

901009 - CANON

Week 52

1. Brian Kieft
 - a. Supported MBTS deployment
2. Thom Maughan
 - a. eDNA ship box system (Truelove-M v1) parts are with Paul Coenen.
 - b. Wiring and testing battery backup system.

Week 51

1. Kevin Gomes
 - a. Migrated the /trackingdb API to the new container as I forgot to add it
 - b. Still chasing down very strange PostgreSQL queries that should be running fast, but are not
2. Thom Maughan
 - a. Helping out with MBARI - Johns Hopkins APL report on embedded system for eDNA analysis
 - b. Handed off box and components for proto of portable eDNA sequencer with Xavier NX system for use on ship.
3. Mike McCann
 - a. Working with Pat on configuring a CentOS 8 kraken2 system for stoqs.shore.mbari.org
 - b. Learning all about podman:
 - i. An NFS mounted atlas home directory does not work well
 - ii. I'm hopeful that podman-compose will be able to use my existing docker-compose.yml
 - c. Helped with testing the new ODSS
4. Tom O'Reilly
 - a. Based on connections made at last week's Open Geospatial Consortium meeting, I'm learning more about standards for planning and coordinating autonomous vehicle fleets, including the Joint Architecture for Uncrewed Systems (JAUS). The JAUS standard was developed by the US DoD and has been evaluated by the US Navy with vehicle networks containing AUVs, USVs, and aerial drones. Kongsberg Geospatial is using JAUS and other standards to develop a Standards-based UxV Interoperability Test-bed, a control station allowing an operator to monitor and control multiple vehicles across multiple domains (air, surface, sub-surface). These systems could be quite relevant to CANON and MBARI autonomous vehicles in general.
5. Carlos Rueda
 - a. MXM work

Week 50

1. Thom Maughan
 - a. Helping out with MBARI - Johns Hopkins APL report on embedded system for eDNA analysis
 - b. Handed off box and components for proto of portable eDNA sequencer with Xavier NX system for use on ship.
2. Tom O'Reilly
 - a. Attending Open Geospatial Consortium annual meeting, including sessions on OGC SensorThings middleware standard, and autonomous vehicle domain working group, which advances standards and best practices for AUVs and UAVs. Coauthored invited presentation "[Use of OGC standards in marine observation platforms](#)" which describes how the Polytecnic University of Catalunya is using OGC PUCK

(developed at MBARI) and other OGC standards to integrate instruments and retrieve their data on various low-power/low-bandwidth sensor platforms.

3. Carlos Rueda
 - a. MXM: reviewing OGC SensorThings.

Week 49

1. Kevin Gomes
 - a. Working on the ODSS upgrades off CentOS 6 which have been a nightmare, but finally having some breakthroughs with lots of help from IS
2. Brian Kieft
 - a. Supporting MBTS deployment for Daphne and Pontus
3. Thom Maughan
 - a. Assembly of Truelove-M shipbox portable eDNA analyzer into Black Friday Harbor Freight pelican case knockoffs.
 - b. Tina at JHU is running into software package porting challenges for packages compiled for ARMv8 used in the classification step. She is exploring other options, attempted to assist with the recompile. Other software is hitting memory limits. The classification step may need some development for embedded ARM.
4. Tom O'Reilly
 - a. Investigating standards for commanding and coordinating autonomous vehicles, for potential use in our Mission Execution Service (MXS). Use of standards could simplify integration of third-party planning software and vehicles into MBARI's autonomous fleet. In particular looking at [Open Geospatial Consortium's SensorThings standard](#), designed to connect "Internet of things".
5. Carlos Rueda
 - a. MXM: With Tom, looking into perhaps starting to incorporate OGC SensorThings or SPS sooner than later in the design and implementation of MXM interfaces/protocols.

