

Space Details

Key:	SPEPRJ
Name:	Support Engineering Group
Description:	
Creator (Creation Date):	kgomes (Apr 09, 2008)
Last Modifier (Mod. Date):	kgomes (Sep 24, 2009)

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 - 2011-03-14 NDBC Hybrid Follow Up
 - 2011-03-21 NDBC On site meeting
 - 2011-06-09 NDBC Deployment Follow Up Meeting
- OASIS Moorings
 - OASIS Data Flow
- OASIS Radio Upgrade
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- OASIS Release Notes
- oceana.mbari.org
- Overo Air Setup Use on Mac
- Precision pH Sensor
- Proposals 2009
- PTE database
- Qt
- QTKit Integration
- Rachel Carson
 - Vorne Alphanumeric Display
- Reliable High Precision pH Sensor
 - HRpH Sensors for Apr 2011 Deployment
 - HRPH Sensors for May 2009 Deployment
 - HRpH Sensors for May 2010 Deployment
 - HRPH Tech Transfer Package For Heron Island
- Reliable Wireless Power and Data Transfer Device (Easy Swap Connector)
 - Medium Power WPDx v1.0
- ROV Ventana
 - Ventana Precision Control - DVL driver
 - Ventana ROV Control PC RHEL5 Linux Upgrade
- RV Odyssey Team
 - 2011-03-15 I.S. and Support Scoping Meeting
 - 2011-03-29 Fox Outfitting Meeting
 - Cross Deck Task Scoping
- SAIC CENCOOS data management
- Seatel Microwave Pointing Controller Update
- Setup and Installation
- Setup of RabbitMQ Cluster and Load Balancer
- Standard Wire Color Code
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- Western Flyer
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- High Performance In-situ Processing for CANON mobile platforms
- JIRA Upgrade Notes
- New DGH can for high resolution pH and temperature measurement on an ROV
 - tDGH Can Users Guide
- Embedded Platforms
- Shark Cafe Camera

Support Engineering Group

This page last changed on Aug 26, 2015 by [kgomes](#).

Group Information

Support Engineering Charter

Support Engineering is a group of Mechanical, Electrical and Software Engineers that support the engineering needs at MBARI. We support operational systems and assets and develop new small to medium level engineering developments.

Roles

1. Provide engineering level technical support and leadership to Engineering, Operations and Science.
2. Follow established Engineering processes and procedures to address technical issues with operational systems.
3. Support operational systems, created by MBARI Engineering or purchased from outside sources, which require technical oversight.
4. Provide technical support for projects from the design phase to a completed oceanographic product.

Responsibilities:

1. Engineering level support of operational systems.
2. Training of Operations personnel in the maintenance and configuration of MBARI engineered systems.
3. Coordination of Software, Electrical and Mechanical Engineering level support.
4. Documentation of new and fielded systems.
5. Manage transition of MBARI engineered systems to operations.
6. Assist in the development of test plans and procedures.
7. Assist in test and integration of systems.
8. Serve as point of contact for mission specific modifications of existing MBARI assets.
9. Low level Engineering support of science.
10. Test, calibration and maintenance of analytical electrical and mechanical equipment.
11. Prototype testing and analysis.

Who we are			Planning Documents	Execution Documents
Name	Email	Other Contact Info	• Founding ◦ HP Way ◦ May 14, 1990 David Packard Memo to MBARI Staff ◦ MBARI Mission by David Packard ◦ November 1989 Remarks to Oceanographic Society ◦ November 1995 Comments on Draft of Strategic Plan • Strategic Planning ◦ 1998 Strategic Plan ◦ 2000 Long Range Plan	• Projects: 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011 • Publications ◦ Annual Reports 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009 ◦ Peer-reviewed publications ◦ Technical publications ◦ Workshop and conference reports
Thom Maughan (ext)	tm	Ph: x1865		
Mike McCann (ext)	mccann	Ph: x1769		
[~craig] (ext)	craig	Ph: x1931		
	salamy	Ph: x1820		

Karen Salamy (ext)			◦ Planning for MBARI's Next Initiative ◦ 2006 Strategic Plan ◦ 2008 Strategic Plan Update ◦ Education Strategic Plan ◦ Ocean Access Plan Workshop Report ◦ 2010 Strategic Plan (Draft) ◦ Engineering Charter • Implementation Plans ◦ 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011	◦ MBARI's First Decade: A Retrospective ◦ Publication Search • Resources ◦ Org Chart ◦ Lobos, Flyer, Pt. Sur Schedule (PDF) ◦ Zephyr Schedule (PDF) • Other ◦ Values Statement ◦ Group Meeting Notes
[~rich] (ext)	rich	Ph: x1712		
Kevin Gomes (ext)	kgomes	Ph: x2098 Cell: 233-9607 IM: kgomes@		

Supported Systems

System and Docs	Contact	System and Docs	Contact	System and Docs	Contact
MBARI Services Server • Setup and Installation	• Kevin Gomes • Rich Schramm	Core CTD Western Flyer • CTD-Optode • Valve Pack Controller	• Rich Schramm • Thom Maughan	Wireless Systems (Microwave) DORISS II Documentation	
MBARI Messaging Infrastructure • Installing RabbitMQ (AMQP) on RHEL5 • Setup of RabbitMQ Cluster and Load Balancer	• Kevin Gomes • Rich Schramm • Mike Risi	ROV Doc Ricketts Rachel Carson • Communication	• Rich Schramm • Craig Okuda • Rich Schramm	OASIS Moorings • MBARI OASIS 3 Mooring Guide • OASIS Radio Upgrade • OASIS Meeting Notes • OASIS Release Notes • Republish OASIS Data	• Rich Schramm • Craig Okuda • Kevin Gomes
Shore Side Data System (SSDS)	• Kevin Gomes	ROV Ventana • Ventana Precision Control - DVL driver • Ventana ROV Control	• Thom Maughan	AVED System Design Docs	

• SSDS Web App • Confluence Site • Google Code • JIRA • Documentation ◦ How to Configure Graphs		PC RHEL5 Linux Upgrade		oceana.mbari.org	• Kevin Gomes
		RV Odyssey Team	• Kevin Gomes • Craig Okuda • Rich Schramm	McStar Support Eng (Ear In The Sea)	• Thom Maughan
		MBARI/AIS Tracking	• Mike McCann	FOCE HRpH	• Thom Maughan
				FOCE WPDx	• Thom Maughan
Core Nav - MDUC	• Mike McCann • Rich Schramm			VARS • QTKit Integration	• Karen Salamy • Kevin Gomes
Core Mooring Data	• Kevin Gomes • Mike McCann				
Video Annotation DM	• Mike McCann • Rich Schramm				
AUV	• Kevin Gomes • Mike McCann				
Expedition Database • Web App	• Kevin Gomes • Rich Schramm				

Tools and Standards

Tools		Supported Standards
Software Licenses/Users Spreadsheet (SolidWorks, OrCad, MatLAB & MathCAD)		1. Standard Wire Color Code 2. Pressure Tolerant Electronics Database
Tool	Links	Tips and Technologies
Crowd	• crowd.mbari.org installation instructions • Crowd admin console	
		• Tips ◦ Setting up a computer on the MBARI Network

	• MBARIs Crowd Installation	◦ Linux System How Tos ◦ Useful Utilities ◦ Frameworks for monitoring files systems
Git	Git Working Session	• Technologies ◦ Apache HTTP Server - Setup of mod_jk ◦ C ◦ C++ ◦ Erlang - Overview of Erlang ◦ Java - JViews Diagrammer - Overview - Installation ◦ JavaScript ◦ Gumstix Overo Air - Overo Air Setup Use on Mac ◦ GUI Frameworks (web and non-web) - Adobe Products - Flex - Flash - Java - Qt - RealBasic - LiveCode ◦ Data Storage - File Systems - RDBMS - NoSQL
CVS	• Welcome to CVS letter • Setting up a CVS Graphical User Interface (GUI) • Adding your code to MBARI's CVS Source Code Repository • CVS Client Software Downloads	
SVN	• Adding your code to MBARI's SVN Source Code Repository • SVN Client Software Downloads • Setting up SmartSVN to MBARI SVN Repository	
Confluence	• Confluence Page • Confluence Installation Notes • Confluence Upgrade and Migration Notes	
JIRA	JIRA Upgrade Notes	
Continuous Integration Server	• build-server.shore.mbari.org installation • Build server upgrade notes	
Alfresco	• Alfresco 2.1.1 Installation Notes • Test Machine Setup • Upgrade of Alfresco 2.1.1 to 4.1.1	
Maven	• Maven-The Definitive Guide • Maven At MBARI	
UML	• Unified Modeling Language (UML) Reference Card	

AMQP	• Installing RabbitMQ (AMQP) on RHEL5	
Software Engineering Lab Inventory GUI (Design Stage Only)	Microsoft Access MDB	

Project Pages

Previous: [2008](#), [2009](#), [2010](#), [2012](#), [2013](#)

Click [here](#) for index of Support Engineering Pages

2008 Projects

This page last changed on Jun 01, 2009 by [kgomes](#).

Projects from Year 2008 for Support Engineering

- [Ventana Precision Control - DVL driver](#)
- [Ventana ROV Control PC RHEL5 Linux Upgrade](#)
- [Valve Pack Controller](#)

2009 Group Budget Details

This page last changed on Dec 08, 2009 by [tm](#).

Here are some details of 2009 budget items

Status as of November 4th:				Planned Spending					
Category	Available	Target	Available After Target	If we start with \$43,430 (all remaining funds minus the \$15,900 until I hear from Dale), the purchase list looks like					
Books	\$300		\$300	Item	Cost	Account	Responsible Person	Left After Purchase	Status
Conference	\$6,500	1. Any more AGU registrations? 2. Thom AGU/IEEE Membership (\$200)	\$6,300	Society Membership	\$200	5060-000	Thom	\$43,230	
Dues Membership	\$0		\$0	LabView	\$4000	5310-000	Thom	\$43,230	Not going to happen
Maint & Repair	\$7,500	HD Video Support	\$0	Enterprise Architect	\$600	5310-000	Kevin	\$42,630	
Computer Software	\$9,000	1. Labview Developer's Suite (share between Rich/Thom) \$4,000 2. Enterprise Architect License \$600	\$4,400	Backup for HP2133	\$254	5300-000	Rich	\$42,376	
Eng - Lab Supplies	\$15,900	This will depend on Dale's needs for pressure vessel stuff 1. Lab Supplies (Craig)		I2C-SPI Analyzer	\$450	5300-000	Thom	\$41,926	
Computer Hardware	\$830	1. Backup for HP2133 \$254	\$576	Monitor	\$1,200	5300-000	Thom	\$40,726	
	\$1,500		\$0	AGU Trip	\$1,000	5500-000	Mike	\$39,726	
				AGU Trip	\$1,000	5500-000	Thom	\$38,726	
				AGU Trip	\$1,000	5500-000	Karen	\$37,726	
				Bamboo Pen and Touch	\$107.17	5300-000	Kevin	\$	
				Jabra GN9125	\$300	5300-000	Kevin	\$	
				HD Decoder	\$4,330	5330-000	Craig	\$	
					\$?	5310-000	Craig		

Supplies - Tools		1. I2C-SPI Analyzer \$450 2. Monitor for Thom (pull-up 2010)		Terrain DB for RF Modeling					
				Books: \$97.85 5020-000Kevin	\$				✓
				1. Python Essential Reference 2. Beautiful Code					
Tuition	\$8,900		\$8,900	Registry \$29.95 5310-000Kevin	\$				✓
Travel	\$8,900	1. Thom, Mike, Karen AGU (\$3000)	\$6,900	Monitor \$1561.85 5300-000Brian	\$				✓
				Upgrade					
				CCE \$502 5310-000Thom	\$				✓
				Bigger Hard disk laptop, USB hdd and computer upgrade parts, plus cable card	\$940 5300-000Thom	\$			✓
				Server from I.S. For SSDS Upgrade	\$3500 5300-000Kevin				
				IBM ILog JView Diagrammer Components and Deployment Licenses	\$7500 5310-000Kevin				

Requests

Item	Cost	Responsible Person	Purchase Status
Serial 4 port adapter for HP2133 laptop	\$349 + 28 tx + ~25 ship = \$400	Rich	✓

computer. Quatech QSPXP-100 4 port PCIe based RS-232 serial ExpressCard			
Frontline serial protocol analyzer software pkg. When combined w/port adapter above will turn windows laptop into serial communications analyzer.	\$700 + 58tx + ~25 ship = \$785	Rich	
Modscan32 ModBus data scanner. ModBus communications testing device for verification of correct protocol operation with devices such as Wago modules used heavily on Tiburon and elsewhere.	\$70 + 5tx = \$75	Rich	This money was used for Hard drive upgrade on mondo so not purchased
Hard-drive Backup/ Recovery system for my HP2133 laptop CMS V2ABS 160Gb SATA ABSPlus external backup/recovery drive	\$211 + 18tx + ~25 ship = \$254	Rich	
Request a shore-side linux development/ test system similar to data-management and navproc linux systems deployed on both Western Flyer and Pt.Lobos. This will allow support group to develop, test and maintain software on-shore without risks associated with performing development on at-sea operational systems. This box could be shared between Support Engineering (R.Schramm et.al.) and Software Engineering Group (M.Risi) and dedicated to applications development and maintenance work.	1. HP Proliant DL145 CPU 1700+ 140 tx + 100 ship \$1940. 2. Digi AccelePort Xem Universal PCI 16-Port RS-232 1250+103tx + 35 ship \$1388.	Rich	
Labview Developer Suite - yearly maintenance for existing LabView licence.(formerly maintained by Eric Nelson)	\$3300	Rich	

Software/Tools	\$900.00	Thom	✅ ⚠️ +\$400 (MSP430)
Real Basic	\$550.00	Thom	✅
LabView Developers Suite	\$4,000.00	Thom	❌
Books	\$100.00	Thom	
for tech conference (training)	\$3,500.00	Thom	\$1600 Spent
Subscriptions	\$200.00	Thom	\$150
New monitor	\$1,100.00	Thom	
Supplies	\$200.00	Thom	

Not Budgeted Requests

Item	Cost	Responsible Person	Purchase Status
USB-SER Component for Frontline	\$500	Thom	✅
I2C-SPI Analyzer	\$450	Thom	
Day or two at AGU	\$700	Thom	
AGU or IEEE Membership	\$200	Thom	

2009 Projects

This page last changed on Jan 05, 2010 by [kgomes](#).

No.	Title	Resources	Allocated	Used	Available
Overhead	AIS Application (Where are the ships integration) 1. MBARI Tracking	Mike McCann			
Overhead	Seatel Microwave Pointing Controller Update	- Craig Okuda - Thom Maughan			
Overhead	Lobos-Ventana Planning	All			
200103	Core CTD Data - MDUC	- Mike McCann - Rich Schramm			
200105	Core Nav - MDUC	- Mike McCann - Rich Schramm			
200109	Core Mooring Data	Mike McCann			
300057	Mooring Maintenance	- Craig Okuda - Rich Schramm			
300058	DMO Support - Western Flyer Elevator Release Controller	Thom Maughan			
300062	DMO Support - Tiburon	Rich Schramm			
300066	DMO Support - Point Lobos	Rich Schramm			
300070	DMO Support - Ventana	- Thom Maughan - Craig Okuda			
300074	DMO Support - Zephyr	Rich Schramm			
300078					

	DMO Support - AUV	• Thom Maughan • Brian Schlining			
500055	Video Annotation DM	• Mike McCann • Karen Salamy • Brian Schlining			
600034	Control Tech - Rock	• Thom Maughan			
701026 900026	SENSORS	• Kevin Gomes • Karen Salamy			
798763	Observatory Middleware Framework	• Kevin Gomes			
900703	Benthic Biology & Ecology	• Craig Okuda			
900719	FOCE • Reliable High Precision pH Sensor • Precision pH Sensor • High Resolution PH Meter Assembly Instructions • FOCE DC-DC Converter assembly notes	• Kevin Gomes • Thom Maughan • Mike McCann • Karen Salamy • Rich Schramm			
900720	Onboard Decision Making	• Thom Maughan			
900722	Submarine Volcanism	• Mike McCann • Rich Schramm			
900731	EITS Data Handling	• Karen Salamy • Brian Schlining			

900807	AUV-Based Seafloor Imaging	• Thom Maughan • Mike McCann • Brian Schlining			
900820	Redirecting MOOS Science	• Kevin Gomes • Karen Salamy			
900821	Seafloor Imaging	• Brian Schlining			
900827	Modification of in-situ respirometer	• Craig Okuda			
900832	Zooplankton Diversity	• Brian Schlining			
900905	Feasibility Study for Applying AVED to Stills	• Karen Salamy			
900910	Midwater Ecology	• Craig Okuda • Brian Schlining • Rich Schramm			
900912	One-stop Shopping for Data	• Kevin Gomes • Mike McCann • Brian Schlining			
900915	ESP Surf Center	• Kevin Gomes • Karen Salamy • Brian Schlining • Rich Schramm			
900916	AUV Upper Ocean R&D	• Mike McCann			

2010 Group Budget Details

This page last changed on Jan 22, 2010 by [kgomes](#).

Hi all, here are all the items requested for the 2010 budget, their approval status and what accounts they should be charged to. There is also a spreadsheet that is attached that I am using to track the status of everything. The information on this page is a snapshot of the situation when we started 2010. It should not change throughout the year. The panel below contains a link to the attached spreadsheet where I am keeping an up to date tracking of where we are. Please take a peek at that if you have questions or come talk to me. Thanks!

Budget Details
I was going to track this here, but the calculations got to be a lot to manage in a wiki, so you can see the spreadsheet here: Support Engineering 2010 Budget Tracking Spreadsheet

Kevin

Requested Item	Cost	Approved?	Notes	Account To Charge	Purchase Status
Books	\$300			5020-000	
Subscriptions	\$200			5060-000	
PDA-Tablet	\$1000				
Snow Leopard Upgrade (2)	\$100			5310-000	 Purchased in 2009
Training	\$2500		All training/ conferences were dropped		
Conference	\$2500		All training/ conferences were dropped		
Hard drive and memory upgrade for laptop	\$500			5300-000	
UML Tool Evaluation and Purchase	\$2000		Pulled into 2009		 Purchased in 2009

Craig

Requested Item	Cost	Approved?	Notes	Account To Charge	Purchase Status
	\$2500			5150-000	

Software Maintenance					
Backup Hard Disk	\$250	✓		5300-000	
Books	\$200	✓		5020-000	
Subscriptions	\$200	✓		5060-000	
NAB 2010 Conference	\$2000	✗	All training/conferences were dropped		
IWCE 2010 Conference	\$1800	✗	All training/conferences were dropped		

Thom

Requested Item	Cost	Approved?	Notes	Account To Charge	Purchase Status
Software/ Tools/ Maintenance • Frontline \$500 • RealBasic \$200	\$700	✓		5310-000	
IAR for MSP430	\$3400	✓		5310-000	✓ Purchased in 2009
Books	\$350	✓		5020-000	
Training/ Tuition	\$1500	✗	All training/conferences were dropped		
Membership Dues	\$200	✓		5060-000	
New monitor/ computer upgrade	\$450	✓	Monitor pulled into 2009	5300-000	✓ Purchased in 2009
General Supplies (parts organizer)	\$350	✓		5320-000	
Dev Kit Evals	\$1500	✓		5300-000	✓ Purchased in 2009

Rich

Requested Item	Cost	Approved?	Notes	Account To Charge	Purchase Status
Books	\$500			5020-000	
Computer Hardware	\$500			5300-000	
Subscriptions	\$500			5060-000	
Real Basic Developers Conference	\$2500		All training/ conferences were dropped		
Digi TS-4 line Serial PortServer	\$575			5300-000	
Real Basic Software License	\$640			5310-000	 Purchased in 2009
Frontline Serial protocol analyzer software package	\$510			5310-000	 Purchased in 2009
OS-X/VMWare Upgrade	\$220			5310-000	 Purchased in 2009
Labview Developers Suite (maint)	\$3300			5310-000	
SQL Server 2008	\$60			5310-000	 Purchased in 2009

Mike

Requested Item	Cost	Approved?	Notes	Account To Charge	Purchase Status
Web3D Consortium Membership	\$3500			5060-000	
OGC Membership	\$1100			5060-000	
Books	\$200			5020-000	
Misc software	\$500			5310-000	

Training	\$3000		All training/ conferences were dropped		
Conference	\$2500		All training/ conferences were dropped		
Misc hardware	\$500			5300-000	

Karen

Requested Item	Cost	Approved?	Notes	Account To Charge	Purchase Status
Books	\$300			5020-000	
Membership	\$20			5060-000	
AGU Conference	\$1500		All training/ conferences were dropped		

Support Lab

Requested Item	Cost	Approved?	Notes	Account To Charge	Purchase Status
Misc consumables	\$5000			5320-000	
Pace Desoldering Station	\$1500			5320-000	 No longer needed
Lista Parts Cabinet	\$2300			5320-000	 Purchased in 2009
Calibration and Maintenance	\$1000			5130-000	
Refurbished OScope	\$3000		Maybe 2011?		 Purchased with funds from 2009
Lab Supplies - I2C/SPI TP320121 Protocol Analyzer - Handtools - DC-1Mhz 75W	\$2400		This DC-1Mhz will not be ordered to take this down from \$3400 to \$2400	5320-000	I2C/SPI purchased in 2009 (\$350)

Power Amplifier					
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Software Lab

Requested Item	Cost	Approved?	Notes	Account To Charge	Purchase Status
Subversion Server	\$3800		This will still be done, but we are looking deployment in VSphere		
SSDS Ingest Server Upgrade	\$3800		This server was obtained from I.S. in 2009, so will be transferred to I.S.	5300-000	 Purchased Cetus from I.S. in 2009
Server for JIRA	\$3800			5300-000	
Server for Bamboo	\$3800		This will still be done, but we are looking deployment in VSphere		
Server for Clover	\$3800		This will still be done, but we are looking deployment in VSphere		
Server for Crowd	\$3800		This will still be done, but we are looking deployment in VSphere		
Server for Fisheye	\$3800		This will still be done, but we are looking deployment in VSphere		
Server for Crucible	\$3800		This will still be done, but we are looking deployment in VSphere		
Additional RAM, DVD Burners, etc for Computers	\$2800			5320-000	
Mathworks licenses	\$17000			5150-000	

Aldec	\$2400	✓		5150-000	
RaveHD	\$2500	✓		5150-000	
Borland	\$4000	✗	Replaced with Enterprise Architect purchased in 2009		
MathCAD	\$650	✓		5150-000	
Wago Modules	\$1000	✓		5320-000	✗ Dale gave us some Wagos in 2009 so we will not purchase
Miscellaneous Lab Supplies (DVDs, CDs, cartridges, cables, etc.	\$2500	✓		5320-000	
Miscellaneous Software Development Tools	\$750	✓		5310-000	

Microwave and Wireless

Requested Item	Cost	Approved?	Notes	Account To Charge	Purchase Status
License Fees	\$3,000.00	✓		5330-000	
Rack and Hardware	\$1,500.00	✓		5330-000	
Subcarrier modem maintenance	\$1,800.00	✓		5330-000	
HD Decoder (used demo deal)	\$3,000.00	✓		5330-000	✓ Purchased in 2009 for \$4330
HD-SDI Cards for WF	\$2,300.00	✓		5330-000	
Misc	\$1,500.00	✓		5330-000	
Spare Microwave Transceiver	\$25,000.00	✓		1500-000	

Fix Toro WF SeaTel azimuth axis	\$5,000.00			1500-000	
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New Toro Site Development

Requested Item	Cost	Approved?	Notes	Account To Charge	Purchase Status
Initial permits and design	\$4,500.00		Purchased to get things in place	5130-000	
Fencing	\$2,000.00		Purchased to get things in place	5130-000	
Generator with ATS, site grounding and building feed (Day Elec)	\$21,000.00		Future purchase		
500 gal Propane tank	\$-		Future purchase		
PGE tie in	\$2,000.00		Future purchase		
Shelter, 8X12X9, shipping and installation total (Shelter One)	\$29,000.00		Future purchase		
Site Prep, grading etc.	\$4,000.00		Future purchase		
40' tower, Ice bridge and foundation TBD	\$20,000.00		Future purchase		
FCC Fees	\$6,000.00		Future purchase		
margin for error	\$10,000.00		Future purchase		

Pressure Test Facility

Requested Item	Cost	Approved?	Notes	Account To Charge	Purchase Status
Discrete components for electrical	\$7,500.00		Pressure Vessel Dropped		

and pneumatic controls					
Digiquartz transducer Model 9000, 20000 PSI	\$6,500.00		Pressure Vessel Dropped		
Heise CM 12" 0 to 20,000 PSI gauge	\$2,500.00		Pressure Vessel Dropped		
Digiquartz display and serial interface	\$800.00		Pressure Vessel Dropped		
Panel Computer, touch screen interface	\$2,500.00		Pressure Vessel Dropped		
Sheet Metal work, Hoffman panel and front panel	\$250.00		Pressure Vessel Dropped		
High Pressure fittings, HIP and Autoclave Engineers	\$1,400.00		Pressure Vessel Dropped		
Misc parts	\$500.00		Pressure Vessel Dropped		

2010 Projects

This page last changed on Jan 04, 2011 by [kgomes](#).

Project No.	Title	Allocated (hours)
701026	SENSORS	120
701725	MARS Oper. & Maint.	72
708760	OOI CI	80
708763	Observatory Middleware Framework	80
900820	Redirecting MOOS Science	208
900904	AMP	50
900915	ESP Surf Center	520
901001	AOSN	240
901005	Upper Water Column Visualization	80
901020	TTOS	40
Total		1490
Unallocated Hours		430
670000	Supervisor	600
Adjusted Unallocated Hours		-170

Thom

Project No.	Title	Allocated (hours)
300058	DMO Support - Western Flyer	90
300078	DMO Support - AUV	240
900719	FOCE	536
900820	Redirecting MOOS Science	80
901010	Distributed Autonomy	450
Total		1396
Unallocated Hours		524
	McStar Support Eng	160

	Benthic Biology and Ecology 901007	120
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Mike

Project No.	Title	Allocated (hours)
200103	Core CTD Data - MDUC	40
200105	Core Nav - MDUC	80
200109	Core Mooring Data	160
900820	Redirecting MOOS Science	35
900916	AUV Upper Ocean R&D	135
901005	Upper Water Column Data Visualization	800
901012	Imaging AUV (IAUV)	90
901023	Continental Margin Processes	80
Total		1420
Unallocated Hours		500

Craig

Project No.	Title	Allocated (hours)
300057	Mooring Maint	120
300066	DMO Support - Point Lobos	40
707976	Power Buoy:Prototype Test	350
900827	In-situ Benthic Respirometer - Ocean Acidification	536
900910	Midwater Ecology	40
901006	Benthic Event Detector (BEDs)	80
901007	Benthic Biology and Ecology	88
Total		1254
Unallocated Hours		666

Karen

Project No.	Title	Allocated (hours)
500055	MDUC - Video Annotation	200
900719	FOCE	1080
900900	Ocean Chemistry Greenhouse Gases	64
900906	EARTH	80
900915	ESP Surf Center	240
Total		1664
Unallocated Hours		256

Rich

Project No.	Title	Allocated (hours)
200103	Core CTD - MDUC	160
200105	Core Nav - MDUC	40
300057	Mooring Maint	160
300058	DMO Support - Western Flyer	110
300062	DMO Support - Ricketts	120
300070	DMO Support - Ventana	60
701725	MARS Operations & Maintenance	272
900910	Midwater Ecology	40
900915	ESP Surf Center	320
901005	Upper Water Column Data Visualization	240
901023	Continental Margin Processes	80
Total		1602
Unallocated Hours		318

2010 Resources

This page last changed on Dec 30, 2009 by [kgomes](#).

Here are the resources allocations for Support Engineers for 2010:

Kevin

Project No.	Title	Allocated (hours)
701026	SENSORS	120
701725	MARS Oper. & Maint.	72
708760	OOI CI	80
708763	Observatory Middleware Framework	80
900820	Redirecting MOOS Science	208
900904	AMP	50
900915	ESP Surf Center	520
901001	AOSN	240
901005	Upper Water Column Visualization	80
901020	TTOS	40
Total		1490
Unallocated Hours		430
670000	Supervisor	600
Adjusted Unallocated Hours		-170

Thom

Project No.	Title	Allocated (hours)
300058		90

Resource Notes

Technically there are 2080 work hours in a year. With 10 holidays, that leaves 2000 hours. Now with normal average of two weeks vacation, that leaves 1920. So normally percent allocations are:

Percent Allocation	Hours
100%	1920
90%	1728
80%	1536
70%	1344
60%	1152
50%	960
40%	768

Support engineers are to be allocated 50% time which means they can be allocated 960 hours. Realize that even though this time is allocated to projects, some of the projects are placeholders for support tasks. Projects like "DMO Support - XXXXXX" so some engineers actually have less than 50% of their time actually allocated to projects.

Other Notes

Breakdown of available FTE:

- Total Number of Work Days in Year = 260
- Minus 11 Holidays = 249
- Minus 2 weeks vacation = 239
- 60% of 260 = 156
- 60% of 239 = 143

So if you were to work X days on a project, you would be making Y% of your time available (239 days) to the project.

X (days)	Y (%)
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	DMO Support - Western Flyer	
300078	DMO Support - AUV	240
900719	FOCE	536
900820	Redirecting MOOS Science	80
901010	Distributed Autonomy	450
Total		1396
Unallocated Hours		524

Mike

Project No.	Title	Allocated (hours)
200103	Core CTD Data - MDUC	40
200105	Core Nav - MDUC	80
200109	Core Mooring Data	160
900820	Redirecting MOOS Science	35
900916	AUV Upper Ocean R&D	135
901005	Upper Water Column Data Visualization	800
901012	Imaging AUV (IAUV)	90
901023	Continental Margin Processes	80
Total		1420
Unallocated Hours		500

10	4%
20	8%
30	13%
40	17%
50	21%
60	25%
70	29%
80	33%
90	38%
100	42%
110	46%
120	50%
130	54%
140	59%

Craig

Project No.	Title	Allocated (hours)
300057	Mooring Maint	120
300066	DMO Support - Point Lobos	40
707976	Power Buoy:Prototype Test	350
900827	In-situ Benthic Respirometer - Ocean Acidification	536
900910	Midwater Ecology	40
901006	Benthic Event Detector (BEDs)	80
901007	Benthic Biology and Ecology	88
Total		1254
Unallocated Hours		666

Karen

Project No.	Title	Allocated (hours)
500055	MDUC - Video Annotation	200
900719	FOCE	1080
900900	Ocean Chemistry Greenhouse Gases	64
900906	EARTH	80
900915	ESP Surf Center	240
Total		1664

Unallocated Hours		256
Rich		
Project No.	Title	Allocated (hours)
200103	Core CTD - MDUC	160
200105	Core Nav - MDUC	40
300057	Mooring Maint	160
300058	DMO Support - Western Flyer	110
300062	DMO Support - Ricketts	120
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701725	MARS Operations & Maintenance	272
900910	Midwater Ecology	40
900915	ESP Surf Center	320
901005	Upper Water Column Data Visualization	240
901023	Continental Margin Processes	80
Total		1602
Unallocated Hours		318

2010 Resource Planning Notes

This page last changed on Nov 05, 2009 by [kgomes](#).

Projects for Support Engineers for 2010

Top Four Project Resource Planning

Summary

1. Craig Okuda will be close to full allocation in quarter 1. He will still have time for support tasks (microwave/radios), but not other project time for first two quarters (realistically).
2. Kevin Gomes is over-allocated for Q1 and Q2 by 124 hours/quarter. It will be assumed that Gomes will be fully allocated to SURF and MUCE for Q1 and Q2. This should be OK as group lead tasks should be lighter as start of year. Other impact is that SSDS support tasks might have to fall on McCann.

Resources By Project (numbers in hours)

Project	Q1	Q2	Q3	Q4
900827 - Respirometer Modifications	Okuda(224)	Okuda(212)	Okuda(104)	N/A
900820 - MOOS Upper Canyon Experiment	Gomes(104)	Gomes(104)	McCann(17)	McCann(15)
901004 - Long Range AUV	N/A	N/A	N/A	N/A
900915 - SURF Center	Gomes(260),Schramm(160)	Gomes(260),Schramm(160)	N/A	N/A

Resources By Person

Person	Q1	Q2	Q3	Q4
Okuda	224	212	104	0
Gomes	364	364	0	0
McCann	0	0	17	15
Schramm	160	160	0	0

Assumptions:

1. Support engineers normal allocation is 120 days(960 hours)/year
2. Divided across quarters is 240 hours/quarter
3. Support Group Lead will be allocated same as other support engineers but the 1/3 time will be towards overhead and support instead of just support

2011 Group Budget Details

This page last changed on Sep 07, 2010 by [kgomes](#).

Here is the list of 2011 requests:

Craig

Requested Item	Cost	Approved?	Notes	Account To Charge	Purchase Status
NAB Conference	\$1800			660000	
IWCE Conference	\$1800			660000	

Thom

Requested Item	Cost	Approved?	Notes	Account To Charge	Purchase Status
Computer Hardware (upgrades on I.S. replacement)	\$2600			5330-000	
Books	\$500			5020-000	
Subscriptions	\$200			5060-000	
Professional Memberships	\$250			5060-000	
Eval Boards	\$800			5020-000	
Misc Computer Software • VMWare License (\$250) • RealBasic Lic. Renewal (\$165) • Frontline Serial Analyzer Software Renewal (\$275) • CCS v4 (\$600) • IAR Update (\$2200) • Misc (\$300)	\$3790			5330-000	

Training	\$2500			660000	
Conference	\$2500			660000	
AGU Conference	\$850			660000	

Rich

Requested Item	Cost	Approved?	Notes	Account To Charge	Purchase Status
Books	\$500			5020-000	
Experts Exchange Subscription	\$120			5060-000	
Computer Hardware • BookEndz (\$350) • Misc (\$150)	\$500			5300-000	
Misc Computer Software • VMWare License Renewal (\$25) • Java Window Builder Renewal (\$125) • RealBasic Lic. Renewal (\$165) • MonkeyBread Software Plugin for RealBasic (\$150) • ChartDirectory Plugin for RealBasic (\$145) • Kagi/Vanhoek Plugin for RealBasic (\$110) • Einhugr Plugin for RealBasic (\$50) • Frontline Serial	\$1150			5330-000	

Analyzer Software Renewal (\$275) • Misc (\$100)					
Advanced Python Training	\$2200			660000	
Web Development with Python and Django	\$2100			660000	

Mike

Requested Item	Cost	Approved?	Notes	Account To Charge	Purchase Status
Books	\$200			5020-000	
ACM & Digital Library	\$260			5060-000	
OGC Membership	\$1100			5060-000	
Web 3D Consortium Membership	\$3500			5060-000	
Misc Computer Hardware	\$500			5300-000	
Misc Computer Software	\$500			5330-000	
Advanced Python/web development/mobile application development course	\$2500			660000	
SIGGRAPH 7-11 August 2011 in Vancouver, B.C.	\$2500			660000	

Karen

Requested Item	Cost	Approved?	Notes	Account To Charge	Purchase Status
Books	\$300			5020-000	

IEEE Membership	\$175			5060-000	
AGU Membership	\$20			5060-000	
AGU Conference	\$1500			660000	

Kevin

Requested Item	Cost	Approved?	Notes	Account To Charge	Purchase Status
Books	\$300			5020-000	
Subscriptions	\$200			5060-000	
PDA-Tablet	\$500			5300-00	
Extras for computer upgrade	\$2600		Due in April, for upgrades	5300-000	
Toolbox	\$500				
Enterprise Architect License Renewal	\$200			5330-000	
Window Builder Renewal	\$125			5330-000	
Adobe CS 5 Upgrade	\$1000			5330-000	
Adobe Flash Builder Renewal	\$125			5330-000	
Misc Software	\$300			5330-000	
Training	\$2500			660000	
Conference	\$2500			660000	

Support Lab

Requested Item	Cost	Approved?	Notes	Account To Charge	Purchase Status
Consumables	\$5000				
Calibration	\$1000				
Supplies/Tools	\$2000				

Software Lab

Requested Item	Cost	Approved?	Notes	Account To Charge	Purchase Status
SQL Server Licenses for SSDS 1. JMS Cluster A 2. JMS Cluster B 3. SSDS_Data A 4. SSDS_Data B	\$24,000 (6000 per)				
Windows Server licenses for SQL clusters	\$800				
Three servers (or hosting costs) for development tools (JIRA, Subversion, etc.)	\$12,000			5300-000	
Additional RAM, DVD Burners, etc for SWE lab Computers	\$2800			5320-000	
Mathworks license renewals	\$19000 (17 licenses)			5150-000	
Aldec license renewals	\$2400			5150-000	
RaveHD license renewals	\$2500			5150-000	
MathCAD license renewals	\$1500 (2 licenses)			5150-000	
JViews license renewals	\$1000 				
Miscellaneous Lab Supplies (DVDs, CDs, cartridges, cables, etc.)	\$2500			5320-000	

Miscellaneous Software Development Tools	\$750			5310-000	
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Microwave and Wireless

Requested Item	Cost	Approved?	Notes	Account To Charge	Purchase Status
License Renewal Fees	\$1000				
Misc Supplies	\$2000				
UPS batteries	\$2000				
Antenna (replacement)	\$1000				
Traing for microwave backup	\$ 				

Microwave Scenarios

#	Title	Description	Cost	Risks
1	Keep system the way the are now	1. Point Lobos keeps HD video, Live-Link and high-speed network. 2. WF has intermittent 1.5 Mbps network and analog video.	None (above costs listed above)	If there is a significant hardware failure it will be down for good. The manufacturer ended support in 2007. No new parts available.
2	Lobos Shutdown, WF Remains	1. All the existing digital microwave, HD hardware and Live-Link system would be moved to the WF giving them reliable high-speed network in the bay. 2. Old analog hardware is retired.	1. \$2500 for FCC license change fee 2. Misc hardware costs \$500 3. 40 hrs Support Eng 4. 40 hrs ET.	

3	The Lobos' systems remain intact and the WF's system is upgraded to digital microwave.	1. The WF would get reliable high-speed network in the bay. 2. Digital standard definition video from ship and Live-Link 3. The ROV video could be optionally upgraded to HD at some later date budget permitting.	1. Approximately \$37,000 - \$42,000. 2. 60 hrs Support Eng, 3. 40 hrs ET.	
3.5	Upgrade WF (from #3) to HD	If WF has digital microwave, we could upgrade the video to HD	\$20,000 (or less)	

New Toro Site Development

Requested Item	Cost	Approved?	Notes	Account To Charge	Purchase Status
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Pressure Test Facility

Requested Item	Cost	Approved?	Notes	Account To Charge	Purchase Status
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2011 Resources

This page last changed on Nov 02, 2010 by [kgomes](#).

2011 Projects

Kevin

Project No.	Title	Allocated (hours)
708153	ESP MRI-R2	365
900820	Redirecting MOOS Science	40
900904	AMP	25
901009	CANON	280
901020	TTOS	160
Total		870
Unallocated Hours		130

Thom

Project No.	Title	Allocated (hours)
900719	FOCE	350
900900	Ocean Chem Greenhouse Gas	160
901009	CANON	500
901010	Distributed Autonomy	200
Total		1210
Unallocated Hours		-210

Mike

Project No.	Title	Allocated (hours)
200105	Core Nav - MDUC	80
200109	Core Mooring Data	160
500055	Video Annotation DM	120
900820	Redirecting MOOS Science	40
900904	AMP	25

901009	CANON	900
901101	Ocean Imaging	40
901111	AUV Infrastructure Support	225
Total		1630
Unallocated Hours		-630

Craig

Project No.	Title	Allocated (hours)
300057	Mooring Maint	120
300066	DMO Support - Point Lobos	40
300078	DMO Support - AUV	80
900827	Ocean Acidification	138
900904	AMP	120
900910	Midwater Ecology	40
901007	Benthic Biology and Ecology	64
901112	Change in MB and CA Curr.	80
Total		682
Unallocated Hours		318

Karen

Project No.	Title	Allocated (hours)
500055	MDUC - Video Annotation	200
900719	FOCE	700
900820	Redirecting MOOS Science	10
901009	CANON	200
901020	TTOS	40
900900	Ocean Chemistry Greenhouse Gases	64
900906	EARTH	80
900915	ESP Surf Center	240

Total		1150
Unallocated Hours		-150

Rich

Project No.	Title	Allocated (hours)
200103	Core CTD - MDUC	160
200105	Core Nav - MDUC	40
300057	Mooring Maint	160
300058	DMO Support - Western Flyer	80
300066	DMO Support - Point Lobos	40
500055	Video Annotation DM	40
701725	MARS O&M	40
708153	ESP MRI-M2	328
900911	Midwater Time Series	112
Total		1000
Unallocated Hours		0

2012 Craig Resource Tracking

This page last changed on Jul 18, 2012 by [kgomes](#).

Updated 7/18/2012

Craig				
Project No.	Title	Allocated (hours)	Spent	Diff
300057	Mooring Maint	120	41	79
300058	DMO - WF	15	0	15
300079	DMO - RC	70	0	70
901007	Benthic Biology	40	0	40
901020	TTOS	20	0	20
901125	New Vessel	400	824	424
901200	AMP	120	0	120
901202	Respirometer Upgrade	440	18	422
901220	Midwater Ecology	40	0	40
901226	NDBC	0	72	72

2012 Karen Resource Tracking

This page last changed on Jul 18, 2012 by [kgomes](#).

Updated 7/18/2012

Karen				
Project No.	Title	Allocated (hours)	Spent	Diff
300057	Mooring Maint	60	0	60
500055	Video Annotation DM	160	0	160
901009	CANON	200	0	200
901216	Ocean Chem	40	0	40
901219	Shallow FOCE	960	90	870

2012 Kevin Resource Tracking

This page last changed on Jul 18, 2012 by [kgomes](#).

Updated 7/18/2012

Kevin				
Project No.	Title	Allocated (hours)	Spent	Diff
300057	Mooring Maint	20	23	3
300058	DMO Support-Western Flyer	0	2	2
708153	ESP MRI-R2	150	32	118
901009	CANON	680	307	373
901020	TTOS	25	1	24
901125	New Vessel	200	6	194
901200	AMP	0	2	2
901201	EARTH	4	0	4
901212	Support Eng Upgrades	333	6	227
901207	Legacy Data	74	0	74
901219	Shallow Water FOCE	0	15	15
901226	NDBC Mooring	0	32	32

2012 Mike Resource Tracking

This page last changed on Jul 18, 2012 by [kgomes](#).

Updated 7/18/2012

Mike				
Project No.	Title	Allocated (hours)	Spent	Diff
200103	Core CTD - MDUC	0	17	17
200105	Core Nav Data	80	0	80
200109	Core Mooring	120	0	120
500055	Video Annotation DM	0	2	2
901006	BEDS	100	1	99
901009	CANON	880	704	176
901111	AUV Infrastructure	128	6	122
901207	Legacy Data	279	0	279
901212	Support Eng Upgrades	150	0	150

2012 Project Page

This page last changed on Jan 10, 2013 by [kgomes](#).

5020-000 Books/Subscriptions	Karen - Books	\$300.00
5020-000 Books/Subscriptions	Mike - Books	\$166.01
5020-000 Books/Subscriptions	Rich - Books	\$302.76
5020-000 Books/Subscriptions	Rich - Experts Exchange Subscription	\$90.15
5020-000 Books/Subscriptions	Thom - Books	\$353.37
5020-000 Books/Subscriptions	Thom - Subscriptions	\$200.00
5060-000 Dues/Membership/Licenses	Karen - AGU	\$20.00
5060-000 Dues/Membership/Licenses	Mike - ACM & Digital Library	\$300.00
5060-000 Dues/Membership/Licenses	Thom - Professional Membership	\$350.00
5130-000 OS - General	Calibration	\$1000.00
5300-000 Supplies - Cmptr/Hdwr	Mike - Misc Hardware	\$500.00
5300-000 Supplies - Cmptr/Hdwr	Rich - Misc Hardware	\$12.25
5300-000 Supplies - Cmptr/Hdwr	Karen	\$500.00
5300-000 Supplies - Cmptr/Hdwr	Craig - Dev/Eval PCB (Encoder test)	\$1200.00
5310-000 Supplies - Cmptr/Sftwr	Craig - TAP6 License Renewal	\$1300.00
5310-000 Supplies - Cmptr/Sftwr	Kevin - iOS Developer License	\$100.00
5310-000 Supplies - Cmptr/Sftwr	Karen - Misc Software	\$26.00
5310-000 Supplies - Cmptr/Sftwr	Mike - Misc Computer Software	\$500.00
5310-000 Supplies - Cmptr/Sftwr	Rich - VMWare License	\$25.00
5310-000 Supplies - Cmptr/Sftwr	Rich - MonkeyBread Software 4 RB	\$150.00
5310-000 Supplies - Cmptr/Sftwr	Rich - Einhugr 4 RB	\$50.00
5310-000 Supplies - Cmptr/Sftwr	Rich - Frontline Serial Analyzer	\$275.00

5310-000 Supplies - Cmptr/Sftwr	Rich - iOS Developer License	\$100.00
5310-000 Supplies - Cmptr/Sftwr	Rich - Misc Software	\$80.06
5310-000 Supplies - Cmptr/Sftwr	Thom - VMWare License	\$25.00
5310-000 Supplies - Cmptr/Sftwr	Thom - RealBasic Renewal	\$532.00
5310-000 Supplies - Cmptr/Sftwr	Thom - Frontline Serial Analyzer	\$275.00
5310-000 Supplies - Cmptr/Sftwr	Thom - CCS v4 for DSP	\$3600.00
5310-000 Supplies - Cmptr/Sftwr	Thom - IAR Update	\$2345.32
5310-000 Supplies - Cmptr/Sftwr	Software Lab - Server Licenses (VMs)	\$776.13
5310-000 Supplies - Cmptr/Sftwr	Software Lab - Misc Software Dev Tools	\$551.00
5310-000 Supplies - Cmptr/Sftwr	SSL Certificates	\$600.00
5320-000 Supplies - Eng. Lab	Support Lab - Supplies/Tools	\$1482.68
5320-000 Supplies - Eng. Lab	Support Lab - Replace Lab Microchip ICD2	\$500.00
5320-000 Supplies - Eng. Lab	Support Lab - New Monitor	\$500.00
5330-000 Non-Capitalized Equipment	Software Lab - Addtional RAM, DVD Burners, etc.	\$2798.78
5330-000 Non-Capitalized Equipment	Software Lab - Misc Lab Supplies	\$1932.59
5330-000 Non-Capitalized Equipment	Microwave and Wireless - License Renewal Fees	\$160.00
5330-000 Non-Capitalized Equipment	Microwave and Wireless - Misc Supplies	\$2000.00
5360-000 Supplies - General	Lab Supplies	\$375.47
5360-000 Supplies - General	Thom - Carmel Robotics	\$100.00

Kevin			Thom			Mike		
Project No.	Title	Allocated (hours)	Project No.	Title	Allocated (hours)	Project No.	Title	Allocated (hours)

300057	Mooring Maint	20	901009	CANON	688	200105	Core Nav Data	80
708153	ESP MRI-R2	150	901010	Distributed Autonomy	200	200109	Core Mooring	120
901009	CANON	680	910200	AMP	160	901006	BEDS	100
901020	TTOS	25	901202	Resp. Upgrade	80	901009	CANON	880
901125	New Vessel	200	901219	Shallow Water FOCE	310	901111	AUV Infrastructure	128
901201	EARTH	4				901207	Legacy Data	279
901212	Support Eng Upgrades	333				901212	Support Eng Upgrades	150
901207	Legacy Data	74						

Craig			Karen			Rich		
Project No.	Title	Allocated (hours)	Project No.	Title	Allocated (hours)	Project No.	Title	Allocated (hours)
300057	Mooring Maint	120	300057	Mooring Maint	60	200103	Core CTD	160
300058	DMO - WF	15	500055	Video Annotation DM	160	200105	Core Nav	40
300079	DMO - RC	70	901009	CANON	200	300057	Mooring Maint	140
901007	Benthic Biology	40	901216	Ocean Chem	40	300058	DMO - WF	40
901020	TTOS	20	901219	Shallow FOCE	960	300079	DMO - RC	40
901125	New Vessel	400				701118	MARS	144
901200	AMP	120				901125	New Vessel	400
901202	Respirometer Upgrade	40				901207	Legacy Data	206
901220	Midwater Ecology	40				901212	Support Eng Upgrades	333

Tracking

- [2012 Kevin Resource Tracking](#)
- [2012 Thom Resource Tracking](#)
- [2012 Mike Resource Tracking](#)
- [2012 Craig Resource Tracking](#)
- [2012 Karen Resource Tracking](#)
- [2012 Rich Resource Tracking](#)

Here are some notes regarding work proposed for the Support Engineering Group for the year 2012.



Training ideas

This may be a good place for justification for training, so keep that in mind.

Support Engineering Group Proposal Ideas

1. Data Processing Chain Solidification? (STOQS?)
 - a. OA Moorings ? We are done.
2. Workflow tool exploration?
 - a. There is some opportunity to leverage some development activity within the CANON initiative to explore workflow tools and also provide some prototype functionality for the QoS tools exploration. The CANON data processing accomplishments over the last few years have built upon previous MBARI data management successes and is of sufficient maturity to make plans for capturing information about the processing such that this workflow information is treated as a "first class" product, just as the data are. Here is a [diagram that depicts the capture of CANON data processing information](#).
3. Offline data tools for WF GOC?
4. Software Engineering Lab clean out (talk to Duane)? Take this off Karen's list?
5. SVN upgrade/CVS? (share responsibility with I.S.?)
6. O4 for OASIS/Hybrid upgrades
7. Antennae platform is broken for WF on Mt. Toro
8. ROV Control Computer upgrade examination(Ventana): if not part of cross decking.
9. Cloud Exploration and analysis:
 - a. Understanding systems like Turnkey (<http://www.turnkeylinux.org/>) and the pros and cons to enable folks at MBARI to start moving processing there.

NCV

1. DMO will be putting in a proposal for this if the vessel is acquired.
2. Talk to Steve and get trip planned.

Legacy System Transitions

I.S. needs to transition a list of machines and software to more modern foundations and will need help from Support Engineering whose applications are running on some of the platforms. Here is the list of platforms and what their target transitions will be. Also is the persons to be involved and the estimate of hours for each person to complete it.

HP-UX				
Goal is to retire HP-UX machines, replace with RHEL Linux VMs (or physical machines where necessary)				
System	Purpose	Notes	Resources	Hours
eclipse	NIS master, NetApp master, NTP, 911/firealarm		No Support Engineering Required	0

	paging, IS cron tasks, WF mail staging, Psynch, sendmail alias maintenance			
gr8white	core data transfer and processing (NAV, CTD for PL, WF, Ventana, Doc Ricketts), NTP	• Move to Linux VM • Install Perl 5 • Make sure FTP is setup correctly • Move over all load scripts • Make sure rovctd account is active	• Rich Schramm • Mike McCann • Kevin Gomes	• 8 (RS) • 8 (MM) • 10 (KG) - documentation
gustnado	ftp.mbari.org, mail gateway		No Support Engineering Required	0
lobos (Pt. Lobos)	mail relay, NTP [move these functions to logger?]	Will be part of the cross-decking of Ventana	• Rich Schramm	0
manta (Western Flyer)	shipboard mail server, NTP, NetBackup catalog off-host disaster recovery [move these functions to seadog]		No Support Engineering Required	0
reef	NTP, ICS BuilderXcessory, legacy development (Datamanager, tiburon)	• Back up the directories (burn to CD) and then delete	No Support Engineering Required	0
tsunami	OASIS data collection/processing, NTP	• Note that oasisa's home directory is local and will need to be moved • /oasis is a mount from tornado • Software will need to be recompiled for Linux • Documentation will be part of this too	• Rich Schramm • Mike McCann • Kevin Gomes	• 40 (RS) • 40 (MM) • 20 (KG) - documentation

Mac OSX				
Goal is to retire PowerPC Macs, transition anything required to Linux VMs				
System	Purpose	Notes	Resources	Hours
heckel	Francisco's group; mbsystem (both already migrated off?)		No Support Engineering Required	0
jeckel	SSDS and/or AUV data processing?	- The idea with this replacement server is that we would start to consolidate all SSDS related processing on this machine - The auvportal code is run here. It is checked out out of CVS in ssdsadmin's dev directory and is installed in /usr/local/auv_ctd. There is a parallel installation for the Benthic Imaging vehicle in /usr/local/auv_bi. The transition to to a Linux VM should be relatively painless and involves: - copying the /usr/local/auv_{ctd,bi} directories over - changing the IP address in the	- Mike McCann - Kevin Gomes	8 10 (KG) - documentation

		upload scripts on the Dorado main vehicle computers		
		3. finding and fixing any left over problems		
bob	SSDS ingest	This machine will be replaced by the combination of ssds.mbari.org and messaging.shore.mbari.org. Bob is being used for ingesting packets, storing them in a database and then forwarding them on to another JMS running on new-ssds (if necessary). I am going to mark this as zero hours and I am planning to have this change over done in 2011.	• Kevin Gomes • Neil Conner	• 0 • 0

SQL 2008				
Goal is to upgrade SQL 2000 to SQL 2008 (primarily replacing solstice with dione and another new VM); list below are the databases that would be affected				
System	Purpose	Notes	Resources	Hours
BOG	Support Francisco's BOG data store	This will be the responsibility of Francisco's group	No Support Engineering Required	0
Confluence	Database to back the Confluence web application	• This move will happen during an upgrade of Confluence and the database will be moved to dione	• Kevin Gomes	• 16
Crowd	The database that backs the Crowd	• This should be the	• Kevin Gomes	2

	authentication mechanism	DB that is currently on Equinox and is using the newest crowd application running on crowd.mbari.org		
DiveLog	Database to back the dive log application for Kim R.	• Rich contacted Kim to determine if the application is even being used and if not, it should probably just be archived and removed • As of this writing, I am assuming we have not received an answer, but will assume we are not migrating	• Rich Schramm	0
ENGDrawings		• These are mostly ASP pages • This is still actively being used • We should contact Dale Graves about usage and scoping • Changes should be documented	• Mike McCann	15
EXPD	Database backing the EXPD application	• This database has a lot going on: stored procedures, nightly jobs (nee DTS), asp scripts on typhoon. • We'll need a test system to make sure everything works. If it all works first time, then great - this	• Mike McCann • Rich Scramm	40 to 240

		- won't take much time. - If not, there may be a lot of rework to do. - Documentation - SQL may not be that bad, Mike has been chipping away at the code moving away from DTS - Rich to do some re-org - Stored procedures and views should just move to new DB - The web part is a mixture of perl and ASP - Ideal would be to move web stuff to linux/perl/apache		
Jira	Database that backs the JIRA issue tracking web application	This move will be done during an upgrade of the JIRA application	Kevin Gomes	16
SamplesDB	Database to back the Samples web application	- This database has a lot going on: stored procedures, linked tables to MS Access, nightly jobs (nee DTS), asp scripts on typhoon. - We'll need a test system to make sure everything works. If it all works first time, then great - this won't take much time.	- Mike McCann - Jenny Paduan	40 to 80

		• If not, there may be a lot of rework to do. The EXPD transition will help us know where the issues are, so the time estimate is a bit less for this database • Like EXPD • Flavor of BOG with some access forms • Mike will be adding a column for some work for Eve L. before the migration • There are cron jobs on seaspray that load the samples DB • There are no DTS jobs		
MMB	This is the database that backs the molecular database Rich built for ESP lab	• Should talk to Chris Scholin as to the projected use of this (we don't foresee it being used) • We can just move it to the new server without replication • Should just move straight across • If the lab does continue to use it, the DBs on the laptops will need to be upgraded and replication reinstated (we are not scoping for this)	• Rich Schramm	• 8

SSDS	Metadata and data database for the SSDS	This was done in July of 2011	No Support Engineering Required	0
TMA	Facilities database		No Support Engineering Required	0

IIS web servers				
Goal is to build new VMs with Windows 2008/IIS 7, migrate sites to them				
System	Purpose	Notes	Resources	Hours
sirocco	external web site, LOBOVIZ, "where are the ships"		• Mike McCann	• 8
typhoon	internal web site, Expedition database, Waypoints, webcams, SamplesDB, 3Dreplay, Engineering Drawings	• This will move to a new OS • Hence it will have a new IIS server • We should setup a "Test Typhoon" (new VM) and setup to point to foghorn, then Mike can test	• Mike McCann • Rich Schramm	• 20 • 10

DNR's				
These machines can't be upgraded/transitioned for various reasons, and per Francisco are to run until dead with no recovery, so we don't plan to transition them. Listed here in case there's something using them that needs to move elsewhere before they expire.				
System	Purpose	Notes	Resources	Hours
surf (HP-UX)	satellite data collection & processing			0
spongebob (Solaris)	satellite data processing			0

Quality of Service tools exploration

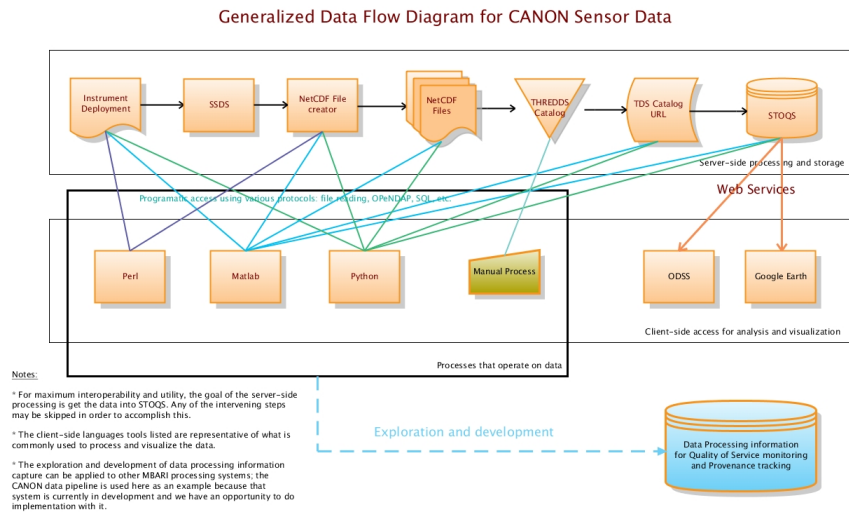
Working with I.S. I want to start looking at some technologies or frameworks to help us monitor all aspects of the application stacks that we are trying to support. This would be everything from the networking layers (i.e. Nagios) all the way up to giving people hooks to advertise status of it's operation. This will be combined with I.S. Legacy upgrade work. Task might be:

1. Initial Survey of Monitoring Frameworks and related technologies (40h Kevin, 20h Todd, 20h Pete)
2. Exploration and prototyping of a couple candidates on core data stream processing (mooring) (120h Kevin, 20h Todd, 20h Pete)

Capture of CANON data processing information

This page last changed on Jul 25, 2011 by [mccann](#).

Diagram that depicts the flow of CANON sensor data and the source of information we need to capture for quality of service monitoring and provenance tracking.



Tsunami Migration

This page last changed on Jan 10, 2013 by [kgomes](#).

Notes from tsunami migration:

1. The first step is to move the OASIS file share from Tornado to Atlas.
 - a. I sent out an email inquiring about users of OASIS share, they are:

Brian Schlining	Scripts on Elvis use the share mounted at / mbari/oasis
Ken Johnson	Opens M1, and M2 files, let him know when it moves
Fred Bahr	Just let him know, uses a pointer
Ken Heller	Just let him know, uses a pointer
Jared F.	Mostly just accessed, don't think much to do

For the most part, it looks like people just need notification.

2012 Rich Resource Tracking

This page last changed on Jul 18, 2012 by [kgomes](#).

Updated 7/18/2012

Rich				
Project No.	Title	Allocated (hours)	Spent	Diff
200103	Core CTD	160	61.5	98.5
200105	Core Nav	40	14.5	25.5
200109	Core Mooring Data	0	7.5	7.5
300057	Mooring Maint	140	54.5	85.5
300058	DMO - WF	40	44.5	4.5
300062	DMO - Ricketts	0	62	62
300079	DMO - RC	40	0	40
500055	Video Annotation DM	0	16	16
701118	MARS	144	0	144
901125	New Vessel	400	209	191
901207	Legacy Data	206	39	167
901212	Support Eng Upgrades	333	121	212

2012 Thom Resource Tracking

This page last changed on Jul 18, 2012 by [kgomes](#).

Updated 7/18/2012

Thom				
Project No.	Title	Allocated (hours)	Spent	Diff
901009	CANON	688	282	406
901010	Distributed Autonomy	200	231	31
901020	TTOS	0	39	39
910200	AMP	160	33	127
901202	Resp. Upgrade	80	0	80
901219	Shallow Water FOCE	310	152	158

2013 Project Page

This page last changed on Nov 15, 2012 by [kgomes](#).

