
OK Cancel	

All 3 buttons bring up much the same screen with an empty box for you to enter your Database path, click on the '....' button to search for your database, and clicking on it will extract the data from your .sqb file and place either Aircraft.txt or the aircrafts_p.txt and aircrafts_s.txt files into the 'TempAC' folder or in the case of the export of flights.txt into the 'TempRoutes' folder. Once you are satisfied that these .txt files are OK, you can then transfer them to their correct folders, i.e. Templates for the aircraft.txt and flights.txt files and into your ACARSDeco2\datasets folder for the other files if you use them.

Be careful to ensure that these extracted files are correct as I have found that on some PCs these tools do not work due I think to the file dhRichClient3.dll being overwritten by a 3rd party program with a different version of this file. When this happens, the .sqb files are not correctly decoded.

GENERAL NOTES:-

PC-HFDL v2.042 can be downloaded from the files section of the HFDL Yahoo group, the latest System Table and HFDL.xls files may also be downloaded from the same site. PC-HFDL is shareware and requires a PayPal contribution of \$35 being sent to the author Charles Brain at chbrain @ diron.co.uk

MultiPSK PRO version may be downloaded from http://f6cte.free.fr/index_anglais.htm - although the initial download is free and you can use the HAM modes, to use it with ACARS, HFDL, GMDSS or VDL2 you need the PRO version which also requires a payment of 30 Euros.

ACARSDeco2 can be downloaded from:-

https://forum.planefinder.net/threads/acarsdeco2-up-to-3-channels-acars-sdr-receiver-for-rtl2832dongle.157/ the link to the zip file is at the foot of the first message on that page.

DumpVDL2-Display Help

This is a stand-alone version of the DumpVDL2-Display option included with Display-Launcher, it is somewhat different to the other options because it processes data on a Windows PC which has been captured on a Linux machine. DumpVDL2 is an excellent VDL2 decoder by Tomasz Lemiech which runs on a Linux PC. To move the data between the machines, the Linux machine must have some link from it to the Windows PC, probably the easiest way to do this is to install 'Samba' on the Linux machine, this utility can be configured to display the DumpVDL2/Logs folder in the Windows Explorer program window, on mine it appears as:- ">This PC > logs(\\MIKE-LENOVO-V11\home\mike\dumpvdl2)". It should also be possible to just copy the log file on the Linux PC to a USB key and move it to the Windows PC but I have not tried this.

DumpVDL2-Display has 2 modes of operation.

1. It can be used like the various MultiPSK options to read the data on-line from the log file as it is being received (providing the above direct link via LAN/Samba is set up) but this does tie up the 2 PCs all day along with adding traffic to your LAN and I have noticed that it is possible to lose the odd block of data if the LAN is also being used for other purposes such as downloading traffic from the Internet etc at the same time.