Week 48

1. Kevin Gomes
 - a. Working on migration of ODSS server from CentOS 6 to CentOS 8
2. Thom Maughan
 - a. Attended meetings with Johns Hopkins APL.
 - b. Demo unit of Xavier NX based desktop sequencing, aligning and organism identification system delivered last week to the guest lab for Nate to run a bake off with ONT MinIT. System power measurements peak at 30W.
 - c. Sending input to final 2020 report
 - d. Setting up development system with protective case and battery circuit. The near term need for next year is backup battery to withstand brief power glitches / outages while on ship.
3. Tom O'Reilly
 - a. Refining design of our "MXM" middleware that enables coordination of multiple kinds of autonomous vehicles and platforms. Integrating University of Porto's "Neptus" graphical planning software with MXM as a test case, revealing ways we can improve the MXM design.

Week 47

1. Kevin Gomes
 - a. Still trying to get the CentOS migrations complete.
2. Mike McCann
 - a. Continuing to iterate with Katie on assigning proper names to the LRAUV ESP Samples
3. Tom O'Reilly

- a. Integrating the Porto “Neptus” map-based mission planning application with our prototype “MXM” middleware, which integrates planning and scheduling for diverse robot vehicles. Using Neptus as a real-world example helps Rueda and I to refine the MXM interface so that other third-party tools can be integrated with MBARI’s robotic fleet.
4. Carlos Rueda
 - a. MXM work and assistance to Tom regarding access from his Neptus adapter to the MXM service via HTTP and GraphQL queries.

Week 46

1. Kevin Gomes
 - a. Working on migrations from CentOS 6 to CentOS 8 for all four ODSS servers
 - b. Shutdown canonfishvm
2. Brian Kieft
 - a. Supporting MBTS deployment
3. Thom Maughan
 - a. Refining and documenting install and setup procedure for XavierNX run of MinKNOW
 - b. Sent one of the XavierNX systems to JHU/APL for power and performance benchmarking of the final steps in the bio-informatic workflow.
 - c. Setup a XavierNX unit in the guest lab for Nate to use in a eDNA sequencing bake-off with the MinIT.
4. Mike McCann
 - a. Continuing to reload last 3 years of CANON databases with newer LRAUV ESP processing

Week 45

1. Kevin Gomes
 - a. CentOS6 to CentOS 8 Migration
2. Thom Maughan
 - a. MinKNOW gui is running on XavierNX. Sat with Nate to collect UI usage. We are setting up for a MinIT vs XavierNX bakeoff next wednesday.
 - b. Attended meetings with Johns Hopkins APL, shared procedures and notes for setup.
 - i. Working on inclusion during zoom calls.
 - c. Working to capture process spawning with arguments and to gen up a serial port controlled commandline app to start, pause, stop DNA sequencing.
 - d. Working on procedure for install and setup, sharing on open source effort
3. Mike McCann
 - a. Reloading CANON Campaigns from 2017 onward that have LRAUV ESP Samples – the names now include the name of the ESP device, as parsed from the syslog file
 - b. Several Glider data sources have been moved requiring updates to the load scripts

Week 44

1. Danelle Cline
 - a. Discussion w/Kevin on ODSS script migration.
2. Kevin Gomes
 - a. Working on ODSS migrations from CentOS 6 to 8 (odss-test, normandy, malibu and zuma)
3. Thom Maughan
 - a. Bio-informatics workflow on XavierNX - getting close, but still working thru issues with MinKNOW gui recognizing Minion dna sequencer.
 - b. 2TB ssd setup and configure for ONT workflow
4. Mike McCann
 - a. Writing Jupyter Notebook to plot LRAUV ESP Sample details from STOQS and the ESP log
5. Carlos Rueda

- a. Planning to resume working on MXM.

Week 43

1. Duane Edgington
 - a. Sent Brent Jones notes and links to github documentation on STOQS to facilitate CPF data load into STOQS.
2. Brian Kieft
 - a. Wrapped up CANON with recovery and negatives on Friday. This fall campaign went really well from an engineering perspective.
3. Thom Maughan
 - a. Attended meeting with Johns Hopkins, top level and dry side.
 - b. Reverse engineering the MinIT software, MinKNOW gui is running on XavierNX but having trouble connecting to the MinION (dna sequencer) due to permission issues on USB and some missing pieces. Working on startup of backplane daemons and got a helpful pointer from Erik T on systemd.
 - c. Working to identify all the helper apps in order to script a commandline / headless version of the GUI.