Kevin	Thom	Mike	Craig	Karen	Rich	Group
-----------------------	----------------------	----------------------	-----------------------	-----------------------	----------------------	-----------------------

Kevin				
Year Start Labor		Year Budget Start		
Project	Hours	Master Category	Sub Category	Budgeted
300057 Mooring Maint	10	5020-000 Books/ Subscriptions	Kevin - Books	\$700.00
701118 MARS O&M	16	5060-000 Dues/ Membership	Kevin - Subscriptions	\$300.00
708153 MRI-R2	174	5300-000 Supplies Cmptr/Hdwr	Kevin - Misc Hardware	\$500.00
901009 CANON	860	5310-000 Supplies - Cmptr/Sftwr	Kevin - Aqua Data Studio	\$430.00
901010 Distributed Autonomy	160	5310-000 Supplies - Cmptr/Sftwr	Kevin - Enterprise Architect Renewal	\$400.00
901020 TTOS	47	5310-000 Supplies - Cmptr/Sftwr	Kevin - IntelliJ	\$200.00
901205 ESP Surf Center	40	5310-000 Supplies - Cmptr/Sftwr	Kevin - iOS Developer License	\$100.00
901212 Support Engineering Upgrades	100	5310-000 Supplies - Cmptr/Sftwr	Kevin - Adobe Collection	\$600.00
901302 Augmented Reality Applications	20	5310-000 Supplies - Cmptr/Sftwr	Kevin - Misc Software	\$100.00
901304 An integrated MBARI time series	40	5310-000 Supplies - Cmptr/Sftwr	Kevin - OmniGroup Updates	\$300.00
Total	1467			\$300.00
FTE	1600			
Diff FTE	133			
Target	1000			
Diff Target	-467			

	5310-000 Supplies - Cmptr/Sftwr	Kevin - Lynda.com	
	Training	Kevin - Fluent Conference	\$2000.00
	Training	Kevin - Web Development Training	\$3860.00
	Training	Kevin - Cloud Storage/ NoSQL Training	\$3000.00
	Training	Kevin - Mobile Development Training	\$3000.00

Thom				
Year Labor Start		Year Budget Start		
Project	Hours	Master Category	Sub Category	Budgeted
300062 DMO Support - Doc Ricketts	80	5020-000 Books/ Subscriptions	Thom - Books	\$500.00
901009 CANON	400	5020-000 Books/ Subscriptions	Thom - Subscriptions	\$200.00
901010 Distributed Autonomy	100	5060-000 Dues/ Membership	Thom - Professional Membership	\$350.00
901200 AMP	320	5060-000 Dues/ Membership	Thom - TWIC Renewal	\$150
901219 Shallow Water FOCE	500	5300-000 Supplies Cmptr/Hdwr	Thom - Eval Boards	\$800.00
Total	1400	5300-000 Supplies Cmptr/Hdwr	Thom - Misc Hardware	\$500.00
		5310-000 Supplies - Cmptr/Sftwr	Thom - VMWare License	\$75.00

	5310-000 Supplies - Cmptr/Sftwr	Thom - RealBasic Renwal	\$550.00
	5310-000 Supplies - Cmptr/Sftwr	Thom - Frontline Serial Analyzer	\$275.00
	5310-000 Supplies - Cmptr/Sftwr	Thom - CCS v4 for DSP	\$3600.00
	5310-000 Supplies - Cmptr/Sftwr	Thom - IAR Update	\$3700.00
	5310-000 Supplies - Cmptr/Sftwr	Thom - Misc Software	\$500.00
	Training	Thom - CES	\$1500.00
	Training	Thom - Embedded Systems	\$1500.00
	Training	Thom - AGU	\$1400.00
	Training	Thom - Matlab Fundamentals	\$3000.00
	Training	Thom - Interfacing MATLAB with C Code	\$1500.00
	Training	Thom - Python Scientific Computing	\$2000.00

Mike				
Year Labor Start		Year Budget Start		
Project	Hours	Master Category	Sub Category	Budgeted
200105 Core Nav	80	5020-000 Books/ Subscriptions	Mike - Books	\$200.00
200109 Core Mooring	120			
	40			

300058 DMO Support Western Flyer		5060-000 Dues/ Membership	Mike - ACM & Digital Library	\$300.00
901006 BEDS	100	5060-000 Dues/ Membership	Mike - OGC Membership	\$1100.00
901009 CANON	258	5060-000 Dues/ Membership	Mike - Web3D Membership	\$3500.00
901026 Molecular Ecology	440	5060-000 Dues/ Membership	Mike - TWIC Renewal	\$150
901111 AUV Infrastructure	80	5300-000 Supplies Cmptr/Hdwr	Mike - Misc Hardware	\$500.00
901207 Legacy Data System	200	5300-000 Supplies Cmptr/Hdwr	Mike - Memory Upgrade	⚠️ \$200.00 - purchased in 2012
901221 Midwater Time Series	40	5310-000 Supplies - Cmptr/Sftwr	Mike - Misc Software	\$500.00
Total	1358	Training	Mike - OceanSITES DM Team Meeting South Korea	\$3000.00
		Training	Mike - SIGGRAPH 2013 Anaheim	\$2500.00
		Training	Mike - FOSS UK	\$3000.00
		Training	Mike - Fall AGU	\$1400.00

Craig				
Year Labor Start		Year Budget Start		
Project	Hours	Master Category	Sub Category	Budgeted
300057 Mooring Maint	60			\$5000.00

300058 DMO Support Wester Flyer	15	5300-000 Supplies Cmptr/Hdwr	Craig - Computer Upgrade	
300079 DMO Support Rachel Carson	240	5300-000 Supplies Cmptr/Hdwr	Craig - Dev/ Eval PCB (Encoder test)	\$1200.00
901007 Benthic Biology and Ecology	40	5300-000 Supplies Cmptr/Hdwr	Craig - Test WiMAX Hardware	\$5000.00
901020 TTOS	50	5310-000 Supplies - Cmptr/Sftwr	Craig - TAP6 License Renewal	\$1300.00
901110 LR AUV	80	Training	Craig - NAB	\$1000.00
901200 AMP	120	Training	Craig - IWCE	\$1000.00
901202 Modification of Respirometers	400			
901220 Midwater Ecology	40			
901226 NDBC Collaboration	40			
Total	1045			

Karen				
Year Labor Start		Year Budget Start		
Project	Hours	Master Category	Sub Category	Budgeted
500055 Video Annotation DM	200	5020-000 Books/ Subscriptions	Karen - Books	\$300.00
901219 Shallow Water FOCE	965	5060-000 Dues/ Membership	Karen - AGU	\$20.00
Total	1185	5060-000 Dues/ Membership	Karen - IEEE	\$200.00
		5300-000 Supplies Cmptr/Hdwr	Karen - Computer Upgrade	\$2000.00
		5300-000 Supplies Cmptr/Hdwr	Karen - Misc Hardware	\$500.00

	5310-000 Supplies - Cmptr/Sftwr	Karen - Misc Software	\$500.00
	Training	Karen - Fluent Conference	\$2000.00

Rich				
Year Labor Start		Year Budget Start		
Project	Hours	Master Category	Sub Category	Budgeted
200103 Core CTD	160			
200105 Core Nav	40	5020-000 Books/ Subscriptions	Rich - Books	\$500.00
300057 Mooring Maint	80	5060-000 Dues/ Membership	Rich - TWIC Renewal	\$150
300058 DMO Support Western Flyer	40	5300-000 Supplies Cmptr/Hdwr	Rich - Misc Hardware	\$500.00
300070 DMO Support Ventana	40	5300-000 Supplies Cmptr/Hdwr	Rich - Apple Display	⚠ \$1200.00 - purchased in 2012
300079 DMO Support Rachel Carson	40	5300-000 Supplies Cmptr/Hdwr	Rich - Computer Upgrade	\$2000.00
901009 CANON	198	5310-000 Supplies - Cmptr/Sftwr	Rich - Aqua Data Studio	\$430.00
901020 TTOS	27	5310-000 Supplies - Cmptr/Sftwr	Rich - MonkeyBread Software 4 RB	\$150.00
901207 Legacy Data System	100	5310-000 Supplies - Cmptr/Sftwr	Rich - ChartDirectory Plugin 4 RB	\$145.00
901212 Support Engineering Upgrades	200	5310-000 Supplies - Cmptr/Sftwr	Rich - Kagi/ Vanhoeck 4 RB	\$110.00
901221 Midwater Time Series	100		Rich - Einhugr 4 RB	\$50.00
901226 NDBC Collaboration	80			
901300 ROV Upgrades	40			
Total	1145			

	5310-000 Supplies - Cmptr/Sftwr		
	5310-000 Supplies - Cmptr/Sftwr	Rich - Frontline Serial Analyzer	\$275.00
	5310-000 Supplies - Cmptr/Sftwr	Rich - iOS Developer License	\$100.00
	5310-000 Supplies - Cmptr/Sftwr	Rich - RealBasic Renewal	\$550.00
	5310-000 Supplies - Cmptr/Sftwr	Rich - Misc Software	\$200.00
	Training	Rich - Pro Django Training	\$4000.00

Support Engineering Group		
Year Budget Start		
Master Category	Sub Category	Budgeted
5130-000 OS - General	Calibration	\$1000.00
5150-000 OS - Maint Contracts	Mathworks License Renewal	\$22750.00
5150-000 OS - Maint Contracts	Aldec License	\$2400.00
5150-000 OS - Maint Contracts	MathCAD license	\$1500.00
5150-000 OS - Maint Contracts	SpecSoft	\$2500.00
5250-000 Representation/ Promotion	Representations	\$500.00
5310-000 Supplies - Cmptr/ Sftwr	Software Lab - Server Licenses (VMs)	\$2000.00
5310-000 Supplies - Cmptr/ Sftwr	Software Lab - Misc Software Dev Tools	\$750.00
5310-000 Supplies - Cmptr/ Sftwr	SSL Certificates	\$600.00
		\$860.00

5310-000 Supplies - Cmptr/ Sftwr	AquaDataStudio Console Annual License (Carson/WF)	
5320-000 Supplies - Eng. Lab	Support Lab - Consumables	\$6000.00
5320-000 Supplies - Eng. Lab	Support Lab - Supplies/Tools	\$7000.00
5320-000 Supplies - Eng. Lab	Support Lab - Replace Lab Microchip ICD2	\$500.00
5320-000 Supplies - Eng. Lab	Support Lab - New Monitor	\$500.00
5320-000 Supplies - Eng. Lab	Thom - Support Lab (Cables, connectors, power strips, etc.)	\$500.00
5320-000 Supplies - Eng. Lab	Rich - 19 Widescreen Rack- Mount Console w/8-Port KVM Switch	 \$990.00 - purchased in 2012
5330-000 Non-Capitalized Equipment	Software Lab - Additional RAM, DVD Burners, etc.	\$2800.00
5330-000 Non-Capitalized Equipment	Software Lab - Misc Lab Supplies	\$2500.00
5330-000 Non-Capitalized Equipment	Microwave and Wireless - License Renewal Fees	\$1200.00
5330-000 Non-Capitalized Equipment	Microwave and Wireless - Misc Supplies	\$2000.00
5360-000 Supplies - General	Lab Supplies	\$500.00
5360-000 Supplies - General	Thom - Carmel Robotics	\$600.00

AIS Application

This page last changed on Sep 24, 2009 by [kgomes](#).

The goals of this project are:

1. Create a web application that allows the users (MARS/DMO is the main customer) to track all the vessels in the Monterey Bay using AIS information. The areas of focus are M1, M2, and MARS (node and cable).
2. Move the "Where are the Ships" application to this new application
3. Consolidate the two computers used in the current "Where are the ships" application to one I.S. supported server.

Schedule:

1. Two weeks of time spread over several months (depending on Mike's workload).

Tasks:

1. Have I.S. setup a SQL Server 2008 server for the geospatial characteristics for supporting this project.
2. Load historical navigation data into SQL server for legacy purposes.
3. Talk with ITD about how we should put a notice of liability waiver on the web application.

Notes:

1. Unless this is resourced by the MT as a system/service that MBARI will provide to the community, this project will not be a critical application from MBARI's perspective (no uptime requirements).
-

Implementation thoughts from Mike:

- Use Google's Django and Python for an OR mapping solution
- Use Mapserver and Postgres
- Use simple DB on SQL Server with custom queries that work similar to other queries developed for Google Earth
- Use SSDS for holding the data in SSDS_Data tables for each device - would require a device ID for each platform
- Load the existing archive of text file logged positions for Lobos, Flyer, and Zephyr into database

[Implementation Details \(MBARI Tracking\)](#)

MBARITracking "project"

The MBARITracking project is a collection of software that has been written to process and make available various real-time position data feeds. These feeds include:

- MBARI ship positions - via our own VHF radio transmission
- MBARI mooring positions - via Iridium modem
- MBARI mooring positions - via OASIS or MOOS radio transmission
- MBARI AUV positions - via iridium modem
- All large ship positions that are visible from Mount Toro - via AIR VHF receiver

The collection of software has its origins from the "Where are the Ships?" page on MBARI's external web site. In 2009 a subversion project was created to host the various scripts and configurations that previously were spread across multiple systems. This provided an opportunity to create a better foundation for the "Where are the Ships?" service. The new architecture includes a relational database table for holding all the position data and a CGI script for extracting these data directly into GoogleEarth.

Get the software from subversion:

```
svn co svn+ssh://<login>@kahuna.shore.mbari.org/svn/repos/MBARITracking/trunk MBARITracking
```

where <login> is your account name on kahuna.

This package has been checked out to the following accounts on pismo.shore.mbari.org into the ~/dev directory (the password is the same for all these accounts - ask Mike McCann or Pat Allen for it):

- m1track
- m2track
- shiptrack
- aistrack
- auvtrack

Please refer to the README files in the package for further details on the implementation. For example here is the current version of the README file in the scripts directory:

```
scripts folder of the MBARITracking project
=====
```

```
$Id: README 5246 2009-07-08 18:14:29Z mccann $
```

The scripts here populate the MBARITracking database with position data. The various scripts are implemented in various ways from various accounts as indicated below:

Script	Account	Implementation
-----	-----	-----
grabShipPosition.py	shiptrack	Connect to socket, parse \$GPRMC, insert to DB, write to log
file		
shipWatchdog.py	shiptrack	Check log file like: 0,10,20,30,40,50 * * * * <path>/
shipWatchdog.py		
grabAISposition.py	aistrack	Connect to socket, parse AIS, insert to DB, write to log
file		
aisWatchdog.py	aistrack	Check log file like: 0,10,20,30,40,50 * * * * <path>/
aisWatchdog.py		
grabOasisTrackers.pl	m1track	Symlinked by grabM{1,2}tracker.pl, in .forward file, parse
MIME		
m2track	messages from email sent from Iridium modems, insert to DB.	

To monitor the successful operation of this system open this link in Google Earth: <http://elvis.shore.mbari.org/tracking/viewTracking.kml> (This link is on our public web site on the "Today in the Bay" web page: <http://www.mbari.org/cruises/all/plot/all700.html>).

If you can see data for the last hour then the real-time feeds and database are operating.

--

Mike McCann
23 July 2009

alfresco-test.shore.mbari.org Installation Notes

This page last changed on Dec 17, 2010 by [kgomes](#).

In order to properly have a test environment for our Alfresco installation, I went ahead and setup a HP xw4100 with Windows Server 2003 (SP-2) and setup an instance of Alfresco on that machine. Here are the steps I completed.

1. Logged into alfresco-test.shore.mbari.org as a local admin (my user account).
2. Downloaded Java 6 SE Development Kit Update 5 from java.sun.com and then double-clicked on the .exe.

 I installed it to c:\bin\Java

3. I added a Environment variable to the server named 'JAVA_HOME' and pointed it to 'C:\bin\Java\jdk1.6.0_05'
4. I then added ';%JAVA_HOME%\bin' to the end of the existing PATH environment variable
5. I then went to <http://customers.alfresco.com>
6. I logged in using kgomes@mbari.org as the username and the password that was supplied in an email to me from Alfresco
7. I browsed to 'Company Home'>'Downloads'>'2.1 Releases'>'2.1.1'
8. I changed to the 'Details View', made 40 items visible, and then downloaded 'alfresco-enterprise-tomcat-2.1.1.zip' file.
9. I then unzipped the downloaded file to c:\bin which created an alfresco-enterprise-tomcat-2.1.1 folder in c:\bin.
10. I renamed the alfresco-enterprise-tomcat-2.1.1 folder to simply alfresco.
11. I then went back to the web browser and went to 'Company Home'>'Downloads'>'2.1 Releases'>'2.1.1'>'License Files'
12. I am not sure if I can do this with our agreement, but I downloaded the 'enterprise-network-customer-unlimited.lic' file.

 I did get approval from Joe Van De Graaff at Alfresco to use the license for a test installation to get us through this issue.

13. I logged out of the Alfresco customer web site.
14. I Googled on jTDS to find the jTDS JDBC driver and downloaded the jtds-1.2.2-dist.zip file from the website.
15. Using Windows Explorer, I could just open the jTDS zip file and copy the jtds-1.2.2.jar file.
16. I then pasted it in the directory c:\bin\alfresco\tomcat\common\lib directory.
17. I created a c:\data\alf_data directory where the alfresco data will be stored. This is different from the production installation in that the content is stored on a network appliance (\tornado.shore.mbari.org\alfresco).
18. I installed a copy of SQL Server 2005 locally to use for the database to back the Alfresco test install.

 In order to do this without warnings, I had to go back and install IIS through the Add/Remove Programs Control Panel.

- a. I used the Local System account to run services and only used Windows Authentication logins
 - b. I installed all the service packs and the SQL Server Management Studio product to admin DBs.
19. In SQL Server, I added the SHORE\DB_Collaboration accounts to the logins.
 20. I created a new database named alfresco-test and made SHORE\DB_Collaboration the owner.
 21. I then went to the c:\bin\alfresco\tomcat\shared\classes\alfresco\extensions directory for the customization of the server.
 - a. I edited the custom-repository.properties file
 - i. Changed the dir.root and dir.indexes to look like:

```
dir.root=c:/data/alf_data
dir.indexes=c:/data/alf_data/lucene-indexes
```
 - ii. Commented out the db.* lines for the HSQL Connection (db.driver and db.url)
 - iii. Uncommented the db.* lines for MSSQL and changed to use the jTDS driver. They should look like (except the password should be the right one):

```
db.driver=net.sourceforge.jtds.jdbc.Driver
```

```
db.url=jdbc:jtds:sqlserver://localhost/alfresco-  
test;domain=SHORE;user=DB_Collaboration;password=XXXXXXXXX
```

- iv. I also added the following section to override the mail server settings

```
# Mail server configuration  
mail.host=mail.mbari.org  
mail.port=25  
mail.username=  
mail.password=
```

- b. Edited the custom-hibernate-dialect.properties file
- Commented out the HSQL Dialect
 - Uncommented the MSSQL Dialect

22. Now this is not necessarily fun, but in order to really get it configured the way we want it, you need to pull the original .war file out, edit some stuff inside and re-create the .war.

 This should all be done before starting Alfresco for the first time.

23. Copy the c:\bin\alfresco\tomcat\webapps\alfresco.war file to your home directory.
24. Make a second copy so that you will always have the original (I copied to alfresco.war.orig and moved it somewhere else. It is important to move it and have only the alfresco.war file in the directory because when you un-jar it, all the files go right where alfresco.war is.)
25. From a command line, un-jar the war file using:

```
jar -xvf alfresco.war
```

26. This unpacks a lot of files and after it completes, move (or delete) the alfresco.war file from the directory. This needs to be done so it does not end up in the new .war file.
27. I wanted to change the "Company Home" that seems to be everywhere to something that says MBARI.
- Edited ./WEB-INF/classes/alfresco/messages/webclient.properties and changed company_home from 'Company Home' to 'MBARI Test'
 - Edited ./WEB-INF/classes/alfresco/messages/webclient_en_US.properties and changed company_home from 'Company Home' to 'MBARI Test'
 - I edited ./WEB-INF/classes/alfresco/messages/bootstrap-spaces.properties and changed the first two lines to read
- ```
spaces.company_home.name=MBARI Test
spaces.company_home.description=The root of MBARIs Test Alfresco Server
```
- Edited ./WEB-INF/classes/alfresco/messages/bootstrap-spaces\_en\_US.properties and made the same changes as the previous step

 This took a bit to find all these, and to be honest, I am not sure which one actually made the change on the GUI, but I suspect it was the \_en\_US ones.

28. When users are imported via LDAP, user spaces get created automatically. In order to put them where I wanted them to go (instead of right in the Company Home), I edited the ./WEB-INF/classes/alfresco/authentication-services-context.xml file. In the file there is a bean with a name of personalHomeFolderProvider. There is a property name 'path' and I added

```
/${spaces.user_homes.childname}
```

to the end to try to get them to create the user spaces there instead of in the Company Home. The final bean XML looks like:

```
<bean name="personalHomeFolderProvider"
class="org.alfresco.repo.security.person.UIDBasedHomeFolderProvider">
<property name="serviceRegistry">
<ref bean="ServiceRegistry" />
</property>
<property name="path">
<value>/${spaces.company_home.childname}/${spaces.user_homes.childname}</value>
</property>
<property name="storeUrl">
<value>${spaces.store}</value>
</property>
<property name="homeFolderManager">
```

```

<ref bean="homeFolderManager" />
</property>
<property name="inheritsPermissionsOnCreate">
<value>>false</value>
</property>
<property name="ownerPermissionsToSetOnCreate">
<set>
<value>All</value>
</set>
</property>
<property name="userPermissions">
<set>
<value>All</value>
</set>
</property>
</bean>

```

29. I wanted to change the logo that is used. I attached the replacement [Alfresco Logo](#). Copy this to ./images/logo and overwrite the one that is there.



Note that I did NOT setup SSL for this installation so if I will need to come back and do that if I want truly parallel systems

30. Now in order to change the default behavior so that all content is versioned from the start, I edited the .\WEB-INF\classes\alfresco\model\contentModel.xml and searched for the content type definition block.

```

<type name="cm:content">
<title>Content</title>
<parent>cm:clobjct</parent>
<archive>true</archive>
<properties>
<property name="cm:content">
<type>d:content</type>
<mandatory>>false</mandatory>
<!-- Index content in the background -->
<index enabled="true">
<atomic>true</atomic>
<stored>>false</stored>
<tokenised>true</tokenised>
</index>
</property>
</properties>
</type>

```

and added the following block right before the ending </type> tag:

```

<mandatory-aspects>
<aspect>cm:versionable</aspect>
</mandatory-aspects>

```

so the final block looks like:

```

<type name="cm:content">
<title>Content</title>
<parent>cm:clobjct</parent>
<archive>true</archive>
<properties>
<property name="cm:content">
<type>d:content</type>
<mandatory>>false</mandatory>
<!-- Index content in the background -->
<index enabled="true">
<atomic>true</atomic>
<stored>>false</stored>
<tokenised>true</tokenised>
</index>

```

```

</property>
</properties>
<mandatory-aspects>
<aspect>cm:versionable</aspect>
</mandatory-aspects>
</type>

```

31. That takes care of all the changes to the WAR file. We can now put it back into .war form.
32. While you are in the directory you expanded the war file in, run
  - a. `jar cvfm alfresco.war META-INF\MANIFEST.MF`.
33. You should now have an alfresco.war file in the directory. Move that back to the alfresco install and overwrite the existing one.
34. Most users like the details view, so I set the default to that by editing `c:\bin\alfresco\tomcat\shared\classes\alfresco\extensions\web-client-config-custom.xml` and added:

```

<!-- MBARI Custom: Added this to change the default view to details -->
<config evaluator="string-compare" condition="Views">
<!-- the views available in the client -->
<views>
<!-- default values for the views available in the client -->
<view-defaults>
<browse>
<!-- allowable values: list|details|icons -->
<view>details</view>
<page-size>
<list>20</list>
<details>20</details>
<icons>20</icons>
</page-size>
</browse>
</view-defaults>
</views>
</config>

```

right before the closing `</alfresco-config>` tag.

35. Now in order to use MBARI accounts, NTLM authentication was turned on and then chained with the native Alfresco accounts so that we could have non-MBARI accounts on the Alfresco server.
  - a. For simplicity sake, I have attached the files and you can simply download and install them in the `c:\bin\alfresco\tomcat\shared\classes\alfresco\extensions` directory.

 Before doing these next steps, rename the `file-servers-custom.xml` file to `file-servers-custom.xml.orig` so you will have a backup of the original

- i. First install the [CLT:NTLM Configuration XML File](#)
- ii. Next install the [CLT:Authentication Chaining Configuration File](#)
- iii. Next install the [CLT:CIFS configuration](#) file and over-write the existing one.
- iv. Now in order to setup a job that imports users and groups once a day, download and install the [CLT:LDAP configuration](#) file.
- v. The `ldap.sych` XML file simply contains all the configuration information with properties to hold the actual values for your installation. To define these properties, I installed the following [CLT:properties file](#). If you are setting up your own installation, you will change these properties for your install.

 In the CIFS configuration file, make sure you change the `<host name="">` tag to reflect a unique name on the network.

- vi. Next install the [CLT:customized authority configuration](#) file (this gives administrative privs to certain accounts).

 Note that I did NOT change the server to take over port 80 traffic as the SQL Server install seemed to want IIS which is currently using port 80

36. Now in order for the alfresco web application to be the default, I edit the `c:\bin\alfresco\tomcat\conf\server.xml` file and added:

```

<Context path="" docBase="alfresco" debug="0" >

```

```
<Valve className="org.apache.catalina.authenticator.FormAuthenticator"
disableProxyCaching="false" />
</Context>
```

as the last line of the <Host> tag section (right before the closing </Host> tag).

 You will also notice the Valve tag that I had to add to turn off proxy cache disabling so that IE clients would work correctly over SSL. Gotta love M\$.

37. Just to keep things clean, I edited the c:\bin\alfresco\alfresco.bat file and put 'rem' in front of the second JAVA\_OPTS set as I am using Java 6.
38. You are now actually ready to start alfresco for the first time! Open a command window and cd over to c:\bin\alfresco directory and then type:

```
alf_start.bat
```

39. After a long time (took several minutes on a regular PC), look at the alfresco.log file in the c:\bin\alfresco directory and see if it looks like everything started OK, you can also check the database to see if the tables have been created in the alfresco-test database. You should also be able to go to <http://alfresco-test.shore.mbari.org:8080> and see the alfresco web application.
40. Now from the command window where you ran alf\_start.bat, run alf\_stop.bat to shut the server down. Check the alfresco.log file to see if anything weird happened. If not, try restarting it with alf\_start.bat again and look at the alfresco.log file. Sometimes, you can't restart it because you get:

```
java.sql.SQLException: Column names in each table must be unique. Column name 'ID_' in table
'JBPM_ACTION' is specified more than once.
```

Sigh, so in order to keep Alfresco from hurting itself, you might have to turn off the schema updates. This is done by editing the c:\bin\alfresco\tomcat\shared\classes\alfresco\extensions\custom-repository.properties and adding the following:

```
db.schema.update=false
```

and then restarting alfresco.

41. To install Alfresco as a Windows Service use a command prompt and enter the following:

```
cd c:\bin\alfresco\tomcat\bin
service.bat install alfresco
tomcat5.exe //US//alfresco --DisplayName "Alfresco Server"
tomcat5.exe //US//alfresco --JvmMs=512 --JvmMx=1024 --JvmSs=64
tomcat5.exe //US//alfresco --JavaHome=c:/bin/Java/jrockit-R27.4.0-jdk1.6.0_02
tomcat5.exe //US//alfresco --Environment ALF_HOME=c:/bin/alfresco/
tomcat5.exe //US//alfresco --Environment PATH=c:/bin/alfresco/bin;%PATH%
tomcat5.exe //US//alfresco --StartPath c:/bin/alfresco --Startup auto
```

42. To uninstall the service, at a later time, do the following:

```
cd c:\bin\alfresco\tomcat\bin
service.bat uninstall alfresco
```

43. To edit your service settings at any time:

```
cd c:\alfresco\tomcat\bin
tomcat5w.exe //ES//alfresco
```

 These next couple of steps had to be taken to install a patch from Alfresco for an issue with bulk uploads I was having. Essentially when file and path structures get really long and nasty, Alfresco was throwing an error and bailing out. This patch (two Java classes) fixed that issue.

44. Next, I downloaded the attached [CLT:JAR](#) file and copied it to the c:\bin\alfresco\tomcat\webapps\alfresco\WEB-INF\classes directory.
45. I shutdown Alfresco and then unjarred the file to install the new classes. They are:
  - a. org/alfresco/filesys/smb/server/SMBSrvPacket.class
  - b. org/alfresco/filesys/util/DataBuffer.class
46. I would assume since they do not overwrite anything, that this location is further up in the class loader and so it will load these new classes first.
47. I deleted the act2139.jar file and the META-INF directory that the unjarring process created.
48. I did not do this, but you can verify this took, I run alfresco with the

CATALINA\_OPTS="-verbose:class"

and verified that you can find some line, some where, that shows:

```
[Loaded org.alfresco.filesys.smb.server.SMBSrvPacket from file:/opt/alfresco211/tomcat/webapps/alfresco/WEB-INF/classes/org/alfresco/filesys/smb/server/SMBSrvPacket.class]
```

and NOT:

```
Loaded org.alfresco.filesys.smb.server.SMBSrvPacket from file:/opt/alfresco211/tomcat/webapps/alfresco/WEB-INF/lib/alfresco-repository.jar]
```

## alfresco.mbari.org Installation Notes

---

This page last changed on Apr 13, 2012 by [kgomes](#).

In order to best meet the needs of the alfresco installation and get all the pieces working correctly, we decided to buy a new, more powerful server and run Alfresco in Windows. Our thinking was that it would better integrate with our Windows domain at MBARI and the nagging installation issues of times past would be better handled on a windows server. We also purchased an official alfresco license and maintenance contract so that we would have support for any sticky issues we may have.

The new machine arrived and Cathy Sewell was nice enough to get it all setup and installed in the DMZ for us. The machine was hardened so that it was ready to be exposed to the outside world and then it was installed in the DMZ. Here are some particulars from Cathy's email:

- name: alfresco.mbari.org
- It is accessible via Remote Desktop and VNC.
- The IP address (should you need to know) is 134.89.2.15
- The \*.mbari.org certificate is installed.

One of my first concerns was how to map a network appliance drive so that software running as a service can access that drive. It looks like the Google-found way is to use the UNC filepath. So for example, use `\tornado.shore.mbari.org\alfresco`. I will just have to wait and see if the installation will allow for that.

After signing the contract, Alfresco sent an email that detailed instructions on how to get/install the software and that can be found [CLT:here](#).

Here we go!

1. I VNC'd to the machine under the account DB\_Collaboration as I wanted it to install as a service run under that account.
2. Started up Firefox and went to <http://customers.alfresco.com>
3. I logged in using my username (kgomes@mbari.org) and password that was in the email.
4. I browsed to "Company Home">"Downloads">"2.1 Releases">"2.1.1"
5. I then clicked on alfresco-enterprise-tomcat-2.1.1.zip to download the zip file.
6. Went to <http://customers.alfresco.com> (I was still logged in)
7. Went to "Company Home">"Downloads">"2.1 Releases">"2.1.1">"License Files"
8. I went ahead and downloaded all the "\*.lic" files, but I think I only need enterprise-network-customer-unlimited.lic"
9. Logged out of Alfresco.
10. Since I suspect I will need a JDBC driver for SQLServer, I downloaded the jTDS-1.2.2 driver from the jtds web site (just Google jtds and go to the download section of the top google return).
11. I closed the Firefox browser.
12. I extracted the jtds-1.2.2.jar file from the jtds download
13. I downloaded and installed the JRockit 6 R27.4 JDK Microsoft Windows (x86 - 32 bit) from BEA's web site



After installing JRockit, make sure you set the JAVA\_HOME environment variable to point to the installation of JRockit. For example, I went to the desktop, right clicked on the computer, did Properties, then clicked on the Advanced tab, then click on the environment variables button and then created a new system variable named JAVA\_HOME and set to c:\bin\Java\jrockit-R27.4.0-jdk1.6.0\_02

14. I ran the installer, changed the "Program Files" to "bin" in the installation directory for both the JDK and the JRE. I also chose to install the JRE as public.
15. Using Firefox, I downloaded the PHP 5.2.5 Windows Installer from php.net and installed it. Although I installed it, I did not integrate it with a web server as I want Alfresco to take port 80. I probably did not need to install PHP, but I thought I would anyway. (again, I changed install path from "Program Files" to "bin"
16. I also downloaded and installed OpenOffice and ran it once so I could get through the initial startup
17. I setup a Alfresco database on the server Solstice and granted the LAGOON\DB\_Collaboration account to be the db\_owner of the Alfresco database.
18. I unzipped the alfresco tomcat zip file to an alfresco directory in c:\bin
19. I then went to the c:\bin\alfresco\tomcat\shared\classes\alfresco\extensions directory for the customization of the server.
  - a. I edited the custom-repository.properties file
    - i. Changed the dir.root and dir.indexes to look like:



```
dir.root=//tornado.shore.mbari.org/Alfresco/alf_data
dir.indexes=d:/alf_data/lucene-indexes
```

- ii. Commented out the db.\* lines for the HSQL Connection (db.driver and db.url)
- iii. Uncommented the db.\* lines for MSSQL and changed to use the jTDS driver. They should look like:

```
db.driver=net.sourceforge.jtds.jdbc.Driver
db.url=jdbc:jtds:sqlserver://solstice.shore.mbari.org/
Alfresco;domain=SHORE;user=DB_Collaboration;password=XXXXXXXXXX
```

- iv. I also added the following section to override the mail server settings

```
Mail server configuration
mail.host=mail.mbari.org
mail.port=25
mail.username=
mail.password=
```

- b. Edited the custom-hibernate-dialect.properties file

- i. Commented out the HSQL Dialect
- ii. Uncommented the MSSQL Dialect

- 20. I then installed the jtds-1.2.2.jar in the c:\bin\alfresco\tomcat\common\lib so that it will be on the classpath when Alfresco is started
- 21. Now this is not necessarily fun, but in order to really get it configured the way we want it, you need to pull the original .war file out, edit some stuff inside and re-create the .war.

 This should all be done before starting Alfresco for the first time.

- 22. Copy the c:\Alfresco\tomcat\webapps\alfresco.war file to your home directory.
- 23. Make a second copy so that you will always have the original (I copied to alfresco.war.orig and moved it somewhere else. It is important to move it and have only the alfresco.war file in the directory because when you un-jar it, all the files go right where alfresco.war is.)
- 24. From a command line, un-jar the war file using:

```
jar -xvf alfresco.war
```

- 25. This unpacks a lot of files and after it completes, move (or delete) the alfresco.war file from the directory. This needs to be done so it does not end up in the new .war file.
- 26. I wanted to change the "Company Home" that seems to be everywhere to something that says MBARI.
  - a. Edited ./WEB-INF/classes/alfresco/messages/webclient.properties and changed company\_home from 'Company Home' to 'MBARI'
  - b. Edited ./WEB-INF/classes/alfresco/messages/webclient\_en\_US.properties and changed company\_home from 'Company Home' to 'MBARI'
  - c. I edited ./WEB-INF/classes/alfresco/messages/bootstrap-spaces.properties and changed the first two lines to read

```
spaces.company_home.name=MBARI
spaces.company_home.description=The root space for MBARI
```

- d. Edited ./WEB-INF/classes/alfresco/messages/bootstrap-spaces\_en\_US.properties and made the same changes as the previous step

 This took a bit to find all these, and to be honest, I am not sure which one actually made the change on the GUI, but I suspect it was the \_en\_US ones.

- 27. When users are imported via LDAP, user spaces get created automatically. In order to put them where I wanted them to go (instead of right in the Company Home), I edited the ./WEB-INF/classes/alfresco/authentication-services-context.xml file. In the file there is a bean with an name of personalHomeFolderProvider. There is a property name 'path' and I added

```
/${spaces.user_homes.childname}
```

to the end to try to get them to create the user spaces there instead of in the Company Home. The final bean XML looks like:

```
<bean name="personalHomeFolderProvider"
class="org.alfresco.repo.security.person.UIDBasedHomeFolderProvider">
```

```

<property name="serviceRegistry">
<ref bean="ServiceRegistry" />
</property>
<property name="path">
<value>/${spaces.company_home.childname}/${spaces.user_homes.childname}</value>
</property>
<property name="storeUrl">
<value>${spaces.store}</value>
</property>
<property name="homeFolderManager">
<ref bean="homeFolderManager" />
</property>
<property name="inheritsPermissionsOnCreate">
<value>false</value>
</property>
<property name="ownerPermissionsToSetOnCreate">
<set>
<value>All</value>
</set>
</property>
<property name="userPermissions">
<set>
<value>All</value>
</set>
</property>
</bean>

```

28. I wanted to change the logo that is used. I attached the replacement logo [CLT:here](#). Copy this to ./images/logo and overwrite the one that is there.
29. In order to setup SSL for the application (will do that later), edit ./WEB-INF/web.xml and add the following

```

<!-- Added this security constraint to allow for SSL protection -->
<security-constraint>
<web-resource-collection>
<web-resource-name>Login Pages</web-resource-name>
<url-pattern>/*</url-pattern>
</web-resource-collection>
<user-data-constraint>
<transport-guarantee>CONFIDENTIAL</transport-guarantee>
</user-data-constraint>
</security-constraint>

```

right before the ending </web-app> tag at the bottom of the file.

30. Now in order to change the default behavior so that all content is versioned from the start, I edited the ./WEB-INF/classes/alfresco/model/contentModel.xml and searched for the content type definition block.

```

<type name="cm:content">
<title>Content</title>
<parent>cm:cobject</parent>
<archive>true</archive>
<properties>
<property name="cm:content">
<type>d:content</type>
<mandatory>false</mandatory>
<!-- Index content in the background -->
<index enabled="true">
<atomic>true</atomic>
<stored>false</stored>
<tokenised>true</tokenised>
</index>
</property>
</properties>
</type>

```

and added the following block right before the ending </type> tag:

```
<mandatory-aspects>
<aspect>cm:versionable</aspect>
</mandatory-aspects>
```

so the final block looks like:

```
<type name="cm:content">
<title>Content</title>
<parent>cm:cmobject</parent>
<archive>true</archive>
<properties>
<property name="cm:content">
<type>d:content</type>
<mandatory>false</mandatory>
<!-- Index content in the background -->
<index enabled="true">
<atomic>true</atomic>
<stored>false</stored>
<tokenised>true</tokenised>
</index>
</property>
</properties>
<mandatory-aspects>
<aspect>cm:versionable</aspect>
</mandatory-aspects>
</type>
```

31. Lastly, I wanted to redirect the log files to a separate disk. This is done because in the Windows hardening process, most of the disk space ends up on drive D: where alfresco does not live. The log files quickly fill up the small C: drive. To to this, I edited the .\WEB-INF\classes\log4j.properties and changed the log file appender location to point to a directory that was created on the D: drive called D:/alf\_logs.
32. That takes care of all the changes to the WAR file. We can now put it back into .war form.
33. While you are in the directory you expanded the war file in, run
  - a. `jar cvfm alfresco.war META-INF\MANIFEST.MF` .
34. You should now have an alfresco.war file in the directory. Move that back to the alfresco install and overwrite the existing one.
35. Most users like the details view, so I set the default to that by editing `c:\bin\alfresco\tomcat\shared\classes\alfresco\extensions\web-client-config-custom.xml` and added:

```
<!-- MBARI Custom: Added this to change the default view to details -->
<config evaluator="string-compare" condition="Views">
<!-- the views available in the client -->
<views>
<!-- default values for the views available in the client -->
<view-defaults>
<browse>
<!-- allowable values: list|details|icons -->
<view>details</view>
<page-size>
<list>20</list>
<details>20</details>
<icons>20</icons>
</page-size>
</browse>
</view-defaults>
</views>
</config>
```

right before the closing `</alfresco-config>` tag.

36. Now in order to use MBARI accounts, NTLM authentication was turned on and then chained with the native Alfresco accounts so that we could have non-MBARI accounts on the Alfresco server.
  - a. In order to enable NTLM and native Alfresco authentication, I had to edit two files. For simplicity I have just attached them here and they can be downloaded and installed in the extensions directory.

- i. The first file is the [CLT:ntlm-authentication-context.xml](#) file. This configures and enables NTLM authentication.
  - ii. The next file was the [CLT:chaining-authentication-context.xml](#) file which enabled Alfresco authentication and chained it together with the NTLM authentication from the previous file.
37. Then in order to setup CIFS on the server, I edited the file-servers-custom.xml file to look like the attached [CLT:file-servers-custom.xml](#) file.
38. In order to grant certain accounts admin privs, I created a new custom-authority-services-context.xml in the same directory as the ldap-authentication-context.xml file and added

```
<?xml version='1.0' encoding='UTF-8'?>
<!DOCTYPE beans PUBLIC "-//SPRING//DTD BEAN//EN" 'http://www.springframework.org/dtd/spring-beans.dtd'>
<beans>
<bean id="authorityService" class="org.alfresco.repo.security.authority.AuthorityServiceImpl">
<property name="authenticationComponent">
<ref bean="authenticationComponent" />
</property>
<property name="personService">
<ref bean="personService" />
</property>
<property name="nodeService">
<ref bean="nodeService" />
</property>
<property name="authorityDAO">
<ref bean="authorityDAO" />
</property>
<property name="permissionServiceSPI">
<ref bean="permissionServiceImpl" />
</property>
<property name="adminUsers">
<set>
<value>kgomes</value>
<value>admin</value>
<value>administrator</value>
</set>
</property>
</bean>
</beans>
```

39. In order for Alfresco to handle all port 80 traffic, I changed Tomcat so that it takes port 80 and SSL goes over port 443. So I edited the c:\Alfresco\tomcat\conf\server.xml file and changed the 8080 port to 80 and the 8443 port to 443 (the 443 change is done in two places).
40. Now I needed to setup the SSL for the web traffic. Cathy Sewell was instrumental in getting this working. She ordered a new certificate specifically for alfresco and put it in the c:\local\cert folder. Here are the instructions for what she did to get the certificate installed.

```
SSL certificate for server Alfresco - 1/2/08
C:\bin\Java\jrockit-R27.1.0-jre1.6.0_02\bin>keytool -genkey -alias tomcat -keyalg RSA -
keystore tomcat.keystore
```

What is your first and last name?

[alfresco.mbari.org]:

What is the name of your organizational unit?

[IS]:

What is the name of your organization?

[MBARI]:

What is the name of your City or Locality?

[Moss Landing]:

What is the name of your State or Province?

[CD]: CA

What is the two-letter country code for this unit?

[US]:

Is CN=alfresco.mbari.org, OU=IS, O=MBARI, L=Moss Landing, ST=CA, C=US correct?

[no]: y

Enter key password for <tomcat>

(RETURN if same as keystore password):

```
C:\bin\Java\jrockit-R27.4.0-jre1.6.0_02\bin>keytool -certreq -keyalg RSA -alias
```

```
tomcat -file certreq.csr -keystore tomcat.keystore
```

Enter keystore password:

Generated certificate request file, certreq.csr, was submitted to SSL provider.

Certificate provider sent certificate file (alfresco.mbari.org.crt), along with gd\_bundle.crt, gd\_cross\_intermediate.crt, and gd\_intermediate.crt. Additionally, I downloaded valicert\_class2\_root.cer from their website. These files were stored in c:\local\cert.

The following commands were used to add them to the tomcat keystore:

```
C:\bin\Java\jrockit-R27.4.0-jre1.6.0_02\bin>keytool -import -alias root -keystore
tomcat.keystore
```

```
-trustcacerts -file c:\local\cert\valicert_class2_root.cer
```

Enter keystore password:

Certificate already exists in system-wide CA keystore under alias <valicertclass2ca>

Do you still want to add it to your own keystore? [no]: y

Certificate was added to keystore

```
C:\bin\Java\jrockit-R27.4.0-jre1.6.0_02\bin>keytool -import -alias cross -keystore
tomcat.keystore
```

```
-trustcacerts -file c:\local\cert\gd_cross_intermediate.crt
```

Enter keystore password:

Certificate was added to keystore

```
C:\bin\Java\jrockit-R27.4.0-jre1.6.0_02\bin>keytool -import -alias intermed -keystore
tomcat.keystore
```

```
-trustcacerts -file c:\local\cert\gd_intermediate.crt
```

Enter keystore password:

Certificate was added to keystore

```
C:\bin\Java\jrockit-R27.4.0-jre1.6.0_02\bin>keytool -import -alias tomcat -keystore
tomcat.keystore
```

```
-trustcacerts -file c:\local\cert\alfresco.mbari.org.crt
```

Enter keystore password:

Certificate reply was installed in keystore

41. I edited the c:\bin\alfresco\tomcat\conf\server.xml file and uncommented the SSL section and edited to look like that shown below.

```
<Connector port="443" maxHttpHeaderSize="8192"
maxThreads="150" minSpareThreads="25" maxSpareThreads="75"
enableLookups="false" disableUploadTimeout="true"
acceptCount="100" scheme="https" secure="true"
clientAuth="false" sslProtocol="TLS"
keystoreFile="c:/bin/Java/jrockit-R27.4.0-jre1.6.0_02/bin/tomcat.keystore"
keystorePass="*****"/>
```

42. Since I was in the server.xml file, I went ahead and changed it so that the default webapp was alfresco so that you would get alfresco anytime you went to the base URL. I did this by adding:

```
<Context path="" docBase="alfresco" debug="0" >
<Valve className="org.apache.catalina.authenticator.FormAuthenticator"
disableProxyCaching="false" />
</Context>
```

as the last line of the <Host> tag section (right before the closing </Host> tag).



You will also notice the Valve tag that I had to add to turn off proxy cache disabling so that IE clients would work correctly over SSL. Gotta love M\$.

43. I copied the enterprise-network-unlimited.lic file into the c:\Alfresco\tomcat\shared\classes\alfresco\extensions\license directory
44. Just to keep things clean, I edited the c:\bin\alfresco\alfresco.bat file and put 'rem' in front of the second JAVA\_OPTS set as I am using Java 6.
45. Now after you run it for the first time and the database structure gets created, you can't restart it because you get:

```
java.sql.SQLException: Column names in each table must be unique. Column name 'ID_' in table
'JBPM_ACTION' is specified more than once.
```

Sigh, so in order to keep Alfresco from hurting itself, I had to turn off the schema updates. This is done by editing the c:\bin\alfresco\tomcat\shared\classes\alfresco\extensions\custom-repository.properties and adding the following:

```
db.schema.update=false
```

and then restarting alfresco.

46. To install Alfresco as a Windows Service use a command prompt and enter the following:

```
cd c:\bin\alfresco\tomcat\bin
service.bat install alfresco
tomcat5.exe //US//alfresco --DisplayName "Alfresco Server"
tomcat5.exe //US//alfresco --JvmMs=512 --JvmMx=1024 --JvmSs=64
tomcat5.exe //US//alfresco --JavaHome=c:/bin/Java/jrockit-R27.4.0-jdk1.6.0_02
tomcat5.exe //US//alfresco --Environment ALF_HOME=c:/bin/alfresco/
tomcat5.exe //US//alfresco --Environment PATH=c:/bin/alfresco/bin;%PATH%
tomcat5.exe //US//alfresco --StartPath c:/bin/alfresco --Startup auto
```



#### JRockit Dump Size

As Alfresco was running, we noticed JRockit was occasionally creating these HUGE dump files that would fill up the hard drive. I turned this "feature" off by running tomcat5w.exe and in the popup GUI, I added a Java command line option: -XXdumpSize:none to turn off the dump files.

47. To uninstall the service, at a later time, do the following:

```
cd c:\bin\alfresco\tomcat\bin
service.bat uninstall alfresco
```

48. To edit your service settings at any time:

```
cd c:\alfresco\tomcat\bin
tomcat5w.exe //ES//alfresco
```



These next couple of steps had to be taken to install a patch from Alfresco for an issue with bulk uploads I was having. Essentially when file and path structures get really long and nasty, Alfresco was throwing an error and bailing out. This patch (two Java classes) fixed that issue.

49. Next, I downloaded the attached [CLT:JAR](#) file and copied it to the c:\bin\alfresco\tomcat\webapps\alfresco\WEB-INF\classes directory.
50. I shutdown Alfresco and then unjarred the file to install the new classes. They are:
  - a. org/alfresco/filesys/smb/server/SMBSrvPacket.class
  - b. org/alfresco/filesys/util/DataBuffer.class
51. I would assume since they do not overwrite anything, that this location is further up in the class loader and so it will load these new classes first.
52. I deleted the act2139.jar file and the META-INF directory that the unjarring process created.
53. In order to install certain modules (like the email listener), I had to get the Alfresco Module Manager from the customers.alfresco.com download site. I downloaded the alfresco-mmt-2.1.1.jar file locally so I could use it to install modules.
54. I then downloaded the email listener module from <http://forge.alfresco.com/projects/email-listener/>. It came as a zip file, so I unzipped it and it created a folder with the appropriate emailListener.amp in it.
55. Make another backup copy of the alfresco.war file and put somewhere in case you want to roll this back.
56. Open a command prompt windows and cd to the location where the Alfresco Module Manager jar is.
57. Run the following:

```
java -jar alfresco-mmt-2.1.1.jar path_to_emailListener.amp path_to_alfresco.war
```

So for me this looked like:

```
java -jar alfresco-mmt-2.1.1.jar .\email-listener_2.1RC2\emailListener.amp c:\bin\alfresco\tomcat\webapps\alfresco.war
```

58. You should be able to verify the install by running:

```
java -jar alfresco-mmt-2.1.1.jar list c:\bin\alfresco\tomcat\webapps\alfresco.war
```

and you should see something like:

```
Module 'emailListener' installed in 'c:\bin\alfresco\tomcat\webapps\alfresco.war'
- Title: EmailListener
- Version: 2.1
- Install Date: Fri Dec 07 08:43:10 PST 2007
- Description: EmailListener Module
```

59. Finally, to start the service, just go into your Windows Service control panel and locate the service that is now named 'Alfresco Server'. You can start and stop Alfresco from this control panel.



### Database Migrations

For the alfresco.mbari.org installation, we moved the back end database a couple of times for performance and management reasons. The first move was to backup the database from solstice.shore.mbari.org to the SQL 2005 server called capricorn. We did this because 2005 was the officially supported DB and we were experiencing some strange issues. It ran fine on capricorn for a long while, but for licensing reasons, we wanted to consolidate the DB onto a newer SQL Server 2008 machine called equinox.shore.mbari.org. In order to point Alfresco at a different database, I edited the custom-repository.properties file located in the

```
c:\bin\alfresco\tomcat\shared\classes\alfresco\extension
```

directory. Here is what the final result looked like with the previous two configurations commented out.

```
#
SQLServer connection (requires jtds-1.2.jar or equivalent - http://
jtds.sourceforge.net/)
#
db.driver=net.sourceforge.jtds.jdbc.Driver
```

```
DB on Solstice
#db.url=jdbc:jtds:sqlserver://solstice.shore.mbari.org/
Alfresco;domain=SHORE;user=DB_Collaboration;password=xxxxxx
DB on capricorn
#db.url=jdbc:jtds:sqlserver://capricorn.shore.mbari.org/
Alfresco;domain=SHORE;user=DB_Collaboration;password=xxxxxx
DB on equinox
db.url=jdbc:jtds:sqlserver://equinox.shore.mbari.org/
Alfresco;domain=SHORE;user=DB_Collaboration;password=xxxxxx
```

I also downloaded the most recent jtds driver (1.2.5) and installed it in the c:\bin\alfresco\tomcat\common\lib directory and removed the old version.

## Content Migration

Now, in order to migrate content from old alfresco and normal file structures, I did the following:

### For content already in alfresco:

1. Navigate to the space whose contents you want to migrate. For example, let's say I want to migrate the stuff from my personal space. I would navigate (using the WebUI) to the /MBARI/User Homes/kgomes space. You should see the contents of the kgomes folder from this view.
2. Click on 'More actions->View Details'.
3. On the right hand side, click on 'Export'.
4. For package name, I usually enter the space name followed by '\_export', but it doesn't really matter.
5. Click on the link that says 'Click here to select the destination' and select somewhere that you will be able to download the .acp file from.
6. Select 'Current Space'.
7. Select 'Include Children'.
8. Uncheck 'Include this space' unless you have content (documents) in this specific folder (anything other than folders) that you want to migrate. This is a bit tricky, but there are two ways to do this. If you want to have the top level folder created, use the 'Include this space' and that will create the top level folder. Otherwise, it will expand into the folder in which you import the .acp file into. This is important in cases where the folder has already been created for you (like with user homes) and you have to migrate content into that folder. If you have the option to create the top level directory, by all means do so.
9. Uncheck 'Export in background' so you can force it to happen and you know when it is complete.



## Apache mod\_jk

This page last changed on Jul 28, 2010 by [kgomes](#).

Apache Tomcat is great for JSP and Servlet applications, but normally it defaults to the 8080 port. That is fine but users often have firewalls setup to block non-standard port (anything other than port 80). So the apache http server has a module called mod\_jk that will allow the Apache http server to serve as a front end for Tomcat. This allows you to map incoming HTTP calls to specific servlet calls to the Tomcat engine. Very handy for working around the firewall issue. Here is how I set it up on the server new-ssds.mbari.org. This was a case where I had to map the following:

<http://new-ssds.mbari.org:8080/mars>

to something that would work through the standard http port that was already running on the same machine. Ideally, I would like this to map to:

<http://new-ssds.mbari.org/mars>

### Using mod\_jk with Apache and JBoss/Tomcat Bundle

#### Configure Apache

The current system, as installed, is running Apache 2.0.54 on red hat enterprise server. The tomcat I am running is actually embedded in JBoss 4.0.3SP1 and is version 5.5. When I did a 'locate mod\_jk' on the new-ssds.mbari.org machine, it looks like it has mod\_jk 1.2.6 which should be OK.

I edited the /etc/httpd/conf/httpd.conf file and added this at the very bottom of the file:

```
Include mod_jk configuration file
Include conf/mod-jk.conf
```

I then created a new file in /etc/httpd/conf called mod-jk.conf with the following body:

```
Load mod_jk module
Specify the filename of the mod_jk lib
LoadModule jk_module modules/mod_jk.so

Where to find workers.properties
JkWorkersFile /etc/httpd/conf/workers.properties

Where to put jk shared memory
JkShmFile /etc/httpd/logs/mod_jk.shm

Where to put jk logs
JkLogFile /etc/httpd/logs/mod_jk.log

Set the jk log level [debug/error/info]
JkLogLevel debug

Select the log format
JkLogStampFormat "[%a %b %d %H:%M:%S %Y]"

Define uri mappings
JkMount /mars ssds
JkMount /mars/* ssds
JkMount /ssds ssds
JkMount /ssds/* ssds
JkMount /cimt ssds
JkMount /cimt/* ssds
JkMount /servlet ssds
JkMount /servlet/* ssds
```

I then created the file /etc/httpd/conf/workers.properties with the contents:

```
Define list of workers that will be used
for mapping requests
The configuration directives are valid
```

```
for the mod_jk version 1.2.18 and later
#
worker.list=ssds

Define mars worker
worker.sds.port=8009
worker.sds.host=134.89.2.25
worker.sds.type=ajp13
```



#### **Note host IP**

Normally the host can be set to 'localhost', but because I had to run JBoss with it bound to 134.89.2.25, this disables access from 'localhost'. Setting it to the exact IP address fixes this problem

I then restarted the apache server.

#### **Configure JBoss/Tomcat bundle**

I edited the file /opt/jboss/server/default/deploy/jbossweb-tomcat55.sar/server.xml. I made sure the section that turns on the AJP connector was not commented out (it was not) and it looks like:

```
<!-- A AJP 1.3 Connector on port 8009 -->
<Connector port="8009" address="{jboss.bind.address}"
emptySessionPath="true" enableLookups="false" redirectPort="8443"
protocol="AJP/1.3"/>
```

Lastly, I edited the /opt/jboss/server/default/deploy/jbossweb-tomcat55.sar/META-INF/jboss-service.xml and changed the following line:

```
<attribute name="UseJK">false</attribute>
```

to:

```
<attribute name="UseJK">true</attribute>
```

Then I restarted JBoss.

## AVED System Design Docs

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This page last changed on Sep 24, 2009 by [kgomes](#).

Here is a list of documents to help in supporting the AVED system

- [AVED Golden Image Creation, Propagation, & Backup Instructions](#)
- [KOI Software Update How-To Document](#)
- [AVED Video Lab Capture How-To Document](#)
- [AVED Adobe Premiere Video Capture Settings on Ephyra How-To](#)

This page last changed on Jun 26, 2012 by [brian](#).

# Installing Artifactory

## Get Artifactory and Move in Place

```
cd /opt/tmp
wget http://sourceforge.net/projects/artifactory/files/artifactory/2.6.1/artifactory-2.6.1.zip/
download
jar -xvf artifactory-2.6.1.zip
cd /opt
mkdir artifactory-2.6.1
sudo chown -R brian artifactory-2.6.1
cp -R tmp/artifactory-2.6.1/* artifactory-2.6.1/
```

## Configure Artifactory

Look for open ports

```
nmap -sT build-server.shore.mbari.org
```

The result of the scan:

```
Starting Nmap 6.00 (http://nmap.org) at 2012-06-26 10:49 PDT
Nmap scan report for build-server.shore.mbari.org (134.89.10.13)
Host is up (0.0011s latency).
Not shown: 978 closed ports
PORT STATE SERVICE
22/tcp open ssh
25/tcp open smtp
111/tcp open rpcbind
4444/tcp open krb524
5222/tcp open xmpp-client
5269/tcp open xmpp-server
5901/tcp open vnc-1
5902/tcp open vnc-2
5903/tcp open vnc-3
6001/tcp open X11:1
6002/tcp open X11:2
6003/tcp open X11:3
6004/tcp open X11:4
6005/tcp open X11:5
6006/tcp open X11:6
6007/tcp open X11:7
6009/tcp open X11:9
7070/tcp open realserver
7443/tcp open oracleas-https
7777/tcp open cbt
8443/tcp open https-alt
9091/tcp open xmltec-xmlmail
```

Nmap done: 1 IP address (1 host up) scanned in 1.17 seconds



Artifactory by default runs on port 8081. There's no conflicts so we'll leave that as the working port

Run Artifactory once so that it creates the data directory

```
cd /opt/artifactory-2.6.1/bin
sudo chmod u+x artifactory.sh
./artifactory.sh
```

Move the data directory so that we don't clobber it on upgrades

```
sudo mkdir /data/Artifactory
sudo chown brian /data/Artifactory
cp -R /opt/artifactory-2.6.1/data/* /data/Artifactory
rm -rf /opt/artifactory-2.6.1/data
cd /opt/artifactory-2.6.1
ln -s /data/Artifactory data
```

Fix permissions

```
sudo chown -R root:root /opt/artifactory-2.6.1/
sudo chown -R DB_Collaboration:DB_Collaboration /opt/artifactory-2.6.1/backup
sudo chown -R DB_Collaboration:DB_Collaboration /opt/artifactory-2.6.1/etc
sudo chown -R DB_Collaboration:DB_Collaboration /opt/artifactory-2.6.1/logs
sudo chown -R DB_Collaboration:DB_Collaboration /opt/artifactory-2.6.1/work
sudo chown -R DB_Collaboration:DB_Collaboration /data/Artifactory/
```

## Configure Service

```
cp /opt/artifactory-2.6.1/bin/artifactoryctl /etc/init.d/artifactory
sudo chmod a+x /etc/init.d/artifactory
```

Edit /etc/init.d/artifactory and add the following:

```
ARTIFACTORY_HOME=/opt/artifactory-2.6.1
ARTIFACTORY_USER=DB_Collaboration
JETTY_PORT=8081
JAVA_HOME=/usr/java/latest
```

Fix permission

```
sudo chown root:root /etc/init.d/artifactory
```

Install Service

```
sudo /sbin/chkconfig --add artifactory
sudo /sbin/chkconfig artifactory on
sudo /sbin/service artifactory start
```

## build-server.shore.mbari.org installation

This page last changed on Feb 22, 2011 by [kgomes](#).

As a part of the upgrade and configuration of our software development infrastructure at MBARI, we installed a continuous integration server. Here is a diagram of the overall structure of the software development infrastructure.

For the build server, the goal was to install Atlassian's Bamboo, Fisheye and Crucible products. In addition, we installed the SeleniumRC server to help in the automatic running of web client unit tests. Here are the steps:

1. Install Java. jpackage-utils was already installed, so I went to [java.sun.com](http://java.sun.com) and downloaded the `jdk-6u23-linux-x64-rpm.bin`.
2. I had to run `'chmod a+x jdk-6u23-linux-x64-rpm.bin'` to make sure I could execute the package.
3. I then ran `'./jdk-6u23-linux-x64-rpm.bin'`
4. This expanded out to several `.rpm` files. In order to make sure I don't hit permissions issues, I moved all those files to the `/tmp/java` directory so I could run the install the rpm files using `sudo`.
5. Then I ran `'sudo rpm -Uvh jdk-6u23-linux-amd64.rpm'`
6. Pat did something here to integrate it into the alternatives as I did not have permissions. The bottom line is that java got installed.
7. I downloaded the Bamboo-3.0 standalone installation from atlassian to my Bamboo folder on my desktop.
8. I downloaded the jtids dist zip file (1.2.5) to the Bamboo folder on my desktop.



### JTDS is already in Bamboo

It turns out the Bamboo install already has jtids 1.2.2 installed so you don't need to do this unless you want to upgrade it.

9. I created the `/data/Bamboo` directory to house the Bamboo working files and created the `/opt/Bamboo` to house the application itself.
10. I unzipped and untarred the Bamboo download into the `/opt` directory which put it into the Bamboo directory I created.
11. I cd'd into `/opt/Bamboo/webapp/WEB-INF/classes` and then edited the `bamboo-init.properties` file. In the file I uncommented the `bamboo.home` line and set it to:  

```
bamboo.home=/data/Bamboo
```
12. I then started the server by cd'ing to `/opt/Bamboo` and running `./bamboo.sh start`
13. I then browsed to <http://localhost:8085> and was prompted to enter the license key.
14. I took the server ID provided and went to the Atlassian site and entered it as the id for a new license key.
15. I grabbed the generated key and stuck it back into the localhost page asking for it.
16. I then clicked on "Custom Installation" to configure things manually. The only things I changed are below:
  - a. I changed the name field to "MBARI Bamboo"
  - b. I changed the Base URL to "<http://build-server.shore.mbari.org:8085>"
  - c. I chose an external database and chose Microsoft SQL Server 2005/2008
  - d. I set the jdbc url to: `jdbc:jtids:sqlserver://equinox.shore.mbari.org:51001/Bamboo;domain=SHORE`
  - e. The user was `DB_Collaboration`
  - f. password is well, it just is.
17. Clicked on continue and Bamboo setup the database
18. I then chose to Create a new Bamboo home
19. I used my MBARI username and password for the administration account until I can get it hooked up to Crowd.
20. I then shutdown the Bamboo installation and configured it to use SSL per the instructions [here](#). Cathy setup the SSL keystore in `/usr/local/keystore/keystore.jks` and I used that in the `jetty.xml` configuration file. I also had to follow the [instructions](#) and edit the `bamboo.sh` file to use the `jetty.xml` (it does not by default).



Note that I also uncommented these lines in the 8085 port connector which disabled the 8085 port on all but localhost IP addresses to make sure people have to use the SSL connection.

```
<Set name="Host">127.0.0.1</Set>
<Set name="ConfidentialPort">8443</Set>
<Set name="IntegralPort">8443</Set>
```

21. I restarted Bamboo to verify that the SSL connection works.
22. I then shutdown the Bamboo installation and followed the instructions [here](#) to integrate it with Crowd. Below are the specific things I had to do for our installation
  - a. In order to keep the default groups of bamboo-admin and bamboo-users out of our LDAP, I created those two groups in the MBARI Crowd directory and then created a bambooadmin account that belongs to both. That meets the requirements of Bamboo and does not force our I.S. group to have to have bamboo-admin and bamboo-user groups in our LDAP.
  - b. The rest of the configuration was pretty straightforward except for the fact that Crowd is now using SSL and the connection between build-server and crowd was over SSL. This caused much grief as the connection was not trusted so I finally found some instructions on how to get around that [here](#). After I ran the program attached and installed the keystore in the java jre/lib/security directory, all was well and I could authenticate into Bamboo using MBARI's LDAP and MBARI Crowd directory.
23. The last step was to get all this running as a different user.
  - a. I shutdown bamboo.
  - b. I then did a 'chown -R root:root /opt/Bamboo' to make sure that the default ownership of all the files was root
  - c. I did a 'chown -R DB\_Collaboration:DB\_Collaboration /data/Bamboo' to make sure the DB\_Collaboration account owned all the bamboo data.
  - d. I then went in to the /opt/Bamboo directory and gave ownership of the following files and directories to DB\_Collaboration.
    - i. atlassian-bamboo.log
    - ii. logs
    - iii. /opt/Bamboo (so the bamboo.pid file can be created)
  - e. I then created the /etc/init.d/bamboo script:

```
#!/bin/sh
Startup script for bamboo
#
chkconfig: 2345 99 01
description: Atlassian Bamboo
pidfile: /var/run/bamboo.pid
. /etc/rc.d/init.d/functions
BAMBOO_HOME=/data/Bamboo
BAMBOO_INSTALL=/opt/Bamboo
BAMBOO_USER=DB_Collaboration
export BAMBOO_HOME
NAME=bamboo
BPID=${BAMBOO_INSTALL}/bamboo.pid
PID=/var/run/${NAME}.pid
cd ${BAMBOO_INSTALL}
if [$_$1 = _condrestart]; then
su - ${BAMBOO_USER} -c "
cd ${BAMBOO_INSTALL} &&
${BAMBOO_INSTALL}/bamboo.sh stop &&
${BAMBOO_INSTALL}/bamboo.sh start
"
else
su - ${BAMBOO_USER} -c "
cd ${BAMBOO_INSTALL} &&
${BAMBOO_INSTALL}/bamboo.sh $@
"
fi
RC=$?
if [-f $BPID]; then
cp -- $BPID $PID
touch /var/lock/subsys/${NAME}
else
rm -- $PID /var/lock/subsys/${NAME} 2>/dev/null
fi
exit $RC
```

24. I made it executable by all and changed the ownership to root:root

25. I then ran the following to configure it to start:

```
sudo /sbin/chkconfig --add bamboo
sudo /sbin/chkconfig bamboo on
sudo /sbin/service bamboo start
```

26. I then downloaded the selenium rc server jar file, put it in the /opt/selenium directory and created the following script and put it in /etc/init.d/selenium

```
#!/bin/sh
chkconfig: 2345 99 01
description: Selenium RC Service Agent
. /etc/rc.d/init.d/functions
scriptFile=$(readlink -fn $(type -p $0))
scriptDir=$(dirname $scriptFile)

This is the directory where selenium is installed
applDir=/opt/selenium-rc

The service names
serviceName=SeleniumRC
serviceNameLo=SeleniumRC

The group that will be used to run the service
serviceUser=DB_Collaboration
serviceGroup=DB_Collaboration

This is the process id file
pidFile=/opt/selenium-rc/selenium.pid

This is the log file where messages will be written
serviceLogFile=/opt/selenium-rc/log/selenium.log

The java command to run
javaCommand=java

The arguments to pass to the java command
javaArgs="-jar selenium-server-standalone-2.0b2.jar"

The full java command line
javaCommandLine="$javaCommand $javaArgs"

javaCommandLineKeyword=selenium-server-standalone

The time to wait for the graceful shutdown to work before sending SIGKILL
maxShutdownTime=15

This is a function to create a file and make it writable by the process group
function makeFileWritable {
 local filename="$1"
 touch $filename || return 1
 chgrp $serviceGroup $filename || return 1
 chmod g+w $filename || return 1
 return 0;
}

This function checks if the process with the pid that is passed in is running
function checkProcessIsRunning {
 local pid="$1"
 if [-z "$pid" -o "$pid" == " "]; then return 1; fi
 if [! -e /proc/$pid]; then return 1; fi
 return 0;
}

This function checks to see if the process id is the one that we started
function checkProcessIsOurService {
```



```

local pid="$1"
if ["$(ps -p $pid --no-headers -o comm)" != "$javaCommand"];
then return 1; fi
grep -q "$javaCommandLineKeyword" /proc/$pid/cmdline
if [$? -ne 0]; then return 1; fi
return 0;
}

This actually starts the service running
function startServiceProcess {
cd $applDir || return 1
rm -f $pidFile
makeFileWritable $pidFile || return 1
makeFileWritable $serviceLogFile || return 1
cmd="nohup $javaCommandLine >>$serviceLogFile 2>&1 & echo \#! >$pidFile"
sudo -u $serviceUser $SHELL -c "$cmd" || return 1
$SHELL -c "$cmd" || return 1
sleep 0.1
pid="$(cat $pidFile)"
if checkProcessIsRunning $pid; then ;; else
echo "$serviceName service started, log file $serviceLogFile."
return 1
fi
return 0;
}

This function stops the process
function stopServiceProcess {
kill $pid || return 1
for ((i=0; i<maxShutdownTime*10; i++)); do
checkProcessIsRunning $pid
if [$? -ne 0]; then
rm -f $pidFile
return 0
fi
sleep 0.1
done
echo "$serviceName $maxShutdownTime time exceeded, sending SIGKILL"
kill -s KILL $pid || return 1
local killWaitTime=15
for ((i=0; i<killWaitTime*10; i++)); do
checkProcessIsRunning $pid
if [$? -ne 0]; then
rm -f $pidFile
return 0
fi
sleep 0.1
done
echo "Error: $serviceName $maxShutdownTime+$killWaitTime seconds past and could not shutdown"
return 1;
}

This function grabs the process ID
function getServicePID {
if [! -f $pidFile]; then return 1; fi
pid="$(cat $pidFile)"
checkProcessIsRunning $pid || return 1
checkProcessIsOurService $pid || return 1
return 0;
}

The function that checks to see if the service is running and if not, starts it
function startService {
getServicePID
if [$? -eq 0]; then echo "$serviceName already running"; return 0; fi
echo "$serviceName starting"
}

```

```

startServiceProcess
if [$? -ne 0]; then return 1; fi
return 0;
}

This function checks to see if the process is running and if so, calls the function to stop
it
function stopService {
getServicePID
if [$? -ne 0]; then echo "$serviceName not running"; return 0; fi
echo "$serviceName stopping"
stopServiceProcess
if [$? -ne 0]; then return 1; fi
return 0;
}

This function check if the service is running or not
function checkServiceStatus {
echo -n "$serviceName appears to be "
if getServicePID; then
echo "running."
else
echo "stopped."
fi
return 0;
}

This is the main function that gets called first
function main {
case "$1" in
start)
startService
;;
stop)
stopService
;;
restart)
stopService && startService
;;
status)
checkServiceStatus
;;
*)
echo "Usage: $0 {start|stop|restart|status}"
exit 1
;;
esac
}

Call the main function and pass in the argument
main $1

```

27. I then ran `sudo /sbin/chkconfig --add selenium`
28. Then `sudo /sbin/service selenium start`



I am having trouble getting it to start on reboot. Works fine from the command line, but not from reboot.

