2024 RVTEC: CORIOLIX Breakout Session

CORIOLIX

Cruise Observations
Real-time Interface &
Open Live Information eXchange

CORIOLIX Breakout Session

Session Objectives

- Improve your understanding of CORIOLIX
- Provide you with information on how get started

Session Approach

- Introduce CORIOLIX and the ARF specialized service
- Take time to demonstrate features
- Take time to explore common use cases
- Finish off with Information on how to participate

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What is CORIOLIX

CORIOLIX integrates operation and management of:

- Data Acquisition
  - Manages configuration and state
- Data Processing
  - Performs real-time and delayed/batch processing
- Data Storage & Management
  - Annotates data, logs system configuration, performs replication
- Data Access
  - Offers multiple modes (File Download, Real-Time Streaming, API Polling)
  - And multiple standards (ASCII, JSON, OpenDAP, netCDF, OGC, MQTT)
  - Supports role-based access

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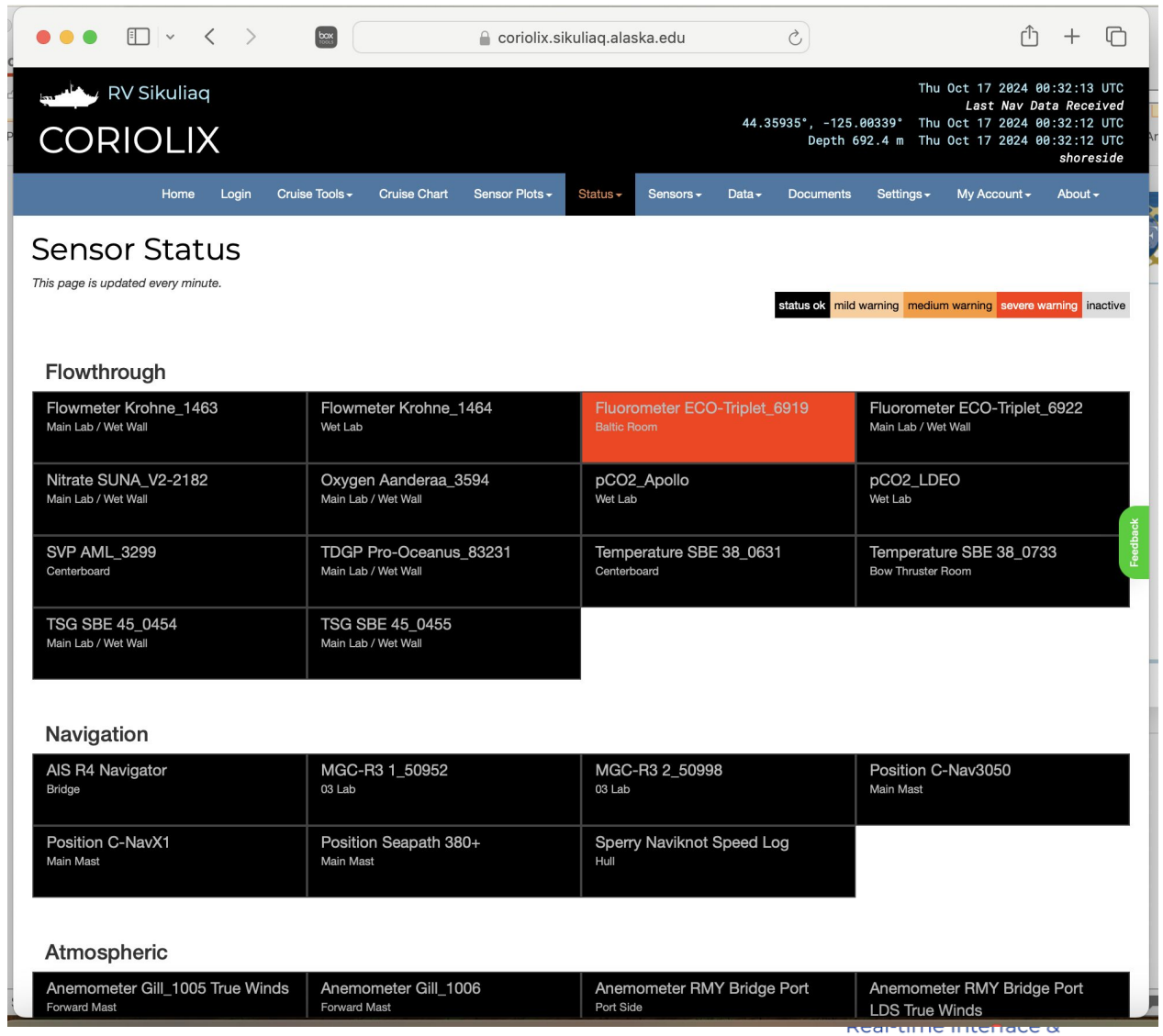
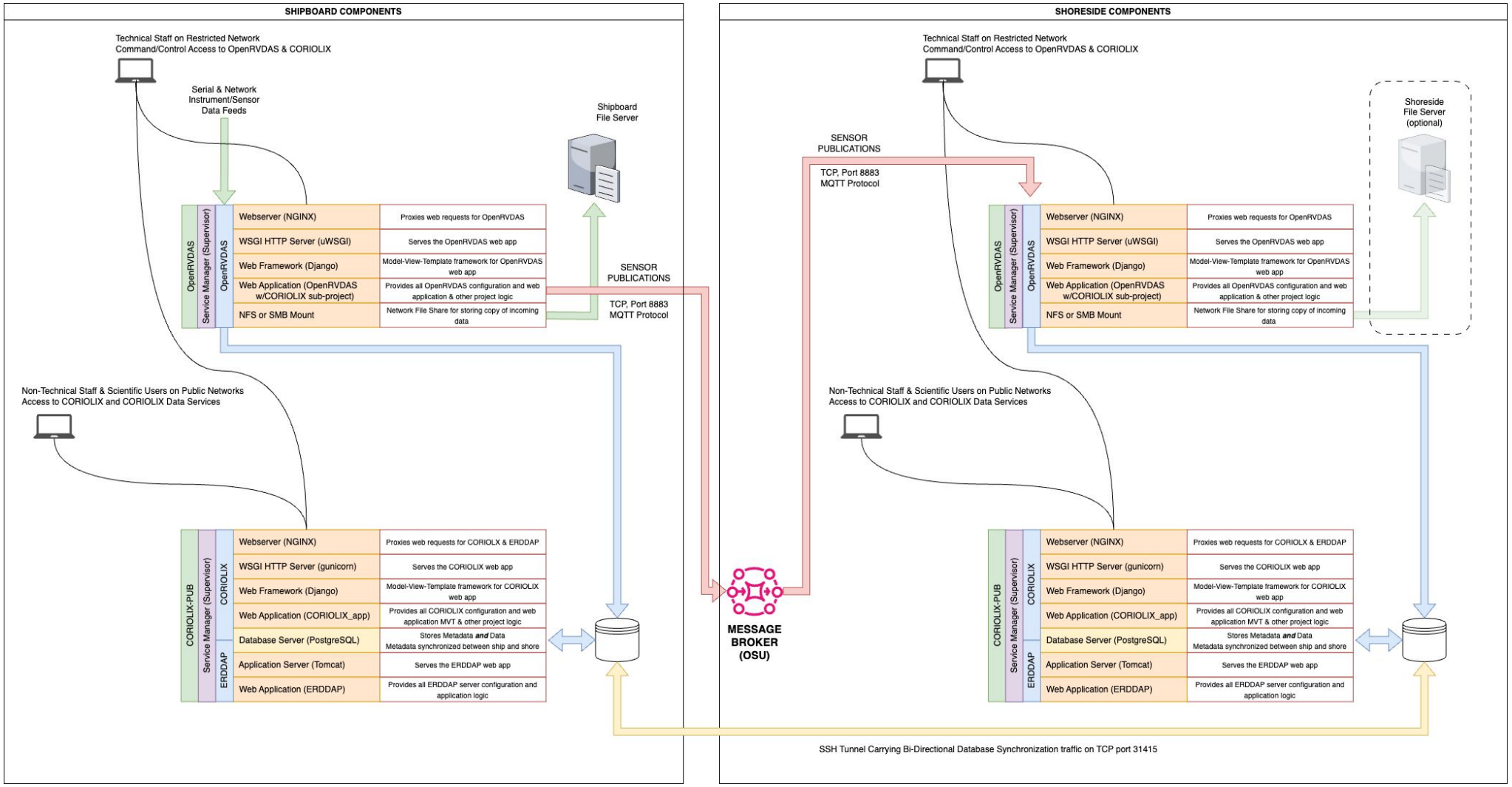
What does it look like from the driver's seat?



Real-time Interface &
Open Live Information eXchange

What does CORIOLIX look like under the hood?



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Who's used or is using CORIOLIX?

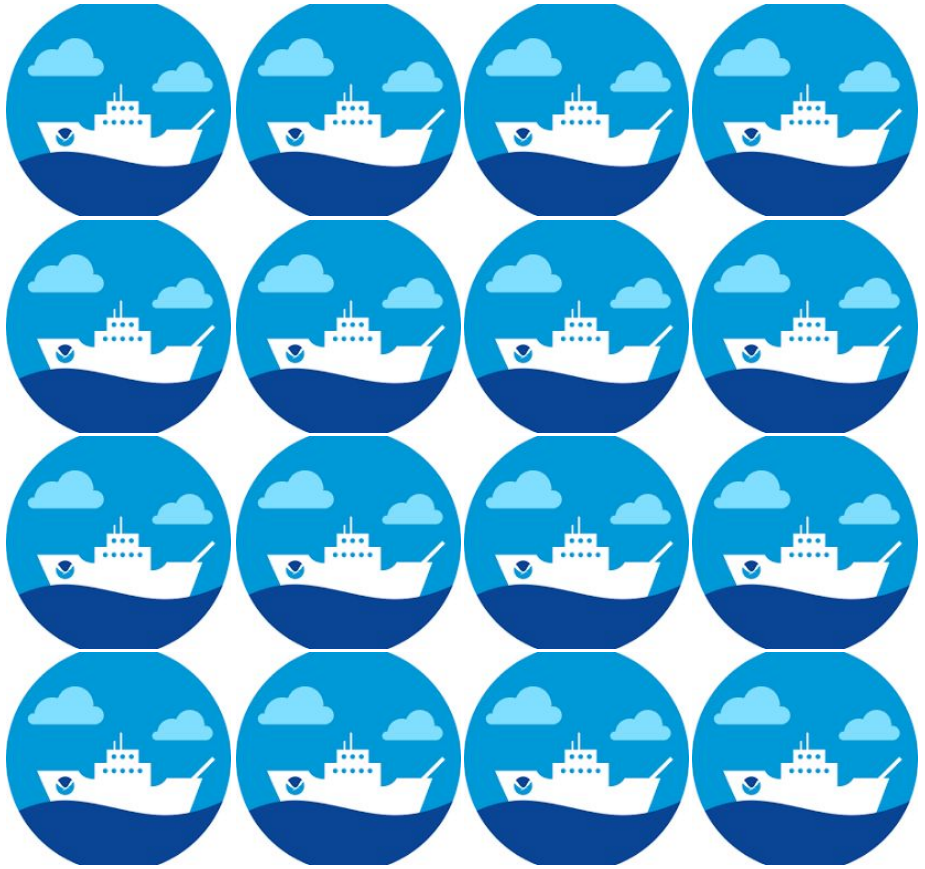
CORIOLIX in the ARF:

R/V Oceanus (Retired 2021)

1. **R/V Endeavor (online)**
   https://coriolix.ceoas.oregonstate.edu/endeavor
2. **Point Sur (online)**
   https://coriolix.ceoas.oregonstate.edu/ptsur
3. **Sikuliaq (online)**
   https://coriolix.sikuliaq.alaska.edu
4. **R/V Savannah (November 2024)**
5. **RCRV Taani (online in lab now)**
6. **RCRV Natragansett Dawn (not too far)**
7. **RCRV Mason (somewhat further)**

We hope to add more than one new UNOLS ship/year

CORIOLIX at NOAA:
15 ships + 1 Weather Station



CORIOLIX: Minimum Requirements

Shipside Hardware:

an example from our smallest deployment

- 1 socket (CPU), 8c/2T, 3.2 GHz
- 48GB RAM, 1.5TB Disk
- somewhere between $3 – 5K

Shoreside Hardware:

single socket server or virtual host (same specs as above)

Software/OS:

Debian (now), Alma (testing), Docker (pre-testing)

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CORIOLIX : The ARF Specialized Service

Who *Us:* OSU **(about 1.5 FTE total)** & *Them:* 7 ARF ships

What ^ see slide title ☺

When 2023 pilot project, renewed in 2024!

Where Most setup is performed remotely , but we do vessel visits

Why(s) Enable real-time & distributed workflows

Scientific, Operational, Educational

Leverage integrations with other programs/systems

R2R, SAMOS, NOAA / Acquisition, Config Control

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RCRV Datapresence & Engineering Support Center

Chris Romsos — Datapresence
Systems Engineer

2015 -
Lead for Datapresence and RCRV Cyberinfrastructure
Background – Marine Geology, Fisheries, Geographic Info Systems

Jasmine Nahorniak
Assistant Datapresence Systems Engineer

2015 -
Lead CORIOLIX developer
Background – Ocean Optics, Data Processing & Management, UI design

James Caison
Design Specialist

2022 -
Leading Video and sensor systems integrations
Background – Marine & Technical Services

Tristan King
Data Systems Specialist

2024 –
Development + Manage CORIOLIX installations on vessels
Background – 3D Visualization and Web Development

Service Topic: Codebase Maintenance & Mgmt.

Security Compliance

- Maintain security compliance for CORIOLIX software.

Regular and Scheduled Maintenance

- Manage library & package dependencies.
- Implement code review to identify and remedy errors.

Code Development

- Implement new features and code improvements

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Codebase Topic: Open-Source Status

The RCRV Project Execution Plan identifies the first vessel delivery date as the open-source milestone for CORIOLIX, late 2025 <=> early 2026.

– Status has not limited much operationally, but we are eager to open things up for community development

CORIOLIX will be open-sourced under MIT License

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Service Topic: Deployment Maint. & Mgmt.

Deployment Maintenance & Management

- Security Compliance

Perform recommended system updates and patches.

- Regular and Scheduled Maintenance

Manage deployed system configurations.

- System Health
- Monitor and maintain system health.