Week 42

1. Kevin Gomes
 - a. Experiment support
 - b. Slack support
2. Brian Kieft
 - a. Participating in the Fall CANON campaign with Makai/Pontus. So far it's going quite well and the team has, for the first time ever, taken both ESP and sipper samples at the same time from the same vehicle.
3. Thom Maughan
 - a. Learning how to operate the MinIT for DNA sequencing. Coming up with procedures that can be used to verify operation of the MinION. Ran minimap2 benchmark on MinIT.
 - b. Xavier NX. Software forensics on the MinIT to determine what packages are installed by Oxford Nanopore. Working to install / rebuild source packages from the ubuntu 16.04 MinIT to 18.04 on the XavierNX. Plan is to use wireshark to try and snoop the commands sent by the remote GUI via wireless as a guide to writing scripts that do the same thing for a headless system.
 - c. Coming up to speed on the many command line options for Guppy. Latest version has a more advanced LSTM neural net that improves the insert/delete (indel) errors by a couple percent.
 - d. Worked a plan B approach on a Jetson TX2 running Ubuntu 16.04 in case the XavierNX effort gets stuck in the ubuntu up-port mud.
4. Mike McCann
 - a. Seeing that data continue to flow into [stogs_canon_october2020](#)
5. Tom O'Reilly
 - a. Working with Carlos Rueda to refine and test mission execution manager service, which is intended to allow easier coordination of diverse robotic vehicle types (e.g. Wave Gliders, AUVs, UAVs, etc) through a variety of user interfaces developed at MBARI and elsewhere. Integrating University of Porto's Neptus planning software as a test case.
6. Carlos Rueda
 - a. MXM: some assistance to Tom regarding his Netpus adapter.

Week 41

1. Kevin Gomes
 - a. Support for experiment
 - b. ODSS development
2. Thom Maughan

- a. Tried the Oxford Nanopore basecalling package install on TX2 with Ubuntu 18.04 - still having problems even with the alternate procedures from ONT support. Next step is to try on Ubuntu 16.04 on the TX2.
 - b. Ran into connection / access problems with the ONT MinIT. Looked like a connection problem so invested heavily in diagnosing that. Turns out it was documentation errors on the ONT website. Working to come up to speed on running the MinIT and looking at the installed software.
 - c. JHU/APL sent me a tweet from Italy where someone had the basecaller running on a TX2. Tried to make contact. Further investigation led to a group in New Zealand doing the same thing as I'm trying on the Xavier. They made daily progress reverse engineering and recompiling packages and have had some success. I'm going to follow their notes and see how far I can get on Xavier NX.
 - d. Benchmarked power and execution time for the eDNA aligner software on Xavier NX and TX2 in various power and core configuration modes.
3. Mike McCann
 - a. Rolled out updates (some correcting security problems) to production STOQS servers
 - b. Seeing that current campaign data are flowing into [stogs_canon_october2020](#)
 4. Tom O'Reilly
 - a. Working with Carlos Rueda to integrate LSTS Neptus planning tool into our prototype Mission Execution Mediation Service, which will enable coordination of multiple robotic vehicles and types (AUVs, Wave Gliders, UAVs, etc)

Week 40

1. Duane Edgington
 - a. Virtual meeting Sept 24
2. Kevin Gomes
 - a. Some prep for deployments and CANON experiment
 - b. ODSS development (new version)
3. Brian Kieft
 - a. Preparing for upcoming experiment. Modifying behavior/mission for dual sampling
4. Thom Maughan
 - a. Working to get Oxford Nanopore basecalling software running on the Xavier, hitting some roadblocks, working with support. In the meantime, setting up a TX2 with older ubuntu and dependent components to be compatible with ONT MinIT in hopes that might solve the problem.
 - b. Optimizing clock speed and cores for running alignment software.
 - c. Sent 'power aware computing' cable and power supply to collaborator at Johns Hopkins
 - d. Attended the 'dry processing' meeting and after a productive meeting on the embedded workflow, JHU folks showed some of the Monterey C1 DNA data - I'm hooked!
5. Mike McCann
 - a. Dealt with a very full glidermail inbox – full of a bunch of waveglider position reports
6. Tom O'Reilly
 - a. Working with Carlos Rueda to test and refine our MXM "planning service" which will enable planning and operation of a variety of robotic vehicles, e.g. Wave Gliders, LRAUVs, UAVs, Dorado, and many others. Third-party and platform-specific such as Neptus, LRAUV dash, wgms and others can be integrated with MXM to enable easier and more robust coordination in the field.
7. Carlos Rueda
 - a. Met with Tom O. regarding Neptus adapter for MXM.