29. I then downloaded maven and ant and unpacked them both to `/opt` and create `/opt/maven` and `/opt/ant` symbolic links to them respectively.
30. I then created two scripts `java-dev.csh` and `java-dev.sh` and put them in the `/etc/profile.d` directory and made them executable so that ant and maven were added to the default paths.
  - a. `java-dev.csh`

```

Set some Java development environment variables
setenv JAVA_HOME "/usr/java/latest"
setenv ANT_HOME "/opt/ant"

```

```
setenv M2_HOME "/opt/maven"

Add the ant and maven bins to the path
setenv PATH "${PATH}:/opt/ant/bin:/opt/maven/bin"
b. java-dev.sh

Some Java development variables
JAVA_HOME=/usr/java/latest
ANT_HOME=/opt/ant
M2_HOME=/opt/maven

export JAVA_HOME ANT_HOME M2_HOME

Add the ant and maven bin directories to the path
pathmunge /opt/ant/bin
pathmunge /opt/maven/bin
```

This page last changed on Jun 26, 2012 by [brian](#).

# Updating Bamboo on build-server from 3.1 to 4.1.2

## Before I Started

I contact IS to get permissions on build-server. [~pat] gave me the following:

```
sudo permissions for /sbin/service, /sbin/chkconfig, /bin/mkdir, /bin/chown, /bin/chgrp, /bin/
chmod, and /bin/rm
```

I also request the Mercurial be installed. From [~pat]:

Mercurial is only available through the EPEL repositories which we generally don't make available to production servers. So....

- Installed docutils-0.9.1
- Installed mercurial-2.2.2
- Ran "hg debuginstall"

## Shutdown Old Bamboo and Keep a Copy

```
sudo /sbin/service bamboo stop
cd /opt
sudo mkdir tmp
cp -R Bamboo tmp/Bamboo-3.1
sudo rm -rf Bamboo
```

## Install New Bamboo (4.1)

```
cd tmp
wget http://www.atlassian.com/software/bamboo/downloads/binary/atlassian-bamboo-4.1.2.tar.gz
tar -xvf atlassian-bamboo-4.1.2.tar.gz
cd /opt
sudo mkdir Bamboo
sudo chmod a+rw Bamboo
cp -R tmp/Bamboo/* Bamboo/
```

Edit the file /opt/Bamboo/webapp/WEB-INF/classes/bamboo-init.properties and add the line:

```
bamboo.home=/data/Bamboo
```

Fix the permissions on Bamboo so it can be run as a service:

```
sudo chown -R root:root /opt/Bamboo
cd /opt/Bamboo
touch atlassian-bamboo.log
sudo chown DB_Collaboration:DB_Collaboration atlassian-bamboo.log
sudo chown -R DB_Collaboration:DB_Collaboration logs
sudo chown DB_Collaboration:DB_Collaboration .
```

## Run Bamboo and Allow it to Run Migrations

```
sudo /sbin/service bamboo start
```

Check the page in a local browser on build-server. Then shut down Bamboo.

```
sudo /sbin/service bamboo stopt
```

The log is attached as [bamboo.log](#)

## Configure SSL

Edit /opt/Bamboo/webapp/WEB-INF/classes/jetty.xml

```
Uncomment these lines
<Set name="Host">127.0.0.1</Set>
<Set name="ConfidentialPort">8443</Set>
<Set name="IntegralPort">8443</Set>
```

Add SSL section:

```
<Call name="addConnector">
<Arg>
<New class="org.eclipse.jetty.server.ssl.SslSelectChannelConnector">
<Set name="Port">8443</Set>
<Set name="Keystore">/usr/local/keystore/keystore</Set>
<Set name="Password">Refer to jetty.xml to see password</Set>
<Set name="KeyPassword">Refer to jetty.xml to see password</Set>
</New>
</Arg>
</Call>
```

## Start Bamboo using jetty.xml

Edit the file /opt/Bamboo/conf/wrapper.conf

```
sudo chmod a+w /opt/Bamboo/conf/wrapper.conf
```

1. Comment out the following lines:
  - #wrapper.app.parameter.2=8085
  - #wrapper.app.parameter.3=./webapp
  - #wrapper.app.parameter.4=
2. Add the following line:

```
wrapper.app.parameter.2=webapp/WEB-INF/classes/jetty.xml
```

## Configure Crowd

It's way easier to configure now. Follow the instructions at <https://confluence.atlassian.com/display/BAMBOO/Integrating+Bamboo+with+Crowd>

## Communications

---

This page last changed on May 20, 2014 by [kgomes](#).

This page documents different aspects of the communications systems between shore and the Rachel Carson.

### Meeting Notes

- [May 20, 2014](#)

### Goals

Decide on best plan for communications architecture, route selection, bandwidth management and whether or not to move forward with cell comms capability.

### Schedule

Worked completed by early July so we can have several opportunities to test before Pacific Northwest cruises.

### Attendees

## Agenda

### Background

- CANON-style experiments on the increase
  - Experiments need data sharing
- Projects no longer wanting to 'pay' for engineers to ride along
- Very good success on other projects with cell comms (ESP, LRAUV)
- We installed Cradlepoint for Southern California Cruise
- Verizon had poor coverage which was unexpected
- Worked well when within range (no bandwidth management which is not economical)
- Could remotely support systems during CANON experiment
- AT&T Modem sent to John which worked really well
- AT&T system on bridge has been successful
- Upon return to Monterey, trying to improve route selection and bandwidth management
  - Many, many problems which resulted in service disruptions

### Current Status

- VSAT only plugged into core router
- Very minimal bandwidth management

### Plans Moving Forward

- Extensive Dock Side Testing (test plans)
- Ride along after changes made (only schedule changes when we can ride along)

### Route Selection Options

- Copper, Microwave, VSAT with hard switch
  - Pros:
    - Always know which route is enabled
    - If one route is having issues, crew has control
  - Cons:
    - Have to remember to manually switch it
    - No bandwidth management
    - When no microwave, no remote access (might be work arounds with ship initiated tools - GoToMeeting, etc.)
    - When no microwave, cannot establish permanent VPN tunnel
    - When no microwave, ship is essentially isolated from shore-side access so difficult to support without anybody on board
- Copper, Microwave, VSAT with core router doing selection (current)
  - Pros:
    - 1 less path (cell) to deal with in route selection
  - Cons:
    - Route selection with routers is problematic
    - When no microwave, will have to pay when more bandwidth is necessary

- When no microwave, no remote access (might be work arounds with ship initiated tools - GoToMeeting, etc.)
- When no microwave, cannot establish permanent VPN tunnel
- When no microwave, ship is essentially isolated from shore-side access so difficult to support without anybody on board
- Copper, Microwave, Cell, VSAT with hard switch
  - Pros:
    - When in cell range, with Verizon/AT&T connectivity, we can see core router
    - When in cell range, can establish permanent VPN
    - Can troubleshoot and support from shore
    - When in cell range, data costs are lower
    - When in cell range, data throughput is higher (more bandwidth)
  - Cons:
    - Have to remember to manually switch it (won't know when back in cell range)
- Copper, Microwave, Cell, VSAT with TBD route selection hardware/software (TBD)
  - Pros:
    - Same as previous, plus
    - Route selection happens automatically
    - Most cost effective (will choose most economical route)
  - Cons:
    - May be another box (or core router replacement/configuration) in the stack where things could go wrong
    - If another box needed, we will have to pay for hardware
  - **NOTE: Hard switch could/should be implemented in a parallel with any automatic selection mechanism**

#### Bandwidth Management

- Core router management
  - Pros:
    - Most cost effective (we have the hardware we need)
  - Cons:
    - Managing bandwidth done at the protocol level (very tedious)
    - Not able to discriminate between different applications on same protocol to same region, e.g. web browsing McMaster Carr vs Windows Updates
- Core router with packet shaper
  - Pros:
    - Bandwidth management very targeted (media type) and easier to manage
    - That what it is built for
  - Cons:
    - Another box in the stack which could fail
    - Purchase cost of packet shaper (~\$3K)
- WAN Optimization (still in research phase)
  - Pros:
    - Caching of resources increases access speeds
    - Statistics show up to 60% reduction in bandwidth usage (saves money for comms)
  - Cons:
    - Another box where failure could occur
    - Expensive

#### Core Router Failure Recovery

- 2nd core router that can be swapped in
  - Pros:
    - A backup router will be available in case of failure
  - Cons:
    - Will have to purchase two routers (current one not available any more): Cisco 2921 (with security licensing) (~\$5K)
- Separate wireless network in which we could plug in VSAT in case of router failure
  - Pros:
    - Can completely bypass the core router in case of failure
  - Cons:
    - A fair amount of work to install
    - Ship servers and computers will be completely isolated from shore (is that a pro?)



### Cell System Costs

- Support Engineering already has paid for hardware
- With proper bandwidth management and/or WAN optimization costs should be minimal - \$25-\$50/month

### Recommendations

- Maximize performance on RC's VSAT today, by blocking all outbound traffic from the ship except http/https, ftp, imap, pop, smtp to MBARI (with the possible addition of other low bandwidth messaging for ship position or what have you). This should be extremely effective, allowing quality access to timecards, POs, etc, but may be too limiting for them. If they want http to the world so be it, with the knowledge that will make things slower. Verify Automatic Update is disabled on all permanent shipboard machines.
- Proceed with acquisition of Palo Alto (\$3K) for bandwidth shaping, implement manual switch array for manual route selection, and continue to research ways to improve route auto-selection. Explore implementing a cheap/free web proxy VM (to run on RC-ESX1), to improve web browsing performance.
- Continue research on WAN optimization, and determine whether budget support for a \$30-50K+ solution is likely for 2015. If a spare router is justified, budget a pair of replacements for 2015, or see if a certified refurb is available for a price we can afford now.

### Questions/Plans/Actions

-  Are there any plans for configuring the RC's VSAT service similar to the Flyer's (e.g. with ground station router for bidirectional comms), either with current service provider or switching to the same one the Flyer uses?
- If cell is a go, proper mounting (bridge with external dual frequency antennas for AT&T and Verizon)

## Confluence Installation Notes

---

This page last changed on Aug 03, 2013 by [kgomes](#).

These notes detail the installation and upgrades for the Confluence application at MBARI. The original installation was done on our intranet and then it was eventually moved to the DMZ and made available to the rest of the world so our collaborators can work with it as well. We connected it to Atlassian's Crowd application so that we could manage external collaborator accounts without having to create internal NT Domain accounts.

### Original Installation

1. TODO kgomes - Need to document the installation of Confluence 2.7 (original installation)

### Upgrade from 2.7 to Confluence 5

1. I first upgraded our license on the current Confluence server by updating the license on the "My Atlassian" license site and then updating the license on our Confluence server.
2. One thing to note is that the URLs that respond to <https://oceana.mbari.org/confluence> must still work on the new server.

## Confluence Upgrade and Migration Notes

---

This page last changed on Aug 28, 2015 by [kgomes](#).

This page documents the steps taken to upgrade the Confluence installation so that it could be migrated to the Confluence Cloud Service hosted by Atlassian.

The starting point for the upgrade is the following:

1. Confluence version 2.7 running on the server oceana.mbari.org
2. Authentication is using the Crowd service also located on oceana.mbari.org (database is on solstice)
3. The database that confluence is using is the Confluence database on solstice.shore.mbari.org

### Path

The path for our install appears to be: 2.7 -> 2.7.4 -> 3.5.17 -> 5.0.3 -> latest (5.8 at time of writing this)

### Steps

1. I.S. created a new VM named pompeii.shore.mbari.org that I will use to do all the stepwise upgrades
2. Java 1.6.0\_36 was installed, so I asked for an update to the latest 1.8 version
3. I.S. created four databases for the upgrade path.
4. Per the installation instructions, for each of these databases, I performed the following using Aqua Data Studio  

```
ALTER DATABASE <database_name> COLLATE SQL_Latin1_General_CP1_CS_AS
```
5. Per the installation instructions, for each database, I ran:  

```
ALTER DATABASE <database_name> SET READ_COMMITTED_SNAPSHOT ON WITH ROLLBACK IMMEDIATE;
```
6. I VNC'd into pompeii.shore.mbari.org and fired up Firefox.
7. I downloaded the .tar.gz versions of the standalone for all the versions listed above.
8. I went to the Confluence Administration panel and went to Backup and Restore
9. I selected both the Backup check boxes and clicked "Backup"
10. The backup completed and I downloaded the 1.3 GB file.
11. I then SCP'd that file to pompeii in case I can do a local restore which will be much faster. (/home/kgomes/confluence\_upgrade)

## crowd.mbari.org installation instructions

This page last changed on Apr 10, 2012 by [kgomes](#).

In February of 2011, we decided that crowd needed to be upgraded as a part of a larger upgrade scheme for our software development infrastructure. Here is a diagram of the overall infrastructure that we are moving towards.

### Upgrade process

Fortunately, Atlassian is very good about documenting their upgrades and installations and the upgrade of Crowd basically was an export from the old and an import to the new. The process started with Crowd being at version 1.6 and we upgraded to 2.1. Since we are using MSSQL, Atlassian [recommends the export and import method of upgrading](#). So here are the steps I took:

1. I put in request for a virtual machine in the DMZ and had it named crowd.mbari.org. The old version was hosted on oceana, so there was no name clash. Pat created the VM (RHEL 5) and then installed Java version 1.6.0\_23.
2. I did not really need to backup the existing crowd install, because this is a new install that I will migrate the database over to. That said, I did backup the /opt/crowd/crowd-openidserver-webapp/WEB-INF/classes/crowd.properties and created a tar file of the /data/crowd directory and put them in /root/backup-02-15-2011 so that I at least had them.
3. I downloaded latest jtds driver (1.2.5) and the version 2.1.1 or atlassians crowd product.
4. I went to the administration console of the current crowd installation and did a backup export to XML:
  - a. Clicked on Administration 'tab'
  - b. Clicked on 'Backup'
  - c. I left the check box to clear the domain so it can be restored on the new server and put the file as /tmp/crowd/02-15-2011.xml
  - d. I then moved the file to /root/backup-02-15-2011/crowd
5. I expanded the atlassian download into the /opt directory then created a link to it using 'ln -sf /opt/atlassian-crowd-2.1.1 /opt/crowd' so it would make upgrades easier (startup scripts).
6. I then created the /data/crowd directory to house the data for the crowd application.
7. I edited the /opt/crowd/crowd-webapp/WEB-INF/classes/crowd-init.properties file and pointed the crowd.home property to /data/crowd
8. I then moved the jtds driver jar file to the /opt/crowd/crowd-webapp/WEB-INF/lib directory
9. I copied the 02-15-2011.xml file to from the old crowd installation on oceana to the /tmp directory on crowd.mbari.org.
10. I then ran the startup script start\_crowd.sh from the /opt/crowd directory
11. I then browsed to <http://localhost:8095/crowd> to get to the setup wizard. (I did this from the local machine as I could not get to 8095 from anywhere else).
12. It prompted me for the license, so I took the server ID from this page, logged in to my altassian account, viewed the renewed license for crowd and stuck the server ID in from the crowd license page. This generated a new license key, which I put back into the license key field on the crowd installation page.
13. It then asked me if this was a new installation or if I wanted to restore from XML backup. I chose the backup method and then clicked next.
14. It then asked me what type of database I had and I chose JDBC connection. I then filled in the appropriate parameters for the connection.
  - a. Database: Microsoft SQL Server
  - b. Driver Class Name: net.sourceforge.jtds.jdbc.Driver
  - c. JDBC URL: jdbc:jtds:sqlserver://equinox.shore.mbari.org:51001/Crowd;domain=SHORE
  - d. Username: DB\_Collaboration
  - e. Password: *wouldn't you like to know*
  - f. Hibernate Dialect: org.hibernate.dialect.SQLServerDialect
  - g. Overwrite Existing Data: Checked
15. I then chose the /tmp/02-15-2011.xml file as the import from backup file.
16. It then told me success and sent me to the crowd console for login



### Firewall holes

In order to get this to work, I had to get I.S. to get some firewall holes punched from crowd.mbari.org to equinox.shore.mbari.org port 51001 and ldap.shore.mbari.org port 389.

17. Now in order to harden it up a bit, I followed the instructions [here](#) but used the user and group DB\_Collaboration instead of the crowd user and group.
18. The final step was to setup the SSL certificate and enable it in Crowd.
19. Cathy was nice enough to get the certificate and keystore all setup and then I had to enable it for Crowd. Cathy did step 2 on the [following page](#) and I had to do steps 1, 3 and 4.
  - a. I shut down the crowd service and then did step 1 (and I used the extra SSLEnabled attribute).
  - b. I did step 3 and 4 and brought it back up.
  - c. Note I also commented out the <Connector> tag on port 8085 so that the straight http port was closed.
20. I.S. then opened up port 8443 to the world

## OpenID

1. I enabled CrowdID on this server as well.
2. Mike Godin found some redirects were not happening correctly:

I'm wondering if maybe it's a hostname issue. The redirections I see are:

```
#1 from login page, GET https://crowd.mbari.org:8443/openidserver/server.openid?
openid.assoc_handle=<lots of stuff deleted>
```

```
#2 redirected GET to https://crowd.mbari.org:8443/openidserver/secure/interaction/
allowauthentication!default.action
```

```
#3 redirected GET to https://localhost:8443/openidserver !!!!
It should have redirected to https://crowd.mbari.org:8443/openidserver
```

Weird thing is that the redirection in step 2 is correct. But for some reason crowd.mbari.org forgets it's host name in step 3. I guess this is why things work when a user is already logged into crowd, because only steps #1 and #2 need to occur.

On the web I found this:

I found out the solution !

In crowd-openidserver-webapp\WEB-INF\classes\crowd.properties the following values are set:

```
application.login.url http://localhost:8095/openidserver
crowd.server.url http://localhost:8095/crowd/services/
```

After changing "localhost" to the the correct hostname/ip-address, the redirect is working as expected.

I also made this change and I am waiting to hear from Mike G. I also changed the 'localhost' to 'crowd.mbari.org' in the /data/crowd.properties file to make sure redirects happen OK there too.

## DORISS II Documentation

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This page last changed on Sep 24, 2009 by [kgomes](#).

A list of documents to help support DORISS II:

1. [DORISS II WinXP Target Build How-To Document](#)

# Project: Elevator Release Controller

Support Engineers: Thom Maughan, Craig Okuda

Electronics and Firmware: Thom Maughan

Mechanical and System: Craig Okuda

**\*\*See attachment for Fusion USBL software release procedure.**

### Problem Statement:

- Elevator (Platform) is weighted and sunk up to 4000m. Deployment duration is 30 to 45 days at which time the weight is released and the positive buoyant elevator then rises to the surface.
- The problem: an ROV descends and pulls the release cord - this is expensive (~\$10k).
- The solution is to leverage the existing transponder to create an acoustic release actuator. This consists of:
  - SonarDyne UM - 7970 Super Sub-Mini acoustic transponder with RS232 interface - (1200 baud, 8 data bits, no parity, 1 start/stop bit).
  - MBARI Elevator Release Controller (ERC) connected to SonarDyne Super Sub-Mini
    - There are several extraneous characters which come out of the port when the unit transponds so the ERC needs to filter these out.
    - Three character command sequences with trailing carriage return:
      - REL (output after receiving 3 release commands within 50 seconds. Release is command 0 on the sonardyne ANT tester)
      - EBL (transponder replies are enabled. Enable is command 1 on the sonardyne ANT tester)
      - DBL (transponder replies are disabled. Disable is command 2 on the sonardyne ANT tester)
      - EIR (enable instrument replies, which enables two-pulse depth replies. EIR is command 3 on the ANT tester)
      - DMS (disable instrument replies. DMS is command 4 on the ANT tester).
  - The ERC decodes the 'REL' control message and triggers a relay that provides 9-12v to a motor which moves a cam that then pulls the release cord and drops the weight. Relay and switch logic with the index switch should turn the motor off.
  - The cam has a Gianini index switch in parallel with the ERC motor control relay that detects the home position of the motor and de-activates power to the motor.
  - A Manual Release switch is required for test.
    - Manual release test will be activated when power is supplied to the microprocessor thru the interface connector.
    - A test switch will be provided on the PCB board - not accessible
  - The motor will only activate infrequently - a couple times to test and then after 30 - 45 days it will operate when commanded by the transponder.
  - The micro will just sit and wait for a "REL" string to come from the transponder. When it gets a release command it will turn on the gear motor.
  - It will take about 15-30 seconds for the motor to turn 360 degrees until it hits the index/home switch and stop.
  - The micro must also turn off power to the motor when the manual release/test button is pressed for more than 10 seconds.
  - It should again turn the motor on until it goes 360 to the index/ home position.
  - There will be a FET in parallel with the magnetic motor interrupter switch
  - Turn on FET until magnetic switch goes on then turn off FET

### Requirements

- **Reliable**

- With a working transponder set (top-side and bottom-side), the ERC must drop the weight when commanded.
- 45 day duration. ERC controller will be designed for 4x battery power budget (180 days)
  - Option A: CR2032 coin cell - assume 150 mAh at 3.0v.
    - Coin cell holder to prevent backward battery insert (Shrink wrap)
  - Option B: 3.6v AA Lithium Battery (2000mAh)
  - Low power microprocessor and controller circuitry
    - Goal: Listen for RS232 signal with less than 10 uA, reliably receive "REL" command
- Operation at 0 degrees C with humidity in a sealed container. Able to withstand 85 degrees C (sun baked housing)
- Able to drive 12 v Pittman Motor with gearing
  - Batteries able to supply momentary 1.5 A (guess) startup current
  - Batteries able to supply continuous 400 mA (guess) continuous current for 10 seconds (guess)
- **Testable**
  - switch to test operation, ANT test set for simulating transponder signal.
- **Fault Tolerant**
  - Fault mode: Seawater in the connector. Isolate the motor connections, both ground and power, to prevent connector corrosion from activating the motor.
- **Maintainable**
  - Marine Operations Team should be able to 'easily' acquire and replace batteries.
  - Goal: select one type of battery for both ERC and Motor
- **Space Constraints**
  - Motor batteries (9v - 12v) and ERC board and battery (3v - 3.6v) must fit in a cylindrical pressure housing with internal dimensions approx. 2.5" x 5.5".
  - The ERC board should target a size of 2" x 2".

#### Processor Selection:

- MSP430F1232 chose for it's low power operation and ability for fast wakeup on RS232 input:
  - Low Supply Voltage Range 1.8 V to 3.6 V
  - Ultralow-Power Consumption:
    - Active Mode: 200  $\mu$ A at 1 MHz, 2.2 V
    - Standby Mode: 0.7  $\mu$ A
    - Off Mode (RAM Retention): 0.1  $\mu$ A
    - Five Power Saving Modes
    - Wake-Up From Standby Mode in less than 6  $\mu$ sec
  - 16-Bit RISC Architecture, 125 ns Instruction Cycle Time
  - Clock Module Configurations:
    - 32-kHz Crystal
  - 16-Bit Timer\_A With Three Capture/Compare Registers
  - 10-Bit, 200-kSPS A/D Converter With Internal Reference, Sample-and-Hold,
  - Serial Communication Interface (USART0)
  - Serial Onboard Programming, No External Programming Voltage Needed, Programmable Code Protection by Security Fuse
  - Supply Voltage Brownout Protection
  - MSP430F1232: 8KB + 256B Flash Memory, 256B RAM
  - Plastic 28pin TSSOP

#### RS232 Selection

- Low Power, able to receive in standby mode
- MAX3222 selected - 0.1uA in standby and able to receive  
|| ~SHDN (RX) || ~EN (TX) || T-OUT || R-OUT || Power ||

0	0	Z	Active	1 uA
0	1	Z	Z	1 uA
1	0	Active	Active	25 mA
1	1	Active	Z	25 mA

#### FET Selection



- Low gate threshold for use with MSP430 I/O Port - 2v ON threshold at 0 degrees C
- Able to switch relay coil or optionally to turn motor (2A)
  - OnSemi <http://www.onsemi.com/pub/Collateral/NTHD4508N-D.PDF>
  - STS4DNF30L - used on FOCE, available from Digikey

#### Battery Selection

- 3.0v to 3.6v for Controller
  - Lithium preferred for long shelf life. Option A is a coin cell replaced each deployment or Option B is a AA that gets replaced every 5 years (assuming shorting plug is removed between deployments).
- 9v to 12v for Motor
  - 8 x 1.5v Alkaline replaced for each deployment.

### Digital Camera AA Comparison

The table below summarizes the important differences and similarities among AAs commonly compatible with digital cameras.

<b>Comparison: AA Batteries for Digital Cameras</b>					
<b>Feature</b>	<b>Nickel Metal Hydride (NiMH)</b>	<b>Nickel- Cadmium (NiCd)</b>	<b>Lithium</b>	<b>Alkaline</b>	<b>Lithium 3.6v</b>
Nominal voltage	1.25	1.25	1.5	1.5	3.6
Rechargeable	Yes	Yes	No	No	No
Capacity per AA (mAh)	1,300-1,800	1,100 for high-capacity types, 650 standard	~2,700	2,500	
Cost per AA (\$US)	\$2.00-3.75	\$1.50-2.00 (high-capacity)	\$2.25-2.50	\$0.25-1.00	\$8 - 12
Cost per amp-hour	\$1.54-2.09	\$1.36-1.81	\$0.83-0.93	\$0.10-0.40	
Cost per Ah for 1,000 uses*	\$1.54-2.09	\$1.36-1.81	\$830-930	\$100-400*	
Weight, approx. (gm)	25	22	14	23	
Runtime in a digital camera	Very good	Good	Excellent	Very poor	Excellent
High-drain performance	Excellent	Excellent---even better than NiMH	Excellent	Very poor	Excellent
Self-discharge rate	10% first 24 hours, then 10%/month;	50-67% that of NiMH	Negligible	Extremely low	Negligible

	average 1-2%/day				
Shelf life (once fully charged)	3-5 weeks at least	Slightly better than NiMH	10 years	5 years	10 years
Voltage curve slope during discharge	Nearly flat over 1st 90% of capacity	Same as NiMH	Nearly flat	Strongly falling at start	Nearly flat
Lifetime charging cycles	500-1000	More than NiMH	n/a	n/a	
Maximum safe long-term trickle charge rate (mA)	10% of rated capacity (C/10), but C/20 or less is safer	2-3% of rated capacity (C/33)	n/a	n/a	
Operating temperature range	Same as NiCd	Good: -4° to 113°F, but capacity suffers at low temps	Excellent: -40° to 140°F	Poor	Excellent: -40° to 140°F
Chemistry	NiMH, where alloy M is usually LaNi <sub>5</sub>	NiCd (cadmium instead of nickel-metal alloy at the anode)	LiFeS <sub>2</sub>	Zn/MnO <sub>2</sub>	
Heavy metal toxicity	None	High, due to cadmium content	None	??	None
Availability beyond mail order	On-line and chain retailers	Chain drug and hardware stores	Same as NiCd	Everywhere	On-line, some drug stores carry CRV3

#### Batteries Selected:

- Controller - saft 3.6v Lithium. 10 year life
- Motor - 8 x 1.5v alkaline changed with each deployment.

#### Tasks:

- Design (complete)
- Schematic Layout (complete)
- PCB Layout (complete Apr. 22)
- PCB fab (goal: send out Apr. 24 )
- Parts purchase (board qty 10)
  - Digikey (ordered 22 Apr 08)
    - MSP430F1232
    - MAX3222
    - FET
    - Diodes (switching, protection)
    - Inductors
  - Garrett Electronics (ordered 22 Apr 08)
    - Surface mount resistors (10, 100, 10k, 20k, 100k)
    - Surface mount caps (0.1uf, 22uf)
  - RadioShack (ordered 22 Apr 08)
    - Batteries (saft)

- Battery holders
  - onlinecomponents (ordered 22 Apr 08)
  - Relays (2.30 and in stock vs 8.50 with 10 week backorder from Digikey)
- Board Bringup
  - Tested MSP430, clock circuit and relay control. No ECO's related to basic operation. TODO: test relay logic with motor and mag switch.
  - Errata
    - JTAG connector is improperly layed out (schematic is incorrect). The even numbered pins are reversed.
- Firmware (in progress, delayed while working on Valve Pack Controller)
  - supportEng/erc source code repository created (on moonjelly)
  - cygwin and parallel port emulator from Olimex used for development.
    - Aug 2008. Had some difficulty getting JTAG working again
  - UART baud rate (1200)
  - rx, tx
  - motor control
  - test button
  - 12v battery monitoring (might need to change the resistors)
  - timer
  - data logging for testing
  - low power mode (wake on RX)
- Production board build
- Test
  - soak test to verify power consumption numbers and battery life
  - Test with ANT
- User / Service Documentation for DMO
- Drawing Number
  - 10020095 | DSN | Elevator Release Controller | 4/28/2008 |

### Ant Setup Procedure for Testing

1200,8,N,1

3=Multi

3=Old Pan

3=Command

2=Set

5=MF

2=ADDR

"2505", "ENTER"

3=COMMAND

"0"=REL, "ENTER"

1=EXIT

5=START (Sends command "0" to 2505)

5=START (Sends command "0" to 2505)

5=START (Sends command "0" to 2505)  
(3rd Start sends the release command)

Summary

ON

3

3  
3  
4  
2  
5

## Erlang

---

This page last changed on May 29, 2009 by [kgomes](#).

Erlang is about:

- Processes and lightweight concurrency
  - Process isolation (REALLY isolated)
    - Processes share nothing and copy everything (no locks/deadlocks)
  - Fault tolerance and error handling
  - Distributed programming
  - Asynchronous communication (cheap)
  - Simple language (hmmmmm .....)
1. VERY lightweight processes
    - a. Hundreds of thousands on commodity hardware
  2. Functional (functions can accept or return functions!)
  3. Ports (='Processes' for communicating with the outside world) are how Erlang communicates to hardware.
  4. I/O is also way to interface to outside world.
  5. I/O sits between the outside and the port to try to communicate with both.
1. Look at nanite (uses RabbitMQ)
  1. CouchDB

## File Systems

This page last changed on Nov 29, 2012 by [kgomes](#).

These are some notes about different file systems and when and why you would use them:

File System	Good For	Not Good For
Hadoop	1. Very Large Files - "Very large" in this context means files that are hundreds of megabytes, gigabytes, or terabytes in size. There are Hadoop clusters running today that store petabytes of data.    2. Streaming data access- HDFS is built around the idea that the most efficient data processing pattern is a write-once, read-many-times pattern. A dataset is typically generated or copied from source, then various analyses are performed on that dataset over time. Each analysis will involve a large proportion, if not all, of the dataset, so the time to read the whole dataset is more important than the latency in reading the first record.    3. Commodity hardware- Hadoop doesn't require expensive, highly reliable hardware to run on. It's designed to run on clusters of commodity hardware (commonly available hardware available from multiple vendors<sup>†</sup>) for which the chance of node failure across the cluster is high, at least for large clusters. HDFS is designed to carry on working without a noticeable interruption to the user in the face of such failure.	1. Low-latency data access - Applications that require low-latency access to data, in the tens of milliseconds range, will not work well with HDFS. Remember, HDFS is optimized for delivering a high throughput of data, and this may be at the expense of latency. HBase is currently a better choice for low-latency access.    2. Lots of small files- Since the namenode holds filesystem metadata in memory, the limit to the number of files in a filesystem is governed by the amount of memory on the namenode. As a rule of thumb, each file, directory, and block takes about 150 bytes. So, for example, if you had one million files, each taking one block, you would need at least 300 MB of memory. While storing millions of files is feasible, billions is beyond the capability of current hardware.    3. Multiple writers, arbitrary file modifications - Files in HDFS may be written to by a single writer. Writes are always made at the end of the file. There is no support for multiple writers, or for modifications at arbitrary offsets in the file. (These might be supported in the future, but they are likely to be relatively inefficient.)

### DC-DC converter assembly notes

#### BOM Corrections:

1. C99, BOM states 10nF in PART field. It should be 22nF.
2. JP8, JP9, JP12, JP13, JP18: Manuf PN field has a typo. The correct PN should be 87215-1.
3. JP16: Manuf PN field has a typo. The correct PN should be 87215-1.
4. J24. Manufacturer PN is obsolete. **This affects the layout footprint.** Possible substitute parts do not match the layout footprint. SUB PN's are Molex 500998-0900 or Molex 67913-8008.
5. R35, R36, R50, R52: BOM specifies a zero OHM resistor in the PART field. This is due to a change in the schematic. The Manuf PN and Supplier PN fields need to update to PANASONIC  
ERJ-8GEY0R000V.
6. R84, R 86, R88, R91 Change 511 to 510 in PART field.

## Frameworks for monitoring files systems

This page last changed on Nov 28, 2012 by [kgomes](#).

There were a couple of projects that needed to monitor file structures to look for changes. I thought I would document that various frameworks that I found and my experience with them.

Framework	Language	Website	Cost	Platform	Comments
JxFileWatcher	Java	<a href="http://www.teamdev.com/jxfilewatcher/">http://www.teamdev.com/jxfilewatcher/</a>	\$399	All	The cost is just for development, can deploy as much as we like
Watch Tree	Node	<a href="https://github.com/tafa/node-watch-tree">https://github.com/tafa/node-watch-tree</a>	\$0	All	
Watch.js	Node	<a href="https://github.com/mikeal/watch">https://github.com/mikeal/watch</a>	\$0	All	
kqueue	C	<a href="http://developer.apple.com/library/mac/#documentation/Darwin/Reference/ManPages/man2/kqueue.2.html">http://developer.apple.com/library/mac/#documentation/Darwin/Reference/ManPages/man2/kqueue.2.html</a>	\$0	Mac	This is for file system monitoring on the mac
inotify	C	<a href="http://linux.die.net/man/7/inotify">http://linux.die.net/man/7/inotify</a>	\$0	Linux/Unix	
watchdog	Python	<a href="http://pypi.python.org/pypi/watchdog">http://pypi.python.org/pypi/watchdog</a>	\$0	All	
QFileSystemWatcher	C++(Qt)	<a href="http://qt-project.org/doc/qt-4.8/qfilesystemwatcher.html">http://qt-project.org/doc/qt-4.8/qfilesystemwatcher.html</a>	?	All?	
SimpleFileWatcher	C++	<a href="http://code.google.com/p/simplefilewatcher/">http://code.google.com/p/simplefilewatcher/</a>	\$0	All?	
Guard	Ruby	<a href="https://github.com/guard/guard">https://github.com/guard/guard</a>	\$0	All?	



## Git Working Session

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This page last changed on Jun 10, 2015 by [carueda](#).

These are notes from a working group session that the Information Engineering Group had to try and get familiar with Git.

### Topics

1. Converting old repos (SVN, CVS, etc.) to Git
  - a. Work with MBSystem (I might try ODSS and/or SSDS)
2. Workflow topics
  - a. config
  - b. init
  - c. status
  - d. add
  - e. commit
  - f. log
  - g. diff
  - h. reset (soft/hard)
  - i. remote
  - j. push
  - k. pull
  - l. clone
  - m. branch (remote)
  - n. checkout
  - o. merge
  - p. tag
  - q. fetch
  - r. rebase
  - s. blame
  - t. rm
  - u. alias (config)
  - v. stash
  - w. filter-branch
  - x. submodule
  - y. reflog
3. Workflow scenarios
  - a. Init, add, commit, remote, push, pull, change, push, merge (with and without conflicts)
  - b. Exchanging code between two repos directly without an origin server
4. Tools
  - a. GUIs
  - b. Try working with Heroku?

### Links

- A Visual Git Reference - <http://marklodato.github.io/visual-git-guide/index-en.html>
- Visualizing Git Concepts with D3 - <http://onlywei.github.io/explain-git-with-d3/>
- Git concepts simplified - <http://gitolite.com/gcs.html>

## Group Meeting Notes

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This page last changed on Feb 07, 2011 by [kgomes](#).

Notes from meetings relevant to Support Engineering:

### **Meetings with I.S.**

- [Feb 7, 2011](#)

**Feb 7, 2011**

This page last changed on Feb 07, 2011 by [kgomes](#).

**Agenda:**

- Talk about software development services, architecture, and plan for upgrades and deployment

**Attendees:**

- Todd Ruston
- Cathy Sewell
- Pat Allen
- Pete Braccio
- Duane Edgington
- Karen Salamy
- Kevin Gomes

**Notes**

- Security
    - Kerberos
    - Centrify
    - LDAP
      - SSDS is the outstanding issue with security. 6 shares on tornado that have wide open permissions. ssdsdata. auvctd, Work with Cathy on mapping all this out and getting permissions resolved.
      - new-ssds needs to be re-opened.
      - SSH integration for kerberos is a piece of cake in centrify.
      - Kerberos is THE goal.
  - Database
    - All apps move to Equinox? Yes 2008. (or solstice).
  - Upgrades:
    - We should make sure we address the AD groups used in JIRA confluence.
    - RHEL 6 is released. RHEL 5 is supported for 7 years so we will go with that for now.
    - Crowd (#1)
    - Confluence (#3)
    - JIRA #2
    - Alfresco #4
    - Subversion #5
    - SSDS (#1?)
  - Future Installations:
    - Bamboo, Fisheye, Crucible (#2) - CANON
    - Messaging (RabbitMQ)
1. Other
- a. lack of planning
  - b. lack of specificity of how things talk through firewall. build internally and then move to Dmz in emergency. research/engineering not following deployment instructions to deploy experiments on mars. Network plan. MARS is an NSF facility. MARS Is different from DMZ, more complex.
  - c. Non-standard and then dump on I.S. to fix.
  - d. standardizing stacks for J2EE stack (application stacks).
  - e. embedded systems: not really
  - f. So much is deployed in the experimental state. Then it stays that way. Maintenance is a nightmare.
  - g. How does I.S. tell when something is working or not. SNMP, ports, nagios. What is actually not working, not just my server is broken
  - h. even if it is just showing them visibly.
  - i. Who manages patches for non-standard installs.
  - j. Been bit by lock down to particular versions because of bugs. We are using the bug and so we can't patch.
  - k. Some cases where we don't patch because it breaks development process.
  - l. How to we budget for maintenance.
  - m. I.S. feels you must patch.
  - n. Timeliness of patching.

## Helpful Software Downloads

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This page last changed on Sep 24, 2009 by [kgomes](#).

**This page contains helpful software links and downloads largely maintained by Support Engineering for MBARI.**

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### MBARI Support Engineering Software Licenses

- [2008 MBARI Engineering Software Licenses/Users](#) - SolidWorks, OrCad, MatLAB & MathCAD

### CVS and Subversion (SVN) Source Code Repository Links

- [Welcome to CVS letter](#)
- [Setting up a CVS Graphical User Interface \(GUI\)](#)
- [Adding your code to MBARI's CVS Source Code Repository](#)
- [CVS Client Software Downloads](#)
- [Adding your code to MBARI's SVN Source Code Repository](#)
- [SVN Client Software Downloads](#)
- [Setting up SmartSVN to MBARI SVN Repository](#)

### MBARI Network and Computer System How-To's

- [Setting up a computer on the MBARI Network](#)

### Linux System Build How-To's

- [K3b DVD Burner Installation How-To Document](#)
- [Quatech PCMCIA Serial Port Adapter Setup How-To Document](#)
- [Setting up a Dual Boot Windows/Linux Computer How-To Document](#)

### AVED System Design Docs

- [AVED Golden Image Creation, Propagation, & Backup Instructions](#)
- [KOI Software Update How-To Document](#)
- [AVED Video Lab Capture How-To Document](#)
- [AVED Adobe Premiere Video Capture Settings on Ephyra How-To](#)

### DORISS II System Design Docs

- [DORISS II WinXP Target Build How-To Document](#)

### MBARI Software Engineering Lab Inventory GUI

- [Software Engineering Lab Inventory GUI - DESIGN STAGE ONLY](#)

## High Resolution PH Meter Assembly Instructions

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This page last changed on Sep 24, 2009 by [kgomes](#).

### pH Meter Assembly Instructions

1. Don't cut the leads on the Temp sensor AD22103 - Mount standing up with 0.25" leads to insure close proximity to housing. Use a 0.25" Teflon sleeve on the center leg.
2. Teflon sleeves on the outer row of the right angle 2x7 JTAG connector (prevent shorting to housing)
3. Lift pins on U21 - 3 and 6. Bend straight out.
4. Stuff 1x10 header on pH meter / controller board, do not solder header to analog front end board (deliver as two pieces)
5. Implement the following Engineering Change Notifications (ECN's)
  - a. ECN #1
    - i. Schematic Mistake on U8 LM337 to fix VAAiso- connection to Vin of LM337 (should be Vout)
      - i. Cut trace under C34 going to the non-stripe end of C34
      - ii. Drill hole on pin 8 J17, tube the hole with teflon tubing
      - iii. Connect U8 - pin 1 to J17 - pin 8 and non-stripe end of C34
  - b. ECN #2
    - i. Silk screen on rev 1.0 shows opposite polarity for C66 - stuff backwards to silkscreen
  - c. ECN #3
    - i. Connect U14- pin22 to U14 - pin 30
  - d. ECN #4
    - i. Connect C60 Anode to C54 Anode
  - e. ECN #5
    - i. C32 and C33 have wrong polarity on silkscreen stuff opposite

### PCB Fabrication

- MATERIAL TYPE: FR4 or 370HR
- UNIT DIMENSIONS: 08.500 By 01.400
- MATERIAL THICKNESS: 0.062"
- ARRAY DIMENSIONS: 00.000
- BOARD FINISH: SMOBC
- ARRAY NUMBER UP: 0
- COPPER WEIGHT: 1 oz
- ARRAY QTY: 0
- INNER COPPER WEIGHT: 1.0
- TAB ROUTE: YES
- SOLDER MASK SIDE: Both Sides
- SCORING: NO
- SOLDER MASK COLOR: Green
- E.TEST OPTION: NO
- LEGEND SILK SCRIN: Top Side
- 5% OVERAGE: yes
- LEG SILK SCRIN COLOR: White

### pH Meter Board House Package

1. Schematic and Parts Placement diagrams
2. Bill of Material
3. Parts Kit with PCB
4. Deliver to Indtec

### pH Meter Board Inspection

1. Visual inspection: compare against 'example board' for missing or mis-placed parts
2. Errors found on Indtec board #1
  - a. Some tantalums are missing (6 of them)

- b. ECN for tantalum reversal not done (in backwards)
  - c. ECN #1 not done correctly - trace not cut underneath C34 (V- measures -15v)
  - d. Tantalum caps are missing (spares not returned from Indtec or lost or obscured)
  - e. R79 not stuffed (assembly error) - causes no clock to processor
  - f. R69, R70 need 10 ohms, schematic incorrectly has 100K
  - g. JTAG connector stuffed on wrong side of board - JTAG Emulator can't see device, USB FET sees low voltage
3. Connect +12v, GND, RX and TX to controller board external interface (next to metal band)
  4. Connect a 4.5 Digit voltmeter to VPH and GND on controller board external interface
  5. Connect "Calibrations Inc" voltage standard to VPH and GND on J17
  - 6.

## Home

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This page last changed on Sep 24, 2009 by [kgomes](#).

**This is the home page for the Support Engineering Projects space.**

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Helpful Software Links and Downloads

- [Support Software links / Downloads](#)

Support Engineering Projects

- [Elevator Release Controller](#)
- [Ventana Precision Control - DVL driver](#)
- [Ventana ROV Control PC RHEL5 Linux Upgrade](#)
- [Valve Pack Controller](#)
- [Reliable High Precision pH Sensor](#)
- [Seatel Microwave Pointing Controller Update](#)
- [Proposals 2009](#)
- [Useful Utilities](#)

Software

- [MBARITracking](#)

Fabrication

- [High Resolution PH Meter Assembly Instructions](#)
- [FOCE DC-DC Converter assembly notes](#)

Pressure Tolerant Electronics (protoWiki)

- [PTE database](#)

MBARI Standards

- [Standard Wire Color Code](#)

## Installing RabbitMQ (AMQP) on RHEL5

---

This page last changed on Feb 08, 2011 by [kgomes](#).

This is an example of the configuration of a RabbitMQ server on the machine ssds-ingest.

1. In order to run RabbitMQ version 2.3.1, it required erlang14B. The default package for RHEL 5 is only at erlang 12B. So I had to add a fedora repository to yum that had a version higher than 12B for RabbitMQ. In order for yum (and pirut) to recognize the repo, I added a file to the /etc/yum.repos.d directory name epel-erlang.repo with the following contents:

```
[epel-erlang]
name=Erlang/OTP R14B
baseurl=http://repos.fedorapeople.org/repos/peter/erlang/epel-5/x86_64/
enabled=1
skip_if_unavailable=1
gpgcheck=0
```

```
[epel-erlang-source]
name=Erlang/OTP R14B - Source
baseurl=http://repos.fedorapeople.org/repos/peter/erlang/epel-5/SRPMS
enabled=0
skip_if_unavailable=1
gpgcheck=0
```

2. You still need the EPEL repository, so I also added the epel.repo file with the following contents:

```
[epel]
name=Extra Packages for Enterprise Linux 5 - $basearch
#baseurl=http://download.fedoraproject.org/pub/epel/5/$basearch
mirrorlist=http://mirrors.fedoraproject.org/mirrorlist?repo=epel-5&arch=$basearch
failovermethod=priority
enabled=1
gpgcheck=1
gpgkey=file:///etc/pki/rpm-gpg/RPM-GPG-KEY-EPEL

[epel-debuginfo]
name=Extra Packages for Enterprise Linux 5 - $basearch - Debug
#baseurl=http://download.fedoraproject.org/pub/epel/5/$basearch/debug
mirrorlist=http://mirrors.fedoraproject.org/mirrorlist?repo=epel-debug-5&arch=$basearch
failovermethod=priority
enabled=0
gpgkey=file:///etc/pki/rpm-gpg/RPM-GPG-KEY-EPEL
gpgcheck=1
```

```
[epel-source]
name=Extra Packages for Enterprise Linux 5 - $basearch - Source
#baseurl=http://download.fedoraproject.org/pub/epel/5/SRPMS
mirrorlist=http://mirrors.fedoraproject.org/mirrorlist?repo=epel-source-5&arch=$basearch
failovermethod=priority
enabled=0
gpgkey=file:///etc/pki/rpm-gpg/RPM-GPG-KEY-EPEL
gpgcheck=1
```

3. Open up the Package Manager (Applications->Add/Remove Software)
4. In the Search tab, enter erlang and select the 14B version of erlang. It will then install a bunch of dependencies (which is a good thing).
5. Go to the rabbitmq download page and grab the [RHEL version of the RPM](#)
6. Use RPM or yum localinstall to install the rabbitmq RPM.
7. Once it is installed, it can be started using:

```
/sbin/service rabbitmq-server start
```

8. It can be setup to start as a service by using:

```
chkconfig rabbitmq-server on
```



## Management Plugins

1. If you want the web management console, download the .ez files from the [plugins page](#) and install them in the /usr/lib/rabbitmq/lib/rabbitmq\_server-2.3.1/plugins and restart the server.



I found that while the core Rabbit server was somewhat immune to the version of Erlang, the plugins were not.

## LDAP Authentication

1. I was able to configure the RabbitMQ server to use our internal LDAP system in a chained configuration with the internal RabbitMQ authentication system. This allows you to use your MBARI logins on the RabbitMQ server.



### One VERY icky caveat

Due to the way we have our Active Directory configured on site, the user DN's are in the form of **Lastname, Firstname**. While it works, that makes users have to login with a username like

Gomes\\, Kevin

It is ugly and hopefully we can address this in our Active Directory in the future. That said, the LDAP integration works well.

2. Download the [ldap-auth plugin](#) and put in the /usr/lib/rabbitmq/lib/rabbitmq\_server-2.3.1/plugins directory.
3. Create (or add configuration) the /etc/rabbitmq/rabbitmq.config file with the following:

```
[
 {rabbit,
 [
 {auth_backends, [rabbit_auth_backend_ldap, rabbit_auth_backend_internal]}
]
 },
 {rabbit_auth_backend_ldap,
 [
 {servers, ["ldap.shore.mbari.org"]},
 {user_dn_pattern, ["CN=${username},OU=Users,OU=AllUsers,DC=shore,DC=mbari,DC=org"]}
]
 }
].
```

4. Restart the server
5. With the LDAP authentication working, you can now control access permissions on resources (vhosts, exchanges, bindings, queues). See the following for more details:
  - a. [RabbitMQ LDAP Authentication README](#)
  - b. [RabbitMQ LDAP Authorization README](#)

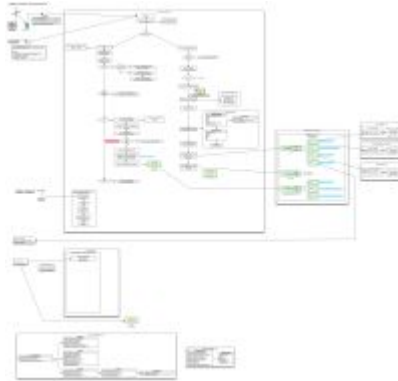
## Interacting with Tracking Data on RabbitMQ

This page last changed on Sep 26, 2012 by [kgomes](#).

This page documents how to subscribe to and publish to tracking data from the RabbitMQ server at MBARI.

### Architecture

The current architecture for MBARI's tracking messages is shown in the VERY large diagram below.



### Consuming messages

#### Java Subscriber

If you are interested in consuming tracking messages from the RabbitMQ server using Java, you are in the right spot. The first thing you will need to do is get the supporting libraries from RabbitMQ website.

<https://www.rabbitmq.com/download.html>

From the Java client download, you will need several libraries on your classpath:

1. rabbitmq-client.jar
2. commons-cli-1.1.jar
3. commons-io-1.2.jar

After that, you can write your client code to connect up to and listen for tracking related messages. Below is some example code to connect to MBARI's messaging server and subscribe to the tracking message exchange.

Some things to note:

1. In your code, when you create a queue, you **MUST** make sure it is unique. If you have questions, contact MBARI about what queue name you should use. If you using something like your reverse domain, that is pretty sure to be unique, but it is probably best to ask.
2. **Please** note that when you declare the queue, make sure the fourth parameter is true so the queue will auto delete when your client shuts down. This is important because if queues are left in fanout exchanges, they will simply fill with messages until the client connects to drain them.
3. Currently, the RabbitMQ server is behind MBARI's firewall. That will change in the future, but if you are outside, you will have to work with MBARI to get connected to the proper ports through the firewall.
4. You will have to work with MBARI before hand to get a username and password for the RabbitMQ server.
5. The body of the message will be a marshalled Google protocol buffer payload of the following form:

```
package MBARITracking;

message PlatformReport {
 enum PlatformType {
 MBARI_SHIP = 0;
 AIS = 1;
```

```

 AUV = 2;
 DRIFTER = 3;
 MOORING = 4;
 GLIDER = 5;
}
optional PlatformType type = 1;
optional string name = 2;
optional double epoch_seconds = 3;
optional double latitude = 4;
optional double longitude = 5;
optional string source = 6;
optional uint64 mmsi = 7;
optional uint64 imei = 8;
optional string iso_datetime = 9;

}

```

### Java Code

```

package org.mbari.odss.messaging;

import com.rabbitmq.client.Channel;
import com.rabbitmq.client.Connection;
import com.rabbitmq.client.ConnectionFactory;
import com.rabbitmq.client.QueueingConsumer;

public class TestConnection {

 // The name of the exchange to connect to
 private static final String EXCHANGE_NAME = "auvs_pb";

 // The main method
 public static void main(String[] argv) throws java.io.IOException,
 java.lang.InterruptedException {

 // The RabbitMQ ConnectionFactory
 ConnectionFactory factory = new ConnectionFactory();

 // MBARI's messaging server is 'messaging.shore.mbari.org'
 factory.setHost("messaging.shore.mbari.org");

 // RabbitMQ uses virtual hosts as a top level concept.
 // MBARI's virtual host is 'trackingvhost'
 factory.setVirtualHost("trackingvhost");

 // Now set your user credentials (need to get this set up with MBARI)
 factory.setUsername("username");
 factory.setPassword("password");

 // Create a connection
 Connection connection = factory.newConnection();

 // Create a channel
 Channel channel = connection.createChannel();

 // Create a queue that you will pull messages from (must be unique)
 channel.queueDeclare("my_queue_name", true, false, true, null);

 // Bind the queue to the proper exchange
 channel.queueBind("my_queue_name", EXCHANGE_NAME, "");

 // Now print a message on how to get out to the user
 System.out.println(" [*] Waiting for messages. To exit press CTRL+C");

 // Create a consumer to listen for messages on the proper channel
 QueueingConsumer consumer = new QueueingConsumer(channel);
 }
}

```

```
channel.basicConsume("my_queue_name", true, consumer);

// Enter infinite loop
while (true) {
// Block and listen for message
QueueingConsumer.Delivery delivery = consumer.nextDelivery();

// Extract the message body and print it to the console
String message = new String(delivery.getBody());
System.out.println(" [x] Received '" + message + "'");
}
}
}
```

### Python Consumer

This is still to be done, but using the above information and this here:

<https://www.rabbitmq.com/devtools.html#python-dev>

You should be able to figure it out ...

## Publishing Messages

If you want to get your platforms positions into the tracking system, there are a couple of ways: Email messages or direct interaction with RabbitMQ.

### Email Publisher

If you want to email your positions, you must first decide what type of platform you fall into. The types that are currently supported are:

1. AIS
2. AUV
3. Drifter
4. Glider
5. Mooring
6. Ship

Once you have decided, that determines what email address to send your messages to:

1. AIS -> aistrack@mbari.org
2. AUV -> auvtrack@mbari.org
3. Drifter -> driftertrack@mbari.org
4. Glider -> glidertrack@mbari.org
5. Mooring -> mooringtrack@mbari.org
6. Ship -> ship track@mbari.org

Then you just need to put the proper information into the **subject** of the message and leave the body blank:

*platformName,timestamp,longitude,\_latitude*

Where:

1. *platformName* is the name you would like to use for your platform **NOTE IT MUST BE 9 CHARACTERS OR LESS**
2. *timestamp* is the time of the location fix in decimal epoch seconds
3. *longitude* is, well, the longitude
4. *latitude* is, well, the latitude

### Java Publisher

To be documented ...

## **Python Publisher**

To be documented ...

# JavaScript

---

This page last changed on Oct 31, 2012 by [kgomes](#).

This pages serves as a location for information relating to the language JavaScript.

## Libraries

1. Timelines - These libraries can be used to create horizontal timelines in a web application.
  - a. TimelineJS <http://timeline.verite.co> - This is a really nice library, but somewhat constraining. If all you really want to do is fairly coarse grained timelines of events that have media associated with them, this is a beautiful interface for that. I needed a foundation from which to work from an expand on to add lots of custom application stuff in the event focus panes and could not find a good way to do that.
  - b. Chronoline <http://stoicloofah.github.com/chronoline.js/> - This was a pretty good basic timeline, but the smallest date range was a single day! Obviously good for large time scale events, but not what I needed.
  - c. SIMILE Widgets <http://www.simile-widgets.org/timeline/> -
  - d. Timeliner <http://www.technotarek.com/timeliner/> - This is for vertical timelines, but looks useful.
  - e. Timeline <http://almende.github.com/chap-links-library/timeline.html> -

## Tools

1. Unit testing
  - a. [QUnit](#)
    - i. [Article](#) on using QUnit and SinonJS for testing Backbone.js applications

## Resources

Book:

1. [JavaScript-The Good Parts](#)
  - a. Book Notes

Articles:

1. [Roundup of HTML-Based Slide Deck Toolkits](#): This is good article on the various toolkits to help you to create presentations that can be run from your browser. The one that I chose to use was [reveal.js](#) as it was used by the instructor in a class and seemed to work well.

Podcasts/Blogs:

1. [JavaScript Show](#)

## JViews Diagrammer Overview

---

This page last changed on Dec 23, 2009 by [kgomes](#).

JViews Diagrammer is a Java library that provides comprehensive tools and components for creating graphical editing, visualization, supervision and monitoring tools. It was originally purchased for the ESP GUI project, but can be used for other products as well. As of December 2009, we have one development license and we also purchased two deployment licenses for the ESP team. The drawback to this type of licensing is that in order for somebody to develop with it, then need to go to the IBM web site, link the license with the actual host machine they will be developing on and then they will have sole use of that development license. This was done for cost reasons as the developer licenses are expensive (\$7500). In order to deploy the Java application with the JViews product embedded, you will need to purchase a deployment license as well. Please contact Kevin Gomes if you have any questions about licensing.

1. [IBMs Product Details Page](#)
2. [Installing](#)

## JViews Diagrammer Installation

---

This page last changed on Jan 10, 2011 by rich.

This page describes how to install the JViews Diagrammer Version 8.7 toolkit on your development machine when you are ready to start developing a product using JViews. All of the necessary files are stored on the Alfresco server and are located [here](#). From this location, download the executable to install the framework from Alfresco:

- [Windows](#)
- [Unix and OS X](#)

Once downloaded, run the installation program which will install the software to some location (we will call it ILOG\_HOME for now). Once the installation is complete, you might want to create a bookmark to the documentation in your browser:

ILOG\_HOME/jviews-diagrammer87/doc/html/en-US/documentation.html

This is a good place to jump in.

In order to use the toolkit, somewhere in the initialization of your Java program, you need to include the code:

see also, this link: [technote](#)

```
// IlvProductUtil.registerApplication("any application"); //pos. works in 8.6, deprecated in 8.7
r.schramm

// try instead to support 8.7 deployment licence model
import ilog.views.util.IlvProductUtil;
import ilog.views.util.IlvResourceUtil;
// and in your main class initialization:

static {
 IlvProductUtil.DeploymentLicenseRequired(
 IlvProductUtil.IBM_ILOG_JViews_Diagrammer_Deployment);
}
```

### For Support

1. JView Support Portal [http://www-947.ibm.com/support/entry/portal/Overview/Software/WebSphere/IBM\\_ILOG\\_JViews\\_Diagrammer](http://www-947.ibm.com/support/entry/portal/Overview/Software/WebSphere/IBM_ILOG_JViews_Diagrammer)
2. Support Request Options <http://www-01.ibm.com/support/docview.wss?uid=swg21432420>

### Other links and information:

1. To download the software from IBM, go to <https://www-112.ibm.com/software/howtobuy/softwareandservices> and login with our customer ID. Currently the customer ID is kgomes@mbari.org (contact Kevin Gomes for password or he can download a new version to Alfresco).
  - a. Sign in
  - b. Go to "Software Download and Media Access"
  - c. Read and agree to the license terms
  - d. Click on Download finder
  - e. Select the entitled download you are interested in and click Continue
2. [WebSphere License Center](#)
3. Help with Websphere License Center: [weblicensor@subscribenet.com](mailto:weblicensor@subscribenet.com) or 1-888-715-4687
4. For help with MBARI's license: [license@fr.ibm.com](mailto:license@fr.ibm.com)
5. MBARI's our access key is **523342-837962**
6. MBARI's customer number is **5998543-00**
7. MBARI's site number is **177312-3179382**
8. MBARI's contract ID is **4909037031- TD 01**
9. MBARI's [proof of entitlement \(PDF\)](#)
10. Sales order number **0052920842**
11. Purchase Order Number **0912012**



12. For future reference: [Technote re. licensing](#).

## Linux System How Tos

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This page last changed on May 29, 2009 by [kgomes](#).

- [K3b DVD Burner Installation How-To Document](#)
- [Quatech PCMCIA Serial Port Adapter Setup How-To Document](#)
- [Setting up a Dual Boot Windows/Linux Computer How-To Document](#)

## Lobos-Ventana Planning

This page last changed on May 27, 2009 by [mccann](#).

This document outlines the possible scenarios for Lobos/Ventana retirement and the work to be done to accomplish these various scenarios. The goal of this work is to position us to make an informed decision by gathering information from the folks close to the ship (from support engineering) and to grease the rails for thought about a 2010 proposal if that should become necessary.