2. It can be used once a day to process a whole day's data by downloading the Log file and processing it

ALIGCOUT	Online Process	Status:	Offline Process				01	E-A	1	Total heard	2034		_			
	Start	Reading Data	DumpVdl2 file			oad Grid	Clear Grid	EXI		today		14 Oct 0	2:20			
	Stop Monitoring	Online	Read VDL2 File			ave Grid	Earth	Saving ACA traffic	RS	Total Heard all modes	504	Time UT	C			
arrent '	Traffic All Aircraft Heat	d Statistics AC	ARS messages													
Rego.	Туре	Aifine	Date-Time	FIt-No.	ICAO Hee	Lat. Long	Route	Msg No.	Msg Typ	e Destination	GS Hex	GS Location	Link	Freq	In D8	PP
/-SMH	Airbus A350 941	Singapore Airlines	20191014 02:10:51	SQ298	76CDA8		CHC-SIN	J97A	BA.		29E497	YSSY Sydney	Down	136.975	Yes	-2.3
V-SMH	Airbus A350 941	Singapore Airlines	20191014 02:10:52		76CDA8					2	29E 497	YSSY Sydney	Down	136.975	Yes	-2.4
/-SMH	Airbus A350 941	Singapore Airlines	20191014 02:10:52	SQ298	76CDA8		CHC-SIN	\$59A	_d		29E497	YSSY Sydney	Down	136.975	Yes	-2.7
/-SMH	Alibus A350 941	Singapore Airines	20191014 02 10:53	50298	76LDA8		CHUSIN	1386	BA		235.437	TSST Sydney	Down	1.35.375	Tes	-2.4
/-SMH	Albus A350 341	Singapore Ainines	20191014 02 10:55		76LUA8		-				235.437	TSST Sydney	Down	100.000	Tes	nr.
J-SMIT	Parina 20200 041	Origapore Annes	20101014 02 10:55	-	TOLEMAS				-	SYDNEY INTLAIDD	235.437	VCCV Cudany	Down	130.3/5	Ves	-2.5
H-VZA	Posing 727biG 929Au/	Qarkas Davise	20131014 02 13:30	05576	707754		DED.CVD	CATA	00	STUNET INTLAIMP	200438	VCCV Curdoau	Down	136.375	Ves	-0.3
H.YZA	Boeing 737NG 938Au/	Qarkas Davias	20191014 02 13:31	ur 3/6	707754		rematu	SHIM	40		295,490	VSSV Sudney	Down	136.975	Yes	-0.0
HYAVE	Boeing 737NG 800AV	Virnin Australia	20191014 02 13:32	VA942	707090	32 475 150 579	BNE-SYD	E304	H1		295 499	YSSY Sudney	Down	136.975	Yes	-0.3
HYME	Bosing 737NG 800AV	Virgin Australia	20191014 02 13 50	IMON2	707090	56.475,150.575	DHESTD	1.304			295,498	VSSV Sudney	Down	136.975	Vet	.1.7
HANK	Boeing 737NG 939Au/	Davlar	20191014 02:14:20	-	7CEDRA				-		295.497	VSSV Sudoeu	Down	136 975	Var	.1.4
13/74	Boeing 737NG 838Au/	Dantas	20191014 02:14:50	OF576	7C77F4		PEB-SYD	F046	H1		29F498	YSSY Sudney	Down	136 975	Yes	.0.4
H3CZA	Boeing 737NG 838Av/	Qantas	20191014 02 14:51	anoro	7C77F4		TENOTO	1041			29F 498	YSSY Sudney	Down	136 975	Yes	-0.5
HAVE	Boeing 737NG 838Av/	Qarlat	20191014 02:14:57		7CEDB7				-		29F 497	YSSY Sudney	Down	136 975	Yes	-0.1
H3(21	Boeing 737NG 838Av/	Dantas	20191014 02 15 06	QF528	7C77FF		SYD-RNE	M69A	SA		29E 498	YSSY Sudney	Down	136 975	Yes	-48
BJKI	Gultstream Aerospace G550	Execulet Europe AG	20191014 02:15:06	XAD	4818D0			M8ZA	44	1	10AD 4A	YSWM Williamtown	Down	136 975	Yes	-1.0
H3/2L	Boeing 737NG 838AW	Qantas	20191014 02:15:07		7C77FF				1		29E498	YSSY Sudney	Down	136 975	Yes	-4.6
BJKI	Gulfstream Aerospace G550	Execulet Europe AG	20191014 02:15:09		4818D0						10AD4A	YSWM Williamtown	Down	136.975	Yes	-0.7
H-XZL	Boeing 737NG 838Av/	Qantas	20191014 02:15:47	QF528	7C77FF		SYD-BNE	D46A	H1		29E498	YSSY Sydney	Down	136 975	Yes	-4.6
