

Space Details

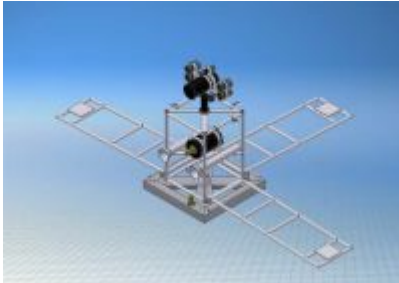
Key:	EITS
Name:	900731 Data Handling for Eye-in-the-Sea on MARS
Description:	
Creator (Creation Date):	kgomes (Oct 18, 2006)
Last Modifier (Mod. Date):	kgomes (Oct 18, 2006)

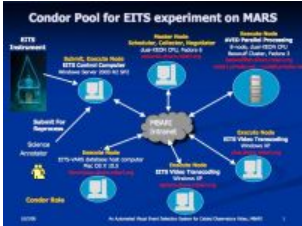
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900731 Data Handling for Eye-in-the-Sea on MARS (EITS)



For Project Team	For Developers
TODO Releases Minutes Data Questions Where is the raw and processed data stored ? How do I change where the data is stored? How do I change the AVED processing parameters in the workflow ? How do I reprocess a clip ? How do I load AVED XML into VARS? Condor Questions How do I know when a job has completed ? How do I stop a job ? How do I know when a job has failed ? System Design WBS[pdf][doc] Milestone1 Condor Workflow Test Results No load test summary [Power Point] No load test data [Excel spreadsheet]	Source Code Data Handling Deployment Diagrams Networking and protocols between EITS, MARS, and MBARI [PDF] EITS Computers Workflow Condor pool statistics Condor installation notes About the Condor work flow software Overview of EITS workflow using Condor and DAGman [powerpoint 0.6MB] Condor pool for the EITS experiment (click to enlarge)  Overview of activity on computers in Condor pool (click to enlarge)

		
	Issue Tracking	

References

[VARS project](#)
[AVED project](#)

AVED Data in VARS

This page last changed on Apr 03, 2009 by [brian](#).

Loading AVED Data Into VARS

1. Locate the URL of the XML file that you want to load into VARS. The easiest way is to:
 - Open a web browser and browse to <http://eits.shore.mbari.org/e/EITSprocessed>
 - Browse to the folder containing the XML file you want to load. Right-click on the XML file you wish to load and select "Copy Link"
2. SSH into Somniosus

```
ssh somniosus.shore.mbari.org
```

3. CD to the EITS application

```
cd /Applications/EITS/EITS-Standalone/bin
```

4. Run the loader

```
./gsh ../scripts/groovy/ingest_avedevents |URL|
```

- Paste the URL you copied in place of *URL* above

Annotating AVED Events with VARS

1. Locate the URL of the Movie file that you want to load into VARS. The easiest way is to:
 - Open a web browser and browse to <http://eits.shore.mbari.org/e/EITSprocessed>
 - Browse to the folder containing the movie you want to load. Right-click on the file and select "Copy Link". Make sure you use the movie that ends with *-results.mov* (e.g. <http://eits.shore.mbari.org/e/EITSprocessed/20090212/20090212T080539Z/20090212T080539Z-results.mov>)
2. Open the VARS Annotation application from <http://somniosus.shore.mbari.org/webstart/varsannotation.jnlp>
3. At the bottom of the VARS window do the following:
 - a. Login to VARS by clicking on *User* label
 - b. Open the EITS Movie by click on the *Video* label
 - In the dialog set the *Video Source* to be a *QuickTime Movie*
 - Set the dive number as the date of the movie in *yyyymmdd* format (e.g. 20090212)
 - Paste the movie URL into the *Movie URL* field

VARS Applications

The VARS Applications can be launched from <http://somniosus.shore.mbari.org/webstart/>

Changing AVED processing parameters in the automated workflow

This page last changed on Feb 24, 2009 by [dcline](#).

About the AVED parameters for the EITS experiment

These instructions describe how to change the options in the automated workflow.

- How to change the processing parameters
- How to change the video mask

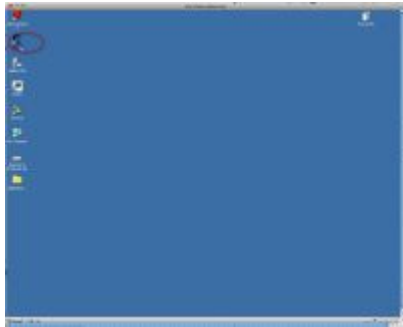
How to change the processing parameters

The AVED processing options for the EITS experiment are set in the user "erika's" crontab file on the [EITS](#) computer. These can be changed by editing the crontab in the cygwin environment. Any changes to processing options take effect immediately, and all subsequent processing jobs will use these changed options.

There are many processing options, and all the AVED processing options can be found [here](#). For the EITS experiment, the suggested options to change are the following:

Option	What changing this means
	Path to the mask image. Change this to change the mask used. Do not specify an absolute path to the file, but rather just a filename. Put this same file in the user "erika" ~/workflow directory and it will then be used in the workflow.
--mbari-save-non-interesting-events	Saves non interesting events in addition to interesting events. The result of setting this option is to save more events which can lead to more false detections. To reduce the number of events generated, simply remove this option.
--mbari-min-event-area=<int>	The minimum area an event must be to be candidate.
--mbari-max-event-area=<int>	The maximum area an event can be, to be candidate
--rescale-input=<width>x<height>	Rescale input frames to fixed dims. To reduce the size of the input frames processed set this option. Take care to keep the aspect ratio the same as the original frame. The effect of changing this option is to speed up processing. Important - this will change the size of the output frames generated. Any subsequent actions that use the AVED output frames, like generating the mpeg results of the output will also be reduced resulting in a rescaled mpeg clip.

1. Login into EITS using a Remote Desktop Connection, or equivalent. Use the user name: erika, and ask Erika for the password.
2. Once logged in, click the cygwin icon (click to enlarge)

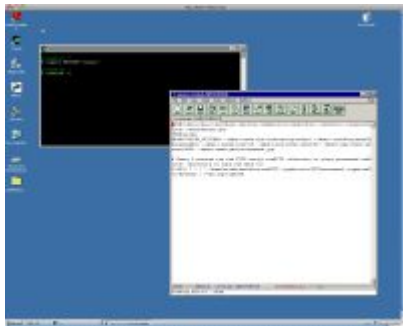


3. In the cygwin window set the xemacs editor as your default editor and edit the crontab file with the following:

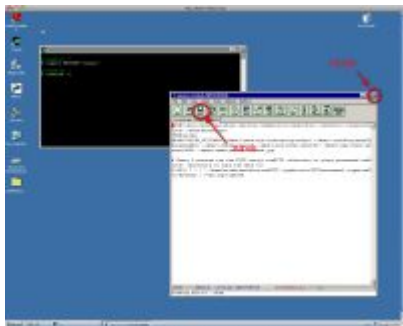
```
$ export EDITOR='xemacs'
$ crontab -e
```

This will open the xemacs editor with the contents of the crontab file.

4. Change the options designated by the environment variable MBARIVISION_OPTIONS as this variable stores all the AVED processing options.
(click to enlarge)



5. After changes are made, save the changes and exit xemacs to implement the changes and you're done !!
(click to enlarge)



How to change the video mask

If changes to the video mask are required, simply replace the videomask.jpg file in the ~/workflow directory with the one to use in the workflow.

Data Handling

This page last changed on Apr 18, 2007 by [dcline](#).

Components

- [AVED-DB](#)
- [VARS](#)
- [Anxillary Data](#)
- [EITS Video](#)

Ancillary Data

This page last changed on Jan 08, 2009 by [brian](#).

About Ancillary Data

From Feb 23rd 2007 conference call: Lee will deliver Video files and CSV text ancillary data to the RAID drive on shore. We will write up a loader to stuff the ancillary data into EITS database tables.

Log Files

Log files hold the ancillary data. We had discussed with Lee that we wanted daily logs. Apparently (as of 2008-02-14), **the logs are actually appended too until someone manually specifies that a new log should be created.** 3 days of data log = 1MB file

Time threshold

Ancillary data is sampled at 1 minute interval. An annotation requires that there is an ancillary datum within +/- 5 minutes in order to be merged with it.