Week 39

1. Duane Edgington
 - a. Project meeting Sept 17
2. Kevin Gomes

- a. Starting on a VueJS based ODSS interface as a client for data catalog
- 3. Thom Maughan
 - a. Attended first meeting of the dry processing team, which include biologists at Johns Hopkins APL. Setup a slack channel for team and direct messaging.
 - b. Working on eDNA embedded pipeline. Recompiled minimap2 for ARMv8 with neon. Ran benchmarks with 2 cpu core on Xavier NX (6W, 481sec). Same benchmark runs 200 sec on AWS EC2 with 16 cores and 112 GB RAM.
 - c. Started to add NVidia Jetson software one package at a time which got to be a slog. Went ahead and installed the entire Jetpack. Footprint optimization will come later.
 - d. Working on Oxford Nanopore MinIT software (guppy, etc). Working with Oxford Nanopore
- 4. Mike McCann
 - a. Upgraded the STOQS VM provision.sh script to install the latest versions of GMT and MB-System so that the capstone students can use mbgrd2obj for [Issue 1093](#)

Week 38

- 1. Duane Edgington
 - a. Meeting Sept 17
- 2. Kevin Gomes
 - a. A little prep for CANON experiment coming in October
- 3. Brian Kieft
 - a. Figuring out requirements/missions for coincident water/ESP sampling
- 4. Thom Maughan
 - a. Received and reviewed the kickoff materials for the automated eDNA processing work with Johns Hopkins. Sent introductions and info on prospective embedded platform.
 - b. Spent an afternoon with Amazon AWS trying to get the fasta files off the server by setting up an s3fs... The S3 web interface did the trick. Was hoping to turn off the AWS server at end of month but it looks like Chavez lab may have other uses for it. Thanks to Kevin Gomes for AWS devops assist.
 - c. Installation procedure for minimap2 on linux laptop. Ran benchmarks on Nate's eDNA basecall data. Deep6 laptop outperformed AWS!
 - d. Meeting with Nate to go over latest eDNA processing workflow.

Week 36

- 1. Kevin Gomes
 - a. Starting up data catalog work again
 - b. Some support for ODSS
- 2. Brian Kieft
 - a. Supported recent MBTS run with Daphne
- 3. Thom Maughan
 - a. Investigating board options for multi-core ARM (4 core min) with RAM > 8GB

Week 35

- 1. Carlos Rueda
 - a. Some MXM work

Week 34

- 1. Kevin Gomes
 - a. Working ODSS related issues (comms issues with Carson really).
- 2. Thom Maughan

- a. Working with Raksha on benchmarking cpu and memory for minimap2 (eDNA sequence aligner) on Amazon AWS Server. Looking at cost reduction options for moving to a less capable EC2 instance and also scoping the resources required for embedded ARM. Things are looking good for using Xavier NX.
- b. Many thanks to Kevin Gomes for walking me thru two factor authentication to boost security on AWS.
3. Carlos Rueda
 - a. MXM: updates to some libraries to address security alerts.