V-SMH	Airbus A350 941	Singapore Airlines	20191014 02:19:16		76CDA8				-	SINGAPORE/CHANGI	29E 498	YSSY Sydney	Down	136.975	Yes	-3.2
WWEJ	Avions de Transport Regional ATF	Air New Zealand Link	20191014 02:19:17		38171A					SYDNEY INTL AIRP	29E 497	YSSY Sydney	Down	136.975	Yes	-2.9
H-VYF	Boeing 737NG 838/W	Qantas	20191014 02:19:17		7C6DB5					SYDNEY INTL AIRP	29E497	YSSY Sydney	Down	136.975	Yes	-0.1
WWEJ	Avions de Transport Regional ATF	Air New Zealand Link	20191014 02:19:18	VA647	38171A		CBR-SYD	S18A	Q0		29E497	YSSY Sydney	Down	136.975	Yes	-2.9
WWEJ	Avions de Transport Regional ATF	Air New Zealand Link	20191014 02:19:18	VA647	38171A		CBR-SYD	S19A	SA		29E497	YSSY Sydney	Down	136.975	Yes	-3.1
WWEJ	Avions de Transport Regional ATF	Air New Zealand Link	20191014 02:19:20		38171A						29E497	YSSY Sydney	Down	136.975	Yes	-3.2
H-VYF	Boeing 737NG 838/W	Qantas	20191014 02:19:25	-	7C6DB5					SYDNEY INTL AIRP	29E497	YSSY Sydney	Down	136.975	Yes	-0.0
-UD	Boeing 747 867F	Cathay Pacific Airways	20191014 02:19:35	CX3128	780A1C		SYD-MEL-HKG	D31A	H1		10A15A	YSSY Sydney	Down	136.975	Yes	-3.8
H-VYF	Boeing 737NG 838/w/	Qantas	20191014 02:19:35		7C6DB5					SYDNEY INTL AIRP	29E497	YSSY Sydney	Down	136.975	Yes	0.2
H-VYF	Boeing 737NG 838/W	Qantas	20191014 02:19:35	QF432	7C6DB5		MEL-SYD	\$85A	QD		29E 497	YSSY Sydney	Down	136.975	Yes	0.2
-WD	Boeing 747 867F	Cathay Pacific Airways	20191014 02:19:36	CK3128	790A1C		SYD-MEL-HKG	D31B	H1		10A15A	YSSY Sydney	Down	136.975	Yes	-4.1
UD	Boeing 747 867F	Cathay Pacific Airways	20191014 02:19:37	CX3128	790A1C		SYD-MEL-HKG	D31C	H1		10A15A	YSSY Sydney	Down	136.975	Yes	-3.9
-UD	Boeing 747 867F	Cathay Pacific Airways	20191014 02:19:38	CX3128	780A1C		SYD-MEL-HKG	D31D	H1		10A15A	YSSY Sydney	Down	136.975	Yes	-4.1
H-VYF	Boeing 737NG 838/W	Qantas	20191014 02:19:40	QF432	706DB5		MEL-SYD	\$85A	00		29E 497	YSSY Sydney	Down	136.975	Yes	0.2
-WD	Boeing 747 867F	Cathay Pacific Airways	20191014 02:19:40	CX3128	780A1C	-	SYD-MEL-HKG	D31E	H1		10A15A	YSSY Sydney	Down	136.975	Yes	-3.9
WD	Boeing 747 867F	Lathay Pacific Airways	20191014 02:19:42	CX3128	/BOA1C		SYD-MEL-HKG	D31F	H1		10A15A	YSSY Sydney	Down	136.975	Yes	-3.9
WD UNE	Boeing 747 867F	Carnay Pacific Airways	20191014 02 19:43	003128	7SUATC 200000		SYD-MEL-HKG	D31G	HI		10A15A	TSSY Sydney	Down	136.975	Tes	-3.8
1-YTF	Boeing /3/NG 838/W	uanta:	20191014 0219:43	QF432	706085		MEL-SYD	585A	QU	-	23£437	TSST Sydney	Down	136.3/5	Tes	0.0
I-VYF	Boeing 73/NG 838/W	Qantas Cathau DaoXie Ala	20191014 02 19:44	QF432	706085	-	MEL-SYD	M82A	SA	-	29£497	TSSY Sydney	Down	136.9/5	Tes	-0.0
ωD	Doeing /4/ 85/F	Cathay Pacific Airways	20191014 0219:45	0.0128	TODATC	-	SYD-MEL-HKG	D3fH	111	-	104154	TSST Sydney	Down	136.3/5	res	-3.9
ωD	Beeing 747 057F	Cathay Pacific Airways	20191014 02 19:46	03128	780A1C		SYD-MEL-HKG	D31	HI		10415A	TSSY Sydney	Down	136.9/5	Tes	-4.0
WUNT	Desing /4/ 86/F	Carnay Pacific Airways	20191014 0219:47	05422	70UATU 70000E		STU-MEL-HKG	D3IJ	11		10A15A	1551 Sydney	Down	1.35.3/5	163	-4.0
n-yit	Boeing / 3/Nu 838/W	ujankas	20131014 02 19:47	ur432	1C60B2		MEL-SYD	M82A	5/4		236.497	TSST Sydney	Down	136.375	165	1-0.0