When PMT voltage goes above the trigger threshold it will begin to log at 10Hz. It will stop at the end of the recording period (i.e. no greater than 5 minutes)

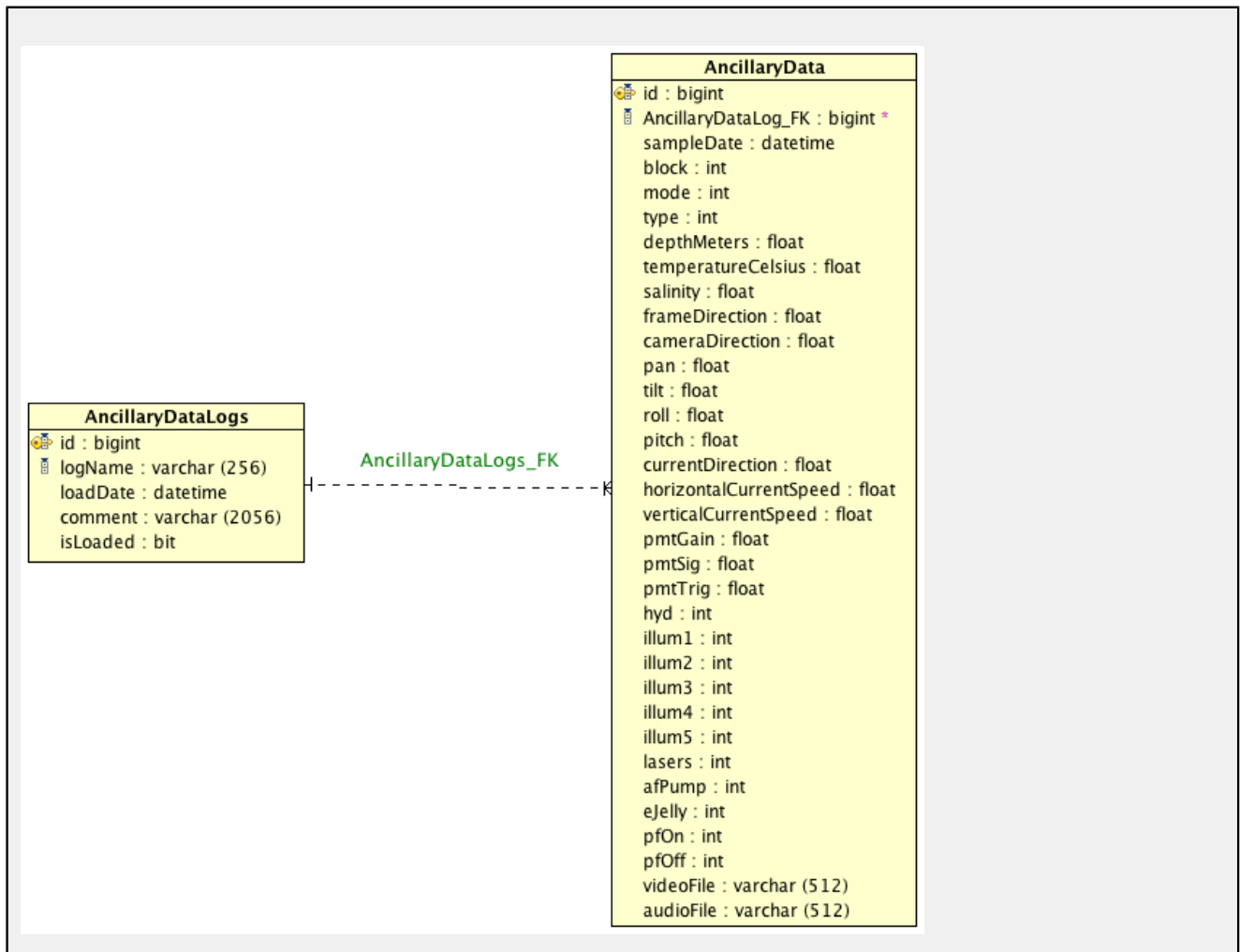
Documentation

1. [MEITS Logfile Key.doc](#)

Ancillary Database

The ancillary data is stored on the computer Somnibus in the EITS database. The database schema is very simple.

EITS Database Schema



AVED-DB

This page last changed on Feb 05, 2007 by [brian](#).

Overview

[VARS-AVED Mapping](#)
[AVED Data Model](#)

This page last changed on Nov 27, 2007 by [dcline](#).

Overview

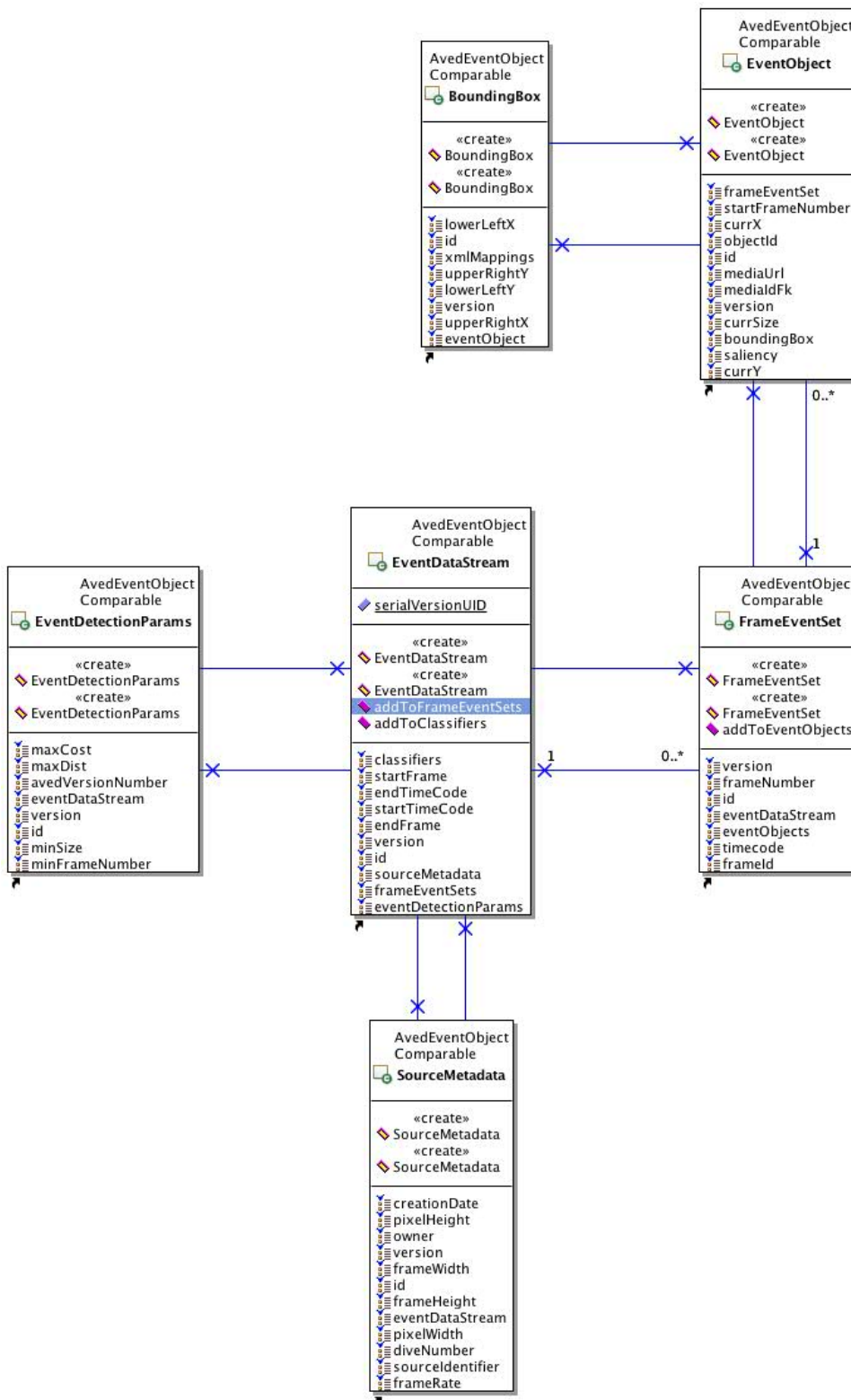


Important

- AVED reports indexes movies by *Framenumber*. Need to convert this to timecode. What is the framerate of the AVED movies?

D.Cline. When AVED recognizes a time code track in a QuickTime container, it associate events to this timecode, otherwise it uses the frame number. It looks like the example here simply did not have a timecode track in it.

The framerate of the movie will be encoded in the SourceMetadata->frameRate field.



XML Sample

```

<?xml version="1.0" encoding="UTF-8" ?>
<!--Created by: MBARI software mbarivision v0.1.3 (C) 2003-2004 MBARI built Sep 8 2006 at 13:58:18
-->
<EventDataSet
xmlns="http://www.w3.org/2001/XMLSchema-instance"
CreationDate="Sun Sep 24 14:15:05 2006&#xA;"

```

```

EndFrame="1776"
StartFrame="0"
StartTimeCode="">
<EventDetectionParameters
VersionNumber="mbarivision v0.1.3 (C) 2003-2004 MBARI built Sep 8 2006 at 13:58:18&#xA;"
maxCost="6885"
maxDist="18"
minFrameNum="5"
minSize="100"/>
<FrameEventSet FrameNumber="0" TimeCode=""/>
<!-- FrameEventSets omitted from sample for brevity -->
<FrameEventSet FrameNumber="143" TimeCode=""/>
<FrameEventSet FrameNumber="144" TimeCode="">
<EventObject CurrSize="2043" CurrX="378" CurrY="430" ObjectID="1" Saliency="0.00257649"
StartFrameNumber="140">
<BoundingBox LowerLeftX="342" LowerLeftY="453" UpperRightX="421" UpperRightY="411"/>
</EventObject>
</FrameEventSet>
<FrameEventSet FrameNumber="145" TimeCode="">
<EventObject CurrSize="1925" CurrX="376" CurrY="431" ObjectID="1" Saliency="0.00213244"
StartFrameNumber="140">
<BoundingBox LowerLeftX="336" LowerLeftY="452" UpperRightX="428" UpperRightY="412"/>
</EventObject>
</FrameEventSet>
<FrameEventSet FrameNumber="146" TimeCode="">
<EventObject CurrSize="2126" CurrX="376" CurrY="431" ObjectID="1" Saliency="0.00213244"
StartFrameNumber="140">
<BoundingBox LowerLeftX="338" LowerLeftY="454" UpperRightX="424" UpperRightY="413"/>
</EventObject>
</FrameEventSet>
<!-- FrameEventSets omitted from sample for brevity -->
<FrameEventSet FrameNumber="658" TimeCode=""/>
<FrameEventSet FrameNumber="659" TimeCode="">
<EventObject CurrSize="255" CurrX="261" CurrY="441" ObjectID="4" Saliency="0.00343171"
StartFrameNumber="655">
<BoundingBox LowerLeftX="245" LowerLeftY="448" UpperRightX="275" UpperRightY="436"/>
</EventObject>
</FrameEventSet>
<FrameEventSet FrameNumber="660" TimeCode=""/>
<!-- FrameEventSets omitted from sample for brevity -->
<FrameEventSet FrameNumber="1773" TimeCode=""/>
<FrameEventSet FrameNumber="1774" TimeCode=""/>
<FrameEventSet FrameNumber="1775" TimeCode=""/>
<FrameEventSet FrameNumber="1776" TimeCode=""/>
</EventDataSet>