Week 33

1. Kevin Gomes
 - a. Some cleanup support and restart work on data catalog
 - b. Improving the tracking database to TimeZero data flow on the Rachel Carson
2. Brian Kieft
 - a. Assisted with deployment of REACT PCO2 vehicles. Will check status on them again today.
3. Thom Maughan
 - a. Working with intern Raksha, mostly review of slides. Nate Truelove did a fantastic job with Raksha while I was on vacation.
4. Mike McCann
 - a. Fixed fragment shader to more accurately represent color for the point visualization in the Spatial 3D view – still need to figure out the vertex shader to provide better depth perception

Week 32

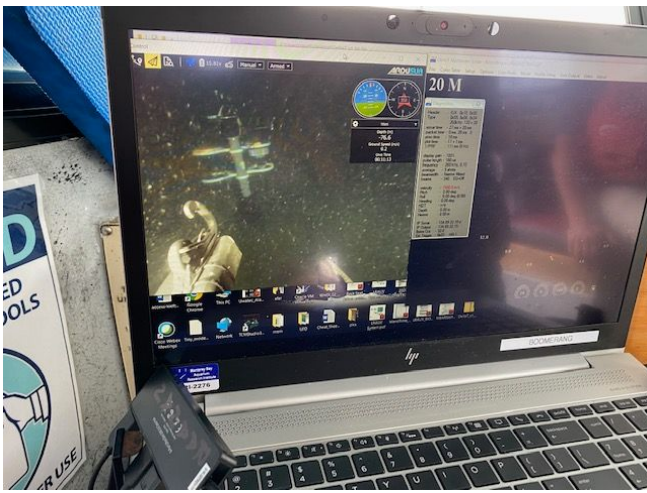
1. Thom Maughan
 - a. Xavier setup.

Week 31

1. Duane Edgington
 - a. Updated my STOQS development environment. Thanks, Mike M. for help on the needed modifications.
2. Kevin Gomes
 - a. Support for CANON experiment
3. Brian Kieft
 - a. Supporting ongoing summer experiment
 - b. Recovered Brizo and discovered shark bite
 - c. Used hotspot to locate missing CPF
 - d. Assisted building up blue ROV for this and future shallow recoveries



e.



f.

4. Thom Maughan
 - a. Set up Xavier NX board for install of minimap2 package and dependencies.
5. Mike McCann
 - a. Improvements to automated data loading into STOQS
 - b. Created 3D animation of Brizo's shark bite and [shared on Slack](#)
6. Carlos Rueda
 - a. Continued monitoring experiment activities on a regular basis (also see LRAUV bullet).

Week 30

1. Kevin Gomes
 - a. Experiment support
2. Brian Kieft
 - a. Participating in summer field program
3. Mike McCann
 - a. Created stoqs_canon_july2020 database and monitoring its loads
 - b. Had to back out a Matplotlib update as it broke the colormaps for plotting balanced variables, ones like northward_sea_water_velocity_HR and pitch.
 - c. Fixed some issues with Waveglider data processing
 - d. Learning about shaders in order to improve visualization of point data
4. Carlos Rueda
 - a. MXM development
 - b. Monitoring and responding to inquiries during ongoing CANON experiment

Week 29

1. Duane Edgington
 - a. Team meeting
2. Kevin Gomes
 - a. Proposal writing
 - b. ODSS preparation, map creation, support for Summer CANON campaign
3. Mike McCann
 - a. Reloaded [stoqs_canon_may2019](#) to capture more ESP samples and to provide a better report in the stoqs load log regarding the disposition of each cartridge
 - b. Put into production decoding of Dorado's new Warrior format Iridium beacon for ODSS
 - c. Monitoring automated LRAUV data processing and flow into tethysviz databases

Week 28

1. Danelle Cline

- a. Meeting July 9
2. Duane Edgington
 - a. Project meeting June 25, July 9. Experiment in July...
3. Kevin Gomes
 - a. More work on the cleanup and overhaul of the ODSS. Way easier to work with the codebase and deployment now and this will facilitate trying to move to a continuous deployment model and with the migration of the ODSS off the old servers. Much more cleanup to do in the codebase, but making great progress
4. Thom Maughan
 - a. Prep for meeting with John Zicker.
 - b. Need to figure out how to cover costs of AWS GPU server.
5. Mike McCann
 - a. Tracking down more edge cases in parsing LRAUV syslogs for ESP Cartridge numbers
6. Carlos Rueda
 - a. MXM: code reorganization to separate server and webapp components; new docker image 0.8.2. Determining next steps, possibly continuing with Postgraphile as GraphQL-enabler, but also revisiting Prisma and looking at other options. Enabling Typescript, initially on the server side, to hopefully make development more manageable.