The above illustrates the main W10 window. Once the path via the LAN/Samba has been set up in the options menu, the program expects the latest daily log file to be named like 'VDL2_20190904.log' and upon clicking the 'Start' button it will commence reading the log file. When it commences, the box 'Reading Data Online' will appear with an orange background. This indicates that the program is reading all the data from 0000 UTC to the current time. Once all that data has been processed, the background turns to green, indicating the program is now processing data as it is being received. You can click the 'Stop monitoring' button at any time and it will pause processing until you click the 'Start' button again and it will continue

monitoring traffic from the time you hit the 'Stop' button. At midnight UTC, the grid will be saved in the 'Logs' folder and if you are also saving ACARS traffic, the ACARS messages will be saved as a text file in the 'Reports' folder.

Using the program in 'Off-line' mode.

You can download the DumpVDL2 Log file using Windows Explorer etc and save it anywhere, the Logs folder under Display-Launcher will do as an example. These logs from a Linux machine need to be converted from the 'Unix' format to 'DOS' format for use in Windows. To do this, use the button 'Process DumpVDL2 file', this replaces all the Line Feed characters in the log with 'carriage return/line feed' and also adds start of message/end of message codes (ZCZC/NNNN) to each message (this makes it much easier for the program to separate messages while processing). The file is saved with a name like "Processed vdl2 20191029.log", the original log file is unchanged.

Once the file has been converted, click the 'Read VDL2 file' button and select the file from the file list you are presented with and the program will run through and process the whole day's traffic. This might take some time for a long file. The Status: box will show 'Running Offline' on a yellow background.

Note: I do not believe there are any limits to the size of log file which can be processed, but this may depend upon your PC. Certainly on a Pentium i7 machine with 32 gigs of RAM I was able to process a file containing 356,000 messages in 2hrs 30mins. However, trying to do this on a small laptop could well cause problems.

