# Space Details

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|---|---|
| **Key:** | navproc |
| **Name:** | Ship and ROV Core Datastreams |
| **Description:** | |
| **Creator (Creation Date):** | rich (Jun 04, 2008) |
| **Last Modifier (Mod. Date):** | rich (Jun 04, 2008) |

## Available Pages

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This page last changed on Jan 14, 2010 by brian.

# Ship and ROV Core Data

### For Users

## For Developers

- Overview
- Java Libraries

This page last changed on Aug 02, 2010 by brian.

# Java Libraries

Standard libraries for providing read-only access to MBARI's Expedition database (EXPD) via Java.

## Getting the Libraries

### Maven

The libraries are hosted on MBARI's internal Maven repository manager. The easiest way to include the library and it's dependencies is to add the following snippet to your pom.xml file in your Maven build.

```
<dependency>
<groupId>org.mbari</groupId>
<artifactId>expd-jdbc</artifactId>
<version>1.0-SNAPSHOT</version>
</dependency>
```

Make sure you've added the MBARI's maven repository, directions are in the link above.

### The Hard Way

Alternatively, you can download all the dependencies from Archiva. At the time of writing this you will need to search for and include the following jars in your projecct:

- `slf4j-api`
- An slf4j implementation. If you're using log4j then get `slf4j-log4j12`
- `log4j`
- `jtds`
- If you know how to use dependency injection you should also add `guice` version 2.0
- `mbarix4j`
- `google-collections`

## Usage

The code is separated into interfaces and implementations. Here's an example of creating a DAO object for accessing dive info:

```
import org.mbari.expd.Dive;
import org.mbari.expd.DiveDAO;
import org.mbari.expd.jdbc.DiveDAOImpl;

...

DiveDAO dao = new DiveDAOImpl();
Dive dive = dao.findByPlatformAndDiveNumber("Ventana", 1233);
```

Alternatively, you can use Guice and inject the dependencies:

```
import com.google.inject.Guice;
import com.google.inject.Injector;
import org.mbari.expd.Dive;
import org.mbari.expd.DiveDAO;
import org.mbari.expd.jdbc.ExpdModule;

...

Injector injector = Guice.createInjector(new ExpdModule());
```

```
DiveDAO dao = injector.getInstance(DiveDAO.class);
Dive dive = dao.findByPlatformAndDiveNumber("Ventana", 1233);
```

## Javadocs

Rather than struggle to keep the javadocs updated and current, your best bet is to check out the source code and run the following Maven command to generate documentation:

```
mvn javadoc:javadoc
```

## Source Code

To check out the source code use the command

```
svn co svn+ssh://kahuna.shore.mbari.org/svn/repos/expd expd
```

## Status

- **2010-01-14** - Created project based on code Brian Schlining was using for VARS merge code. The library is not anywhere near feature complete. But the functions implemented are working and will be used to replace the existing code VARS uses to access EXPD
- **2010-03-10** - The VARS-REDUX codebase uses this library for all EXPD data access

# Logger Install

This page last changed on Jul 10, 2009 by rich.

Installing logger on chip 10-Jul-2009

- login as coredata, cd to home
- source .bash_profile
- type rcvs (its an alias)
- type cvs login
- need to have dirs /coredata/bin,cfgs,coredata,data, logs
- if /coredata/coredata exists
  - cd to /coredata/coredata
  - cvs -nq update  (then resolve and differences)
- if /coredata/coredata doesnt exist
  - cd to coredata
  - cvs co coredata (creates /coredata/coredata)
- cd /coredata/coredata/src/logger
- make clean
- make
- make deploy

cron see: http://www.redhat.com/docs/manuals/linux/RHL-9-Manual/custom-guide/ch-autotasks.html

- create `/etc/cron.allow`
- `add cordata and tiburon users`
- command `/sbin/service crond stop`
- command {{/sbin/service crond start}}
- {{then in /coredata/bin:  crontab my_cron_with_logging
  }}

# OVERVIEW

This page last changed on Jun 29, 2011 by rich.

## At-Sea Data Acquisition

### Subsystems

1. Datamanager
2. Navproc
3. Logger
4. UDP Servers
5. RovCtd
6. Video Timecode
7. Navigation

### Ship to Shore

- Nightly transfers

### Shore-side Processing

RovCtd

- nightly processing
- database
- plots
  - Java Applet/Servet
  - Apache/Tomcat server config

Video Timecode

- nightly processing

Navigation

- nightly processing

### Downstream Consumers

## Logger file transfers from ship to shore-side archive

This page last changed on Jan 22, 2010 by rich.