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Service Topic: Client Support

Vessel personnel

- Provide on-call shore-side support and troubleshooting
- Assist with metadata entry and CORIOLIX system configuration
- Assist with the post-cruise data package delivery to R2R
- Offer CORIOLIX setup and management training

Science personnel

- Support the data access needs of science
- CORIOLIX training for scientific users

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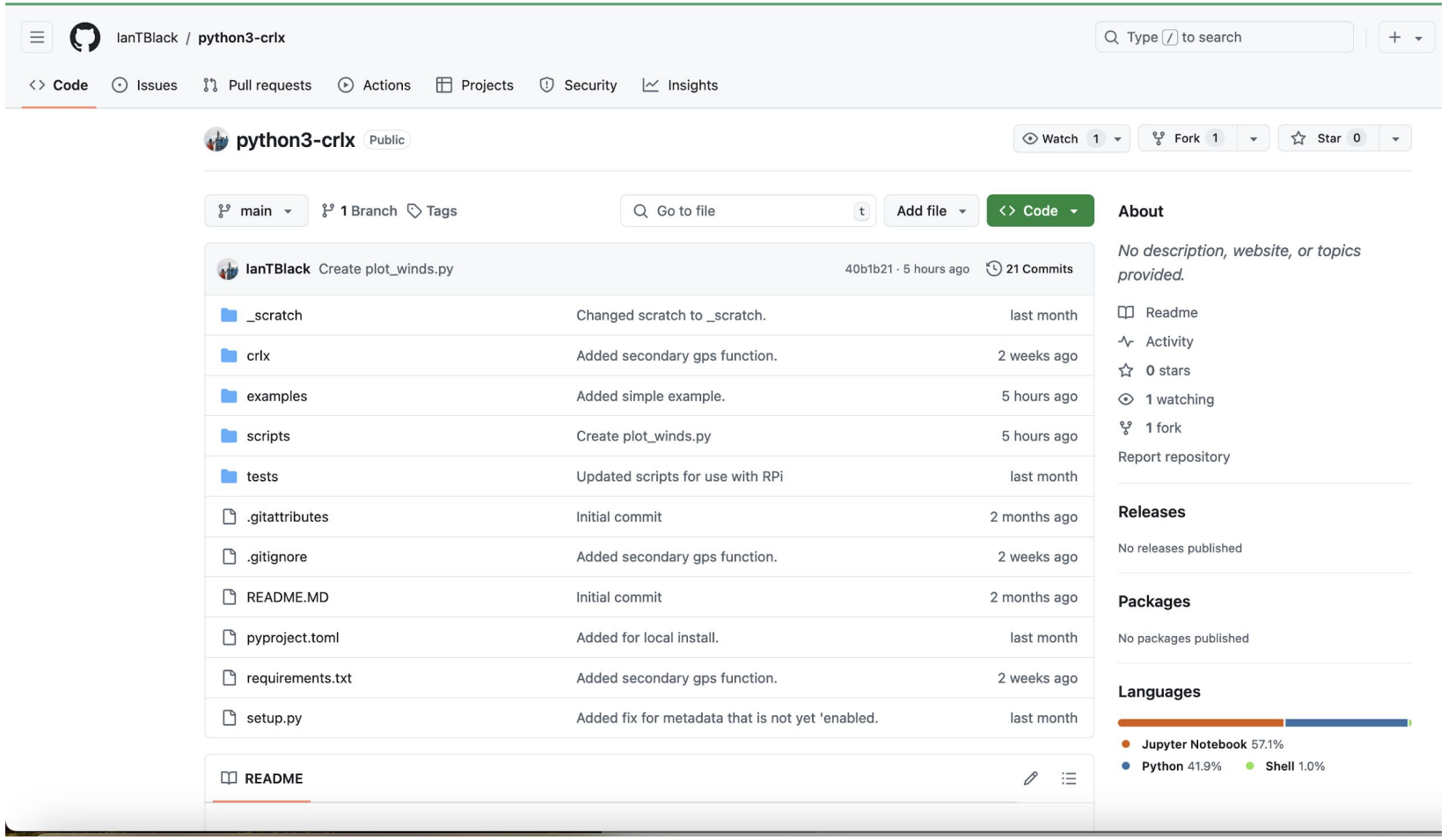
User Projects: API wrapper & UAF Grafana



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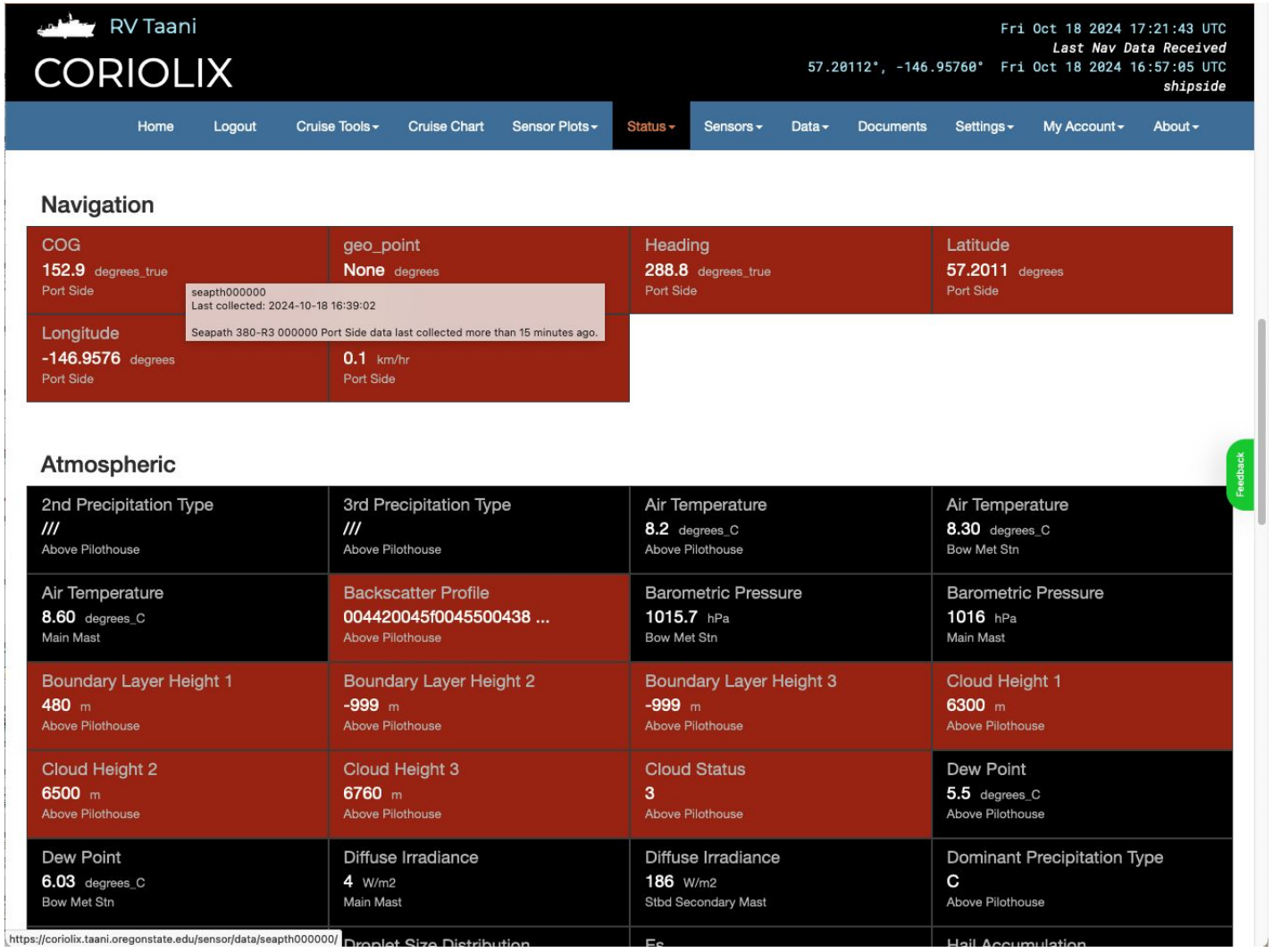
Troubleshooting Topic: “All Red!”



Problem:

One or more loggers are in an alert condition!

Observation:

Nav data is stale, > 15 minutes!

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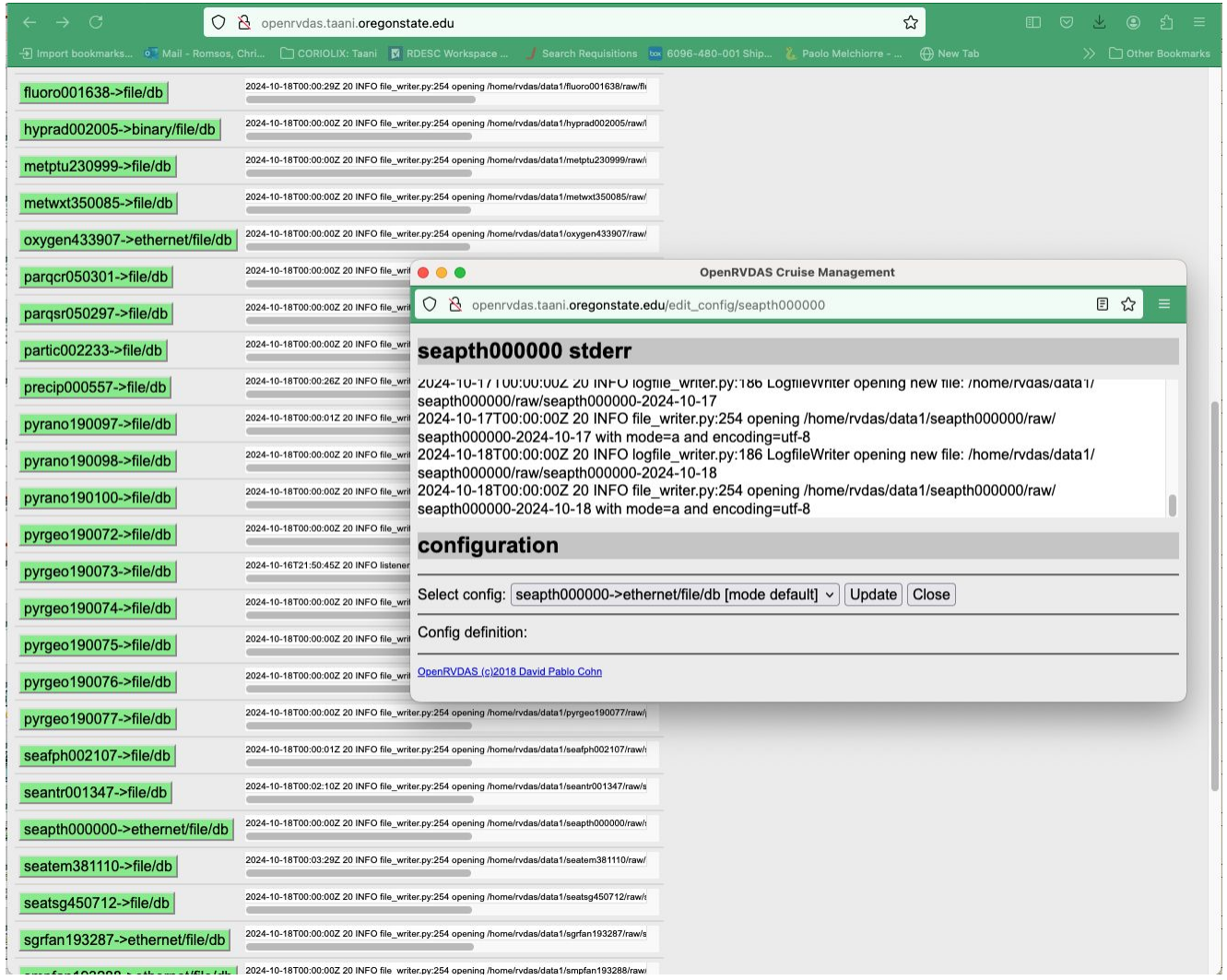
Troubleshooting Topic: “All Red!”



Troubleshooting Step 1:

Check OpenRVDAS

Observation:

No errors in OpenRVDAS

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Troubleshooting Topic: “All Red!”

```
rvdas@openrvdas:~/data1/seapth000000/raw$ ls -l
total 127408
-rw-r--r-- 1 rvdas rvdas 22927654 Oct 13 23:59 seapth000000-2024-10-13
-rw-r--r-- 1 rvdas rvdas 23005464 Oct 14 23:59 seapth000000-2024-10-14
-rw-r--r-- 1 rvdas rvdas 22843570 Oct 15 23:59 seapth000000-2024-10-15
-rw-r--r-- 1 rvdas rvdas 22819883 Oct 16 23:59 seapth000000-2024-10-16
-rw-r--r-- 1 rvdas rvdas 22807908 Oct 17 23:59 seapth000000-2024-10-17
-rw-r--r-- 1 rvdas rvdas 16022281 Oct 18 16:57 seapth000000-2024-10-18
rvdas@openrvdas:~/data1/seapth000000/raw$ tail seapth000000-2024-10-18
2024-10-18T16:56:57.182009Z seapth000000 $GPGGA,053412.36,5712.067340,N,14657.457217,W,2,12,0.7,1.64,M,7.12,M,1.2,0001*62
2024-10-18T16:56:58.132180Z seapth000000 $GPHDT,288.76,T*06
2024-10-18T16:56:58.184841Z seapth000000 $GPGGA,053413.36,5712.067334,N,14657.457064,W,2,12,0.7,1.86,M,7.12,M,1.0,0001*68
2024-10-18T16:56:59.132421Z seapth000000 $GPGGA,053414.36,5712.067379,N,14657.456901,W,2,12,0.7,2.02,M,7.12,M,1.4,0001*66
2024-10-18T16:57:00.132522Z seapth000000 $GPGGA,053415.36,5712.067424,N,14657.456738,W,2,12,0.7,1.97,M,7.12,M,1.2,0001*65
2024-10-18T16:57:01.132624Z seapth000000 $GPGGA,053416.36,5712.067417,N,14657.456596,W,2,12,0.7,1.75,M,7.12,M,1.0,0001*6E
2024-10-18T16:57:02.132720Z seapth000000 $GPGGA,053417.36,5712.067341,N,14657.456488,W,2,12,0.7,1.46,M,7.12,M,1.4,0001*61
2024-10-18T16:57:03.132814Z seapth000000 $GPGGA,053418.36,5712.067218,N,14657.456405,W,2,12,0.7,1.21,M,7.12,M,1.2,0001*61
2024-10-18T16:57:04.132920Z seapth000000 $GPGGA,053419.36,5712.067071,N,14657.456332,W,2,12,0.7,1.11,M,7.12,M,1.0,0001*6F
2024-10-18T16:57:05.133019Z seapth000000 $GPGGA,053420.36,5712.066937,N,14657.456219,W,2,12,0.7,1.21,M,7.12,M,1.4,0001*60
rvdas@openrvdas:~/data1/seapth000000/raw$
```

Troubleshooting Step 2:

CORIOLIX alerts work from the data logged to the database. Data is also logged to file. Check the status of the file content.

Observation:

The time is now 2014-10-18T17:27:33.133639Z – File Data Stale

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Troubleshooting Topic: “All Red!”