	-Online Process-	Status:	Offline Process		1	oad Grid	Clear Grid	Exit	1	Total heard	390		00.40			
	Start	Running Offline	DumpVdl2 file		-	ava Grid	View on Google	Saving ACA	RS	Total Heard all	1779	14 Oct	02:13			
	Stop Monitoring		Read VDL2 File				Earth	traffic		modes		Time	UTC			
rrent	Traffic All Aircraft He	ard Statistics AC	ARS messages													
Rego.	Type	Aitine	Date-Time	FIMNO.	ICAO Hex 704021	Lat, Long	Route	Msg.No.	Msg T	ype Destination	DOE 400	GS Location	Link	Freq	In DB	
H-UUB	Airbus A380 842	Qantas	20191013 00:00:05	0511	704921		CYD LAV IEF	11410	111		23E438	YSSY Sydney	Down	136.975	Yes	-
1-048	Airbus A300 842	Questas	20191013 00:00:15	UP11	704321		STU-LANJEN	0418	m		23E 430	VCCV Cudeou	Down	136.375	Tes	-
10010	Airbus A360 042	China Airlines	20191013 00:00 17	-	0000ED				-	SYDNEY INTLAIDE	23E430	VCCV Sudney	Down	136.375	Vec	
10310	Poping 727NG 929Au/	China Allines	20191013 00:00:47	-	2060.90		-	-	-	STUNET INTE AIDE	23E430	VCCV Curdinau	Down	130.375	Vee	
10010	Airbus A250 Q41	Chips Airlines	20191012 00:00:40	CIE1	0000000	-	TDE.CVD	CE7A	00	STURETINTEMIN	200 400	VCCV Cudney	Down	100.070	Vec	-7
10010	Albus A350 341	China Airlines	20191013 00:00.40	CIET	0000000		TPE-STD	CE7A	00		23E430	VCCV Cudeau	Down	100.075	Vec	-7
10310	Airbur A350 941	China Airlines	20191013 00:00:51	CIOT	099060		TESTU	30/A	do		235,430	VCCV Cudeau	Down	130.375	Vec	-
10010	Rosing 737NG 939Au	Contrat Administra	20191013 00:00:52	-	706090				-	SYDNEY INTLAIDP	235,930	VSSV Sudney	Down	130.3/5	Vec	-
11/26	Posing 727NG 929Au	Qantas	20191013 00:00:50	-	7060.30				-	DDICDANE INTLAD	200,400	VCCV Sudney	Down	130.375	Vec	
18918	Aidure A 350 941	China Airlines	20191013 00:00:57	0151	8990ED	32 033 150 479	TPE-SVD	E284	H1	SHISDARE INTEAM	295,490	VSSV Sudney	Down	136.975	Yee	
19919	Airbus A350 941	China Airlines	20191013 00:01:01	CIDI	9990ED	-32.033,130.470	TESTO	1204	ai		295,490	VSSV Sudney	Down	136.975	Yes	
10310	Paging 727NC 929Au/	China Autories	20191013 00.01.05		700000					CVDNEV INTL AIDD	23E430	VCCV Cudeau	Down	100.075	Vec	- 3
1.1/26	Posing 727NG 929Al/	Q and an	20191012 00:01:05	-	700030			-	-	DDICDANE INITI AD	200 400	VCCV Sudney	Down	126 975	Vec	-13
1.1721	Resing 727NG 929Au	Qantas .	20191013 00:01:00	05101	700000		CVD MAN	E076	141	DHISDARE INTEAN	20E 407	VCCV Curdney	Down	136.375	Vec	-12
1.5/211	Bosing 727NG 020Au	Qantas Dantas	20191013 00:01:07	GETOT	707760		STUMMI	FURS	m		295 497	VCCV Cudney	Down	130.375	Vec	-
10010	Aidua A3E0 041	China Aidman	20191013 00.01.00	CIE1	000060		THE CVD	MCCA	90		200,400	VCCV Curdence	Down	130.373	Vee	-
10010	Aibus A360 041	China Airlines	20191013 00:01:00	CIST	0000000		TPE-STD	MOOM	00		200 400	VCCV Cudeou	Down	100.070	Vee	-
H10310	Posing 727NG 929Au/	Davias	20191012 00:01:15	-	ZCEDDA				-	DDICDANE INTLAD	20E400	VSSV Sudney	Down	136.575	Vec	
L1/7G	Posing 727NG 929Au	() autos	20191012 00:01:15	05612	7C6DDA		MEL DNE	C17A	00	DITIODAVE INTEAT	200 400	VCCV Curdoou	Down	130.375	Vac	-
