PAMGUARD Maintenance and Support Activities
Q4: 1st July 2015 – 30th September 2015

Database, Java 8 and 64 bit support

A major piece of work to support an alternative database to MS Access was undertaken over the summer. Investigation made it increasingly clear that there is unlikely to be a suitable MS Access database interface which is compatible with both Java 8 and 64 bit Java in the near future. Some commercial solutions are available, but these are expensive with licenses typically costing $100 per user per year. This option has not been pursued since it would be incompatible with the open source nature of PAMGuard. An open source interface to MS Access is available in the form of UCanAccess. However, testing indicated that this is not currently stable enough for real time use and it's very unclear how well this system, which is basically a hack directly into the Access files, will support future Access versions. Instead an alternative database has been provided – SQLite which like Access creates a single file on the users computer which can be easily backed up and copied at the end of a cruise. SQLite is free to use and a number of free implementations are available. Functions to import and export and import data between SQLite and MS Access using the UCanAccess driver have been implemented. This was released in version Beta 1.14.00 at the end of September. Matlab has also been provided through the PAMGuard facebook page for people who require a connection to SQLite databases from Matlab.

It is still possible that an improved interface to Access databases will become available in the future and we will continue to monitor the situation in the hope of reinstating Access support in the future.

To date, we have had no negative feedback concerning SQLite databases. This now opens the way to the building and release of a 64 bit version of PAMGuard and we have commenced the task of building dependent C libraries and finding 64 bit solutions to third party libraries used by PAMGuard.

Tasks Completed:

Bug Fixing

The following bugs were fixed using JIP support funds in this period:

1. Bug 231. PAMGuard freezing when starting viewer mode. (Caused by an infinite loop in the map module). Fixed.
2. Bug 233. Rocca was not analyzing the selected click events in Viewer Mode. Fixed by correcting a problem with the array indexing
3. Bug 234. Hydrophone import of PAMGuard hydrophone array files (.paf) crashing. Fixed.
4. Bug 235. Target motion analyser crashes when changing default bearing line length. Fixed.

5. Bug 236. Whistle classifier crashing during batch training just prior to writing results files. Fixed.
6. 8. Bug 238. Viewer mode out of memory error. Have adjusted memory allocation to allow more memory for the database interface. Hopefully Fixed.
7. Bug 246. AIS Data Unpacking. Bug in AIS data unpacker fixed.
8. Bug 247. Fixed Landmark display. Landmarks were not displaying in the viewer. This is now fixed.
9. Bug 248. Crash in hydrophone array manager. Bug in array manager would crash PAMGuard when the click detector was configured with more channels than the sound acquisition system (almost impossible to achieve, but someone managed it).
10. Bug 252. Bug which plotted bearings to whistle and moan detections from the front hydrophone rather than the central position between hydrophones now fixed.

The following bugs were fixed using non JIP funds:

1. Bug 232. incorrect click duration when performing Rocca analysis on the same click event more than once
2. Bug 237. Logger forms not saving data to database after sound acquisition starts.
3. Bug 239. Fixed bug in the DIFAR module that was incorrectly preventing cross-fixes for some calls.4.
4. Bug 249. Corrected bugs in Rocca analysis of click events.
5. Bug 250. DIFAR module was crashing if it attempted to triangulate between more than two simultaneous bearings.
6. Bug 251. Fixed error in DIFAR intensity calculation.
7. Bug 245. The phase of the raw acoustic data is reversed playing back 24-bit wav files through the Sound Acquisition module

The following bugs were reported in Q4, but have not yet been addressed:

1. Bug 240. Sound playback jittery and intermittent when acquiring on an HF device (e.g. NI card), decimating and playing back at a lower sample rate through a sound card.
2. Bug 241. Changes to map options do not immediately appear on the map.
3. Bug 242. Noise monitor dialog does not resize and is bigger than the screen on low res displays
4. Bug 243. In viewer mode, the data map does not repaint after datagram is reprocessed.
5. Bug 244. After reprocessing data in the click detectors, the select click type check boxes at the top of the bearing time display sometimes deselect themselves

Development Feature Implementation.