Week 26

1. Duane Edgington
 - a. Project meeting scheduled for June 25. Experiment in July...
2. Kevin Gomes
 - a. Big overhaul of the ODSS. Move to Leaflet, bug fixes, new functionality. Although look has not changed much, bugs and functionality has.
 - b. Deployed to test and production
3. Thom Maughan
 - a. Starting minimap2 and cudamapper install on embedded arm+gpu

Week 25

1. Kevin Gomes
 - a. Overhauling the ODSS build and deployment to move to Docker/Podman to make things easier
 - b. Took the opportunity to clean out old dead code and make things more efficient
2. Brian Kieft
 - a. Supported MBTS deployment this week
3. Carlos Rueda
 - a. MXM: doing adjustments due to some regressions; Upgrading packages.

Week 24

1. Mike McCann
 - a. Fixed Docker mount issue with /dev/shm: lesson learned, don't mount over it

Week 23

1. Thom Maughan
 - a. Reading papers
 - b. NVidia GTC presentations
 - c. MiniMap2
 - d. Meetings with intern Raksha
2. Carlos Rueda

- a. Preparing again for updates and work on MXM.

Week 22

1. Mike McCann
 - a. Fixed some date boundary test issues for loading LRAUV data
 - b. Fixed functional test execution on Travis-CI and dockerhub
 - c. Fixed a provisioning issue with a new postgresql dependency

Week 21

1. Kevin Gomes
 - a. For data catalog, looking at image tags to support data management of UAV data
2. Thom Maughan
 - a. Changed from BLAST to MiniMap2 for local alignment. MiniMap2 has a much faster search algorithm, has better open source support / update, source tree has ARM v8 build target.

Week 20

1. Thom Maughan
 - a. Nate has been working with Raksha while I've been out of commission.
 - b. Doug/Will prep'd an older PC with GPU card
2. Mike McCann
 - a. Added functional tests for Points feature added by Capstone students
 - b. Attending via Zoom their live [presentation](#) during the Capstone Festival on Friday
 - c. Deployed the points, lines, polygons 3D data visualization feature on the stoqs servers
3. Carlos Rueda
 - a. Resuming work on MXM.

Week 19

1. Brian Kieft
 - a. Reviewed initial experiment plan
2. Thom Maughan
 - a. HiPP::eDNA project and early arrival intern.
 - b. Ran thru tutorials and setup 'free instance' of AWS Amazon. Duplicated the procedure and with some excellent support from Amazon during an 'all nighter' have the GPU server hardware provisioned and ubuntu 18.04 with a deep learning software stack all setup.
 - c. Usage cost is worse case 24/7 \$1k / mo. We should be able to manage this and hit around half that.
 - d. Found out the hard way that project schedule pressure is high and apparently there is not time to run thru tutorials and climb the learning curve on Amazon. PM able to raise priority and have Kevin Gomes step in to help out setting up the user accounts. I think a kickoff meeting is needed for the project to improve communications.
 - e. After the smoke clears, will suggest we setup a cost effective 'play and learn' non-GPU server for the interns in the BOG lab that are also requesting access to the Amazon server.
 - f. Working with Duke intern Raksha Doddabele, had first zoom with her and Nate.
3. Carlos Rueda
 - a. Resuming work on MXM

Week 18

1. Kevin Gomes
 - a. Data catalog

2. Brian Kieft
 - a. Reviewed rough deployment plan for June
3. Thom Maughan
 - a. Setup of AWS Amazon high performance compute server. This server is for working with my intern. Getting gentle pressure from the project manager.
 - b. No progress at all on BLAST cross compile, none, nada, in order to work on AWS