### Executive Summary

The process for selling/transitioning the Point Lobos/Ventana to an external buyer is a complicated one and the scope of work largely depends on the terms of sale for both (i.e. what parts go and what stays). The lowest impact scenario would be for an external buyer to simply supply the money necessary to run the ship/ROV in its current configuration hiring the current crew who are familiar with the system while also purchasing time for support engineering to maintain the systems on the ship/ROV. This is the best scenario in our estimation. While some other scenarios might be workable, most have a large impact on the support engineering group. There are many systems on the Lobos/Ventana and depending on which are to be delivered to the purchaser, the work for MBARI could range from medium impact to man-years of effort. Things to be aware of for terms of sale:

- **Data Manager/Navproc:** If data manager and navproc are to be delivered with Ventana, it will take a fair chunk of work to open source and document the code (on the order of weeks to months).
- **HD Camera:** If the HD camera is sold with Ventana, it is inextricably linked to navproc and data manager. While the core of the vehicle can operate without navproc and data manager, the HD camera cannot.
- **Extrication of Non-transferring Systems:** If some systems are deemed not to transfer to the new operator, there will still be work to extricate those from the Lobos/Ventana. This work will have to be scoped when it is deemed which system would not transfer.
  - **Information Systems (I.S.):** On a related note, even if we continue to operate the Lobos/Ventana for an external purchaser, there will be tasks for both support engineering and I.S. to remove MBARI specific connections. Things like data flow to shore, MBARI accounts/domains, etc. will all have to be cleaned up before transitioning to external purchaser.
- **System Documentation:** Full documentation of the hardware and software systems for the Lobos/Ventana would have to be a joint effort between support engineering and DMO. This would be a **VERY** large effort as there is currently very little documentation of the hardware/software systems that comprise the Lobos/Ventana. If some systems were not delivered with Lobos/Ventana (i.e. HD camera, navproc, data manager, etc.), it would lower the amount of work, but it would still be a huge amount of work to document the full system.
- **Storage:** If we lay up the Lobos/Ventana or extricate non-transferring systems, we need some place to store the associated equipment.
- **Licenses:** Some of the systems on the Ventana are licensed and these licenses would have to be transferred (picked-up) by the purchaser.

### Scenarios

- **Scenario 1:** Point Lobos and Ventana are sold
  - Both stay at MBARI and operate as is by external funds but existing assets.
  - Both are operated by completely different group (full transfer: local or not). (\* THIS IS HIGH IMPACT)
- **Scenario 2:** Point Lobos is sold, Ventana is laid up.
- **Scenario 3:** Point Lobos is laid up, Ventana is sold as operational ROV. (\*THIS IS HIGH IMPACT)
- **Scenario 4:** Point Lobos and Ventana are both laid up.

For Scenarios 1 and 3, there are some "categories" that would largely define work to be done:

- **As is:** This means that there is no obligation from MBARI to transfer any knowledge to the buyer. No new documentation, basically like handing them the keys and everything we currently have for the ship and vehicle.
- **Transition Period:** This would be where MBARI provides some time where we make our DMO and support engineering folks available for some amount of time to assist the buyer with learning the boat/ROV. We would not necessarily have to supply documentation to the buyer, but we would be along side them so they could develop the documentation while they learned the system and we would be there to assist.

- **Fully Documented:** This would be where we would supply all the documentation necessary to run and maintain the ship and ROV.

#### Systems on Lobos/Ventana

1. Lobos (coast guard minimum)
  - a. Radar
  - b. Radio
  - c. Lifeboat, etc.
  - d. Sperry Fiber Optic Gyro (FOG) (is this linked to the ROV?)
  - e. Ships spares
  - f. Large Furuno radar (with lobos)
2. Ventana
  - a. Everything in forepeak
  - b. TMS
  - c. LRS
  - d. Tether
  - e. Control System (computers, software, DTEC (licenses-consultant) which is bound to software on ROV)
  - f. Logging system (this could be separated from ROV, however needed for timecode and CTD, there would be cost to extract).
  - g. Hydraulic Power Unit (HPU)
  - h. PDU
  - i. HD camera, lapbox, (would need datamanger and navproc, would they even take this?)
  - j. Rack in shower-microwave gear (going to Flyer)
  - k. Sonardyne Fusion system (Computer and software, blackbox)
  - l. Winfrog system
  - m. UCTD (CTD in the science van)
  - n. Sonardyne Homer receiver
  - o. Schilling T3 manipulator and spares (would we want this on Ricketts?)
  - p. D5 Deck, Digital Betacam deck
  - q. TSS VRU (is this connected to Fusion)
  - r. DVL on vehicle
  - s. HD camera, HD monitors, HD camera control lapbox, etc.
  - t. Miranda Tiler
  - u. Miranda DVI Ramp2 DSK
  - v. Octans FOG on Ventana (underwater one on the ROV, ROV could work without it, have export controls?). Could be spare for Ricketts with new housing). \$75K. Lots on this list could be that.
  - w. ROV spares
  - x. Tool sleds and related hardware
  - y. Misc. ROV tools, HFSS, D-Samplers FSI ACM, carousel sampler, etc...
  - z. ROV mounted CTD, Optode, transmissiometer

#### Tasks (Under Construction)

Task #	Task Name	Description	Responsible Party	Time Estimate	Comment
1	Remove Microwave System		Support Engineering	• 2-7 will take 2-4 hours     • 1 will take 1 hour     • Ask John F. about 9	Microwave license will transfer to another MBARI vessel with no paperwork and no cost
	1. Disconnect and unbolt the SeaTel microwave platform, lift off with				

	crane forklift somewhere. Abandon mounting pedestal and cables in place.   2. Disconnect and remove microwave and associated equipment from the rack behind the bridge. Abandon cables and rack in place.   3. Remove automatic video switch and associated video distribution amplifier from forepeak.   4. Remove the Live- Link audio system from forepeak.   5. Remove HD deck camera from top dog house.   6. Remove HD (microwave) switcher and associated hardware from pilots console.   7. Abandon UHF antenna and GPS				
--	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--	--	--	--

	antenna + cables. 8. Find somewhere to store all this stuff!!! 9. If we are going to install microwave on the Zephyr, plasma cut off platform mount and remove.				
2	Transfer Coast Guard 406Mhz EPIRB registration		DMO		
3	Cancel cellular service		DMO		
4	Transfer Lobos FCC License		DMO		
5	USCG Safety Into Transfer	?	DMO		What is this?
6	Remove all computer systems		?		

#### Task Matrix (*Under Construction*)

Task	Scenario 1	Scenario 2	Scenario 3	Scenario 4
1				
2				
3				
4				
5				
6				

#### Notes, Issues and Questions

1. HD camera control lapbox is fully (inextricably?) tied to navproc and datamanager
2. Rovctd data gets to the surface as a serial stream. Data could spool on to the floor or the buyer could capture it. But to get it all the way through to the current realtime display currently requires the full chain of datamanager, navproc, logger and labview gui.
3. Timecode acquisition is datamanager and navproc dependent.

4. Since we don't have docs, we could have some transition period, with some end of transfer (phase I). Phase II could have follow up time.
5. I.S. to configure any domain stuff. (DNS, routers, NTP, etc.)
6. Code is clean and ported.
7. This is an opportunity to document/open source datamanager.
8. Navproc and datamanager would not take a year to document (few weeks).
9. If DMO doesn't transfer, they may not be motivated.
10. Aging OS on 'discovery' and the hardware (top-side control for ROV). RedHat 7 which is much older than RHEL 5. Fragile.
11. VARS could get timecode direct from deck (but would not be logged continuously).
12. Might be cheaper to put a new ROV on ship (depending on workload).
13. High impact things (6 weeks to depending):
  - a. Documentation (minimal to make the ROV work). would consultant help here? (HD camera and lapbox, should do anyway)
  - b. After transfer support (tech transfer).
  - c. Extricate non-transferring systems.
  - d. Deciding on where the border of what goes/stays (HD camera, beta decks, if they go, datamanager will have to transfer: CTD can fall on the floor).
  - e. Hardware documentation (DMO has knowledge). We interface with serial port (ROV is a black box for us). Support Eng cannot do this but would be involved. (some: valve pack control, telemetry, core can, etc.)
14. What does a "Working Unit" look like?
15. If we are 'selling' parts of the datamanager/navproc/logger package are we to provide (read= 'create') documentation and/or support it for the buyer?
16. Would we be just pulling off any data distribution/management/logging machines and software for corenav, timecode/vcr/cameradata, rovctd?
17. Who is responsible for the tasks above with no responsible party?
18. In any scenario, who decides what goes and what stays and what MBARI is to provide another party?
19. How do we handle all the licenses for the various components on Lobos-Ventana?
20. If we sell the ship and ROV do we have to put the systems in a state that someone else can operate them without MBARI support? (Modify for operation without Data manager...)
21. If we sell ship and ROV combination, do we have to provide documentation (which is necessary for ship/ROV operation)?
22. If we sell the ship and ROV what systems/ sub systems on the Ventana go with it and which ones get removed?
23. If we are selling without the vehicle and assuming we would remove most of the important stuff, where to we store everything?
24. Does the CTD winch and rosette go with the ship?
25. If you remove the ROV do we keep the launch and recovery crane?
26. Software lic. transfer issues (windows/ms office, labview (for rovctd), arcview(preb. remove?), winfrog, sonardyne?)
27. Opensource datamanager, navproc, logger? How much doc. is required to opensource.
  - a. We have always wanted to document but it never gets done, may be an "opportunity" now.
  - b. System differences from navproc/datamanager/logger perspectives are very similar. Code is in better shape now than its been for many years due to RedHat port and DocRicketts work.
28. Would the consultant be able to support the ROV?

## Comments

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What overlap or involvement does Support Engineering have with IS in the support of the computing infrastructure: operating systems, network routers, NTP servers & setup?

Posted by [mccann](#) at May 10, 2009.

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Does Support Engineering have a boundary defining the systems it's responsible for? See [http://www.mbari.org/dmo/vessels\\_vehicles/Point\\_Lobos/ptlobos.html](http://www.mbari.org/dmo/vessels_vehicles/Point_Lobos/ptlobos.html) and [http://www.mbari.org/dmo/vessels\\_vehicles/ventana/specifications.html](http://www.mbari.org/dmo/vessels_vehicles/ventana/specifications.html) for a list of systems from the ship's crew and pilot perspective.

Posted by [mccann](#) at May 10, 2009.

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## MARS MVC Monitoring Device

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This page last changed on Feb 03, 2011 by [tm](#).

- Estimate for MARS MVC Voltage Monitoring Device: Short answer: 15 man days for TM, \$1500 budget

### **Breakdown on estimate:**

- 3 to 5 days making stuff, 5 to 7 days coding, 5 days testing and dealing with 'challenges'
- Details (Thoms note to self) - based on reading [Alcatel spec](#) and discussion with Alcatel engineer
  - Create small dev board with spi bus A/D device ([tlc2543](#)). Hand wire (half day) by Jose's team (A/D converter, plus voltage regulator, plus some resistors or pots on the inputs, plus bypass.
  - Purchase (\$500) and Modify USB to SPI bus converter per Alcatel instructions for debug/diagnostic/development tool ( <http://www.jovasolutions.com/tims-0102-usb-to-i2csbi> )
  - Spec out and buy a microcontroller (\$400) with Ethernet and SPI capabilities (LanTronix, Stellaris, etc). Software dev environment might be extra (\$500??) Plan also for buying a spare (\$200).
  - Write microcontroller driver to read multi-channel A/D on dev board via SPI
  - Write microprocessor application to provide Ethernet socket access to the A/D converter on dev board. Write simple linux code to exercise socket
  - Add circuit to boost SPI bus voltage for compatibility with MVC -see page 19 of the [Alcatel spec](#) for the schematic of opto-isolated 12v level SPI bus to TIMS-0102 USBtoSPI.
  - Test with MVC and some form of Rich Schramms top side app (will need help from Ken Heller, possibly Alcatel hooking up MVC).

## Comments

---

This work is being transitioned to Mike Risi for 2011

Posted by [tm](#) at Feb 03, 2011.

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## Maven At MBARI

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This page last changed on Jun 04, 2009 by [kgomes](#).

- [Maven Presentations](#)
- [Using the internal MBARI repository from a Maven 2 project](#)
- [Using the external MBARI repository from a Maven 2 project](#)
- [Using the external MBARI repository from an Ant project using Maven](#)
- [Using the external MBARI repository from an Ant project using Ivy](#)

## Maven Presentations

[Maven Presentation to Software Discussion Group](#)

### Using the internal MBARI repository from a [Maven 2](#) project

The internal MBARI repository is managed by [Archiva](#). It should be the preferred and only repository referenced by your internal MBARI projects. It is a caching proxy, which means it fetches and stores jars from other repositories as they are referenced by your projects. This helps ensure that your projects dependencies don't disappear like the could from externally controlled repositories. If you need jars from a 3rd party repository that aren't available via Archiva, contact [brian@mbari.org](mailto:brian@mbari.org) to have the repository added to our Archiva setup.

### Referencing the Repository

To include the internal MBARI repository in your Maven build, edit your *pom.xml* to include the MBARI repository location:

```
<?xml version="1.0" encoding="UTF-8"?>
<!-- pom.xml -->
<project>
...
<distributionManagement>
<repository>
<id>internal</id>
<url>dav:http://seaspray.shore.mbari.org:8082/archiva/repository/internal/</url>
</repository>
<snapshotRepository>
<id>snapshots</id>
<url>dav:http://seaspray.shore.mbari.org:8082/archiva/repository/snapshots/</url>
</snapshotRepository>
</distributionManagement>

<repositories>
<repository>
<id>internal</id>
<name>Archiva Managed Internal Repository</name>
<url>http://seaspray.shore.mbari.org:8082/archiva/repository/internal/</url>
<releases>
<enabled>true</enabled>
</releases>
<snapshots>
<enabled>>false</enabled>
</snapshots>
</repository>
<repository>
<id>snapshots</id>
<name>Archiva Managed Snapshot Repository</name>
<url>http://seaspray.shore.mbari.org:8082/archiva/repository/snapshots/</url>
<releases>
<enabled>>false</enabled>
```

```

</releases>
<snapshots>
<enabled>true</enabled>
</snapshots>
</repository>
</repositories>
...
</project>

```

## Using the external MBARI repository from a [Maven 2](#) project

### Referencing the Repository

To include the MBARI repository in your Maven build, edit your *pom.xml* to include the MBARI repository location:

```

<?xml version="1.0" encoding="UTF-8"?>
<!-- pom.xml -->
<project xmlns="http://maven.apache.org/POM/4.0.0"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://maven.apache.org/POM/4.0.0 http://maven.apache.org/maven-v4_0_0.xsd">
...
<repositories>

<!-- Include this repository block -->
<repository>
<id>mbari</id>
<name>MBARI Repository</name>
<url>http://oceana.shore.mbari.org/maven2</url>
</repository>
...
</repositories>
...
</project>

```

### Including a Dependency from the Repository

Once the MBARI repository is included in you build, you can browse the repository to see what projects are available (just go to <http://oceana.shore.mbari.org/maven2>). If you find a dependency you need you can reference it in your *pom.xml*. Here's an example...

```

<?xml version="1.0" encoding="UTF-8"?>
<!-- pom.xml -->
<project xmlns="http://maven.apache.org/POM/4.0.0"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://maven.apache.org/POM/4.0.0 http://maven.apache.org/maven-v4_0_0.xsd">
...
<dependencies>
...
<!-- Include this dependency block -->
<dependency>
<groupId>qt4j</groupId>
<artifactId>qt4j</artifactId>
<version>0.5</version>
</dependency>
...
</dependencies>
...
</project>

```

## Putting a Dependency into the Repository

The easiest way to put a dependency into the repository is to setup a Maven build file (i.e. *pom.xml*). In *pom.xml* add the following *distributionManagement* information:

```
<?xml version="1.0" encoding="UTF-8"?>
<!-- pom.xml -->
<project xmlns="http://maven.apache.org/POM/4.0.0"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://maven.apache.org/POM/4.0.0 http://maven.apache.org/maven-v4_0_0.xsd">
<modelVersion>4.0.0</modelVersion>
<groupId>qt4j</groupId> <!-- Name of your project or group (e.g. org.mbari.<projectName>) -->
<artifactId>qt4j</artifactId> <!-- name of you project -->
<packaging>jar</packaging>
<version>1.0-SNAPSHOT</version> <!-- The version number of your project. Here we use a SNAPSHOT
build -->
<name>QT4J</name> <!-- Name of your project -->
...
<distributionManagement>
<repository>
<id>mbari-repository</id>
<name>MBARI Repository</name>
<url>scp://oceana.shore.mbari.org/var/www/html/maven2</url>
</repository>
</distributionManagement>
</project>
```

Executing *mvn deploy* will put your build jar at <http://oceana.shore.mbari.org/maven2/<groupId>/<artifactId>/<version>/<artifactId>-<version>.jar>. In the example here it would put it into <http://oceana.shore.mbari.org/maven2/qt4j/qt4j/1.0-SNAPSHOT/>

## Publishing Maven generated web sites

Maven can generate a web site for a default web site for you. You can view samples of the currently published projects at <http://oceana.shore.mbari.org/projects>. It's not very interesting, however, it is a very simple way to publish the javadoc, sources and auto-generated reports. To do so modify your *pom.xml*:

```
<?xml version="1.0" encoding="UTF-8"?>
<!-- pom.xml -->
<project xmlns="http://maven.apache.org/POM/4.0.0"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://maven.apache.org/POM/4.0.0 http://maven.apache.org/maven-v4_0_0.xsd">
...
<reporting>
<plugins>
<plugin>
<groupId>org.apache.maven.plugins</groupId>
<artifactId>maven-jxr-plugin</artifactId>
</plugin>
<plugin>
<groupId>org.apache.maven.plugins</groupId>
<artifactId>maven-pmd-plugin</artifactId>
<configuration>
<targetJdk>1.5</targetJdk>
</configuration>
</plugin>
<plugin>
<groupId>org.apache.maven.plugins</groupId>
<artifactId>maven-checkstyle-plugin</artifactId>
</plugin>
</plugins>
</reporting>
<distributionManagement>
...

```

```

<site>
<id>oceana.shore.mbari.org</id>
<url>scp://oceana.shore.mbari.org/var/www/html/projects/${project.name}</url>
</site>
</distributionManagement>
</project>

```

Then run `mvn javadoc:javadoc site:site site:deploy`. This will build the javadocs, create a site with some useful reports, then publish the site (using scp) to oceana in the correct location.

## Project Specific Maven Repositories

Some projects may need to be configured differently for different deployment locations. For example, [VARS](#) is configured differently for each ship and shore. These specific configurations are stored in Maven repositories in <http://oceana.shore.mbari.org/maven2-prj>. Each directory listed there is a different repository. Here's an example of how to include the projects configured for [Eye-in-the-sea](#).

```

<!-- EITS repository -->
<repository>
<id>mbari-eits</id>
<name>MBARI-EITS Repository</name>
<url>http://oceana.shore.mbari.org/maven2-prj/eits</url>
</repository>

```

## Using the external MBARI repository from an [Ant](#) project using Maven

Maven repositories can be used from Ant build scripts using [Maven's antlib](#). To do this you must have both Maven and Ant installed.

### Bootstrapping antlib

To bootstrap antlib into your projects (so users can build without having to install antlib) modify your *build.xml* file like so:

```

<?xml version="1.0" ?>
<!-- $Id: build.xml,v 1.21 2007/01/05 01:04:43 brian Exp $ -->
<project
name="YourProjectName"
default="init"
basedir="."
xmlns:artifact="antlib:org.apache.maven.artifact.ant">

...

<!-- ~~~~~~
Install the Maven artifact and configure project properties
-->

<property name="artifact.jar.dir" value="${basedir}/.ant" />
<property name="artifact.jar.file" value="${artifact.jar.dir}/maven.artifact-ant-2.0.2-dep.jar" />
<mkdir dir="${artifact.jar.dir}" />
<!--
download maven antlib from web site so that it can be used even without any
special installation
-->
<available file="${artifact.jar.file}" property="artifact.exists"/>
<echo message="Installing Maven Antlib..." />
<get src="http://www.apache.org/dist/maven/binaries/maven-artifact-ant-2.0.2-dep.jar"
dest="${artifact.jar.file}" usetimestamp="true" ignoreerrors="${artifact.exists}" />

<typedef resource="org/apache/maven/artifact/ant/antlib.xml"
uri="antlib:org.apache.maven.artifact.ant">

```

```

<classpath>
<pathelement location="${artifact.jar.file}" />
</classpath>
</typedef>

<!--
Configure properties based on pom.xml and typical Maven build structure.
Modify this for your own project structure
-->
<artifact:pom id="pom" file="pom.xml" />
<property name="version" value="${pom.version}" />
<property name="project" value="${pom.artifactId}" />
<property name="build" value="${pom.build.directory}" />
<property name="lib" value="${build}/lib" />

<!-- ~~~~~~
init
Sets up the project for build

-->
<target name="init" description="Create the build directory structure">
<!-- Create the timestamp -->
<tstamp/>

<!-- Create the directory build structure used by compile -->
<mkdir dir="${build}"/>
<mkdir dir="${lib}"/>

<!-- Copy dependencies to target/lib -->
<echo>Finding dependencies of ${pom.artifactId}-${version}</echo>
<artifact:dependencies filesetId="dependency.fileset" useScope="runtime">
<pom refid="pom"/>
</artifact:dependencies>
<copy todir="${lib}" verbose="true">
<fileset refid="dependency.fileset" />
<mapper type="flatten" />
</copy>

...
</target>

```

## **Using the external MBARI repository from an [Ant](#) project using Ivy**

Maven repositories can be used from Ant build scripts using [Ivy](#).

### **Referencing the repository**

In the directory containing the ant build file, *build.xml*, create a file called *ivyconf.xml*. *ivyconf.xml* tells Ivy where to look for dependencies. The contents of the file will look something like:

```

<?xml version="1.0" encoding="UTF-8"?>
<!-- ivyconf.xml -->
<ivyconf>
<conf defaultResolver="default" checkUpToDate="true"/>
<resolvers>
<ivyrep name="libraries"/>
<chain name="default">
<url name="ibiblio-maven2" m2compatible="true">
<artifact pattern="http://www.ibiblio.org/maven2/[organisation]/[module]/[revision]/[artifact]-[revision].[ext]"/>
</url>
<!-- Below is the reference to MBARI's repository -->
<url name="mbari-maven2" m2compatible="true">

```

```

<artifact pattern="http://oceana.shore.mbari.org/maven2/[organisation]/[module]/[revision]/
[artifact]-[revision].[ext]"/>
</url>
<ivyrep name="ivyrep"/>
</chain>
</resolvers>
</ivyconf>

```

## Including a Dependency from the Repository

In the directory containing *build.xml*, create a file called *ivy.xml*. *ivy.xml* tells Ivy what dependencies to include in your build. Here's an example of its contents:

```

<?xml version="1.0" encoding="UTF-8"?>
<?xml-stylesheet type="text/xsl" href="http://www.ivyrep.org/ivy-doc.xsl"?>
<!-- ivy.xml -->
<ivy-module version="1.4"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:noNamespaceSchemaLocation="http://www.jayasoft.org/misc/ivy/ivy.xsd">
<info organisation="MBARI" module="aved-db" />
<dependencies>
<dependency org="apache" name="commons-logging" rev="1.1" />
<dependency org="foxtrot" name="foxtrot" rev="2.0"/>
<dependency org="junit" name="junit" rev="4.1" />
<!-- The line below is a dependency from MBARI's repository -->
<dependency org="qt4j" name="qt4j" rev="1.0-SNAPSHOT" />
</dependencies>
</ivy-module>

```

## Using Ivy from Ant

The code below will fetch Ivy for you. SO you do not need install any additional software in order to get you build to work. In your ant build file include the following:

```

<?xml version="1.0" ?>
<!-- $Id: build.xml,v 1.14 2006/11/22 00:17:10 brian Exp $ -->
<project name="qt4j" default="all" basedir="." xmlns:ivy="antlib:fr.jayasoft.ivy.ant">

<!-- ~~~~~~
IVY setup
~~~~~ -->

<property name="ivy.install.version" value="1.4.1" />
<property name="ivy.jar.dir" value="${basedir}/.ivy" />
<property name="ivy.jar.file" value="${ivy.jar.dir}/ivy-${ivy.install.version}.jar" />

<!-- ~~~~~~
ivy.install
this target is not necessary if you put ivy.jar in your ant lib directory
if you already have ivy 1.4 in your ant lib, you can simply remove this
target and the dependency the 'go' target has on it
-->
<target name="ivy.install" description="Install ivy">
<mkdir dir="${ivy.jar.dir}"/>
<!--
download Ivy from web site so that it can be used even without any
special installation
-->
<available file="${ivy.jar.file}" property="ivy.exists"/>
<echo message="Installing ivy..." />
<get src="http://www.jayasoft.org/downloads/ivy/${ivy.install.version}/ivy-
${ivy.install.version}.jar"
dest="${ivy.jar.file}" usetimestamp="true" ignoreerrors="${ivy.exists}"/>

```

```

<!--
try to load ivy here from local ivy dir, in case the user has not already dropped
it into ant's lib dir (note that the latter copy will always take precedence).
We will not fail as long as local lib dir exists (it may be empty) and
ivy is in at least one of ant's lib dir or the local lib dir.
-->
<path id="ivy.lib.path">
<fileset dir="${ivy.jar.dir}" includes="*.jar"/>
</path>
<taskdef resource="fr/jayasoft/ivy/ant/antlib.xml"
uri="antlib:fr.jayasoft.ivy.ant" classpathref="ivy.lib.path"/>
<ivy:retrieve />
</target>

<!-- ~~~~~
ivy.clean
-->
<target name="ivy.clean" description="Clean the ivy installation from ${ivy.jar.dir}">
<!-- delete the lib directory -->
<delete dir="${ivy.jar.dir}" />
</target>

<!-- ~~~~~
ivy.clean-cache
-->
<target name="ivy.clean-cache" description="Clean the ivy cache">
<delete dir="${user.home}/.ivy/cache"/>
</target>

...

</project>

```

Calling *ant ivy.install* will fetch all the dependencies from the web and put them into the *lib* directory of your project.

## MBARI Crowd Installation

This page last changed on Feb 10, 2011 by [kgomes](#).

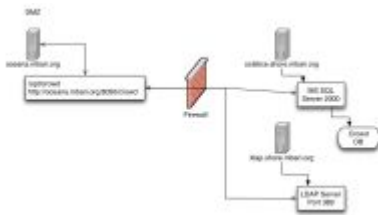


### Deprecation Warning

I am keeping this document around for historical purposes, but it references the original Crowd installation. In February of 2011, we upgraded Crowd and moved it to its own virtual machine in the DMZ. The instructions for that move are [here](#)

## Deployment Diagram

The following is a deployment diagram of the Crowd server(s) at MBARI.



The important things to note are:

- The crowd server (oceanacrowd.jsp) is located in the DMZ
- It connects to a database running on solstice.shore.mbari.org.
- It uses the SHORE domain account DB\_Collaboration to connect to the database server on solstice.shore.mbari.org
- It uses the "Crowd" database located on the Microsoft SQL Server 2000 server running on solstice.shore.mbari.org

The steps taken to install crowd on oceanacrowd.jsp were the following:

1. Create a database called "crowd" on the SQL Server solstice.shore.mbari.org.
  2. Give the SHORE domain user "DB\_Collaboration" full privs on the "crowd" database. The DB\_Collaboration account should not be the database owner, but should have the *db\_owner* role.
  3. Make sure Java is installed on oceanacrowd.jsp and that it meets the minimum requirements for the crowd application.
  4. I create a symbolic link from the installed java to /opt/java so that I can just change the symbolic link to point to a new java installation when I want to upgrade.
  5. I set an environment variable for JAVA\_HOME and point it to /opt/java. This is done by adding:
- ```
JAVA_HOME=/opt/java
```
- ```
export JAVA_HOME
```
- to the /etc/profile.
6. Register with Atlassian for the community/non-profit license for crowd (I did that under an account associated with my email kgomes@mbari.org).
  7. Once you have the license key, download the latest version of Crowd from Atlassian's website (it comes as a tar.gz file) and copy to oceanacrowd.jsp.
  8. Log in to oceanacrowd.jsp as root.
  9. Copy the file to the /opt directory.
  10. Untar and unzip the file using:

```
gunzip atlassian-crowd-1.5.1.tar.gz
```

followed by:

```
tar -xvf atlassian-crowd-1.5.1.tar
```

11. This creates a new folder with the contents of the Crowd application.
12. I usually cleanup the /opt directory by either deleting or moving the .tar file.
13. I create a symbolic link from the installed crowd to /opt/crowd so that I can just change the symbolic link to point to a new crowd installation when I want to upgrade.



14. Now, in general I follow the installation instructions given at Atlassian's website, but I have included the steps here to clarify for our installation.
15. In order to get this to work with MS SQL Server, I downloaded the jtds-1.2.jar file from <http://jtds.sourceforge.net/> and installed it in /opt/crowd/crowd-webapp/WEB-INF/lib so that the correct JDBC driver will be available on the Java classpath.
16. I then edited the /opt/crowd/crowd-webapp/WEB-INF/classes/crowd-init.properties to look like the following:

**crowd-init.properties**

```
## You can specify your crowd.home property here or in your system environment variables.
```

```
#####
##          ##
## WINDOWS  ##
##          ##
#####
## On Windows-based operating systems, uncomment the following
## line and set crowd.home to a directory Crowd should use to
## store its configuration.
## NOTE: use forward slashes instead of backward slashes.
```

```
#crowd.home=c:/data/crowd-home
```

```
#####
##          ##
## UNIX     ##
##          ##
#####
## On Unix-based operating systems, uncomment the following
## line and set crowd.home to a directory Crowd should use to
## store its configuration.
```

```
crowd.home=/data/crowd
```

17. After editing the crowd-init.properties, I want to make sure the account for DB\_Collaboration has rights to the crowd installation, so I cd to /opt and run:

```
chown -R DB_Collaboration:coladm atlassian-crowd-1.5.1
```

18. Then I create a new file in the /etc/init.d directory to server as the startup/shutdown script for crowd. The file contents look like:

**/etc/init.d/crowd**

```
#!/bin/sh
# chkconfig: 3 60 30
# description: Starts and stops Atlassian Crowd (running as DB_Collaboration)
```

```
mode=$1
```

```
export CATALINA_HOME=/opt/crowd/apache-tomcat
export JAVA_HOME=/opt/java
```

```
case "$mode" in
'start')
# Change to the crowd directory
cd /opt/crowd
# Start daemon
su -c "$CATALINA_HOME/bin/catalina.sh $mode" DB_Collaboration
;;

'stop')
# Stop daemon. We use a signal here to avoid having to know the
# root password.
$CATALINA_HOME/bin/catalina.sh $mode
;;

*)
```

```
# usage
echo "usage: $0 start|stop"
exit 1
;;
esac
```

19. I then put a symbolic link in the /etc/rc.d/rc5.d directory named "S59crowd" that points to /etc/init.d/crowd and another symbolic link named "K07crowd" in the /etc/rc.d/rc4.d so that crowd would be shutdown and started on reboot of the linux machine.
20. I then started crowd by going to the /etc/init.d directory and running:
 

```
./crowd start
```
21. This starts the crowd application and then you will want to go to <http://oceana.mbari.org:8095/crowd> to start the setup wizard.
22. **TODO: kgomes** I need to document how I connected this to the MBARI LDAP directory

## Upgrade from 1.5.1 to 1.6

On December 29, 2009, I upgraded Crowd from 1.5.1 to 1.6 mostly because of the improved performance they touted with 1.6. Crowd always seemed to be the slow link in the way I had things configured, so I was interested to see if 1.6 really made a difference. Atlassian's instruction for Crowd 1.3 or later are here:

<http://confluence.atlassian.com/display/CROWD/Upgrading+from+Crowd+1.3.0+or+Later>

Here are the specifics for what we have in house:

1. I first logged in to my Atlassian account to make sure our license was still valid. It is good until Feb 2009, so I went ahead and downloaded the Linux tar.gz of 1.6
2. I copied it to oceana.mbari.org and put it in /opt
3. I then unzipped/untarred the application there
4. I backed up the Crowd database on solstice.shore.mbari.org:
  - a. Start up Enterprise Manager in Windows
  - b. Connect to solstice.shore.mbari.org (I had to connect as DB\_Collaboration to get this to work)
  - c. Right-click on Crowd database and select All Tasks->Backup Database...
  - d. Select Database-complete
  - e. Click on Add... under Destination
  - f. I typed in a file location of \\tempest\tempbox\kgomes\backups\crowd\db\_backup as the file to backup to.
  - g. I then created a new tar.gz file for the /opt/atlassian-crowd-1.5.1 installation and put in the same backup location on tempest.
  - h. I then created a new tar.gz file for the crowd home directory /data/crowd and put in same tempest location
5. I copied the jtds-1.2.jar from /opt/atlassian-crowd-1.5.1/crowd-webapp/WEB-INF/lib to the same directory in the new installation
6. I then edited the /opt/atlassian-crowd-1.6/crowd-webapp/WEB-INF/classes/crowd-init.properties and pointed the crowd home directory to /data/crowd
7. I then copied the updated crowd client jar (/opt/atlassian-crowd-1.6/client/crowd-integrations-client-1.6.jar) to /opt/confluence/confluence/WEB-INF/lib and to /opt/jira/atlassian-jira/WEB-INF/lib (I removed the old ones too IMPORTANT!)
8. I downloaded the recommended crowd-ehcache.xml file from the instructions listed above and copied to the /opt/confluence/confluence/WEB-INF/classes and /opt/jira/atlassian-jira/WEB-INF/classes directories
9. Lastly I changed the /opt/crowd symbolic link to point to the new crowd installation, shut down confluence, jira, and crowd and restarted crowd.
10. After the successful start up of the three applications, I put all the backup files in Alfresco [here](#)

## MBARI Messaging Infrastructure

This page last changed on Aug 15, 2013 by [kgomes](#).

In 2012, an effort started to design a communication backbone that would allow all MBARI assets to communicate easily across the organization. Much work has been done in computer science in the areas of message based systems over the years and this is an exploration of how those systems can make communications across MBARI assets much easier and more pervasive.

### Communication/Messaging Systems

#### Technologies

- [LCM](#)
  - [White Paper on LCM](#)
  - [Detailed Technical Paper](#)
- [MOOS](#)
- [Player](#)
- AMQP
  - RabbitMQ
- ZeroMQ

#### Comparison

Feature Frame	LCM	MOOS	Player	Rabbit	ZeroM	Carme (IPC)	JAUS	ROS	RDS	DDS	Apach Kafka	MQTT
Target App	Real-time systems	Robotic Vehicles (Under water mostly)	Robot control			Robot control		Robotics Development	Robotics			
Transport	UDP Multicast	TCP	TCP			TCP	UDP	• Shared Memory     • TCP     • SOAP (most common)     • UDP     • Spread	Multiple			
Communication Model(s)	pub/sub (push)	pub/sub (pull)	pub/sub (pull)			pub/sub (push)	routed message	• pub/sub     • service oriented	service			
Messages Duplicated?	N	Y	Y			Y	Y	Y	Y			
Type safe?	Y	N	N			N	N	N	Y			
Marshalling Technique	Automatic	Manual - Free form ASCII	XDR (automatic for C)	Manual		Partial - users must keep an ASCII description of types in	Manual	Automatic - Type specification language similar to C	Automatic			

						sync with a C construct					
Server/ Central Hub?	N	Y	Y	Y	?	Y	N	?	?		
Pros	Tools for introspection and analysis of the messaging traffic and the messages themselves										
Cons	- If subscriber can't keep up with publisher, TCP buffers can fill hurting performance    - Keeping ASCII/struct in sync for marshalling is error prone due to machines having different word sizes    - Small subspaces is available for user-defined types    - Messages limited to 4096 bytes    - Each node has to have globally unique ID    - little so big endian, difficult to inject previously recorded data    - More to support										
Platforms	- C C++    - Java    - Python    - MATLAB    - C + + (compatible)    - Objective-C (compatible)    - C    - C + +    - Java    - Tcl    - Python    - C C    - Java    - C .NET + +    - Python										

## Marshalling

### Technologies

1. Protocol Buffers
2. LCM
3. Avro

4. Thrift
5. MessagePack

#### Comparisons

Protocol Buffers	LCM	Avro	Thrift	MessagePack
------------------	-----	------	--------	-------------

1. [Protocol Buffers, Avro, Thrift & MessagePack](#)

## LCM

---

This page last changed on Jul 14, 2012 by [kgomes](#).

Some notes on LCM

- No need for centralized messaging hub
- Easy to mix simulated, realtime and playback messages

## MOOS

---

This page last changed on Jul 15, 2012 by [kgomes](#).

Notes on MOOS messaging system

Links

- [What is MOOS?](#)
- <http://oceanai.mit.edu/moos-ivp/pmwiki/pmwiki.php?n=Main.HomePage>

## Player

---

This page last changed on Jul 14, 2012 by [kgomes](#).

### Notes

- <http://playerstage.sourceforge.net/>



## McStar (Ear in the Sea)

---

This page last changed on Mar 05, 2010 by [tm](#).

Gene Massion and Wayne Radochonski tTransitioned to Thom Maughan and Jose Rosal of Support Engineering in Jan 2010

### McStar (EITS) Enhancements

#### Hardware

1. Improve A/D converter
2. Reduce power consumption. TM: personal goal is to reduce to 25% of existing levels (may not be possible, but why not aim high/low)
3. Get rid of self-generated noise artifacts. TM: speculating noise bands could be due to switching power supplies on beagleboard and for 12 to 5v conversion. Remove/reduce harddisk acoustics
4. Add automatic gain control capability.

Replace spinning harddisk with solid state SATA drive (reduce power consumption)

#### Software

1. Check software into CVS (or SVN)
2. Fix 'blanking' that occurs every 27 seconds. TM: speculating this could be due to large buffer writes to disk
3. Add automatic gain control capability (peak or rms based algorithm)

#### Documentation

1. Create user's guide
2. Update test procedure

#### Testing

1. Improve pre-deployment testing - work towards have a DMO executable procedure.
2. Characterize noise and transfer function for the audio signal chain (A/D, Analog Front End, Hydrophone).
3. Anechoic chamber - water filled acoustically quiet test chamber
4. Test tank - analyze test tank noise and identify acoustic signals
5. Deploy a hydrophone on MARS to get a baseline signature

#### Notes

1. Cornell BioAcoustics <http://www.allaboutbirds.org/NetCommunity/Page.aspx?pid=430>
  - 2.
  - 3.
  - 4.
- 

### Deployments

#### 17 Mar 2010 to Southern California to listen to Gas Bubbles (Ear-In-The-Sea)

- 3 Mar:
  - Hard drive is in, McStar is passing functional tests [DONE]
- 4 Mar.
  - Paul and Thom to button up the top housing. [DONE]
  - Paul to run Helium leak test on all housings. [DONE]
- 5 Mar
  - Thom to give Bill 'McStar users guide' to insure he knows how to operate McStar.

- Thom to run McStar tests in a 'quite place' (foam lined cardboard box in Canyon Dynamics lab)
- Thom/Bill to upload 'quiet' data for Bill to analyze for noise components.
- Thom to finish preparing backup harddrive and processor board.
- 8 Mar to 15 Mar:
  - Top Housing is opened, Analog front end power disconnected, magnet in place to switch off other batteries - In Storage in Canyon Dynamics lab
  - Mike Conway with help from Paul to assemble housings into new McStar frame (for Ricketts toolsled) by Mar. 15
- 16 Mar.
  - Paul and Thom to reconnect analog front-end power and button up the top housing.
  - Paul to re-run Helium leak test on top housing.
  - Thom, Paul, Mike to take McStar 'in pieces' over to the flyer and assemble in the moon pool area
  - Thom to sanity check McStar functionality and run through operating procedure with Bill Ussler.
- 17 Mar Thom, Bill to double-check McStar readiness on Western Flyer

This page last changed on Apr 14, 2010 by [tm](#).

[\[McStar Users Guide\]](#)

[\[McStar BeagleBoard and USB Harddisk Prep\]](#)

### **Next Generation McStar (Ear in the Sea)**

1. Reduce Power Consumption -
  - a. goal 1/4 of the batteries
  - b. Use rechargeable batteries
  - c. Use solid state hard drive
  - d. Reduce clock speed of processor, eliminate unnecessary devices
2. Reduce hydrophone sampling noise
  - a. cleanup analog section
  - b. improved A/D converter, > 100db S/N
  - c. bypass switching power supply noise
  - d. shielding
3. Add external 'status good' indicator
4. Improve deployment reliability
  - a. reduce size and weight
5. Change Connectors
  - a. Paul Coenen's recommendations

## McStar BeagleBoard Prep

This page last changed on Apr 13, 2010 by [tm](#).

### BeagleBoard and USB Harddisk Preparation Instructions

#### Summary

1. Prepare Host
2. Create Bootable SD Card
3. Using Bootable SD card, update the BeagleBoard NAND flash

#### Prepare the Host

1. Recommended: use VMWare Player v3.01 to host Ubuntu Linux. (30G, one big file for easy backup)
2. Install Ubuntu 9.04 (Jaunty Jackal)
3. `sudo apt-get install gparted libasound2 uboot-mkimage`
  - a. Make sure libasound2 is installed on the host
4. Install Eclipse for c/c++ (Galileo)
5. Copy McStar files to the Ubuntu desktop

#### Create Bootable SD Card

1. Format SD into 128 MB FAT 32 partition and the remainder as EXT3 using "sudo gparted"
2. Remove and re-insert SD card
3. `sudo chown $USER /media/disk`
4. `sudo chown $USER /media/disk-1`



#### Important Note

Copy the files below in exactly the order given, no exceptions  
Install first boot loader, U-Boot, kernel image and U-Boot scripts

5. Copy MLO from ~/Common to FAT32 partition
6. Copy u-boot.bin from either ~/C3 or ~/C4 to the FAT32 partition
7. Copy uImage.bin from ~/Common to the FAT32 partition
8. Copy xload-bin-ift from ~/Common to the FAT32 partition
9. Copy boot.scr from ~/Common to the FAT32 partition
10. Unmount the FAT32 partition
11. cd to the EXT3 partition



#### SD Card

Copy the root file system to the SD card

12. 12 (13). Copy ~/common/mcstar-rootfs\*.tar.bz2 to /home/root on the EXT3 partition
13. 13 (12). Enter "sudo tar xvjf mcstar-rootfs\*.tar.bz2"
14. Unmount EXT3 partition



#### SD Boot

Force a boot the Beagleboard from the SD card

15. Power off the Beagleboard, attach serial port cable
16. Start hyperterm or picocom on host "picocom -b 115200 /dev/ttyS0 or /dev/ttyUSB0"
17. Insert Card into Beagleboard and connect power to Beagleboard
18. Stop autoboot by pressing return within 10 seconds
19. Press and hold user button on Beagleboard
20. Press and release the reset button while pressing the user button
21. Stop autoboot by pressing return within 10 seconds



#### Install Root Filesys

### Install the root file system as a JFFS2 partition on the NAND Flash

22. At the Linux prompt, type "root" with no password
23. Enter "halt"
24. Power off the Beagleboard when there is no response to "enter"
25. Attach the USB to Ethernet dongle to the EHCI port, connect to network
26. Stop autoboot by pressing return within 10 seconds
27. Press and hold user button on Beagleboard
28. Press and release the reset button while pressing the user button
29. AT the Linux prompt, type "root" with no password



### JFFS2 Setup

Get the necessary libraries and utilities for JFFS2

30. `opkg update`
31. `opkg upgrade`
32. `opkg install mtd-utils bzip2`
  - a. # Make sure mtd-utils works#
33. `cat /proc/mtd`
  - a. # You should see the following:
  - b. # dev: size erasesize name
  - c. # mtd0: 00080000 00020000 "X-Loader"
  - d. # mtd1: 001e0000 00020000 "U-Boot"
  - e. # mtd2: 00020000 00020000 "U-Boot Env"
  - f. # mtd3: 00400000 00020000 "Kernel"
  - g. # mtd4: 0f980000 00020000 "File System"
  - h. # Erase and remove bad block from the mtd partition (root file system)
34. Enter `"flash_eraseall -j /dev/mtd4"`
  - a. # Mount the mtd partition and format it as JFFS2#
35. Enter `"cd /mnt"`
36. Enter `"mkdir nand"`
37. Enter `"mount -t jffs2 /dev/mtdblock4 /mnt/nand"`



### Extract root filesystem

Extract the root file system from the SD card into the JFFS2 partition

38. Enter `"cd nand"`



### Extracting tar

Extracting the root file system takes about 5 minutes

39. Enter `"tar xvjf /home/root/mcstar-rootfs*.tar.bz2"`
40. Enter `"cd .."`
41. Enter `"sync"`
42. Enter `"umount nand"`



### Reboot board

43. Enter `"shutdown now"` and wait at least 45 seconds
44. Remove the SD card
45. Apply power to the beagleboard
46. Enter `"root"` at the Linux prompt
  - a. # Install sound libraries and utilities need to build the McStar application on the root file system
47. `opkg update`
48. `opkg upgrade`
49. `opkg install task-native-sdk cpp gccmakedep gdb`
50. `opkg install nano`
51. `opkg install lrzsz`
52. `opkg install task-base-alsa task-base-alsa-dev`
53. `opkg install alsa-conf alsa-conf-base alsa-dev alsa-lib-dev`
54. `opkg install alsa-utils alsa-utils-aplay`
55. set the date for the software clock

56. `date -s "<Today's Date> <Today's Time>"`
  - a. # Set the RTC, only if a battery has been installed on the Beagleboard#
57. `set the battery backed RTC, "hwclock -w"`
  - a. # Build the McStar Natively#
58. Enter "shutdown now".
59. Power off Beagleboard
60. Remove Ethernet Dongle from the Beagleboard

#### **Copy McStar app from host to harddrive**

61. Attach a freshly EXT3 formatted USB drive to the host
62. Enter `"cp -R ~/McStar/app /media/sda1/."`
63. Unmount USB drive
64. Remove the USB host from the host and connect it to the Beagleboard
65. Power up the Beagleboard
66. Enter "root" at the Linux prompt
67. Enter `"cd /media/sda1/app/src"`
68. Enter `"touch Makefile *.h *.cpp"`
69. Enter `"make clean"`
70. Enter `"make"`
  - a. # Test the McStar App for 10 minutes, writing a new file every minute
71. Enter `"mkdir /media/sda1/data"`
72. Enter `"cd /media/sda1/app/scripts"`
73. Enter `"./test_mcstar.sh"`

---

## Notes on Beagel Board and SD Card Copy

# Copy Linux filesystem on bootable SD card

This tutorial is part of our Tutorials section. It shows how to flash an image onto an SD/SDHC card.

This guide assumes that the card is correctly partitioned, as described in the Create a bootable SD/SDHC card in Ubuntu tutorial.

### Steps in this tutorial

1. Mount the SD/SDHC card (if not already mounted)
2. Write bootloader if necessary
3. Write Linux kernel image
4. Write Linux root file system
5. Unmount

## Quick Solution: Copy an already existing card

If you have already one working SD image and an (absolutely similar) formatted second card, you can just copy them. **WARNING** Please be aware that the filesystem names (`/dev/sdb1`, etc.) can differ from system to system, make sure to select the right one.

Copy one SD card to another: `sudo dd if=/dev/sdb of=/dev/sdc`The safer alternative: Copy the SD card to harddisk and then onto another `sudo dd if=/dev/sdb of=/sd-card-copy.bin`Now back on the second SD card: `sudo dd if=/sd-card-copy.bin of=/dev/sdb`

## Mount SD/SDHC card

Check where linux mounted the card. One way is to check this via `mount` .

Call mount to see where the card has been mounted. Two partitions should have been mounted, one named '/media/BOOT' and the other one '/media/LINUX'. Note the device name, e.g. '/dev/sdb'. If the card has not been mounted, you have two choices:

## Automatic

*Just unplug and re-plug the cardreader. It will be detected and mounted automatically.*

## Manually

If the check with mount didn't work out, use dmesg: `dmesg | tail` Watch out for a line like this: `sdc Attached SCSI removable disk` Where **sdc** could also be sdb or sdd. If it was sdb, the device name of the memory card is **/dev/sdc**. `sudo mkdir -p /media/BOOT`

`sudo mount /dev/sdc1 /media/BOOT`

`sudo mkdir -p /media/LINUX`

`sudo mount /dev/sdc2 /media/LINUX`

# Copy files on the BOOT partition (MLO, u-boot.bin and uImage)

*Please note that the bootloader files don't have to be rewritten every time. This applies especially when a new custom Linux system is created with BitBake and OpenEmbedded\_. However if you work close to the hardware, e.g. on drivers, this is different.\_*

## Overo

Download MLO and uBoot from this link (commands for shell below):

- PIXHAWK OpenEmbedded Images Download (OpenCV and libdc1394 ready)

### IMPORTANT: Copy MLO FIRST!.

The commands below download the two files and copy them in the right order on the boot partition. *You may have to adjust the filenames for future revisions.* `cd $HOME`

`wget http://pixhawk.ethz.ch/wiki/\_media/symlink/images/overo/mlo-overo`

`wget http://pixhawk.ethz.ch/wiki/\_media/symlink/images/overo/u-boot.bin-overo` And now copy the two files onto the boot partition (**MLO first** because of a bug in the X-loader which causes problems if MLO is not the first file written onto the boot partition). `cp MLO-overo* /media/BOOT/MLO`

`cp u-boot.bin-overo* /media/BOOT/u-boot.bin` The Linux kernel (**uImage**) resides also on the **BOOT** partition of the SD-card. If you compile a new version of the kernel you have to copy the new **uImage** on the BOOT partition. See the instructions below.

## BeagleBoard

Download MLO and uBoot from this link (commands for shell below):

- <http://www.angstrom-distribution.org/demo/beagleboard/>
- Only for PIXHAWK Team (*will be made public in october*)

### IMPORTANT: Copy MLO FIRST!.

The commands below download the two files and copy them in the right order on the boot partition. *You may have to adjust the filenames for future revisions.* `cd $HOME`

`wget http://www.angstrom-distribution.org/demo/beagleboard/MLO`

`wget http://www.angstrom-distribution.org/demo/beagleboard/u-boot.bin` And now copy the two files onto the boot partition (**MLO first** because of a bug in the X-loader which causes problems if MLO is not the first file written onto the boot partition). `cp MLO /media/BOOT/MLO`

`cp u-boot.bin /media/BOOT/u-boot.bin` The Linux kernel (**uImage**) resides also on the **BOOT** partition of the SD-card. If you compile a new version of the kernel you have to copy the new **uImage** on the BOOT partition. See the instructions below.

# Copy Linux

The next step is to copy the Linux kernel and the Linux root filesystem on the BOOT and LINUX partitions. You can use **precompiled binaries** for both or **compile an OpenEmbedded image yourself**. Instructions for both options are provided below.

## Copy the precompiled Ångström Image

The precompiled Ångström image consists (besides MLO and u-boot.bin from the bootloader section) of two files: The Linux kernel image (uImage) and the root file system.

### Copy uImage

Download and copy the kernel image into the root directory of the boot partition.

#### Gumstix Overo

```
cd $HOME
wget http://pixhawk.ethz.ch/wiki/\_media/symlink/images/overo/uimage.bin-overo
cp uimage.bin-overo* /media/BOOT/uImage
```

#### BeagleBoard

```
cd $HOME
wget http://www.angstrom-distribution.org/demo/beagleboard/uImage
cp uImage /media/BOOT/uImage
```

### Copy the Linux root file system

The file is named **rootfs.tar.bz2 for the Beagle link and omap3-desktop-image-overo-.tar.bz2** for the Overo link below. Check the main folder for the current name.

- Gumstix Overo: PIXHAWK OpenEmbedded Images Download (OpenCV and libdc1394 ready)
- BeagleBoard: <http://www.angstrom-distribution.org/demo/beagleboard/>

Download the files to a temporary directory, e.g. the Desktop or your user folder. The next step is to extract these files into the LINUX partition (NOT the boot partition). This can only be done by using Linux. If you're using Windows or MacOS, read this.

#### Gumstix Overo

If you have downloaded the console image: `wget http://pixhawk.ethz.ch/wiki/\_media/symlink/images/overo/pixhawk-console-image-overo.tar.bz2`  
`sudo tar xjf pixhawk-console-image-overo-*.tar.bz2 -C /media/LINUX` Or the desktop image: `wget http://pixhawk.ethz.ch/wiki/\_media/symlink/images/overo/pixhawk-desktop-image-overo.tar.bz2`  
`sudo tar xjf pixhawk-desktop-image-overo-.tar.bz2 -C /media/LINUX` **possibly, "pixhawk-desktop-image-overo.tar.bz2" has to be changed into "pixhawk-console-image-overo.tar.bz2" (just adept file name)**

#### BeagleBoard

```
sudo tar xjf *rootfs.tar.bz2 -C /media/LINUX
```

## Copy custom OpenEmbedded Linux Image

### Linux Kernel Image and u-boot bootloader

Copy the kernel image and u-boot.



## Gumstix Overo

```
sudo cp $OE_HOME/tmp/deploy/glibc/images/overo/uImage-overo.bin /media/BOOT/uImage
cp $OE_HOME/tmp/deploy/glibc/images/overo/u-boot-overo.bin /media/BOOT/u-boot.bin
```

## BeagleBoard