Troubleshooting Step 3:

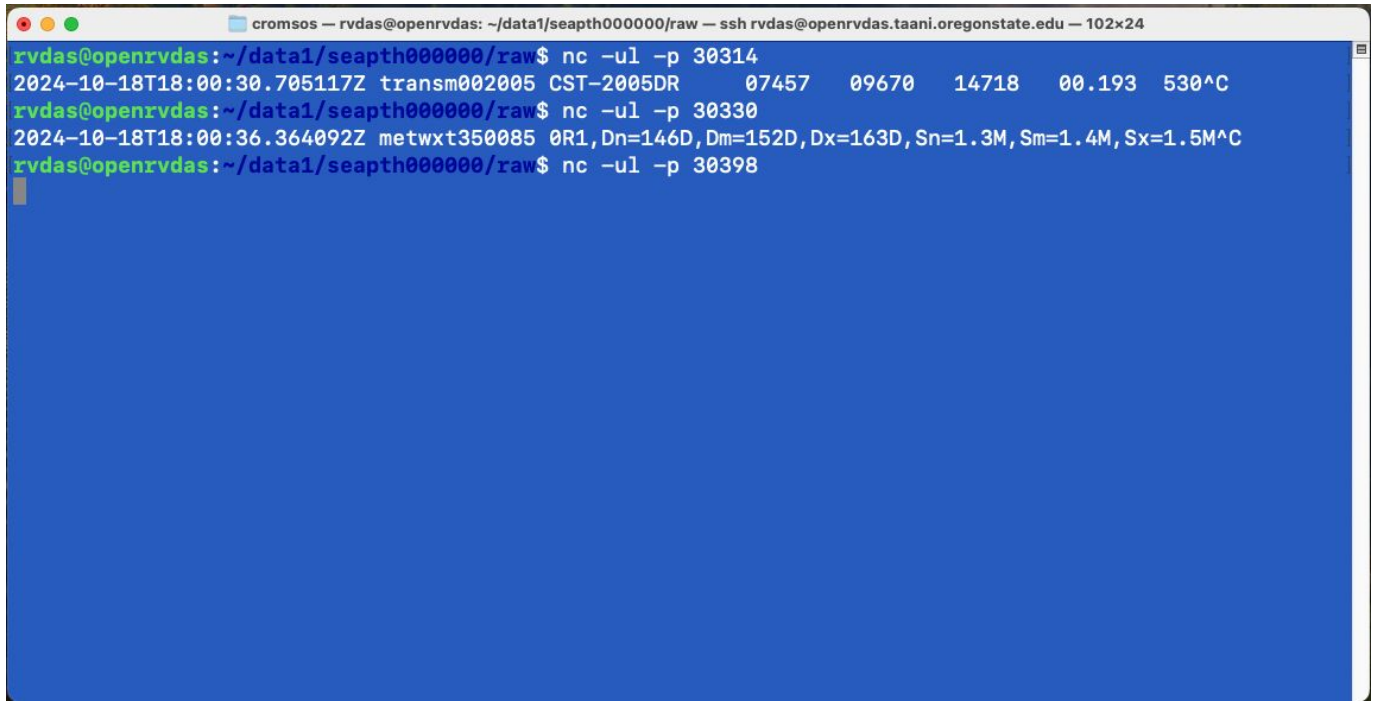
Check to see if UDP data is available on intended port

Observation:

No data on UDP port!

Cause Identified:

Firmware upgrade reset the default output port for Seapath UDP messages.



Data Storage & Access Edit		
Raw Data Ethernet Distribution	IP Address	172.16.30.29
	Port	30398
	Packet Size	None

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Bits to Bins: The Life of a Data Message

A Simple Example

Sensor	WETLabs WETStar Fluorometer
Communication type	RS-232
Native output data units	counts (uncalibrated, uncorrected)
Example data message	1452
Desired final product	Chl-a (ug/l)

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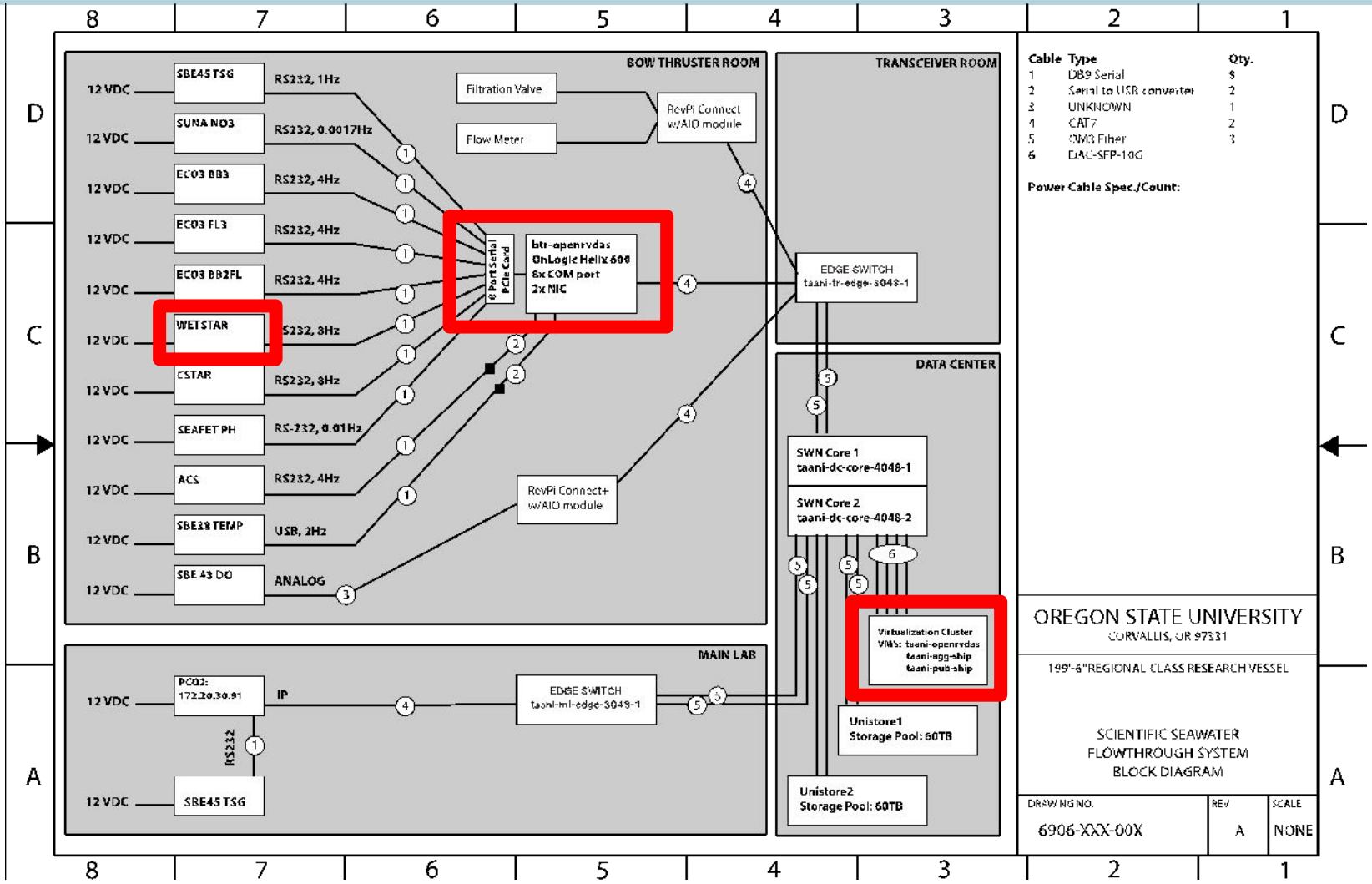
Physical Topology: Flowthrough System



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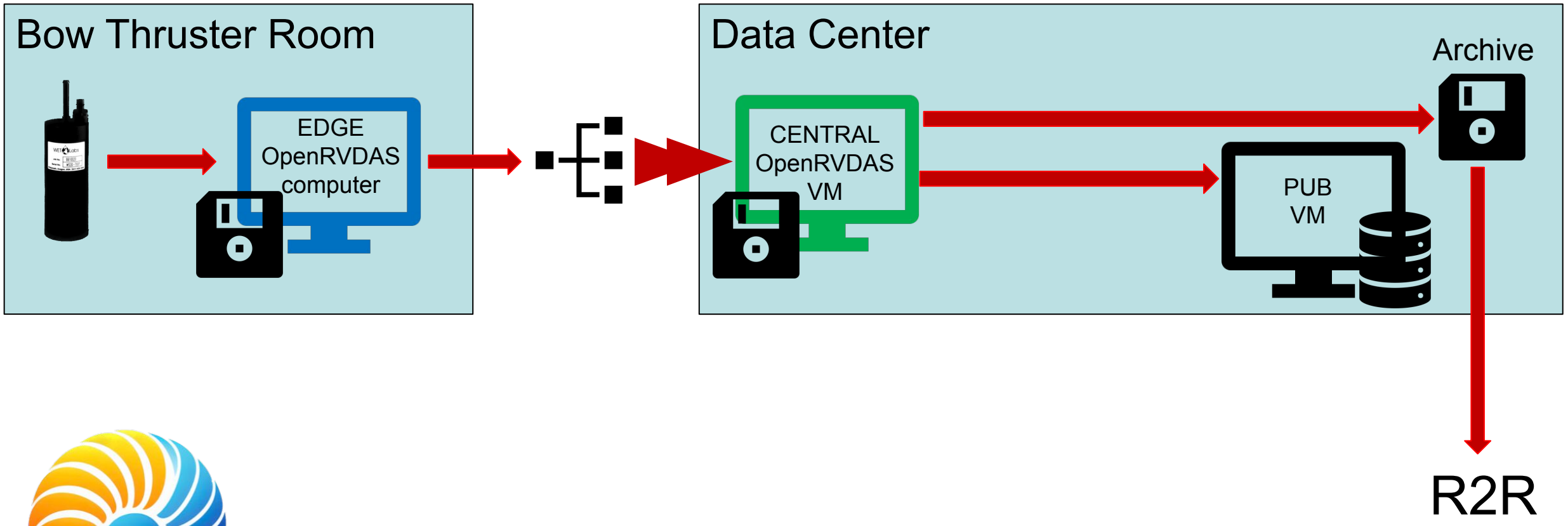
Shipside Overview



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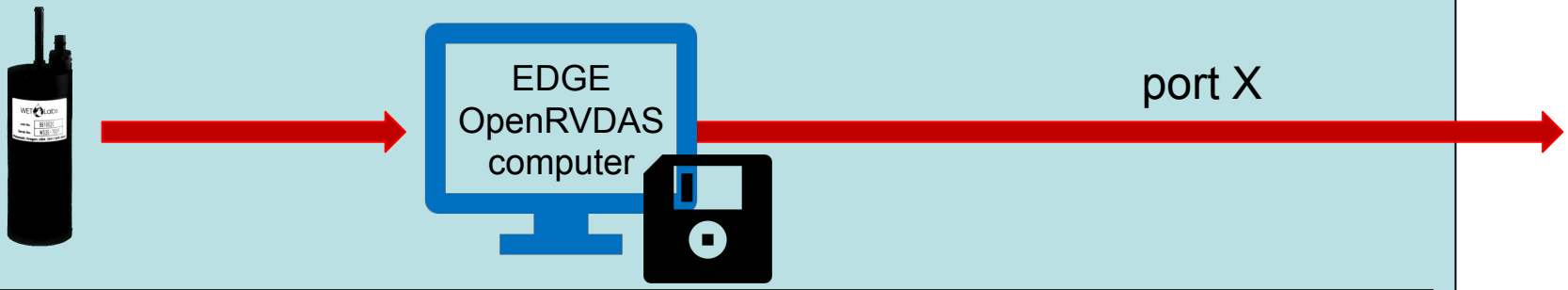
First Stop: Edge OpenRVDAS

Bow Thruster Room



Sensor
Outputs serial data

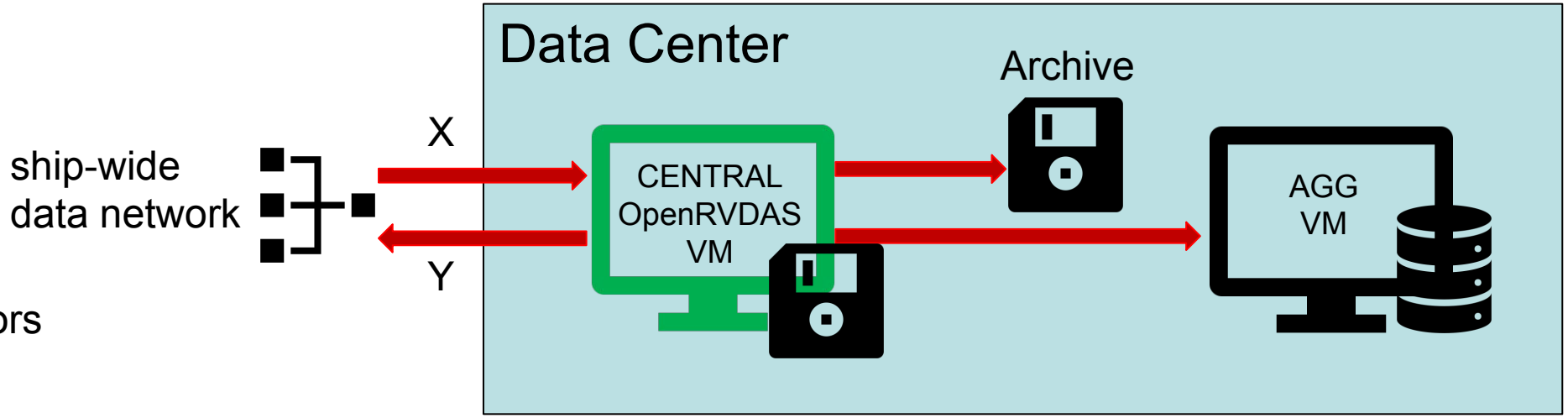
Edge OpenRVDAS
Handles numerous sensors local to that space
Reads serial data
Prepends sensor ID
Prepends timestamp
Saves local copy as emergency backup
Outputs UDP data to port X

1472

2022-12-01T00:00:02.167231Z fluoro001640 1472

NOTE:
The OpenRVDAS configuration files are auto-generated from information in CORIOLIX (sensor IDs, COM ports, etc.).

