

Brian Schlining Sorted By Project

500055 - Video Annotation DM

- Work on syncing chief scientist info from EXPD with media information in M3. (Week 5)
- As part of the conversion of all tapes to digital video, the video lab needs to prioritize which tapes are to be transcoded. Brian analyzed dives and tapes to verify that we had the correct metadata needed for all tape. Links: Dive Analysis, Tape Analysis (Week 5)
- Investigating why framecapture from VARS Annotation is crashing when running on Java 11 (Week 5)
- To support Kakani's LCM tool, added ZeroMQ notifications to annosaurus so that external tools can be notified when an annotation is created or modified. See M3-88 and annosaurus 0.6.0 (Week 6)
- Addressing JVM crash when VARS Annotation made a framecapture. Turns out this was due to changes in how macOS handles secure access to cameras. A fix should be out shortly. (Week 6)
- Addressing a bug in annosaurus when resolving existing annotations with a bogus time of `1970-0101T00:00:00Z`. (Week 6)
- Tape annotation/framecapture was restored and released to the video lab. (Week 7)
- Worked on standardizing M3/VARS builds for different MBARI deployments. (Week 7)
- Met with CSUMB Capstone students (Week 9)
- Met with CSUMB capstone students to continue work on an integrated dive page. (Week 10)
- Fixing issues resulting from failed database replication on the Western Flyer. (Week 11)
- Upgrading all microservices to Scalatra 2.7.0, Scalatest 3.1.1, and Scala 2.13.1 (Week 12)
- Completed fix of data sync issues on the Western Flyer (Week 12)
- Packaged the applications listed below for Windows. They can be downloaded from <http://m3.shore.mbari.org/apps/> (Week 14)
 - vars-annotation (Week 14)
 - vars-query (Week 14)
 - jsharktopoda (Week 14)
- CSUMB students presented their ROV dive portal to the video lab (Week 16)
- Adding docs for spinning up m3-microservice on sql-server (Week 18)
- Working on improving support for postgresql (Week 18)
- Responding to many internal/external support requests: (Week 18)
 - University of Hawaii - Assist their team with using VARS remotely (Week 18)
 - CSIRO - Their team is looking at building their own deep-sea guide on their M3/VARS system. (Week 18)
 - CVISIONAI - Assist with building and running M3/VARS (Week 18)
 - Geomar - Requests for troubleshooting their VARS system (Week 18)
- Deleted "test" dive annotations from M3/VARS (Week 21)
- Added a `seek to` keyboard shortcut to vars-annotation (Week 21)
- Starting work on ingesting videos from Iron mountain as part of migrating all tapes to video formats. (Week 21)
- Iron Mountain delivered a test batch of videos converted from some of MBARI's ROV tapes. Brian is working on software to process these videos and set the correct metadata and filenames. <https://bitbucket.org/mbari/tapemigration> . Part of this process also looks for timecode resets during a dive, which can cause problems with looking up some of the metadata. (Week 22)
- Investigating methods to extract frame rates from video files as part of video registration. <https://bitbucket.org/mbari/m3-registrar> (Week 22)
- Completed first test run of ingesting videos ripped from MBARI tapes by Iron Mountain. <https://mbari1.atlassian.net/browse/M3-120> . Working on improving accuracy of start times for iron mountain videos. (Week 23)
- Working on improvements and feature requests for VARS (Week 23)