```
sudo cp $OE_HOME/tmp/deploy/glibc/images/beagleboard/uImage-beagleboard.bin /media/BOOT/
uImage
cp $OE_HOME/tmp/deploy/glibc/images/beagleboard/u-boot-beagleboard.bin /media/BOOT/u-boot.bin
```

## Linux root filesystem

After the kernel, the root filesystem has to be copied as well. If you are overwriting an existing installation and you don't need a 100% clean system, you can just delete all files. The command below will delete all files in /media/LINUX except the lost+found directory of the EXT3 file system. `sudo rm -rf /media/LINUX/*` && `sudo mkdir /media/LINUX/lost+found` However if you want a really clean disk, you should format it, but this will take considerably longer. `sudo mkfs.ext3 -L LINUX /dev/sdc2` And now copy the new files.

## Gumstix Overo

The console image: `sudo tar xjf $OE_HOME/tmp/deploy/glibc/images/overo/omap3-console-image-overo.tar.bz2 -C /media/LINUX` The pixhawk console image: `sudo tar xjf $OE_HOME/tmp/deploy/glibc/images/overo/pixhawk-console-image-overo.tar.bz2 -C /media/LINUX` Or the desktop image: `sudo tar xjf $OE_HOME/tmp/deploy/glibc/images/overo/omap3-desktop-image-overo.tar.bz2 -C /media/LINUX`

## BeagleBoard

The console image: `sudo tar xjf $OE_HOME/tmp/deploy/glibc/images/beagleboard/omap3-console-image-beagleboard.tar.bz2 -C /media/LINUX` Or the desktop image: `sudo tar xjf $OE_HOME/tmp/deploy/glibc/images/beagleboard/omap3-desktop-image-overo.beagleboard.bz2 -C /media/LINUX`

# Unmount the SD/SDHC card

Now unmount the drive either manually (by clicking the unmount icon on the desktop) or by shell command: `sync`  
`sudo umount /media/BOOT`  
`sudo umount /media/LINUX`  
`sudo rm -r /media/BOOT`  
`sudo rm -r /media/LINUX`

# Copy bitwise from one SDHC card to another

If you have modified your installation and want to clone the content of the SD card, you can do this with `dd`.

Make sure to plug in the source card first, then the destination card. Check the file names with: `dmesg | tail` And unmount the card (with the GUI or with `umount /dev/sdb`). Then use `dd` to copy the first gigabyte from one card to the other (including partition table, etc.): `sudo dd if=/dev/sdb of=/dev/sdc bs=1073741824`

## McStar Users Guide

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This page last changed on Mar 10, 2010 by [methane](#).

### Equipment List

- HP NetBook PC
  - Parani SD1000 on USB serial port
  - Hyperterm 115200,8n1
  - Audacity
  - USB cable for USB drive for uploading data (USB-A to mini).
- McSTAR
  - Magnet on 'white spot' turns off the 5v supply
  - Keep magnet away from harddisk area (near white spot)

### McStar Startup

- Step 1 - connect USB serial and Bluetooth dongle to HP Netbook
- Step 2 - power up HP Netbook and login
  - Bluetooth dongle should toggle 'connect' LED
- Step 3 - Start Hyperterm. Programs --> Accessories --> Communications --> Hyperterm --> McStar USBser 115200
  - 115200, 8n1, no flow, COM5
- Step 4 - remove magnet from McSTAR 'white spot'
  - If no activity, hit ENTER a couple of times and put magnet on white spot and remove.
  - Should see a boot screen, do not hit a key to stop autoboot

### McSTAR Functional Test

- Step 1 - in Hyperterm, after McSTAR has booted, login with by entering 'root'
  - JFFS2 message is harmless, but if login not seen due to JFFS2 message, hit ENTER a couple of times.
- Step 2 - cd /media/sda1 (USB harddisk connected to McStar)
  - List (ls) should show app dir
- Step 3 - 'cd /media/sda1/app/scripts'
- Step 4 - type 'date', then type 'date -s "Tue Mar 09 10:54:30 PST 2010"'
- Step 4 - start the McSTAR app './run\_mcstar.sh'
  - Allow it to run until the first recording message comes out. Say stuff, whistle, whisper, etc. every 10 seconds or so (data blocks vary from 2 to 20 minutes; typically 5 minutes).
  - After the first recording data message, hit Ctrl-c (terminate McSTAR data collection).
  - "Writing a new audio file D000000..."

### Verification

- Step 1 - after terminating run\_mcstar.sh In Hyperterm, change directories to the data directory.
  - cd /media/sda1/data
  - cd to the latest directory, then cd to R00000
- Find the file and transfer
  - In Hyperterm, Transfer --> Receive File, use Zmodem (no crash recovery). Close
  - In hyperterm, tell McSTAR to transfer the file you recorded
- sz D00000
- On the HP Netbook, start Audacity

### On Windows

- Project --> Import Raw Data
  - Accept the defaults, and change 44100 to 48000

### On a Mac

- File --> Import --> Raw Data...
- select file
- open file and accept default settings except Sample Rate - change from default value of 44100 Hz to 48000 Hz (sampling rate of McSTAR).

## Comments

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Hi Thom:

I added a few things to the user manual, and tweaked the Wiki markup.

Bill

Posted by [methane](#) at Mar 10, 2010.

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## NoSQL

This page last changed on Jan 08, 2013 by [kgomes](#).

### Why NoSQL?

Here is a tidbit on why you might use NoSQL over RDBMS from Martin Fowler's [NoSQL Distilled book](#):

1. **Application development productivity.** A lot of application development effort is spent on mapping data between in-memory data structures and a relational database. A NoSQL database may provide a data model that better fits the application's needs, thus simplifying that interaction and resulting in less code to write, debug, and evolve.
2. **Large-scale data.** Organizations are finding it valuable to capture more data and process it more quickly. They are finding it expensive, if even possible, to do so with relational databases. The primary reason is that a relational database is designed to run on a single machine, but it is usually more economic to run large data and computing loads on clusters of many smaller and cheaper machines. Many NoSQL databases are designed explicitly to run on clusters, so they make a better fit for big data scenarios.

*Fowler, Martin; Sadalage, Pramod J. (2012-08-08). NoSQL Distilled: A Brief Guide to the Emerging World of Polyglot Persistence (p. xiv). Pearson Education (US). Kindle Edition.*

You can go to <http://nosql-database.org> or <http://nosql.mypopescu.com/kb/nosql> to get an up-to-date list of the NoSQL data products and the categories they fall in to.

Fowler also give this as a criteria for NoSQL:

"there are two primary reasons for considering NoSQL. One is to handle data access with sizes and performance that demand a cluster; the other is to improve the productivity of application development by using a more convenient data interaction style."

*Fowler, Martin; Sadalage, Pramod J. (2012-08-08). NoSQL Distilled: A Brief Guide to the Emerging World of Polyglot Persistence (p. 12). Pearson Education (US). Kindle Edition.*

And finally, Fowler summarizes:

1. Relational databases have been a successful technology for twenty years, providing persistence, concurrency control, and an integration mechanism.
2. Application developers have been frustrated with the impedance mismatch between the relational model and the in-memory data structures.
3. There is a movement away from using databases as integration points towards encapsulating databases within applications and integrating through services.
4. The vital factor for a change in data storage was the need to support large volumes of data by running on clusters. Relational databases are not designed to run efficiently on clusters.
5. NoSQL is an accidental neologism. There is no prescriptive definition— all you can make is an observation of common characteristics.
6. The common characteristics of NoSQL databases are
  - a. Not using the relational model
  - b. Running well on clusters
  - c. Open-source
  - d. Built for the 21st century web estates
  - e. Schemaless
7. The most important result of the rise of NoSQL is Polyglot Persistence.

*Fowler, Martin; Sadalage, Pramod J. (2012-08-08). NoSQL Distilled: A Brief Guide to the Emerging World of Polyglot Persistence (p. 12). Pearson Education (US). Kindle Edition.*

Here are some notes about various NoSQL products

Product	Written in	Main Point	License	Protocol	Best Used	For Example	Features	Not Good For
MongoDB	C++	Retains some	AGPL (Drivers: Apache)		1. Master/slave	If you need	For most things	

		friendly properties of SQL (Query, index)		Custom, binary (BSON)	replication (auto failover with replicaset)   2. Sharding built-in functions.   3. Queries if you are need javascript expressions for performance   4. Run on a arbitrary DB. If you wanted CouchDB, side but your   5. Better data update changes in- too place much, than filling up CouchDBs.   6. Uses memory mapped files for data storage   7. Performance over features   8. Journaling (with --journal) is best turned on   9. On 32bit systems, limited to ~2.5Gb   10. An empty database takes up 192Mb   11. GridFS to store big data +	dynamic queries. If you prefer to define indexes, map/reduce functions. If you need really holds you back.   that you would do with MySQL or PostgreSQL, but having predefined columns	
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					metadata (not actually an FS)   12. Has geospatial indexing		
Riak	Erlang & C, some JavaScript	Fault Tolerance	Apache	HTTP/ REST or custom binary	1. Tunable trade-offs for distribution and replication (N, R, W) Pre- and post-commit hooks in JavaScript or Erlang for validation, security, and fault-tolerance, but you're ready to pay for multi-site link replication. walking: use it as a graph database   5. Secondary indices: but only one at once   6. Large object support (Luwak)   7. Comes in "open source" and	Point-of-sales data collection. Factory control systems. Places where even seconds of downtime hurt. Could be used as a well-update-able web server.	1. Use this only if you know the keys for the key-value store as you cannot search within the value.

					"enterprise" editions   8. Full-text search, indexing, querying with Riak Search server (beta)   9. In the process of migrating the storing backend from "Bitcask" to Google's "LevelDB"   10. Masterless multi-site replication and SNMP monitoring are commercially licensed		
CouchDB	Erlang	DB consistency, ease of use	Apache	HTTP/REST	1. Bi-directional replication continuous or ad-hoc with conflict detection, thus, master-master replication is important.   2. MVCC - write operations do not block reads   3. Previous versions   For accumulating, occasionally changing data, on which pre-defined queries are to be run. Places where versioning is important.   CRM, CMS, ERP systems. Master-master replication is an especially interesting feature, allowing easy multi-site deployments.		

					of documents are available       4. Crash-only (reliable) design     5. Needs compacting from time to time     6. Views: embedded map/reduce     7. Formatting views: lists &amp; shows     8. Server-side document validation possible     9. Authentication possible     10. Real-time updates via _changes      11. Attachment handling thus, CouchApps (standalone js apps)     12. jQuery library included		
Redis	C/C++	Blazing fast	BSD	Telnet-like	1. Disk-backed in-memory database with a currently unresizable database size (should fit and mostly in Diskstore). were abandoned)     2. Master-slave replication	For rapidly changing data sets, a real-time data collection. Real-time communication.	



					3. Simple values or hash tables by keys, but complex operations like ZREVRANGEBYSCORE.   4. INCR &amp; co (good for rate limiting or statistics)   5. Has sets (also union/diff/inter)   6. Has lists (also a queue; blocking pop)   7. Has hashes (objects of multiple fields)   8. Sorted sets (high score table, good for range queries)   9. Redis has transactions ⚠️   10. Values can be set to expire (as in a cache)   11. Pub/ Sub		
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					lets one implement messaging 		
HBase	Java	Billions of rows X millions of columns	Apache	HTTP/ REST (also Thrift)	1. Modelled after Google's BigTable     2. Uses Hadoop HDFS Map/Reduce storage jobs on huge datasets. with Best Hadoop if you     4. Query use the predicate push down stack via already. server side scan and get filters     5. Optimizations for real time queries     6. A high performance Thrift gateway     7. HTTP supports XML, Protobuf, and binary     8. Cascading, hive, and pig source and sink modules     9. Jruby-based (JIRB) shell     10. Rolling restart for configuration changes and	Analysing log data.	

					minor upgrades   11. Random access performance is like MySQL   12. A cluster consists of several different types of nodes		
Neo4j	Java	Graph database - connected data	GPL, some features AGPL/ commercial	HTTP/ REST (or embedding in Java)	1. Standard, or graph-style, into rich or complex, applications   2. Full data. ACID Neo4j conforms quite differently (including durable from the data) others   3. Both in this nodes sense. and relationships can have metadata   4. Integrated pattern-matching-based query language ("Cypher")   5. Also the "Gremlin" graph traversal language can be used   6. Indexing of nodes and relationships   7. Nice self-contained web admin	phone, public transport links, maps, network topologies.	

					8. Advanced path-finding with multiple algorithms 9. Indexing of keys and relationships 10. Optimized for reads 11. Has transactions (in the Java API) 12. Scriptable in Groovy 13. Online backup, advanced monitoring and High Availability is AGPL/ commercial licensed		
Cassandra	Java	Best of BigTable and Dynamo	Apache	Custom, binary (Thrift)	1. Tunable - When trade-offs more for than distributed read and (logging). If every component of the system must be in Java. No range one gets fired for keys choosing Apache's stuff.") 2. Querying by column, "No range one gets fired for keys choosing Apache's stuff.") 3. BigTable-like features: columns, column families 4. Has secondary indices 5. Writes are much faster	Banking, financial industry (though not necessarily for financial transactions, but these industries are much bigger than that.) Writes are faster than reads, so one natural niche is real time data analysis.	

					than reads   ⚠️   6. Map/reduce possible with Apache Hadoop   7. All nodes are similar, as opposed to Hadoop/HBase		
Membase	Erlang & C	Memcache compatible, but with persistence and clustering	Apache 2.0	memcached plus extensions	1. Very fast (200k +/- sec) access of data by key   2. Persistent to disk   3. All nodes are identical (master-master replication)   4. Provides memcached-style in-memory caching buckets, too   5. Write de-duplication to reduce IO   6. Very nice cluster-management web GUI   7. Software upgrades without taking the	Any application where low-latency data access, high concurrency support and high availability is a requirement (e.g. Zynga).	Low-latency use-cases like ad targeting or highly-concurrent web apps like online gaming (e.g. Zynga).

					DB offline 8. Connection proxy for connection pooling and multiplexing (Moxi)		
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## OASIS Meeting Notes

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This page last changed on Jun 23, 2011 by [kgomes](#).

1. [2011-01-24 2011 Kick Off](#)
2. [2011-03-03 Progress Meeting](#)
3. [2011-03-07 NDBC Hybrid Meeting](#)
4. [2011-03-14 NDBC Hybrid Follow Up](#)
5. [2011-03-21 NDBC On site meeting](#)
6. [2011-06-09 NDBC Deployment Follow Up Meeting](#)

## 2011-01-24 2011 Kick Off

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This page last changed on Mar 03, 2011 by [kgomes](#).

### Goal

This meeting is just to get all OASIS related folks together to talk about what 2011 has in store for the OASIS program. There has been a large number of changes over the past year and we probably should all just get caught up.

### Attendees

1. Francisco Chavez
2. Mike Kelley
3. Rich Schramm
4. Craig Okuda
5. Bob Herlien
6. Paul Coenen
7. Kevin Gomes

### Topics

1. Important Dates for 2011
2. NDBC/M2 Change
3. Radio Upgrades
4. Current OASIS stats and issues
5. Future OASIS (M1) turns (process, documentation, roles and responsibilities)
6. OASIS-4 status/ocean acidification buoy
7. M0

### Notes from Meeting

#### Important Dates for 2011

1. M2 - NDBC Early May (may 10th). NDBC/M2 Bouy
  - a. code freeze 2 weeks prior to closed can testing
  - b. Closed can testing 1 month
2. M1 - October 5th (late september)
3. M0 - recovery (tentative), summer (OASIS 4 upgrade)
4. O4 - March? (very tentative)
5. Upgrade

#### NDBC/M2 Change

1. All NDBC drawings stored online in Alfresco ([https://alfresco.mbari.org/alfresco/webdav/Projects/300057\\_Mooring\\_Maint/NDBC/Drawings](https://alfresco.mbari.org/alfresco/webdav/Projects/300057_Mooring_Maint/NDBC/Drawings))
2. big question on hybrid buoy.
3. still TBD on structure of buoy and comms.
4. NDBC buoy
5. we will have to telemeter our data
6. instrumentation, memorandum has responsibilities
  - a. MBARI: Nitrate, CO2, flour, radiometer on top?, O2, (bio-optical gone), pump TBD, A/D, we are responsible for maintaining our instrumentation. We are responsible telemetry, data processing. NDBC does not know if they want this data.
    - i. Can we tap into their power?
  - b. NDBC: Met, adcp, thermistor chain (all aspects), CTDs, GPS?
    - i. How do we get data back from NDBC to MBARI? New task.
7. Controller is unknown, but O3/O4

#### Radio Upgrades

1. M1, 1/2 M2, M0?
2. 5 moorings.



3. Test the new hardware (assume it is what we want)
4. To run both mooring telemetry, Craig would need to put another antennae on the tower.  
Problematic. we don't have space.
  - a. To test:
    - i. Infrastructure in Mt. Toro ASAP. (buy the stuff, build) should be able to install in a month.
    - ii. Couple weeks of testing. Testing could be done end of February/Mid March.
    - iii. Testing scenario over water?
    - iv. Deploy the O4, ocean acidification will be the over water test.
    - v. Test download and ship to SSDS.

#### **Current OASIS Status**

1. Seem to be running well.
2. Feel as if failure rate has gone up a bit.
3. More instruments failed, more controller issues,
4. M1 is running smooth?
5. Fred looks at CTD data. Ken looks at Nitrate/O2, FC looks at flourometer/radiometer
6. M2 has no ADCP, CO2
  - a. M2 can needs to be swapped.
7. We need historical view of why we have failures.
  - a. There is a web page with a log
  - b. Is Erich not using it as detailed as Paul used to. (what is he using spreadsheet or web log?)
  - c. are we updating schematics and docs?
8. How do we find problems with controllers
  - a. Should have some process when can goes awry. Should all meet when something goes bad to discuss troubleshooting and FA.
9. We need more dock side testing. (currently 2 week open can, 1 week close, 3-5 working day dock side, load day)
10. How about PCO decision to move outside of process.
11. Gernot had configuration change way too late.
12. Can we split out config file for PCO2 (never have to mess with config file).
  - a. Gernot said this is tough.
  - b. has to be on the can, but not in oasis config file. (we need bob for this)
13. Roles:
  - a. Dave French: Can prep, can test.
  - b. Erich: sensor installation, setup, cables, asks rich for software uploads
  - c. Rich: tracks the OASIS image that gets on mooring, writes new driver.
  - d. Paul: currently doing oasis config file. Erich still coming up to speed.
1. Process
  - a. start of open can test: one week before get config file setup.
  - b. at that point under configuration control
  - c. config should be frozen before rollout (2 days before roll out).

#### **Future OASIS Turns**

1. Process Steps
2. Documentation
  - a. Bob's docs [here](#)
3. Roles and Responsibilities
  1. Rich may have to build driver for pH (Ken Johnson) instrument.

#### **OASIS-4/Ocean Acidification**

1. building two for davenport and santa cruz
  - a. Both will be in water by April 1st.
  - b. No decisions on data path, downloads, etc.
  - c. Currently three sets of hardware.
2. maybe one for M0

**M0**

## **Future**

1. standardize controller and collapse data paths.

## 2011-03-03 Progress Meeting

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This page last changed on Mar 03, 2011 by [kgomes](#).

### Goal

This is a meeting to get a status update and map out task needing to be done.

### Attendees

1. Francisco Chavez
2. Mike Kelley
3. Erich Rienecker
4. Rich Schramm
5. Craig Okuda
6. Bob Herlien
7. Paul Coenen
8. Kevin Gomes

### Topics

1. Schedule
2. NDBC/M2 Change
3. Radio Upgrades
4. Ocean Acidification Buoy

### Schedule

1. March 21 - Visit from NDBC. We should all have a face-to-face.
2. April 1 - Ocean acidification buoy -
3. March 22 - NDBC/M2 code freeze
4. April 10 - NDBC/M2 Closed can testing begins
5. May 10 - NDBC/M2 Buoy Change
6. Summer - M0 recovery, replace with O4 buoy
7. August 15 - Code freeze
8. September 5 - Closed can testing
9. October 5 - M1 Turn

### Ocean acidification buoy

1. Current status
2. This will be stopped by radio upgrades.
3. could deploy without telemetry
4. Francisco is confident about licenses. and Rich is confident in Bob's software.
5. We could use an OA controller and setup on cabled viper radio for testing of downloads.
6. FC requested space from Doug from Jose for testing. he would have space available. we can use it.  
We will keep in support lab for this test.

### NDBC/M2 Change

1. Update on controller choice
  - a. O4 is 75% there for instrument list for NDBC.
  - b. Need radiometer
  - c. Still on the fence (leaning towards O4)
  - d. Do we have time for O4?
  - e. ISUS driver and atlantic radiometer driver and eco driver.
  - f. Bob for drivers, ETs to build O4, boards built outside, Dave French for integration.
  - g. We assumed that O3 was to be done on NDBC.
  - h. PCO for Bob's time, plus others (Craig, Rich, etc.). Mechanical tasks too for mounts. Machine shop time will be more (Craig for design).
  - i. There is some savings with NDBC handling some.
2. Update on structure of comms/buoy

3. Need to make O4 for NDBC
4. Do we want ground fault detection on NDBC?
5. Still need testing on combined O3 vs. O4.
6. Downstream only depends on radio system.
7. Monitoring data streams is done by Fred (could he pull NDBC data and stream to SSDS).
  - a. Fred is funded by core mooring data MDUC. Do we need to get more money?
8. Talk to Mike about third data stream products.
9. Is there a chance the we will expand instruments? Always a chance. We want to keep it minimal, so probably not. The idea is to replicate on other instances.
10. Expansion contingency is to use O3 and talk to O4 over serial and then use O3 for expansion.
11. Power for controller, not from NDBC. We will have solar, but not oasis batter and power. Smaller pack. This will impact controller as it looks for power levels for certain things.
12. Need to get power budget for OA controller. need to test instruments against OA/O4.
13. Redesign of cabling for NDBC. Will push off until later. Would be good to have one SOON connector. Need a change for troubleshooting.

## **Radio Upgrades**

1. Status update
2. Waiting for licenses. 1/2 done other 1/2 pending. We need one to get moving.
3. Do we have something we could use for testing and deployment? yes, but there is a noise problem.
4. Still dealing with packet filtering.

## **OASIS Status**

1. Current issues
2. O3 will have to deal with new CO2 instrument. Bob can do driver hack. This will need to be for M1 turn in October.

## 2011-03-07 NDBC Hybrid Meeting

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This page last changed on Mar 07, 2011 by [kgomes](#).

### Action Items

1. Francisco will find out which fluorometer will be used
2. Francisco will find out which radiometers will be used
3. Craig and Bob will discuss possibility of integrating new CO2
4. Craig/Francisco will talk about pH sensing
5. Francisco, Mike and Kevin will contact NDBC to talk about power and if we can mount solar panels
6. Dave French, Craig, and Erich will handle system design and drawings
  - a. Get an initial feel for shop request early
7. Can will be built and wired by Dave French
8. Buoy integration will be OSG (Mike and Erich)
9. All for Integration and test
10. Kevin will take early guesstimate about shop jobs and try to plan for time in April to get through the shop.
11. Kevin will organize meeting next week for follow up and pre-NDBC visit meeting.

### Notes

1. Decision was O3 controller
2. Final final instrument list
  - a. fluorometer? FC will find out today or tomorrow
  - b. Radiometer? FC will find out today or tomorrow
3. CO2 system, PCO2 or new CO2?
  - a. craig and bob to talk more about integrating new
  - b. backup is to use SOON with power only and comms external
4. GPS for clock sync and backup location will be added
5. pH, sensed by CO2 or separate analog?
  - a. craig will work with fc but backup will be self- contained, no comms
6. Use existing battery box, charge controller, and solar harness
  - a. this is critical one. Depending on what happens here may require more cables and junction boxes to be fabricated
  - b. Fc,mk, and kg will follow up with NDBC to get decision
7. Swap of teledesigns radios with existing M2
  - a. blue radio will be removed from existing M2 and put on hybrid.
  - b. orange radio will be placed on existing m2
8. Who is doing system design and drawings?
  - a. dave French, c.o., e.r.
9. Who is doing wiring, integration and test
  - a. can build up is dave french
  - b. buoy is OSG (mike and erich)
  - c. all for I&t
10. Shop
  - a. kg will try to get work load estimate and plan with shop for a couple weeks in april
11. ISUS is luke's
12. Spare can will be the old one from existing m2 which will mean we are 1 month without spare

## 2011-03-14 NDBC Hybrid Follow Up

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This page last changed on Mar 14, 2011 by [kgomes](#).

### Schedule

1. May deployment
2. Drawings to shop by 3/31
3. Looking for X days in shop in early april

### Actions

1. Email NDBC with questions - Kevin
  - a. Do they have SolidWorks part and assembly files for their drawings they sent?
  - b. Can we weld two crossbars on the frame for mounting our battery box (80 lbs).
  - c. Can we use location under lower deck that has plate with "zipties" for mounting our CO2 housing?
  - d. Is the open hole in top deck something we can utilize?
  - e. What is the deployment timeline for this hybrid buoy?
  - f. How do they handle about anti-fouling and if they don't can we paint the bridge?
2. Purchase solar panels - Erich
3. Have shop build junction boxes - OSG ?
4. Specify and purchase solar panel/battery cables - Mike/OSG
5. Cut and fabricate NDBC mounting brackets (1 day) - OSG
6. Pending NDBC approval have shop to weld bars (2 days)
7. Order new battery - OSG
8. Light machine OASIS controller can for mounting - Erich
9. Modify existing clamps for upper mounts - Craig (2 days mod drawing), ? days in shop
  - a. 3 HR3 - two down, 1 up
  - b. GPS receiver
  - c. SOON GPS antennae and orbcomm antennae
  - d. UHF radio (blue)
10. Modify/build new clamp for Fluorometer that will mount on cross member with battery box - Craig
11. Decide on how to accomplish seawater ground? - OSG (+ others)
12. Modify/build new clamps for below deck instrumentation to mount on bridge legs - Craig (5 days)
  - a. ISUS
  - b. Aanderaa
  - c. HS2
  - d. pH
  - e. pump for Wetstar
13. Fabricate longer cables (5 or 6?) that will be used to connect to an above water connector block - Erich (send out for fab)
14. Depending on NDBC response, use top deck hole for equilibrators. Will be an ad-hoc mounting.
15. Talk to Dale about getting material ahead of time so shop is prepared - Kevin

### Notes

1. Decision was made to use NDBC's design for solar panels
2. we need drawings in other format
3. We will use OASIS battery box, but does not have a place on the buoy.
4. Use existing charge controller.
5. Lithium or lead-acid? We have all the lead acid stuff, use that, but how do we get it on the mooring?
6. If our solar system, 3 panels at minimum
7. We need water cutting for mounting brackets, some welding on the brackets, new cables.
8. Order new panels.
9. Batteries? Order them. If they go in the well, can we drill and use bulk head connector.
10. what is the plate with zipties for?
11. Kevin to get s/w drawings. (solid part and assembly files)
12. Can we use MOOS style battery boxes and mount on Xplate?
13. Ask them if we can weld bars on tower and mount our existing battery and buy their panels with that battery? (battery box is 80 lbs.)

**We need from the shop**

1. Note about this: All of these things will first need to be designed/drawn before they can be fabricated. It's more than just shop time.
2. Solar Panel mounts, 4 each
3. May be new solar panel junction boxes?
4. OASIS can mount
5. We should deploy O3 endcap with plugs in the extra bulkhead holes; we'll need to make some.
6. Battery box mounts
7. Local connector block mount
8. Upper Deck connector block mount
9. Radio Can mast mount/adaptor
10. Seawater ground connection point

**Mounts for instruments??? The list is still not confirmed.**

1. As I understand it, there is nowhere to mount subsurface instruments, so first a mounting bracket/bar will need to be designed and fabricated, then mounts for individual instruments to mount to it.
2. CO2 can mount
3. CO@ Equilibrator tube mount
4. Wetstar
5. Pump
6. Aanderaa - see below
7. GPS?
8. Radiometer mount

**Wiring and cables**

1. Solar Panel Wiring harness
2. Aanderaa adapter and cable, We cannot use the Aanderaa factory cable
3. There should be an available Aanderaa optode adapter, as it would have been deployed on M2. Need way to mount to buoy though.
4. pH sensor?

**Other tasks:**

1. Hardware diagrams
2. Wiring diagram
3. Wire OASIS3 can and spare O3 can
4. Test, all up both cans since all the cabling is new
5. Test, telemetry

## 2011-03-21 NDBC On site meeting

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This page last changed on Mar 21, 2011 by [kgomes](#).

### Meeting with NDBC guys

1. Landry Bernard
  2. Rodney Riley
  3. Mike
  4. Rich
  5. Paul
  6. Craig
  7. Kevin
- 
1. Introductions
  2. Open discussion
  3. SAIC is the prime contractor and they re-compete every 5 years (end of December)
  4. emphasize drawings and documentation. people come and go.
  5. proposed layout went over.
  6. ok with deck on rfp
  7. mounting of sensors on the tower.
  8. horizontal battery position.
  9. ADCP head we are awaiting that, 1 week or two.
  10. Might have to replace bottom well. ADCP mount will change
  11. They will get that resolved.
  12. They will let us know how many holes they will use.
  13. Who will install the ADCP. Just the head of the 75.
  14. The ADCP will determine the rest of the mounts.
  15. MOA (like MOU) still outstanding. Doug can help with this.
  16. End of March for installation of ADCP.
  17. Craig went through drawings
  18. we will provide drawings to NDBC.
  19. They will double check about battery box orientation
  20. Right now it is a non-directional buoy, but that might change with a magnetometer.
  21. Other questions.
  22. Flourometer: thought about putting on battery box mount.
  23. NDBC will send inventor files to Craig.
  24. Brett will contact Craig and get drawing exchange going.
  25. Check heading changes with can. Put can in and out and see if the compass heading changes. Do that when we test ADCP test.
  26. When assembled run end-to-end tests. Spin the mooring for compass check.
  27. Does Francisco want the configuration of the ADCP?
  28. Get Dick and Mike together about ADCP configuration and power.
  29. can't adjust over telemetry (there is sometimes a wireless box, not sure if this one has it). They will check to see if that option is available. Might be a configuration change.
  30. Schedule.
  31. They will get us a number for the DAC so that we can tell them when we are bringing it up.
  32. they will show us how to get it going when they come out with ADCP. Make us able to power it up. Also show us how to look at the data.
  33. ADCP is critical path.



## 2011-06-09 NDBC Deployment Follow Up Meeting

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This page last changed on Jun 23, 2011 by [kgomes](#).

1. Issues
  - a. buoy stability, did not check after modification
  - b. site was deeper than originally thought
  - c. 10 m microcat not on
  - d. pco2 got wet, sort of working
  - e. there was some back and forth about locating parts "you can put it anywhere ... oh, except you can't put it where you decided to put it"
  - f. Communication between NDBC parties was problematic. They visited MBARI at different times and there was rework because they did not have a coordinated approach between groups.
2. Questions
  - a. how is the ndbc data flowing and being handled
    - i. metsys suite. Getting it back into SSDS. Make it look like what we have already.
    - ii. adcp data is not complete but will get full resolution after recovery.
  - b. it is all different for end users (one stop shopping is compromised)
  - c. no pco2
  - d. can we get old m2 data? Orange radio swap?
3. for next time?
  - a. is stability an issue? We should approach like pmel. We should have our own tower. Solvable with more ballast. We don't know if it maintainable (buoy ride).
  - b. should we approach andy for some help?
  - c. start the process earlier and have well defined dates for deliverables
  - d. oasis 4?
  - e. m1 turn is too soon for o4. ( late september is m1 turn)
  - f. lab test after some changes should be enough.
  - g. drivers need testing.
  - h. need to look at support designs for o4 deployment. Project request?
  - i. need craig, rich, bob, kevin
  - j. need list of drivers for o4 that need testing and verification.
4. Up coming proposal
  - a. pull out m0 in november
  - b. replace with OA mooring
  - c. mooring maintenance m1 and m2 hybrid
  - d. goal is to consolidate and package for a technology export

### Action items:

1. inspect inside battery box to make sure there is no water (OSG)
2. check for hydrrad processing and plotting? (Kevin)
3. change m2 over to m2h (Rich, Kevin)
4. talk to instrument reps to work on not delivering instruments at the last minute (Francisco)
5. Get NDBC flowing back to SSDS to keep up data processing chain (as much as possible) (Fred, Kevin)
6. Start work on O4 with goal of moving all moorings to it (Craig, Bob, Rich, Kevin)
7. Do we need to talk to Andy H about stabilizing mooring (Francisco/Mike)?
8. Rename the hybrid buoy from M2 to ? (Kevin, Rich, Francisco)
9. Deploy orange radio on old M2 and setup laptop to have ships of opportunity download data (Mike, Craig, Rich)

## OASIS Moorings

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This page last changed on Dec 01, 2010 by [kgomes](#).

Something from an email from Rich:

I ran some tests yesterday...

1) I STRONGLY recommend looking at your cfg file in a hex editor before attempting to upload it to make sure that it has a cr lf line terminators. That is hex 0D 0A  
You may have multiple pairs between lines but you must at least have the 0A  
It wont look right in notepad if you are missing the pair, and it wont work when gets on the controller in certain send scenarios, so don't do it if its not right!!

Some text editors - like ones that ask 'Do you want to convert to DOS' or something similar may cause a problem - but xfering w/hyperterm definitely can cause problems regardless of the editor you use depending on your coms settings.

If the file 'looks right' in notepad, that's a good sign but still - look in a hex editor!! XVI32 works quite well and is freeware  
<http://www.chmaas.handshake.de/delphi/freeware/xvi32/xvi32.htm>

OK, here is what I found....

2) ABSOLUTELY::: upload to a temporary file on the controller \*\* NOT TO OASIS.CFG !!! \*\*\*\*. They type it back to see that its not "all on one line" then its probably safe to rename it to oasis.cfg and reboot.

3) It makes a big difference to hyperterm if you are at the OASIS> prompt or in picodos...

4) Craig etal suggest going from picodos with a yr command, but I don't like to because if you forget your connected via radio you may be SOL for 30 minutes because you'll probably kill the radio driver and have to wait for 32 minutes for the hardware to rest(I have not tested that, Im trying at my desk right now...).

5) I prefer to use "capture" command and motocross but you need a version that has the "Transfer>SendBinaryFile" menu item. (eg. v2.32 has it, an older version that Paul found out at sea did not)

6) If you must, you can use hyperterm with the capture command and "Transfer>SendTextFile" but you \*\*\*ABSOLUTELY MUST FIRST SET "Send line ends with line feeds" PRIOR TO TRANSMITTING THE FILE\*\*\* My tests show that using capture at the oasis prompt with this setting off, causes hyperterm to strip the lf in your cfg file. Then the file on the controller appears as all on one line when typed back.

7) Motocross "send binary file" works from either the picodos or OASIS> capture command (as long as you obey rule #1) In all cases, its "Comm Settings > "Send LF after CR" was un-checked.

8a) Hyperterm works ok from OASIS> prompt IF the "Send Line ends with Line Feeds" is TRUE. (but you may later want to reset it to false so you don't get "Double OASIS> prompts"

8b) Hyperterm works ok from picodos C:\> prompt IF the "Send Line ends with Line Feeds" is FALSE. (also will work ok if TRUE but then you get the double prompt symptom.

\*\*\*\*\* THE BOTTOM LINE(S) \*\*\*\*\*  
USE dumb editors, check line endings with XVI32 to verify Rule#1 and xfer to a temp file (Rule#2) using MOTOCROSS !!!!  
(Or only if brave or hardwired to console port, you can use yr from picodos)

\*\*\*\*\*

If your forced to deal with an oasis.cfg file that may not have correct line endings even though it looks ok in notepad.... and you have no hex editor to verify...

(eg. When you upload the file per recommendations above, it still is all on one line) It seems in my quick testing that you can use notepad to add extra lines at every line and then re-upload...(you will have line endings in hex editor of 0D 0D 0A which still seems to be ok with OASIS>)

Curious if anyone else has experiences that differ from above, it would be great to nail this down and cookbook it along with how to recover if you do screw things up.....

-Rich

If you mistakenly issue the "reset pico" command while connected to the radio port, you will loose contact... The only ways to get it back are to:

- 1)Bounce the power
- 2)Wait ~32 minutes for the hardware reset (plus the wait for the radio wakeup procedure)

Fortunately in the next release of code (still in testing), Bob added a warning message with a Y/N to remind you your on the radio... (Thanks Bob!)

And please correct my last.... re: picodos using yr (ymodem receive...) is from hyperterm (motocross doesn't support ymodem file xfers....)

-Rich

And from Paul:

Another follow up to this thread... sorry for the overkill.

We successfully transferred a new oasis.cfg file to 2010M1 via radio link on Tuesday afternoon.

The file was edited with a hex editor to include the correct 0D 0A line terminators. There were places where there were two in a row (0D 0A 0D 0A) but in no cases were there multiple 0Ds before a single 0A as I've run across in some other oasis.cfg files that are floating around (0D 0D 0A).

Once the file was edited and double checked, we transferred it according to Rich's procedure in #6 below and detailed here:

-Establish link with mooring

-At oasis prompt, type "capture [filename] <enter>"

-Go to HyperTerm properties, 'settings' tab, click 'ascii setup' button, check 'Send line ends with line feeds' button

-Go to HyperTerm Transfer menu, and select 'Send Text File...'

-Select file to send and wait for file transfer

-At oasis prompt, type "^D" to close capture on oasis

-Go back to HyperTerm properties and uncheck 'Send line ends with line feeds'

-Check file on can to make sure it looks right (at oasis prompt, type "type [filename]")

-If all looks correct, rename files (oasis.cfg to [oasis.bk?]) and [filename] to oasis.cfg) and reset mooring.

-Sacrifice a small animal (or vegetable for the vegetarians) to the mooring gods

And finally...

-Blame Rich if it doesn't work for you

Just wanted to document the successful file transfer over the radio. The mooring came back immediately, and everything appears to be working

well.

Paul

P.s. In #1 below, Rich says that he strongly recommends checking the file in a hex editor. I think this should be an absolute requirement.

From Paul again:

A couple of notes regarding the oasis.cfg file issue from Wednesday's deployment:

First off, we were NOT able to modify the config file with the new pCO2 constants before it was deployed...

Attempts to transfer the new file to the controller on the buoy did not appear to work, and looked (for about ten minutes there) like it corrupted the entire oasis directory. Due to past issues of corrupting the oasis controller with bad oasis.cfg files, and the above scare that the oasis directory was destroyed while on the way out to deploy the buoy, I was unwilling to continue attempting to get a file across to the controller. So unfortunately the constants are not correct for the pCO2 that is on the buoy.

Secondly, the config file needs to be in its deployment form at the time the oasis can is closed!! Because there are some idiosyncrasies with this file transfer, having it on the bench gives plenty of time to recover if there is an issue. As of a week before deployment, the entire systems should ideally be hands off, and this definitely needs to be the case for all software/firmware on the can. Further bench testing (Thanks Rich!!) has shown that we may have nailed down the problem with the file transfer, but until additional testing shows that we can reliably do this over the radio on the buoy, no changes should be made after the can is closed.

Some pCO2 specific thoughts:

I know it's been this way for a long time (forever?), but why are the pCO2 constants contained in the oasis.cfg file? This is the only instrument-specific information contained in the oasis.cfg file (other than driver info); what would we need to do to bring them out? Ideally we would have them on shore for post processing, but if they need to absolutely be on the buoy, can they be in a separate file (pCO2.cfg maybe)? Maybe have a line in the oasis.cfg that would point to the pCO2 config file? With this information no longer in the oasis.cfg file, there is not the same danger of hanging the entire buoy if the file becomes corrupt in the transfer. It will also allow us to change the pCO2 constants if the instrument ever needs to be swapped in the field. I'm sure this has been considered before... I've either forgotten the answer, or wasn't in on the discussion. Apologies if I'm digging up old info.

Thanks,  
Paul

And from Bob:

On another note, if we can \*ever\* get up to speed with the most current checked-in code, (that is, if we can switch to the new radios and wire protocol), it's worth noting that this new code also has some line editing features. They've turned out to be extremely useful for the respirometers, which are based on Oasis and where the line editor commands originated. Allows you to add, delete, and comment-out lines in OASIS.CFG in situ, which greatly reduces the need for transferring files.

-Bob

## OASIS Data Flow

This page last changed on Jun 14, 2011 by [kgomes](#).

### OASIS Hourly Raw Data

These files are updated hourly and are the raw uuencoded data from the connection sessions to the mooring. Each file (that starts with 'm1.' as the filename) is the hourly download and includes all the data from all the instruments.

<http://dods.mbari.org/data/oasis/raw>

### Raw Data by Instrument

Notes:

The SSDS URLs return the raw data for each instrument using the parameters specified in the URL. For instructions on the parameters to change to get different/more data see <http://new-ssds.mbari.org/servlet/GetOriginalDataServlet>

Instru	SSDS ID	Daily	Whole Deploy	SSDS URL	NetCDF	OPeNDAP	Ten Minute NetCDF	Ten Minute OPeNDAP	Hourly NetCDF	Hourly OPeNDAP	Last 7 Days Plots	Full Deployment Plots
aanderaa1025	1025	<a href="#">Daily Files</a>	<a href="#">Deployment</a>	<a href="#">SSDS</a>	<a href="#">Download NetCDF</a>	<a href="#">OPeNDAP Form</a>					<a href="#">Last 7</a>	<a href="#">Deployment</a>
adcp	1417	<a href="#">Daily Files</a>	<a href="#">Deployment</a>	<a href="#">SSDS</a>	<a href="#">Download NetCDF</a>	<a href="#">OPeNDAP Form</a>	<a href="#">Ten Minute NetCDF</a>	<a href="#">Ten Minute OPeNDAP</a>	<a href="#">Hourly NetCDF</a>	<a href="#">Hourly OPeNDAP</a>		
emeter		<a href="#">Daily Files</a>										
error		<a href="#">Daily Files</a>										
fluor		<a href="#">Daily Files</a>										
gps		<a href="#">Daily Files</a>										
gpsclock		<a href="#">Daily Files</a>										
hr2		<a href="#">Daily Files</a>										
hr3		<a href="#">Daily Files</a>										
hrh		<a href="#">Daily Files</a>										
hs2		<a href="#">Daily Files</a>										
hyperOCR		<a href="#">Daily Files</a>										
imhs2		<a href="#">Daily Files</a>										

impod02	<a href="#">Daily Files</a>				
impod03	<a href="#">Daily Files</a>				
impod04	<a href="#">Daily Files</a>				
impod05	<a href="#">Daily Files</a>				
impod06	<a href="#">Daily Files</a>				
impod07	<a href="#">Daily Files</a>				
impod08	<a href="#">Daily Files</a>				
impod09	<a href="#">Daily Files</a>				
impod10	<a href="#">Daily Files</a>				
impod11	<a href="#">Daily Files</a>				
isus	<a href="#">Daily Files</a>				
lwr	<a href="#">Daily Files</a>				
metsys	<a href="#">Daily Files</a>				
microcat	<a href="#">Daily Files</a>				
microcat2	<a href="#">Daily Files</a>				
microcat3	<a href="#">Daily Files</a>				
netcdf	<a href="#">Daily Files</a>				
o3gf	<a href="#">Daily Files</a>				
oasis	<a href="#">Daily Files</a>				
pco2	<a href="#">Daily Files</a>				
swr	<a href="#">Daily Files</a>				

tstring		<a href="#">Daily Files</a>				
---------	--	-----------------------------	--	--	--	--

**M2 (Hybrid)**

[http://dods.mbari.org/data/ssdsdata/deployments/m2/current\\_qcPlots.html](http://dods.mbari.org/data/ssdsdata/deployments/m2/current_qcPlots.html)

## OASIS Radio Upgrade

---

This page last changed on Jun 24, 2011 by [kgomes](#).

The goal of this work is to get the radios upgraded so we are in compliance with FCC regulation.

### Participants

- Bob Herlien
- Rich Schramm
- Craig Okuda

### Meeting Notes

- [April 27th, 2010](#)
- [June 24th, 2011](#)

### Documentation



## April 27th, 2010

This page last changed on Apr 28, 2010 by [kgomes](#).

### Goal

The goal of this meeting was to recapture the state of this work and plan tasks and timelines to get this work accomplished.

### Attendees

- Bob Herlien
- Rich Schramm
- Craig Okuda
- Kevin Gomes

### Timeline Planning

We first worked a backwards timeline from the next OASIS Mooring turn.

- The next OASIS Turn is M1 which is in October 2010 (let's say October 1).
- We want one week of on the dock testing (starts September 24th).
- There should be 3 weeks of closed can testing (starts September 1st).
- This means code freeze is September 1 and this is the decision point about go/no go.
- There should be 30 days of testing over the new radios (start August 1st).
- There should be 2 weeks of integration and test time (starts on July 19th).
- Bob's code changes should take 1 week (starts July 7th, backed up another 3 days for OASIS2SSDS work).
- Rich's code changes should take 1 week (starts July 7th, backed up another 3 days for OASIS2SSDS work).
- OASIS2SSDS Code changes 3 days but should be done after Bob and Rich's work (starts July 12th).
- Craig needs one week to setup things for Bob and Rich (starts June 30th).
- Craig needs two weeks for infrastructure (during Bob and Rich coding so starts July 7th).

Now that said, the beginning of this work falls around the 4th of July and does not allow for any slippage. That being the case, I propose this work start on June 1, to allow for holidays, vacations, etc. This results in the tasks and schedule in the following section.

### Tasks and Schedule

Task	Who	Start	End
1. Hardware a. Package Radios ( <b>Mission Critical</b> ) b. Licensing c. Toro Hardware ( <b>Mission Critical</b> ) d. Test Setup ( <b>Mission Critical</b> )	Craig	June 7th	• June 11th (for HW for Rich/Bob)    • July 9th (rest)
1. Mooring Controller a. Check termio and if null passed, drop UUEncode and move to binary	Bob	June 14	June 21

transfer (may entail using framing characters to manage sync) <b>(Mission          Critical)</b> b. Implement Startup Delay <b>(Mission          Critical)</b> c. Implement 8 Driver parms d. Prompt Change for <i>getData</i> <b>(Mission          Critical)</b> e. Fix Bug for Dir Command <b>(Mission          Critical)</b> f. See if we can fix CR/ LF problem in config files <b>(Mission          Critical)</b>			
1. Shore Code a. Implement <i>getData</i> loop until 'done' is seen <b>(Mission              Critical)</b> b. Make sure we are relying on missing record recovery for dropped data <b>(Mission              Critical)</b>	Rich	June 14	June 21
BREAK FOR VACATIONS	Everyone	June 21st	July 16th
Integration and Test	Bob, Rich, Craig, Kevin	July 19th	July 30th
OASIS 2 SSDS Work	Bob, Kevin	July 28th	July 30th
30 Day Testing	Bob, Rich, Craig, Kevin	August 2nd	September 1st
Code Freeze, Go/No Go		September 1st	
Close Can Testing		September 1st	September 24th
1 Week Dock Test		September 24th	October 1

**Other**

- Craig will probably need Paul's help on Toro
- May need money and not sure what the status of the budget for this work is.

## June 24th, 2011

---

This page last changed on Jun 24, 2011 by [kgomes](#).

- Target M1
- HW
  - Toro
    - mount antenna
  - OASIS
    - package radios
    - we should build 2 (have OSG build 1)
- Controller
  - test on O3
  - tag build and deploy on O3 can
- OASIS2SSDS
  - bob to make changes
  - rich and Kevin to deploy and test
- need OSG to get O3 can pulled together

## OASIS Release Notes

---

This page last changed on Nov 30, 2010 by [kgomes](#).

From Kent Headley

```
#
# Cawthron TASCAM OASIS3
# Release Notes
# 28 Oct 2010
#
```

```
#####
# ESD Handling Precautions
#####
```

All of the OASIS3 hardware requires proper ESD handling at all times.  
The Persistor cards are particularly sensitive to static discharge.

```
#####
# Known Issue: Issuing "reset pico" from radio console
#####
```

If connected to an OASIS console through a radio link,  
issuing the "reset pico" command to restart OASIS will  
break the radio link. It will not be possible to restore  
contact until the hardware watchdog timer (WDT) expires.  
It takes about 30 minutes for the timer to expire, which  
restarts OASIS and runs the radio driver again.

The next release of code (still in testing), implements a warning message to prompt the  
operator before disconnecting radio.

```
#####
# Known Issue: Missing line feeds in OASIS.CFG cause
# OASIS app to fail on reboot, requiring hardware recovery
#####
```

An OASIS configuration file (OASIS.CFG) containing lines not terminated with a  
line feed character (0xA) will cause OASIS to fail on the next reboot.  
If this occurs, OASIS loads with a minimal set of drivers (UserIF, radio, OASIS).  
To recover, it is necessary to correct and re-install the file.

This condition may occur in one of several ways:

- text editors may be configured to terminate lines with CR (0x0D) only
- terminal programs (e.g. HyperTerm) may remove line feeds if they they  
are configured to disable sending line feeds with line ends

Lines may be terminated with CRLF or LF, but not CR only.

To prevent this, the following practices are strongly recommended:

- Review the configuration file in a hex editor before attempting to upload it.  
Ensure that it has CRLF (0xD 0xA) line terminators.  
Multiple CRLF pairs or LF characters are permitted, but each line must  
terminate in a line feed (0xA).

In Notepad editor, files will appear to be on one long line and/or some lines will  
run together if the line feeds are missing. This is not a definitive test, however.  
XVI32 works well, and is available for free at

<http://www.chmaas.handshake.de/delphi/freeware/xvi32/xvi32.htm>

- **\*ALWAYS\*** upload to a temporary file name (e.g. foo.cfg) and check it the file before using it  
Transferring the file using HyperTerm can cause this problem regardless of the editor. Terminal

programs must be configured to enable sending line ends with line feeds.

- Use the PicoDOS type command to display the file on the OASIS console. If the lines all run together, the file must be fixed and/or resent. If the file looks OK on the console (i.e., it does not appear to be one continuous line), it is OK to rename it to oasis.cfg and reboot.

- The recommended method for transferring files is to use Motocross "Send Binary File" and the PicoDOS or OASIS "capture" command:

- issue the capture command from OASIS prompt (preferred) or PicoDOS prompt.

- use "Transfer>SendBinaryFile" from the Motocross menu and select the file to send (remember to use a temporary file name)

- issue Motocross "Send Break" command to end the transfer (CTRL-C may also work)

It is preferred to DISABLE line feeds when using Motocross; transfers work correctly and disabling prevents double prompts.

Not all versions of Motocross include the required "Transfer>SendBinaryFile" menu item. Version 2.32 has it.

Motocross does not support Y-Modem transfer.

- It is possible to upload OASIS.CFG at the OASIS prompt or at the PicoDOS prompt. The following notes apply:

Uploading using Hyperterm works OK from OASIS> prompt if the "Send Line ends with Line Feeds" is ENABLED. You may later want to disable it to prevent double OASIS prompts.

Uploading using Hyperterm works OK from PicoDOS C:\> prompt if the "Send Line ends with Line Feeds" is DISABLED. It will work OK if ENABLED, but will cause double OASIS prompts.

It is possible to upload using Hyperterm from the PicoDOS prompt with a 'yr' command. See note above on using reset pico via radio console.

##### Summary #####

- use dumb editors

- check line ends (using a hex editor) before sending

- use Motocross + capture from OASIS prompt

- DISABLE "send line ends with line feeds" if using Motocross

- ENABLE "send line feeds with line ends" if using HyperTerm

- transfer to a temp file name

- check line ends (type test) after sending

#####

This page last changed on May 26, 2009 by [kgomes](#).

This machine was purchased to host several collaboration tools for internal and external use for MBARI. It was originally setup with Fedora Core 5, but needed to be upgraded to Red Hat Enterprise Linux (RHEL) for I.S. support, backups, etc. The specifications of the machine are:

1. [HP Proliant DL360 G5 2.33GHz](#)
2. Xeon 5000 series processor
3. 2048 RAM
4. 2 x 72 GB Hard drives

Notes on upgrade of Fedora Core 5 to RHEL:

## Overo Air Setup Use on Mac

---

This page last changed on Jan 29, 2010 by [kgomes](#).

As a learning exercise and to evaluate the OMAP chip from TI and its possibilities for MBARI, I purchased the following things from Gumstix:

1. [Overo Air COM](#)
2. [Chestnut 43 Expansion Board](#)
3. [3ft - mini-B to standard-A USB cable](#)
4. [3ft - USB cable](#)
5. [LG 4.3" LCD panel with resistive touchscreen overlay](#)
6. [5V Power Adapter](#)
7. [2 Antennas for Wireless](#)
8. [Spacers](#)
9. [8GB uSD Card](#)

There is really good documentation for all this at <http://www.gumstix.net>, but most of it was centered around a linux machine as the computer you were using to connect to the Chestnut board. So for the Mac, it took a few extra steps. The Chestnut board already had an FTDI chip that converted USB to RS-232. For linux and Windows, when you plug in the Chestnut, it automatically recognizes it and you get another serial port that you can connect to. Not so for the Mac ... you need to install the FTDI driver first. I downloaded the driver from here:

<http://www.ftdichip.com/Drivers/VCP.htm>

by clicking on the 2.2.14 link next to the OS X row that contained the FT232R which then downloaded a disk image with a driver installer. Just run the installer like all other Mac installations and the driver is installed. I did this before plugging in any hardware.

After installing the driver, I mounted the Overo Air COM board on the Chestnut 43 with the 4 standoffs. Then using the mini-B to standard-A cable, I connected the port labeled "console" on the Chestnut to my Mac USB port. Nothing really seems to happen, but you should now have a virtual serial port for the Chestnut board.

For the Mac, I decided to download MacWise as a terminal emulator to use to connect via the new virtual serial port. I downloaded the software from here:

<http://www.macwise.com/>

And installed it like any other Mac software. I started up the MacWise and then using the menus, I select the serial port for the Chestnut 43. On my machine that was done by selecting: Settings->Serial Port->usbserial-A9006R0V. I set the communication settings to 115200, No flow control. Then I opened up a connection by selecting Connection->Open Connection. Nothing seems to happen, but if you then plug the 5V power adapter into the board, you should see the boot sequence start. It takes quite a bit of time for the Angstrom kernel to start up (like several minutes). Eventually, the login prompt will come up and you can login as root (no password).

After I logged in a played around for a bit, I issued the shutdown command and then powered off the board and unplugged it from my mac. I connected the LCD screen via the video instructions on <http://www.gumstix.com> and added the two wireless antennas. I then plugged the Chestnut back into my Mac, established a connection through MacWise and then powered up. When I saw the "Hit any key to stop autoboot:" message, I hit the space bar.



## Precision pH Sensor

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This page last changed on Sep 24, 2009 by [kgomes](#).

Ocean Acidification Instruments / Studies such as FOCE require a precision pH sensor capable of operating up to full ocean depth (4000m).

The Seabird SBE 18-I is presently used. The problems found on FOCE and BRS:

1. The housing leaks
2. The sensor rails possibly due to physical placement near motors and either does not recover or takes 20 to 30 minutes to recover.
3. Seawater diffuses into the KCL electrolyte resulting in an offset over time.

Notes from Thom on possible solutions:

1. Improve the housing design
2. Redesign the sensor electronics and improve the grounding and isolation. Provide an isolated digitized output.
3. (Possible Innovative idea) Use 'standardized' Seawater as the electrolyte to mitigate affects of prolonged exposure to seawater. Preliminary reading about the chemistry of the sensor and a brief discussion with Ed Peltzer last wee (7/31) seemed to indicate this approach might work.
- 4.

## Proposals 2009

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This page last changed on Sep 24, 2009 by [kgomes](#).

Canyon Dynamics, Charlie Paull

Replacement for STED's

16 July 2008 Meeting with [Charlie Paull](#), [Brett Hobson](#), [Craig Okuda](#), [Larry Bird](#), [Mark Talkovic](#), others

### Requirements:

1. Phone Home - Owner: Craig Okuda
  - a. Site is 3km from MBARI.
2. Measure and Log time, displacement and velocity. Owner: Thom Maughan
  - a. Battery Power - 1+ year deployment
  - b. Displacement and Velocity measurement
  - c. Data Logging
  - d. Real Time Clock
  - e. Radio Activation
  - f. Release Activation
  - g.
3. Release Mechanism
4. Acoustic location (Homer)

This page last changed on Sep 24, 2009 by [kgomes](#).

### Pressure Tolerant Electronics Database

----

#### Known to Work

##### Passives

- Capacitors
- Resistors
- Inductors

##### Semiconductors

- Microprocessors

##### Oscillators

- 

##### OptoElectronics

- LED

##### ElectroMechanical

- Relays
  - Motors
- 

#### Known to Fail

##### Passives

- Capacitors
- Resistors
- Inductors

##### Semiconductors

- Microprocessors

##### Oscillators

- 

##### OptoElectronics

- LED

##### ElectroMechanical

- Relays
- Motors

## Qt

---

This page last changed on May 09, 2011 by [kgomes](#).

1. [Web Page](#)

## QTKit Integration

This page last changed on Jul 14, 2010 by [kgomes](#).

### Goal

The goal of this work was to integrate the QTKit Framework into Java so that the VARS application could access video sources for frame capture. This was necessary as Apple discontinued Quicktime for Java (that was nice of them) as well as the Java-Cocoa bridge and VARS thus won't work in OS X 10.6.

### Background

First let me give you a listing of resources that I found helpful during this work:

1. If you are unfamiliar with Mac OS X architecture, check out [Apple's Technology Overview](#)
2. For a quick primer on Objective-C look at [Apple's Objective-C Primer](#) or get a good [book](#)
3. For an overview of the Cocoa Framework look at [Cocoa Fundamentals Guide](#)
4. For information about the QuickTime Kit Framework, look at [QTKit Application Tutorial](#)
5. Then for programming information for QT Kit is available in the [QTKit Application Programming Guide](#)
6. For JNI Development, I used the following resources:
  - a. Sun's [Book on JNI\(PDF\)](#) was very helpful for background on how JNI works with C (does not have any Cocoa/OS X information however).
  - b. The [JNI Development on Mac OS X](#) page is a great resource in seeing how JNI works with some of the OS X Objective-C frameworks.
  - c. If you start up XCode and create a new project and tell it to create a JNI library, it will create an example project for accessing the OS X address book through a Java GUI. I found this to be key in understanding how the JNI-Objective-C bridge works.
  - d. Finally, the [Java Native Foundation Functions Reference](#) was important in seeing what functions could be called on the Java Native Foundation framework in OS X.



### Bailed on Rococoa

Originally, we started to look at the [Rococoa](#) project. While it had some capability of creating Java Objects that were representations (proxies) for Objective-C objects, it was more than what we really needed, was complicated, and did not have good support of QTKit. We worked at getting that to operate correctly, but it was seen as a hassle that would be difficult to maintain. Since the model seemed to be more of just being able to call functionality in the Cocoa/QTKit frameworks, JNI seemed to be a more logical and straightforward way to do things. We abandoned the Rococoa stuff and went straight to JNI.

### Getting it to work and how to develop



### requirements

You will need to have a Mac running 10.6 with some sort of video capture device (like built in iSight) to make this work

1. Check out the qtimagesnap project from SVN.
2. Start up XCode
3. Open up the Xcode project in src/xcode
4. Start up Eclipse
5. Import an existing Java project from the base project directory

## Rachel Carson

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This page last changed on Dec 30, 2012 by [kgomes](#).

Some documentation for Supporting the Rachel Carson

[Vorne Alphanumeric Display](#)

## Vorne Alphanumeric Display

This page last changed on Dec 30, 2012 by [kgomes](#).

Rev 1.0 07-Mar-2012 - r.schramm

Both ships have an LED alphanumeric display in the ROV Control Room for displaying system time (GMT) along with ROV Depth and Position. Note that sometimes the Vorne is alternately referred to as the 'Delta Display'



The specific item is:

Vorne Industries, Inc. 1145 Industrial Dr. Itasca, IL 60143 [www.vorne.com](http://www.vorne.com)

Model 2180-SB-120 4-line alphanumeric display, serial buffer, 120volts.

Replacement cost is \$836 in 2/2012 dollars.

<http://www.vorne.com/message-displays-2100ser.htm>

We also purchased a 3u filler panel from BlackBox for rack-mounting the display. [A drawing for the cut-out is here.](#) Added a generic A/C switch from Potters Electronics.

## Hardware Setup

The Vorne display must be configured once before use (configuration is stored in on-board flash memory). The manual describes what to do to navigate the menus in Section 3. The manual is attached to this confluence page as a pdf (see 'Attachments Tab' above). **Save yourself a headache...BEFORE READING THE MANUAL...** Section 3 is worthwhile, ignore all of Section 4 - SCRIPTS. We use vt102 terminal mode so **none of section 4 applies to our configuration.**

- To access the setup menus, you must first attach the setup jumper.. Highly recommend a single-pole switch (as shown in Manual Page 8 Fig 5.) between the ISO-GND and SETUP Terminals. Using the switch makes it easy to jump back and forth between setup and operating mode as your familiarizing/testing.
- If manual is available; setup mode, menus and choices are described in Section 3. But the bottom line is: In Setup Mode, use F1&F2 to move between Menus/SubMenus and Choices. Use F3 as the Enter/Select button. For our use, we can just 'Restore System Defaults' and then enter the differences.
- Differences from factory defaults are:
  1. In the SerialPortSetup menu: BAUDRATE=9600\*
  2. In the GeneralSetup menu: BOOTMESSAGE=OFF, TERMINALMODE=VT102, VERTICALSCROLL=NO

Make sure to navigate to 'Exit' between each submenu to get back to the top-level.

- Once these are changed, removing the jumper (open the switch) and you will have a few seconds to press F3 again to cause the unit to flash the changes. When you done, permanently remove the setup jumper/switch.

- **IMPORTANT:** The RS232 connection to the DB9 must have pin7 jumper'd to pin 9 in the backshell (makes no sense to me) for the unit to receive characters.

## Software Setup

The display is driven by a single serial line from the Navproc. (Typically Board1 Port6) The Navproc is configured in its coreNav.wf or coreNav.rc  to execute task vorneTask() at startup. (see cfg file in /usr/bin/tiburon2/navproc)

vorneTask() takes standard digiports input board and port numbers as arguments. The navproc coreNav.cfg file must have the serialPort service configured to the correct 9600-8-1-none etc at the top of the config file, and the matching arguments made for the board/port in the execute tasks portion of the file below... the relevant lines for WesternFlyer are:

```
serialPort 1,6 9600 8 1 None CR/LF # Delta Display (Vorne)
....
execute POST vorneTask 1 6 None None None
```

**\*\* Any changes made to the coreNav config file will only take effect the next time the navproc code is started.**

## Software Internals

Refer to /usr/tiburon/src/vorne.c The vorneTask() is the main entry point and takes standard digiports input board and port numbers as arguments. The basic flow is that the vorneTask() initializes the serial port specified in its argument list and then starts datamanger item consumers for ROV Depth, Lat and Lon items. It one-time-only clears all of the character positions of the display using VT102 Escape sequence described below and <space> characters. Then control goes into a forever loop, reading those dm items, formatting them for output via serial port, and then sleeping for .9 seconds.

Some points to note....

1. depth items is produced from pressure and ships lat, using standard algorithms by another navproc task (depthCalcTask()).
2. Rov Lat/Lon is likewise produced by the navproc rovPositionTask() from winfrog serial data. The specific datamanger item names consumed are defined in dvecsIntfc.h. **\*\*\*NOTE THIS NEEDS TO BE RESOLVED FOR MIGRATION TO Rachel Carson... Vorne did not exist on Pt.Lobos/Ventana and the items names are different ! \*\*\***
3. The vorneTask() uses the old VT102 ascii terminal command syntax to position the cursor. <esc>[1,1H is the string command to move the cursor to row1,column1. Then <vertical tab> (0x0B) is used to move relative for text appearing on line, 2,3 and 4.
4. If any garbage exists/gets written to character cells not normally written to during operation (ie in <space> positions beyond end of line, it will remain there. The vorneTask makes an attempt to clear all character position by writing <space> to all lines/cells on startup, but not after that.
5. The vorne display has significant lag in the time it takes to render the screen.... the serial write is practically immediate; the internal rendering of all the character positions takes perhaps a half-a-second or more.



## Reliable High Precision pH Sensor

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This page last changed on Mar 31, 2011 by [tm](#).

Links

[HRPH Sensors for May 2009 Deployment](#)

[HRpH Sensors for May 2010 Deployment](#)

[HRpH Sensors for Apr 2011 Deployment](#)

[HRPH Tech Transfer Package For Heron Island](#) - tech transfer package was prepared but not used, UQ Heron Island decided to have Nido Instruments do the build instead

### HRPH Project Background

Ocean Acidification Instruments / Studies such as FOCE require a precision pH sensor capable of operating up to full ocean depth (4000m).

The Seabird SBE 18-I is presently used. The pH sensor problems found on FOCE and BRS after talking with Ed Peltzer, Bob Herlein and Craig Okuda.

1. The housing leaks.
2. The sensor rails possibly due to physical placement near motors and either does not recover or takes 20 to 30 minutes to recover.
3. Seawater diffuses into the KCL electrolyte resulting in an offset over time. The pH sensor also exhibits slow response when the reference KCL has been infiltrated with seawater.

Notes from Thom on possible solutions:

1. Improve the housing design. Also look at documenting a procedure to seal and test the existing housing reliably.
2. Redesign the sensor electronics and improve the grounding and isolation. Provide an isolated digitized output.
3. (Possible Innovative idea) Use 'standardized' Seawater as the electrolyte to mitigate affects of prolonged exposure to seawater. Preliminary reading about the chemistry of the sensor and a brief discussion with Ed Peltzer last wee (7/31) seemed to indicate this approach might work.

Notes on FOCE system issues found during pH testing

1. Mink-10 connector on FOCE can is not straight thru wired to DJ's Mars simulator can
2. Motor back EMF problem due to 24v motor being operated at 24v. EMF problem is there at 2000 rpm and very pronounced at 3000 rpm. The result is current slewing 4A to 8A at 3000 rpm. Manufacturer recommends operating at 48v however the EZ servo upper limit is 42v.
3. There is a blown channel (#3) on the A/D card in the PC104 stack. The reading is always 4.999v.
4. Loose connectors to the A/D card in the PC104 stack. Wiggling this connector causes the pH readings to rail.
5. Hardisk cable rubbing on a sharp edge caused a hard disk failure
6. Ethernet connection is sometimes flaky
7. Loose power connection to PC104 relay board - screw terminals need tightening
8. FOCE pressure housing is tied to Ground through the metal chassis
9. 24v Fuse is 8A, should be at least 10 to 12 slo blow.
10. FOCE vibrates noticeably when operated just below the surface - this vibration may have been interacting with the A/D connector.

Modifications to address FOCE system issues

1. No modification for Mink-10 connector as the ODI connector defines the MARS interface. Team educated to always use the test cable. Note: as a lessons learned, perhaps the use case of bench testing should be a requirement and the Mink-10 connector pinouts should be the same to enable use of a straight thru cable.
2. 36v power supply added to drive the motor and give headroom for operation at 2000 rpm (max spec'd speed)
3. Replaced A/D card fixed the blown channel #3 problem
4. Replaced the pins in the connector for a more positive contact
5. Replaced harddisk mounting bracket and removed sharp edges. Also re-routed harddisk cable away from the Ethernet.
6. Replaced ethernet connector with a factory connector from Lippert.

7. Tightened screw terminals.
8. Removed chassis from pressure housing lid - used mylar to insulate chassis from pressure housing lid.
9. FUSE replaced with 10A.
- 10.

## **Design of sensor electronics with improved grounding and isolation**

1. Requirements
  - a. Meet or exceed Seabird18 for accuracy and performance without being susceptible to railing or errors when operated with the full range of the FOCE motors.
  - b. Match electrical spec of Seabird 18 as used by FOCE
    - i. Power: 6-24v dc, 7mA. (Measured at 14mA)
    - ii. Analog signal output: 0 to +5v
2. Isolation - isolate analog front end from connection to FOCE (break the ground loop)
  - a. Option A: is to use an isolated power supply and an analog isolator
  - b. Option B: isolated power supply, A/D converter, microprocessor for signal processing / correction, digitized ph sent RS232 or RS485
  - c. Option C: same as option B, but convert pH back to analog. This option will be used for the engineering test if we don't have the resource to write a SIAM serial driver.
3. Best in class analog front end -
  - a. pH probes are typically 40M to 400M ohms impedance and a proper front end should present 10x or more of that impedance to properly read the sensor.
  - b. Key factors in opamp selection are:
    - i. super high input impedance
    - ii. super low bias current
    - iii. offset voltage drift / temperature stability
    - iv. availability
    - v. power consumption
  - c. Seabird18 uses a single AD549 op amp, BRS team uses LM6001.
    - i. INA116 is an instrumentation amp with 3 fA bias and 0.1 Peta ohm input impedance (10 to the 14 - yikes)
    - ii. AD549
    - iii. AD648
    - iv.
4. Improve analog front end grounding
  - a. Several articles on high resolution pH show grounding the analog front end to the solution being measured

## **Hardware Design**

### **Analog Front End Board**

1. pH probe interface with ultra low bias Instrumentation amplifier used (INA116)
2. no filter capacitors in the high impedance signal chain to improve recovery times.
3. Next rev
  - a. add linear regulators for power filtering to the front end board.

### **pH Meter Board**

1. MSP430F2618 / 169 chosen for software reuse from Valve Pack Controller project
2. ADS1251 24bit converter (19 ENOB) chosen for it's precision and software simplicity plus the 4th order 50/60 Hz notch filter and low power consumption
3. ADM1411 digital isolator chosen for the microprocessor to A/D converter interface. Also provides 3.3v to 5.0v level shift
4. 12v input, isolated dual output (+/- 15v) DC/DC converter - VInfinity chosen for it's lower noise figure.
5. LM337 / LM317 chose for adjustable linear regulators for the sensitive analog section
6. MAX3222 for RS232 interface
7. MAX3483 for RS485

8. MSP430F169 12-bit D/A converter chosen for analog output (temporary) option. With over-sampling and proper filtering it is believed we can get 15 to 16 bit accuracy. 2nd order Sallen-Key filter designed for approx. 50 Hz cutoff frequency.
  - a. <http://sim.okawa-denshi.jp/en/OPstool.php&nbsp;&nbsp; filter> calculator was used and standard resistor (39K) and cap parts (0.1uF) selected.
  - b. Cutoff Freq: 57.7 Hz R1=39K, R2=39K, C1=0.1uF, C2=0.05uF
  - c. Q = 0.707
9. 29M2f08 Micron NAND flash
10. AD8609 Quad OpAmp for bipolar to unipolar translation, Reference buffering, Analog output and DAC filtering, and 2 channel vibration sensor input
11. AD680 2.5000v Reference
- 12.

#### Assembly Notes

1. Controller Board
  - a. Conformal coating
  - b. JTAG connector
  - c. Front End board connector
2. Front End Board
  - a. pH electrode attachment
3. Pressure Housing Assembly
  - a. Board mounting
  - b. 3 wire connection
    - i. White = Ground
    - ii. Green = +12v
    - iii. Black = pH Analog out or TX data Digital out
  - c. Testing
  - d. 55 O-Ring grease
  - e. Aqua Lube
4. Testing

Note: the DGH can (see Dale Graves for info) converts the pH sensor from analog to digital and sends the digital by serial bit stream (RS232 or RS485).

Oct. 3rd Test

Pin 1 - white - GND

Pin 2 - black - pH

Pin 3 - green - +12v

With 12.0v applied, the Seabird pH instrument pulls 12mA (as indicated by the Tenma power supply)

HRPH For FOCE

1. 2 Development boards, 6 deployment boards
2. Serial protocol definition / implementation / test
  - a. Request / Response protocol
  - b. Sampling configurability
  - c. study DGH protocol, decide between DGH and proprietary
  - d. implement test harness (C program)
  - e. implement and test the protocol
  - f. document the protocol
3. Finish Flash data logging driver
  - a. circular
  - b. upload
  - c. erase (clear)
4. 6 conductor, 4 Wire connector modification for the digital interface
  - a. RS232 (RX,TX), GND, +12v
5. Build Test and Qualify 6 new probes
  - a. Housing selection from Peter Walz and Ed Peltzer
  - b. New o-rings
  - c. Pressure test (Nalgene bottle or attaced to the ROV during a dive)
6. Calibration

- a. Modify the Calibration software if needed.
- b. Run Ed's calibration routine

FOCE - Deep Ocean Wireless Power and Data Transfer (Discussed with Bill Kirkwood / Mike Risi)

1. Inductive Power Transmitter and Receiver (2W for HRpH, 10W to cover other instruments like CTD)
2. 38400 Baud serial data comms (RF or Optical)
3. 6 conductor, 5 wire connector pinout
4. Software
  - a. PUCK enabled
5. Packaging and Mechanical

## Protocol Definition

The DGH D5000 series products use a simple command and response protocol. A module must be interrogated by a host computer to obtain data. A module will never initiate a command sequence in order to prevent communications collisions.

A command is initiated with a command prompt, may be a dollar sign (\$) or pound sign (#). Following the prompt a single address character must be transmitted. Each module on a communications bus must be setup with a unique address. The address is followed by a two character command. Every command is terminated with a carriage return.

The module response begins with a response prompt, which is an asterisk \* followed by the necessary data. Every response is terminated with a carriage return. Linefeeds after the carriage return are user selectable. See the table below for typical commands and their respective response messages.

<b>DGH D5000 Series Command Set</b>			
Command Definition	Typical Command	Typical Response	
<b>RB</b> - Read Block of Data	\$1RB	*+00072.00 *+00200.00 *+00125.76 *+00347.95	
<b>RD</b> - Read Data	\$1RD	*+00072.00	IMPLEMENTED
<b>REA</b> - Read Extended Address	\$1REA	*3031	
<b>RID</b> - Read Identification	\$1RID	* BOILER	
<b>RMN</b> - Read Display Minimum	\$1RMN	*-00100.00	
<b>RMX</b> - Read Display Maximum	\$1RMX	*+00025.00	
<b>RS</b> - Read Setup	\$1RS	*31020142	
<b>RZ</b> - Read Zero Register	\$1RZ	*+00000.00	
<b>WE</b> - Write Enable	\$1WE	*	

<b>Write Protected Commands</b>			
<b>CZ</b> - Clear Zero Register	\$1CZ	*	
<b>ID</b> - Write Identification	\$1ID BOILER	*	
<b>RR</b> - Remote Reset	\$1RR	*	
<b>SU</b> - Setup Message	\$1SU31070142	*	
<b>TS</b> - Trim Span	\$1TS+00745.00	*	
<b>TZ</b> - Trim Zero	\$1TZ+00000.00	*	
<b>WEA</b> - Write Extended Address	\$1WEA3031	*	
<b>WMN</b> - Set Minimum Display Value	\$1WMN-00200.00	*	
<b>WMX</b> - Set Maximum Display Value	\$1WMX+00760.00	*	

## HRpH Sensors for Apr 2011 Deployment

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This page last changed on Mar 31, 2011 by [tm](#).

FOCE deployment planned for Apr 4, 2011. Delayed due to valve controller integration challenges on CO2 enriched seawater box. Planned for first week of May 2011.

9 HRpH sensors were built - 6 optimized range for the FOCE frame (4 inside, 2 outside) and 1 full range for the ESW box. Preliminary assignments:

pH1 1724 180358A - Optimized, 3.5 - 11.5, Range HRpH

pH2 1735 180512A - Optimized, 3.5 - 11.5, Range HRpH

pH3 1722 180513A - Optimized, 3.5 - 11.5, Range HRpH

pH4 1749 180506A - Optimized, 3.5 - 11.5, Range HRpH

pH5 1734 180511A - Optimized, 3.5 - 11.5, Range HRpH

pH6 1751 180508A - Optimized, 3.5 - 11.5, Range HRpH

ESW (pH7) 1753 180346A - Full, 0 - 14, Range HRpH

Spare1 1723 180451A - Optimized, 3.5 - 11.5, Range HRpH

Spare2 1790 180465A - Full, 0 - 14, Range

Calibration Spreadsheet

## HRPH Sensors for May 2009 Deployment

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This page last changed on Sep 04, 2009 by [tm](#).

### Pressure Test Data 12 May 2009

- 180451
  - ISI: 1723
  - Weight before 763.9 gm
  - Weight after 767.9 gm
  - Failed power up test - current was 80mA at 12v (should be around 67 idle and 72mA when streaming pH)
  - 180451 was opened and a "thimble full" of water was poured on the desk, compressed air was used to dry.
  - software updated to v1.75.00, used as a test sensor
- 180358
  - ISI: 1724
  - 794.6 gm
  - 69mA, 69mA
  - calibrated 14 May s=9.4903, o=2.7615
  - housing opened 28 May 2009, updated to v1.75.00
- 180511
  - ISI: 1734
  - Weight before 763.2 gm
  - Weight after within 1gm
  - 69 mA at 12.09v
  - calibrated 14 May s= 9.5665, o=2.7104
  - housing opened 28 May 2009, updated to v1.75.00
- 180512
  - ISI: 1735
  - 763.2 gm
  - 71mA
  - calibrated 14 May s=9.5294, o= 2.7188
  - housing opened 28 May 2009, updated to v1.75.00
- 180513
  - ISI: 1722
  - 760.6 gm
  - 69mA, 69mA (streaming)
  - calibrated s=9.4928, o=2.7783
  - housing opened 28 May 2009, updated to v1.75.00
- 180514
  - ISI: 1725
  - Weight before 760.7 gm
  - Weight after 763.5 gm
  - 72mA
  - calibrated s=9.4851, o=2.6949
  - housing opened 28 May 2009, updated to v1.75.00
- 180346
  - 1736
  - Assembled new sensor on May 29
  - Calibration shows reduced gain (about 5/9ths)
    - Verified pH meter board

**Note: FOCE Housing had a small leak forcing early termination of the May deployment.**

### Post-deployment (26 June 2009)

- 180451
  - Deployed ph #5 position on FOCE.
  - Evidence that FOCE frame and pH #5 may have hit side of boat on recovery
  - passes test and calibration
- 180358

- Deployed pH #1 position on May FOCE
- passes test and calibration
- 180511
  - out of service due to noise susceptibility problem found during test and calibration
- 180512
  - pH #1 position on May FOCE
  - passes test and calibration
- 180513
  - pH #3 position on May FOCE
  - foam blocks caused the connector pins to be bent at an angle
  - passes test and calibration
- 180514
  - pH #4 position on May FOCE
  - foam blocks caused the connector pins to be bent at an angle, though less than 513
  - passes test and calibration
- 180346
  - Not deployed

**Pre-deployment prep (Pressure Test on Ventana to 1200m for ~4 hours 19 Aug 2009 )**

- 180451
  - firmware v1.75.00
  - ISI: 1723
  - Weight before 766.2 gm, after 767.3 gm
  - calibrated 21 Aug 2009 s=?, o=?
- 180358
  - firmware v1.75.00
  - ISI: 1724
  - Weight before 764.0 gm, after 765.1 gm
  - calibrated 21 Aug 2009 s=?, o=?
- 180511
  - ISI: 1734
  - Changed electrode then taken out of service due to noise sensitivity problem
- 180512
  - ISI: 1735
  - Weight before 766.2 gm, after 767.5 gm
  - calibrated 21 Aug 2009 s=?, o= ?
- 180513
  - 6 pin Connector replaced on Aug. 17
  - ISI: 1722
  - Weight before 764.8 gm, after 766.0 gm
  - calibrated 21 Aug 2009 s=?, o= ?
- 180514
  - ISI: 1725
  - Weight before 766.4 gm, after 767.5 gm
  - calibrated 21 Aug 2009 s=?, o= ?
- 180346 (full range pH meter)
  - ISI: 1736
  - Not pressure tested (since it was not deployed)
  - calibrated 21 Aug 2009 s=?, o= ? ~



## HRpH Sensors for May 2010 Deployment

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This page last changed on Jan 18, 2011 by [tm](#).

6 HRpH sensors deployed, 1 flooded. FOCE control can blew a fuse  
FOCE can reworked with polyfuse (self resetting) and Ed trained on current draw per HRpH (73mA avg)  
so that a flooded housing could be detected and HRpH shutdown  
Flooded HRpH replaced

FOCE back in the water in June, 1 HRpH flooded, detected and shutdown in the first hour. FOCE recovered  
6+ months later for a total of 7 months. The 5 sensors that were powered continuously had minor rust on  
the stainless 316 fitting, the one that was powered down had no rust. The reference electrodes on the 5  
sensors had KCL wafers in place and looked like they could go for many more months.

Note: this page needs update with more analysis and details time permitting.

## HRPH Tech Transfer Package For Heron Island

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This page last changed on May 27, 2009 by [tm](#).

### HRpH Tech Transfer Package for Heron Island

#### Package contents

##### Software

- Design notes (power point)
- Development environment spec
- Firmware
- Tests

##### Hardware

- Schematic
- PCB Layout Gerbers

##### Assembly

- Assembly Instructions
- Swagelok modifications, drawing

##### Testing

- Instructions
- SBECal
- readph

## Reliable Wireless Power and Data Transfer Device (Easy Swap Connector)

---

This page last changed on Oct 30, 2013 by [tm](#).

5 Watt 'Low Power' WPDX v1.0

Assembly Notes

- Handoff to the very capable Jim Montgomery (20 Oct 2011)

## Medium Power WPDx v1.0

This page last changed on Nov 13, 2013 by [tm](#).

### Problem Statement for MARS use case

- Wet mate-able connectors are expensive, have limited mating cycles, and have reliability issues.
  - \* Cabled observatories have wet mate-able connectors and would benefit by having an 'easier' connection for maintenance and attach of undersea sensors and platforms by ROV manipulator.
    - MARS cabled observatory has connectors that are nearing their mating cycle limit.

### Wireless Power and Data Transfer (WPDx) Technology Solution

- Wireless power transfer, also known as inductive power transfer, allows for 'contactless' connection thru electrically insulated plastics that do not corrode in sea water and have nearly unlimited connection mating cycles.
- The MBARI deep ocean Free Ocean CO2 experiment (dpFOCE) system is a MARS cabled observatory connected platform that had the problem of frequent pH sensor maintenance and the need for a medium power solution for motor swap. This project has made the investment and demonstration of the 'easy swap' wireless power and data transfer in sea water for instruments 10 watts or less (low power). A patent has been filed on the MBARI tech.
- This proposal outlines the labor and budget for demonstrating 'medium power' easy swap connector by hardening technology developed for wireless power slip rings.

### Project Plan

- Purchase PowerbyProxi 150W wireless power and data devices, no potting, two pairs. Obtain schematics and bill of material
- Evaluate PowerbyProxi on test bench with performance metrics, measure:
  - efficiency
    - low load
    - medium load
    - full load
    - current limit
    - temperature
      - temperature rise under load
      - environmental temperature 0 (liquid) to 50 (cold performance is more important)
  - performance vs coil separation and axial offset
  - maximum load, data throughput
- Evaluate PowerbyProxi in test tank sea water (slightly more saline than Monterey Bay) using same performance criteria as bench top (air) evaluation
- Examine the schematic and bill of materials for components that are high pressure sensitive, engineer the replacement components.
- Modify one pair of PowerbyProxi keeping the other pair unmodified for comparison and spare in event of unfixable failure
- Pressure test, in and oil bath (not sea water or air), evaluate PowerbyProxi performance within the constraints of the wires passing into the pressure vessel. Static load, no mating cycle testing.
  - 500 psi increments starting at atmospheric. Look for changes in efficiency as a function of pressure. It would be good if the operating frequency of the resonant power transfer could be monitored.
- Address issues with pressure testing
- 'Shoebox' potting. Low effort proof of concept packaging. Allow for mating cycle testing in test tank and ROV. Investigate re-enterable material to allow for failure analysis.
- Duration testing in test tank (several weeks) monitoring deviations in efficiency, noise, etc. Manual mating cycle testing.

### Data Communication alternatives

- PowerbyProxi uses a MicroChip MRF... 802.11 device with claims to 1 to 2 Mbps
- A powerline modem might be a decent option:
  - Texas Instruments (<http://www.youtube.com/watch?v=lp5rp4XVkfE>) AFE031
  - Cypress CY8CPLC10
  - Maxim MAX2982 Industrial Broadband Powerline Modem

- Analog Devices ADE8167

## ROV Ventana

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This page last changed on Jan 31, 2011 by [tm](#).

This is the Support Engineering Page for the ROV Ventana

1. [Ventana Precision Control - DVL driver](#) (author Thom Maughan)
2. [Ventana ROV Control PC RHEL5 Linux Upgrade](#) (author Thom Maughan)

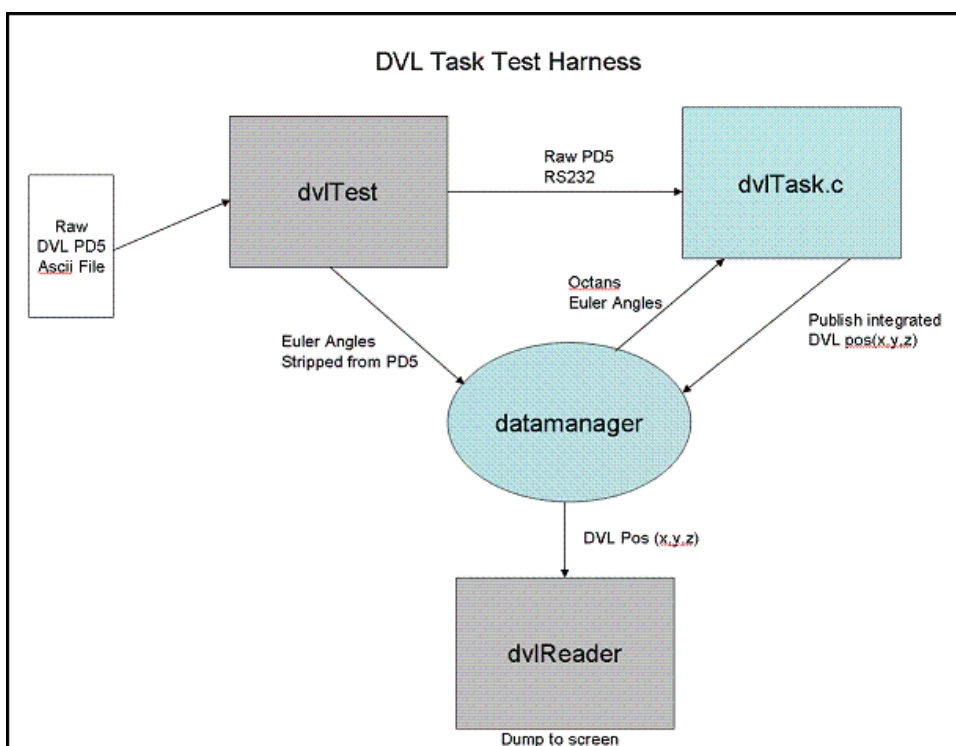
## Ventana Precision Control - DVL driver

This page last changed on Sep 24, 2009 by [kgomes](#).

### Project Requirements:

- Create a DVL driver for the Precision Control project as specified by Mike Risi (Core Eng.)
- Provide a test harness to insure data correctness and robustness
- Completion by May 19th, project number is 600034

### Block Diagram:



### Details:

Tasks: NavigationDrivers
--------------------------

- [\(tm\)](#) Setup Development Env (del)
- [\(tm\)](#) dvITaskTest - read dvl file (del)
- [\(tm\)](#) dvITaskTest - post DM data (del)
- [\(tm\)](#) dvITaskTest - dvl tx serial data (del)
- [\(tm\)](#) dvITask.c - dvl rx serial data (del)
- [\(tm\)](#) dvITask.c - read DM angle (del)
- [\(tm\)](#) dvITask.c - process dvl data (del)

- 
-  (tm) dvlTask.c - publish DVL pos to DM (del)
  -  () dvlReader - read DM dvl pos (del)
  -  dvlReader - verify output correctness (del)
  -  () listen to Mike (del)

Add Task:

- Development Environment
  - Linux RedHat RHEL 5 for development (diatom)
  - Install datamanager
    - install dir: /usr/local/dm
    - cd to /usr/local/dm/linux and type make
    - chmod a+x startDm, killDm, exercise
    - create a dm.cfg.diatom config file
  - CVS checkout PrecControl/stationkeepApp
  - Driver development in PrecControl/stationkeepApp/taskmgr/dvlTask.c
  - Runtime
    - startup datamanager (startDm)
    - run dmShow to check if datamanager is running
    - run 'app' in PrecControl/stationkeepApp - ./app 60042
    - in PrecControl/stationKeepGui/pilot\_interface, run ./wishmain pilot\_interface.tcl
      - port number needs to match stationKeepApp/app, 60042
  - Configuration
    - sk\_config - define the serial port. Port # is app specific. Port # is handed in by ark1 in sk\_config execute.
    - sk\_taskmgr is a lock file (insure 1 instance is running)
- DVL
  - RDI Navigator operating with PD5 format
- ToDo
  - create an output graph
  - testing
  - reverify file data processing



## Ventana ROV Control PC RHEL5 Linux Upgrade

---

This page last changed on Sep 24, 2009 by [kgomes](#).

Experiment to determine issues upgrading older Pentium III PC from Red Hat 7 to RHEL5

Using the 'Simulator' duplicate PC (different motherboard than on Pt. Lobos)

Using RHEL5 recovery disk and network (FTP) install.

First problem, found that not enough memory (64M) was on the mother board. Found an old memory in Don's Legacy bin (PC133 ECC).

ifconfig -a (or on windows ipconfig /all)

134.89.12.69 (Palmer) \ 255.255.254.0

Gateway: 134.89.32.1

## RV Odyssey Team

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This page last changed on Aug 04, 2011 by [kgomes](#).

This is information regarding the Research Vessel Odyssey Team (to be renamed).

### **Support Engineering Meeting Notes**

1. [2011-03-15 I.S. and Support Scoping Meeting](#)
2. [2011-03-29 Fox Outfitting Meeting](#)

### **Task Scoping**

1. [Cross Deck Task Scoping](#)

## 2011-03-15 I.S. and Support Scoping Meeting

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This page last changed on Mar 15, 2011 by [kgomes](#).

### Goals

The goal of this meeting is to start scoping the tasks and the work that will go into getting the new coastal vessel up and running and for cross-decking the Ventura.

### Attendees

1. Todd Ruston
2. Kevin Gomes
3. Pete Braccio
4. Rich Schramm (backup user committee)
5. Craig Okuda (primary user committee)

### Notes

1. Microwave controllers
2. router on boat
3. switches for distribution
4. wiring (state rooms and control room, mess deck, bridge, aft steering, all spaces)
5. shore tie wiring
6. phone system
7. backup power ups
8. secondary network?
9. plnavproc
10. lobos (hpux that may go away?)
11. ntp
12. domain controllers
13. vars related (check with Brian) varspl
14. video switcher (pilot thing) - new one, existing is bad
15. discovery - rov control linux box
16. wireless network
17. CTD machines pluctd, plpctd
18. SQL server box (glacierwind)
19. steve rock machine (hawkeye)
20. digital beta and hd decks (video lab task)
21. plmnav (winfrog) and interconnections.
22. sonardyne usbl (transponders)
23. ahars
24. sperry fog gyro (Steve wants to move)
25. sperry mark 37 gyro speaks through the lehmkuhl
26. lehmkuhl gyro repeater
27. granrojo science workstation
28. infranalis (pilot workstation)
29. mesotek (yodel machine)
30. lap box
31. audio interface hardware
32. hd sdi distribution amp (3 or 4)
33. loss of video detector
34. sony hd-sdi converter for monitors
35. miranda overlay generator
36. geffen video scaler
37. miranda video tiler
38. after steering and bridge workstations (winfrog displays)
39. dynair remotes (video switcher)
40. kvms?
41. 6 rs232 das - splitters (gps data, usbl, etc.?)
42. Tether Management System - where is this running? - are we thinking of a new one?
43. telex system (master station live in bridge)
44. Taiyo tdl 1650? - VHF RDF
45. Furuno GPS compass
46. air handling (conditioning and filtering).

47. new racks on this boat (leave racks on lobos).
48. a bunch of antennas.
49. Leica dGPS (what GPS will be there?)
50. ice cream freezer
51. zephyr has 'auvrack' machine
52. printers
53. LED clock
54. Can we get LED display (like in flyer)? Same lat, lon, depth, time. Plus an antennae.
55. tyto-alba (no idea what it does) - DJ might know about this one.
56. CTD deck box (sbe deck box). cable that runs from winch to wherever the CTD is located.
57. DB9 breakouts, interface panels, 485 converters
58. SeaTel requires analog gyro (1x synchro). lehmkuhl requires it also.

### Outstanding Questions

1. ⚠️ What is one the boat now? (wiring) existing infrastructure.
2. do we want secondary network for control room?
3. put navproc/lobos on one computer with hot swap?
4. do they want cell phone connectivity (tellular? boxes). Cell connectivity for network (data plan 3G)?
5. do we want network connectivity when out of microwave (satellite)?
6. what can we cross deck and what do we buy new?
7. ⚠️ What is the actual schedule for moving (can we bring down lobos and have full access to it)?
8. ⚠️ who is doing what for ROV/infrastructure?
9. ⚠️ where is the control room going to be located? (if below water line, coast guard approval).
10. ⚠️ how do we get data down to control room from bridge (fiber muxs, copper?) Pete things copper. Need good cable ways.
11. how much of the bridge electronics and aft steering move over? We will need splitters, etc.
12. Where does the main networking rack go?
13. ⚠️ can we get dedicated space for computers an infrastructure? (closet space would be really nice to have)
14. are you going to keep existing inmar sat system (on fox currently)? otherwise no space for SeaTel dome.
15. will there be permanent van for science (infrastructure will need to be plumbed to swap out vans)
16. ⚠️ anything on the Zephyr that needs to move? If different, will they migrate? What does the AUV need?
17. Make sure there is a physical distinction between ROV and AUV. (subnets?)
18. ⚠️ Does the sperry fog work for science (we are pushing from old sperry for science)?
19. Are we going to use Fox's gyro? We will need to interface to it.
20. Power and backup power ⚠️

## 2011-03-29 Fox Outfitting Meeting

---

This page last changed on Mar 29, 2011 by [kgomes](#).

### Attendees

1. Chris Grech
2. Charlie Paull
3. Peter Brewer
4. Doug Au
5. Kevin Gomes
6. Annette Gough
7. Aaron Greg
8. Bruce Robison
9. Mike Pinto
10. Steve Etchemendy

### Notes

1. nov 30 point lobos will be shutdown and put up for sale
2. 58 flyer days after GOC
3. April 18 to may 18 transit to ML
4. June we will have schedule for 2012 project
5. July stability review by Glosten
6. December shipyard for equipment installation
7. early 2012 and during GOC we will have infrastructure
8. \\tornado\DMO\coastalvessel is where documents are located

## Cross Deck Task Scoping

This page last changed on Aug 04, 2011 by [kgomes](#).

Task WAGS for cross decking from Point Lobos to Odyssey Team

### Microwave

Tasks	Resource	Time
Design antenna mounts		

### Compute infrastructure

Tasks	Resource	Time
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### Communications

Tasks	Resource	Time
-------	----------	------

Tasks	Resource	Time
-------	----------	------

1. Microwave controllers
2. router on boat
3. switches for distribution
4. wiring (state rooms and control room, mess deck, bridge, aft steering, all spaces)
5. shore tie wiring
6. phone system
7. backup power ups
8. secondary network?
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35. miranda overlay generator
36. geffen video scaler
37. miranda video tiler
38. after steering and bridge workstations (winfrog displays)
39. dynair remotes (video switcher)
40. kvms?
41. 6 rs232 das - splitters (gps data, usbl, etc.?)
42. Tether Management System - where is this running? - are we thinking of a new one?
43. telex system (master station live in bridge)
44. Taiyo tdl 1650? - VHF RDF
45. Furuno GPS compass
46. air handling (conditioning and filtering).
47. new racks on this boat (leave racks on lobos).
48. a bunch of antennas.
49. Leica dGPS (what GPS will be there?)
50. ice cream freezer
51. zephyr has 'auvrack' machine
52. printers
53. LED clock
54. Can we get LED display (like in flyer)? Same lat, lon, depth, time. Plus an antennae.
55. tyto-alba (no idea what it does) - DJ might know about this one.
56. CTD deck box (sbe deck box). cable that runs from winch to wherever the CTD is located.
57. DB9 breakouts, interface panels, 485 converters
58. SeaTel requires analog gyro (1x synchro). lehmkuhl requires it also.

#### Outstanding Questions

1. ⚠️ What is one the boat now? (wiring) existing infrastructure.
2. do we want secondary network for control room?
3. put navproc/lobos on one computer with hot swap?
4. do they want cell phone connectivity (tellular? boxes). Cell connectivity for network (data plan 3G)?
5. do we want network connectivity when out of microwave (satellite)?
6. what can we cross deck and what do we buy new?
7. ⚠️ What is the actual schedule for moving (can we bring down lobos and have full access to it)?
8. ⚠️ who is doing what for ROV/infrastructure?
9. ⚠️ where is the control room going to be located? (if below water line, coast guard approval).
10. ⚠️ how do we get data down to control room from bridge (fiber muxs, copper?) Pete things copper. Need good cable ways.
11. how much of the bridge electronics and aft steering move over? We will need splitters, etc.
12. Where does the main networking rack go?
13. ⚠️ can we get dedicated space for computers an infrastructure? (closet space would be really nice to have)
14. are you going to keep existing inmar sat system (on fox currently)? otherwise no space for SeaTel dome.
15. will there be permanent van for science (infrastructure will need to be plumbed to swap out vans)
16. ⚠️ anything on the Zephyr that needs to move? If different, will they migrate? What does the AUV need?
17. Make sure there is a physical distinction between ROV and AUV. (subnets?)
18. ⚠️ Does the sperry fog work for science (we are pushing from old sperry for science)?
19. Are we going to use Fox's gyro? We will need to interface to it.
20. Power and backup power ⚠️

## SAIC CENCOOS data management

---

This page last changed on Apr 04, 2011 by [kgomes](#).

April 4, 2011

Meeting to get back up to speed with CENCOOS and Francisco

1. DMAC is high priority
2. how can we interact with other systems.
3. steven li
4. DMAC support 6 core physical variables
5. variables expand to More
6. look at the diagram he sent out



## Seatel Microwave Pointing Controller Update

This page last changed on Sep 24, 2009 by [kgomes](#).

An update to the Seatel Microwave Dish pointing controller software as part of the HD Video Microwave project. The current version of Seatel Controller software for the persistor CF2 in CVS is v1.0 and it is built for ver 2.28 of PicoDOS. Development is on a CF2 with PicoDOS (Persistor CF21M SN 06226 PicoDOS V4.02r1 PBM V4.00).

### Update Summary:

Status	Feature	Details
	Add Tracking command send	send C or D with point command
	add status command	AGG, GPS, RGPS, Tracking...
	add NMEA style status sending	for auto logging and quick look plots
Done	modify masc prompt	Prompt changed to UnitID when set, MASC if no UnitID
	add "show rgps status"	show if RGPS is fresh or not
	Toggle tracking on/off from masc	On or off auto tracking/pointing
	Send various commands to seatel from masc	
	Read the seatel status bytes and parse to masc	use to display system status
	auto set Heading, Shore only?	use shore/ship bit

Notes:

Idea: send 'R' to repeat last command

### How to work with PicoDOS and Persistor

- Codewarrior for build, Motocross for loading, Hyperterm for RS232 console (9600,8,N,1)
  - Note: it is best for development to not autostart the app.
- reset pico (or reset)
- CF2> BOOT PICO
- CF2> BOOT APP for deployment
- RMC message for A or V (Tracking or DR - tells whether GPS is tracking)
- First Tasks
  - 1) Add to Prompt GPS OK, RGPS Age OK, AGC OK, Platform Track OK (ask once every 4sec to avoid swamping the Seatel)
  - 2) Create NMEA style string on Spare2 hooked to 24 port terminal server for continuous stream of updates to be displayed by a GUI
  - 3) Implement 'Hunting Algorithm' if pointing command is sent N times (config parm).
- 

Seatel

SEA TEL MODEI TAC-92  
USER INTERFACE DESCRIPTION VERSION 1.61

### 1.0 COMMAND SUMMARY

CONTROL CODES:	FUNCTION	
6	Azimuth CW one step (system step reselution)	
4	Azimuth CCW one step	
8	Elevation up one step	
2	Elevation DOWN one step	
Aaaaa{}	Move AZ to aaa.a deg , true or magnetic	
Baaaa{}	Set ships heading to aaa.a degrees	
C	Step Track ON	
D	Step Track and Tracking OFF	
cnnnn{}	Set MHz/CHA tuning to nnnn MHz	
dnnnn{}	Set KHz/CHB tuning to nnnn KHz	
Eeeee{}	Move EL to ee.e or eee.e degrees	
F	Toggle auto unwrap ON/OFF	
gnnn { }	Set polang position to nnn	
Jrrrr{}	Move azimuth to ship relative position	
Nnnn{ }	Set number of signal strength updates (1-255)	
Onnn{ }	Output data to EME equipment	
R	start spiral search fot satellite	
S	Advance AGC input selectien (Ext, ChA, ChB, IF)	
Taaaa{}	Move to satellite at aaa.a degrees	
U	Force cable unwrap	
W	Write parameters to NV RAM	
Xnnn{}	Set azimuth step track size to nnn steps (1-255)	
Ynnn{}	Set elevation step track size to nnn steps (0-255)	
Z	Toggle C/Ku step size selection	

esc	Cancel pending numeric command
\$mmmmmm{}	NMEA Latitude / Longitude input (GPGLL format)

MONITOR CODES	FUNCTION	TAC RESPONSE
H	Relative Az,Ship Heading	RrrrrHaaaa,CR,LF,>
M	Tracking Parameters	Xnnn Ynnn Nnnn cc,CR,LF,>
P	Az/EL Position	EeeeeAaaaa,CR,LF,>
s	TaC Status	Snn,CR,LF1>
V	Software Version	TAC-92 VER N,NN,CR,LF, >
q	Tuning >Frequencies , Input	Qnnnn nnnn s,CR,LF,>
u	Polang position	Gnnn ,CR,LF,>
%	Signal Strength	Lnnnn,CR,LF,>
&	Error Status	&nnn ,CR,LF,>

ABBREVIATIONS:	
eeee =	Elevation angle 0000 to 0900 nominal 0000 to 3599 range
aaaa =	True/Magnetic Azimuth 0000 to 3599 range
rrrr =	Relative azimuth 0950 to 6250 1ange
nnnn =	A5CII decimal number 0000-9999
nnn =	ASCII decima[ number 0 to 255
nn =	System Status twO bitmapped ASCII characters
cc =	C /Ku tracking parameter bank selection
s =	AGC receiver selection 0,l,2,3
{ } =	Carriage return

April 30, 1996 Doc No. 112862-D

## Setup and Installation

This page last changed on Mar 27, 2012 by [kgomes](#).

The MBARI Services server (named [services.mbari.org](#)) was setup to host core services for internal and external users. This page documents the setup that was done to get [services.mbari.org](#) up and running.

1. Kevin Gomes met with Todd Ruston to talk about what this servers goals are and followed on with a help ticket (ticket number 13231) to I.S. to request that a RHEL 6 virtual machine be configured in the DMZ for this purpose.
2. Pat installed RHEL 6 and named it 'services.mbari.org'.
3. He installed Java 7 from Sun/Oracle and configured it as an alternative Java installation. He then configured it as the default.
4. He then downloaded JBoss 7.1 and unpacked it to the /opt directory.
5. We edited the /opt/jboss-as-7.1.0.Final/bin/init.d/jboss-as.conf file and changed it so the JBoss would run under the 'coredata' account and that the log file for the console output would be sent to /var/log/jboss.log
6. We then copied that file from the JBoss directory to /etc/sysconfig/jboss-as/jboss-as.conf
7. We edited the /opt/jboss-as-7.1.0.Final/bin/init.d/jboss-as-standalone.sh file and changed the location of the jboss-as.conf file to the one in the previous step.
8. We then copied that file to /etc/init.d/jboss.sh



### Defaults did not work

The default scripts did not, strangely enough, work right from the start. See Pat's trouble ticket for the details on what happened and the fix for it.

9. Before starting it, I wanted to get some default configurations and security set up.
10. I logged in as 'coredata' and cd'd to the /opt/jboss-as-7.1.0.Final/bin directory and ran the 'add-user.sh' script and added both 'kgomes' and 'coredata' as ManagementRealm users. This added encrypted passwords and usernames to the /opt/jboss-7.1.0.Final/standalone/configuration/mgmt-users.properties files so those users can interact with the admin application in JBoss.
11. I then started up JBoss to verify it runs OK using:

```
sudo /sbin/service jboss start
```

Initially, the server is configured to run on the 127.0.0.1 interface. That is fine for now.

12. In order to configure data sources that connect to Postgresql databases, I copied the postgresql-9.1-901.jdbc4.jar to the /opt/jboss/standalone/deployments directory which makes the driver available for configuring data sources.
13. I deployed the observations.war file to the services JBoss instance which then made the application available on <http://services.mbari.org:8080/observations>
14. Cathy configured the mod\_proxy on the Apache server to redirect all requests to <http://services.mbari.org/observations> to the 8080 url.
15. Pete had to open the ports 80 and 8080 to the world to enable this to work.
16. While I was hoping the default setup of the JBoss server to allow only requests from 127.0.0.1 would work with mod\_proxy, that does not appear to be the case. Using the management interface, I set the network interface to accept requests from any address. This should probably be looked at again so nobody from the outside can hit the 8080 interface.
17. The next step is to get the RHEL instance and the JBoss server configured to use the Centrify security system to enable SSO authentication.

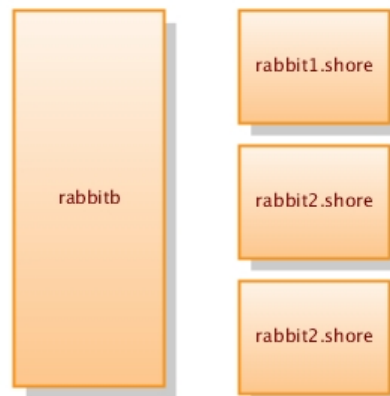
## Setup of RabbitMQ Cluster and Load Balancer

---

This page last changed on Jan 08, 2014 by [kgomes](#).

This page documents

### Configuration



### Activity Log

1. **1/8/14** - Pat Allen configured four CentOS virtual machines, three to make up the cluster and one as a load balancer

## Standard Wire Color Code

This page last changed on Sep 24, 2009 by [kgomes](#).

### Suggested Standard Wire Color Code

- Mark Chaffey / Ed Mellinger (Tiburon)

Color	Designation
Black	Power Grounds
Brown	Signal Grounds
Red	Logic Power
Orange	+12Vdc, +15Vdc
Yellow	+48Vdc
Green	Chassis / Frame / Seawater Ground; RS-485 Common
Blue	RS - 485A
Violet	RS - 485B
Grey	-12Vdc, -15Vdc
White	+240Vdc, +375Vdc

- Chad Kecz / Paul McGill

Color	Designation
Black	Ground
Brown	Analog Ground
Red	+24Vdc
Orange	+12Vdc
Yellow	+5Vdc
Green	Comm Ground
Blue	RS-485A / USB+
Violet	RxD
Grey	RS-485B / USB-
White	TxD
Red/Yellow Stripe	+375Vdc

Red/Green Stripe	+36Vdc
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- David French

Color	Designation
Black	Com, PWR Ground
Brown	
Red	+24Vdc
Orange	+12Vdc
Yellow	Video
Green	RX-232
Blue	TX-232
Violet	
Grey	
White	

\*Based on existing ROV wiring

- Scott Jensen

Color	Designation
Black	Power Grounds
Brown	Signal Grounds
Red	Logic Power
Orange	+12Vdc, +15Vdc
Yellow	+48Vdc
Green	Chassis / Frame / Seawater Ground; RS-485 Common
Blue	RS - 485A
Violet	RS - 485B
Grey	-12Vdc, -15Vdc
White	+240Vdc, +375Vdc
White/Black Stripe	MISC 24-22AWG wire / Misc Signal
White/Brown Stripe	MISC 24-22AWG wire / Misc Signal
White/Red Stripe	MISC 24-22AWG wire / Misc Signal

White/Orange Stripe	MISC 24-22AWG wire / Misc Signal
White/Yellow Stripe	MISC 24-22AWG wire / Misc Signal
White/Green Stripe	MISC 24-22AWG wire / Misc Signal
White/Blue Stripe	MISC 24-22AWG wire / Misc Signal
White/Violet Stripe	MISC 24-22AWG wire / Misc Signal
White/Grey Stripe	MISC 24-22AWG wire / Misc Signal

- Denis Klimov

Color	Designation
Black	
Brown	
Red	+5Vdc
Orange	
Yellow	+12Vdc
Green	
Blue	-12Vdc
Violet	
Grey	
White	

- Thom Maughan

Color	Designation
Black	
Brown	
Red	
Orange	
Yellow	
Green	+12V, +24V
Blue	
Violet	
Grey	



White	Ground
-------	--------

\*Based on Seabird oceanographic cables

- Craig Okuda

Color	Designation
Black	1
Brown	2
Red	3
Orange	4
Yellow	5
Green	6
Blue	7
Violet	8
Grey	9
White	10
White/Black Stripe	11
White/Brown Stripe	12
White/Red Stripe	13
White/Orange Stripe	14
White/Yellow Stripe	15
White/Green Stripe	16
White/Blue Stripe	17
White/Violet Stripe	18
White/Grey Stripe	19

\*Based on Mil-Spec-681

- Thomas Hoover

**Colors for chassis and Interconnecting wire system by function**

Color	Alternate Color	Designation
Black	White/Black	Transistor Bases
Brown	White/Brown	Heaters or filaments
Red	White/Red	Power Supply B+
Orange	White/Orange	Screen Grids Clock
Yellow	White/Yellow	Transistor Emitters

Green	Green	Ground, Grounded elements
Blue	White/Blue	Transistor Collectors
Violet	White/Violet	Power Supply, Minus

#### Colors for Interconnecting by Voltage

Color	Designation
Red	+151V to +500V
White/Red	+61V to +150V
White/Brown/Red	+26V to +60V
White/Red/Orange	+7V to +25V
Violet	-26V to -60V
White/Violet	-11V to -25V
White/Violet/Yellow	-2V to -10V
Green	Ground

#### Color Coding for AC Wiring

Service	Phase A	Phase B	Phase C	Neutral	Ground
115V 60Hz 1 F	Black	—	—	White	Green
208V 60Hz 3 F "Y"	Black	Red	Orange or Blue	White	Green
230V 60Hz 3 F Delta	Black	Red	Orange or Blue	—	Green
115V 400Hz 3 F Delta	Black	Red	Orange or Blue	—	Green
208V 400Hz 3 F "Y"	Black	Red	Orange or Blue	White	Green

#### Commercial Coding for AC Wiring

Service	US	Europe	UK
115V/240V 60Hz	Black	Brown	Brown
Common	White	Blue	Blue
Ground	Green	Green/Yellow	Green/Yellow

## Support Engineering Space Index

This page last changed on May 08, 2009 by [kgomes](#).

### Space Index

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<a href="#">X ... 0</a>	<a href="#">Y ... 0</a>	<a href="#">Z ... 0</a>	<a href="#">!@#\$ ... 0</a>		
<b>0-9</b>			<b>A</b>		

#### [2008 Projects](#)

Projects from Year 2008 for Support Engineering Ventana Precision Control DVL driver Ventana ROV Control PC RHEL5 Linux Upgrade Valve Pack Controller

#### [2009 Group Budget Details](#)

Here are some details of 2009 budget items Status as of November 4th: Category Available Target Available After Target Books \$300 \$300 Conference \$6,500 # Any more AGU registrations? # Thom AGU/IEEE Membership (\$200) \$6,300 ...

#### [2009 Projects](#)

Title Resources Allocated Used Available Overhead AIS Application (Where are the ships integration) # MBARI Tracking SPEPRJ:MBARITracking Mike McCann Overhead Seatel Microwave Pointing Controller Update Craig Okuda Thom Maughan Overhead LobosVentana Planning ...

#### [2010 Group Budget Details](#)

Hi all, here are all the items requested for the 2010 budget, their approval status and what accounts they should be charged to. There is also a spreadsheet that is attached that I am using to track the status of everything. The information on this page is a snapshot of the situation when we started ...

#### [2010 Projects](#)

Project No. Title Allocated \ (hours) 701026 SENSORS 120 701725 MARS Oper. & Maint. 72 708760 OOI CI 80 708763 Observatory Middleware Framework 80 900820 Redirecting MOOS Science 208 900904 AMP 50 900915 ...

#### [2010 Resource Planning Notes](#)

Projects for Support Engineers for 2010 Top Four Project Resource Planning Summary # Craig Okuda will be close to full allocation in quarter 1. He will still have time for support tasks (microwave/radios), but not other project time for first two ...

#### [2010 Resources](#)

Here are the resources allocations for Support Engineers for 2010: Kevin Project

#### [AIS Application](#)

goals of this project are: # Create a web application that allows the users (MARS/DMO is the main customer) to track all the vessels in the Monterey Bay using AIS information. The areas of focus are M1, M2, and MARS (node and cable). # Move the "Where are the Ships" application ...

#### [alfresco-test.shore.mbari.org Installation Notes](#)

order to properly have a test environment for our Alfresco installation, I went ahead and setup a HP xw4100 with Windows Server 2003 (SP2) and setup an instance of Alfresco on that machine. Here are the steps I completed. # Logged into alfrescotest.shore.mbari.org as a local ...

#### [alfresco.mbari.org Installation Notes](#)

order to best meet the needs of the alfresco installation and get all the pieces working correctly, we decided to buy a new, more powerful server and run Alfresco in Windows. Our thinking was that it would better integrate with our Windows domain at MBARI ...

#### [Apache mod\\_jk](#)

Apache Tomcat is great for JSP and Servlet applications, but normally it defaults to the 8080 port. That is fine but users often have firewalls setup to block nonstandard port (anything other than port 80). So the apache http server has a module ...

#### [April 27th, 2010](#)

Goal The goal of this meeting was to recapture the state of this work and plan tasks and timelines to get this work accomplished. Attendees Bob Herlien Rich Schramm Craig Okuda Kevin Gomes Timeline Planning We first worked a backwards timeline from the next ...

#### [AVED System Design Docs](#)

Here is a list of documents to help in supporting the AVED system AVED Golden Image Creation, Propagation, & Backup Instructions SPEPRJ:Helpful Software DownloadsAVEDImagepropagationandbackupinstructions. KOI Software Update HowTo

No. Title Allocated (hours) 701026 SENSORS  
120 701725 MARS Oper. & Maint. 72 708760  
OOI CI 80 708763 Observatory Middleware  
Framework 80 900820 Redirecting ...

Document SPEPRJ:Helpful Software  
DownloadsKoiUpdatesteps.doc AVED Video  
Lab ...

#### [2011 Group Budget Details](#)

Here is the list of 2011 requests: Craig  
Requested Item Cost Approved? Notes  
Account To Charge Purchase Status NAB  
Conference \$1800 660000 IWCE Conference  
\$1800 660000 Thom Requested Item Cost  
Approved? Notes Account To Charge ...

#### [2011 Resources](#)

2011 Projects Kevin Project No. Title  
Allocated \ (hours) 708153 ESP MRIR2  
365 900820 Redirecting MOOS Science 40  
900904 AMP 25 901009 CANON 280 901020  
TTOS 160 Total 870 Unallocated \ Hours  
130 ...

#### [2011-01-24 2011 Kick Off](#)

Goal This meeting is just to get all OASIS  
related folks together to talk about what  
2011 has in store for the OASIS program.  
There has been a large number of changes  
over the past year and we probably should  
all just ...

#### [2011-03-03 Progress Meeting](#)

Goal This is a meeting to get a status update  
and map out task needing to be done.  
Attendees # Francisco Chavez # Mike Kelley  
# Erich Rienecker # Rich Schramm # Craig  
Okuda # Bob Herlien # Paul Coenen # Kevin  
Gomes Topics # Schedule # NDBC/M2 ...

#### [2011-03-07 NDBC Hybrid Meeting](#)

Action Items # Francisco will find out which  
fluorometer will be used # Francisco will find  
out which radiometers will be used # Craig  
and Bob will discuss possibility of integrating  
new CO2 # Craig/Francisco will talk about  
pH sensing # Francisco, Mike and Kevin ...

#### [2011-03-14 NDBC Hybrid Follow Up](#)

Schedule # May deployment # Drawings  
to shop by 3/31 # Looking for X days in  
shop in early april Actions # Email NDBC  
with questions Kevin ## Do they have  
SolidWorks part and assembly files for their  
drawings they sent? ## Can we weld two  
crossbars ...

#### [2011-03-15 I.S. and Support Scoping Meeting](#)

Goals The goal of this meeting is to start  
scoping the tasks and the work that will go  
into getting the new coastal vessel up and  
running and for crossdecking the Ventana.  
Attendees # Todd Ruston # Kevin Gomes #  
Pete Braccio # Rich Schramm (backup user  
committee) # Craig Okuda ...

#### [2011-03-21 NDBC On site meeting](#)

Meeting with NDBC guys # Landry Bernard  
# Rodney Riley # Mike # Rich # Paul #  
Craig # Kevin # Introductions # Open  
discussion # SAIC is the prime contractor

and they recompile every 5 years (end of December) # emphasize drawings and documentation. people come and go ...

#### [2011-03-29 Fox Outfitting Meeting](#)

Attendees # Chris Grech # Charlie Paull # Peter Brewer # Doug Au # Kevin Gomes # Annette Gough # Aaron Greg # Bruce Robison # Mike Pinto # Steve Etchemendy  
Notes # nov 30 point lobos will be shutdown and put up for sale ...

#### [2011-06-09 NDBC Deployment Follow Up Meeting](#)

Issues ## buoy stability, did not check after modification ## site was deeper than originally thought ## 10 m microcat not on ## pco2 got wet, sort of working ## there was some back and forth about locating parts "you can put it anywhere ...

#### [2012 Craig Resource Tracking](#)

Updated 7/18/2012 Project No. Title  
Allocated \\ (hours) Spent Diff 300057  
Mooring Maint 120 41 79 300058 DMO WF  
15 0 15 300079 DMO RC 70 0 70 901007  
Benthic Biology 40 ...

#### [2012 Karen Resource Tracking](#)

Updated 7/18/2012 Project No. Title  
Allocated \\ (hours) Spent Diff 300057  
Mooring Maint 60 0 60 500055 Video  
Annotation DM 160 0 160 901009 CANON  
200 0 200 901216 Ocean Chem 40 ...

#### [2012 Kevin Resource Tracking](#)

Updated 7/18/2012 Project No. Title  
Allocated \\ (hours) Spent Diff 300057  
Mooring Maint 20 23 3 300058 DMO  
SupportWestern Flyer 0 2 2 708153 ESP  
MRIR2 150 32 118 901009 CANON 680 ...

#### [2012 Mike Resource Tracking](#)

Updated 7/18/2012 Project No. Title  
Allocated \\ (hours) Spent Diff 200103 Core  
CTD MDUC 0 17 17 200105 Core Nav Data  
80 0 80 200109 Core Mooring 120 0 120  
500055 Video ...

#### [2012 Project Page](#)

5020000 Books/Subscriptions Karen Books  
\$300.00 5020000 Books/Subscriptions  
Mike Books \$166.01 5020000 Books/  
Subscriptions Rich Books \$302.76 5020000  
Books/Subscriptions Rich Experts Exchange  
Subscription \$90.15 5020000 Books/  
Subscriptions Thom ...

#### [2012 Rich Resource Tracking](#)

Updated 7/18/2012 Project No. Title  
Allocated \\ (hours) Spent Diff 200103 Core  
CTD 160 61.5 98.5 200105 Core Nav 40  
14.5 25.5 200109 Core Mooring Data 0 7.5  
7.5 300057 Mooring Maint ...

#### [2012 Thom Resource Tracking](#)

Updated 7/18/2012 Project No. Title  
Allocated \\ (hours) Spent Diff 901009  
CANON 688 282 406 901010 Distributed

Autonomy 200 231 31 901020 TTOS 0 39 39  
910200 AMP 160 33 127 901202 ...

### [2013 Project Page](#)

Kevin #kevin Thom #thom Mike  
#mike Craig #craig Karen #karen  
Rich #rich Group #group Year Start  
Labor Project Hours 300057 Mooring  
Maint [https://mwww.mbari.org/  
resources/2013ProposalProcess/  
phaseIpdfs/300057MooringMaintenance2013.pdf](https://mwww.mbari.org/resources/2013ProposalProcess/phaseIpdfs/300057MooringMaintenance2013.pdf)  
10 701118 MARS O&M 16 ...

**B**

### [build-server.shore.mbari.org Artifactory Install](#)

Installing Artifactory Get Artifactory and  
Move in Place `cd /opt/tmp wget http://  
sourceforge.net/projects/artifactory/files/  
artifactory/2.6.1/artifactory2.6.1.zip/  
download jar xvf artifactory2.6.1.zip cd /opt  
mkdir artifactory2.6.1 sudo chown R brian  
artifactory2.6.1 ...`

### [build-server.shore.mbari.org installation](#)

part of the upgrade and configuration of  
our software development infrastructure at  
MBARI, we installed a continuous integration  
server. Here is a diagram of the overall  
structure of the software development  
infrastructure. For the build server, the goal  
was to install Atlassian's Bamboo, Fisheye  
and Crucible products. In addition ...

### [build-server.shore.mbari.org update](#)

Updating Bamboo on buildserver from 3.1  
to 4.1.2 Before I Started I contact IS to get  
permissions on buildserver. pat gave me  
the following: `sudo permissions for /sbin/  
service, /sbin/chkconfig, /bin/mkdir, /bin/  
chown, /bin/chgrp ...`

**C**

### [Capture of CANON data processing information](#)

Diagram that depicts the flow of CANON  
sensor data and the source of information  
we need to capture for quality of service  
monitoring and provenance tracking

### [Communications](#)

page documents different aspects of the  
communications systems between shore and  
the Rachel Carson. Meeting Notes May 20,  
2014

### [Confluence Installation Notes](#)

notes detail the installation and upgrades for  
the Confluence application at MBARI. The  
original installation was done on our intranet  
and then it was eventually moved to the  
DMZ and made available to the rest of the  
world so our collaborators can work with it  
as well. We connected it to Atlassian's Crowd  
application ...

### [Confluence Upgrade and Migration Notes](#)

page documents the steps taken to upgrade  
the Confluence installation so that it could  
be migrated to the Confluence Cloud  
Service hosted by Atlassian. The starting  
point for the upgrade is the following: #  
Confluence version 2.7 running on the server  
oceana.mbari.org # Authentication is using  
the Crowd service also ...

### [Cross Deck Task Scoping](#)

Task WAGS for cross decking from Point  
Lobos to Odyssey Team Microwave Tasks  
Resource Time Design antenna mounts  
Compute infrastructure Tasks Resource Time  
Communications Tasks Resource Time Tasks  
Resource Time # Microwave controllers ...

### [crowd.mbari.org installation instructions](#)

February of 2011, we decided that crowd  
needed to be upgraded as a part of a  
larger upgrade scheme for our software  
development infrastructure. Here is a  
diagram of the overall infrastructure that  
we are moving towards. Upgrade process  
Fortunately, Atlassian is very good about  
documenting ...

### [CTD-Optode](#)

page documents the flow and responsibilities  
for maintaining the CTD and O2 Optode

and auxilliary environmental (xmissometer, fluorometer etc) sensors on the ROV Doc Ricketts and Western Flyer. System Diagram Parties Involved # Science User # Support Engineer # CTD Technician Tasks ...

## D

### [DORISS II Documentation](#)

list of documents to help support DORISS II: # DORISS II WinXP Target Build  
HowTo Document SPEPRJ:Helpful Software DownloadsDORISSIITargetbuildnew.doc

## E

### [Elevator Release Controller](#)

Project: Elevator Release Controller \\ Support Engineers: Thom Maughan, Craig Okuda Electronics and Firmware: Thom Maughan Mechanical and System: Craig Okuda \\See attachment for Fusion USBL software release procedure. \\ Problem Statement ...

### [Embedded Platforms](#)

page summarizes various embedded platforms: Platform Notes Arduino Board Comparison Matrix <http://arduino.cc/en/Products.Compare> Platform Matrix Technology Group Platform Name URL(s) Cost Features Good for Bad for Android IOIOOTG Sparkfun [https ...](https://)

### [Erlang](#)

Erlang is about: Processes and lightweight concurrency Process isolation (REALLY isolated) Processes share nothing and copy everything (no locks/deadlocks) Fault tolerance and error handling Distributed programming Asynchronous communication (cheap) Simple language (hmmmmm ..... ) # VERY lightweight ...

## F

### [Feb 7, 2011](#)

Agenda: Talk about software development services, architecture, and plan for upgrades and deployment Attendees: Todd Ruston Cathy Sewell Pat Allen Pete Braccio Duane Edgington Karen Salamy Kevin Gomes Notes Security Kerberos Centrify LDAP ...

### [File Systems](#)

some notes about different file systems and when and why you would use them: File System Good For Not Good For Hadoop # Very Large Files "Very large" in this context means files that are hundreds of megabytes, gigabytes, or terabytes in size ...

### [FOCE DC-DC Converter assembly notes](#)

DCDC converter assembly notes BOM Corrections: 1. C99, BOM states 10nF in PART field. It should be 22nF. 2. JP8, JP9, JP12, JP13, JP18: Manuf PN field has a typo ...

### [Frameworks for monitoring files systems](#)

were a couple of projects that needed to monitor file structures to look for changes. I thought I would document that various frameworks that I found and my experience with them. Framework Language Website

## G

### [Git Working Session](#)

notes from a working group session that the Information Engineering Group had to try and get familiar with Git. Topics # Converting old repos (SVN, CVS, etc.) to Git ## Work with MBSYSTEM (I might try ODSS and/or SSDS) # Workflow topics ...

### [Group Meeting Notes](#)

Notes from meetings relevant to Support Engineering: Meetings with I.S. Feb 7, 2011

## H



### [Helpful Software Downloads](#)

page contains helpful software links and downloads largely maintained by Support Engineering for MBARI. MBARI Support Engineering Software Licenses 2008 MBARI Engineering Software Licenses/Users https://alfresco.mbari.org/alfresco/d/d/workspace/SpacesStore/4a8e9f2f22c711dd89f4a3578858fa8/Engineering%20License ...



### [High Performance In-situ Processing for CANON mobile platforms](#)

http://www.vlfeat.org/index.html The VLFeat open source library implements popular computer vision algorithms including SIFT, MSER, kmeans, hierarchical kmeans, agglomerative information bottleneck, and quick shift. It is written in C for efficiency and compatibility, with interfaces in MATLAB



### [High Resolution PH Meter Assembly Instructions](#)

pH Meter Assembly Instructions \\ # Don't cut the leads on the Temp sensor AD22103 Mount standing up with 0.25" leads to insure close proximity to housing. Use a 0.25" Teflon sleeve on the center leg. # Teflon sleeves ...



### [Home](#)

home page for the Support Engineering Projects space. \\ \\ \\ \\ Helpful Software Links and Downloads Support Software links / Downloads SPEPRJ:Helpful Software Downloads\\ \\ \\ \\ Support Engineering Projects Elevator Release Controller Ventana Precision Control DVL driver Ventana ...



### [HRpH Sensors for Apr 2011 Deployment](#)

FOCE deployment planned for Apr 4, 2011. Delayed due to valve controller integration challenges on CO2 enriched seawater box. Planned for first week of May 2011. 9 HRpH sensors were ...



### [HRPH Sensors for May 2009 Deployment](#)

Pressure Test Data 12 May 2009 180451 ISI: 1723 Weight before 763.9 gm Weight after 767.9 gm Failed power up test current was 80mA at 12v (should be around 67 idle ...



### [HRpH Sensors for May 2010 Deployment](#)

6 HRpH sensors deployed, 1 flooded. FOCE control can blew a fuse FOCE can reworked with polyfuse (self resetting) and Ed trained on current draw per HRpH (73mA avg) so that a flooded housing could be detected ...



### [HRPH Tech Transfer Package For Heron Island](#)

HRpH Tech Transfer Package for Heron Island \\ Package contents Software Design notes (power point) Development

## I



### [Installing RabbitMQ \(AMQP\) on RHEL5](#)

an example of the configuration of a RabbitMQ server on the machine ssdsingest. # In order to run RabbitMQ version 2.3.1, it required erlang14B. The default package for RHEL 5 is only at erlang 12B. So I had to add a fedora repository to yum that had a version ...



### [Interacting with Tracking Data on RabbitMQ](#)

page documents how to subscribe to and publish to tracking data from the RabbitMQ server at MBARI. Architecture The current architecture for MBARI's tracking messages is shown in the VERY large diagram below. ! TrackingData.jpg thumbnail,align=centre! Consuming messages Java Subscriber ...



environment spec Firmware Tests  
Hardware Schematic PCB Layout Gerbers  
Assembly Assembly Instructions Swagelok  
modifications, drawing ...

**J**

#### [JavaScript](#)

pages serves as a location for information relating to the language JavaScript. Libraries # Timelines These libraries can be used to create horizontal timelines in a web application. ## TimelineJS <http://timeline.verite.co> This is a really nice library, but somewhat constraining. If all you really want to do ...

#### [JIRA Upgrade Notes](#)

goal of this work is to upgrade and migrate JIRA 3.12.1 from [oceana.mbari.org](http://oceana.mbari.org) to 6.X on [bugs.mbari.org](http://bugs.mbari.org) Documentation # Atlassian docs: ## Top level upgrade doc: <https://confluence.atlassian.com/display/JIRA/UpgradingJIRA> ## Skipping Major versions: <https://confluence.atlassian.com/display/JIRA/SkippingMajorVersionsWhenUpgradingJIRA> ...

#### [June 24th, 2011](#)

Target M1 HW Toro mount antenna OASIS package radios we should build 2 (have OSG build 1) Controller test on O3 tag build and deploy on O3 can OASIS2SSDS bob to make changes rich ...

#### [JViews Diagrammer Installation](#)

page describes how to install the JViews Diagrammer Version 8.7 toolkit on your development machine when you are ready to start developing a product using JViews. All of the necessary files are stored on the Alfresco server and are located here <https://alfresco.mbari.org> ...

#### [JViews Diagrammer Overview](#)

JViews Diagrammer is a Java library that provides comprehensive tools and components for creating graphical editing, visualization, supervision and monitoring tools. It was originally purchased for the ESP GUI project, but can be used for other products as well. As of December 2009, we have one ...

**L**

#### [LCM](#)

Some notes on LCM No need for centralized messaging hub Easy to mix simulated, realtime and playback messages

#### [Linux System How Tos](#)

K3b DVD Burner Installation  
HowTo Document Helpful Software  
Downloadsk3bDVDburnerHowTo.pdf  
Quatech PCMCIA Serial Port Adapter  
Setup HowTo Document Helpful Software

**K**

**M**

#### [MARS MVC Monitoring Device](#)

Estimate for MARS MVC Voltage Monitoring Device: Short answer: 15 man days for TM, \$1500 budget Breakdown on estimate: 3 to 5 days making stuff, 5 to 7 days coding ...

#### [Maven At MBARI](#)

Maven Presentations #M1 Using the internal MBARI repository from a Maven 2 project #M5 Using the external MBARI repository from a Maven 2 project #M2 Using the

DownloadsQuatech PCMCIA Serial Port Setup.doc Setting up a Dual Boot Windows/Linux ...

#### [Lobos-Ventana Planning](#)

document outlines the possible scenarios for Lobos/Ventana retirement and the work to be done to accomplish these various scenarios. The goal of this work is to position us to make an informed decision by gathering information from the folks close to the ship (from support engineering) and to grease ...

external MBARI repository from an Ant project using ...

#### [May 20, 2014](#)

Goals Decide on best plan for communications architecture, route selection, bandwidth management and whether or not to move forward with cell comms capability. Schedule Worked completed by early July so we can have several opportunities to test before Pacific ...

#### [MBARI Crowd Installation](#)

I am keeping this document around for historical purposes, but it references the original Crowd installation. In February of 2011, we upgraded Crowd and moved it to its own virtual machine in the DMZ. The instructions for that move are here [SPEPRJ:crowd.mbari.org](#) installation instructions Deployment ...

#### [MBARI Messaging Infrastructure](#)

2012, an effort started to design a communication backbone that would allow all MBARI assets to communicate easily across the organization. Much work has been done in computer science in the areas of message based systems over the years and this is an ...

#### [MBARITracking](#)

MBARITracking "project" The MBARITracking project is a collection of software that has been written to process and make available various realtime position data feeds. These feeds include: MBARI ship positions via our own VHF radio transmission MBARI ...

#### [McStar \(Ear in the Sea\)](#)

Gene Massion and Wayne Radochonski  
Transitioned to Thom Maughan and Jose Rosal of Support Engineering in Jan 2010  
\\ \\ \\ \\ McStar (EITS) Enhancements  
Hardware # Improve A/D converter #  
Reduce power consumption. TM: personal goal is to reduce ...

#### [McStar BeagleBoard Prep](#)

BeagleBoard and USB Harddisk Preparation Instructions Summary 1. Prepare Host 2. Create Bootable SD Card 3. Using Bootable SD card, update the BeagleBoard NAND flash \\ Prepare the Host # Recommended: use VMWare Player v3.01 ...

#### [McStar Support Eng](#)

McStar Users Guide\ McStar Users Guide  
\McStar BeagleBoard and USB Harddisk Prep\ McStar BeagleBoard Prep \\ Next Generation McStar (Ear in the Sea) #  
Reduce Power Consumption ## goal 1/4 of the batteries ## Use rechargeable batteries ...

#### [McStar Users Guide](#)

Equipment List HP NetBook PC Parani SD1000 on USB serial port Hyperterm 115200,8n1 Audacity USB cable for USB

drive for uploading data (USBA to mini).  
McSTAR Magnet on 'white spot' turns off the  
5v supply ...

 [Medium Power WPDx v1.0](#)

Problem Statement for MARS use case  
Wet mateable connectors are expensive, have limited mating cycles, and have reliability issues. \\ \ Cabled observatories have wet mateable connectors and would benefit by having an 'easier' connection for maintenance and attach ...

 [MOOS](#)

Notes on MOOS messaging system Links  
What is MOOS? <http://www.robots.ox.ac.uk/mobile/MOOS/wiki/pmwiki.php/Main/Introduction> <http://oceanai.mit.edu/moosivp/pmwiki/pmwiki.php?n=Main.HomePage>

**N**

 [New DGH can for high resolution pH and temperature measurement on an ROV](#)

tDGH Can Users Guide \ / \ / \ / \ / \ / \ /  
\ / \ / \ / \ / \ / \ /

...

 [NoSQL](#)

Why NoSQL? Here is a tidbit on why you might use NoSQL over RDBMS from Martin Fowler's NoSQL Distilled book <http://www.amazon.com/NoSQLDistilledEmergingPolyglotPersistence/dp/0321826620/ref=sr11?ie=UTF8&qid=1357327000&sr=81&keywords=nosql>

 [OASIS Data Flow](#)

OASIS Hourly Raw Data These files are updated hourly and are the raw uuencoded data from the connection sessions to the mooring. Each file (that starts with 'm1.' as the filename) is the hourly download and includes all the data from all the instruments. <http://dods.mbari.org/data> ...

 [OASIS Meeting Notes](#)

20110124 2011 Kick Off # 20110303  
Progress Meeting # 20110307 NDBC Hybrid  
Meeting # 20110314 NDBC Hybrid Follow  
up # 20110321 NDBC On site meeting #  
20110609 NDBC Deployment Follow Up  
Meeting

 [OASIS Moorings](#)

Something from an email from Rich: I ran some tests yesterday... 1) I STRONGLY recommend looking at your cfg file in a hex editor before attempting to upload it to make sure that it has a cr lf line ...

 [OASIS Radio Upgrade](#)

goal of this work is to get the radios upgraded so we are in compliance with FCC regulation. Participants Bob Herlien Rich Schramm Craig Okuda Meeting Notes April 27th, 2010 June 24th, 2011 Documentation

 [OASIS Release Notes](#)

From Kent Headley # # Cawthron TASCAM  
OASIS3 # Release Notes # 28 Oct 2010 #  
#####  
# ESD Handling Precautions  
#####  
All of the OASIS3 hardware requires  
proper ESD handling at all times.  
The Persistor cards are particularly  
sensitive to static discharge.  
#####  
# Known ...

 [oceana.mbari.org](http://oceana.mbari.org)

machine was purchased to host several collaboration tools for internal and external use for MBARI. It was originally setup with Fedora Core 5, but needed to be upgraded to Red Hat Enterprise Linux (RHEL) for I.S. support, backups, etc. The specifications of the machine are: # HP Proliant DL360 ...

#### [Overo Air Setup Use on Mac](#)

learning exercise and to evaluate the OMAP chip from TI and its possibilities for MBARI, I purchased the following things from Gumstix: # Overo Air COM <http://www.gumstix.com/store/catalog/productinfo.php?productsid=226> # Chestnut 43 Expansion Board ...

## P

#### [Player](#)

Notes <http://playerstage.sourceforge.net>

#### [Precision pH Sensor](#)

Ocean Acidification Instruments / Studies such as FOCE require a precision pH sensor capable of operating up to full ocean depth (4000m).\\ The Seabird SBE 18I is presently used. The problems found on FOCE and BRS: # The housing ...

#### [Proposals 2009](#)

Canyon Dynamics, Charlie Paull Replacement for STED's \\ 16 July 2008 Meeting with Charlie Paull <http://www.mbari.org/staff/paull/> Geologist, Brett Hobson <http://www.mbari.org/staff/hobson> Mechanical Engineer, Craig Okuda <http://www.mbari.org/staff> ...

#### [PTE database](#)

Pressure Tolerant Electronics Database \\ Known to Work Passives Capacitors Resistors Inductors Semiconductors Microprocessors Oscillators OptoElectronics LED ElectroMechanical Relays Motors Known to Fail Passives Capacitors Resistors Inductors Semiconductors Microprocessors ...

## R

#### [Rachel Carson](#)

Some documentation for Supporting the Rachel Carson Vorne Alphanumeric Display

#### [Reliable High Precision pH Sensor](#)

nbsp;Links HRPH Sensors for May 2009 Deployment HRPH Sensors for May 2010 Deployment HRPH Sensors for Apr 2011 Deployment HRPH Tech Transfer Package For Heron Island \ tech transfer package was prepared but not used, UQ Heron ...

#### [Reliable Wireless Power and Data Transfer Device \(Easy Swap Connector\)](#)

5 Watt 'Low Power' WPDx v1.0 \\ Assembly Notes Handoff to the very capable Jim Montgomery (20 Oct 2011)

## Q

#### [Qt](#)

Web Page <http://qt.nokia.com/products>

#### [QTKit Integration](#)

Goal The goal of this work was to integrate the QTKit Framework into Java so that the VARS application could access video sources for frame capture. This was necessary as Apple discontinued Quicktime for Java (that was nice of them) as well as the JavaCocoa bridge and VARS thus won't work ...

## S

#### [SAIC CENCOOS data management](#)

April 4, 2011 Meeting to get back up to speed with CENCOOS and Francisco # DMAC is high priority # how can we interact with other systems. # steven li # DMAC support 6 core physical variables # variables expand to More ...

#### [Seatel Microwave Pointing Controller Update](#)

An update to the Seatel Microwave Dish pointing controller software as part of the HD Video Microwave project. The current version of Seatel Controller software for the persistor CF2 in CVS is v1.0 and it is built for ver 2.28 of PicoDOS. ...

#### [Setup and Installation](#)



### [ROV Ventana](#)

Support Engineering Page for the ROV Ventana # Ventana Precision Control DVL driver (author Thom Maughan) # Ventana ROV Control PC RHEL5 Linux Upgrade (author Thom Maughan)



### [RV Odyssey Team](#)

information regarding the Research Vessel Odyssey Team (to be renamed). Support Engineering Meeting Notes # 20110315 I.S. and Support Scoping Meeting # 20110329 Fox Outfitting Meeting Task Scoping # Cross Deck Task Scoping

MBARI Services server (named services.mbari.org) was setup to host core services for internal and external users. This page documents the setup that was done to get services.mbari.org up and running. # Kevin Gomes met with Todd Ruston to talk about what this servers goals ...



### [Setup of RabbitMQ Cluster and Load Balancer](#)

page documents Configuration Activity Log # 1/8/14 Pat Allen configured four CentOS virtual machines, three to make up the cluster and one as a load balancer



### [Shark Cafe Camera](#)

2015 Tasks Housing polycarbonate tube (tough) Camera dimension unhoused is 1.11" at the back. tail section with pressure sensor and antenna hole potted acrylic camera dome Fin clamp holder separate battery housing detaches on release syntactic ...



### [Standard Wire Color Code](#)

Suggested Standard Wire Color Code \ Mark Chaffey / Ed Mellinger (Tiburon) Color Designation Black Power Grounds Brown Signal Grounds Red Logic Power Orange \12Vdc, \15Vdc Yellow \48Vdc Green Chassis / Frame / Seawater ...



### [Support Engineering Group](#)

Group Information Support Engineering is a group of Mechanical, Electrical and Software Engineers that support the engineering needs at MBARI. We support operational systems and assets and develop new small to medium level engineering developments. Roles # Provide engineering level technical ...



### [Support Engineering Space Index](#)

## T



### [tDGH Can Users Guide](#)

tDGH Can Users Guide Seabird 18s pH sensor setup Note: MUST have pH sensor configured correctly. The swFOCE team has setup the sensor with different options (not sure, but I believe they have setprompt=1 ...



### [Testing Styles](#)

Panel



### [Tsunami Migration](#)

Notes from tsunami migration: # The first step is to move the OASIS file share from Tornado to Atlas. ## I sent out an email inquiring about users of OASIS share, they are: Brian Schlining Scripts on Elvis use the share mounted ...

## V



### [Valve Pack Controller](#)

## U



### [Upgrade of Alfresco 2.1.1 to 4.1.1](#)

Literally, years went by without Alfresco being upgraded because I just never carved out the time for it. We finally decided that we needed to get the upgrade done and I just wasn't going to get to it so we talked ...



### [Useful Utilities](#)

Virtualization Virtual Box (hosted on RHEL5) wget http://download.virtualbox.org/virtualbox/VirtualBox2.1.442893rhel51.i386.rpm rpm \ivh VirtualBox2.1.442893rhel51.i386.rpm VirtualBox New \> Debian 4.0, Base Mem=512M, Dynamic sizeable harddisk 8.0 GB host key ...

## W



### [Western Flyer](#)

Valve Pack Controller \\ Valve Pack  
Controller: Pressure tolerant hydraulic  
valve pack controller with ModBus interface  
for use on Doc Ricketts (Tiburon2) tool sled.  
\\ \\ Requirements Modbus RTU, 19200  
baud. 16 valves (32 ...

 [Ventana Precision Control - DVL driver](#)  
nbsp; \\ Project Requirements: Create a  
DVL driver for the Precision Control project  
as specified by Mike Risi (Core Eng.) Provide  
a test harness to insure data correctness  
and robustness Completion by May 19th,  
project number is 600034 \\ Block ...

 [Ventana ROV Control PC RHEL5 Linux Upgrade](#)  
Experiment to determine issues upgrading  
older Pentium III PC from Red Hat 7 to  
RHEL5 Using the 'Simulator' duplicate PC  
(different motherboard than on Pt. Lobos)  
Using RHEL5 recovery disk and network  
(FTP) install. ...

 [Vorne Alphanumeric Display](#)  
Rev 1.0 07Mar2012 r.schramm \\ Both ships  
have an LED alphanumeric display in the  
ROV Control Room for displaying system  
time (GMT) along with ROV Depth and  
Position. Note that sometimes the Vorne is  
alternately referred to as the 'Delta Display'  
The specific ...

**X**  
**Z**

support engineering page for the  
Western Flyer. Below you will find links to  
documentation for the various supported  
systems on the Western Flyer. # CTDOptode  
# Vorne Alphanumeric Display

 [Wireless Systems \(Microwave\)](#)

Here you will find the growing body  
of documentation surrounding the  
wireless systems we use for telemetry  
of information at MBARI. Links from  
Craig # [http://en.wikipedia.org/wiki/  
Intermodulation](http://en.wikipedia.org/wiki/Intermodulation) # [http://www.gore.com/  
enxx/products/cables/microwave/  
passiveintermodulationpimtechnote.html](http://www.gore.com/enxx/products/cables/microwave/passiveintermodulationpimtechnote.html) #  
<http://www.repeaterbuilder.com> ...

**Y**  
**!@#\$**

# Testing Styles

This page last changed on Sep 13, 2011 by [kgomes](#).

<b>My title</b>
A Panel

## Upgrade of Alfresco 2.1.1 to 4.1.1

This page last changed on Dec 15, 2012 by [mmccarthy](#).

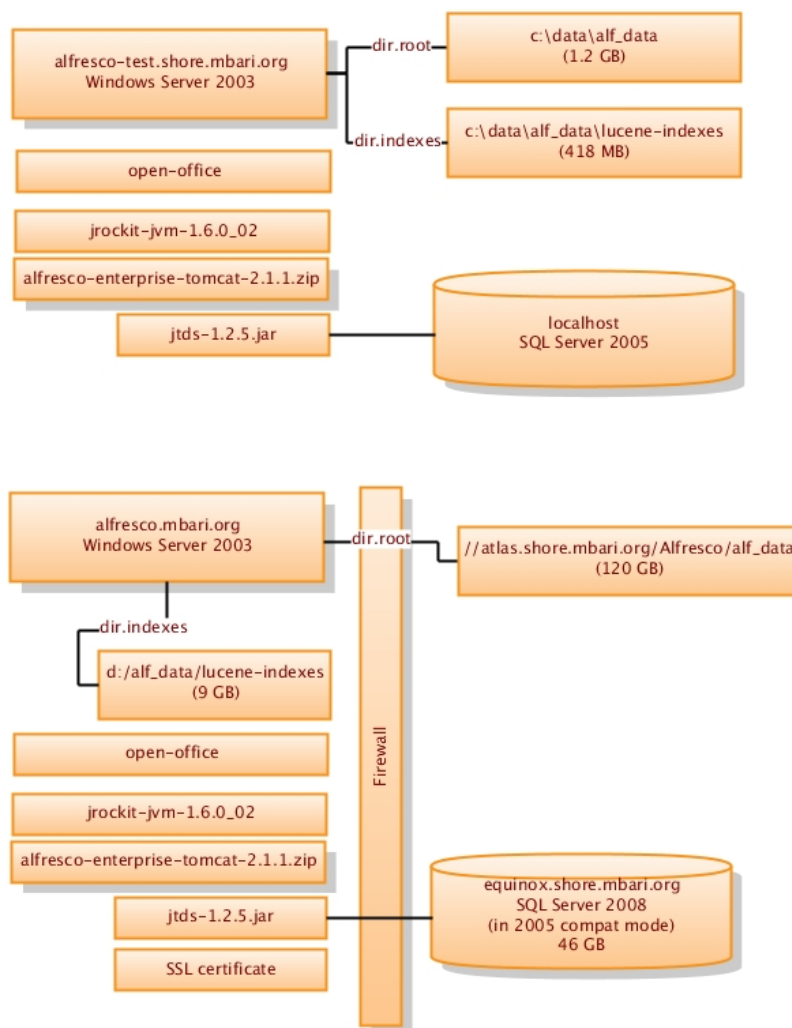
Literally, years went by without Alfresco being upgraded because I just never carved out the time for it. We finally decided that we needed to get the upgrade done and I just wasn't going to get to it so we talked to Alfresco and they provided us a partner (Tribloom) that we will just pay to do the upgrade. They sent us a Scope Of Work to which we wrote a PO. Duane was actually nice enough to let us use funds from his group to do this, thanks Duane!

### Goals

1. To get things the way we want them, the goals of the upgrade are:
  - a. Move Alfresco from 2.1.1 to 4.1.1
  - b. Move from SQL Server 2005 to SQL Server 2008
  - c. Move from Windows Server 2003 to RHEL 6.1 x64

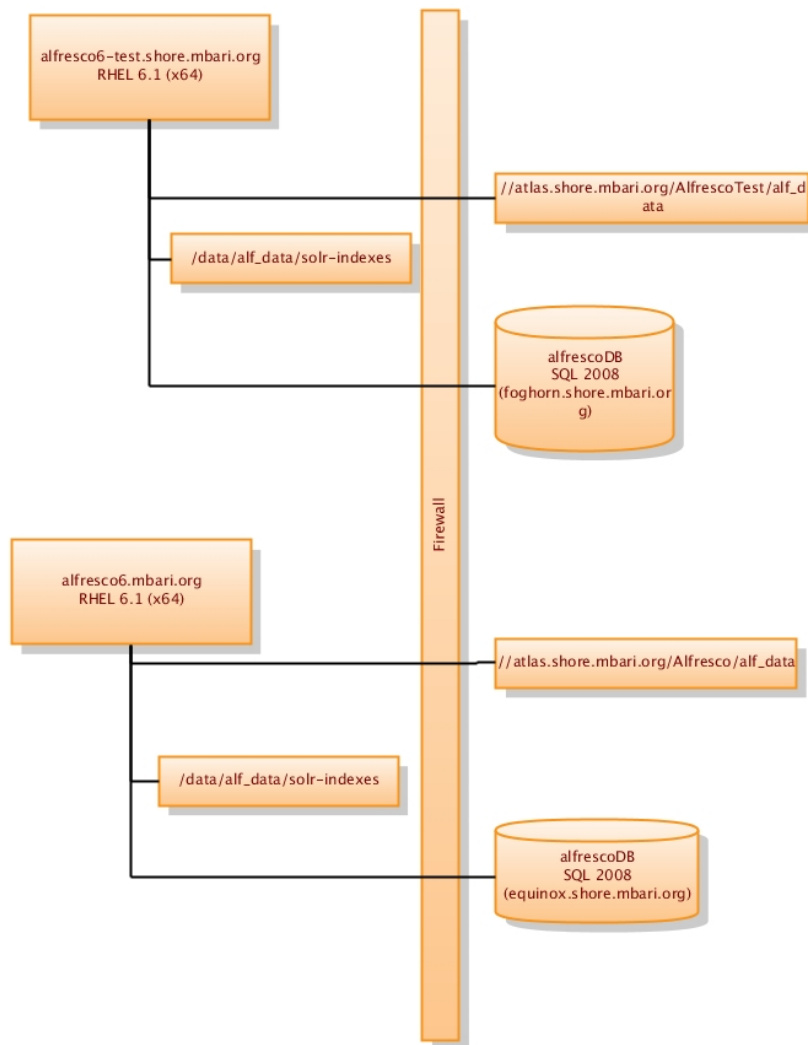
### Current 2.1.1 Server

Before starting the upgrade, I drew the following logical diagram of the pieces that are most important to the upgrade.



Here is a diagram of where we would like to move to:





Planned Steps	Actual Upgrade Steps
1. Our Alfresco rep contacted a partner that we hired to do the upgrade with/for us. These are the planned steps for that upgrade.     2. First I read over the supported stacks document here:      a. <a href="#">4.X Supported Stacks</a>           3. Then read about backing up and restoring Alfresco here:      a. <a href="#">Backup and Restore for Alfresco</a>           4. The next step was to look over the general upgrade process detailed here:      a. <a href="http://wiki.alfresco.com/wiki/General_Upgrade_Process">http://wiki.alfresco.com/wiki/General_Upgrade_Process</a>           5. I also read over the JVM tuning guide for Alfresco here:	1. [kgomes] I sent out a note at 2PM on 12/12 notifying everyone that Alfresco would be going down at 3PM.     2. [kgomes] I used remote desktop to login as me on alfresco.mbari.org.     3. [kgomes] I shutdown the Alfresco service and changed it to manual startup.     4. [kgomes] I logged off alfresco.mbari.org.     5. [kgomes] I used remote desktop to login as me on alfresco-test.shore.mbari.org.     6. [kgomes] I shutdown the Alfresco service and changed it to manual restart.     7. [kgomes] I logged off alfresco-test.shore.mbari.org     8. [kgomes] I used remote desktop to login as me on foghorn.shore.mbari.org

- a. [http://wiki.alfresco.com/wiki/JVM\\_Tuning](http://wiki.alfresco.com/wiki/JVM_Tuning)
- 6. I also utilized the installation notes for the test and production servers that I document here:
  - a. [Production Alfresco Installation Notes](#)
  - b. [Test Alfresco Installation Notes](#)
- 7. [TRIBLOOM] Submit a help ticket to Alfresco support to let them know that we will be attempting this upgrade and keep logging details during the upgrade.



#### **RHEL 5.5 is target for Tribloom**

Because we have to go through an intermediate version during the request and that version is only supported on RHEL 5.5, the Tribloom upgrade will only be to RHEL 5.5 and MBARI will move to RHEL 6.1.

- 8. [Pat Allen] Create four RHEL VMs, one for RHEL 5 test, one for RHEL 5 production, one for RHEL 6 test, and one for RHEL 6 production:
  - a. [alfresco5.mbari.org](#) (production)
  - b. [alfresco5-test.mbari.org](#) (test)
  - c. [alfresco6.mbari.org](#) (production)
  - d. [alfresco6-test.mbari.org](#) (test)
- 9. [Pat Allen] Install JDK 6 U33 x64 on all four machines
- 10. [Cathy Sewell] Setup SSL certificates for all four machines
- 11. [Kevin Gomes] Shutdown production and test alfrescos ([alfresco.mbari.org](#) and [alfresco-test.shore.mbari.org](#))
- 12. [Kevin Gomes] Backup alfresco database on [equinox.shore.mbari.org](#) to local disk on equinox
- 13. [Kevin Gomes] Backup // [atlas.shore.mbari.org/Alfresco/alf\\_data](#)
- 14. [Kevin Gomes] Store [alf\\_data](#) backup and alfresco DB backup on equinox somewhere safe
- 15. [Kevin Gomes] Copy // [atlas.shore.mbari.org/Alfresco/alf\\_data](#) to // [atlas.shore.mbari.org/AlfrescoTest/alf\\_data](#)
- 16. [TRIBLOOM] Install Alfresco 3.4.10 on [alfresco5-test.mbari.org](#)
- 17. [TRIBLOOM] Point 3.4.10 [dir.root](#) to local directory on [alfresco5-test.mbari.org](#)
- 18. [Neil Conner] Create new 'alfresco' database on [foghorn.shore.mbari.org](#)
- 19. [Neil Conner] Create new 'alf-temp' database on [foghorn.shore.mbari.org](#)
- 20. [TRIBLOOM] Point 3.4.10 database to 'alf-temp' database on [foghorn.shore.mbari.org](#)
- 21. [TRIBLOOM] Start up 3.4.10 on [alfresco5-test.mbari.org](#)
- 22. [TRIBLOOM] Verify 3.4.10 clean installation is working on [alfresco5-test.mbari.org](#)
- 9. [kgomes] I opened up to explorer windows and mounted the network drives for atlas shares Alfresco and AlfrescoTest
- 10. [kgomes] I created a directory on the Alfresco share called '2012\_12\_12\_2.1.1' to server as the backup location of the production repository
- 11. [kgomes] I called Neil and he started a direct Atlas copy of the [alf\\_data](#) directory on the Alfresco share to the new 2012\_12\_12\_2.1.1 directory to serve as a backup.
- 12. [kgomes] I also had Neil do the same copy to AlfrescoTest share on atlas (but this time only of the contents *inside* the [alf\\_data](#) folder because [alf\\_data](#) directory already existed on AlfrescoTest and was mounted to the RHEL VMs).
- 13. [kgomes] I started up SQL Server Management Studio and connected to the database server on [equinox.shore.mbari.org](#)
- 14. [kgomes] I expanded the databases and right-click on the 'Alfresco' database and chose 'Task -> Backup ...'
- 15. [kgomes] Accepted the defaults
- 16. [kgomes] Under options, I selected 'Verify after backup'
- 17. [kgomes] Under General, I selected 'Disk' as the destination, then clicked on 'Add...'
- 18. [kgomes] I added the file name '2012\_12\_12\_2.1.1' to the default path as the file name to save it to
- 19. [kgomes] I then took about 15 minutes and stated it was completed successfully.
- 20. [kgomes] I then mapped the equinox 'backup' folder on foghorn and could then see the backup of the SQL database.
- 21. [kgomes] I copied the backup to the backup file to the [D:\MSSQL 10.MSSQL\MSSQL\BACKUP](#) directory so I could use it to restore the database on foghorn
- 22. [kgomes] On foghorn I started up SQL Server Management Studio again
- 23. [kgomes] I right-clicked on the "Databases" icon and select "Restore Database..."
- 24. [kgomes] I entered 'Alfresco' as the "To database" name to restore to
- 25. [kgomes] I selected 'From Device', then clicked on the "..." button.
- 26. [kgomes] I left the default media of "file" and then clicked "Add..."
- 27. [kgomes] Then I had to select "All Files" from the "Files of Type" because I forgot to add the .bak extension when I backed it up.
- 28. [kgomes] Then selected OK, then OK again.
- 29. [kgomes] I put a check mark next to the new device entry.
- 30. [kgomes] I looked under "Options" and selected "Overwrite the existing database" even though I don't think it is needed in this case.
- 31. [kgomes] Then I clicked OK to fire it off.

23. [TRIBLOOM] Shutdown 3.4.10 on alfresco5-test.mbari.org
24. [Kevin Gomes] Restore equinox database backup over the 'alfresco' foghorn database
25. [Kevin Gomes] Change compatibility mode on alfresco db on foghorn from 2000 to 2008.
26. [TRIBLOOM] Point 3.4.10 database to 'alfresco' database on foghorn
27. [TRIBLOOM] Point 3.4.10 dir.root to NFS mounted //atlas.shore.mbari.org/AlfrescoTest/alf\_data
28. [TRIBLOOM] Configure 3.4.10 with MBARI configuration (Active directory and SSL)
29. [TRIBLOOM] Start 3.4.10 and watch log file
30. [TRIBLOOM] Validate 3.4.10 installation is working properly



#### What about indexes?

We are moving to Solr indexes in 4.1.1 so do we just leave out the migration of the lucene indexes?

31. [TRIBLOOM] Shutdown 3.4.10 on alfresco5-test.mbari.org
32. [TRIBLOOM/Neil Conner] Backup //atlas.shore.mbari.org/AlfrescoTest/alf\_data
33. [TRIBLOOM/Neil Conner] Backup 'alfresco' database on foghorn to local disk
34. [TRIBLOOM] Install Alfresco 4.1.1 on alfresco5-test.mbari.org
35. [Neil Conner] Create 'alf-temp' database on foghorn
36. [TRIBLOOM] Point 4.1.1 dir.root to empty local directory
37. [TRIBLOOM] Point 4.1.1 database to 'alf-temp' database on foghorn
38. [TRIBLOOM] Startup 4.1.1 on alfresco5-test.mbari.org
39. [TRIBLOOM] Verify clean 4.1.1 works on alfresco5-test.mbari.org
40. [TRIBLOOM] Shutdown 4.1.1
41. [TRIBLOOM] Configure 4.1.1 with MBARI configurations (Active Directory and SSL)
42. [TRIBLOOM] Point 4.1.1 dir.root to //atlas.shore.mbari.org/AlfrescoTest/alf\_data NFS mount
43. [TRIBLOOM] Point 4.1.1 database to 'alfresco' database on foghorn.shore.mbari.org
44. [TRIBLOOM] Start 4.1.1 and monitor log files
45. [TRIBLOOM] Verify 4.1.1 operation



#### Solr indexes

Should we have Alfresco build all the Solr indexes here?



#### Can we just do backup/restore

We may want to try and cold backup/restore from the test

32. [kgomes] After this, Neil and I noticed that the schema being used on the tables was 'LAGOON\DB\_Collaboration'. Neil wanted to change that to 'dbo'. He made the change and we may have to edit the JTDS driver URL to use that schema specifically (if it works at all).
33. [kgomes] I then logged into alfresco.mbari.org and copied the 'lucence-indexes' directory on the D:\alf\_data to the 2012\_12\_12\_2.1.1 directory on atlas \Alfresco so that we had a backup of the indexes.
34. [kgomes] I copied the database backup from equinox to the same share so we had all three: content store, database backup and lucene-indexes all in one spot.
35. [kgomes] I downloaded version 2.1.7.1, 3.4.10, 3.4.11 and 4.1.1.3 and put them in the /tmp directory on alfresco5-test.mbari.org and on alfresco5.mbari.org
36. [kgomes] I put a README.txt file in this same directory to explain all this.
37. [TRIBLOOM] Step 1 - Alfresco 2.1.7.1
  - Unzip alfresco-enterprise-tomcat-2.1.7.1.zip
  - Create directory /opt/alfresco-enterprise-2.1.7.1
  - Create symbolic link from /opt/alfresco to /opt/alfresco-enterprise-2.1.7.1
  - Modify /opt/alfresco/tomcat/shared/classes/alfresco/extension/custom-repository.properties for SQL Server DB
  - Use alf2\_1\_7@foghorn.shore.mbari.org for the DB and a new/blank content store and indexes
  - Modify /opt/alfresco/tomcat/shared/classes/alfresco/extension/custom-hibernate-dialect.properties for SQL Server DB
  - Create /etc/init.d/alfresco from [https://wiki.alfresco.com/wiki/Installing\\_Alfresco\\_2.1\\_on\\_Ubuntu\\_7.10](https://wiki.alfresco.com/wiki/Installing_Alfresco_2.1_on_Ubuntu_7.10) (modify for AlfrescoSvc user, remove iptables, redirection, and open office, and change log location)
  - Adjust permissions/ownership as necessary
  - Adjust access to the firewall as necessary
  - Verify "stock" Alfresco is working (use a web browser on port 8080)
38. [TRIBLOOM] Step 2 - "Upgrade" Alfresco 2.1.1 content/DB to Alfresco 2.1.7.1
  - Delete the alf\_bootstrap\_lock table
  - Delete all JBPM\_\* tables from the DB (this will destroy any in process workflows)
  - Redirect Alfresco to the old DB (Alfresco@foghorn.shore.mbari.org) and content store using /opt/alfresco/tomcat/shared/classes/alfresco/extension/custom-repository.properties
  - Set index.recovery.mode=FULL to rebuild indexes (note this process took about 9 hours)
39. [TRIBLOOM] Step 3 - Alfresco 2.2.8

system to the production system instead of going through all these steps again!

46. [TRIBLOOM] Install Alfresco 3.4.10 on alfresco5.mbari.org
47. [TRIBLOOM] Point 3.4.10 dir.root to local directory on alfresco5.mbari.org
48. [Neil Conner] Create new 'alf-temp' database on equinox.shore.mbari.org
49. [TRIBLOOM] Point 3.4.10 database to 'alf-temp' database on equinox.shore.mbari.org
50. [TRIBLOOM] Start up 3.4.10 on alfresco5.mbari.org
51. [TRIBLOOM] Verify 3.4.10 clean installation is working on alfresco5.mbari.org
52. [TRIBLOOM] Shutdown 3.4.10 on alfresco5.mbari.org
53. [TRIBLOOM] Point 3.4.10 dir.root to NFS mounted //atlas.shore.mbari.org/Alfresco/alf\_data
54. [Kevin Gomes] Change compatibility mode on alfresco db on equinox to 2008
55. [TRIBLOOM] Point 3.4.10 dir.root to 'alfresco' production database on equinox.shore.mbari.org
56. [TRIBLOOM] Configure 3.4.10 with MBARI configuration (Active directory and SSL)
57. [TRIBLOOM] Start 3.4.10 and watch log file
58. [TRIBLOOM] Validate 3.4.10 installation is working properly
59. [TRIBLOOM] Shutdown 3.4.10 on alfresco5.mbari.org
60. [TRIBLOOM/Neil Conner] Backup //atlas.shore.mbari.org/Alfresco/alf\_data
61. [TRIBLOOM/Neil Conner] Backup 'alfresco' database on equinox to local disk
62. [TRIBLOOM] Install Alfresco 4.1.1 on alfresco5.mbari.org
63. [TRIBLOOM/Neil Conner] Re-create empty 'alf-temp' database on equinox.shore.mbari.org
64. [TRIBLOOM] Point 4.1.1 dir.root to empty local directory on alfresco5.mbari.org
65. [TRIBLOOM] Point 4.1.1 database to 'alf-temp' database on foghorn
66. [TRIBLOOM] Startup 4.1.1 on alfresco5.mbari.org
67. [TRIBLOOM] Verify clean 4.1.1 works on alfresco5.mbari.org
68. [TRIBLOOM] Shutdown 4.1.1
69. [TRIBLOOM] Configure 4.1.1 with MBARI configurations (Active Directory and SSL)
70. [TRIBLOOM] Point 4.1.1 dir.root to //atlas.shore.mbari.org/Alfresco/alf\_data NFS mount
71. [TRIBLOOM] Point 4.1.1 database to 'alfresco' database on equinox.shore.mbari.org
72. [TRIBLOOM] Start 4.1.1 and monitor log files
73. [TRIBLOOM] Verify 4.1.1 operation

-Run the linux installer ./AlfrescoEnterprise-2.2.8-Linux-x86-Install

-Use /opt/alfresco-enterprise-2.2.8 for the target directory

-Remove the old sym link /opt/alfresco rm /opt/alfresco

-relink /opt/alfresco to 2.2.8 ln -s /opt/alfresco-enterprise-2.2.8 /opt/alfresco

-Modify /opt/alfresco/tomcat/shared/classes/alfresco/extension/custom-repository.properties for SQL Server DB

-Use alf2\_2\_8@foghorn.shore.mbari.org for the DB and a new/blank content store and indexes

-Modify /opt/alfresco/tomcat/shared/classes/alfresco/extension/custom-hibernate-dialect.properties for SQL Server DB

-Delete the duplicate archive nodes using this script:

40. [TRIBLOOM] Step 4 - "Upgrade" Alfresco 2.1.1 content/DB to Alfresco 2.1.7.1

-Delete the duplicate archive nodes using this script:

/\*\*\*\*\* Script for removing duplicate archive nodes \*\*\*\*\*/

delete

FROM [Alfresco].[dbo].[alf\_node\_status]

where node\_id in (

select A.id from (

SELECT

count(n.id) as num, n.id

FROM

alfresco.dbo.alf\_node n

JOIN alfresco.dbo.alf\_node\_status nstat

ON (nstat.node\_id = n.id)

JOIN alfresco.dbo.alf\_store s ON

(s.protocol = nstat.protocol AND s.identifier = nstat.identifier)

group by n.id) A

where A.num > 1

) and protocol='archive'

-Redirect Alfresco to the old DB

(Alfresco@foghorn.shore.mbari.org) and content store using /opt/alfresco/tomcat/shared/classes/alfresco/extension/custom-repository.properties



### **Solr indexes**

Build Solr indexes here?



### **End of Tribloom SOW**

At this point we should have a fully upgraded 4.1.1 Alfresco running on RHEL 5.5 pointing to an NFS mount that points to //atlas.shore.mbari.org/Alfresco/alf\_data, points to a local directory for the Solr indexes and points to the 'alfresco' database on equinox.shore.mbari.org. This is the end of the Tribloom scope or work.

74. [MBARI] Shutdown 4.1.1 on alfresco5-test.mbari.org
75. [MBARI] Install and configure 4.1.1 on alfresco6-test.mbari.org exactly as it was on alfresco5-test.mbari.org (or copy from alfresco5-test.mbari.org)



### **Triblooms instructions are critical here**

In order for use to configure 4.1.1 in the exact same manner on RHEL 6 as was done on RHEL 5.5, we will need very detailed instructions for how Tribloom configured the 4.1.1 installation on alfresco5-test.mbari.org. Or, maybe we can simply copy the 4.1.1 installation to alfresco6-test.

76. [MBARI] Copy Solr indexes from alfresco5-test.mbari.org to alfresco6-test.mbari.org
77. [MBARI] Mount //atlas.shore.mbari.org/AlfrescoTest/alf\_data on alfresco6-test.mbari.org
78. [MBARI] Point 4.1.1 dir.root on alfresco6-test.mbari.org to NFS mount
79. [MBARI] Point 4.1.1 database to 'alfresco' database on foghorn.shore.mbari.org
80. [MBARI] Start up and verify 4.1.1 installation on alfresco6-test.mbari.org
81. [MBARI] Shutdown 4.1.1 on alfresco5.mbari.org
82. [MBARI] Install and configure 4.1.1 on alfresco6.mbari.org exactly as it was on alfresco5.mbari.org (or copy from alfresco5.mbari.org)
83. [MBARI] Copy Solr indexes from alfresco5.mbari.org to alfresco6.mbari.org
84. [MBARI] Mount //atlas.shore.mbari.org/Alfresco/alf\_data on alfresco6.mbari.org
85. [MBARI] Point 4.1.1 dir.root on alfresco6.mbari.org to NFS mount

86. [MBARI] Point 4.1.1 database to 'alfresco' database on equinox.shore.mbari.org
87. [MBARI] Start up and verify 4.1.1 installation on alfresco6.mbari.org
88. [MBARI] Create alias so that <https://alfresco.mbari.org> points to alfresco6.mbari.org

**Dismantle the old**

After all has been verified, the old alfresco.mbari.org 2003 server and alfresco-test.mbari.org can be backed up and destroyed

# Virtualization

## Virtual Box (hosted on RHEL5)

wget [http://download.virtualbox.org/virtualbox/VirtualBox-2.1.4\\_42893\\_rhel5-1.i386.rpm](http://download.virtualbox.org/virtualbox/VirtualBox-2.1.4_42893_rhel5-1.i386.rpm)

rpm -ivh VirtualBox-2.1.4\_42893\_rhel5-1.i386.rpm

VirtualBox

New --> Debian 4.0, Base Mem=512M, Dynamic sizeable harddisk 8.0 GB

host key is right ctrl

# Editors

## TextPad

<http://textpad.com>; TextPad has about 80% to 90% of what slickedit has and you can have it today.

To register your copy of TextPad:

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## Valve Pack Controller

This page last changed on Jan 18, 2011 by [tm](#).

# Valve Pack Controller

**Valve Pack Controller: Pressure tolerant hydraulic valve pack controller with ModBus interface for use on Doc Ricketts (Tiburon2) tool sled.**

### Requirements

- Modbus RTU, 19200 baud.
- 16 valves (32 solenoids) Max
  - Upto 4 solenoids (valves) on (max) at any given time
  - Valve Manufacturing and Research Co. P/N 9043-2 (20-28vdc, 20 watts)
    - 750 ma continuous at 24vdc
- Design for 24v DC unregulated input (might be regulated per ECO on Tiburon2 power transformer)
- 9 in x 4 in max size. 3/4 inch height max
- Status LEDs
  - on FET outputs
  - RS485 TX
  - RS485 RX
  - MODBUS CRC error
- Pressure tolerant electronics - 10k tested / 4000m depth. Immersed in Oil.
- Temperature: -10 degrees C to 85 degrees C
- Connectors
  - Molex for RS485 / MODBUS
  - Molex for RS232 MODBUS
  - Molex for 2nd serial port RS232 debug
  - Phoenix (green 0.156" screw terminal) for power
  - Both power and comms on one end of the board

### Tasks

- Hardware Design
  - Design and Schematic Capture [Done]
    - MSP430F169 (has 32 ports and ModBus stack)
    - Low side FET (higher voltage version of FET used on ERC)
    - RS485 using Maxim for ModBus interface
    - RS232 using MAX3222
      - RS232 for debug and to set ModBus address
      - RS232 as an option for ModBus interface
    - Analog In/Out using TL084 with +/- 12v rails
    - Current monitoring of +24v supply
    - 22uf Tantalum caps for power rail stiffness
    - IR sensor for test
  - Crystal selection (Epson recommended by DMO)
    - SG-304
    - SG-531PCG
    - SG-636PCE oscillator (ordered)
    - MA-506 xtal (ordered)
    - SG-615PCV
    - Linear Tech LTC6907 Silicon oscillator (resistor set 50Khz - 4Mhz)
- PCB Layout (in progress start 5/27)
  - Footprints (Thom / Jose) [Done 5/28]
  - Placement (Jose per Thom's physical description)
  - Routing (Jose)
    - 24v trace 6.8A with 10deg C rise in temp (2oz copper, 6 x 80mil <http://circuitcalculator.com/wordpress/2006/01/24/trace-resistance-calculator>)



- Checkplot (Thom / Jose) [Done 6/5]
- PCB Manufacture
  - Advanced Circuits (qty 5/10/20 is \$600) [Start 6/6 - expected 6/11, received at 12:50pm on 6/11]
- Assembly
  - Assembled by Jim Montgomery. Initial build of 2 (received 1st board 12:45pm on 16 June 08 - wahoo!)
- Board Bringup (Thom)
  - Notes on First board Bringup
    - +24v / GND not visible on to layer silkscreen - 22uF caps have a band on positive that can be used for polarity indicator.
    - Power supply setup for 100ma current limit - applied 10v and the PS went into current limit. ADM4073 (current sense) was hot - suspect part in backwards. Removed ADM4073.
    - R272 (0 ohm) was not soldered on one side
    - LM317 voltage setting resistors: R195 should be 1k and R196 should be 100 (backwards on schematic and as stuffed on PCB)
    - 22uF tantalum caps C118, C152 are backwards on the schematic (and PCB layout). Due to cut and paste error on from negative regulator circuit on schematic and rush to layout (no stuff on first rev).
    - ICL7662 is hot and only producing -5v (should be -13.8v or so). Clipped pin 8 (V+) and will diagnose later.
    - LED issue. The "ON" Green LED was not working, voltage to LED was around 3.3v. Removed LED, and reversed it. Still not working. Replaced LED with oposite polarity, now it works. Silkscreen is bad (+ is on the K cathode). LEDs on Coil circuits will be blown if stuffed backwards.
      - For all LEDs: Stuff LED's reverse from silk
    - Blue LEDs (BLINKY1, BLINKY2) are missing the ground. Run a small wire from adjacent LED to ground the cathode on the bottom side of board.
    - TXD and RXD LED's blink too fast during serial comms - not useful as an activity indicator (LEDs are hardwired to RXD and TXD lines). Consider using the Signals for the Blue LEDs to make serial comms activity indicators
    - ADM4073 has sense inputs wired backwards on the schematic and the pcb layout. Swap inputs at the capacitor C153.
    - Replaced SG636 - 3.6848 MHz osc with LTC6097 silicon oscillator (1% resistors used.  $F_{out} = 50K / R_{set} * 4Mhz$ ). For  $F_{out} = 3.6864 \text{ MHz}$ ,  $R_{set} = 54.2535Kohm$ . 53.6K + 665 || 3.01k was used and measured with Tektronix TDS2022B to be 3.68395Mhz with the last digit dithering between 2 and 9. Note: SG636 3.6864MHz oscillator was stuffed and measured to be 3.6862MHz with the same Tektronix scope.
    - Analog checkout
      - TL084 has wrong schematic symbol and incorrect layout.
    - RS485 - one side should be pulled up, the other pulled to ground. For VPC on toolsled, termination will be done off board so no rework required.
  - RS485, RS232
    - Modified the clock settings for the 3.6848 MHz clock oscillator (was 32khz with FLL/DCO to 4Mhz on Olimex dev board).
  - Port Bits and FETS
    - Working as designed - confirmed LED current of 10ma.
  - Analog Inputs
  - Analog Outputs
    - Populated 10K's with a 100k feedback resistor with expectation of gain = -5. DAC0 Signal passes but attenuated rather than amplified. Found an Schematic error on 2nd opamp (pins 5 and 6 are swapped).
- Pressure Testing
  - Smoke test 26 June 2008
    - Ran one cycle to 10000 psi (6600 meters) in approximately 25 minutes with silicon oscillator.
    - Board was powered up and sent modbus commands thru the entire pressure cycle. Note: During the initial pressurization, the PC lost communications. The host side app (modbus poll) was restarted and communication was re-established. It was thought to be due to noise from the pump/solenoid of the pressure vessel.
    - There were no apparent component failures. Note: the reset and test switches were more difficult to activate after being immersed in oil. These will not be stuffed on the deployed version so it's a non-issue but good to know they fail open.

- A bag of parts was also pressure tested.
- 10 Cycle test 2 July 2008 - 5 cycles to 6500 psi. Two boards (#1, #2), one with SG636 osc and the other with LTC silicon osc. Board #2 (with SG636) was powered and continuously running vpc-unit-test-master during the pressure test. Both boards verified operational after the test. Note: as before, the switches were crippled likely an effect of the oil on the conductive rubber, the good news is they fail open not short.
- 10 Cycle test to 6000 psi 2 Aug 2008. Final test of the three boards handed to Dale (Boards #2, #3, #4). Power was not applied to the boards during test. After the test, the boards were all three connected to an RS485 network and continuously cycled using the vpc master unit test program for 1 week before handoff to DMO (Dale).
- 
- Software Design
  - Develop software on MSP430F169 Eval board from Olimex
    - Leverage ModBus stack previously evaluated by Mike Risi (<http://freemodbus.berlios.de>)
    - MSP430 CPU and Peripheral Initialization [Done]
    - Modbus stack integration [Done]
      - modify vMBPortSerialEnable( BOOL xRxEnable, BOOL xTxEnable ) to enable RS485 TXEN when transmitter is active (in portserial.c)
      - modify xMBRTUTransmitFSM to post a flag (hackFlg) to disable RS485 TXEN after last byte xmit. Would like to have done it in statemachine but this did not work as the line was de-asserted during last byte xmit. Technique is to post a waitTX flag which then causes a poll for TX complete (TXEPT) to time delay after last byte TX interrupt to insure serial shift of last byte is complete.
    - D/A output [Done]
    - A/D input for current and temperature
  - ModBus Address Configurator (PC Program) to write the slave address into the VPC.
    - Target Flash Write (for programming ModBus Address)
  - ModBus Unit Test program
    - Candidates:
      - WinTech ModScan32: <http://www.win-tech.com/html/modscan32.htm>; Useful for basic test. Free download is slightly crippled, doesn't run overnight.
      - Modus Poll: [http://www.modbustools.com/modbus\\_poll.asp](http://www.modbustools.com/modbus_poll.asp); "ModBus Poll" Useful for testing ModBus modes, free download expires after 30days and only polls for 10 minutes. \$99 for single seat, \$299 for site license
      - FieldTalk Modpoll: <http://www.focus-sw.com/fieldtalk/modpoll.html>; Free command line utility for polling, runs overnight.
      - [Chosen for unit test] LibModBus: <https://launchpad.net/libmodbus/>. Open source, C language library for linux hosted development.
        - On a linux machine (RHEL 5) expand the tar file: tar xvf libmodbus-2.0.0.tar in vpc/test directory
        - cd to vpc/test/libmodbus-2.0.0 and run ./configure
        - make clean; make
        - What was done (you don't need to)
          - in tests directory, copied unit-test-master.c (from libmodbus-2.0.0/tests directory) and named vpc/test/vpc-unit-test-master.c. Modified and expanded for vpc unit testing.
          - after building libmodbus, copied shared lib libmodbus-2.0.0\modbus\libs\libmodbus.so.2 to vpc/test
        - For the VPC unit test, in vpc/test, type make to build. This will produce a vpc-unit-test-master executable.
        - to Run the test, ./vpc-unit-test-master (on a linux box with RS232 cable connected to ttyS0 and B&B RS232 to RS485 adapter)
          - Slave address is 1, baud rate is 19200, etc. recompile to change.
        - To Do:
          - Find out why invalid address on reading input register. Reading holding registers is the workaround as these are the same coil values as would be read by input registers.
- To Do List
  - [Complete] RS485 termination. VPC pullup is 3.3v. Need to check if Tiburon interface is providing the pullup. RS485 termination removed from the VPC.

- [Complete] TX and RX LED activity indicators. Modified (ECO) the circuit to provide +3.3v to the Anode and pulled down the cathode - DMO approved.
- Analog Input for Hall Effect (will result in a resettable count for cable payout indicator)
- [Complete] The 2 development boards have been pressure tested, need to pressure test the remaining boards. All boards have been cycled 10 times to 6000 psi.
- Order parts (22uF tantalum caps)
- Slave Address Setter Utility (for writing ModBus slave address thru the spare serial port).  
Updated plan to use Hyperterminal rather than write a utility.
- Order solder paste stencil and evaluate using stencils to speed assembly time
- [Complete] Depopulate switches as they are damaged by the oil
- [Complete] Scribe the board serial number - currently done on ground fill top side near the 'test' switch (SW2) above Coil 2B silk
- Build 4 more boards for DMO - 2 for Dale, 2 for Craig Dawe.
  - Quote from Indtec is 0.20 to 0.25 per component. Component count is 499
  - Updated BOM for 'no analog' build
  - Working with Jim Montgomery on the package.
- 
- ECO List for Rev 1.0 PCB
  - Valve Pack Controller "No Analog Build" ECO's:
    - LED silk screen is wrong. + is not Anode, but rather Cathode. Action is to stuff LED's reverse from the silk. Action for Jose to fix the PCB component.
    - LED's SP1 and SP2 (Blinky1 and Blinky2) require a ground wire be added to the cathode. A small gauge wire can be routed from the cathode of I/O ERR LED on the bottom side across the cathode of SP1 and SP2.
    - LEDs for TXD and RXD are on at idle. Modification is to stuff the LED's cathodes per the silkscreen (backwards) and tie the anodes together (not stuffed in the hole) and tie with wire wrap wire to +3.3v (board edge side of C10)
    - C118 and C152 need to be stuffed opposite of the silkscreen (silkscreen is backwards).
    - R195 is 1K and R196 is 100 (schematic error has the values swapped). The BOM spreadsheet is correct, the schematic (v1.0) is incorrect.
  - RS485 Termination is incorrect. Should be a pull up and a pull down. R204 should be a pull down (un verified).
  - 
  -

---

## Miscellaneous

uart calculator: <http://mspgcc.sourceforge.net/baudrate.html>  
 this program license is at: <http://www.fsf.org/licenses/licenses.html#GPL>  
 this program is distributed WITHOUT ANY WARRANTY

clock: 3686400Hz  
 desired baud rate: 19200bps  
 division factor: 192  
 effective baud rate: 19200bps  
 maximum error: 0us 0.00%

time table (microseconds):  
 event desired effective error error%  
 startbit->D0 52.08 52.08 +0 +0.00  
 D0->D1 104.17 104.17 +0 +0.00  
 D1->D2 156.25 156.25 +0 +0.00  
 D2->D3 208.33 208.33 +0 +0.00  
 D3->D4 260.42 260.42 +0 +0.00  
 D4->D5 312.50 312.50 +0 +0.00  
 D5->D6 364.58 364.58 +0 +0.00  
 D6->D7 416.67 416.67 +0 +0.00  
 D7->stopbit 468.75 468.75 +0 +0.00  
 end of stopb 520.83 520.83 +0 +0.00  
 \*/

```
UBR00=0xC0; UBR10=0x00; UMCTL0=0x00; /* uart0 3686400Hz 19200bps */
UBR01=0xC0; UBR11=0x00; UMCTL1=0x00; /* uart1 3686400Hz 19200bps */
```

**The simplest way to use the USART in UART mode is this: interrupt is not enabled, the software checks if it can output the next byte (UTXIFG = 1), and if a new character has been received (URXIFG = 1).**

### Modbus Register Map

- REG\_INPUT\_START        512        // input registers start at 512
- REG\_INPUT\_NREGS        8        // 8x16 bit registers
- REG\_SOLENoids\_A        0        // Holding registers start at 0 (16 coils for each A and B)
- REG\_SOLENoids\_B        1
- REG\_HOLDING\_START    0        // to match WAGO
- REG\_HOLDING\_NREGS    40        // 40 is more than actual (2)
- REG\_COILS\_START        0        // read individual coils (was 1000)
- REG\_COILS\_SIZE        32        // 32 coils
- REG\_DISC\_START        0        // discrete (was 1000)
- REG\_DISC\_SIZE        32        // 32 coils

---

### MODBUS

- Commands
  - Read Input Register (0x04)
  - Read Holding Registers (0x03)
  - Write Single Register (0x06)
  - Write Multiple Registers (0x10)
  - Read/Write Multiple Registers (0x17)
  - Read Coils (0x01)
  - Write Single Coil (0x05)
  - Write Multiple Coils (0x0F)
  - Read Discrete Inputs (0x02)
  - Report Slave ID (0x11)
- Address
- Slave ID
- Berllos ModBus Stack
  - The modbus stack is config'd in [mbconfig.h](#) which is located in vpc\modbus\include

---

## Debugging MSP430

### Starting gdbproxy

The next step is starting gdbproxy, which is responsible for the communication between GDB and the

FET: msp430-gdbproxy --port=2000 msp430

If your FET is properly connected to the parallel port, you should see a message like the following: info:

msp430: Target device is a 'MSP430F12x' (type 11)

notice: msp430-gdbproxy: waiting on TCP port 2000

### Using Insight (Windows)

After you have started Insight (c:\msp430\bin\msp430-gdb.exe), click on "File->Open" and select the elf-file (e.g. "test.elf") you want to debug.

Now click on "Run->Connect to target" and enter the following settings: Target: "Remote/TCP"

Hostname: "localhost"

Port: "2000"

Set breakpoint at 'main': yes

Set breakpoint at 'exit': yes

Attach to target: yes  
Download Program: yes  
Command after attaching: "monitor erase all"  
Run Method: Continue from last Stop  
When you click on "Ok" Insight should tell you that the connection was successful, and gdbproxy should say "notice: msp430-gdbproxy: connected".

To start the debugging click on "Run" or simply press "r". If everything worked correctly you should now see the sourcecode of your program with the first line of main() marked green. The red point is the breakpoint that has been set by Insight automatically. You can set or remove breakpoints by clicking on the '-' in front of the line.

Now you can 'c'ontinue the execution to the next breakpoint, 's'tep through the code, or step a single assembler instruction... but be careful with "finish": Insight sometimes seems to lock up with this command. So if you want to finish a function, I recommend setting a breakpoint to the end of the function and using "continue".

## Installing the Compiler Tool Chain

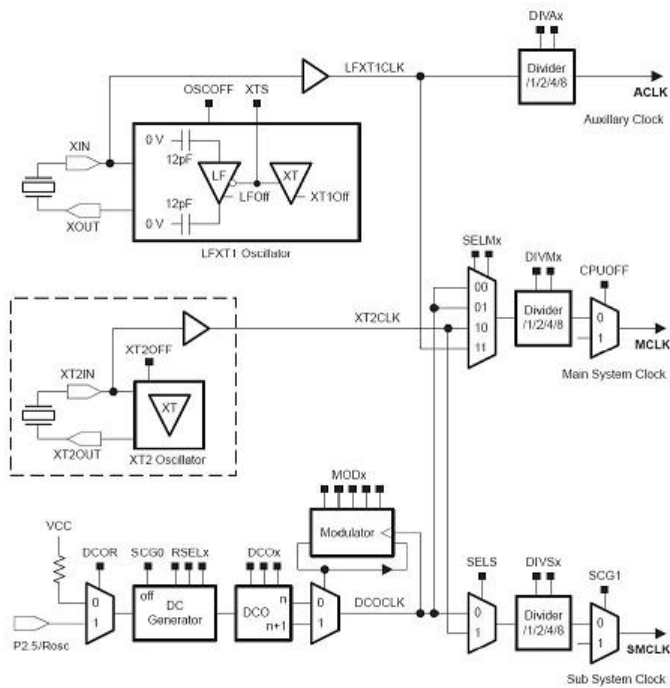
To obtain and install the compiler:

1. Go to the MSPGCC download page and obtain the latest MSPGCC installation. I used the 'mspgcc-20040723.exe' download which installed everything I needed for a Win32 setup.
2. This step need only be performed if you wish to use the graphical version of GDB. The latest MSPGCC download only includes the command line GDB debugger. I prefer to use the graphical version called Insight. A slightly older prebuilt version of Insight can be used. Install this older version of insight into a different directory to that chosen for the latest MSPGCC installation as you don't want to overwrite the files obtained in step 1.  
You should now have two installations. The latest version of MSPGCC installed during step 1, and a slightly older version of Insight from step 2. Both versions of the GDB debugger are called msp430-gdb.exe so one needs to be renamed. Locate the older version msp430-gdb.exe from the files installed during this step and rename it msp430-insight.exe.
3. Ensure the BIN directory from the files installed during step 1 and the BIN directory from the files installed during step 2 are included in your PATH environment variable.
4. The MSPGCC download includes a program called msp430-gdbproxy.exe. This intercepts the GDB TCP commands and redirects them to the parallel port. Start msp430-gdbproxy (a shortcut to this will have been placed on the start menu when MSPGCC was installed). By default msp430-gdbproxy uses port 3333 - do not change this.
5. Program the flash as per the instruction in the section above. The flash can be programmed from within GDB but it is much faster to do it separately and beforehand.
6. Start the debugger using the command ... msp430-insight a.out... the commands in the gdb.ini file will do the rest. If you prefer to use the command line debugger simply replace msp430-insight with msp430-gdb.
7. Insight will start at and the program will stop at the breakpoint in main() as shown below.

MSP430 Clocking

MSP430 Basic Clock Module

- Clock Signals:
  - **ACLK**: Auxiliary clock. The signal is sourced from LFXT1CLK with a divider of 1, 2, 4, or 8. (The calibration program for the serial link sets the divider to 4, but after the calibration it can be changed to any other values.) ACLK can be used as the clock signal for Timer A and Timer B.
  - **MCLK**: Master clock. The signal can be sourced from LFXT1CLK, XT2CLK (if available), or DCOCLK with a divider of 1, 2, 4, or 8. MCLK is used by the CPU and system.
  - **SMCLK**: Sub-main clock. The signal is sourced from either XT2CLK (if available), or DCOCLK with a divider of 1, 2, 4, or 8. SMCLK can be used as the clock signal for Timer A and Timer B.
- MSP430 Clocking pictorial:
  - 
  -



#### BCSCTL1, Basic Clock System Control Register 1

7	6	5	4	3	2	1	0
XT2OFF	XTS	DIVAx	XT5V	RSELx			
rw-(1)	rw-(0)	rw-(0)	rw-(0)	rw-0	rw-1	rw-0	rw-0

XT2OFF	Bit 7	XT2 off. This bit turns off the XT2 oscillator 0 XT2 is on 1 XT2 is off if it is not used for MCLK or SMCLK.
XTS	Bit 6	LFXT1 mode select. 0 Low frequency mode 1 High frequency mode
DIVAx	Bits 5-4	Divider for ACLK 00 /1 01 /2 10 /4 11 /8
XT5V	Bit 3	Unused. XT5V should always be reset.
RSELx	Bits 2-0	Resistor Select. The internal resistor is selected in eight different steps. The value of the resistor defines the nominal frequency. The lowest nominal frequency is selected by setting RSELx=0.

## BCSCTL2, Basic Clock System Control Register 2

7	6	5	4	3	2	1	0
SELMx		DIVMx		SELS	DIVSx		DCOR
rw-0	rw-0	rw-0	rw-0	rw-0	rw-0	rw-0	rw-0

<b>SELMx</b>	Bits 7-6	Select MCLK. These bits select the MCLK source.
		00 DCOCLK
		01 DCOCLK
		10 XT2CLK when XT2 oscillator present on-chip. LFX1CLK when XT2 oscillator not present on-chip.
<b>DIVMx</b>	Bits 5-4	Divider for MCLK
		00 /1
		01 /2
		10 /4
<b>SELS</b>	Bit 3	Select SMCLK. This bit selects the SMCLK source.
		0 DCOCLK
		1 XT2CLK when XT2 oscillator present on-chip. LFX1CLK when XT2 oscillator not present on-chip.
<b>DIVSx</b>	Bits 2-1	Divider for SMCLK
		00 /1
		01 /2
		10 /4
<b>DCOR</b>	Bit 0	DCO resistor select
		0 Internal resistor
		1 External resistor

## Western Flyer

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This page last changed on Dec 30, 2012 by [kgomes](#).

This is the support engineering page for the Western Flyer. Below you will find links to documentation for the various supported systems on the Western Flyer.

1. [CTD-Optode](#)
2. [Vorne Alphanumeric Display](#)

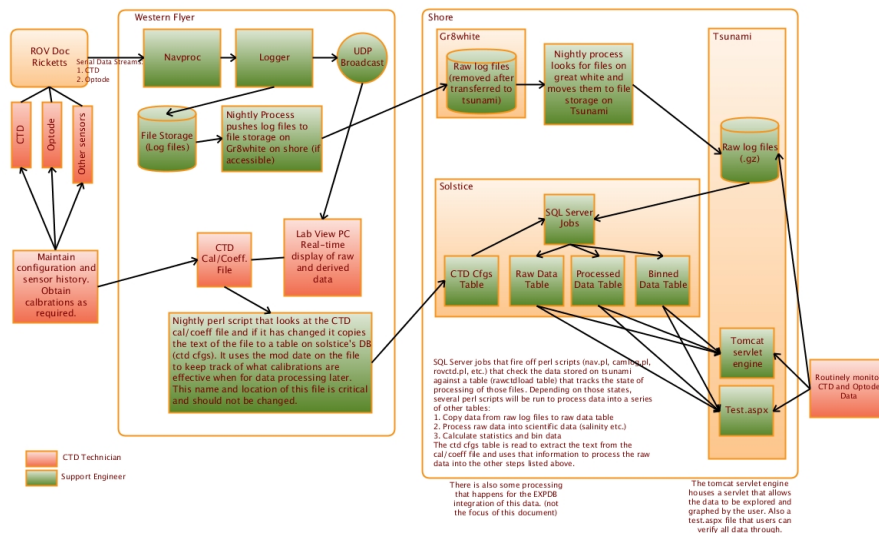


## CTD-Optode

This page last changed on Jun 04, 2009 by rich.

This page documents the flow and responsibilities for maintaining the CTD and O2 Optode and auxilliary environmental (xmissometer, fluorometer etc) sensors on the ROV Doc Ricketts and Western Flyer.

### System Diagram



### Parties Involved

1. Science User
2. Support Engineer
3. CTD Technician

### Tasks

1. Keep track of which calibrations and coefficients are valid for which times
2. Maintain the Optode and CTD on the vehicle (verify t,s oxygen minimums, maximums, etc.)
3. Use the various access methods to verify the CTD and optode data is correct

### History

1. Optode was reporting *funny* oxygen values apparently beginning in February when Ricketts first went operational. Was noticed by scientists during dives in April and May.
2. An SBE43 O2 sensors was installed on the CTD (May nn) and is being reported through a spare A/D channel to provide ground-truth the Optode until problems are resolved
3. The Optode was replaced in late May (~5/26) to see if it fixes the problem.
4. O2 calib.coefficient found to be incorrect on configuration file for sensor deployed February through 5/26..

### Outstanding questions

1. We have now reprocessed the optode from February up to when the sensor changed in late May, the data looks "better". Is it correct?
2. If optode data is now accepted as correct - we need to notify  to get data downstream of processing VARS, SamplesDB corrected and inform science users
3. How often should/is the O2 data routinely checked by human eyes as first-level QC? (and T,S xmiss as well)

4. What is the criteria to be used in check above?
5. Who is signing of that the optode is doing the final signoff that optode is being properly handled.

## Wireless Systems (Microwave)

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This page last changed on May 23, 2011 by [kgomes](#).

Here you will find the growing body of documentation surrounding the wireless systems we use for telemetry of information at MBARI.

Links from Craig

1. <http://en.wikipedia.org/wiki/Intermodulation>
2. [http://www.gore.com/en\\_xx/products/cables/microwave/passive\\_intermodulation\\_pim\\_tech\\_note.html](http://www.gore.com/en_xx/products/cables/microwave/passive_intermodulation_pim_tech_note.html)
3. <http://www.repeater-builder.com/antenna/pdf/andrew-braid-over-foil-imd.pdf>
4. <http://www.repeater-builder.com/db/pdfs/db-about-combiners.pdf>
5. <http://www.rfsolutions.com/duplex.htm>
6. <http://www.repeater-builder.com/badconn/>
7. <http://www.repeater-builder.com/antenna/pdf/ve2azx-duplexerinfo.pdf>
8. <http://www.repeater-builder.com/antenna/pdf/andrew-shielding-effectiveness.pdf>

## High Performance In-situ Processing for CANON mobile platforms

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This page last changed on Jul 24, 2012 by [tm](#).

<http://www.vlfeat.org/index.html> The VLFeat open source library implements popular computer vision algorithms including SIFT, MSER, k-means, hierarchical k-means, agglomerative information bottleneck, and quick shift. It is written in C for efficiency and compatibility, with interfaces in MATLAB

## JIRA Upgrade Notes

This page last changed on Aug 21, 2015 by [kgomes](#).

The goal of this work is to upgrade and migrate JIRA 3.12.1 from oceana.mbari.org to 6.X on bugs.mbari.org

### Documentation

1. Atlassian docs:
  - a. Top level upgrade doc: <https://confluence.atlassian.com/display/JIRA/Upgrading+JIRA>
  - b. Skipping Major versions: <https://confluence.atlassian.com/display/JIRA/Skipping+Major+Versions+When+Upgrading+JIRA>
  - c. Migration from 3.12.1 -> 4.4: <https://confluence.atlassian.com/display/JIRA044/Migrating+JIRA+to+Another+Server>
  - d. The JIRA configuration tool: <https://confluence.atlassian.com/display/JIRA044/Using+the+JIRA+Configuration+Tool>

### Steps

1.  Create new VM named bugs.mbari.org in the DMZ
2.  Have Neil create database Jira\_Temp on solstice2.shore.mbari.org
3.  Have Neil create database Jira on solstice2.shore.mbari.org
4.  Have Pat install Java 7 on bugs.shore.mbari.org
5.  Have Pete plumb holes through firewall so processes on bugs.mbari.org can get to Solstice2
6.  Have Pat create DB\_Collaboration account on bugs so it can run JIRA under that account and it can connect to solstice2 using that NT Domain account.
7.  Upgrade license on Atlassian site
8.  Log into bugs.shore.mbari.org
9.  Download 3.13.5 standalone Linux 64 bit tar.gz
10.  Unzip and untar the file to /opt
11.  Download 4.4.5 standalone Linux 64 bit tar.gz
12.  Unzip and untar the file to /opt
13.  Download 5.2.11 standalone Linux 64 bit tar.gz (not sure this version is necessary, but at least I have it)
14.  Unzip and untar the file to /opt
15.  Download latest JIRA (6.4.7 as of this writing).
16.  Unzip and untar it to /opt
17. Performed Test Upgrade
  - a.  In order to export the current stuff in JIRA, I had to shut off access so people could not change the data while I was backing it up.
  - b.  I ssh'd to oceana.mbari.org as root and edited the /opt/jira/conf/server.xml file and commented out the Connector section that had the port of 8010 to shut it off from the normal serving route.
  - c.  I uncommented the 8082 port connector and the 8443 port connector so that I could still get to the server.
  - d.  I stopped and started the JIRA server and in the log file I got a "keystore was tampered with..." which is not surprising.
  - e.  I could then browser over to <http://oceana.mbari.org:8082/jira>
  - f.  Then through the Administration console, I did an XML backup
  - g.  I then created a tar of all the attachments in the /data/jira\_3\_12/attachments directory
  - h.  I moved both the XML and tar files to the /root/jira-upgrade directory
  - i.  I then reversed the changes to the server.xml file and shut down JIRA

- j. I left it down during the next steps in case it went so well, I could just point people to the new server (yeah, right).
- k. I then browsed to the crowd server on oceana and add a new application using:
  - i. URL: <http://bugs.mbari.org/jira3135>
  - ii. IP: 134.89.2.29
  - iii. Name: JIRA3135
  - iv. Password: (ask Kevin)
- l. On bugs, I made a copy of the JIRA 3.13.5 download in the /opt directory and unzipped and untarred it.
- m. In order to configure the crowd connection I did the following:
  - i. I scp'd the /opt/crowd/client/crowd-integration-client-1.6.jar file from oceana to the /opt/atlassian-jira-standalone-3.13.5/atlassian-jira/WEB-INF/lib directory
  - ii. I removed the existing 1.6.1 crowd client jar from the /opt/atlassian-jira-standalone-3.13.5/atlassian-jira/WEB-INF/lib directory
  - iii. I scp'd the /opt/crowd/client/conf/crowd.properties file from oceana to the /opt/atlassian-jira-standalone-3.13.5/atlassian-jira/WEB-INF/classes directory
  - iv. I scp'd the /opt/crowd/client/conf/crowd-ehcache.xml file from oceana to the /opt/atlassian-jira-standalone-3.13.5/atlassian-jira/WEB-INF/classes directory
  - v. I edited the crowd.properties file on bugs to look like:
 

application.name	JIRA3135
application.password	(ask Kevin)
application.login.url	<a href="http://oceana.mbari.org:8095/crowd/console/">http://oceana.mbari.org:8095/crowd/console/</a>
crowd.server.url	<a href="http://oceana.mbari.org:8095/crowd/services/">http://oceana.mbari.org:8095/crowd/services/</a>
session.isauthenticated	session.isauthenticated
session.tokenkey	session.tokenkey
session.validationinterval	0
session.lastvalidation	session.lastvalidation
  - vi. I edited the /opt/atlassian-jira-standalone-3.13.5/atlassian-jira/WEB-INF/classes/osuser.xml file to comment out the current authentication mechanism and then uncomment the crowd one.
- n. I then edited the /opt/atlassian-jira-standalone-3.13.5/conf/server/xml file and configured the database connection to the Jira\_Temp database on Solstice2. I looked like this:
 

```
<Context path="" docBase="${catalina.home}/atlassian-jira" reloadable="false">
<Resource name="jdbc/JiraDS" auth="Container" type="javax.sql.DataSource"
username="DB_Collaboration"
password="(ask Kevin)"
driverClassName="net.sourceforge.jtds.jdbc.Driver"
url="jdbc:jtds:sqlserver://solstice2.shore.mbari.org:1433/Jira_Temp;domain=SHORE"
maxActive="20" />
```
- o. Edit the /opt/atlassian-jira-standalone-3.13.5/atlassian-jira/WEB-INF/classes/entityengine.xml and changed it from 'hsqldb' to 'mssql' and delete the line with "PUBLIC" in it per the instructions in the comments in that file.
- p. I edited the /etc/httpd/conf/httpd.conf file and created a proxy pass at the bottom of the file to point a normal URL to the default port 8080 for JIRA:
 