```

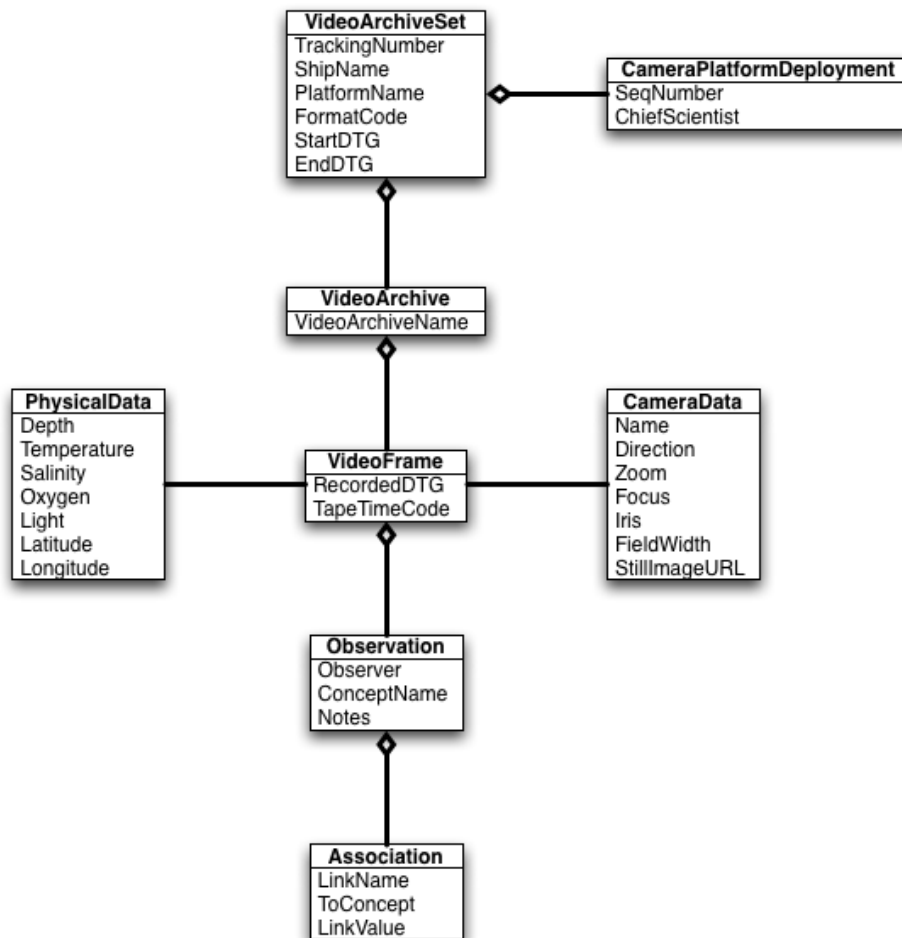
VARS-AVED Mapping

This page last changed on Apr 30, 2007 by [brian](#).

This page lists the different VARS objects and their fields. It attempts to describe the mapping from AVED Event information into VARS annotations.

VARS Class Diagram

This is a simplified diagram showing only the fields and classes important to EITS. More details can be found on [Sourceforge](#)



Mapping of AVED Events to VARS Annotations

i Fields that are listed in **BOLD** can be determined *a priori* or from the AVED XML. The other fields will need to be figured out.

VideoArchiveSet

Describes a group of related videos. We use them at MBARI to group tapes by expedition. How will group videos from EITS?

VARS	AVED
TrackingNumber	

	String YYYYDDD of Recording. This can be parsed from the movie file name which will be YYYYMMDDThhmmss format
ShipName	"MARS"
PlatformName	"EITS"
FormatCode	'o' or outline mode. Annotators can change this to detailed later
StartDTG	The start time of the recording. This is parsed from the filename
EndDTG	The end time of the recording. Where will we get this?

CameraPlatformDeployment

Some information about the deployment

VARs	AVED
SeqNumber	We use this to store dive-number for ROV's. For EITS, I'm currently using yyyymmdd which relatively closely matches the file names
Chief Scientist	"Edie Widder"

VideoArchive

Describes an individual video source. For EITS this will be a movie file.

VARs	AVED
StartTimeCode	eventDataStream.startTimeCode
videoArchiveName	URL pointing to a QuickTime compatible movie

VideoFrame

Pretty self explanatory.

VARs	AVED
RecordedDTG	Moment in time when the frame was recorded. This is EXTREMELY IMPORTANT; it's how we key into the anillary data (salinity, temperature, location, etc.). This is calculated by the process, <i>ingest.groovy</i> , that combines the filename (iso8601 date stamp) and TapeTimeCode (which is UTC time of day) NOTE: If the timecode rolls over 23:59:59 we will have roll-over issues since the date is calculated by add the year, month and day of the filename to the timecode (assumed to be UTC time)

TapeTimeCode	As HH:MM:SS:FF. frameEventSet.timeCode
--------------	---

Observation

Records information about 'events' that occurs within a video-frame. There can be multiple observations in a video frame.

VARs	AVED
Observer	"AVED"
ConceptName	"Object"
Notes	""

Association

Descriptive information associated with an Observation. We need to define what we will store here. We can encode such information as Saliency, ObjectID, BoundingBox information, etc. The usual way of encoding is linkName -> toConcept -> LinkValue. Currently considered associations are:

- **"identity-reference | self | <objectID>"**
- **"saliency | self | <saliency>"**
- **"start-timecode | self | <frameNumber converted to Timecode (HH:MM:SS:FF)>"**

CameraData

Describes information about camera settings.

VARs	AVED
Name	Name of the camera. Will we be able to swap cameras during the deployment? If so , we will want to keep track of which one is out.
Direction	This is set in the annotation application
Zoom	From anixillary data?
Focus	From anixillary data?
Iris	From anixillary data?
FieldWidth	From anixillary data?
StillImageURL	URL to a framecapture of the current Frame

PhysicalData

This table encapsulates all the physical parameters we will receive from EITS. We may need to modify this class and tables specifically for EITS.

VARs	AVED
Depth	From anixillary data?

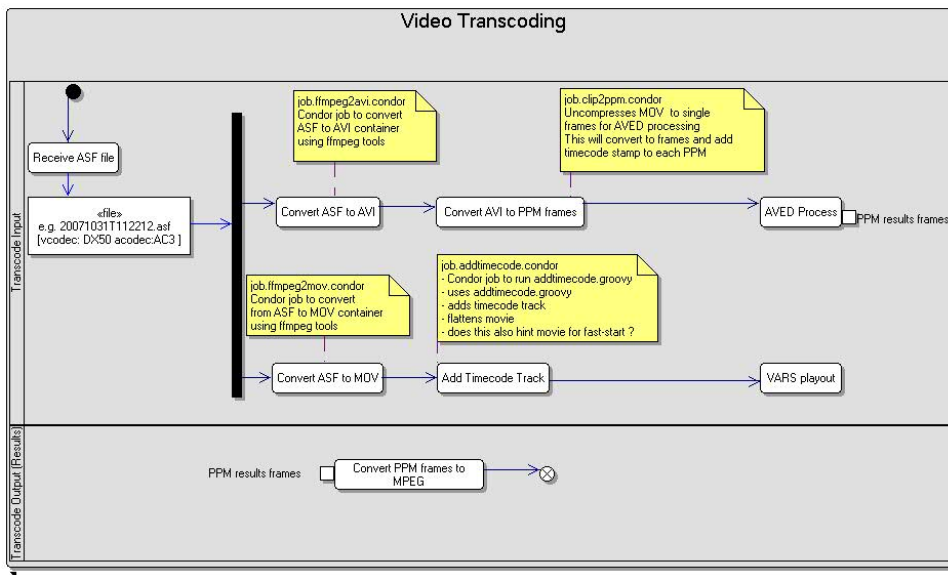
Temperature	From anxillary data?
Salinity	From anxillary data?
Oxygen	From anxillary data?
Light	From anxillary data?
Latitude	From anxillary data?
Longitude	From anxillary data?

About Video Transcoding

EITS video needs to be converted both into a format the AVED can process and into a format that VARS can playback. Video remains in compressed files throughout most of the data handling, until the conversion from AVI to PPM's for AVED processing. Most transcoding is done as a Condor job on the machine [Somniosus](#) or the AVED beowulf cluster. There are two paths for video conversion: one for AVED (starts with ASF to AVI conversion), and the other for VARS (ASF to MOV). The reason for this is noted below:

 In testing it was discovered that decoding the DX50 codec inside a MOV container is problematic in Linux. The tools to do this are **very** slow (1-2 frames per second), and improvement of the decode speed to 30-60 frames/second is achieved by converting the ASF to a AVI container because there is a better tool for this called transcode. The content will be identical, it's just a different container. Time code will also remain in tact because it can be added with transcode.

Activity Diagram of Video Transcoding for EITS Processing (need to include transcoding of AVED mpeg for VARS playback)



Video Specification

EITS will be producing ASF containers with video codec: DX50 (Divx) and audio codec:AAC.