Wet-side

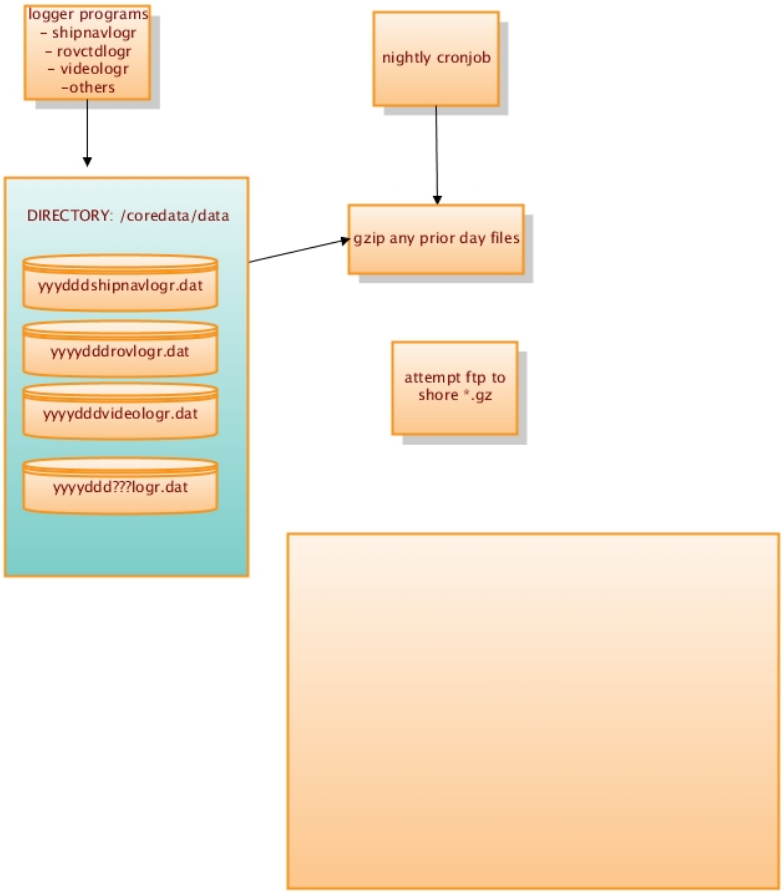
- logged datafiles on linux boxes in /coredata/data
- cronjob run under coredata account, calls NightlyTransfer which
  - gzips all logr.dat files in /coredata/data (except current yrday which is still being written)
  - ftp's gzip'd files to gr8white on-shore  (user=rovctd) into /home/datatransfer/wfly_logger or /home/datatransfer/pl_logger
  - on success, deletes the wet-side file.

Dry-side

- on gr8white, user rovctd
- cronjob runs NightlyPL and NightlyWF shell scripts, which execute moveLogrFiles.perl and processNav.perl
- moveLogrFiles:
  - transfers all logr.dat.gz files from /home/datatransfer to appropriate /mbari/ShipData/logger directories
  - if its a shipnavlogr file, then make a symbolic link to the archived file in /home/rovctd/nav/*(shipname)*/raw
- processNav.perl:
  - any symbolic linked shipnavlogr files found in /home/rovctd/nav/*(shipname)*/raw are processed into nav.txt files and transfered into /mbari/TempNav directories for hand editing.

Downstream processing

- rovctdlogr and videologr files are processed directly out of the archive by sqlserver jobs that call scripts and perl programs on solstice.


logger programs
- shipnavlogr
- rovctdlogr
- videologr
-others
nightly cronjob
DIRECTORY: /coredata/data
gzip any prior day files
yyyydddshipnavlogr.dat
yyyydddrovlogr.dat
yyyydddvideologr.dat
yyyydddd???logr.dat
attempt ftp to shore *.gz

## Nightly CTD Processing

This page last changed on Jun 06, 2011 by rich.