1. A new system of Spectrogram annotation marks has been released which enables users to mark sounds of interest directly on the spectrogram display with information about the sound being written to the database.
2. A new system for important warning messages has been implemented. Warnings such as failure to connect to the GPS or a database error will now appear at the top of the main PAMGuard display.
3. File and Folder audio input systems now have an optional repeat button which is useful when using PAMGuard for demonstration purposes.

4. The sound File and Folder audio input systems now have an optional time zone setting. Note that PAMGuard analysis should still all be taking place in UTC and that this option is intended to allow the conversion of file times which were not recorded as UTC into UTC and not the other way around. Use the option with caution !
5. The Open Office Database system has been removed from the list of available options since it is not reliable.
6. Database development work as detailed above.

Code Maintenance

Two releases have been between July and September, 1.13.05 in July and 1.14.00 in September. There were 447 downloads of 1.13.05 and to date there have been 213 downloads of 1.14.00.

Website Administration and Maintenance

Updates to the supporters and contributors pages and additional information on the PAMGuard support mechanism.
Most communication with users is now through the PAMGuard Facebook pages which now have 498 likes !

Support to Developers

Continued support to Michael Oswald working on improvements to the ROCCA classification module.
Advice to a digital hydrophone manufacturer on implementation of an interface from their hydrophone direct into PAMGuard.

User Support

Only thirteen separate support requests were received over the summer. Approximately half of these related to Java 8 issues which are hopefully now resolved with release 1.14.00

Downloads:

The web stats show a total of 732 downloads of PAMGuard software between 1st July 2015 and 30th September 2015.

Activity Reports

Download Name	Downloads
Maintenance Report February 2012	61
Maintenance Report March - April 2012	17
Maintenance Report May - June 2012	51
Activity Report June to December 2012	60

General Configuration Files

Download Name	Downloads
DIFAR Configuration	51

Sperm Whale Click and Dolphin Whistle Detection	66
Sperm Whale Click Detection	49
Porpoise Click Detection	55

Likelihood Detector Configuration Files

Download Name	Downloads
Sperm Whale	53
Humpback	47
Bowhead Whales	50
Beaked Whale	53
Readme File	34

PAMGuard Software

Download Name	Total
Beta 1.14.00	24
Beta 1.13.05	437
Beta 1.13.04	33
Beta 1.13.03	4
Beta 1.13.02	1
Beta 1.13.01	1
Beta 1.13.00	41
Beta 1.12.06	1
Beta 1.12.05	156
Core 1.6	26
Beta 1.10.00	8
	732

Publications

Download Name	Downloads
Free PAM software to improve marine mammal detection	94
A quick guide to PAMGuard	184
Free PAM software to improve marine mammal detection	81
PAMGUARD: Open Source Software For Real-time Acoustic Detection and Localisation of Cetaceans	88
Pamguard: Semiautomated, open source software for real-time acoustic detection and localisation of cetaceans	77

ROCCA Configuration Files

Download Name	Downloads
ETP Species Classifier	42

Details of registration information from the download pages are as follows:

Industry	Downloads
Oil & Gas	99
Civil Engineering	12
Offshore Wind	2
Tidal and Wave Energy	3
Academic Research	150
Other	91
Rather Not Say	19

Operation	Downloads
Real time mitigation	107
Abundance Estimation	55
Behavioural Research	78
Other	107
Rather Not Say	26

Geographic	Downloads
US	73
Europe	131
Africa	20
Australasia	26
Asia	29
Other	73
Rather Not Say	22

Location	Downloads
Global	76
US	57
Europe	79
Africa	24
Australasia	20
Asia	29
Other	68
Rather Not Say	22