Second Stop: Central OpenRVDAS



Central OpenRVDAS
Handles all CORIOLIX sensors
Reads UDP data from port X
Saves local copy as backup

Saves copy to archive for R2R	2022-12-01T00:00:02.167231Z fluoro001640 1472
Parses data message using regex	['^(?P<chl_raw>\d+)$']
Reads calibration information from CORIOLIX	{"cal": "D_CWO": "86", "D_SF": "0.0194", ...}}
Calibrates and processes the data	(1472 – 86) * 0.0194 = 26.89 ug/L
Calculates corrected timestamp	2022-12-01T00:00:00.567231Z
Calculates flags	22212422222222222222222222

Writes data and flags into a database on AGG
Outputs processed data to UDP port Y

Third Stop: Aggregator VM

Aggregator (AGG) VM

Stores data in database tables

Not accessible by end users

Syncs data to the PUB VM

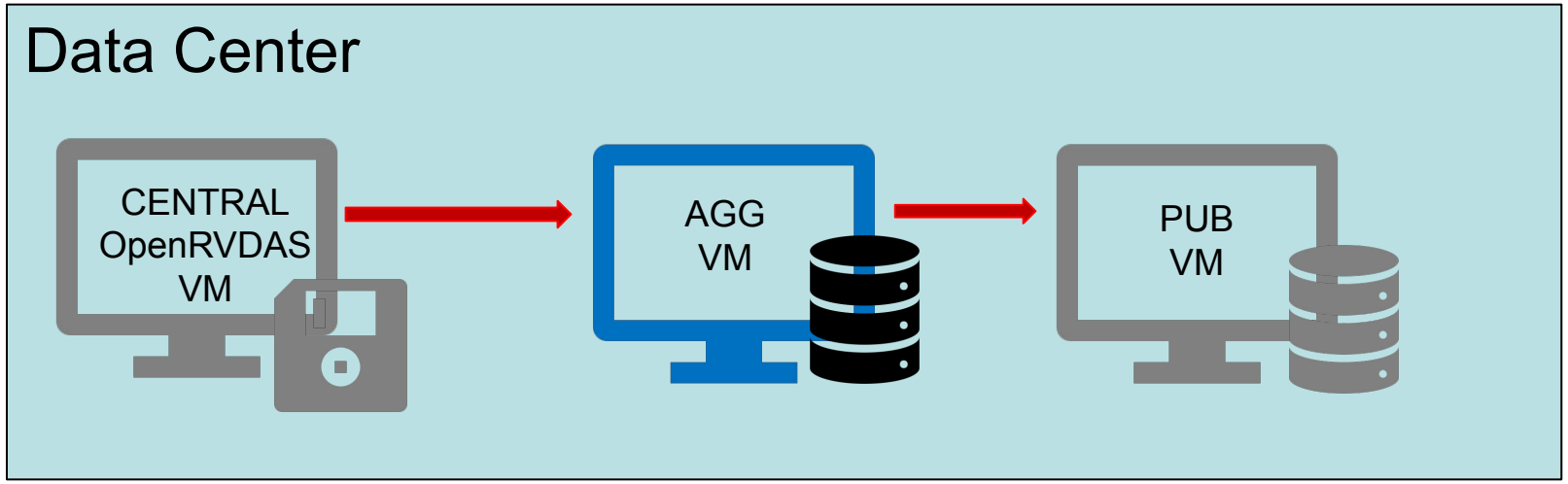


Table:

sensor_mixed_1_archive

Columns:

p3 (chl-a ug/L)

p11 (chl-a counts)

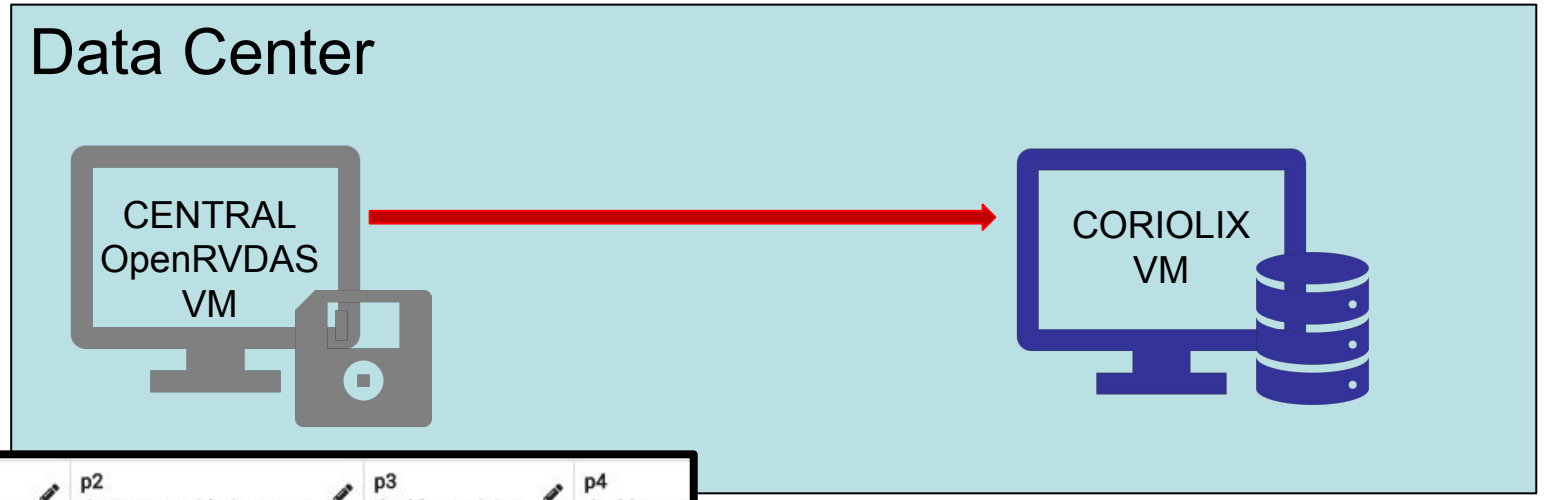
f3 (chl-a ug/L flags)

f11 (chl-a counts flags)

	datetime [PK] timestamp with time zone	datetime_corrected timestamp with time zone	p1 timestamp with time zone	p2 timestamp with time zone	p3 double precision	p4 double prec
1	2022-12-01 05:56:19.685187+00	2022-12-01 05:56:19.560187+00	[null]	[null]	77.7746	
2	2022-12-01 05:56:19.572923+00	2022-12-01 05:56:19.560187+00	[null]	[null]	77.7746	
3	2022-12-01 05:56:19.460878+00	2022-12-01 05:56:19.335878+00	[null]	[null]	77.7746	
4	2022-12-01 05:56:19.348516+00	2022-12-01 05:56:19.223516+00	[null]	[null]	77.7746	
5	2022-12-01 05:56:19.236477+00	2022-12-01 05:56:19.111477+00	[null]	[null]	77.7746	
6	2022-12-01 05:56:19.12404+00	2022-12-01 05:56:18.99904+00	[null]	[null]	77.7746	
7	2022-12-01 05:56:19.01201+00	2022-12-01 05:56:18.88701+00	[null]	[null]	77.7746	

Third Stop: Public VM

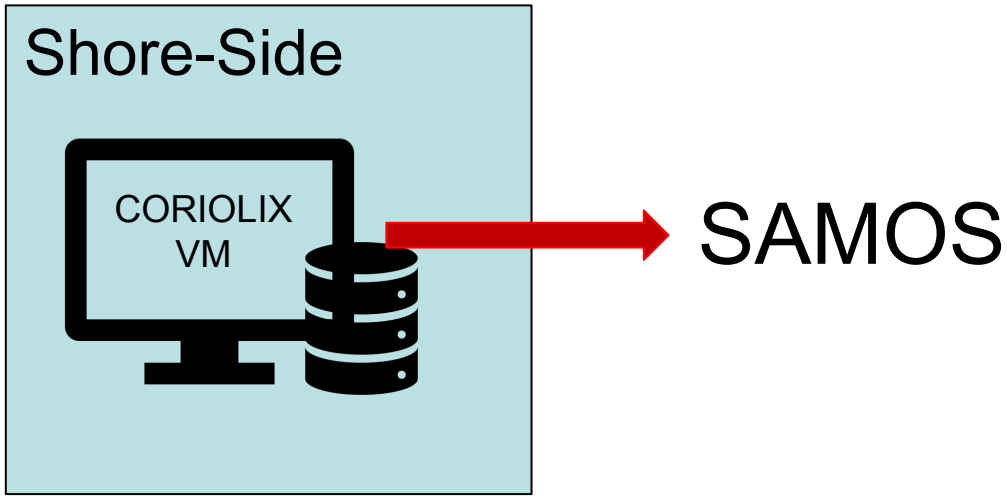
CORIOLIX VM
Hosts CORIOLIX website
Stores data in database tables
Stores sensor metadata
Bins data into one-minute averages
Provides data access
Delivers alerts



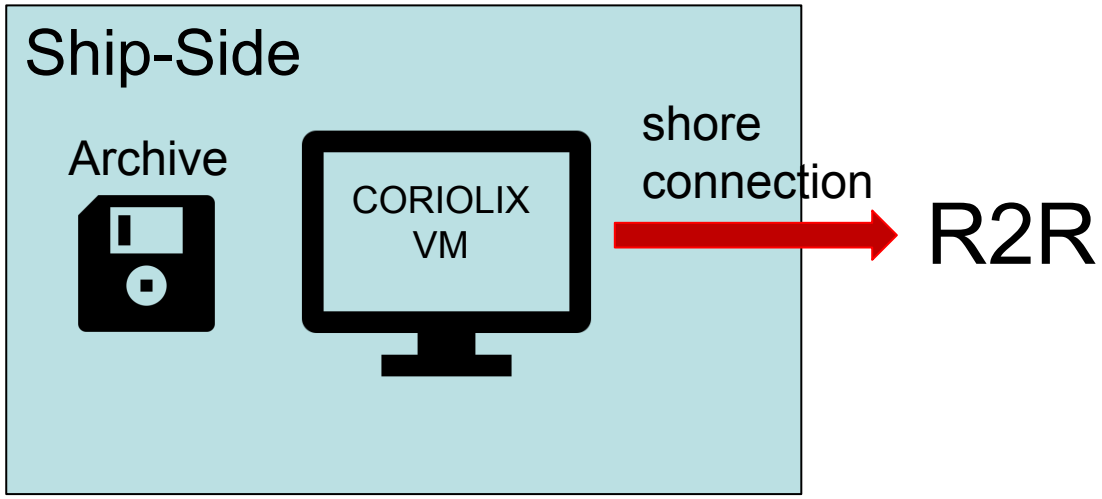
	datetime [PK] timestamp with time zone	datetime_corrected timestamp with time zone	p1 timestamp with time zone	p2 timestamp with time zone	p3 double precision	p4 double prec
1	2022-12-01 05:56:19.685187+00	2022-12-01 05:56:19.560187+00	[null]	[null]	77.7746	
2	2022-12-01 05:56:19.572923+00	2022-12-01 05:56:19.560187+00	[null]	[null]	77.7746	
3	2022-12-01 05:56:19.460878+00	2022-12-01 05:56:19.335878+00	[null]			
4	2022-12-01 05:56:19.348516+00	2022-12-01 05:56:19.223516+00	[null]			
5	2022-12-01 05:56:19.236477+00	2022-12-01 05:56:19.111477+00	[null]			
6	2022-12-01 05:56:19.12404+00	2022-12-01 05:56:18.99904+00	[null]			
7	2022-12-01 05:56:19.01201+00	2022-12-01 05:56:18.88701+00	[null]			

	datetime_center [PK] timestamp with time zone	latitude double precision	longitude double precision	parameter_01 jsonb
1	2022-12-01 05:59:00+00	44.62614365	-124.050316866667	{"a": [0.0009888022659370374, 0.00009
2	2022-12-01 05:58:00+00	44.6261362833333	-124.050308816667	{"a": [0.0009744486132731237, 0.00009
3	2022-12-01 05:57:00+00	44.6261431666667	-124.0503171	{"a": [0.0009814484021433817, 0.00008
4	2022-12-01 05:56:00+00	44.6261418166667	-124.050315016667	{"a": [0.0009903275117609076, 0.00008

Fourth: Long-Term Archives



Shore-Side PUB VM
Daily, delivers a custom daily data file to SAMOS.
Files are auto-generated from a subset of one-minute binned data.



Ship-Side PUB VM
At end of cruise, packages raw files from archive and delivers to R2R with metadata (over shore connection)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Start of Live Demo

At port in Narragansett, Rhode Island.

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Tue Oct 17 2023 23:58:47 UTC
Last Nav Data Received
41.49243°, -71.41860° Tue Oct 17 2023 23:58:46 UTC
shoreside

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SCIENCE FROM SHIP TO SHORE

A real-time system supporting oceanographic research

real-time data access & visualization
maintenance and event logs
quality controlled data
remote participation
notification services

Where to start?

Sensor Status
Monitor sensor systems for real-time state of health

Time-series
View real-time data from shipboard sensors

Cruise Chart
Visualize underway data on a map; review and plan cruise tracks

Create Account
Create & manage your account

Data Access
Access real-time data and data products via download or 3rd party client tools

Documents
Catalog and explore manuals, calibration files, and other metadata

Remote Participation

Feedback

At port in Narragansett, Rhode Island.

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CORIOLIX

Wed Oct 18 2023 00:15:10 UTC
Last Nav Data Received
41.49246°, -71.41861° Wed Oct 18 2023 00:15:09 UTC
shoreside

Sensor Status

status ok | mild warning | medium warning | severe warning | inactive

Flowthrough

Conductivity 0 S/m Wet Lab Thermosalinograph - SBE21	Fluorescence 0.1026 V Wet Lab Thermosalinograph - SBE21	Salinity 0.8709 Wet Lab Thermosalinograph - SBE21	Sound Velocity 1482.97 m/s Wet Lab Thermosalinograph - SBE21
Temperature 17.80 degrees_C Thermometer - Hull	Temperature 19.87 degrees_C Wet Lab Thermosalinograph - SBE21	Temperature 20.73 degrees_C Wet Lab Thermosalinograph - SBE21	

Navigation

COG 252.20 degrees_true Bridge GNSS	COG 163.00 degrees_true Bridge GNSS	Heading 158 degrees Starboard Side Gyrocompass	Latitude 41.4925 degrees Bridge GNSS
Latitude 41.4925 degrees Bridge GNSS	Longitude -71.4186 degrees Bridge GNSS	Longitude -71.4186 degrees Bridge GNSS	Point None Bridge GNSS
Point None Bridge GNSS	SOG 0.00 knots Bridge GNSS	SOG 0.10 knots Bridge GNSS	

Atmospheric

Air Temperature 28.20 degrees_C Bow Met Stn Air temperature and relative humidity	Air Temperature 14.40 degrees_C National Weather Service - 2 Minute Average	Infrared Irradiance 337.0 W/m2 Starboard Side Radiometer	Latitude 41.4925 degrees National Weather Service - 2 Minute Average

At port in Narragansett, Rhode Island.