This document describes the nightly job to load the rovctd raw data  (raw logr files > raw data tables) which are then post-processed into derived data tables (~1sec and 15sec binned data) in the EXPD database.  Basically, it executes a dos .bat file which in turn executes perl programs. The perl programs do all the actual work.

some history... the directory path includes folder named DTS. This is a leftover from when we initially set these loads up as DTS jobs. We eventually figured out there didn't need to be a DTS job to do this, just the ServerAgent Job. There is no DTS involved the way it is currently set up.)

This job can be found on the SQL Server 'Solstice' when logged in on an account with 'sa' privileges.
This job runs as sql server user account 'sqlexec'.  The files are located in a directory on mapped network drive \\Solstice\MSSQL_Data
(on Solstice this must be Drive letter E: on your local machine it can be anything)

```
REM
REM loadRovctd.pl contains a UNC spec to \\tornado\\shipdata
rovctd
REM
REM Must either change directory or use full path to perl scripts because
REM of how batch file gets called by DTS
REM
REM 07-Aug-2003 R.Schramm Saftey check-in to VSS. Old pre-DTS version was
REM            in VSS.
REM 22-May-2008 R.Schramm modied perl script names to reflect DerFiles or DspkFiles
REM 29-May-2008 R.Schramm added call to updateRovCtdCfg.pl
REM 28-Jun-2008 R.Schramm changed to seabird ctd processing for ventana
REM

REM ppm install Statistics::Descriptive
REM ppm install DBI

REM note these commands can be issued in a dos window if you change the drive
REM letter mappings...

REM first make sure all calibrations are processed (does both vehicles)
perl E:\MSSQL\DTS\EXPD\ROVCTD\updateRovCtdCfg.pl

REM next upload raw data by vehicle
perl E:\MSSQL\DTS\EXPD\ROVCTD\loadRawRovctdLogrFiles.pl E:\MSSQL\DTS\Log
\loadVentanaRawRovctdLogrFiles.log vnta
perl E:\MSSQL\DTS\EXPD\ROVCTD\loadRawRovctdLogrFiles.pl E:\MSSQL\DTS\Log
\loadDocRickettsRawRovctdLogrFiles.log docr

REM next process any data successfully loaded - both vehicles
perl E:\MSSQL\DTS\EXPD\ROVCTD\processRawRovctdLogrData.pl E:\MSSQL\DTS\Log
\processRawRovctdLogrData.log
```

# RovCtd

This page last changed on Oct 19, 2010 by rich.

- ConfigFileMonitorService
- Replication to shore
- UpdateRovCtdCfg

## CfgFileMonitor

This page last changed on Oct 21, 2013 by rich.

The ROVCTD config file is maintained by the ROVCTD tech. It is part of the labview GUI on both the WesternFlyer and RachelCarson. The file is on the Rovctd computer in the C:\CtdGui dir, and named CTDCoeff.ini

*** THE FILE NAME AND PATH ARE CRITICAL !!!! ******

There is a perl program on those computers running as a service that monitors that file every 10 seconds for changes.  If a change occurs, the service grabs the file and writes it to an mssql database.

The database server is currently either Glacierwind (wfly) or Alaskanwind (ptlo).

The database name and table name archiving the cfg file is either DOCR_CTD_Config or VNTA_CTD_Config

The perl script reads the filename to be monitored from table CfgFileMonitorService on the corresponding database. The perl script can actually monitor and archive any/many text files simply by adding them to the CfgFileMonitorServiceTable.

(Legacy note: The perl script **used to ** test the file name internally and if it matched CTDCoeff.ini then it would reformat it and ftp it to an hpux workstation for use at sea. that feature has been disabled. )

The perl script is in CVS repository on moonjelly in  iag/projects/CoreData

For a complete from-scratch install of the service on the rovctd computer, you will need to:

# PRELIMINARIES

The rovctd computer should be named wf-rctd.wf.mbari.org or rc-rctd.rc.mbari.org

The Western Flyer it is has static IP 134.89.20.47 and default user is WF\docricketts

The Rachel Carson it has statuc IP 134.89.. and default user is RC\ventana

Almost all of the commands below need to be in "Run As Administrator" mode.

Make sure that IS has installed the cpu as static IP and with the WF\docricketts or RC\ventana account is given local administrator rights.

# INSTALL PERL

Go to http://www.ActiveState.com and download Active Perl free community edition.. (Language>Active Per, and look for the Windows x86 MSI download, click it and download to your desktop.)