H.\/ZG	Boeing 737NG 838Au/	Qantas Dantas	20191013 00:01:10	05612	7060004		MEL-BNE	S17A	00		29E490	VSSV Sudney	Down	136.975	Yes	
HAA/R	Bosing 737NG 838AV	Dardas	20191013 00:01:20	GIOIL	706090		MEEDINE	3110	40	SYDNEY INTLAIDE	29E490	VSSV Surdney	Down	136.975	Van	
H.\/26	Boeing 737NG 838Au/	Qarkas Dartat	20191013 00:01:23	05612	7060.30		MELENE	\$17A	00	STUNETINTEATH	296,499	VSSV Sudney	Down	136.975	Ver	
HMZG	Rosing 737NG 838AU	Dantas	20191013 00:01:23	05612	706004		MEL BNE	M13A	SA		295,499	VSSV Sudney	Down	136.975	Var	-
H1/26	Posing 727NG 929Au	Qarkas Davitas	20191012 00:01:24	Grotz	7C6DDA		MEL DNE	MISA	CA.		295 490	VSSV Sudney	Down	130.375	Vec	
L1/76	Posing 727NG 929Au	Qarkas	20191012 00:01:27		7C6DDA		MELDINE	IM LOPA	34	-	200 400	VCCV Curdiney	Down	120.075	Vac	-13
1.571	Boeing 737NG 838Au/	Qantas Dantas	20191013 00:01:28	OE101	700000		SYD-NAN	\$426	d		29E490	VSSV Sudney	Down	136.975	Yes	
43/26	Reging 727NG 929Au	Davlas	20191012 00:01:20	DEE12	ZCEDDA		MEL DNE	M12A	SA		295,490	VSSV Sudney	Down	136.975	Vac	-
4.1/26	Rosing 727NG 929Au/	Dardan	20191013 00:01:30	91012	706000		MECONE	mise	JA		295,490	VCCV Sudney	Down	136.975	Vec	- 2
H3/2H	Boeing 737NG 838Au/	Dantas	20191013 00:01:32	OE101	7C77EB		SYD-NAN	5426	d		29E497	YSSY Sudney	Down	136 975	Yes	-
HJ/ZG	Boeing 737NG 838AV	Qarkas Darkas	20191013 00:01:32	0F612	706004		MELBNE	M136	SA		29E 499	VSSV Surbeu	Down	136.975	Yes	-13
H-SC7H	Boeing 737NG 838Av/	Dantas	20191013 00:01:37	QF101	7C77ER		SYD-NAN	5424	d		29F 497	YSSY Sudney	Down	136 975	Yes	
H3C7H	Boeing 737NG 838AV	Dantas	20191013 00:01:38	ar rol	7C77FB		U LO HOM	5424			29F497	YSSY Sudney	Down	136 975	Yes	
HAZG	Boeing 737NG 838AV	Dantas	20191013 00:01:41	DE612	706004		MELBNE	M124	SA		29F 490	YSSY Sudney	Down	136 975	Yes	
HAZG	Boeing 737NG 838AV	Dantas	20191013 00:01:52	DE612	706000		MELIBNE	M136	SA		29F 498	YSSY Sudney	Down	136 975	Yes	-13
H-VZG	Boeing 737NG 838AV	Dantas	20191013 00:01:57	arora	706004			in sh		RRISBANE INTLAR	29F 497	YSSY Sudney	Down	136.975	Yes	
H-\/ZG	Boeing 737NG 838Av/	Dantas	20191013 00:02:09	QE612	706004		MEL-BNE	M136	SA	STRUCTURE AT LEAD	29F 497	YSSY Sudney	Down	136 975	Yes	
H-OQC	Airbus A380 842	Qantas	20191013 00:02:09	QF2	7C4922		LHB-BKK-SYD	S204	d		29E 497	YSSY Sudney	Down	136.975	Yes	
H-VZG	Boeing 737NG 838AV	Dantas	20191013 00:02:10	QF612	706004		MEL-BNE	M144	SA		29E 497	YSSY Sudney	Down	136.975	Yes	
H-00C	Airbus A380 842	Dantas	20191013 00:02:10	OF2	704922		LHB-BKK-SYD	F144	H1		29F 497	YSSY Sudney	Down	136.975	Yes	
1.VZG	Boeing 737NG 838AV	Dantas	20191013 00:02:10	di n	706004		Difference (D		m		29F 497	YSSY Sudney	Down	136 975	Yes	
1-000	Airbus A390 842	Dantas	20191013 00:02:11		704922				-		29F 497	YSSY Sudney	Down	136.975	Yes	1
H-DOC	Airburg A 390 842	Dantas	20191013 00:02:11	OF2	704922	-33 596 150 567	LHB-BKK-SYD	F15A	H1		29F 497	YSSY Sudney	Down	136 975	Yes	- 3
			10101010 00 00 11		. orrows		Distance in	1	1		6.06.707	. oor opandy		100.010		
			Finished Finished		Durantin											-