- <https://mbari1.atlassian.net/browse/M3-123> (Week 23)
- <https://mbari1.atlassian.net/browse/M3-122> (Week 23)
- <https://mbari1.atlassian.net/browse/M3-124> (Week 23)
- <https://mbari1.atlassian.net/browse/M3-118> (Week 23)
- <https://mbari1.atlassian.net/browse/M3-117> (Week 23)
- Continue to work on Iron Mountain video ingest. The first test run showed we need better than second resolution for video start timestamps in order for tape annotations to align correctly with the video files. Modified the video registration to look at timestamp in filenames (up to millis resolution) then fall back to creation_date atom (second resolution) in files. (Week 24)
 - <https://bitbucket.org/mbari/tapemigration> (Week 24)
- Ironing out a few issues with video registration so that we can get framerate and the video codecs registered correctly. I was using Tika which did not get that info. The new pipeline uses ffmpeg and falls back to Tika if needed. Modified filenames to include milliseconds in timestamps. (Week 24)
 - <https://bitbucket.org/mbari/m3-registrar> (Week 24)
- As part of the video ingest work, I'm consolidating Java code used by various projects to make REST calls to M3 microservices. Also removing hacks and cleaning up the video asset manager REST API. (Week 24)
 - <https://github.com/mbari-media-management/vampire-squid> (Week 24)
 - <https://github.com/mbari-media-management/vars-annotation> (Week 24)
- Merged recent Mini ROV annotations into the main database. <https://mbari1.atlassian.net/browse/M3-127> (Week 24)
- Adding codesigning to various applications for Macs as Gatekeep flags non-signed apps as corrupted. (Week 24)
- Continuing to add and improve features to M3/VARS needed to support ML workflows and the upcoming Iron Mountain videos from tapes. (Week 25)
- I released the following updates this week. The user apps can be downloaded from <http://m3.shore.mbari.org/apps/> (Week 25)
 - Cthulhu 0.0.2 (Week 25)
 - vars-annotation 0.5.0 and 0.5.1 (Week 25)
 - Annosaurus 0.7.0 (Week 25)
 - Vampire-squid 0.3.0 (Week 25)
- In preparation for the Iron Mountain tape to video project, re-working the automated video registration with the following changes: (Week 25)
 - Improved video start time resolution from seconds to milliseconds (Week 25)
 - Consolidating REST Client code so that I have reliable and well-tested libraries for use with M3 applications. (Week 25)
- Providing advice to CSIRO on Dockerizing their VARS application builds. (Week 25)
- Many bug fixes and feature releases this week in the microservices and vars-annotation. (Week 26)
- Addressed a bottleneck (due to parallel processing of videos,checksum creation) in the video registrar. (Week 31)
- Fixed misnamed videos from recent Mini ROV cruises. (Week 31)
- Getting VARS public query up and running (Week 33)
- Updating public image watermarking code from VARS to newer M3/VARS system. (Week 33)
- Completing a port of software that supports various VARS tasks such as Samples database integration, framegrab deletion reports, and video file metadata synchronization from VARS to M3/VARS. (Week 34)
- Migrated support tasks from the server seaspray to quasar and expanse. (Week 34)
- Migrated all remaining supporting applications from VARS to M3/VARS and moved them off seaspray.shore.mbari.org which is being retired in September. Docker apps were moved to expanse.shore.mbari.org. Non-docker apps were moved to quasar.shore.mbari.org. (Week 35)
- As part of the tape-to-video file migration, discussing with the video lab how to manage timecode resets and jumps that occur mid-tape or during a dive. (Week 35)
- Completed migration of all support applications off of Seaspray to Expanse and Quasar (Week 36)

- Started prototyping a web based query app. Added additional APIs to the knowledgebase to support this. (Week 36)
- For the tape-to-video conversion, I'm continuing work and discussions on locating and dealing with timecode resets. (Week 37)
- Completed migration of supporting apps from Seaspray to other VMs (Week 37)
- Added tools to generate reports for all anomalies found in camera logs for dives. This tool is used to help identify problematic tapes before Iron Mountain begins the tape to video conversion of all MBARI tapes. (Week 38)
- Completed migration of all apps from seaspray to expanse and quasar. (Week 38)
- Working with video lab to handle annotations of organism parts (requested for ML-tracking project) (Week 39)
- Along with the video lab, hashing out how to manage non-core video data in VARS. (For example, benthic lander camera, bioinspiration stereo cameras) (Week 41)
- Hardware encoder support for AV1 is being released. Starting discussion on codecs for working with 4K video. (Week 46)
- Helping video lab explore options for serving video files to public (Week 47)
- Imported annotations from recent Mini ROV dives into the shore database. Working with Lonny and Kakani to sort out the dive number mess from them. (Week 47)
- In prep for upcoming 4K video, ran tests with HEVC and VP9 mezzanine video files for dives Doc Ricketts 1313 and Ventana 4313 (Week 48)
- Investigating issues that have been occurring with the automated registration. Bad things happen when file names have spaces (not web URL friendly) or duplicate videos are on M3 (registration tracks videos by checksum, duplicate videos put registrar in a loop where it keeps swapping video info between the two identical files) (Week 50)