Week 17

1. Kevin Gomes
 - a. Data catalog work, digging into connections to ERDDAP and GeoServer
2. Thom Maughan
 - a. Nate and I met with Raksha Doddabele to discuss remote internship. Nate did an amazing job of explaining CANON and the BOG lab - kicking myself for not recording it. Duke is finishing classes next week.
 - b. Working on GPU purchase options for Francisco's group.
 - c. Setup an Amazon AWS free tier account (no GPU) to get a wiff of the tools. Requested and received approval to pay for a GPU instance.
 - d. Setting up a HiPP account on AWS and working thru configuration options

Week 16

1. Kevin Gomes
 - a. WaveGlider portal
2. Thom Maughan
 - a. Attended BOG meeting. Working on GPU enabled PC options
 - b. Small progress on BLAST
 - c. Scheduled meeting with intern to discuss options
3. Carlos Rueda
 - a. MXM: Actually I enabled snyk.io vulnerability monitoring for <https://github.com/mbari-org/mxm> this week. (Snyk has proved useful for me in other js and scala projects, sometimes giving more detailed diagnostics compared to Github. The snyk CLI is also handy.)

Week 15

1. Kevin Gomes
 - a. More work on WaveGlider data portal.
2. Brian Kieft
 - a. Identified bug in Wetlabs sensor following Monique's analysis of backscatter data. Logged in JIRA but have not implemented a fix yet
3. Thom Maughan
 - a. Working on BLAST for ARM
4. Carlos Rueda
 - a. MXM: A few [lib upgrades](#) to address vulnerabilities reported by github and snyk.

Week 14

1. Kevin Gomes
 - a. Data catalog work, mostly focused on elasticsearch piece
 - b. Wave glider data extraction/portal
2. Thom Maughan
 - a. Little progress on BLAST recompile for ARM.
3. Mike McCann

- a. Met with capstone students on Zoom to clarify [some requests I made](#) on their pull request

Week 13

1. Duane Edgington
 - a. Project meeting March 12.
2. Kevin Gomes
 - a. Data catalog stack of software
3. Thom Maughan
 - a. Met with Nate on Slack video to go over his new workflow that he got from collaborating with Stefan Prost - can't wait to get started.
 - b. Added Fred Bahr as user on DeepDark, some big crunching planned for CENCOOS. Coordinating access with Paul McGill who is actively using the GPU server.
4. Mike McCann
 - a. Provided feedback to instructor of Capstone students – they're doing a good job

Week 12

1. Duane Edgington
 - a. Francisco, C. Scholin, and team met for a Project meeting March 12 in the Pacific Forum. I have notes. Francisco asked me after meeting if ODSS, STOQS, etc were good to go.
2. Kevin Gomes
 - a. Working on new data extraction stack of software for pulling WaveGlider data from Liquid Robotic's WGMS system
3. Thom Maughan
 - a. Have picked up both of my GPU enabled laptops for work at home.
 - b. Work Plan: benchmark fasta file for BLAST on x86 architecture with 6 cores, next will be GPU-BLAST x86+GPU, then onto BLAST on ARMv8, then GPU-BLAST.
4. Mike McCann
 - a. Mentoring capstone students on their first [Pull Request](#) implementing Point rendering

Week 11

1. Duane Edgington
 - a. Project meeting March 12.
2. Mike McCann
 - a. Rolled out some STOQS changes to improve scrubbing of 3D curtain animations

Week 10

1. Kevin Gomes
 - a. Overhauling the WaveGlider data extraction to get Jupyter foundation locations in the ODSS. The overhaul is so that I can add in data extraction at the same time since their data interfaces are in flux and the old SOAP interface to WGMS seems to be pretty stable. (sigh)
2. Thom Maughan
 - a. Working with Nate to get a benchmark fasta file that takes about an hour to process on the VM cluster with BLAST with the full genome database.
 - b. In progress getting BLAST and cross compile setup.
 - c. Working on project kickoff slides.
3. Mike McCann
 - a. Met with capstone students who are working on 3D Points visualization
 - b. Wrote code to process new format for DEIMOS acoustic data