The above illustrates the program in off-line mode and it is also saving the ACARS texts from the original log file. When you process an offline file like this one, the start/end times are shown at the bottom along with the duration once it finishes. Note that the ACARS tab is removed from the grid when you are not saving separate ACARS messages.

Other buttons on the main screen.

- 1. Load Grid, Save Grid and Clear Grid are self explanatory. You can save the grid at any time as a .csv file and restore it later as required. Note that if you save the grid in this manner, when reloading it, no processing is carried out, so nothing appears in the 'Statistics' screen.
- 2. View on Google Earth Selecting this option will display the positions of all aircraft in the grid which have valid positions shown in the 'Lat. Long' column of the grid in Google Earth (Providing you have that program installed on your PC). If multiple positions are available, then the program attempts to plot the plane's route, but note that if a plane is flying multiple flights on the same day, you might get some invalid plots.
- 3. Saving ACARS traffic/NOT saving ACARS traffic is a toggle button which has a green background while ACARS traffic is actually being saved, clicking the button will turn the background to red and it will stop saving the ACARS messages. The 'ACARS messages' tab will also be removed from the grid.

Menu items.

- 1. **Options menu** DumpVDL2 Log Path you must enter the path via the LAN to your Log folder on your Linux PC. This can either be the full path, or you may be able to use the 'Map a network drive' option in Windows Explorer to set up a dummy drive name such as 'Z:' for this link.
- 2. Select site for photos gives you the option to select a site which will display a photo and details of an aircraft if you click on the first 'Rego.' Column of the grid. Try each of these to see which one suits your requirements.
- 3. PDF reader path allows you to show the path of a PDF reader which will allow you to read the Help file from within the program. NOTE: the latest version of Adobe Reader does NOT allow you to read the Help file from within the program, I use Foxit Reader here to get around this.
- 4. Show Paths Just displays the paths you have selected above.
- 5. **Databases** Update databases If you have made changes to Aircraft.txt or Flights.txt while the program is running, e.g. by adding a new aircraft to it. This option will update the data being used by the program from this point in time. i.e. it will not update earlier entries in the grid, to do that you have to exit from the program and re-run it.
- 6. Update GS database Sergio Sarabia publishes a VDL2_Ground_Stations.txt file from time to time on both the MultiPSK and acars-vdl2 forums however the entries are too long to fit into the grid on this program, so use this option to convert this file to the format used here. Upon running this option the file GS.txt in the Templates folder will be updated to the latest version.
- 7. Alerts Edit Alerts this brings up a small window into which you can enter 6 character ICAO hex codes of aircraft you are interested in. You can also use question mark character '?' as a wild-card in this list. If any required aircraft is heard, a red bordered window appears listing the hex code and what time it was heard.
- 8. Help gives usual about details. As well as allowing you to read the Help file

Tabs on the main screen.

Current Traffic - This tab displays all the main traffic as it is received, or alternatively it displays the data from a file you are reading with the 'Read VDL2 file' button. Clicking on any aircraft registration call in the first column will open your browser and display a photo of the aircraft in question. The grid can be sorted on any column by clicking the column header, clicking a second time will change the sort direction. Note: If you wish to spend some time sorting on various columns, I recommend you click the 'Stop Monitoring' button while doing this, then revert to sorting on Date/Time before restarting monitoring with the Start button.

All Aircraft Heard - This tab opens up a display of all aircraft you have ever heard while using Display-

Launcher, the date/time you first heard it and the mode it is using. A separate entry is there for each mode, so the same aircraft can appear multiple times. The grid can be sorted on any column by clicking the column header, clicking a second time will change the sort direction.