901221 - Midwater Time Series

- Investigation into global change request of annotations for Pilalidium to Earleria (Week 5)
- As part of IS's CentOS retirement, Brian migrated the midwater-transects analysis apps from the server seaspray to expanse (Week 5)
- *Investigating data issues with midwater transects annotations. M3-89, M3-90, M3-91. (Week 6)*
- Investigated anomalies in midwater transect annotation data. (Week 7)
- Updated the auv-rawdata-server microservice and redeployed (Week 16)
- Running an analysis to look at variations between annotators for the same transects. (Week 26)
- Wrote some Matlab code for quicklook plots using local AUV log files. This will allow the midwater lab to troubleshoot data issues with the AUV while at sea. (Week 33)
- Helping Rob build queries for mining VARS data (Week 37)

901602 - Data TAG: Addrss Eng Chng

901603 - Video TAG: Vis Ocean Chng

901618 - Pelagic-Benthic Coupling

902002 - Fathomnet Detect and Classify

- Investigated methods to integrate localized labels of parts of organisms into existing annotations. M3-87 (Week 6)
- FathomNet kick off meeting (Week 6)
- Completed integration of ZeroMQ notifications when a new annotation is created in support of Kakani's research. (Week 7)
- Deployed updated M3/VARS software stack for the MiniROV (Week 7)

- Updated FathomNet external repo doc with User stories. (Week 9)
- Started roughing out a data schema to meet user stories requirements. <https://bitbucket.org/mbari/fathomnet> (Week 9)
- Presented user stories to FathomNet team, continues work on data modeling for search/archive/retrieval. (Week 10)
- Modifying annotation service (annosaurus) to provide real-time notifications when associations are added or updated. (Week 10)
- Updated annosaurus to publish associations (i.e. details about annotations) via ZeroMQ and deployed in on the MiniROV computer. (Week 11)
- Worked on drafts of UI design for a FathomNet web interface. (Week 14)
- Thinking through data server design and user stories (Week 16)
- Assisting Joost with migrating DeepPIV videos to M3 (Week 18)
- Ran tests on Kevin Barnards code that loads building boxes from RectLabel into VARS to verify that it's copacetic. <https://mbari1.atlassian.net/browse/VAA-30> (Week 18)
- Working on an API for bounding box ingest and archiving <https://bitbucket.org/mbari/fathomnet> (Week 19)
- Added ingest of CSV files to fathomnet (Week 21)
- We have a requirement to track changes/change history of images and bounding boxes, so I'm working through that in the database design. <https://bitbucket.org/mbari/fathomnet> (Week 21)
- Verified DeepPIV videos, 2015 videos are now integrated with M3 (Week 21)
- Converted user stories to JIRA issues to allow progress tracking. (Week 21)
- Reviewing teams's submission to NeurIPS 2020 (Week 23)
- Weekly meetings (Week 26)
- Started some courses on implementing CQRS, which could be used to track change history in FathomNet. (Week 26)
- Working on REST API for ingesting bounding box information (Week 28)
- Cleaned up externally loaded annotations. We've created a new `activity` in VARS named `localize` for annotations that are specifically for machine learning. (Week 28)
- Working on read-view implementation of database. <https://bitbucket.org/mbari/fathomnet> (Week 30)
- FathomNet API is now being written using Micronaut. (Week 31)
 - API for CSV uploads and archiving of boundingbox/images is implemented (Week 31)
 - Swagger docs/ui are implemented (Week 31)
 - Testing using Docker/SQL Server container implemented (Week 31)
 - Docker compose stack (SQL Server/Kafka/Zookeeper) is implemented (Week 31)
 - Exploring authentication/user id management. (Okta, Auth0, Firebase) (Week 31)
 - API access logging is implemented (Week 31)
- Cranking away of FathomNet development (Week 32)
- Deploying development snapshots. API docs at <http://quasar.shore.mbari.org:8888/swagger-ui> and <http://quasar.shore.mbari.org:8888/rapidoc> (Week 32)
- Studying up on OAuth 2.0 and OpenID Connect (... zzzzzzzz). (Week 33)
- Investigating Okta, Auth0, Firebase, and <https://www.keycloak.org/> (Week 33)
- Researching OAuth and OpenID Connect (Week 34)
- Migrated code for applying embargoes and image watermarks from the older VARS to M3/VARS. (Week 34)
- Created executables for windows/linux/macOS for a VARS public query. (Week 34)
- Deep dive into OAuth 2.0. Working out how to implement authentication and security for FathomNet. Wrote some prototypes against Okta and Firebase Authentication. (Week 35)
- Started work on a minimal UI to enable authentication. (Week 35)
- FathomNet supports different taxa providers, currently MBAR's VARS knowledgebase and WoRMs. Had discussions with WoRMs developers about adding additional REST API features to better support FathomNet's needs. (Week 35)
- Added authentication via Google's firebase (Week 36)
- Created a web interface for FathomNet. (Week 36)