Find the windows explorer icon, right-click it and "Run as Administrator"  Navigate to the downloaded msi installer file (probably on desktop or in ~/Downloads) and run it.  Accept all defaults

Open a command window and type perl -v and verify you have a working installation

# INSTALL EXTRA PACKAGES

Next find the cmd.exe console icon, r-click and run as administrator.  Then at the prompt, type ppm to run the perl package manager.  It will pop-up the ppm GUI window take about 20 seconds to sync its cfg to the perl repository.

Select View > AllPackages

Then check each of the following packages - if its insalled just skip, else check the little icon to the left of each package to 'mark it for installation'

- Log-Log4Perl

- Log-Dispatch
- Win32Daemon
- String-CRC32
- DBD-ADO

Following are also needed but were already included in most recent (2013) install

- Getopt-Long
- DBI
- Time-Local

When ready, hit the "install selected packages" icon in upper-right of the gui

## PREPARE DIRECTORIES AND FILES

Again using the explorer 'run as administrator'....

Create directory C:\Program Files\CfgFileMonitor

Right-click the directory and set perfison for full control to WF\Users or at least WF\DocRicketts etc... This will allow the service to write its log file to the directory

Add perl script RovCtdCfgFileMonitor.pl to the directory.

If its not already there - create a directory C:\Program Files\CTDGUI and put the current CtdCoeff.ini file in it.

## INSTALL AND INITIALIZE THE SERVICE

Open a command window again in 'run as administrator' mode.

cd to C:\Program Files\CfgFileMonitor

type: perl RovCtdCfgFileMonitor.pl -install

it may complain about a type in the dbo package - that is safe to ignore. Your looking for a "service installed" message. Fix any problems, missing packages or file permissions etc. as needed. But as of 2013 Win7 x86 the above was successful...

## SET SERVICE RUN-AS AND AUTOSTART

Now go to ComputerManagement console and navigate to Services Panel.

Highlight the CfgFileMonitor service and r-click, select the LogOn Credentials and chnge from whatever (Local System?) to WF\DocRicketts and Apply

Start the service, and also set to Autostart

In an explorer window, look at the log file in C:\Program Files\CfgFileMonitor directory to see that the service started and is able to connect to database (every 10 seconds by default)

You can touch the CtdCoeff.ini file to and monitor the log file to see that it is detected and pushed to the database.

## FINALLY

Reboot the rctd computer and then retest to verify the service restarts itself correctly etc.

## OTHER HINTS

The service most secure if allowed to use windows integrated security as WF\docricketts or RC\ventana
For debug/testing you can modifiy the perl script to use SQLServer managed authentication as expddbo

To remove the service... type perl CfgFileMonitor.pl -remove

Monitor the log periodically, at least annually to keep the log file from getting too big.

## REPLICATION TO SHORE

Cfg file data are pulled to shore by sql server jobs run on solstice. The jobs run a XOJO program that pull data to tables in the on-shore expd database.