RV Endeavor

CORIOLIX

Wed Oct 18 2023 00:01:14 UTC
Last Nav Data Received
41.49243°, -71.41856° Wed Oct 18 2023 00:01:13 UTC
shoreside

Sensor Details & Logs

					▼ Sensor Name ▲	▼ Class ▲	▼ Type ▲	▼ Model ▲	▼ S/N ▲	▼ Sensor
1	Details		Data		Air temperature and relative humidity	Atmospheric	Met Station	Young 41382 relative humidity and temperature probe	035269	airtrh0352
2	Details	Plots	Data		Air temperature and relative humidity	Atmospheric	Met Station	RM Young 41372 hygrometer	032565	airtrh0325
3	Details	Plots	Data		Air Temperature and Relative Humidity	Atmospheric	Met Station	Young 41382 relative humidity and temperature probe	028928	airtrh0289
4	Details		Data		Altimeter psa-916	OverTheSide	Altimeter	unknown	50483	alt050483
5	Details		Data		Altimeter psa-916	OverTheSide	Altimeter	unknown	1017	alt001017
6	Details		Data		Altimeter psa-916					
7	Details		Data		Altimeter psa-916					
8	Details		Data		Anemometer					
9	Details		Data		Anemometer					
10	Details		Data		Anemometer	Atmospheric	Anemometer	unknown	unknown	anemo000
11	Details		Data		Anemometer	Atmospheric	Anemometer	RM Young 05103 Wind Monitor 10A anemometer	unknown	anemo201
12	Details		Data		Anemometer	Atmospheric	Anemometer	WindSonic	unknown	anemo101
13	Details		Data		Anemometer	Atmospheric	Anemometer	unknown	unknown	anemo000
14	Details		Data		Anemometer	Atmospheric	Anemometer	Gill Windsonic anemometer	unknown	anemo103
15	Details		Data		Anemometer	Atmospheric	Anemometer	RM Young 05103 Wind Monitor 10A anemometer	unknown	anemo202
16	Details		Data		Anemometer	Atmospheric	Anemometer	unknown	unknown	anemo000
17	Details		Data		Anemometer	Atmospheric	Anemometer	unknown	unknown	anemo000
18	Details		Data		Anemometer	Atmospheric	Anemometer	WindSonic	unknown	anemo104
19	Details		Data		Anemometer	Atmospheric	Anemometer	WindSonic	unknown	anemo102
20	Details	Plots	Data		Anemometer Windsonic	Atmospheric	Anemometer	Gill Windsonic anemometer	08460054	anemo460
21	Details	Plots	Data		Anemometer Windsonic	Atmospheric	Anemometer	Gill Windsonic anemometer	17040018	anemo040
22	Details	Plots	Data		Anemometer Windsonic	Atmospheric	Anemometer	Gill Windsonic anemometer	1520099	anemo520
23	Details	Plots	Data		barometer	Atmospheric	Barometer	Barometer	14707	baro0147(
24	Details	Plots	Data		barometer	Atmospheric	Barometer	Barometer	1729	baro00172

▼ Sensor ID ▲	▼ Vessel Location ▲	▼ Use Level ▲	▼ Enabled ▲	▼ Port(s) ▲	▼ Status ▲	▼ Last Cal ▲	▼ Send To Shore ▲	▼ Current Location ▲	▼ Vessel ▲
airtrh035269	Bow Met Stn		False	None 16000	in use	Jan 18, 2023	True	installed	Endeavor
airtrh032565	RM Young		True	17011 16000	not in use	Dec 08, 2022	True	repair/calibration	Endeavor
airtrh028928	Above Pilothouse		True	17006 16000	in use	Dec 08, 2022	True	installed	Endeavor

Feedback

Air temperature and relative humidity

Data Collection Specs: Native Data Feed | Native Data Format | Data Processing | Data Rates | Data Storage & Access | Time Source
Parameters
Physical Sensor Specs: Operating Limits | Physical Status | Vessel Installation Location
Maintenance & Support: Sensor Log | Calibration & Maintenance | Calibration Files | User Guides & Documents | Ownership | Vendor Support

Summary

Type	Met Station
Vendor	R.M. Young Company
Model	RM Young 41372 hygrometer
S/N	032565
ID Prefix	hygrom
CORIOLIX ID	airtrh032565
Class	Atmospheric
Location	RM Young
Condition	
Configuration	
Native Sample Rate	1.0 Hz
UDP Port(s)	17011 16000
Enabled	True

Data Collection Specs: Native Data Feed | Native Data Format | Data Processing | Data Rates | Data Storage & Access | Time Source
Parameters
Physical Sensor Specs: Operating Limits | Physical Status | Vessel Installation Location
Maintenance & Support: Sensor Log | Calibration & Maintenance | Calibration Files | User Guides & Documents | Ownership | Vendor Support

General Description

RM Young air temp and relative humidity sensor

Data Collection Specs

Native Data Feed	
Signal Type	Analog
Communication Type	
Serial Details	Baud Rate

Air temperature and relative humidity Plots

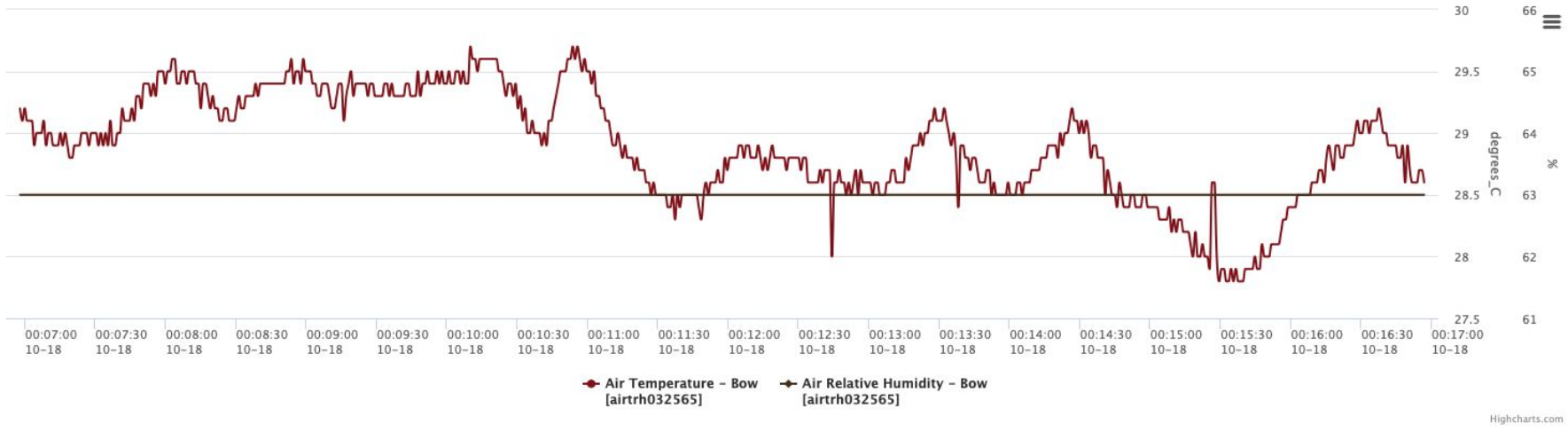
Model	RM Young 41372 hygrometer
Location	RM Young
S/N	032565
CORIOLIX ID	airtrh032565

Plot Settings

Time Interval to Plot: 10 minutes Update Chart

Plot Refresh Interval: every 10 minutes

Plot A



Air temperature and relative humidity Data

Real-time Data | Recent Data | Data Download

Model	RM Young 41372 hygrometer
Location	RM Young
S/N	032565
CORIOLIX ID	airtrh032565

Real-time Data

Datetime	Parameter	Value	Units
Oct 18 2023 19:25:11 UTC	Air Temperature	22.20	degrees_C
Oct 18 2023 19:25:11 UTC	Relative Humidity	64.00	%

Recent Data

This table displays the most recent 10 records of data collected prior to the webpage being loaded. To update the data shown, refresh your browser page. Older data may be accessed using the data download tool below. The corrected time is the time after subtracting sensor-specific temporal offsets such as response time and residence time. A summary of flag descriptions is available on the Quality Flags page.

Date	Time (UTC)	Corrected Time (UTC)	Flags	Air Temperature (degrees_C)
Oct 18 2023	19:24:53.370	19:24:53.370	22212122222222222222222222222	23.20
Oct 18 2023	19:24:52.356	19:24:52.356	22212122222222222222222222222	23.40
Oct 18 2023	19:24:51.340	19:24:51.340	22212122222222222222222222222	23.40
Oct 18 2023	19:24:50.325	19:24:50.325	22212122222222222222222222222	23.30

Parameter Details

			▼ Parameter ▲	▼ Sensor ▲	▼ IOOS Category ▲	▼ Standard Name ▲	▼ Units ▲
1	Details	Plots	Air Temperature	airtrh028928 : Air Temperature and Relative Humidity : Young 41382 relative humidity and temperature probe : 028928	Meteorology	XXXXXXXX	degrees
2	Details	Plots	Air Temperature	airtrh032565 : Air temperature and relative humidity : RM Young 41372 hygrometer : 032565	Meteorology	XXXXXXXX	degrees
3	Details	Plots	Air Temperature	nws101 : National Weather Service - 2 Minute Average : unknown : 2MINAVG	Meteorology	XXXXXXXX	degrees
4	Details		Altitude	gnss101 : GNSS : unknown : unknown	Location	XXXXXXXX	m
5	Details	Plots	COG	gnss000428 :			
6	Details	Plots	COG	gnss102 : GN			
7	Details		Conductivity	tsg000085 : T			
8	Details	Plots	Conductivity	tsg000198 : T			
9	Details	Plots	Conductivity	tsg001741 : T			
10	Details		Conductivity	tsg002205 : Thermosalinograph - SBE21 : Sea-Bird SBE 21 Thermosalinograph : 2205	Other	XXXXXXXX	S/m
11	Details		Conductivity	tsg003231 : Thermosalinograph - SBE21 : Sea-Bird SBE 21 Thermosalinograph : 3231	Other	XXXXXXXX	S/m
12	Details	Plots	Depth 12 kHz	echowell000101 : Echosounder : Knudsen Chirp 3260 : unknown	Bathymetry	XXXXXXXX	m
13	Details		Depth 12 kHz	echowell000102 : Echosounder : unknown : unknown	Bathymetry	XXXXXXXX	m
14	Details	Plots	Depth 3.5 kHz	echowell000101 : Echosounder : Knudsen Chirp 3260 : unknown	Bathymetry	XXXXXXXX	m
15	Details		Depth 3.5 kHz	echowell000102 : Echosounder : unknown : unknown	Bathymetry	XXXXXXXX	m
16	Details	Plots	Fluorescence	tsg001741 : Thermosalinograph - SBE21 : Sea-Bird SBE 21 Thermosalinograph : 1741	Biology	XXXXXXXX	V
17	Details		Fluorescence	tsg002205 : Thermosalinograph - SBE21 : Sea-Bird SBE 21 Thermosalinograph : 2205	Biology	XXXXXXXX	V
18	Details		Fluorescence	tsg003231 : Thermosalinograph - SBE21 : Sea-Bird SBE 21 Thermosalinograph : 3231	Biology	XXXXXXXX	V
19	Details		Heading	gnss101 : GNSS : unknown : unknown	Location	XXXXXXXX	degrees
20	Details	Plots	Heading	gyro101 : Gyrocompass : Sperry Marine MK37 series gyrocompasses : unknown	Location	XXXXXXXX	degrees
21	Details	Plots	Infrared Irradiance	radiom000101 : Radiometer : Eppley Precision Infrared Radiometer Pyrgeometer : PIR35116F3; PSP35149F3	Meteorology	XXXXXXXX	W/m2
22	Details		Infrared Irradiance	radiom000102 : Radiometer : Eppley Precision Infrared Radiometer Pyrgeometer : PIR30606F3; PSP30600F3	Meteorology	XXXXXXXX	W/m2
23	Details	Plots	Latitude	gnss000428 : GNSS : Furuno Navigator GP90 and GP90D Global Positioning System receivers : 4400-0428	Location	ALATZZ01	degrees

	Global Range		Local Range				Plot IDs						
▼ Units ▲	▼ Min ▲	▼ Max ▲	▼ Min ▲	▼ Max ▲	▼ Plot Color ▲	▼ Plot Type ▲	▼ Sensor ▲	▼ Group ▲	▼ Combination ▲	▼ Enabled ▲	▼ Vessel ▲	▼ Processing Symbol ▲	▼ Table ▲
degrees_C	-50.0	50.0	None	None		time series	A	A		True	Endeavor	air_temperature	metstn_stbd
degrees_C	-50.0	50.0	None	None		time series	A	A		True	Endeavor	air_temperature	sensor_float_7
degrees_C	-20.0	50.0	None	None		time series	A	A		True	Endeavor	air_temperature	sensor_float_6

Vendor/Manufacturer List

	Vendor/Manufacturer	Support Email	Support Phone	Website
1	Bell Aerospace			
2	Biospherical Instruments Inc.	support@biospherical.com	+1 619 686 1888	http://www.biospherical.com
3	Furuno Electric Co., Ltd.	GPSsupport@furuno.com	+1 360 834 9300	https://www.furunousa.com/en/
4	Gill Instruments Ltd.	murree.sims@gillinstruments.com	+44 (0)1590 613548	http://gillinstruments.com
5	Knudsen Engineering Ltd.	support@knudseneng.com	+1 613 267 1165 x 0	https://knudseneng.com
6	Kongsberg Maritime	km.support@kongsberg.com	+47 33 03 24 07	http://www.km.kongsberg.com
7	KROHNE, Inc.	info@krohne.com	+1 800 356 9464 x 1301	https://us.krohne.com
8	Oceaneering International, Inc.	cnavsupport@oceaneering.com	+1 713 329 4500	http://www.oceaneering.com
9	RMR Co.	info@rmrco.com	+1 631 374 2537	http://www.rmrco.com
10	R.M. Young Company	service@youngusa.com	+1 231 946 3980	http://www.youngusa.com
11	Sea-Bird Scientific (Satlantic)	techsupport@seabird.com	+1 902 492 4780	http://satlantic.com
12	Sea-Bird Scientific (Sea-Bird Electronics)	techsupport@seabird.com	+1 425 643 9866	http://www.seabird.com
13	Sea-Bird Scientific (WET Labs)	service@wetlabs.com	+1 541 929 5650 x 215	http://wetlabs.com
14	Simrad (Northstar)		+1 800 628 4487	https://www.simrad-yachting.com
15	Sperry Marine	service.us@sperry.ngc.com	+1 504 371 8365	http://www.sperrymarine.com
16	The Eppley Laboratory, Inc.	info@eppleylab.com	+1 401 847 1020	http://www.eppleylab.com/
17	Trimble Inc. (Ashtech)			https://www.trimble.com
18	Turner Designs	support@turnerdesigns.com	+1 877 316 8049 x 167	http://www.turnerdesigns.com
19	Vaisala	helpdesk@vaisala.com	+1 888 824 7252	http://www.vaisala.com

At port in Narragansett, Rhode Island.

RV Endeavor

CORIOLIX

Wed Oct 18 2023 00:23:12 UTC
Last Nav Data Received
41.49247°, -71.41860° Wed Oct 18 2023 00:23:11 UTC
shoreside

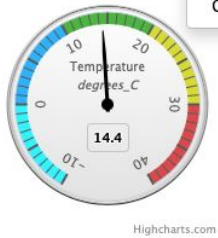
Sensor Plots:
- Flowthrough
- Met Station
- Navigation
- Combination
- Customizable

Meteorological Station

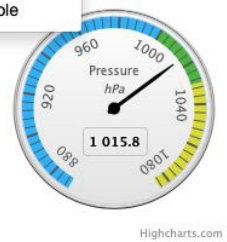
True Wind Direction

True Wind Speed

Air Temperature



etric Pressure



Relative Humidity

Plots

Time Interval to Plot: 10 minutes Update Chart

Plot Refresh Interval: every 10 minutes

Plot A

Feedback

At port in Narragansett, Rhode Island.