- Working on supporting services for FathomNet (validating images submitted, archiving original uploads of bounding boxes, user management, additional download formats) (Week 36)
- Continue to work on figuring out security for web interface and API endpoints (Week 37)
- Added the following features: (Week 38)
 - Fast geo-located image search endpoints (Week 38)
 - Uploads of bounding-box data now archives the original source files. (Week 38)
 - Working on nats integration for inter-app messaging. (Week 38)
- Working on docker-compose stack (Week 38)
- Still working on security. Current approach is firebase for authentication. Some user data, such as roles and expertise-rank, is stored in FathomNet. Also adding API keys to allow authentication without firebase so that users with API keys can access protected REST endpoints. (Week 38)
- Working with Make&Model to develop fathomnet web UI (Week 39)
- Expanding database model to accommodate growing use case list. (Week 39)
- Implemented security using Firebase and JWT. Example project and docs are here. (Week 39)
- Continue to work on data model and REST services (Week 41)
- Continue to work with <https://www.makemodel.co/> on fathomnet web UI (Week 41)
- Setting up external web server for FathomNet (<https://fathomnet.mbari.org>), database (on dione.mbari.org, and nats server (Week 41)
- External Fathomnet Server is now running at <https://fathomnet.org>. It's configured with SSL, and set up to proxy the fathomnet microservice. A prototype web UI for testing is deployed, but that is NOT the official UI we're working on. (Week 43)
- Fathomnet API docs at <http://fathomnet.org:8080/swagger-ui>, <http://fathomnet.org:8080/rapidoc>, <http://fathomnet.org:8080/redoc> (Week 43)
- <https://nats.io/> is running as a message system for fathomnet. (Week 43)
- Working with make and model on UI design (Week 43)
- Developing application to sync image localizations from VARS to Fathomnet. (Week 43)
- Adding API endpoints to support UI use cases. (Week 43)
- Created code for exporting data from VARS into FathomNet. (Week 44)
- VARS images have had copyright info added and are now staged on [atlas:/FathomNet](https://atlas.fathomnet.org) and service via <https://fathomnet.org>. A subsample of VARS annotations have been loaded into the fathomnet database for testing and development purposes. (Week 44)
- Still working through podman/SSL/CORS issues on the external server (Week 44)
- Continue to work on REST API. (Week 44)
- Continue to work with <http://makemodel.co> on user interface (Week 44)
- Fathomnet public API is up and running for development. Latest docs at <http://fathomnet.org:8080/swagger-ui> (Week 45)
- Working on Fathomnet web interface with <http://makemodel.co> <https://bitbucket.org/mbari/fathomnet> (Week 45)
- Continuing development of fathomnet web interface. (Week 46)
- The evolving web interface is at <http://fathomnet.org> (Week 46)
- Continuing work on FathomNet web interface. (Week 47)
- Investigated issues with wrong time zones for videos/annotations for a few dives. Created a quick reporting tool to help investigate issues in the future (Week 47)
- Continuing development of <http://fathomnet.org>. See <https://bitbucket.org/mbari/fathomnet> (Week 48)
- Added support for inter-app messaging using <https://nats.io/> (Week 48)
- Started work on app that listens for new image registration(via nats) and validates the images (e.g. verifies the URL is correct, extracts dimensions and checksum). <https://bitbucket.org/mbari/fathomnet-validator> (Week 48)
- FathomNet development is still in full swing. We hope to have it working and deployed by Dec 21st. We anticipate completing a paper on the same date. Wish us luck ;-) (Week 49)
- Continuing work on the fathomnet website and REST services. We're getting close! (Week 50)
- Started work on spinning up tooling for staff looking for tasks during the shutdown. There will be an opportunity to correct localizations in VARS. See <https://mbari.slack.com/archives/C01GU8N0ZKN> (Week 51)