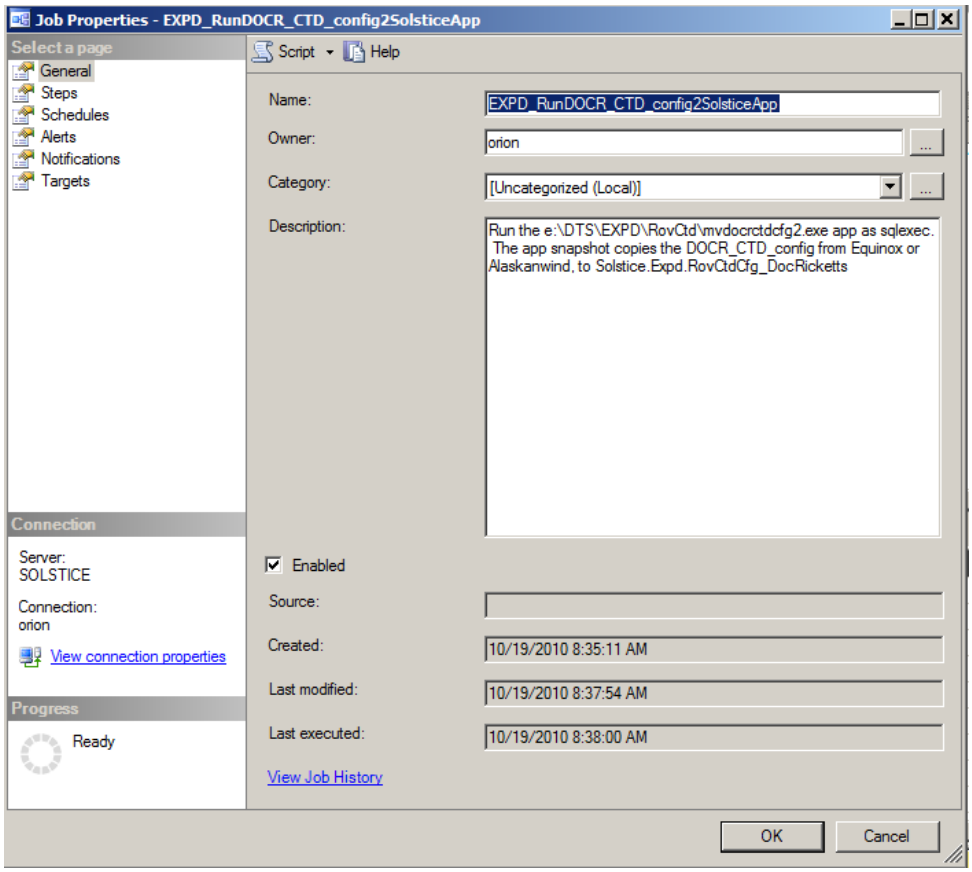
## Rovctd Replication to shore

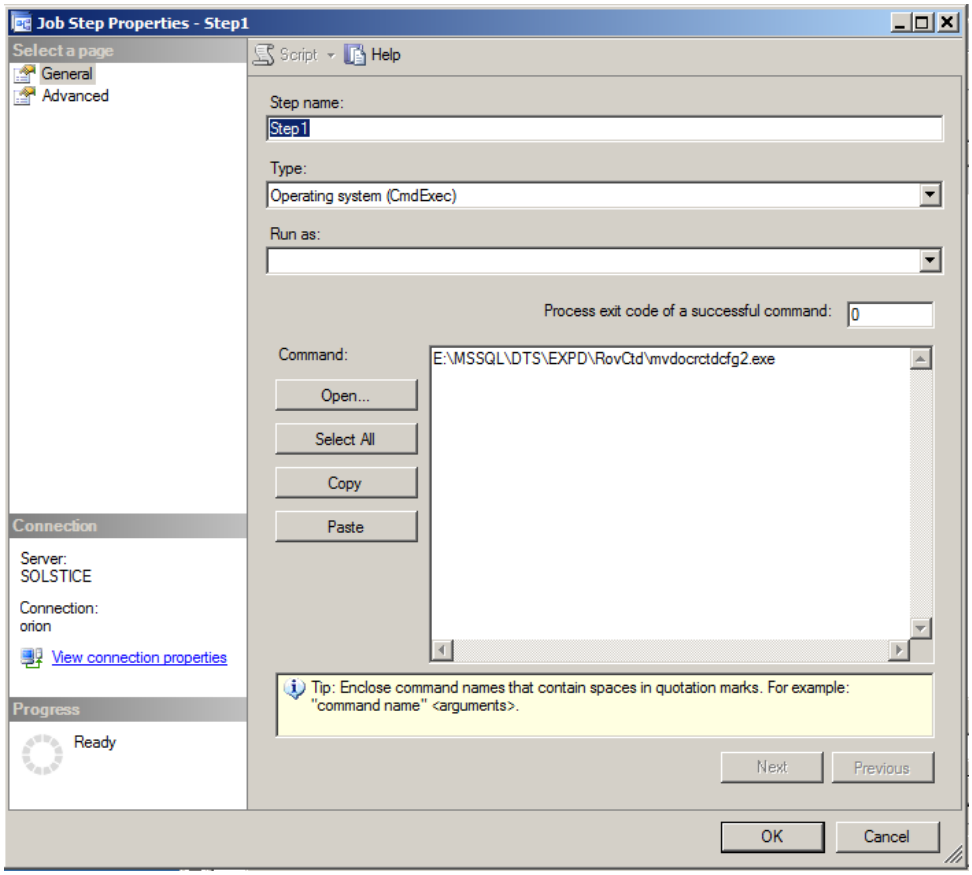
This page last changed on Oct 19, 2010 by rich.