This video can only be played with:

1. [VLC player](#)
2. [DIVX player](#)
3. QuickTime player (Mac OS X) with the following installed:
 - [Flip4Mac](#). Flip4Mac is free. This also allows the editing and conversion of ASF containers using the various QuickTime API's.
 - [DivX codec](#), also free. Required to work with the DX50 video encoding

ASF Conversion to QuickTime

For the EITS experiment, the ASF container will be converted to QuickTime, and a time code track based on the UTC encoded time in the file name (see File naming convention below) will be added to the

QuickTime container. The rationale for doing this is that VARS requires a QuickTime container with a time code track.

QuickTime Tracks Number Description:

1. Video
2. TimeCode
 - Timecode will be UTC time
3. Audio
 - Audio is from Hydrophone. It's added for the cool factor. The audio used for analysis will be stored in a separate file

ASF Conversion to AVI

The AVED workflow does not support Quicktime container with the DX50 codec due to lack of support for decoding the DX50 in a Quicktime container. DX50 is a codec from DIVX and support for it is poor at best in Linux, therefore, for the EITS experiment ASF files will be converted to AVI. AVED will then decompress the AVI files to PPM frames, and time code will be added to individual PPM frames before processing.

File naming convention

All files will be named for the UTC time of the first frame following the [ISO8601](#) conventions. For example: **20080607T120256.mov, 20080607T120256.avi**. For example, **20080607T120256.mov** represents a clip recorded on June 7th, 2005 (06-07-2008), and the recording started at 12:02:56 UTC.

QuickTime container requirements

- Timecode track representing UTC time is required
- Movie container must be configured for *fast start*** http://developer.apple.com/documentation/QuickTime/RM/Fundamentals/QTOverview/QTOverview_Document/chapter_1000_section_6.html
 - <http://docs.info.apple.com/article.html?artnum=301355>
 - <http://docs.info.apple.com/article.html?artnum=42588&coll=cp>
 - <http://lists.apple.com/archives/QuickTime-java/2001/Feb/msg00017.html>
 - I wanted to do the same thing, but found it was a lot easier to use "HTTP Streaming" or "Fast Start Streaming". All this means is information normally placed at the end of a movie is moved up front (by flattening it) when the movie is created. This allows the QuickTime Player or Plug-in to start playing before the entire movie is downloaded. This also gives you maximum flexibility in controlling the movie (frame stepping, looping, etc). You can even loop through just the part that's been downloaded thus far, while downloading the rest. Another advantage is HTTP over RTP is you don't have to worry about clients behind firewalls or NAT.

Notes

From [Danelle Cline](#) on 2007-05-21:

I was able to transcode the lvtest.asf file Lee sent. The converted asf file with and without timecode are in your tempbox named 20070511T09180100.mov, 20070511T09180100-tc.mov. The file isn't streamed. Can you use this file for playback in VARS, or can you add streaming to this ? Or, maybe other 3rd party tools to convert this file separately for VARS ? Linux utilities exist to add streaming hints so let me know if you want me to add the hints for testing. I converted the file to a MOV container using Linux utilities and appended the timecode your Java utility. It took ~ 30 minutes to convert the 48 minute clip. This is per the diagram describing video transcoding here: <http://oceana.shore.mbari.org:8081/display/EITS/EITS+Video>
In the EITS experiment, I will be using 20070511T09180100-tc.mov as input to AVED processing (but without the -tc appended — this was added for testing).
There are two untested items in this transcoding flow: hinting and I haven't tested the audio track - I removed it for now because I had some problems with the audio track in his old test file and just haven't gotten around to looking into fixing this.

The timecode track is out of sync with the video because Lee encoded the frame rate incorrectly, but it's a starting point. When we get another video clip from him and some ancillary data we can do some real testing.

From [Brian Schlining](#) on 2007-05-21:

I can add streaming hints; it may be more time efficient to do the conversion to a hinted quicktime movie in a single step though. We'll need to discuss and play around with the workflow to find what works best.

We'll need to figure out where (Linux or Mac) that we want to do the video conversion. I have 2 scripts that I've used for processing video:

1) hintmovie.groovy. Converts any movie to a streaming-hinted quicktime movie. I'm running it right now on the lvtest.asf...it seems to be working but I'll keep you updated when it's finished (It looks like it's going to take about 30+ minutes or so; it's running on a pretty ancient machine).

2) addtimecode.groovy. Adds a timecode track. Takes about 2 seconds.

I'll send you the result of running lvtest.asf through these 2 scripts so you can see if the output is useful for AVED processing.

From [Danelle Cline](#) on 2007-05-21:

RE>> We'll need to figure out where (Linux or Mac) that we want to do the video conversion. I have 2 scripts that I've used for processing video:

1) hintmovie.groovy. Converts any movie to a streaming-hinted quicktime movie. I'm running it right now on the lvtest.asf...it seems to be working but I'll keep you updated when it's finished (It looks like it's going to take about 30+ minutes or so; it's running on a pretty ancient machine).

2) addtimecode.groovy. Adds a timecode track. Takes about 2 seconds.

~~For workflow testing, I'm running hintmovie.groovy on the computer ULUA but this should be moved to a dedicated Mac/Windows computer for the experiment. What is needed to move this, is to install Condor as an "execute-only" node and modify the Condor job.description and scripts slightly. Not a huge deal. I'm working on posting Condor setup instructions for this in Confluence.~~

This has been installed as a Condor job on the computer somniosus. See details on Condor installation [here](#) for more information.

Data Handling for VARs

Video Files

VARs uses the QuickTime API for reading Video files. So the file format **must** be QuickTime compatible (i.e. if you can open it with QuickTime VARs should be able to read it). Ideally, for EITS we would like the video files to be in a QuickTime container (e.g. .mov files) with a time-code track encoded with UTC time and flagged to enable streaming. Details can be found at [EITS Video](#).

Time-code

I have code, that can read and write time-codes to .mov files, in a Java project called [QTX4J](#). You can get the source code for this project from svn using:

```
svn checkout http://qtx4j.googlecode.com/svn/trunk/ qtx4j-read-only
```

Snapshot builds of QTX4J are available in VARs's maven repository at <http://vars.sourceforge.net/maven2/>. You can include it in your maven project adding the dependency and repository information below to your *pom.xml* file.

```
...
<dependencies>
<dependency>
<groupId>qtx4j</groupId>
<artifactId>qtx4j</artifactId>
<version>[0.10,)</version>
<scope>compile</scope>
</dependency>
...
</dependencies>
...
</repositories>
<repository>
<id>VARs</id>
<name>VARs Repository</name>
<url>http://vars.sourceforge.net/maven2/</url>
</repository>
...
</repositories>
```

If you're not using [Maven](#) you can include QTX4J in your [ant build script](#) or download the jars directly from [here](#). If you do download QTX4J manually, you will also need to install [QuickTime for Java](#) and fetch these dependencies:

- [ImageJ](#): Optional. Used for frame-capture
- [Foxtrot](#): Optional. Used by user interface code.
- [MBARIX4J](#): Required (get the latest version)
- [slf4j-api](#): Required
- [vcr4j](#) (get the latest version): Optional. Used by user interface code. If you include this you will also need install [RXTX](#)

Example code for writing timecode to a movie can be found in [org.mbari.qt.TimeUtil](#). A full example of adding a timecode track, flattening, and saving a file can be found in [org.mbari.qt.TimeCodeTrackLifeCycleTest](#)

Testing Resources

AVED processed data that is used for testing is currently hosted on Nanomia. Here's a few useful links:

- EITS test data processed by Ishbel: http://nanomia.shore.mbari.org/EITS_testing
- Test data with longer clips: http://nanomia.shore.mbari.org/EITS_testing/RESULTS
- RAID storage for [Brian Schlining](#) mapped to \\nanomia\RAID\brian: <http://nanomia.shore.mbari.org/brian>

VARs mini

[VARs Mini](#)

VARs Mini

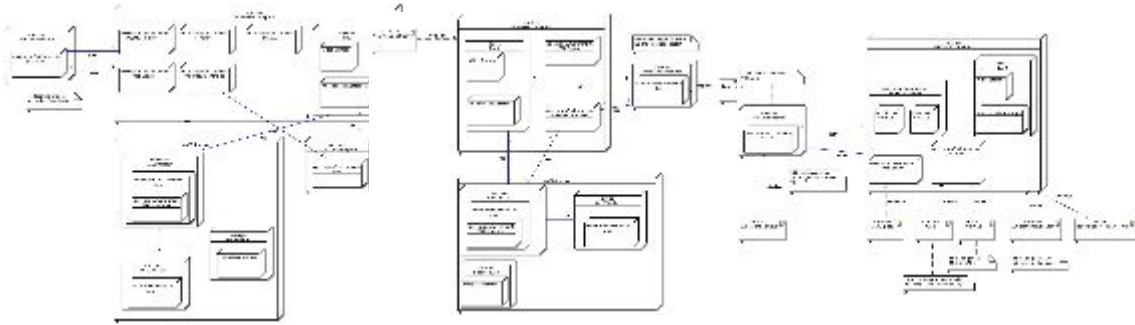
This page last changed on Feb 10, 2009 by [brian](#).

[edit this mockup](#)

Deployment Diagrams

This page last changed on Jan 18, 2007 by [brian](#).

[\(view as slideshow\)](#)



Deployment
Overview

AVED
Deployment

VARS
Deployment

EITS Computers

This page last changed on Jan 14, 2009 by [brian](#).