```
# Proxy Pass for JIRA
<Location /jira3135>
ProxyPass http://bugs.mbari.org:8080
ProxyPassReverse http://bugs.mbari.org:8080
</Location>
```
- q. I restarted Apache
- r. I scp'd the jtds driver from oceana to the /opt/atlassian-jira-standalone-3.13.5/common/lib directory (you could down from the internet)

- s. I then went to the /opt/atlassian-jira-standalone-3.13.5/ directory and ran './bin/startup.sh'. From the log file, I could tell things were hanging. After some troubleshooting I am wondering if the local firewall is preventing the application to get access to the database on solstice2. I can telnet to port 1433, but I can't browse to the base <http://bugs.mbari.org> from anywhere but the local web browser. I have submitted a ticket.
- t. I restarted the old JIRA with my hopes dashed .
- u. Pat disabled the firewall on bugs.mbari.org but it still hung trying to connect to solstice2.shore.mbari.org. That is really, really perplexing. Neil mentioned that solstice2 is using Kerberos and solstice is not. Checking with the JTDS docs, version 1.3.1 of the driver added kerberos support, so I downloaded that driver and added the 'userKerberos=true' property to the URL in the server.xml file and restarted. Got an error about no credentials, so added user and password properties to the URL. Nope, no luck. Never did figure this one out, but I had Pat pull the VM inside the firewall and after some thrash it worked. Well, it sort of worked ... sigh. It turns out I had downloaded the standard version instead of the enterprise version. I need to redo this work ... grrr.
- v. I deleted all the tables in the Jira\_Temp database and removed the /data/jira3135/indexes directory (and recreated).
- w. I downloaded the enterprise version of the 3.13.5 server. I made a copy in the /opt directory and unzipped and untarred the file.
- x. I went back to crowd and edited the application to change the properties to:
  - i. URL: <http://bugs.shore.mbari.org:8080>
  - ii. IP: 134.89.12.31
  - iii. Name: jira3135
  - iv. Password: (ask Kevin)
- y. I then repeated the steps above to get the server up and running with the following differences:
  - i. The server name is now bugs.shore.mbari.org
  - ii. The paths given above are a little different in that they no longer say "standard" but say "enterprise"
  - iii. I deleted the proxy pass as it seemed to have issues before and this is only temporary anyway.
- z. I then browsed to <http://bugs.shore.mbari.org:8080>
- aa. It took me to the start up page and at the top was the option to 'import your existing data'. Seemed too good not to try. I clicked on the link. It asked me for the backup file location and the location where the indexes would be stored.
- ab. I copied the XML zip file and the attachments tar file to the /data/original directory.
- ac. I created the /data/jira3135/indexes and used those directories ... it fired off the import and I waited.
- ad. I tailed the log file to watch the import. Holy crap, it worked!!! I could log in and everything! I copied the results from the log file here for posterity sake:

```

2015-07-22 20:55:45,156 http-8080-Processor22 INFO [jira.action.admin.DataImport] Running
data import
2015-07-22 20:55:45,179 http-8080-Processor22 INFO [jira.action.admin.DataImport]
Importing data..
2015-07-22 20:55:45,186 http-8080-Processor22 INFO [jira.action.admin.DataImport] Start
parsing XML with SAX Parser
2015-07-22 20:56:24,211 http-8080-Processor22 INFO [jira.action.admin.DataImport] XML
successfully parsed
2015-07-22 20:56:24,211 http-8080-Processor22 INFO [jira.action.admin.DataImport]
Removing all entries from the database.
2015-07-22 20:56:24,593 http-8080-Processor22 INFO [jira.action.admin.DataImport] All
entries removed.
2015-07-22 20:56:24,594 http-8080-Processor22 INFO [jira.action.admin.DataImport] Started
storing 410414 Generic Values
2015-07-22 21:01:51,967 http-8080-Processor22 INFO [jira.action.admin.DataImport]
Finished storing Generic Values

```

2015-07-22 21:01:52,329 http-8080-Processor22 WARN [atlassian.jira.util.LuceneUtils] Directory /data/jira3135/indexes/entities/searchrequest does not exist - perhaps it was deleted? Creating..

2015-07-22 21:01:52,361 http-8080-Processor22 WARN [atlassian.jira.util.LuceneUtils] Directory /data/jira3135/indexes/entities/portalpage does not exist - perhaps it was deleted? Creating..

2015-07-22 21:01:54,683 http-8080-Processor22 INFO [jira.plugin.profile.DefaultUserFormatMapper] Mapping type 'profileLink' to module 'jira.user.format:profile-link-user-format'.

2015-07-22 21:01:54,724 http-8080-Processor22 INFO [jira.plugin.profile.DefaultUserFormatMapper] Mapping type 'fullName' to module 'jira.user.format:full-name-user-format'.

2015-07-22 21:01:54,773 http-8080-Processor22 INFO [jira.plugin.profile.DefaultUserFormatMapper] Mapping type 'profileLinkSearcher' to module 'jira.user.format:profile-link-searcher-user-format'.

2015-07-22 21:01:54,784 http-8080-Processor22 INFO [jira.plugin.profile.DefaultUserFormatMapper] Mapping type 'profileLinkExternal' to module 'jira.user.format:profile-link-external-user-format'.

2015-07-22 21:01:54,795 http-8080-Processor22 INFO [jira.plugin.profile.DefaultUserFormatMapper] Mapping type 'profileLinkActionHeader' to module 'jira.user.format:profile-link-action-header-user-format'.

2015-07-22 21:01:54,807 http-8080-Processor22 INFO [jira.plugin.profile.DefaultUserFormatMapper] Mapping type 'fullProfile' to module 'jira.user.format:full-profile-user-format'.

2015-07-22 21:01:55,640 http-8080-Processor22 ERROR [atlassian.jira.util.FileFactory] Unable to delete directory /data/jira3135/indexes/comments

2015-07-22 21:01:55,640 http-8080-Processor22 ERROR [atlassian.jira.util.FileFactory] Unable to delete directory /data/jira3135/indexes/issues

2015-07-22 21:01:55,641 http-8080-Processor22 ERROR [atlassian.jira.util.FileFactory] Unable to delete directory /data/jira3135/indexes/plugins

2015-07-22 21:01:55,867 http-8080-Processor22 INFO [jira.issue.index.DefaultIndexManager] Reindexing all issues

2015-07-22 21:01:55,871 http-8080-Processor22 WARN [atlassian.jira.util.LuceneUtils] Directory /data/jira3135/indexes/issues does not exist - perhaps it was deleted? Creating..

2015-07-22 21:01:55,873 http-8080-Processor22 WARN [atlassian.jira.util.LuceneUtils] Directory /data/jira3135/indexes/comments does not exist - perhaps it was deleted? Creating..

2015-07-22 21:02:13,033 http-8080-Processor22 WARN [atlassian.jira.util.LuceneUtils] Directory /data/jira3135/indexes/entities/searchrequest does not exist - perhaps it was deleted? Creating..

2015-07-22 21:02:13,257 http-8080-Processor22 WARN [atlassian.jira.util.LuceneUtils] Directory /data/jira3135/indexes/entities/portalpage does not exist - perhaps it was deleted? Creating..

2015-07-22 21:02:13,889 http-8080-Processor22 ERROR [atlassian.jira.upgrade.ConsistencyCheckImpl] Attachments are turned on, but attachment path [/data/jira\_3\_12/attachments] invalid - disabling attachments

2015-07-22 21:02:13,904 http-8080-Processor22 INFO [atlassian.jira.upgrade.UpgradeManagerImpl] Detected that an upgrade is needed; existing data at build 299

2015-07-22 21:02:13,907 http-8080-Processor22 INFO [atlassian.jira.upgrade.UpgradeManagerImpl] Doing Upgrade...

2015-07-22 21:02:13,915 http-8080-Processor22 INFO [atlassian.jira.upgrade.UpgradeManagerImpl] Performing Upgrade Task: Set application property 'webwork.multipart.maxSize' to default value if not set or invalid value

2015-07-22 21:02:13,936 http-8080-Processor22 INFO [atlassian.jira.upgrade.UpgradeManagerImpl] Upgrade Task: 'Set application property 'webwork.multipart.maxSize' to default value if not set or invalid value' succeeded

2015-07-22 21:02:13,936 http-8080-Processor22 INFO [atlassian.jira.upgrade.UpgradeManagerImpl] Setting current build number on to 317

2015-07-22 21:02:13,944 http-8080-Processor22 INFO [atlassian.jira.upgrade.UpgradeManagerImpl] Performing Upgrade Task: Initialise favourite filters - make each filter a favourite of its owner.

2015-07-22 21:02:17,822 http-8080-Processor22 INFO [jira.upgrade.tasks.UpgradeTask\_Build319] Could not find author 'fpy' for filter with id '10040'



2015-07-22 21:02:17,990 http-8080-Processor22 INFO  
[atlassian.jira.upgrade.UpgradeManagerImpl] Upgrade Task: 'Initialise favourite filters - make each filter a favourite of its owner.' succeeded

2015-07-22 21:02:17,990 http-8080-Processor22 INFO  
[atlassian.jira.upgrade.UpgradeManagerImpl] Setting current build number on to 319

2015-07-22 21:02:17,995 http-8080-Processor22 INFO  
[atlassian.jira.upgrade.UpgradeManagerImpl] Performing Upgrade Task: Initialise Share Permissions. Move old shares to new shares.

2015-07-22 21:02:18,003 http-8080-Processor22 INFO  
[atlassian.jira.upgrade.UpgradeManagerImpl] Upgrade Task: 'Initialise Share Permissions. Move old shares to new shares.' succeeded

2015-07-22 21:02:18,003 http-8080-Processor22 INFO  
[atlassian.jira.upgrade.UpgradeManagerImpl] Setting current build number on to 321

2015-07-22 21:02:18,008 http-8080-Processor22 INFO  
[atlassian.jira.upgrade.UpgradeManagerImpl] Performing Upgrade Task: Migrating the old JIRA UI colors to the new JIRA 3.13 colors

2015-07-22 21:02:18,008 http-8080-Processor22 INFO  
[jira.upgrade.tasks.UpgradeTask\_Build322] Custom color detected for  
jira.lf.menu.bgcolour : #336699

2015-07-22 21:02:18,021 http-8080-Processor22 INFO  
[atlassian.jira.upgrade.UpgradeManagerImpl] Upgrade Task: 'Migrating the old JIRA UI colors to the new JIRA 3.13 colors' succeeded

2015-07-22 21:02:18,021 http-8080-Processor22 INFO  
[atlassian.jira.upgrade.UpgradeManagerImpl] Setting current build number on to 322

2015-07-22 21:02:18,025 http-8080-Processor22 INFO  
[atlassian.jira.upgrade.UpgradeManagerImpl] Performing Upgrade Task: Initialise favourite dashboards - make each dashboard a favourite of its owner.

2015-07-22 21:02:18,272 http-8080-Processor22 INFO  
[jira.upgrade.tasks.UpgradeTask\_Build325] Could not find owner 'cmcgann' for dashboard with id '10030'

2015-07-22 21:02:18,272 http-8080-Processor22 INFO  
[jira.upgrade.tasks.UpgradeTask\_Build325] Could not find owner 'fpy' for dashboard with id '10060'

2015-07-22 21:02:18,423 http-8080-Processor22 INFO  
[jira.upgrade.tasks.UpgradeTask\_Build325] Could not find owner 'kanna' for dashboard with id '10040'

2015-07-22 21:02:18,618 http-8080-Processor22 INFO  
[atlassian.jira.upgrade.UpgradeManagerImpl] Upgrade Task: 'Initialise favourite dashboards - make each dashboard a favourite of its owner.' succeeded

2015-07-22 21:02:18,618 http-8080-Processor22 INFO  
[atlassian.jira.upgrade.UpgradeManagerImpl] Setting current build number on to 325

2015-07-22 21:02:18,625 http-8080-Processor22 INFO  
[atlassian.jira.upgrade.UpgradeManagerImpl] Performing Upgrade Task: Reindexing all data in JIRA to include Favourites.

2015-07-22 21:02:18,648 http-8080-Processor22 INFO [jira.util.index.IndexLifecycleManager \$Composite] Reindex All starting...

2015-07-22 21:02:18,650 http-8080-Processor22 INFO  
[jira.upgrade.tasks.UpgradeTask\_Build326] Re-indexing is 0% complete. Current index: Issue

2015-07-22 21:02:18,654 http-8080-Processor22 INFO [jira.issue.index.DefaultIndexManager] Reindexing all issues

2015-07-22 21:02:18,809 indexerPool-2-thread-5 INFO  
[jira.upgrade.tasks.UpgradeTask\_Build326] Re-indexing is 1% complete. Current index: Issue

2015-07-22 21:02:18,855 indexerPool-2-thread-10 INFO  
[jira.upgrade.tasks.UpgradeTask\_Build326] Re-indexing is 2% complete. Current index: Issue

2015-07-22 21:02:18,899 indexerPool-2-thread-7 INFO  
[jira.upgrade.tasks.UpgradeTask\_Build326] Re-indexing is 3% complete. Current index: Issue

2015-07-22 21:02:18,945 indexerPool-2-thread-7 INFO  
[jira.upgrade.tasks.UpgradeTask\_Build326] Re-indexing is 4% complete. Current index: Issue

2015-07-22 21:02:19,012 indexerPool-2-thread-7 INFO  
[jira.upgrade.tasks.UpgradeTask\_Build326] Re-indexing is 5% complete. Current index: Issue

```

.
.
.
2015-07-22 21:02:26,164 indexerPool-2-thread-5 INFO
[jira.upgrade.tasks.UpgradeTask_Build326] Re-indexing is 95% complete. Current index:
Issue
2015-07-22 21:02:26,232 indexerPool-2-thread-5 INFO
[jira.upgrade.tasks.UpgradeTask_Build326] Re-indexing is 96% complete. Current index:
Issue
2015-07-22 21:02:26,316 indexerPool-2-thread-9 INFO
[jira.upgrade.tasks.UpgradeTask_Build326] Re-indexing is 97% complete. Current index:
Issue
2015-07-22 21:02:26,771 indexerPool-2-thread-3 INFO
[jira.upgrade.tasks.UpgradeTask_Build326] Re-indexing is 98% complete. Current index:
Issue
2015-07-22 21:02:27,261 http-8080-Processor22 INFO [jira.util.index.IndexLifecycleManager
$Composite] Reindex took: 8607ms. Indexer: DefaultIndexManager: paths: [/data/jira3135/
indexes/issues, /data/jira3135/indexes/comments]
2015-07-22 21:02:27,263 http-8080-Processor22 INFO
[jira.upgrade.tasks.UpgradeTask_Build326] Re-indexing is 98% complete. Current index:
SearchRequest
2015-07-22 21:02:27,268 http-8080-Processor22 WARN [atlassian.jira.util.LuceneUtils]
Directory /data/jira3135/indexes/entities/searchrequest does not exist - perhaps it was
deleted? Creating..
2015-07-22 21:02:27,293 http-8080-Processor22 INFO
[jira.upgrade.tasks.UpgradeTask_Build326] Re-indexing is 99% complete. Current index:
SearchRequest
2015-07-22 21:02:27,308 http-8080-Processor22 INFO
[jira.upgrade.tasks.UpgradeTask_Build326] Re-indexing is 99% complete. Current index:
PortalPage
2015-07-22 21:02:27,312 http-8080-Processor22 WARN [atlassian.jira.util.LuceneUtils]
Directory /data/jira3135/indexes/entities/portalpage does not exist - perhaps it was
deleted? Creating..
2015-07-22 21:02:27,377 http-8080-Processor22 INFO
[jira.upgrade.tasks.UpgradeTask_Build326] Re-indexing is 100% complete. Current index:
PortalPage
2015-07-22 21:02:27,384 http-8080-Processor22 INFO [jira.util.index.IndexLifecycleManager
$Composite] Reindex took: 115ms. Indexer: SharedEntityIndexManager: paths: [/data/
jira3135/indexes/entities/portalpage, /data/jira3135/indexes/entities/searchrequest]
2015-07-22 21:02:27,384 http-8080-Processor22 INFO
[jira.upgrade.tasks.UpgradeTask_Build326] Re-indexing is 100% complete. Current index:
2015-07-22 21:02:27,384 http-8080-Processor22 INFO [jira.util.index.IndexLifecycleManager
$Composite] Reindex All complete. Total time: 8722ms.
2015-07-22 21:02:27,389 http-8080-Processor22 INFO
[atlassian.jira.upgrade.UpgradeManagerImpl] Upgrade Task: 'Reindexing all data in JIRA to
include Favourites.' succeeded
2015-07-22 21:02:27,389 http-8080-Processor22 INFO
[atlassian.jira.upgrade.UpgradeManagerImpl] Setting current build number on to 326
2015-07-22 21:02:27,397 http-8080-Processor22 INFO
[atlassian.jira.upgrade.UpgradeManagerImpl] Upgrade succeeded! Setting data build number
to 360
2015-07-22 21:02:27,469 JiraQuartzScheduler_Worker-0 WARN
[service.services.export.ExportService] Backup directory /data/jira_3_12/backup does not
exist

```



### Paths

It appears that the upgraded JIRA will still look for the attachments and the backup locations in the original places. So I created /data/jira\_3\_12/backup and untarred the original attachments to /data/jira\_3\_12 and then everything worked (including attachments) in the new JIRA.

- ae. I then used the upgraded JIRA to generate a new XML backup and stored it in /data/original/3.13.5 along with another tar of the files in /data/jira\_3\_12/attachments.

- af. I then shutdown the JIRA server. **I should be ready to move on to version 4 upgrade WHEW**
- ag. So, before moving on, I decided that it would be a really good idea to spin up a new Crowd instance to get rid of the :8443 in the URL and to move off of RedHat per IS requests. I have a ticket in for a new VM and a new database to try to get this going. I am waiting on that before moving on.
- ah. Pat created the VM and Neil created the database.
- ai. I logged into auth.mbari.org (name of the VM) and downloaded crowd which I unzipped to the /opt directory
- aj. I then created a /data/crowd directory and gave my account permissions on it and then edited the /opt/atlassian.../crowd-webapp/WEB-INF/classes/crowd-init.properties file to set that as the crowd home directory.
- ak. The instructions say to download the JDBC driver, but they already have JTDS 1.2.7 in the download so I did not do anything.
- al. You have to manually connect up CrowdID to a database as they setup wizard does not currently do this.
  - i. They say to download the driver, but again 1.2.7 was there so I did nothing.
  - ii. I edited the /opt/atlassian.../apache-tomcat/conf/Catalina/localhost/openidserver.xml to look like:

```
<Context docBase="../../crowd-openidserver-webapp">
```

```
<Resource name="jdbc/CrowdIDDS" auth="Container" type="javax.sql.DataSource"
username="DB_Collaboration"
password="ask Kevin"
driverClassName="net.sourceforge.jtds.jdbc.Driver"
url="jdbc:jtds:sqlserver://dione.mbari.org:51001/
CrowdID;domain=SHORE;useNTLMv2=TRUE"
/>
```

```
<!-- NOTE: When a database server reboots or there is a network failure all the
connections in the
* connection pool are broken and normally this requires a Application Server reboot.
If you include the
* parameter validationQuery="{QUERY FOR YOUR DB HERE}" as show below a new connection
is created to replace it.
* For more information see http://confluence.atlassian.com/display/JIRA/Surviving
+Connection+Closures
*
* validationQuery="Select 1"
-->
```

```
<!-- NOTE: If you use a database other than hsqldb:
* delete the minEvictableIdleTimeMillis and timeBetweenEvictionRunsMillis attributes
-->
```

```
</Context>
```

- iii. I edited the /opt/atlassian.../build.properties files to look like:

```
# Modify the attributes of this file to quickly adjust the deployment values of
Crowd.
```

```
# The Hibernate database dialect to use. See https://confluence.atlassian.com/
display/CROWD/Connecting+Crowd+to+a+Database
hibernate.dialect=org.hibernate.dialect.SQLServerDialect
```

```
# The Hibernate transaction factory to use. See https://confluence.atlassian.com/
display/CROWD/Configuring+Crowd
hibernate.transaction.factory_class=org.hibernate.transaction.JDBCTransactionFactory
```

```
# The http port you wish to run crowd from, ie: http://localhost:8095/crowd
crowd.tomcat.connector.port=8095
```

```
# Tomcat requires a unique port for shutdown
crowd.tomcat.shutdown.port=8020

# Crowd context root
crowd.url=http://localhost:8095/crowd

# Demo context root
demo.url=http://localhost:8095/demo

# OpenID server context root
openidserver.url=http://localhost:8095/openidserver
```

- iv.  I then ran the build.sh script in the root of /opt/atlassian...
  - am.  I fired up crowd using the /opt/atlassian.../start\_crowd.sh script
  - an.  I then went to <http://auth.mbari.org:8095/crowd> to kick off the start up wizard
  - ao.  I grabbed a new eval license from my account on atlassian and pasted into the license page.
  - ap.  I selected "New install" on the next page.
  - aq.  I configured the JDBC connection using this connection URL with user DB\_Collaboration
- ```
jdbc:jtds:sqlserver://dione.mbari.org:51001/Crowd;domain=SHORE;useNTLMv2=TRUE
```
- ar.  I left the "Options" as they came up



#### Paths

Not sure if this is a problem, but because I started the set up using auth.mbari.org, it set the Base URL to <http://auth.mbari.org:8095/crowd> instead of localhost. Hope that is not a problem. We will see.

- as.  I configured the email connection using the settings from [here](#) and I used my network login (probably shouldn't be doing that ... not sure where it stores my password, but I am assuming in the DB).
- at.  For the local admin account, I created a user named 'crowdadm' so it would not clash with my LDAP account. See Kevin Gomes for password information.
- au.  I checked the OpenID server as an integrated application
- av.  It then took me to the login page and I logged in using the newly minted admin account. Seemed all is well so far.
- aw.  I visited the openidserver URL as well and that seemed OK.
- ax.  I decided to wait on configuring the MBARI LDAP directory until I got everything with SSL working.
- ay.  Now the next step was to follow the directions to configure Crowd to run over SSL found [here](#)
- az.  I shutdown crowd. Note that the stop script does not shutdown things correctly and I noticed the crowd app running as root. That should not be if I started as kgomes. Not sure what is up with that.
- ba.  Now Joe had already configured SSL once, so I used his connector configuration in the server.xml file and so the final file looked like:

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<Server port="8020" shutdown="SHUTDOWN">

<Service name="Catalina">

<Connector
SSLEnabled="true"
URIEncoding="UTF-8"
acceptCount="100"
address="134.89.2.12"
```

```

ciphers="TLS_RSA_WITH_AES_128_CBC_SHA256,TLS_ECDHE_RSA_WITH_AES_128_CBC_SHA,TLS_ECDHE_RSA_WITH_AES_128_GCM_SHA256"
clientAuth="false"
compressableMimeType="text/html,text/xml,text/css,test/javascript,application/javascript,application/x-javascript,application/ecmascript,text/ecmascript"
compression="on"
compressionMinSize="2048"
connectionTimeout="20000"
disableUploadTimeout="true"
enableLookups="false"
keystoreFile="/etc/httpd/auth.mbari.org.jks"
keystorePass="check with IS"
keystoreType="JKS"
maxHttpHeaderSize="8192"
maxThreads="150"
minSpareThreads="25"
noCompressionUserAgents="gozilla, traviata"
port="8095"
protocol="HTTP/1.1"
redirectPort="8443"
scheme="https"
secure="true"
sslEnabledProtocols="TLSv1, TLSv1.1, TLSv1.2"
sslProtocol="TLS"
useBodyEncodingForURI="true"/>

<Engine defaultHost="localhost" name="Catalina">
<Host appBase="webapps" autoDeploy="true" name="localhost" unpackWARs="true"/>
</Engine>

<!-- To connect to an external web server (typically Apache) -->
<!-- Define an AJP 1.3 Connector on port 8009 -->
<!--
<Connector port="8009" enableLookups="false" redirectPort="8443" protocol="AJP/1.3" />
-->
</Service>

<!-- Security listener. Documentation at /docs/config/listeners.html
<Listener className="org.apache.catalina.security.SecurityListener" />
-->
<!--APR library loader. Documentation at /docs/apr.html -->
<Listener SSLEngine="on" className="org.apache.catalina.core.AprLifecycleListener"/>
<!--Initialize Jasper prior to webapps are loaded. Documentation at /docs/jasper-howto.html -->
<Listener className="org.apache.catalina.core.JasperListener"/>
<!-- Prevent memory leaks due to use of particular java/javax APIs-->
<Listener className="org.apache.catalina.core.JreMemoryLeakPreventionListener"/>
<Listener className="org.apache.catalina.mbeans.GlobalResourcesLifecycleListener"/>
<Listener className="org.apache.catalina.core.ThreadLocalLeakPreventionListener"/>

</Server>

```

bb.  I then edited the /data/crowd/crowd.properties to look like:

```

#Sat Aug 01 09:05:15 PDT 2015
session.lastvalidation=session.lastvalidation
session.tokenkey=session.tokenkey
crowd.server.url=https://localhost:8443/crowd/services/
application.name=crowd
http.timeout=30000
session.isauthenticated=session.isauthenticated
application.login.url=https://localhost:8443/crowd/console/
session.validationinterval=0
application.password=Y1Xp30orCms0P4eruL1dmH

```

One thing to note here is that based on a comment from the SSL configuration page at atlassian (Steve's comment), you are supposed to leave all the host names the same. For example, if the file says localhost, leave it localhost. So this created a bit of a problem based

on the fact that I had left the base URL pointing to auth.mbari.org in the wizard steps above. That step wrote auth.mbari.org to the /data/crowd/crowd.properties. All the other files reference localhost, so to be consistent, I changed auth.mbari.org to localhost in the /data/crowd/crowd.properties file. We will see if this works.

- bc.  Per the instructions on the atlassian page (referenced above), I also edited the build.properties file and the <Crowd-install>/client/conf/crowd.properties files before I restarted and used the SSL URLs
- bd. build.properties:

```
# Modify the attributes of this file to quickly adjust the deployment values of Crowd.

# The Hibernate database dialect to use. See https://confluence.atlassian.com/display/CROWD/Connecting+Crowd+to+a+Database
hibernate.dialect=org.hibernate.dialect.SQLServerDialect

# The Hibernate transaction factory to use. See https://confluence.atlassian.com/display/CROWD/Configuring+Crowd
hibernate.transaction.factory_class=org.hibernate.transaction.JDBCTransactionFactory

# The http port you wish to run crowd from, ie: http://localhost:8095/crowd
crowd.tomcat.connector.port=8095

# Tomcat requires a unique port for shutdown
crowd.tomcat.shutdown.port=8020

# Crowd context root
crowd.url=https://localhost:8443/crowd

# Demo context root
demo.url=https://localhost:8443/demo

# OpenID server context root
openidserver.url=https://localhost:8443/openidserver
```

- be. crowd.properties (client)

|                            |                                        |
|----------------------------|----------------------------------------|
| application.name           | crowd                                  |
| application.password       | password                               |
| application.login.url      | https://localhost:8443/crowd/console/  |
| crowd.server.url           | https://localhost:8443/crowd/services/ |
| crowd.base.url             | https://localhost:8443/crowd/          |
| session.isauthenticated    | session.isauthenticated                |
| session.tokenkey           | session.tokenkey                       |
| session.validationinterval | 2                                      |
| session.lastvalidation     | session.lastvalidation                 |

- bf.  Although not stated, I am assuming you would need to run the build.sh script to push the build.properties changes to their proper places, so I did that. Note that before doing that, I know that it will clobber the server.xml changes I made, so I made a copy of that file and diff'd them after and then rolled the previous changes to the new server.xml file. Actually, amazingly enough, it seems to have done the connector entry correctly so I left it after running the build.sh script.
- bg.  Crossed my fingers and then restarted crowd. I tailed the catalina.out file and did not see any stack traces so that is a good sign!
- bh.  I visited <https://auth.mbari.org:8443/crowd> first. It could not find that page, but I suspect that is because I am browsing from the outside, so I tried just <https://auth.mbari.org/crowd> and got a service unavailable. I am suspecting that this is a combination of firewall and proxy pass and I will send this info to Joe. From what I can see on the crowd side, it seems like the server started cleanly, we just can't get to it. I tried to reach it from a browser on the machine itself too (through VNC) with the same service not available.
- bi.  Here are the notes from Joe after he fixed it! Woohoooo!

Hey Kevin,

Thanks for starting clean! I had to make a few adjustments.

1-I modified the server.xml file in /opt/atlassian-crowd-2.8.3/apache-tomcat/conf/server.xml so there are two connectors per the instructions on the Atlassian site. I have backed up this good server.xml file in /etc/temp/ if you want to browse it to see what I did. Of note is that I removed all the jargon referencing the types of ciphers available to simplify things for now.

2-I modified /data/crowd/crowd.properties to have

```
crowd.server.url=https\://localhost\8443/crowd/services/  
application.login.url=https\://localhost\8443/crowd/console/
```

But that would cause my login to error with an error saying it was unable to reach the authentication server. I scratched my head for a bit. When I revert the values to just using non-SSL and try to log in, I just get an "invalid login" (I don't know the crowdadm password). So I worked under the assumption that if I can configure SSL to get an "invalid login" when logging in then it would work when provided real credentials.

So, I then changed /data/crowd/crowd.properties to:

```
crowd.server.url=https\://auth.mbari.org\8443/crowd/services/  
application.login.url=https\://auth.mbari.org\8443/crowd/console/
```

And now when I try to log in with SSL it says "invalid login". Strange because all the other values I can find only show "localhost" .. in any case...

Can you try to log in now?

- bj.  Next I moved on to configuring the connection to MBARI's LDAP server to enable our logins through Crowd and CrowdID
- bk.  I clicked on "Add Directory" in crowd.
- bl.  I selected "Connector" then clicked Next
- bm.  I put ldap.shore.mbari.org as the name of the server
- bn.  I selected "Use memberOf for group memberships"
- bo.  I used "OU=AllUsers,DC=shore,DC=mbari,DC=org" for the Base DN
- bp.  I used "CN=LDAPbind,OU=Special,OU=AllUsers,DC=shore,DC=mbari,DC=org" for the Username (talk to Pat Allen for password)
- bq.  I tested the connection (button click) and it passed.
- br.  I de-selected all the capabilities of the connector as it is a read only connector and then saved it. It synchronized correctly!
- bs.  At first, I could not login using my MBARI credentials, but after going to the "crowd" application in crowd (logged in as the local admin), I had to add the LDAP directory and configure it to "Allow all to authenticate", then I was able to login. After this, the last step was to get this to run as a different user and lock down various directories. I went through the entire directory structure /opt/atlassian... and set up so that root owned all read-only locations and DB\_Collaboration (account set up by IS) owned the other stuff. I also gave full ownership to the /data/crowd directory to DB\_Collaboration so it could write there. Pat set up a script to start on boot and after a little tweaking, it now starts on boot.



#### CrowdID log file

One thing that came up here was that when the crowdID application ran, it tried to write a log file to the location where the process was launched from (which is /opt/atlassian...). This is a bad thing and I figured out that I could change that location by changing the file /opt/atlassian-crowd-2.8.3/crowd-openidserver-webapp/WEB-INF/classes/log4j.properties and hardcoding the /data/crowd/logs/atlassian-crowd-openid-server.log and then restarted the application.



- bt.  Another note is the when an application tried to use the OpenID application, it would get redirected to localhost. I changed the /opt/atlassian.../crowd-openidserver-webapp/WEB-INF/classes/crowd.properties file to look like:

```
#Sat Aug 01 10:03:18 PDT 2015
session.lastvalidation=session.lastvalidation
session.tokenkey=session.tokenkey
crowd.server.url=http://localhost:8095/crowd/services/
application.name=crowd-openid-server
#application.login.url.template=http://localhost:8095/openidserver?returnUrl\=
${RETURN_TO_URL}
application.login.url.template=https://auth.mbari.org/openidserver?returnUrl\=
${RETURN_TO_URL}
session.isauthenticated=session.isauthenticated
#application.base.url=http://localhost:8095/openidserver
application.base.url=https://auth.mbari.org/openidserver
#application.login.url=http://localhost:8095/openidserver
application.login.url=https://auth.mbari.org/openidserver
session.validationinterval=0
application.password=password
```

and that seems to have fixed it.

18.  It is finally time to move on to the version 4 upgrade ... holy crap. I first went to the **new** crowd install (auth.mbari.org) and logged in as the crowdadm.
19.  I clicked on Applications, then on Add Application
20.  I selected JIRA from the Application type drop-down
21.  I entered jira445 as the username. Ask Kevin about the password.
22.  I used <http://bugs.shore.mbari.org:8081> as the URL
23.  I used 134.89.12.31 as the IP address.
24.  I selected only the MBARI LDAP directory.
25.  Then I selected "Allow all users to authenticate"
26.  Then I clicked on "Add Application"
27.  I VNC'd into bugs.mbari.org. As it turns out, for Linux, there is an installer program to download. I downloaded the .bin for 64 bit Linux installer and moved it to the jira-upgrade directory.
28.  I chmod'd the file to make it executable and ran it. It gave me a warning about not being root, but I went ahead with it.
29.  It asked for the JIRA home and data directory, which I specified as /opt/jira4 and /data/jira445.
30.  For the ports, I specified 8180 and 8105 (HTTP and control respectively). It then extracted all the files and launched JIRA. It said if finished, so I opened a local browser to <http://localhost:8180> which kicked off the start up wizard.
31.  I specified the external database using:
  - a. solstice2.shore.mbari.org (server)
  - b. 1433 (port)
  - c. jira4 (database)
  - d. DB\_Collaboration (username)
  - e. (password ask Kevin)
  - f. dbo (schema)
32. But all this failed as it seems to just want to try and use the SQL server authentication instead of domain. I will have to do it manually.
33.  I stopped the server using the bin/stop-jira.sh script.
34.  I created and edited /data/jira445/dbconfig.xml and made it look like the following:

```
?xml version="1.0" encoding="UTF-8"?>

<jira-database-config>
<name>defaultDS</name>
<delegator-name>default</delegator-name>
```



```

<database-type>mssql</database-type>
<schema-name>jiraschema</schema-name>
<jdbc-datasource>
<url>jdbc:jtds:sqlserver://solstice2.shore.mbari.org:1433/Jira4;domain=SHORE;useNTLMv2=true</url>
<driver-class>net.sourceforge.jtds.jdbc.Driver</driver-class>
<username>DB_Collaboration</username>
<password>(ask Kevin)</password>
<pool-size>15</pool-size>
</jdbc-datasource>
</jira-database-config>

```

35.  I then started it again using bin/start-jira.sh and tailed the catalina.out file. Got a bunch of errors related to the schema 'jiraschema', I edited the file and changed the schema to 'dbo' and restarted. That seemed to do it. There was one stack trace for some iCal plugin, but looks OK other than that.
36. I browsed back to localhost:8180 and the wizard moved to step 2. There was an option to import existing data bit without the crowd connection, I thought I should set it up manually, connect to crowd, then import. I generated an evaluation license, called the app "MBARI JIRA4" and change the server in the url to bugs.shore.mbari.org
37. For the admin, I created an account called 'jiraadm' (ask Kevin for password).
38. Since this is a temporary system, I left the email system disabled.
39. I logged in as jiraadm, went to Administration, then Users, then clicked on Add Directory and chose Atlassian Crowd. Note that I had to set the server URL to <http://auth.mbari.org:8095/crowd> or I would have had to configure all this SSL crap that I did not want to do for this temporary install.
40. It tested successfully, I clicked Save and it went through a 13 second sync, whew!
41. I then went to System->Import and Export->Restore System
42. I copied the jira-upgrade-3.13.5.zip file from the previous version export into /data/jira445/import and then entered that file name along with the new evaluation license again.
43. I worked through progress bar after I clicked on Restore (it took a really long time).
44. I then stopped, restarted and tailed the log file.
45. I am thinking now I should have put the attachments in the import attachments directory, but I am hoping I can just copy them to the data/attachments directory.
46. UG! I got some error during the import. The exception read: "JIRA is unable to migrate the User Directory configuration because external users exist but the osuser.xml file is not available". It then gave me a link to a doc that talked about making the old user files available before the upgrade ... crap. So I needed to copy the osuser.xml and crowd.properties file from atlassian-jira/WEB-INF/classes directory on the old install to the same directory on the new install ... sigh. This means I am going to blow away everything and start over.
47. I shutdown jira4
48. I dropped all things in the database and deleted all content in the /data/jira445 directory (except for the dbconfig.xml file).
49. I also removed the temp, logs (actually you have to leave the directory, just clear the files) and the work/Catalina/localhost directories from the jira installation.
50. I then copied the osuser.xml and the crowd.properties files from the 3.13.5 install to the 4 install.
51. I edited the crowd.properties file in hopes that I could point it to the new crowd install on auth.mbari.org and it would work, but we will see.
52. I then started jira and tailed the log file.
53. All looked OK (other than iCal plugin stack trace again), so I went to localhost:8180 and got step 2 of the wizard. I used the same info as before.
54. I logged in as the local admin account and it looks like the system picked up the crowd connection, but lets see what server it used! Hey it used the one I edited into the file! Sweet ... now let's see if the import works.
55. I copied the 3.13.5 zip file to the import directory again and this time, I untarred the attachments into the import/attachments directory.
56. I kicked off the restore as before and it worked through it fine.
57. Shutdown and restarted system, tailing the log file and then went to localhost:8180
58. I can see issues (before logging in) and it all looks good!! The attachments did not move over from the import directory, so I copied the tar file from /data/jira445/import to /data/jira445/data and then untarred it there, then removed the tar file and the import zip file from the import directory.
59. Now I will try to login using my MBARI account and OMG it actually worked!!! (it even gave my kgomes account Admin privs)
60. I then performed an export and copied those file to the /data/backups/4.4.5 directory (also created a TAR of the attachments and put there too).
61. Now on to version 5!

62. OK, so something strange is happening. After the imports, the server ID goes back to the one that is on our current production server, which must mean it is using our current license key (which does not match the server ID, BTW). Oh well, I will press on!
63. I created a /data/jira5211 directory as well as a /opt/jira5 directory. Knowing what I know now and reading through the install instructions, it appears that I need to create a dbconfig.xml file manually, so I did that using:

```
<jira-database-config>
<name>defaultDS</name>
<delegator-name>default</delegator-name>
<database-type>mssql</database-type>
<schema-name>dbo</schema-name>
<jdbc-datasource>
<url>jdbc:jtds:sqlserver://solstice2.shore.mbari.org:1433/Jira5;domain=SHORE;useNTLMv2=true</url>
<driver-class>net.sourceforge.jtds.jdbc.Driver</driver-class>
<username>DB_Collaboration</username>
<password>(ask Kevin)</password>
<pool-min-size>20</pool-min-size>
<pool-max-size>20</pool-max-size>
<pool-max-wait>30000</pool-max-wait>
<pool-max-idle>20</pool-max-idle>
<pool-remove-abandoned>true</pool-remove-abandoned>
<pool-remove-abandoned-timeout>300</pool-remove-abandoned-timeout>

<validation-query>select 1</validation-query>
<min-evictable-idle-time-millis>60000</min-evictable-idle-time-millis>
<time-between-eviction-runs-millis>300000</time-between-eviction-runs-millis>

<pool-test-while-idle>true</pool-test-while-idle>
<pool-test-on-borrow>false</pool-test-on-borrow>
</jdbc-datasource>
</jira-database-config>
```

64. I then changed the mode to executable on the installer download and ran that.
65. I had to choose a "custom install" this time through, but the properties were similar after that (ports I used were 8280 and 8205)
66. I then browsed to localhost:8280
67. I dropped me to a wizard where I define the title as "MBARI JIRA5", and changed host to bugs.shore.mbari.org (from localhost)
68. This license was a little different in that it just asked for my Atlassian username and password and fetched a new license for me.
69. For the admin account, I used the same 'jiraadm' account
70. Left email notification disabled.
71. I created a new application in crowd for JIRA 5 and used same account info as for 4.
72. In JIRA, I went to Administration->Users->User Directories and then added a directory as I had done before.
73. All went well and the sync happened.
74. I then went to Administration->System->Import and Export->Restore System
75. I copied the backup of 4.4.5 to the /data/jira5211/import directory and then specified that file name. I did not specify a license as it seems to use the old one and it said so in the text below the box.
76. Clicked on restore and while it was restoring, I untarred the attachments to the /data/jira5211/data directory
77. After the restore, I shutdown and restarted JIRA tailing the log file.
78. Browsed to localhost:8280 and ... success! I see issues before logging in and ... my MBARI login worked, I was admin and all is good!!!!
79. As with previous version, I ran a backup of the DB and attachments and placed in /data/backups/5.2.11
80. I poked around a little and there seems to be an issue in the comments that they are still referencing oceana??? I will have to look into this.
81. I then re-did the process once again for version 6.4.9. I will only put notes about things that are dramatically different below:
- It looks like the dbconfig.xml file is the same as it is for version 5, so I just copied and edited to point to Jira6 DB.
  - I used ports 8380 and 8305



### Collation

The DB needs to be using a specific collation that it's not, I will have to correct that on the production run

- c. It gave me a choice on "how I wanted to use JIRA" and I chose the default (top) one which was just JIRA.
  - d. Something did not go well on the restore (got to 90%) from backup up and the server seems to have crashed, but it looks like it tried to restart?
  - e. I forced a stop and start and tailed the log file. Could it be related to the collation issue? Upon restart it re-ran the indexing. Looks like it worked OK, let me login with my MBARI account.
  - f. Interesting, the comments pointing to oceana seems to have fixed itself in the step of the upgrade.
  - g. Another interesting note, when I went to the Admin->System->General configuration, it had the base URL as oceana, that would explain it. So I edited that to bugs.shore.mbari.org (it also made me change the Mode to private, which makes sense since authentication is external).
  - h. I went back to the 3, 4, and 5 install and changed the base URL there too. That fixed that issue.
82. I then sent an email to all hands giving the URLs for folks to look at.
83. While folks were looking over the upgrade instances, I went ahead and created the cloud instance at Atlassian so I could test upload the JIRA backup from 6.4.9



### Disable Remote Crowd Directory

As a part of the test import, I discovered that you have to disable the remote crowd directory through User Management->User Directories **before** you do the backup/export.

84. You basically do a backup of the system, tar up the attachments and then push those files to the cloud instance through WebDAV. Then you choose those files to do a 'JIRA Import'. The attachments did not work and I had to leave those de-selected and then submitted a ticket for that to be done.
85. It did seem to import all the users from our LDAP system, so I had to go through and 'Deactivate' all the users that I did not think would login. The billing adjusts fine to that, so that seems tractable. I am still working on seeing how users login to their imported accounts and if you can link BitBucket accounts to JIRA.

## The Production (Final) Migration

The day is finally here, the production JIRA migration. Here are the steps I took:

1. Logged into oceana as root
2. Edited the /opt/jira/conf/server.xml and commented out the Connector section that had the port of 8010 to shut it off from the normal serving route
3. I uncommented the 8082 port connector and the 8443 port connector so that I could still get to the server.
4. I stopped and started the JIRA server and in the log file I got a "keystore was tampered with..." which is not surprising.
5. I could then browser over to <http://oceana.mbari.org:8082/jira>
6. Then through the Administration console, I did an XML backup (file named final-jira-migration-backup-2015-08-21) and selected the zip option
  - a. I had to create a /tmp/jira-backup directory and give DB\_Collaboration:coladm ownership for the backup to happen ... sigh
7. I created the directory /root/jira-upgrade/final-2015-08-21 and moved the backup from /tmp/jira-backup to that location
8. I then shut down JIRA (hopefully for the LAST time!!!)
9. I logged out of oceana
10. I logged into bugs.shore.mbari.org as me
11. Due to a patch and reboot, all the JIRA servers were down, which was fine.
12. I cd'd to /opt/atlassian-jira-enterprise-3.13.5-standalone
13. I wanted to clean things up so I cd'd to logs and removed all the log files
14. I then wanted to remove the deployed web application so I could start clean so I changed to ../work and deleted the entire Catalina directory
15. Using Aqua Data Studio, I deleted all the tables in the Jira\_Temp database on solstice2

16. Back on bugs, I scp'd the backup zip file and the attachments file to the /data/backups/3.12/final-upgrade-2015-08-21 directory
17. I cd'd to the /data/jira3135 directory and deleted the attachments and indexes directories and then created empty directories for those again.
18. Since the first import will look for attachments in /data/jira\_3\_12, I cd'd to that directory and deleted the attachments directory there.
19. I then copied the attachments tar I scp'd over and untarred it in that location.
20. I then started up JIRA (version 3.13.5) using /opt/atlassian-jira-enterprise-3.13.5-standalone/bin/startup.sh
21. I tailed the log file and it looked like a clean startup.
22. I browsed over to <http://bugs.shore.mbari.org:8080> and got the start up page.
23. I clicked on the "Import existing data" link and specified the /data/backups/3.12/final-upgrade-2015-08-21/final-jira-migration-backup-2015-08-21.zip as the backup file and /data/jira3135/indexes as the index location
24. I tailed the log file during the import process and everything looked great ...  
YEEEEEEEEEEEESSSSSSSSSSSSSS!!!!!!
25. OK, so far so good. Attachments were there and everything.
26. I then went to the administration panel and performed another backup to XML using the file name final-jira-migration-3135-backup-2015-08-21 and selected the zip option.
27. It created the zip file in the JIRA tomcat bin directory! So I moved it to /data/backups/3.13.15/final-upgrade-2015-08-21
28. I created a tar of the attachments (which was in the /data/jira\_3\_12 directory) and moved it to /data/backups/3.13.15/final-upgrade-2015-08-21 also
29. I then shutdown the 3.13.5 JIRA instance for the LAST (hopefully) time!!
30. I fired up Aqua Data Studio again and deleted all the stuff in the Jira4 database on solstice 2
31. I then cd'd to /opt/jira4/logs and cleaned out any log files
32. I cd'd to /opt/jira4/work and removed the .pid file and the Catalina directory
33. I cd'd to the /opt/jira4 directory and removed the temp directory too.
34. I then cd'd to the /data/jira445 directory and removed everything but the dbconfig.xml file
35. I then started JIRA 4 and tailed the log file
36. It created all the tables in the DB as well as all the directories fine.
37. I copied the /data/backups/3.13.5/final-upgrade-2015-08-21/final-jira-migration-3135-backup-2015-08-21.zip to the /data/jira445/import directory
38. I copied the /data/backups/3.13.5/final-upgrade-2015-08-21/final-jira-migration-3135-attachments.tar to the /data/jira445/data directory
39. I untarred it there and it put all the attachments in the attachments directory.
40. I then removed the tar file.
41. I then went to the <http://bugs.shore.mbari.org:8180> url in my browser
42. I clicked on the "Import your existing data" link
43. I entered /data/jira445/import/final-jira-migration-3135-backup-2015-08-21.zip in the File name box and then clicked import.
44. It bounced back because of eval license was needed, so I clicked on the generate eval license and agreed to the terms, Yes to install license and then clicked import.
45. I tailed the log file and everything worked!!!! Attachments too!!!!
46. I logged in and went to the admin panel.
47. I went to the Import and Export and clicked on Backup System tab on the left.
48. I entered the file name final-migration-445-2015-08-21 and clicked Backup
49. This created the backup located here: /data/jira445/export/final-migration-445-2015-08-21.zip
50. I then shutdown the JIRA4 for the (hopefully) LAST TIME!!!!
51. I created the /data/backups/4.4.5/final-upgrade-2015-08-21 directory
52. I then moved the /data/jira445/export/final-migration-445-2015-08-21.zip to the /data/backups/4.4.5/final-upgrade-2015-08-21 directory
53. I cd'd to the /data/jira445/data directory and tarred up the attachments directory to the final-migration-445-attachments-2015-08-21.tar file
54. I then moved that file to the /data/backups/4.4.5/final-upgrade-2015-08-21 directory
55. I cd'd to the /opt/jira5/logs directory and removed all the log files
56. I cd'd to the /opt/jira5/work directory and removed the Catalina directory and the pid file
57. I cd'd to the /data/jira5211 directory and I removed all the directories except for the dbconfig.xml file
58. I used Aqua data studio to delete all the tables in the Jira5 database (this took a couple of rounds of delete due to key constraints)
59. I then started JIRA 5 using /opt/jira5/bin/start-jira.sh and the DB tables and /data/jira5211 directories were all created OK

60. I copied the /data/backups/4.4.5/final-upgrade-2015-08-21/final-migration-445-attachments-2015-08-21.tar to the /data/jira5211/data directory
61. I then untarred the file there which put all the attachments in the attachments folder.
62. I then copied the /data/backups/4.5.5/final-upgrade-2015-08-21/final-migration-445-2015-08-21.zip to the /data/jira5211/import directory
63. I tailed the /opt/jira5/log/catalina.out file and opened <http://bugs.shore.mbari.org:8280> in my browser
64. I clicked on the "import data" link
65. I put /data/jira5211/import/final-migration-445-2015-08-21.zip in the file name field and then clicked on Generate an evaluation key
66. I filled out everything and it put the license key in and then I clicked on "import"
67. Everything seemed to go smoothly, so I logged in and then created a backup by going to Administration->System->Import and Export.
68. I input the file name final-upgrade-5211-2015-08-21 which created the /data/jira5211/export/final-upgrade-5211-2015-08-21.zip file
69. I shutdown JIRA 5 for (hopefully!) the LAST TIME !!!
70. I tarred up that /data/jira5211/data/attachments directory and moved it to /data/backups/5.2.11/final-upgrade-5211-2015-08-21/final-upgrade-5211-attachments-2015-08-21.tar
71. I moved the backup that was in the /data/jira5211/export directory to the /data/backups/5.2.11/final-upgrade-5211-2015-08-21 directory
72. Using Aqua data studio, I deleted everything in the Jira6 database (took a couple rounds due to keys)
73. I cd'd to /opt/jira6/logs and removed all the log files
74. I cd'd to /opt/jira6/work and deleted everything there
75. I cd'd to /data/jira649 and removed everything but the dbconfig.xml file
76. I then cd'd to /opt/jira6/bin and started jira using jira-start.sh
77. I tailed to log file to make sure it all started up OK.
78. After successful start up, I copied the /data/backups/5.2.11/final-upgrade-5211-2015-08-21/final-upgrade-5211-2015-08-21.zip file to the /data/jira649/import directory
79. I copied the /data/backups/5.2.11/final-upgrade-5211-2015-08-21/final-upgrade-5211-attachments-2015-08-21.tar to the /data/jira649/data directory and untarred it which put all the attachments in the attachments directory.
80. I then went to <http://bugs.shore.mbari.org:8380> to kick off the set up
81. I tailed the log file in the terminal to make sure all was OK
82. I clicked on "import your data" link
83. I put /data/jira649/import/final-upgrade-5211-2015-08-21.zip in the file name box and clicked on Generate evaluation license, followed the instructions and then clicked on Import
84. Everything seems to have worked (including attachments)!!!
85. I went to User Management->User Directories and I moved the JIRA internal directory up in the order of directories and disabled the Remote Crowd Directory
86. I then did an export using System->Backup System and used the file name final-upgrade-6211-2015-08-21
87. I then shutdown the JIRA 6 for (hopefully!!!!) the LAST TIME !!!!
88. I cd'd to the /data/jira629/data directory and created the final-upgrade-629-attachments-2015-08-21.tar file of the attachments directory
89. I cd'd to the /data/backup/6.4.9/ directory and created the final-upgrade-649-2015-08-21 directory.
90. I cd'd to that directory and moved the backup file and the attachment tar to that directory.
91. I then opened a terminal on my local machine and SCP'd those backup files locally.
92. I then mounted the WebDAV directory on my local machine using finder and connecting using <https://mbari1.atlassian.net/webdav/>
93. I then copied the backup files I scp'd to my local machine to the remote WebDAV directory.
94. I logged in to our cloud system and went to Administration->System
95. I clicked on JIRA Import on the left hand side
96. I only selected the XML backup zip to import as Atlassian has to do the attachments.
97. I gave me the option of updating URLs that were in issues, I selected the ones point to oceana and continued.
98. It warned me that everything would be replaced. I left the email enabled and continued.
99. It looks like it did a purge first, then the import.
100. It failed and I updated my support ticket to have them look at it
101. They uploaded and re-indexed and it wiped out all accounts, so I logged in as admin/admin and it put me through a setup routine
102. I changed that admin password, but it looks like it is a limited 'admin'. I am wondering if the account needs to have site admin because I can't get into any of the user management stuff.
103. That was it, Atlassian made the admin account a part of the site-admins group and I am golden.

104. I went through and de-activatedly almost all the accounts except for the ones I knew about and reset all their password to a default that I will email them directly so they can login and change it.
105. I added the MBARI Logo
106. I enabled Gravatar images

WHEW, TIME FOR A BEER!

## New DGH can for high resolution pH and temperature measurement on an ROV

This page last changed on Apr 15, 2015 by [tm](#).

[tDGH Can Users Guide](#)

- 0

DGH Can upgrade project was prioritized up by the Engineering Director in Sep. 2013 in order to remove the project from the 2014 project list and make good on an unrealized project from 2012. The original scope of work was to fit MBARI HRpH instruments to the DGH can. RS485 feature of MBARI HRpH was planned. In 2013, the requirement was added to use the new Seabird 18s digital pH instrument since this instrument was the result of a tech transfer by Thom Maughan to Seabird of the MBARI HRpH instrument and the Seabird 18s is now available as of 4Q2013 (though it is not advertised yet on the Seabird website). The Seabird 18s does not have an RS485 interface option which motivated a different engineering approach (use of custom microprocessor to aggregate the RS232 instruments and present as a single DGH module to keep the PC software simple).

## DGH Can Upgrade (tDGH) Requirements:

- requirements defined, then reviewed with Ed Peltzer and Dale Graves Sep 2013

### Hardware

#### Sensor Interface

- 4 channel analog for platinum sensor resistors (RTDs from Omega, same as existing DGH can)
- 4 channel digital for RS232 Seabird 18s sensors (4 pin, 12v, RS232). Ability to electrically isolate in case of pH instrument failure.

#### ROV Interface

- RS232
- Single power supply +24v, GND (+24v is more readily available on ROV per DG)

### Mechanical

- The existing DGH housing is corroded, a new housing is desired with 4 connectors for temperature and 4 connectors for pH and 1 connector for ROV

### Software

#### DGH Can

- Must support maximum 1 Hz sample rate (once per second); logging at 1 Hz as well. Typically logging is at 0.5 Hz. Would like 0.2, 0.1 Hz options as well.

#### PC

- Installer or standalone executable, must not 'clobber' shared dll's used by another program.
- - virtual machine will be created of Ed's laptop to 'test' the lab view installer. We will do this early to gate the approach on software.
- Same functional and graphical features as existing software. GUI similar to what we now have in layout with graphical display of pH and "sliders" (horizontal bar graphs) for temperature. GUI should also allow for:
  - a. Selection of any temp sensor to go with any pH sensor.
  - b. Separate calibration constants (slope & offset) for each pH sensor.
  - c. Separate temperature offsets for each temp sensor.

### Time and Division of Labor:

- Ed is the customer and supplies the requirements. Ed's laptop will need to have a virtual machine constructed to prevent the newer LabView Dll's from affecting an older program. From time to time Ed will need to log into this virtual machine so that Thom/Dale can test.
- Several attempts at making a VM wire tried, Ed's directory replication setup causes VMWare failure
- Thom to provide Dale the software def for serial comms so he can work on the Labview GUI ahead of hardware availability (Complete)
- Thom will be responsible for the project and perform the electronics design and write software/firmware for microprocessor.
  - Thom will define serial communications protocol. (In Progress, working over Thxgiving)
- Jose will do the PCB layout (Complete)



- Indtec will do the assembly (some parts are BGA)
- Dale will do the PC Software / GUI (Labview to be used)
- Dale will update the instrument housing and spec out the external connectors

## **tDGH controller bringup / hardware design verification**

- Partial stuff, MSP430F5438A + MAX3222 + MUX + Power Converter + LEDs
  - isolating converter consumes ~87mA with 10mA load on 3.3v
  - JTAG connection, 14pin connector orients to edge of board, works well
  - LEDs work
  - UART connection to MAX3222 works
  - GPIO connections to INST PWR Enable works
- Full stuff controller board received from Indtec on Dec. 4, Tom Marion built up interface board on Dec. 4
  - Had Jose cut/jmp to fix MAX3222, Mux lines, pull ups on Mux Dec 5.
- PCB Issues
  - MUX lines not connected to processor, fixed with blue wires, fixed in rev2. FIXED v2 28 Dec 2013
  - no TX output on MAX3222, C1/C2 cross wired, Fixed with circuit mod. FIXED v2
  - Should have pullups not pull downs on serial lines for MUX - FIXED v2
  - Isolating RS232 not working FIXED v2
- Firmware
  - Clock subsystem, 16.777 MHz operation for SMCLK, MCLK, ACLK, Tektronix TDS2024B measures 16.89 MHz (100ns grid). 0.7% error.
    - 115200 measures a bit over 8.67 usec per bit time, closer to 8.8 usec. Normally high signal.
  - LEDs
  - UART0 to 3 sending data, confirmed 115200
  - INST1 PWR Enable tested and working
- ToDo
  - UART to Instrument connection (fix MAX3222). C1/C2 caps wired incorrectly (fixed in rev 2) DONE
  - UART to ROV isolated connection, need to figure out why it's not working. DONE
  - Finish hardware bringup and spin rev2 of the controller board. DONE
  - UART ISR
    - Test serial mux, latency, glitch, etc DONE
  - Write test program for exercising relays on interface board DONE
  - Write DGH module interface for temperature readings DONE
  - Write Seabird 18s interface and driver DONE
  - Wire up the DGH housing connectors and mount the board set and DGH module
  - Integration test with 5 pH and max sample rate (1Hz) in test tank

## **Seabird 18s setup**

- setoutputformat= 0
  - 0 \*±vvvvv.vv\r\n pH probe voltage in mV, MBARI style output
  - 1 ±vvvv.vv\r\n pH probe voltage in mV
  - 2 v.vvvv\r\n pH probe voltage in SBE 18 volts
- cal for fast response (request, response immediate, otherwise a couple seconds)
- setautorun=0 no autorun
  - enter interactive mode on powerup, 1 enters tsc on powerup. If tsc is stopped via ESC the instrument re-enters tsc on power cycle.
- setexecuted=0 suppress <Executed/> tags
  - 1 do not suppress
- setecho=0 suppress echoed characters
  - 1 do not suppress
- setprompt=0 suppress 'S>'
  - 1 do not suppress
- setbaud=115200
  - 9600, 38400, 115200

- `setsampleperiod=1`
  - n seconds between scans when running continuously. Each sample is comprised of an average of 8 scans.
- Operational commands
  - `ts <see format for output>` returns a measurement in one of the above formats.
  - `tsc <see format for output>` continuously samples and returns the measurement in one of the above formats. The update rate is 1Hz which is an average of 16 samples. Return to interactive mode via the ESC key.
  - `gethd`
  - `getcd`
  - `getec`
  - `getsd`
  - `getcc`
- Electrical
  - Voltage input 11VDC - 18VDC
  - Current consumption 82mA at 12VDC

## DGH D5451 Module setup

- Setup the D5451 to 115200 baud, procedure:
  - Wire the default pin on the D5451 to Ground, set terminal to 300 baud (8N1) with serial port connected and 12v supplied (47mA)
  - `$1WE (echo *)`
  - `$1SU3108E1C2 (echo *)`
  - change terminal settings to 115200, then disconnect the Default pin from ground (leave floating)
  - `$1RS` should return `*3108E1C2`
  - `$1RD` will take a sample, returns `*-99999.99` with input floating (no thermistor)

## Serial Protocol

- Power All (0=off, 1=on)
  - `$1PA0<CR/LF>`
  - response
  - `0<CR/LF>`
- Channel 1 Power Control = 0 (Off)
  - `$1PC0<CR/LF>`
  - Response:
  - `0<CR/LF>`
- Channel 1 Power Control = 1 (On)
  - `$1PC1<CR/LF>`
  - Response:
  - `1<CR/LF>`
- Channel 1 Power Read
  - `$1PR<CR/LF>`
  - Response:
  - `1<CR/LF>`
- Read Block
  - `$1RB<CR/LF>` read temperature sensor block (4 channels)
  - `$5RB<CR/LF>` read pH sensor block (Seabird 18s)
  - Response:
  - `*+02712.00`
  - `*+00200.00`
  - `*+00125.76`
  - `*+00347.95`
- Read Data
  - `$1RD<CR/LF>` read tDGH channel 1 (temperature ch 1)
  - `$2RD<CR/LF>` read tDGH channel 2 (temperature ch 2)
  - `$3RD<CR/LF>` read tDGH channel 3 (temperature ch 3)

- \$4RD<CR/LF> read tDGH channel 4 (temperature ch 4)
- \$5RD<CR/LF> read tDGH channel 5 (pH sensor ch 1)
- \$6RD<CR/LF> read tDGH channel 6 (pH sensor ch 2)
- \$7RD<CR/LF> read tDGH channel 7 (pH sensor ch 3)
- \$8RD<CR/LF> read tDGH channel 8 (pH sensor ch 4)
- \$9RD<CR/LF> read tDGH channel 9 (pH sensor ch 5)

## tDGH Can Users Guide

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This page last changed on Apr 15, 2015 by [tm](#).

### tDGH Can Users Guide

#### Seabird 18s pH sensor setup

Note: MUST have pH sensor configured correctly. The swFOCE team has setup the sensor with different options (not sure, but I believe they have setprompt=1)

```
setoutputformat=0
setexecuted=0
setecho=0
setbaud=38400
setprompt=0
```

#### [SBE 18S Commands](#)

#### tDGH Connections

**Power Connection:** Using benchtop cable adapter, connect to +24v 300mA capable power supply. tDGH can run +12v to +24v.

**Serial Connection:** Connect tDGH can to a PC serial port (USB to serial also works) with settings of 115200, 8N1. This is configurable in the DGH software by DGH gen2 config.txt file typically found on the desktop of the PC. Using Teraterm or Hardware Manager, figure out which COM port is attached to the tDGH can and configure this in the DGH gen2 config.txt file (hereafter referred to as the config file).

#### Serial Protocol

Note: the serial protocol can be used to manually test the tDGH can without using the Labview GUI. Using a serial terminal such as TeraTerm (download <http://tssh2.sourceforge.jp/>), configure the serial port for 115200 8N1

- Power All (0=off, 1=on)
  - \$1PA0<CR/LF>
  - response
  - 0<CR/LF>
- Channel 1 Power Control = 0 (Off)
  - \$1PC0<CR/LF>
  - Response:
  - 0<CR/LF>
- Channel 1 Power Control = 1 (On)
  - \$1PC1<CR/LF>
  - Response:
  - 1<CR/LF>
- Channel 1 Power Read
  - \$1PR<CR/LF>
  - Response:
  - 1<CR/LF>
- Read Block
  - \$1RB<CR/LF> read temperature sensor block (4 channels)
  - \$5RB<CR/LF> read pH sensor block (Seabird 18s)
  - Response:
  - \*+02712.00
  - \*+00200.00
  - \*+00125.76
  - \*+00347.95
- Read Data

- \$1RD<CR/LF> read tDGH channel 1 (temperature ch 1)
- \$2RD<CR/LF> read tDGH channel 2 (temperature ch 2)
- \$3RD<CR/LF> read tDGH channel 3 (temperature ch 3)
- \$4RD<CR/LF> read tDGH channel 4 (temperature ch 4)
- \$5RD<CR/LF> read tDGH channel 5 (pH sensor ch 1)
- \$6RD<CR/LF> read tDGH channel 6 (pH sensor ch 2)
- \$7RD<CR/LF> read tDGH channel 7 (pH sensor ch 3)
- \$8RD<CR/LF> read tDGH channel 8 (pH sensor ch 4)
- \$9RD<CR/LF> read tDGH channel 9 (pH sensor ch 5)

## Embedded Platforms

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This page last changed on Dec 04, 2013 by [kgomes](#).

This page summarizes various embedded platforms:

### Platform Notes

Arduino

- [Board Comparison Matrix](#)

### Platform Matrix

Technology Group	Platform Name	URL(s)	Cost	Features	Good for	Bad for
Android	IOIO-OTG	• <a href="#">Sparkfun</a>    • <a href="#">Wiki</a>	\$40	• PIC controller    • Acts as a bridge between Android/PC (Java) app and advanced IO like GPIO, PWM, ADC, I2C, SPI, and UART		
Arduino	Arduino Due	• <a href="#">Sparkfun</a>    • <a href="#">Arduino Page</a>	\$49			
Arduino	Arduino Yun	• <a href="#">Sparkfun</a>    • <a href="#">Arduino Page</a>				

## Shark Cafe Camera

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This page last changed on Mar 05, 2015 by [tm](#).

### 2015 Tasks

#### Housing

- polycarbonate tube (tough)
  - Camera dimension un-housed is 1.11" at the back.
- tail section with pressure sensor and antenna hole - potted
- acrylic camera dome
- Fin clamp holder
- separate battery housing - detaches on release
- syntactic foam
- prop speed coating

#### Camera

- RelayXD PrimeX
  - Need to measure low light sensitivity

#### Camera Controller

- Camera interface board
- Energy Harvesting board with WiPo
- Power input board
- Remote control/status board
- Processor board
  - AT328 running at 4.5uA

#### Solar

- Alta Devices flex

#### Sensors and Satellite radio

- SeaTag MOD board

#### Software

- behavior detect alg in SeaTag MOD
- SeaTag MOD on LRAUV to gather test data