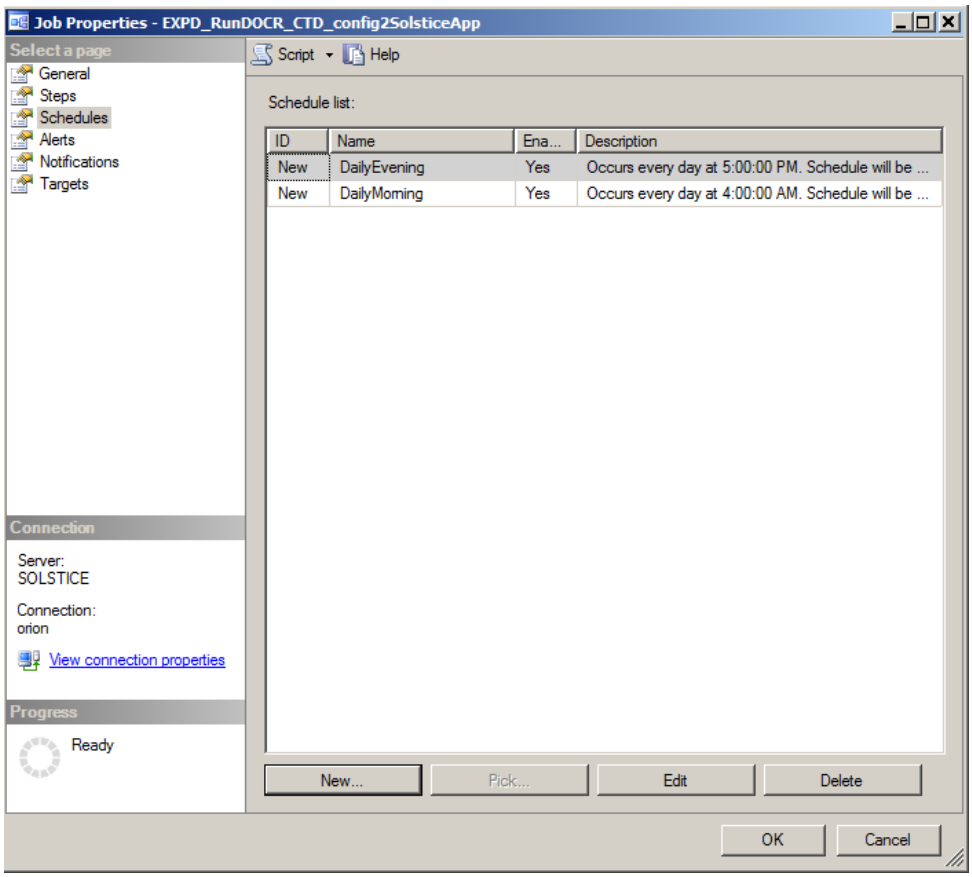
DOCR_CTD_config and VNTA_CTD_config are snapshot replicated to Equinox on shore.  Replication courtesy of Neil Connor...

From there, an SQLServer Agent job copies both tables to Solstice (at least until we migrate Expd to SQLserver 2008).

The job is:  EXPD_RunDOCR_CTD_config2SolsticeApp DocRicketts and Ventana are set up the same way, below, the job for DocRicketts is shown,




Job Step Properties - Step1
Select a page
General
Advanced
Script
Help
Step name:
Step1
Type:
Operating system (CmdExec)
Run as:
Process exit code of a successful command:
0
Command:
E:\MSSQL\DTS\EXPD\RovCtd\mvdocrctdcfg2.exe
Open...
Select All
Copy
Paste
Connection
Server:
SOLSTICE
Connection:
orion
View connection properties
Progress
Ready
Tip: Enclose command names that contain spaces in quotation marks. For example:
"command name" <arguments>.
Next
Previous
OK
Cancel


Job Properties - EXPD_RunDOCR_CTD_config2SolsticeApp
Select a page
General
Steps
Schedules
Alerts
Notifications
Targets
Script
Help
Schedule list:
ID
Name
Ena...
Description
New
DailyEvening
Yes
Occurs every day at 5:00:00 PM. Schedule will be ...
New
DailyMorning
Yes
Occurs every day at 4:00:00 AM. Schedule will be ...
Connection
Server:
SOLSTICE
Connection:
orion
View connection properties
Progress
Ready
New...
Pick...
Edit
Delete
OK
Cancel

## UpdateRovCtdCfg

This page last changed on Oct 18, 2010 by rich.