RV Endeavor

CORIOLIX

Wed Oct 18 2023 00:29:15 UTC
Last Nav Data Received
41.49247°, -71.41861° Wed Oct 18 2023 00:29:14 UTC
shoreside

Sensor Plots menu:
- Flowthrough
- Met Station
- Navigation
- Combination
- Customizable

Customizable Plots

Date Range

YYYY-MM-DD HH:MM:SS

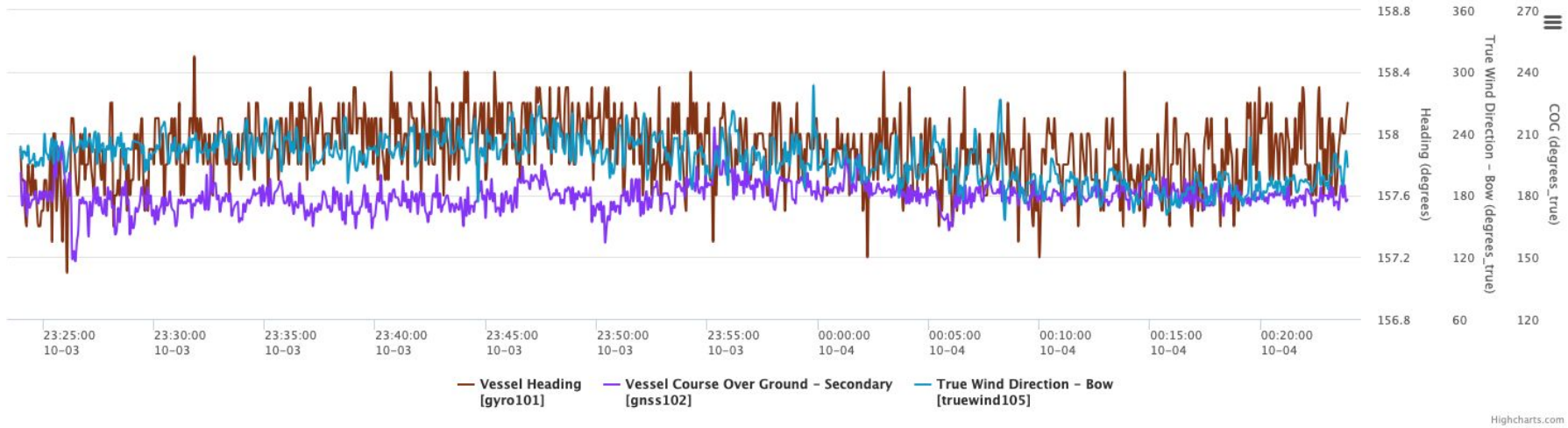
Start Date 10/03/2023 23:23:58 UTC

End Date 10/04/2023 00:23:58 UTC

Parameters to Plot

1: Gyrocompass — ng (degrees)
2: GNSS — (degrees_true)
3: True Winds — True Wind Direction - Bow (degrees_true)
4:

Update Plot Loaded.



Data Visualization

Time-Series Plots
- Flowthrough
- Meteorological
- Navigation
- Combination

Data Access

- Data Structure
- Quality Flags
- Long-term Archive (R2R)
- Data Download
  - Full Resolution

Science Party Tools

- Cruise & Participants Lists
- Event Log

Sensor Maintenance

- Sensor Status
- Sensor Details & Logs
- Parameter Details
- Vendor/Manufacturer List
- Documents

Quality Flags

Overview

Every data value provided by CORIOLIX is accompanied by a set of quality flags. These flags are a combination of automated and manually-assigned flags. A brief summary of the flags are provided below for quick reference. Complete details may be found in the CORIOLIX QA/QC Manual.

CORIOLIX quality flags are based on IOOS QARTOD quality control flag conventions. QARTOD is the Quality-Assurance/Quality Control of Real-Time Oceanographic Data, a set of manuals by the U.S. Integrated Ocean Observing System (IOOS). The CORIOLIX flag set includes some of the key flags defined in QARTOD, plus a few additional flags such as "Port Status Test". More information about QARTOD flags is available here:
U.S. Integrated Ocean Observing System, 2020. Manual for the Use of Real-Time Oceanographic Data Quality Control Flags, Version 1.2. 24 pp. https://doi.org/10.25923/w8y6-d298

Flag Set Format

The CORIOLIX quality flag set is a string of 30 digits. Each digit in the string may take values of 0 (not applicable), 1 (pass), 2 (unknown), 3 (suspect), 4 (fail), or 9 (missing). The position of the digit within the flag set indicates which flag test it represents.

An example quality flag set might be:

111231143222222222222222222

The above quality flag set indicates that the the Gap Test (the leftmost digit, in position 0) passed (1), however the Spike Test (the digit in position 7) failed (4).

Flag Changes

QA/QC happens at various stages throughout the data lifecycle. As a consequence, quality flags may change throughout a cruise.

Combined Flags

During data processing, such as temporal binning, it is sometimes necessary to combine the flags from different data points. In the case of binning, quality flags representing the binned data are a composite of all of the flags from that bin. To generate the combined flag set, the largest value found in each flag position is used.

For example:

Flag Set 1	111144000022222222111100000000
Flag Set 2	121122000033222222114400000000
Flag Set 3	321122000033222222114400000000
Combined	321144000033222222114400000000

Document List

Category	Title	Version	Author	Date	Cruise	Sensor Model	Sensor
vessel_icon	Endeavor icon						
image	Endeavor logo						
brochure	EPLAB PIR Brochure		The Eppley Laboratory, Inc.			Eppley Precision Infrared Radiometer Pyrgeometer	
application_note	Eppley PSP Application Note	2RA-A	Campbell Scientific, Inc.	Jan 01 2001		Eppley Precision Infrared Radiometer Pyrgeometer	
user_manual	Eppley PSP Instruction Manual	6/92	Campbell Scientific, Inc.	Jun 01 1992		Eppley Precision Infrared Radiometer Pyrgeometer	
instruction_sheet	Eppley PSP Instruction Sheet		The Eppley Laboratory, Inc.	May 01 2006		Eppley Precision Infrared Radiometer Pyrgeometer	
brochure	Gill Multi-Plate Radiation Shield Brochure	1/98	R.M. Young Company	Jan 01 1998		Young 41382 relative humidity and temperature probe	
brochure	Gill Multi-Plate Radiation Shield Brochure	1/98	R.M. Young Company	Jan 01 1998		RM Young 41372 hygrometer	
sensor_image	Gill Multi-Plate Radiation Shield Photo		R.M. Young Company			RM Young 41372 hygrometer	
sensor_image	Gill Multi-Plate Radiation Shield Photo		R.M. Young Company			Young 41382 relative humidity and temperature probe	
instruction_sheet	Gill Pressure Port Model 61002 Instruction Sheet	REV B01271	R.M. Young Company				baro014707
brochure	Gill WindSonic Brochure	Issue 6	Gill Instruments Ltd.	Jan 01 2018		Gill Windsonic anemometer	
drawing	Gill WindSonic Mounting Brackets		Gill Instruments Ltd.	Jan 01 2016		Gill Windsonic anemometer	
sensor_image	Gill WindSonic Photo		Gill Instruments Ltd.			Gill Windsonic anemometer	
user_manual	Gill WindSonic User Manual	Issue 25	Gill Instruments Ltd.	Feb 01 2017		Gill Windsonic anemometer	
brochure	Knudsen 320B/R Brochure		Knudsen Engineering Ltd.				echowell00
sensor_image	Knudsen 320B/R Photo		Knudsen Engineering Ltd.				echowell00
brochure	Model 05103 Brochure	11/05	R.M. Young Company	Nov 01 2005		RM Young 05103 Wind Monitor 10A anemometer	
sensor_image	Model 05103 Photo	11/05	R.M. Young Company	Nov 01 2005		RM Young 05103 Wind Monitor 10A anemometer	
instruction_sheet	Model 05103 Wind Monitor Instructions	M111215	R.M. Young Company			RM Young 05103 Wind Monitor 10A anemometer	
instruction_sheet	Model 41003 Instruction Sheet	REV C01211	R.M. Young Company			RM Young 41372 hygrometer	
instruction_sheet	Model 41003 Instruction Sheet	REV C01211	R.M. Young Company			Young 41382 relative humidity and temperature probe	
instruction_sheet	Model 41372/43372 Instructions	REV 04-00	R.M. Young Company	Apr 01 2000		RM Young 41372 hygrometer	
instruction_sheet	Model 41372/43372 Instructions	REV 04-00	R.M. Young Company	Apr 01 2000		Young 41382 relative humidity and temperature probe	

Vocabularies & Codes

This site utilizes a number of standard vocabularies and code lists.

Device Types (General Sensor Class)	
Vocabulary Name	Device Type
Vocabulary URL	https://www.rvdata.us/about/technical-details/vocabularies/device-type
Vocabulary Year	2021
Host Name	The Rolling Deck to Repository (R2R) program
Host URL	https://www.rvdata.us
Devices (Sensor Models)	
Vocabulary Name	SeaVoX Device Catalogue (L22)
Vocabulary URL	http://vocab.nerc.ac.uk/collection/L22/current/
Vocabulary Year	2021
Maintainer	SeaDataNet and MarineXML Vocabulary Content Governance Group
Host Name	The NERC Vocabulary Server (NVS), National Oceanography Centre - British Oceanographic Data Centre (BODC)
Host URL	https://vocab.nerc.ac.uk
Parameters	
Vocabulary Name	BODC Parameter Usage Vocabulary (P01)
Vocabulary URL	http://vocab.nerc.ac.uk/collection/P01/current/
Vocabulary Year	2021
Host Name	The NERC Vocabulary Server (NVS), National Oceanography Centre - British Oceanographic Data Centre (BODC)
Host URL	https://vocab.nerc.ac.uk
Sensor Manufacturers	
Vocabulary Name	SenseOcean Device Developers and Manufacturers Vocabulary (L35)
Vocabulary URL	http://vocab.nerc.ac.uk/collection/L35/current/
Vocabulary Year	2022
Host Name	The NERC Vocabulary Server (NVS), National Oceanography Centre - British Oceanographic Data Centre (BODC)
Host URL	https://vocab.nerc.ac.uk
Event Log Processes	

Cruise List

The information presented here was extracted from the Marine Facilitie…te cruise information, or add a new cruise, please visit the MFP.

Refresh — This button queries the Marine Facilities Planner for the latest cruise information.

Add New Cruise — WARNING: This button adds a cruise to CORIOLIX only. It does not add a new cruise to the Marine Facilities Planner.

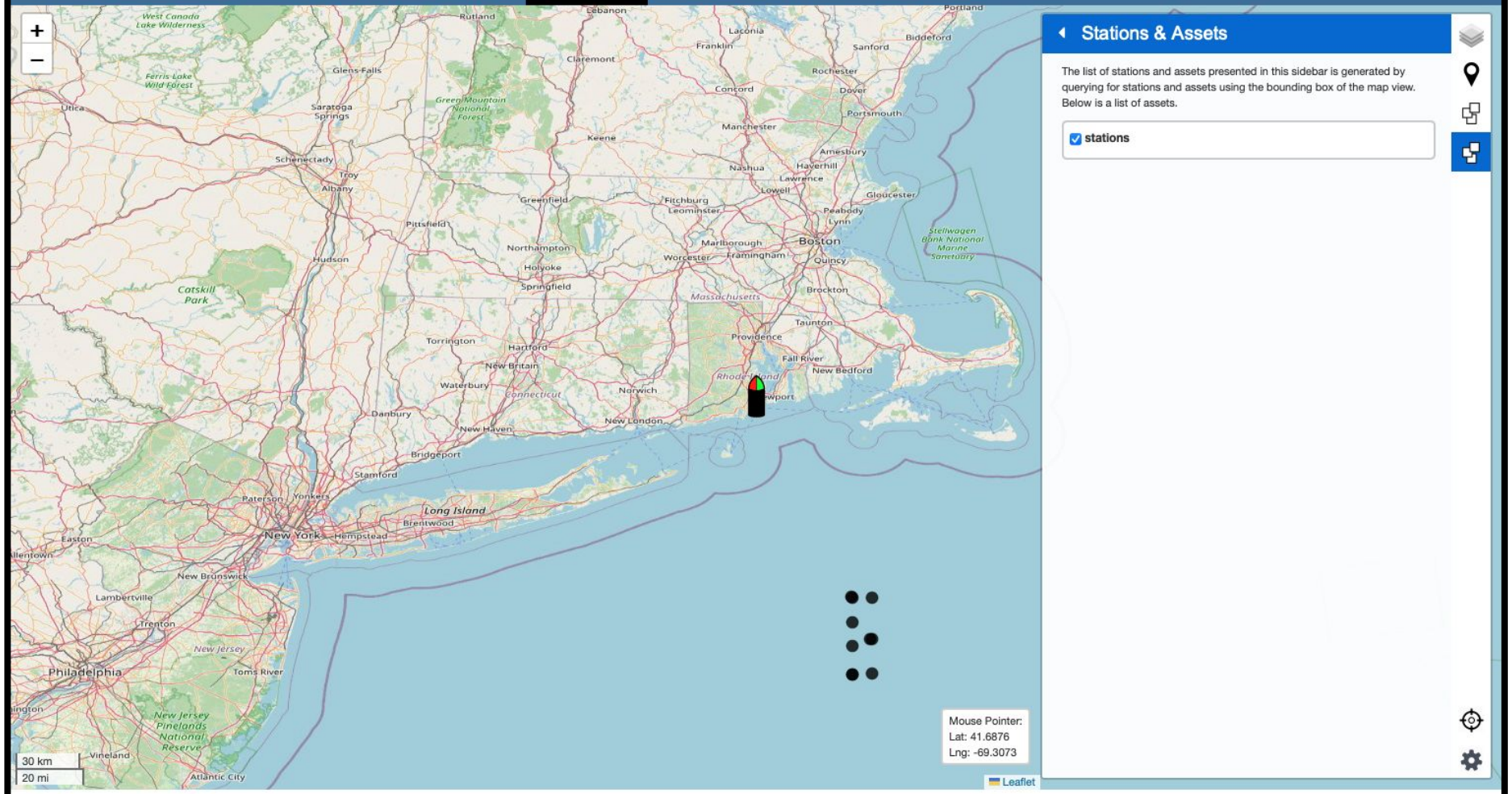
Cruise	Ports	Personnel	Links
EN712_Taylor **Gulf Penobscot Hg**			
Nov. 2, 2023, noon Nov. 7, 2023, 1 p.m.	Narragansett, Rhode Island, US Narragansett, Rhode Island, US	Vivien Taylor (*Chief Sci.*)	Cruise Plan Participants Stations Cruise Data Event Log
EN711_Smith **Rhode Island Teachers at S...**			
Oct. 13, 2023, 4 p.m. Oct. 17, 2023, midnight	Narragansett, Rhode Island, US Narragansett, Rhode Island, US	David Smith (*Chief Sci.*)	Cruise Plan Participants Stations Cruise Data Event Log
EN709_Foukal **Transport and fate of the Labrador Coastal Current**			
Sept. 3, 2023, noon Sept. 28, 2023, 8 p.m.	Woods Hole, Massachusetts, US Narragansett, Rhode Island, US	Nicholas Foukal (*Chief Sci.*)	Cruise Plan Participants Stations Cruise Data Event Log
EN707_Taylor **Gulf Penobscot Hg**			
Aug. 18, 2023, noon Aug. 24, 2023, noon	Narragansett, Rhode Island, US Narragansett, Rhode Island, US	Vivien Taylor (*Chief Sci.*)	Cruise Plan Participants Stations Cruise Data Event Log
EN706_Sosik **LTER:Linking pelagic community structure with ecosystem dynamics, Northeast US shelf**			

At port in Narragansett, Rhode Island.