Computers dedicated to EITS processing

1. [Somniosus](#)
2. [EITS](#)
3. [Sundog](#)

EITS

About EITS

EITS is a really boring name for the Eye-In-The-Sea computer that hosts a large RAID to store raw and processed data. It is also responsible for sending off jobs to execute the EITS workflow.

EITS is a HP xw4400 Workstation running Windows Server Enterprise SP2.

MARS Network Settings

IP	134.89.12.144
Submask	255.255.254.0
Gateway	134.89.12.1
DNS 1	134.89.12.87
DNS 2	134.89.10.32

Add-on hardware

A Host bus adapter (HBA) card was installed to interface to the RAID. This is a LSI Logic LSISAS344SE-R PCI Express to 3.0 GB/s Serial Attached SCSI (SAS) Host Bus Adapter.

Add-on software

- LSISAS344SE-R PCI driver (available for download from LSI logic site)
- NStor host-based version on shipped CD. Insert CD, and once autoplay starts, navigate to E5412E->Install StorView (Host Based).
- cygwin <http://www.cygwin.com/>;
 - Select the following additional non-default packages to install: rsync, vi, emacs, bash, cygrunsrv, perl, subversion, openssh, xterm, and cvsutils.
- JDK 6 Update 4 from <http://java.sun.com/javase/downloads/index.jsp>

Experiment software

- [EITS workflow scripts and cron job installation](#)
- [EITS web service](#)
- [EITS RAID directories](#)
- [EITS cron setup](#)
- [EITS rsync setup](#)
- [EITS streaming setup](#)

EITS cron setup

This page last changed on Jan 05, 2009 by [dcline](#).

This presumes the user **erika** will be processing jobs and has a valid account on EITS. As the user **erika** setup the cron daemon.

1. Starting at Control Panel -> Administrative Tools -> Local Security Policy-> Local Policies -> User Rights Assignment

Grant rights to the group Administrators for the following items:

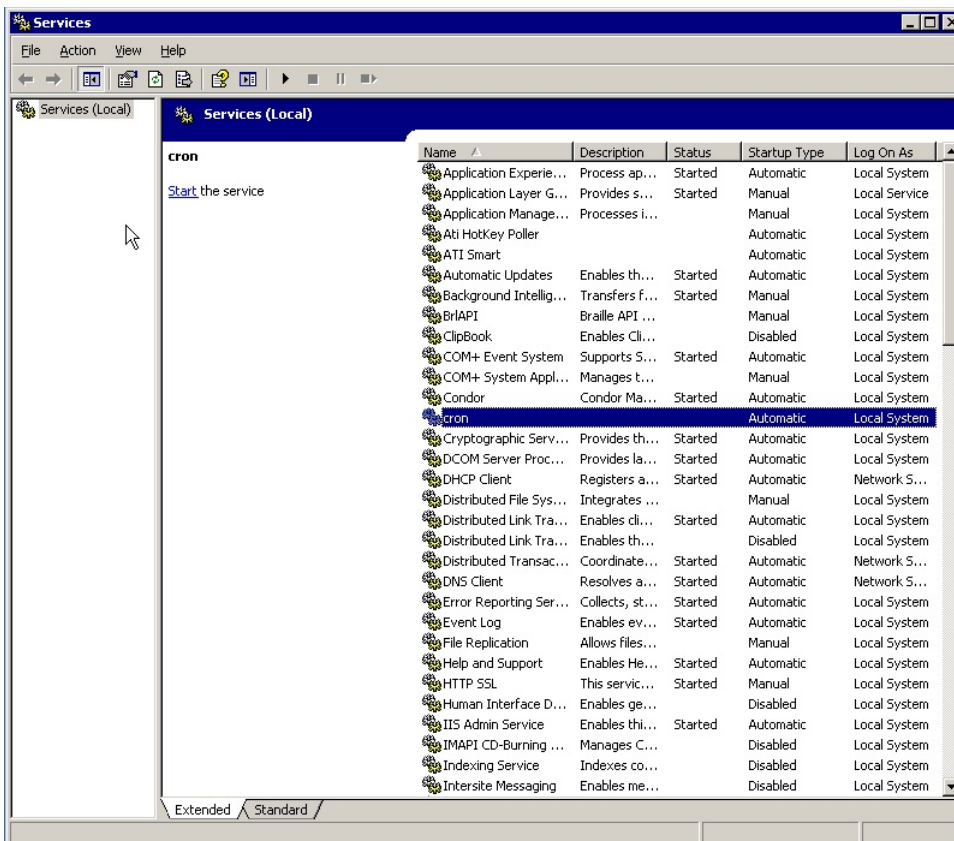
- Adjust memory quotas for a process
- Create a token object
- Log on as service
- Replace process level token

2. Create a con service for user **erika**

```
cygrunsrv -I cron -p /usr/sbin/cron -a -D -u erika
```

You will be prompted for your password. Change this to the same password you use to login to EITS.

This cron service should now come up as a service in Windows. Check this by launching services. Starting at Start->Control Panel -> Administrative Tools -> Services, you should see that the service has been entered:



1. Open the permission of the cron.log file for all users. This appears to be a bug in the cygwin version of cron.

```
chmod a+rw /var/log/cron.log
```

2. Next, start the service with:

```
cygrunsrv -S cron
```

If the service doesn't start, **note that only one cron service** is allowed to run under cygin so make sure other cron services are not running.

EITS RAID

This page last changed on Oct 06, 2008 by [dcline](#).

The EITS RAID is populated to the maximum allowed for its controller - the RAID cannot be grown. The total formatted usable space is approximately 40 TB.

Specifications

Vendor: Xyratex

840 Embarcadero Drive, St. 80
West Sacramento, 95606

Controller: E5412

Enclosures: 5 enclosures with twelve 750 GB SATA drives per enclosure

Power up/down instructions

Power on expansion chassis first, then controller.

Power down in reverse; controller first then expansion chassis.

RAID configuration

Each enclosure is configured as a 11-drive RAID5 array with 1 hot-spare drive. All 5 enclosures are then combined to form 1 LUN. This basically means all the storage on the RAID will be represented as one large drive.

Cable connections

Page 2 of the [E5402E quick start guide](#) show how to connect to the host (Single HBA), and how to daisy chain the expansion enclosures to the RAID enclosure.

EITS RAID directories

This page last changed on Oct 09, 2008 by [dcline](#).

The RAID is mounted as the drive "E:" on the EIS computer. There are three directories used in the workflow. One for incoming data from the instrument, one for archiving data, and one for processed data. They are defined as follows:

Directory	Role
E:/EITSincoming	Incoming data from the instrument to process is stored here. Every 5 minutes, new data in this directory that doesn't exist in the E:/EITSraw directory is copied into the E:/EITSraw directory, then copied into the E:/EITSprocessed directory in preparation for processing, then removed by the runEITS script. If this directory is changed, change the /etc/rsyncd.conf settings accordingly and restart the rsync service.
E:/EITSraw	Archived (raw) data. If this directory is changed, change the crontab runEITS argument accordingly (e.g. using crontab -e).
E:/EITSprocessed	AVED processed EITS data. This is where the processed results reside. If this directory is changed, change the crontab runEITS argument accordingly (e.g. using crontab -e).

All of the directories above can be owned by any user in the Administrator group.

EITS rsync setup

This page last changed on Jan 05, 2009 by [dcline](#).

A rsync daemon is used to synchronize the incoming EITS data in e:\EITSincoming with a local file system e:\EITSraw. This rsync process is used in the EITS scripts to initiate workflow processing. IMPORTANT - Install the rsyncd daemon as user **erika**.

1. Login as **erika**.
2. Launch cygwin by double-clicking on the desktop icon



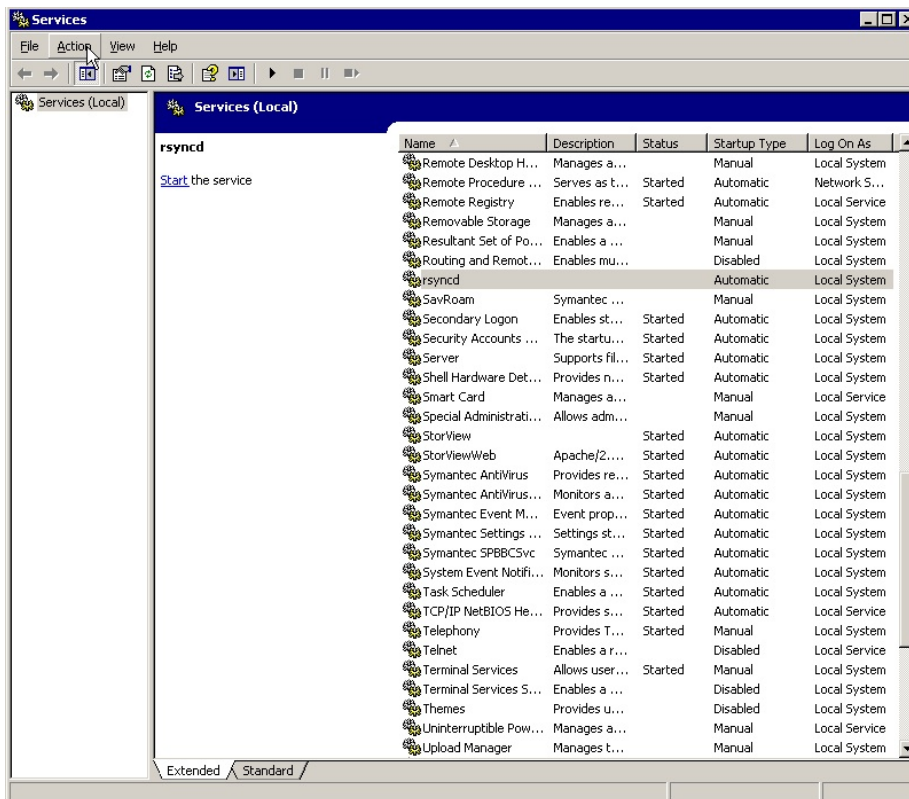
3. Create and edit the file /etc/rsyncd.conf and add the following. This assumes the incoming data is in the EITSincoming directory and owned by the user erika.

```
# Allows all hosts in the mbari domain network access
hosts allow = 134.89.0.0/255.255.0.0,10.91.0.0/255.255.0.0
read only = yes
[EITSincoming]
path = /cygdrive/e/EITSincoming
comment = Incoming data from the EITS instrument
uid = erika
gid = Administrators
list = yes
```