Perl program run on solstice (later equinox?).  Reads from the shoreside replicated database tables that hold the labview CTDConfigv4.ini files.

Has cfg file name hard coded!!

Map network drive and look at Z:\DTS\EXPD\RovCtd\updateRovCtdCfg.pl

Kicked off as part of the loadNightlyRovctd.bat file that is run by solstice SQLServerAgent job: EXPD_NightlyRovctdLoad

Depends on the CfgFileMonitor service running on the ships, and successful replicaion of those databases to shore.  The shoreside vehicle-specific tables are a snapshot copy of the at-sea tables.** **They get blown away every night** **

UpdateRovctdCfg.pl is where the vehicle-specific config tables get mined to produce the final cfg table that has the combined and parsed calibration info (the RovCtdCfg table) It has a composit primary key if vehicle and configfile id.  (The configfileid coming from the vehicle specific table's primary key which is 'id'.

UpdateRovctd compares the ventana and tiburon tables to the 'parsed'  RovCtdCfg table looking for missing calibrations, note how the combination of the select and the union form a list of missing calibrations with the composite key:

```
SELECT id,vehicle='docr',localtime
 FROM RovCtdCfg_Tiburon
 Where filename like '%CTDcoeff4.ini'
 AND id NOT IN (select cfgfileid_fk
                from RovCtdCfg
                where vehicle='docr')
 UNION
 SELECT id, vehicle='vnta',localtime
 FROM RovCtdCfg_Ventana
 Where filename like '%CTDcoeff4.ini'
 AND id NOT IN (select cfgfileid_fk
                 from RovCtdCfg
                 where vehicle='vnta')
```

# Rovctd data webservice and Java Plot Applet

This page last changed on Jul 29, 2009 by rich.

CTD data is provided by a web servlet which can be displayed directly to the browser or can be accessed via a java plot and displayed in a browser applet

Targets are Tomcat on anvil for test, or typhoon for production.

Note: typhoon is port 8080 , anvil is port 8085

**Building the code.**

1. Check-out from CVS onto mando in c:\iag\projects\rovctdplots
2. edit
3. ant clean
4. ant prepare
5. ant compile
6. ant deploy.datagenerators
7. ant deploy.libs
8. ant deploy.plots
9. ant run.1 (will test plot and datagenerator as a java applictionn).
10. copy files from c:\iag\projects\rovctdplots\deploy to tempbox as described below.
11. test directly on anvil
12. finally, submit remedy ticket to IS to deploy on typhoon
13. dont forget to CVS checking modified files.

**re-deploying the data servlet**
1) move or rename typhoon's C:\Program Files\Apache Software Foundation\Tomcat 5.5\webapps\rovctd\WEB-INF\classes\org\mbari\rovctd\datagenerators\RovctdDataServlet.class

2) copy file RovctdDataServlet.class from tempbox/rich/\rovctdplots folder to typhoon:
C:\Program Files\Apache Software Foundation\Tomcat 5.5\webapps\rovctd\WEB-INF\classes\org\mbari\rovctd\datagenerators\RovctdDataServlet.class

(replacing the old one)

3) restart tomcat server in service panel.

4) test - should return datalist
http://typhoon:8080/rovctd/servlet/RovctdDataServlet?noHTMLHeader=0&&raw=0&platform=vnta&year=2009&yearday=041&domain=epochsecs&r1=p&r2=t&r3=s

*re-deploying the web applet jar file:*

1) verify web app is currently running: in your browser
http://typhoon:8080/rovctd/pages/profile.jsp?&raw=1&platform=vnta&dive=3326&domain=p&r1=t&r2=s&r3=o2

- should see a profile plot

2) on typhoon, rename:
c:\ProgramFiles\Apache Software Foundation\Tomcat 5.5\webapps\rovctd\pages\rovctd-signed.jar
to something like old-rovctd-signed.jar

3) copy file from tempbox\rich\rovctd-signed.jar to typhoon's
c:\ProgramFiles\Apache Software Foundation\Tomcat 5.5\webapps\rovctd\pages\rovctd-signed.jar