RV Endeavor

CORIOLIX

Wed Oct 18 2023 00:34:12 UTC
Last Nav Data Received
41.49246°, -71.41861° Wed Oct 18 2023 00:34:11 UTC
shoreside



Data Visualization

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Alerts List

Alert Definition: An alert is a message delivered in real-time each time the alert condition is either met (becomes true) or stops being met (becomes false).

Users may subscribe to existing alerts or create their own custom alerts. A list of available alerts follows below. Alerts are delivered using the method(s) chosen in your user account p

Create New Value Alert | Create New Temporal Alert | Create New Proximity Alert
Subscribe to Selected Alerts

Alert status: ok mild medium severe

Value Alerts			
☐	*Select all user alerts*		
☐	Depth is less than 5 meters	Edit	ok
☐	Endeavor Air Temp Below Zero	Edit	ok
☐	Risk of Freezing	Edit	ok
Proximity Alerts			
☐	*Select all proximity alerts*		
☑	At port in Narragansett, Rhode Island.	Edit	mild
☐	At port in Newport, Oregon.	Edit	ok
☐	At port in Seward, Alaska.	Edit	ok
☐	Within 4 km of mooring CE01ISSP.	Edit	ok
☐	Within 4 km of mooring CE02SHBP.	Edit	ok
☐	Within 4 km of station MB30.	Edit	ok
☐	Within 4 km of station MB40.	Edit	ok
☐	Within 4 km of station NH03.	Edit	ok
☐	Within 4 km of station NH05.	Edit	ok
☐	Within 4 km of station NH10.	Edit	ok
☐	Within 4 km of station NH15.	Edit	ok
Temporal Alerts			
☐	*Select all temporal alerts*		
Sensor Alerts			
☐	*Select all sensor alerts*		
☐	Air temperature and relative humidity 032565 Bow Met Stn data last collected more than 15 minutes ago.	Edit	ok
☐	Air Temperature and Relative Humidity 289828 Above Pilothouse data last collected more than 15 minutes ago.	Edit	severe
☐	Anemometer unknown Bow data last collected more than 15 minutes ago.	Edit	severe

Sensor Details & Logs

Add New

									▼ Sensor Name ▲	▼ Class ▲	▼ Type ▲	▼ Model ▲
1	Details		Data	Edit	Duplicate	Log	ChangeID	Delete	Air temperature and relative humidity	Atmospheric	Met Station	Young 41382 relative humidity and temperature probe
2	Details	Plots	Data	Edit	Duplicate	Log	ChangeID	Delete	Air temperature and relative humidity	Atmospheric	Met Station	RM Young 41372 hygrometer
3	Details	Plots	Data	Edit	Duplicate	Log	ChangeID	Delete	Air Temperature and Relative Humidity	Atmospheric	Met Station	Young 41382 relative humidity and temperature probe
4	Details		Data	Edit	Duplicate	Log	ChangeID	Delete	Altimeter psa-916	OverTheSide	Altimeter	unknown
5	Details		Data	Edit	Duplicate	Log	ChangeID	Delete	Altimeter psa-916	OverTheSide	Altimeter	unknown
6	Details		Data	Edit	Duplicate	Log	ChangeID	Delete	Altimeter psa-916	OverTheSide	Altimeter	unknown
7	Details		Data	Edit	Duplicate	Log	ChangeID	Delete	Altimeter psa-916	OverTheSide	Altimeter	unknown
8	Details		Data	Edit	Duplicate	Log	ChangeID	Delete	Anemometer	Atmospheric	Anemometer	unknown
9	Details		Data	Edit	Duplicate	Log	ChangeID	Del				
10	Details		Data	Edit	Duplicate	Log	ChangeID	Del				
11	Details		Data	Edit	Duplicate	Log	ChangeID	Del				
12	Details		Data	Edit	Duplicate	Log	ChangeID	Delete	Anemometer	Atmospheric	Anemometer	WindSonic
13	Details		Data	Edit	Duplicate	Log	ChangeID	Delete	Anemometer	Atmospheric	Anemometer	unknown
14	Details		Data	Edit	Duplicate	Log	ChangeID	Delete	Anemometer	Atmospheric	Anemometer	Gill Windsonic anemometer
15	Details		Data	Edit	Duplicate	Log	ChangeID	Delete	Anemometer	Atmospheric	Anemometer	RM Young 05103 Wind Monitor 10A anemometer
16	Details		Data	Edit	Duplicate	Log	ChangeID	Delete	Anemometer	Atmospheric	Anemometer	unknown
17	Details		Data	Edit	Duplicate	Log	ChangeID	Delete	Anemometer	Atmospheric	Anemometer	unknown
18	Details		Data	Edit	Duplicate	Log	ChangeID	Delete	Anemometer	Atmospheric	Anemometer	WindSonic
19	Details		Data	Edit	Duplicate	Log	ChangeID	Delete	Anemometer	Atmospheric	Anemometer	WindSonic
20	Details	Plots	Data	Edit	Duplicate	Log	ChangeID	Delete	Anemometer Windsonic	Atmospheric	Anemometer	Gill Windsonic anemometer
21	Details	Plots	Data	Edit	Duplicate	Log	ChangeID	Delete	Anemometer Windsonic	Atmospheric	Anemometer	Gill Windsonic anemometer
22	Details	Plots	Data	Edit	Duplicate	Log	ChangeID	Delete	Anemometer Windsonic	Atmospheric	Anemometer	Gill Windsonic anemometer
23	Details	Plots	Data	Edit	Duplicate	Log	ChangeID	Delete	barometer	Atmospheric	Barometer	Barometer
24	Details	Plots	Data	Edit	Duplicate	Log	ChangeID	Delete	barometer	Atmospheric	Barometer	Barometer

Details Plots Data Edit Duplicate Log ChangeID Delete

Feedback

Sensor Specifications

Air temperature and relative humidity

Overview | Native Data Feed | Native Data Format | Data Processing | Parameters |
Operating Limits | Documents | Ownership |
Current Physical Status | Installation Location | Data Rates |
Data Storage & Access | Time Source | Calibration & Maintenance | Calibration Files |

Submit Cancel

Overview

* Sensor ID:	airtrh032565
* Sensor Name:	Air temperature and relative humidity
	Example: *Thermometer - Hull* This text will appear in the sensor drop-down list.
* Class:	Atmospheric (anemometer, barometer, ...)
* Type:	Met Station
* Prefix:	hygrom: Hygrometer
* Vendor:	R.M. Young Company
* Model:	RM Young 41372 hygrometer
	Tip: Type one of more characters to quickly navigate the dropdown list.
* Serial Number:	032565
* Description:	RM Young air temp and relative humidity sensor

Native Data Feed

Signal type:	Analog
Comm type:	---------
Serial Details:	Baud Rate: --------- Parity: ---------

Sensor Log

Download Sensor Log

Air temperature and relative humidity (S/N 032565)

Datetime: October 18 2023 00:47 UTC

Activity: -----

Details:

Submit Log Entry

sensor specs update | Clarke, Bonny | 2023-10-12 12:58 UTC
location_text changed from [Bow Met Stn] to [RM Young]

sensor specs update | Clarke, Bonny | 2023-10-12 12:58 UTC
current_status changed from [in use] to [not in use]

sensor specs update | Clarke, Bonny | 2023-10-12 12:58 UTC
current_location changed from [installed] to [repair/calibration]

sensor specs update | Nahorniak, Jasmine | 2023-08-01 22:20 UTC
time_source changed from [vessel_time_server] to []

sensor specs update | Nahorniak, Jasmine | 2023-08-01 22:20 UTC
model changed from [] to [RM Young 41372 hygrometer]

sensor specs update | Nahorniak, Jasmine | 2023-08-01 22:20 UTC
sensor_prefix changed from [] to [metstn]

sensor specs update | Nahorniak, Jasmine | 2023-06-20 15:42 UTC
transmit_port changed from [None] to [17011]

sensor specs update | Nahorniak, Jasmine | 2023-06-20 15:42 UTC
transmit_ip changed from [] to [192.167.0.255]

sensor specs update | Nahorniak, Jasmine | 2023-06-20 15:42 UTC
enabled changed from [False] to [True]

new sensor | Clarke, Bonny | 2023-05-23 18:48 UTC
Initial submission of sensor metadata.

Sensors

Air temperature and relative humidity (S/N 035269)
Air temperature and relative humidity (S/N 032565)
Air Temperature and Relative Humidity (S/N 028928)
Altimeter psa-916 (S/N 50483)
Altimeter psa-916 (S/N 1017)
Altimeter psa-916 (S/N 1017)
Altimeter psa-916 (S/N 50483)
Anemometer (S/N unknown)
Anemometer (S/N unknown)
Anemometer (S/N unknown)
Anemometer (S/N unknown)
Anemometer (S/N unknown)
Anemometer (S/N unknown)
Anemometer (S/N unknown)
Anemometer (S/N unknown)
Anemometer (S/N unknown)
Anemometer (S/N unknown)
Anemometer (S/N unknown)
Anemometer (S/N unknown)
Anemometer Windsonic (S/N 08460054)
Anemometer Windsonic (S/N 17040018)
Anemometer Windsonic (S/N 1520099)
barometer (S/N 14707)
barometer (S/N 1729)
Central Pylon SBE32-24 (S/N 175)
Central Pylon SBE32-24 (S/N 48)
Central Pylon SBE32-24 (S/N 48)
Conductivity sbe04-01 (S/N sbe04-01)
Conductivity sbe04-01/0 (S/N sbe04-01/0)
Conductivity sbe04-02 (S/N 1446)
Conductivity sbe04-02-0 (S/N 864)
Conductivity sbe04-02-0 (S/N 618)
Conductivity sbe04-199 (S/N 199)
Conductivity sbe04c (S/N 2469)
Conductivity sbe04c (S/N 2822)
Conductivity sbe04c (S/N 1749)
Conductivity sbe04c (S/N 3220)
Conductivity sbe04c (S/N 2459)
Deck unit SBE 11 (S/N 427)
Deck unit SBE 11 (S/N 426)
Deck unit SBE 11 (S/N 557)
Echosounder (S/N unknown)
Echosounder (S/N unknown)
Fluorescence flrtd (S/N 492)

CORIOLIX Data Settings

NOTE: These settings apply to the CORIOLIX instances on both the ship and shore.

Edit

General	
Message to Display	
Message Severity	1
Data Logging	
Data Privacy Level	public
Send Real-time Data from Ship to Shore	True
Logging Mode	underway
Custom Bin Interval	600 seconds
Data Storage Duration	
Raw Flat Files (Local Archive) *Recommended: 180 days or longer*	1000 days
Backup Raw Files (Short-Term) *Recommended: 30 - 45 days*	5 days
Online Data (Fast Access) *Recommended: 30 - 45 days*	30 days
Online Data (Slower Access) *Recommended: 180 days*	1000 days
Binned Data *Recommended: 90 days*	365 days

CORIOLIX System Management

CORIOLIX management options are available to administrative users only.
NOTE: These actions ONLY affect the local CORIOLIX instance (i.e. either ship or shore, not both).

Refresh CORIOLIX

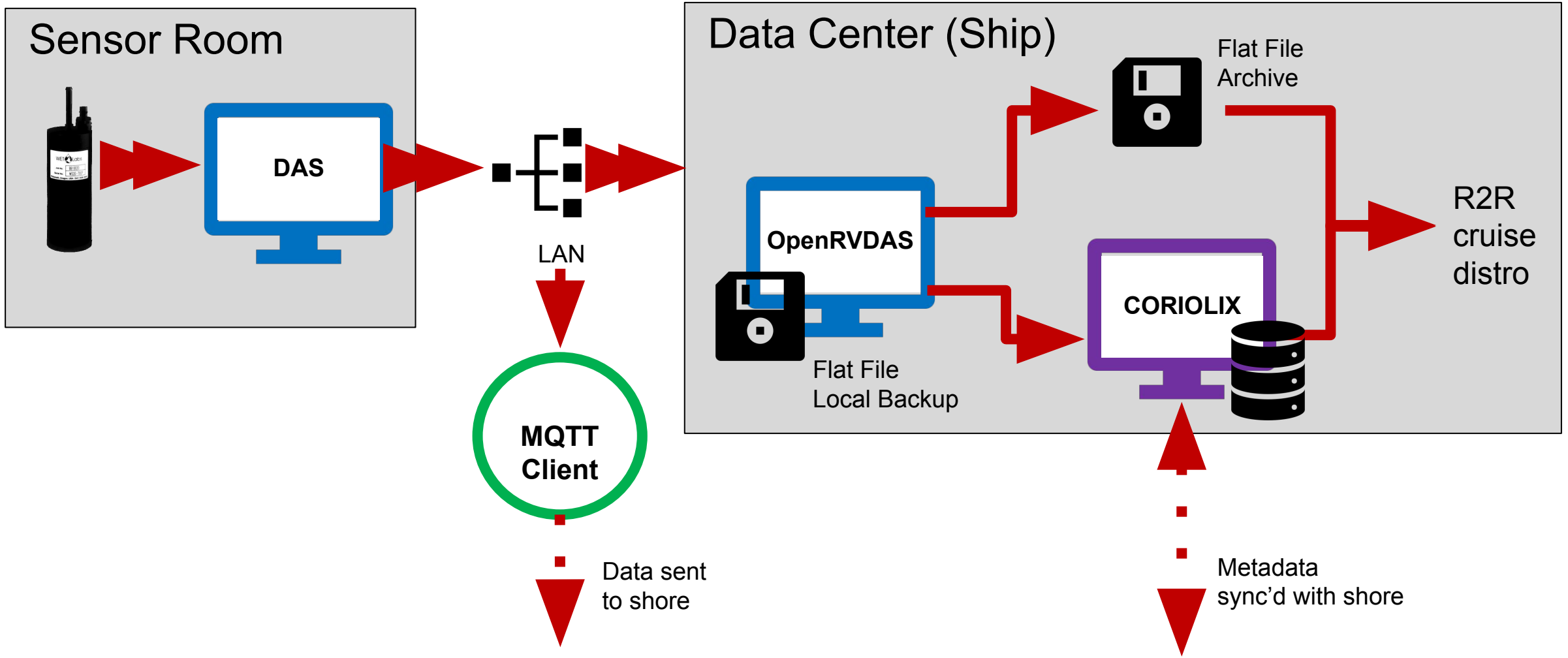
Typical refresh runtime: 60 seconds.