4. To install the rsyncd as a service do this:

```
cygrunsrv -I "rsyncd" -e CYGWIN=nontsec -p /bin/rsync.exe -a
'--config=/etc/rsyncd.conf --daemon --no-detach'
```

This rsync service should now come up as a service in Windows. Check this by launching services. Starting at Start->Control Panel -> Administrative Tools -> Services, you should see that the service has been entered :



5. Now start the rsyncd service:

```
net start rsyncd
```


EITS streaming setup

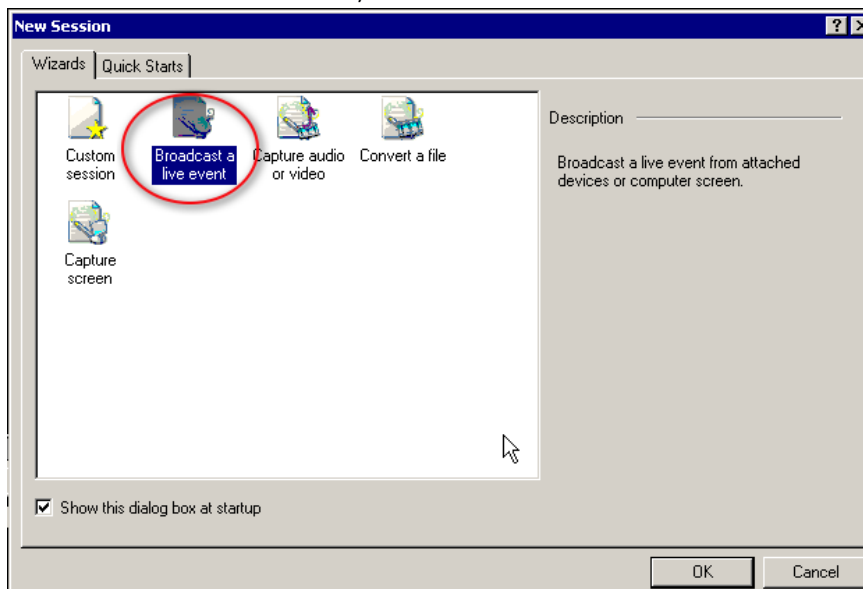
This page last changed on Feb 17, 2009 by [dcline](#).

Overview

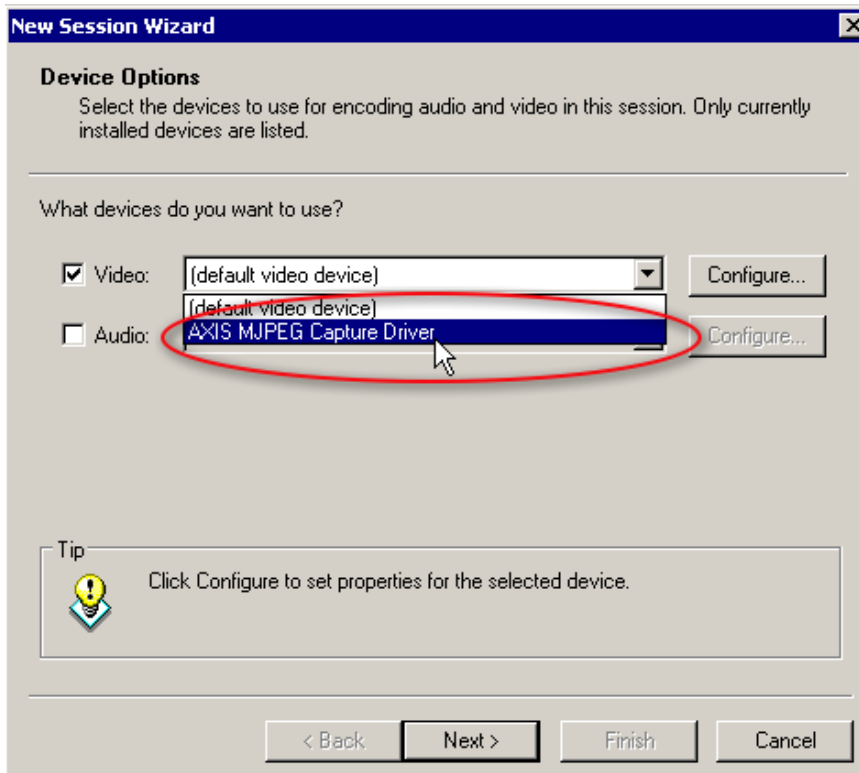
Video from the EITS is streamed to an outside streaming service www.audiovideoweb.com. The outside service requires the video be encoded by Windows Media Server 9. The following describes how video from the EITS Axis camera is rebroadcast from a MJPEG/RTSP stream to a format [audiovideoweb.com](http://www.audiovideoweb.com) will accept using Windows Media Encoder.

Windows Media Encoder setup

1. Login as user **erika**.
2. Download [Windows Media Encoder 9](#) and install.
3. Download the [Axis capture driver](#) and install. Note that creating a user name and password is required to access this driver. Once the driver is installed, launch Windows Media Encoder and setup the stream using the following:
 - a. Select Broadcast a live event, click OK.



- b. Unselect audio box (there is no audio available for this setup). Select video, select the AXIS MJPEG Capture Driver, then Click the configure button next to video.



- c. Leave all the boxes untouched, except the Server box. Here, add the IP address of the EITS Axis camera 134.89.42.186. Click OK.

AXIS MJPEG Capture Driver Properties

Device Settings

AXIS Video Capture Driver **AXIS COMMUNICATIONS**

Network

Protocol: axmhttp://

Server: 134.89.42.186

Stream path: axis-cgi/mjpg/video.cgi

Port:

axmhttp://134.89.42.186/axis-cgi/mjpg/video.cgi

Video

Resolution: 704x480

Frame rate: 30

Image quality: Poor — Superior

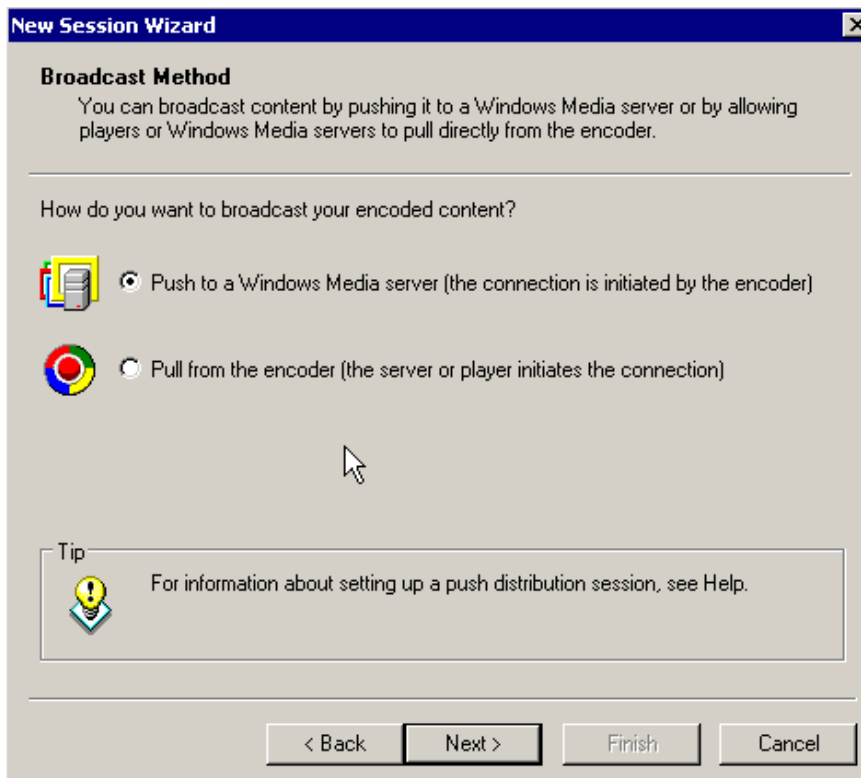
PTZ Control

☐ Enable joystick support

Calibrate Joystick

OK Cancel Apply

- d. Now, continue on with the wizard, click Next. Next since video is pushed to the outside server click Next.



New Session Wizard

Broadcast Method
You can broadcast content by pushing it to a Windows Media server or by allowing players or Windows Media servers to pull directly from the encoder.

How do you want to broadcast your encoded content?