Week 9

1. Brian Kieft
 - a. Tested DVL firmware fix on Pontus
 - b. Prepped vehicle software for launch tomorrow
2. Thom Maughan
 - a. Received MinION desktop DNA sequencer!
 - b. Found a procedure for ARMv8 / ThunderX2 build of BLAST.
 - c. Identified several source packages for GPU accelerated BLAST (server), selected one.
 - d. Met with Nate and Francisco to align on high level priorities and tasks. Working on a presentation to better educate on what HiPP entails from a hardware and software perspective.
 - e. 'Big' literature search for genomic software tools used for sequence lookup in database for taxonomy id. Found some interesting papers, algorithms and benchmarks. Discussed with Nate who helped decode the lingo. Talked with Katy and Jacob about their tool usage - quite a diversity.
 - f. Email discussion with Mike Vella of NVidia on the approach for running taxonomy id tools on TX2/Xavier.
 - g. Working with Nate to get a benchmark fasta file that takes about an hour to process on the VM cluster with BLAST with the full genome database.
 - h. Working on project kickoff slides.
3. Mike McCann
 - a. Fixed "404 Not Found [IP: 91.189.88.31 80]" Docker error by upgrading to ubuntu:19.10
 - b. Deployed 3D Curtain animation capability on 3 production STOQS servers
4. Carlos Rueda
 - a. MXM development, with various adjustments done to the TSAUV Front tracking implementation to reflect MXM provider interface changes.

Week 8

1. Thom Maughan
 - a. Ordered MinION sequencer on the 13th - order has not shipped. Probing Oxford to try and unstuck it.
 - b. HiPP::eDNA. Installed MinION software on x86+GPU laptop. Working to borrow a MinION.
 - c. Researching best package options for ARM build of BLAST tools, ideally with GPU support.
2. Mike McCann
 - a. Added a step time for the 3D animated curtain generation – things are starting to look better
 - b. Discovered that the newest release of X3DOM no longer supports the SRC mesh representation of terrain data I've been using – I'll need to transition to glTF bundles
 - c. Unable to build my Docker images due to a "404 Not Found [IP: 91.189.88.31 80]" error
3. Carlos Rueda
 - a. MXM development, with additions to TethysDash as MXM provider. Although TethysDash has limited support for reporting mission status, this is a good opportunity to also revise that aspect for some future improvement in the TethysDash data model itself.

Week 7

1. Thom Maughan
 - a. Itemizing software packages in the eDNA to speciesID workflow to see what is open source and readily available, what is distributed binary for ARM, what has GPU acceleration, etc.
 - b. Ordered eDNA minion ligation kit
2. Mike McCann
 - a. Binary search for image slices really improves performance – profiling in Chrome now indicates most time is spent in rendering rather than in the dumb JavaScript function I used to have.
 - b. Continuing to test and squash bugs in the UI for controlling 3D Curtain animations
3. Carlos Rueda

- a. MXM development especially regarding interaction and data synchronization with external providers. Looking into somehow enabling Typescript as the lack of types is becoming painful.

Week 6

1. Thom Maughan
 - a. eDNA HiPP. Met with Francisco on project priorities. Looks like the eDNA work needs to be moved up.
2. Mike McCann
 - a. Continuing to implement and test improvements for performance of the 3D curtain playback
 - b. Tested using watchtower for Continuous Delivery – need to think about scenarios where automated service restarts might interrupt long-running load processes that may be using the same container
3. Carlos Rueda
 - a. MXM development, including expanded operations to the MXM provider API on top of TethysDash to start testing actual submission of missions.

Week 5

1. Mike McCann
 - a. Looking at using a binary search tree to improve the performance of the JavaScript that executes the 3D curtain playback visualization
2. Carlos Rueda
 - a. [MXM meeting](#) with Kevin and Tom O. about status and next steps.
 - b. MXM [java client library](#) (for Tom's Neptus adapter): additions and more [documentation](#). The library is automatically [generated and released](#) using Travis-CI. Now, toward moving forward in a more streamlined way, looking again into automating the generation of the client model and query classes based on the GraphQL schema from the MXM endpoint. This proved not very productive in my first exploration a while ago but [one option](#) now looks a bit promising.