It is recommended that CORIOLIX be refreshed when any of the following has occurred:
- sensor added, edited, removed, enabled or disabled
- parameter added, edited, or removed
- database table added, modified, or removed

A refresh will perform the following tasks:
- Step 1: update sensor alert configurations
- Step 2: update the ERDDAP datasets
- Step 3: update the pgagent jobs (rolling tables, alerts)
- Step 4: update table triggers (rolling, lastobs)
- Step 5: update the sensor status webpage
- Step 6: update and restart the central OpenRVDAS processes
- Step 7: update and restart the aer OpenRVDAS processes
- Step 8: update and restart the per OpenRVDAS processes
- Step 9: update and restart the btr OpenRVDAS processes
- Step 10: update and restart ERDDAP
- Step 11: restart the binning

End of Live Demo

Shipside Overview



OpenRVDAS Role

OpenRVDAS Functions		Example
Reads	Reads UDP data from port X	1472
Writes	Saves a backup of the raw data	
Transforms	Prepends timestamp and sensor ID	2022-12-01T00:00:02.167231Z fluoro001640 1472
Writes	Saves annotated data for R2R	
Parses	Parses data message using regex	['^(?P<chl_raw>\d+)$']
Transforms	Calibrates and processes the data	(1472 – 86) * 0.0194 = 26.89 ug/L
	Calculates corrected timestamp	2022-12-01T00:00:00.567231Z
	Calculates flags	22212422222222222222222222222
Writes	Inserts data into the CORIOLIX database	
Distributes	Broadcasts processed data via UDP	

NOTE: *The OpenRVDAS configuration files are auto-generated from information in CORIOLIX (sensor IDs, UDP ports, etc.).*

CORIOLIX : Public URLs

CORIOLIX R/V Endeavor (shore-side)
https://coriolix.ceoas.oregonstate.edu/endeavor/

CORIOLIX R/V Point Sur (shore-side)
https://coriolix.ceoas.oregonstate.edu/ptsur/

CORIOLIX R/V Sikuliaq (shore-side)
https://coriolix.sikuliaq.alaska.edu

Vessel Support Plans for 2023 & 2024

Vessel	Support Type	Funding
R/V Taani	New installation	NSF (RCRV)
R/V Savannah	New installation	NSF (ARF Special Service)
NOAA testbed	New installation	NOAA/CIMERS
R/V Sikuliaq	Enhanced support	NSF (ARF Special Service)
R/V Endeavor	Continued support	NSF (RCRV)
R/V Point Sur	Continued support	NSF (RCRV)
R/V Gilbert R. Mason	Content development	NSF (RCRV)
R/V Narragansett Dawn	Content development	NSF (RCRV)

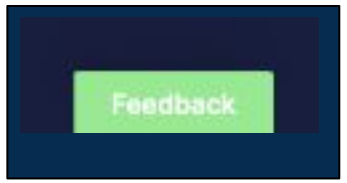
Feedback

Suggestions for improvements and new features are always welcome!

Feedback Options

A) Email
r-desc@lists.oregonstate.edu

B) “Feedback” button found on every CORIOLIX page



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Webb Pinner
David Pablo Cohn

Vessels & Crew
Oceanus
Endeavor
Point Sur
Sikuliaq

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Renee O'Neill (SMILE)
Adam Talamantes (SMILE)
Tracy Crews (Oregon Sea Grant)

OSU CEOAS
OSU Ship Operations
Research Computing Support
Reimers Lab
Angel White
Maria Kavanaugh
Martechs:
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Jonah Winters
Kristin Beem
Brandon D'Andrea
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Emily Shimada
Kate Kouba
Croy Carlin
Michael Tepper-Rasmussen
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Tyler Peterson

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Suzanne O'Hara (R2R)
Chris Olson (Scripps)
Karen Stocks (R2R)
Laura Stolp (R2R)
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Beiko Maas (MFP)
Alice Doyle (UNOLS)

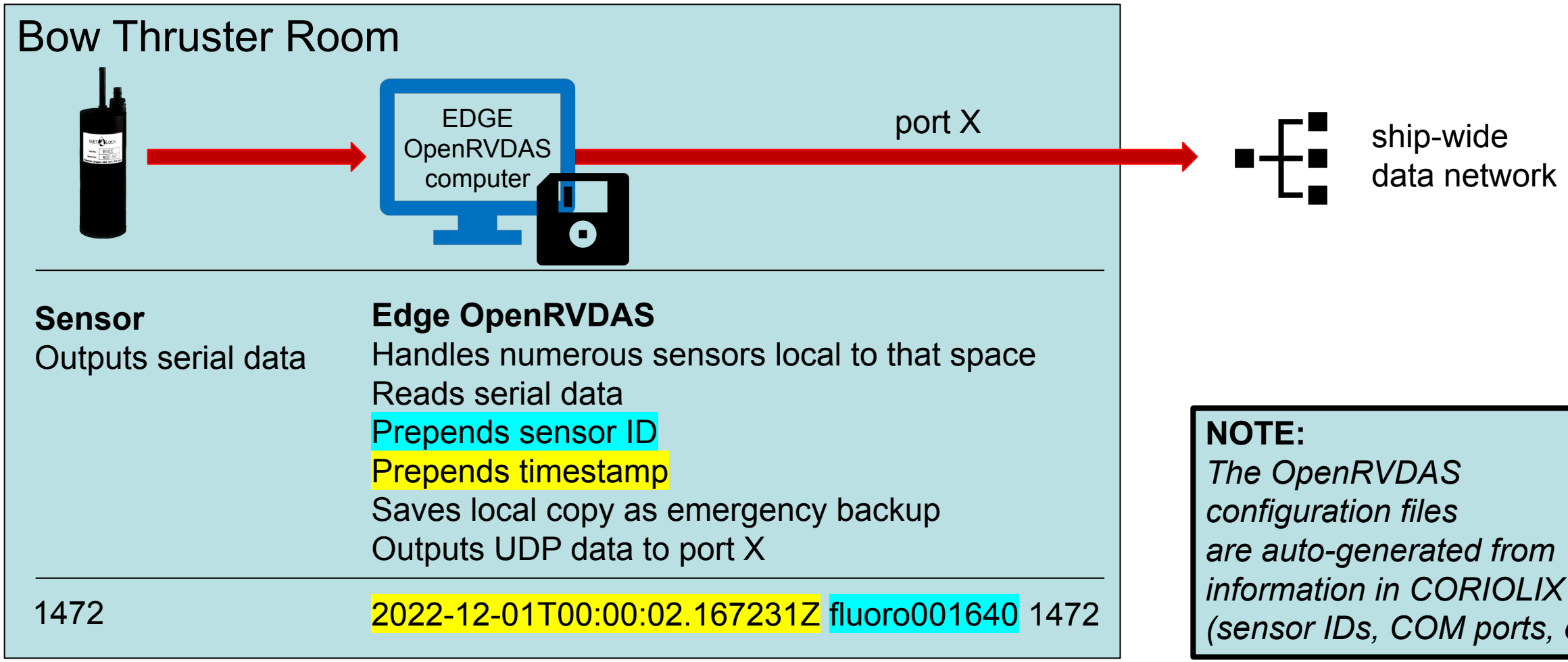
CORIOLIX Acknowledgements

Regional Class Research Vessel Program- Oregon State University

October 24, 2023

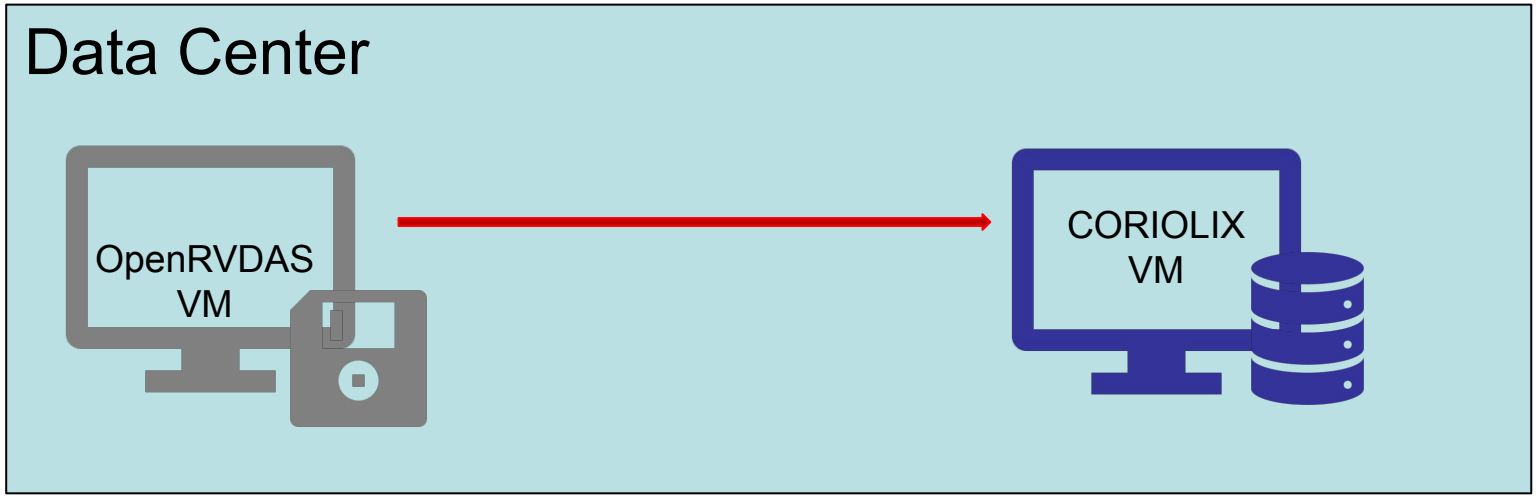
Extra Slides

First Stop: Edge OpenRVDAS



NOTE:
The OpenRVDAS configuration files are auto-generated from information in CORIOLIX (sensor IDs, COM ports, etc.).

CORIOLIX VM



CORIOLIX VM

Hosts CORIOLIX website

Stores data in database tables

Stores sensor metadata

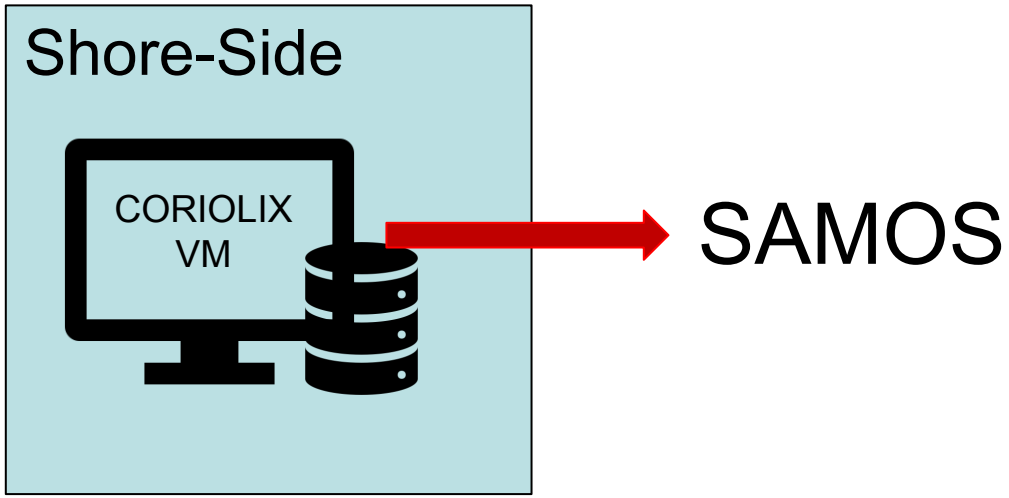
Bins data into one-minute averages

Provides data access

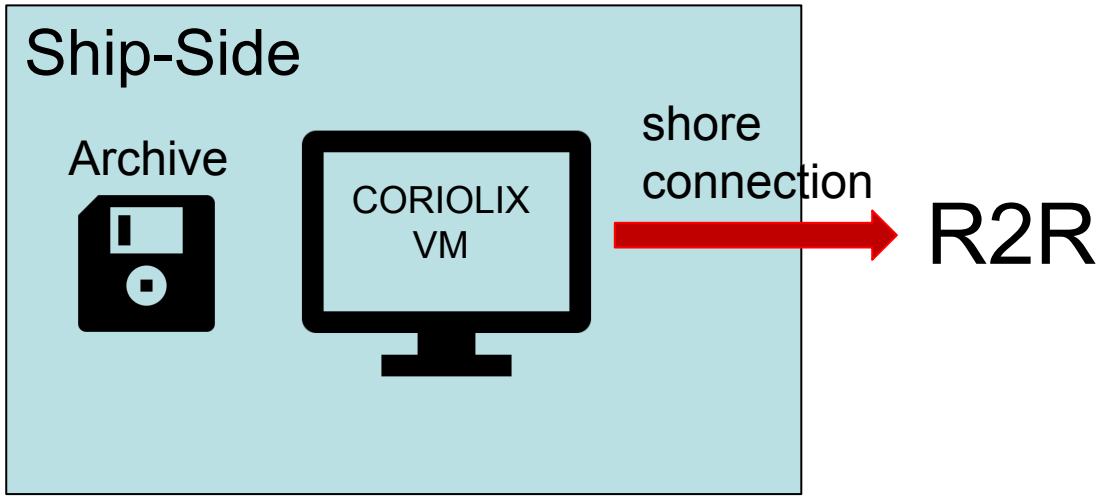
Delivers alerts

	datetime_center [PK] timestamp with time zone	latitude double precision	longitude double precision	parameter_01 jsonb
1	2022-12-01 05:59:00+00	44.62614365	-124.050316866667	{"a": [0.0009888022659370374, 0.000093
2	2022-12-01 05:58:00+00	44.6261362833333	-124.050308816667	{"a": [0.0009744486132731237, 0.000092
3	2022-12-01 05:57:00+00	44.6261431666667	-124.0503171	{"a": [0.0009814484021433817, 0.000088
4	2022-12-01 05:56:00+00	44.6261418166667	-124.050315016667	{"a": [0.0009903275117609076, 0.000080
5	2022-12-01 05:55:00+00	44.62613585	-124.050312566667	{"a": [0.0010009303084559275?, 0.000090

Long-Term Archives



Shore-Side CORIOLIX VM
Daily, delivers a custom daily data file to SAMOS.
Files are auto-generated from a subset of one-minute binned data.



Ship-Side CORIOLIX VM
At end of cruise, packages raw files from archive and delivers to R2R with metadata (over shore connection).
Large datasets are delivered separately.