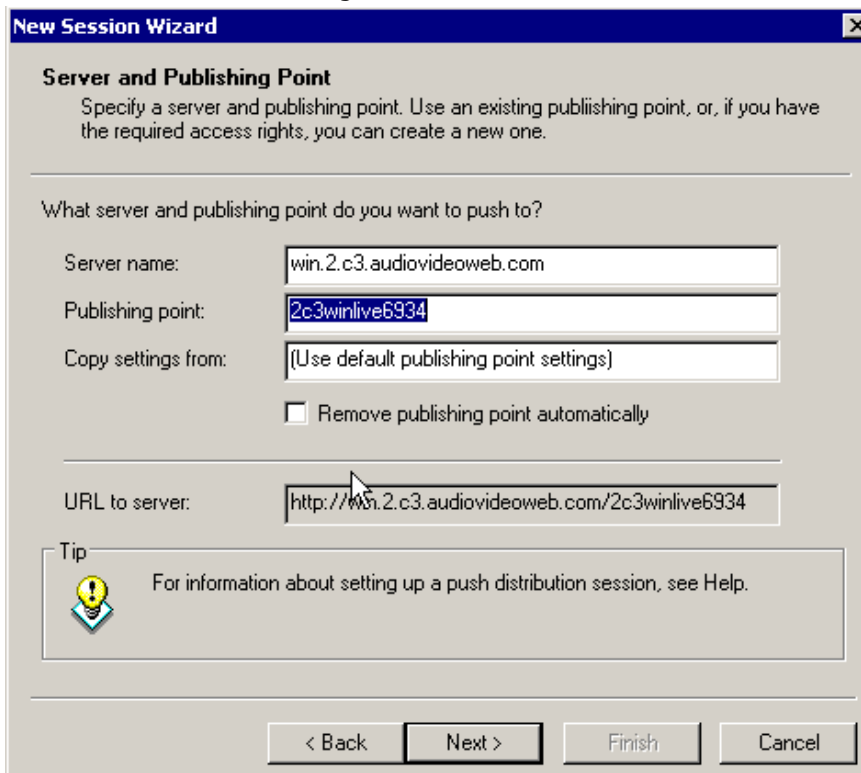
 ☒ Push to a Windows Media server (the connection is initiated by the encoder)

 ☐ Pull from the encoder (the server or player initiates the connection)

Tip
 For information about setting up a push distribution session, see Help.

< Back Next > Finish Cancel

- e. Enter the publishing Server Name as win.2.c3.audiovideoweb.com, and Publishing Point as 2c3winlive6934. Don't change the other fields.



New Session Wizard

Server and Publishing Point
Specify a server and publishing point. Use an existing publishing point, or, if you have the required access rights, you can create a new one.

What server and publishing point do you want to push to?

Server name:

Publishing point:

Copy settings from:

☐ Remove publishing point automatically

URL to server:

Tip
 For information about setting up a push distribution session, see Help.

< Back Next > Finish Cancel

- f. Next, we need to set the compression of the video to match that setup with the service. At the time of this writing, it is 128Kbps. Unselect all bit rates. Select bit rate 128 Kbps, 15 fps, 320x240.

New Session Wizard

Encoding Options
Select encoding settings for your content. Your selections determine settings such as bit rate, frame rate, and buffer size.

How do you want to encode your audio and video?

Video:

Audio:

Bit rate:

Total Bit Rate	Frame Rate	Output Size
☒ 128 Kbps	15 fps	320 x 240
☐ 93 Kbps	15 fps	240 x 180
☐ 45 Kbps	15 fps	160 x 120

Tip
You can adjust settings on the Session Properties panel after you complete the wizard.

< Back Next > Finish Cancel

- g. Click Next twice to skip to the publishing information. Here, enter any information you would like to be encoded into the stream. This will not display on the video, but rather, is encoded into the video stream.

New Session Wizard

Display Information
Specify information about your content (optional). The information is displayed during playback of the encoded content.

Title:

Author:

Copyright:

Rating:

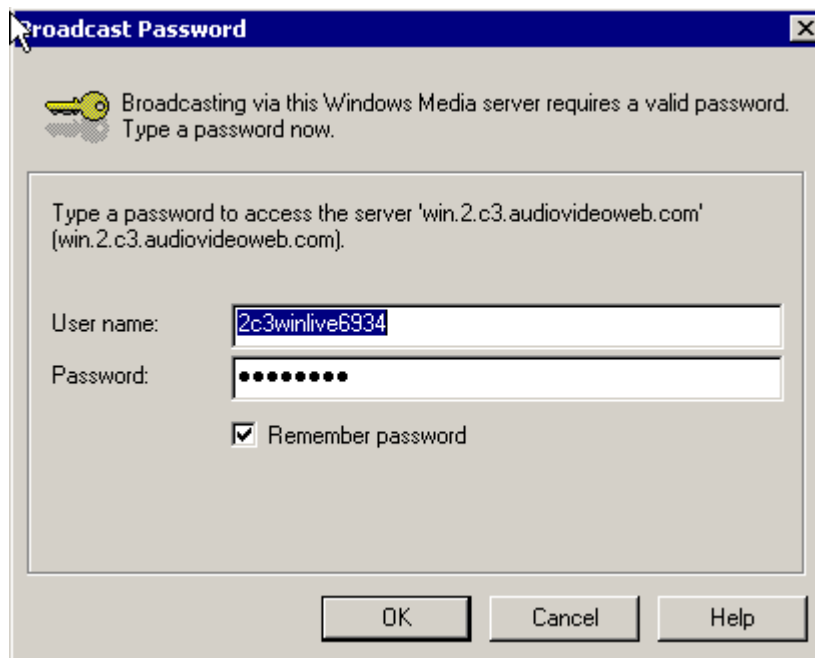
Description:

Tip
Users must enable captions in Windows Media Player to view this information.

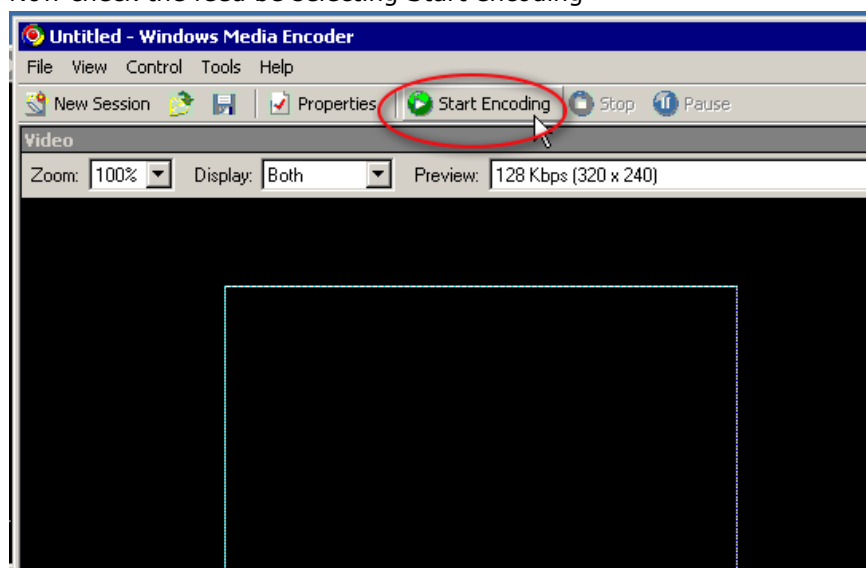
< Back Next > Finish Cancel

Click Finish and don't click broadcast. You want to check the video feed first to make sure it look ok.

- h. You should then be prompted for the Broadcast username and password for the broadcaster. Enter them, and select Remember password.



- i. Select File->Save As and save the session in your My Documents folder as eits_video_stream. This will save the file as eits_video_stream.wme and this file will then be used in the startup script (see next section).
- j. Now check the feed by selecting Start encoding



Windows Media Encoder startup script setup

If you have a critical encoder streaming live audio for an Internet radio station or maybe video for a presentation then you want that encoder to be running all the time and you shouldn't have to login and restart the encoder manually if the host computer loses power or reboots. The Windows Media Encoder has a wonderfully simple graphical user interface but unfortunately you cannot directly configure it as a service to run in the background when the host starts up. Fortunately Microsoft provides a command line script that you can use to start an encoding session on boot-up. The following describes how a windows media encoder startup script is configured for the EITS stream. **This assumes you have completed the steps outlined in the Windows Media Encoder setup above first.**

- 
- Cygwin

- ```
cygrunsrv --install eitsstreaming --path /cygdrive/c/WINDOWS/system32/cscript.exe --args "\"C:\Program Files\Windows Media Components\Encoder\WMCmd.vbs\" -wme \"c:\Documents and Settings\erika\My Documents\veits_video_stream.wme\"" -u erika
```

- 
- The screenshot shows the Windows Services console. The title bar reads 'Services (Local)'. The left pane shows 'eitsstreaming' selected. The right pane displays a table of services:
- | Name                    | Description     | Status         | Startup Type     | Log On As      |
|-------------------------|-----------------|----------------|------------------|----------------|
| DCOM Server Proc...     | Provides la...  | Started        | Automatic        | Local System   |
| DHCP Client             | Registers a...  | Started        | Automatic        | Network S...   |
| Distributed File Sys... | Integrates ...  |                | Manual           | Local System   |
| Distributed Link Tra... | Enables cli...  | Started        | Automatic        | Local System   |
| Distributed Link Tra... | Enables th...   | Disabled       | Disabled         | Local System   |
| Distributed Transac...  | Coordinate...   | Started        | Automatic        | Network S...   |
| DNS Client              | Resolves a...   | Started        | Automatic        | Network S...   |
| <b>eitsstreaming</b>    |                 | <b>Started</b> | <b>Automatic</b> | <b>.\jenka</b> |
| Error Reporting Ser...  | Collects, st... | Started        | Automatic        | Local System   |
| Event Log               | Enables ev...   | Started        | Automatic        | Local System   |
| File Replication        | Allows files... |                | Manual           | Local System   |
| Help and Support        | Enables He...   | Started        | Automatic        | Local System   |
| HTTP SSL                | This servic...  | Started        | Manual           | Local System   |
| Human Interface D...    | Enables ge...   |                | Disabled         | Local System   |
| IIS Admin Service       | Enables thi...  | Started        | Automatic        | Local System   |
| IMAPI CD-Burning ...    | Manages C...    |                | Disabled         | Local System   |
| Indexing Service        | Indexes co...   |                | Disabled         | Local System   |
| Intersite Messaging     | Enables me...   |                | Disabled         | Local System   |
| IPSEC Services          | Provides e...   | Started        | Automatic        | Local System   |
| Kerberos Key Distri...  | On domain ...   |                | Disabled         | Local System   |