- Continuing work on the fathomnet website and REST services. We're getting closer! (Week 51)
- Working on support services required by FathomNet (e.g. automated image validation and metadata extraction) (Week 51)

902005 - VARS Annotation Assistance

- Our external contractor, Caprica Software, has delivered a first iteration of a video player that interacts with VARS (as an alternative to Sharktopoda). This version will eventually support interactive feature localization that is required to support machine learning (e.g. draw and display bounding boxes on video.) Brian is testing the software and writing acceptance tests based on the phase 1 requirements. (Week 5)
- Attended VAA kickoff meeting. (Week 5)
- Continue to work with external contractor on a video player that supports annotation localization (i.e. draw and display bounding boxes around organisms in real-time) (Week 6)
- Assembled basic automation tests for the video player. See cthulu-phase1 (Week 6)
- Published new release of VCR4J which patches issues that appeared while creating automation tests. (Week 6)
- Working with external contractor on development of a video player that supports annotation localization (e.g. drawing bounding boxes.). Reviewed latest milestone delivery. Wrote additional acceptance tests. Working on UDP protocol for inter-app communication. (Week 7)
- Participated in a group meeting to discuss "What are we going to build?" (Week 8)
- Create library/protocol for communicating information about bounding box localizations between two remote applications (e.g. cthulu and vars-annotation). See <https://mbari1.atlassian.net/browse/VAA-17> and vcr4j 4.3.0.jre11. (Week 8)
- Created and implemented a communication protocol for exchanging localization/bounding box information between video player and external apps. <https://mbari1.atlassian.net/browse/VAA-17> (Week 9)
- Documented a workflow and API calls for loading VOC localizations of downloaded VARS framegrabs into M3/VARS. <https://mbari1.atlassian.net/browse/VAA-30> (Week 9)
- Running tests on the video player cthulu, which can provide on-the-fly bounding box localizations on video. Integrates with VARS (Week 10)
- Started integration of localization communication library into VARS in prep for cthulu delivery. (Week 10)
- Testing Cthulhu, a new video player for localizing annotations (Week 11)
- Completed evaluation of the cthulhu, a video player that supports annotation localization. Signed off as completed with external contractor. (Week 14)
- Working on integration of chullhu with vars-annotation. (Week 14)
- First release of Cthulhu, a new video player that supports drawing bounding box annotations directly on videos. Video of it in action at <https://youtu.be/FKeuG8-UYC0> (Week 15)
- Completed integration of Cthulhu with vars-annotation. Prepping new release of vars-annotation. (Week 15)
- New release of VARS Annotation which supports localization on video (Week 16)
- Packaged Cthulhu for Mac and Linux (Week 16)
- Added docs for localizing on video (Week 16)
- Working on data model and system design. (Week 18)
- Added documentation for registering video/image/annotation fro non-mbari videos at https://mbari-media-management.github.io/docs/mbari/registration_ex1.html (Week 19)
- Working on Software Requirments Doc. (Week 19)
- Participated in demos for UCSC of our video annotation ecosystem (Week 21)
- Worked on verification of localized videos that will be integrated into M3. (Week 21)
- Verified loaders of Pascal VOC localizations into M3/VARS (Week 21)