Online Process Start Stop Monitoring	Status Offine P Dur Dur Real	Process Process pVDL2 file d VDL2 File	Load Grid Save Grid	Clear (View on (Eart	Grid Google h	Exit Saving ACARS traffic				Total heard today Total Heard all modes	30 Nov 23:55 Time UTC
t Traffic All Aircraft Be Aircraft not in DB	GS Seen					Further detai	L for 70775	T			
	Mode S GS Location	Count	Aircraft Todag A	Rego.	Flight	Route	GS #	Freq.	Time A	Total Massages in axid	0104
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	10A48A YSCB Canberra	146	707338	VH-XEL	QF517	BNE-SYD	298497	136.975	00:09:11		
	10AD5A YCFS Coffs Harbour	56	7C7AB6	VH-XZL	QE517	BNE-SYD	298497	136.975	00:09:14	Jindata T	ntale
	10AC9A YNYN Nyngan	40	7C8065	VH-XZL			29E498	136.975	00:09:15	opuate 1	Juli
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	269597 YMML Melbourne	9	7C1C5D	VH-XZL			298497	136.975	00:09:16		
	10B073 VMU Melbourne	9	707832	VH-X2L			298498	136.975	00:09:17		
			707839	VH-XEL			29E497	136.975	00:14:39	Count messages from:-	VH-X2L 46
			7C60E2	VH-XZL	QF517	BNE-SYD	298498	136.975	00:15:41	1	
			7C6DED	VH-XZL			29E498	136.975	00:15:42		100
			707800	VH-XZL	QE524	SYD-BNE	29E498	136.975	01:41:01	Update	Count Clear
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			C88063	VH-X2L	OF524	SYD-BNE	295498	136.975	01:41:09		
			707242	VH-XEL			29E497	136.975	02:00:45		
			707803	VH-XEL			213888	136.975	04:15:22		
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9A YNYN Nyngan			7C6D9E	VH-XZL			298498	136.975	04:39:21	Louise Adelaide, Adelaide Intern	anona Papolit, Russiana
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A YSSY Sydney			8AU3U2	VH-XZL	U2453	STU-MEL	292498	136.975	06:15:47		
8 YSSY Sydney			701054	VH-XEL			218A57	136.975	06:22:44		and Station & datasets
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	Update Count				Boes	ng 737NC 838/	W - Qantas			Binary:	000001001000110010111
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					11.11	ALC: NEL		Poud 10			

The Statistics window is split into 5 list-boxes as under:-

- 1. Aircraft not in DB This is just a list of ICAO hex numbers of aircraft not in the database. If you can discover the details of the aircraft, then you can manually edit the file 'Templates\Aircraft.txt' for future use.
- 2. List of GS seen This lists the hex of the GS, its location and how many times heard in the current session. By clicking on 'Count' you can reorder the list in accordance with the number of times heard. If the GS name field is blank then this is an unknown GS not in the database.
- 3. List of Alternate GS Seen This just lists all GS included in the 'Alternate Ground Stations:' sections of messages received. May show up some unknown GS etc.
- 4. List of Aircraft heard This lists hex of all aircraft heard in the current session. Clicking on any of the hex numbers will display the details of the aircraft in the next column.
- 5. Details of selected aircraft This list shows you details of the aircraft you have selected in column 3. Including the Rego., Flights, Route, GS # and Freq. and time in use. The entries are in time order, so from this list it is possible to plot the ground stations used for a given route and can help in working out unknown GS. If the flight is shown, but no route is known, click on the route number, in this example VA1592 and your browser will be opened to the 'FlightRadar24' web site 'Route search' page and if the flight is know it should show you the route details. You can then enter it in the box below to update your DB.

- 6. **Route update** Once you find details of the route, you can enter it here in the format NTL-MEL and click the 'Add to Dbase' button. The flight details will then be appended to the Templates\Flights.txt file. I have found that after updating the flights regularly over 1 month that I no longer get many unknown flights so no longer have to do this very often.
- 7. On the right of the Statistics screen you can find the total messages received and what percentage of them include location data (usually less than 5% at my location). You can also click on an aircraft rego. In the preceding list and if you click on the 'Update Count' button you will see how many messages refer to it. Alternatively you can type any rego. Into this box.
- 8. I have also included an option to De-Code SITA ground station codes in this column. Just type the 6 character SITA GS code (all SITA codes start with '2') and the location will automatically be displayed. The code to decode is based on the work done by Eric Cottrell.
- 9. Another new option is the ability to enter a 3 character IATA code for an airport and the SITA GS code for that airport will be displayed. This calculation is based on the above decode method, but please note the final character will always appear as '7' as used as the final character in the main address of GS using 136.975 Mhz, but depending upon location and number of GS in the area, it can be any valid character.

ACARS messages



This tab (which only appears if you have toggled the ACARS button to save ACARS messages) just displays all ACARS text from VDL2 messages which include such text. There is a 'Search' box at the bottom of the screen to enable you to quickly search for messages of interest. This is quicker than having to search through the whole Log file. The ACARS messages are automatically saved into the 'Reports' folder.

PPM Column on main screen

This is a new column which displays the PPM variation of each message from the set frequency. You can sort this column by clicking on the column header so that you can find the overall variation in values from various aircraft. Saving the grid to Excel will allow you to do more statistical checking

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