4) in services panel on typhoon, restart Apache Tomcat

5) exit your browser (to clear any cached version of the plot applet)

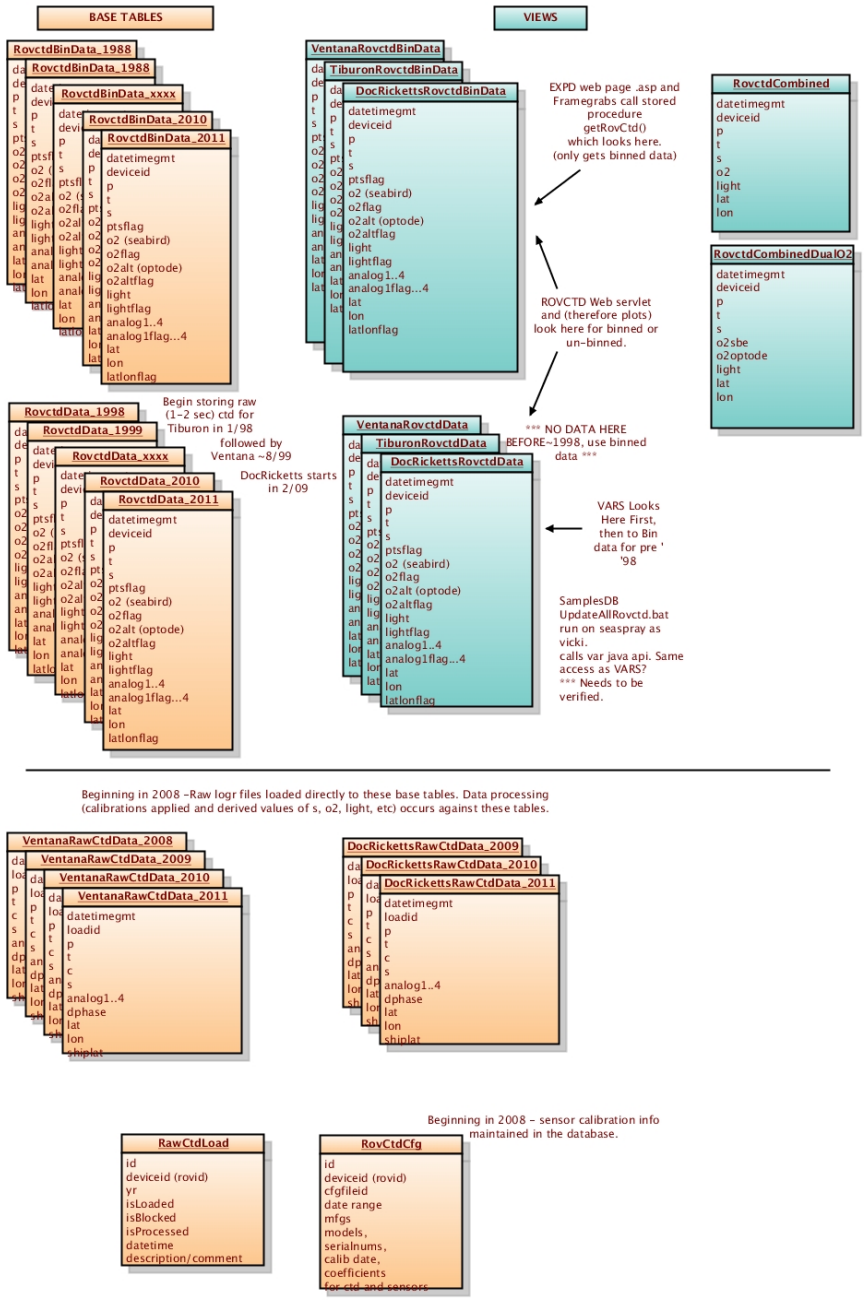
6) in your browser - repeat.. (may take a moment for tomcat to reload the jarfile)
http://typhoon:8080/rovctd/pages/profile.jsp?&raw=1&platform=vnta&dive=3326&domain=p&r1=t&r2=s&r3=o2

If so, you can just delete the old jar file, and your done.

the web 'pages' that access the servlet and applet.

# Rovctd database

This page last changed on Jun 29, 2011 by rich.




On solstice in EXPD

Schematic

This page last changed on Jan 08, 2009 by rich.

# Apache Tomcat configuration word doc