Out of Office

- Apr 3 - 13: Vacation
- April 17th. - Will be participating in [online Scala conference](#) on Saturday 18th instead

- May 29th - Daughter's HS graduation
- Jun 30 - Jul 3 Vacation
- ~~Jun 30 - Jul 1~~ [Vacation](#)



- Jul 13 - 17 Vacation
- I took Tuesday (9/8) off.
- Oct 12-16
- Worked ½ day on Tuesday
- Attending [Scale by the Bay](#) on Thu and Fri
- 12/21-1/1 Vacation

Overhead

- Brian submitted a capstone project to CSUMB for students to work on a project at MBARI. (Week 5)
- Met w/ CSUMB Capstone students to kick off a project. (Week 7)
- Put together collaborators agreements for CSUMB Capstone students. (Week 7)
- Attended external review talks and video lab demo (Week 9)
- Met with CSUMB Capstone students working on a web interface for visualizing videos and annotations from a dive. (Week 11)
- Virtually meeting w/ CSUMB students today (Week 12)
- Working through this book: Scala with Cats (Week 12)
- Wrote a bit of Python to read Dorado AUV log files. See readauvlog.py (Week 14)
- Continue meeting with CSUMB students who are making good progress on a dive overview web site. (Week 14)
- Met w/ CenCOOS to discuss serving VARS annotations into OBIS (Week 14)
- Meetings. OMG so many meetings. (Week 14)
- Continue working with CSUMB capstone students on a dive/annotation/video/images data portal to quickly allow video lab staff to quickly view information about an ROV dive. They presented their work to the video lab on Wed. (Week 15)
- Met with Diana LaScala-Gruenewald (New CenCOOS hire) to discuss exporting annotations to OBIS. (Week 16)
- Studying up on functional IO effects (Week 16)
- Working through tutorials on ZIO (Week 18)
- Continuing discussion with CSIRO on adapting localization tools for their M3/VARS system (Week 19)
- Continuing providing technical guidance to HURL on replacing VARS server. (Week 19)
- I grabbed my monitor and office chair from MBARI and am set up for `the duration` to work at home. (Week 19)
- CSUMB Capstone students are winding down their project. They gave their last demo last week. They are now working on their presentations. (Week 19)
- Fixed an issue with HURLS knowledgebase (Week 24)
- Working with CSIRO to package VARS UI Apps with Oracle drivers. Oracle drivers do not play well with jlink. (Week 26)
- Virtual meeting with interns (Week 26)

- Providing proposal input (Week 28)
- Providing feedback for 2020 telepresence work. (Week 28)
- Working on telepresence support for annotations for the mini-ROV for an upcoming dive. (Week 28)
- Working through courses on CQRS from lightbend academy (Week 28)
- Watching the virtual intern talks. (Week 33)
- Involved in telepresence discussions. Met with Paull's group to discuss using VARS as part of telepresence. (Week 35)
- Attended eDSBS meeting (Week 35)
- One of my laptops had a hard disk issue. I had to wipe the disk and reinstall the OS (Week 36)
- Working with IS to resolve issues introduced by the latest round of server patches. (Week 36)
- Working with Pat to sort out issues with Docker that occurred during the most recent IS patch updates to the Linux systems/ (Week 37)
- Working with Pat/IS on migrating older docker installations on linux VMs to docker-ce. (Week 38)
- Meet with <https://innotescus.io>. They are developing an on-line annotation platform and are seeking guidance on improving the tool for scientific applications. They have requested samples of our video/images in order to set up a demo for MBARI. (Week 38)
- Meeting with CSIRO today to discuss integrations of their ML work into VARS and FathomNet (Week 38)
- Continue to work with IS as they roll out upgrades to older linux VMs (Week 39)
- Met with CSIRO to discuss MBARI's ML efforts. (Week 39)
- Published a new docker image for running Polynote notebooks. <https://github.com/mbari-org/docker-polynote> (Week 39)
- Brian was out on vacation last week (Week 43)
- Working with Kakani's group on integrating DeepPIV and stereo camera data into VARS. (Week 46)