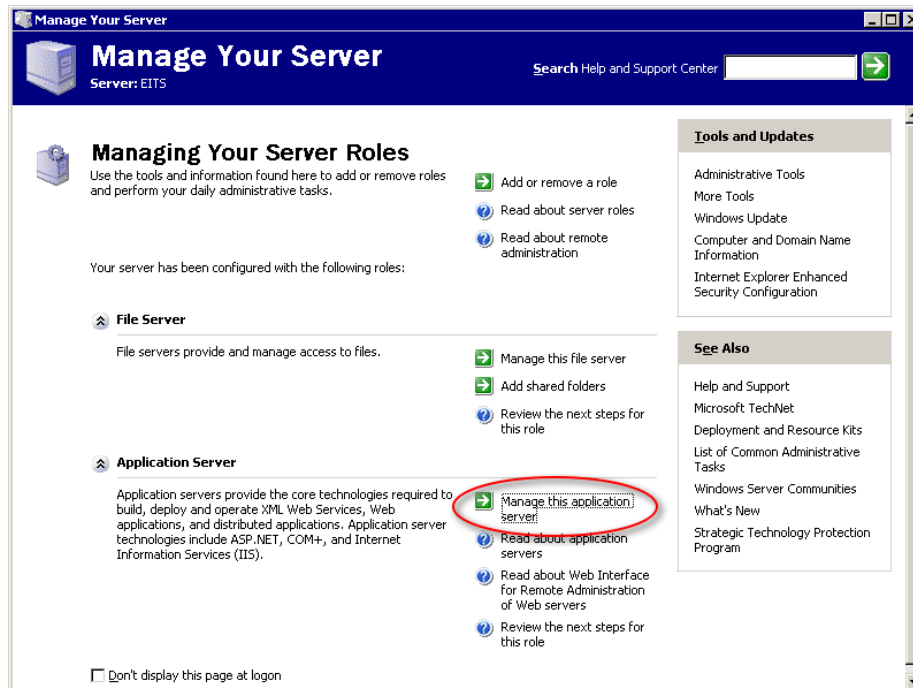
## EITS web service

This page last changed on Oct 21, 2008 by [dcline](#).

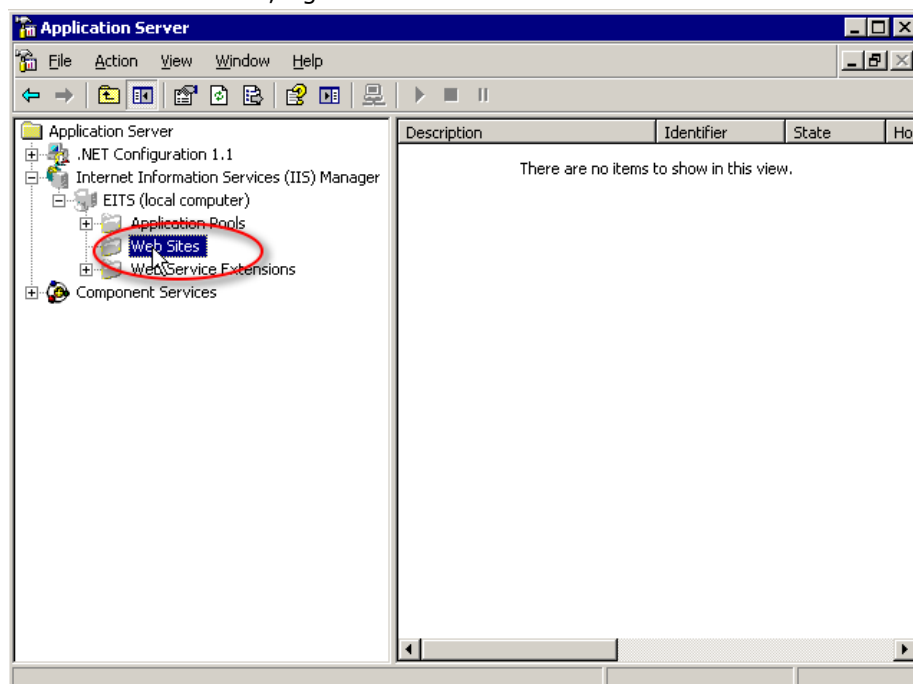
Data collected on the EITS RAID is accessed either through a local account, or through http access. The following describes the administrative setup for making data available on the RAID "E:" drive through http.

### Add a default web page

1. Login as **Administrator**.
2. In the "Manage Your Server" window that opens at login, select *Manage this application Server*

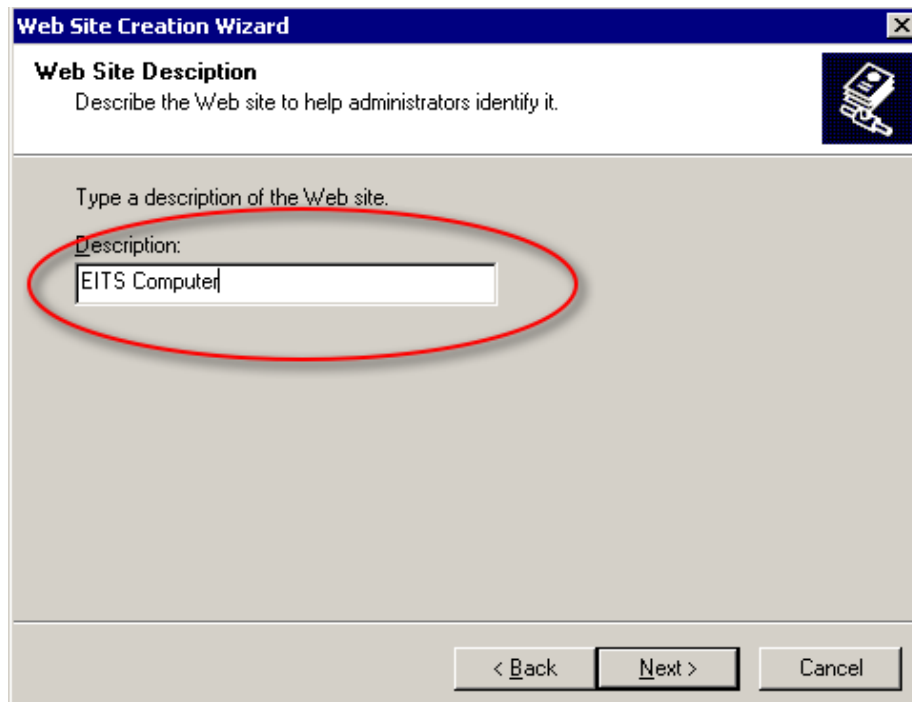


3. Select Web Sites in the menu tree, right-click and select *New->website*



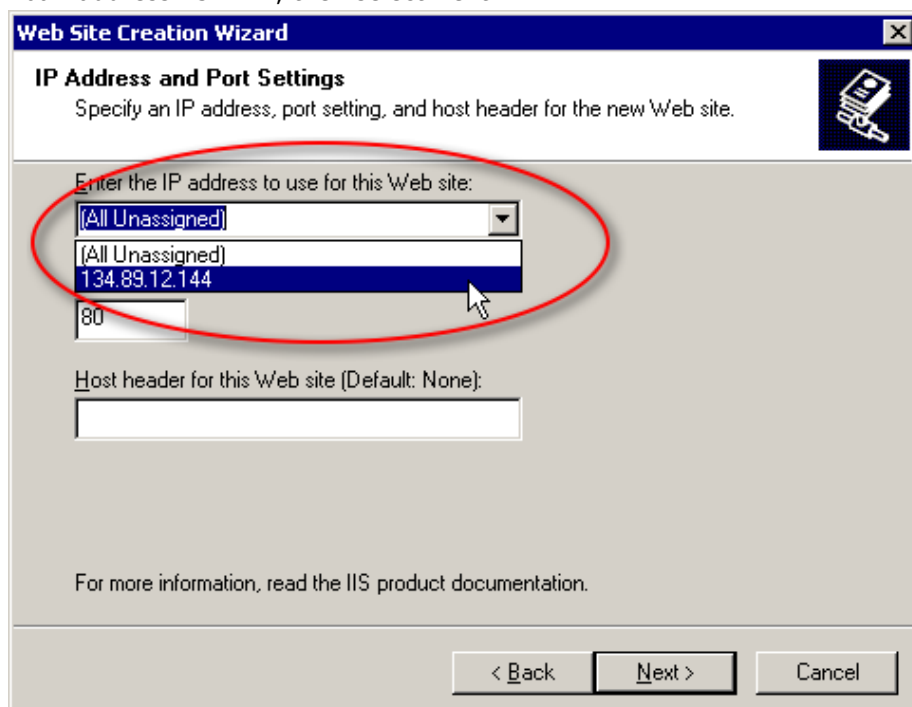
4. A wizard will open, click next, then enter the description as *EITS Computer*, then select Next





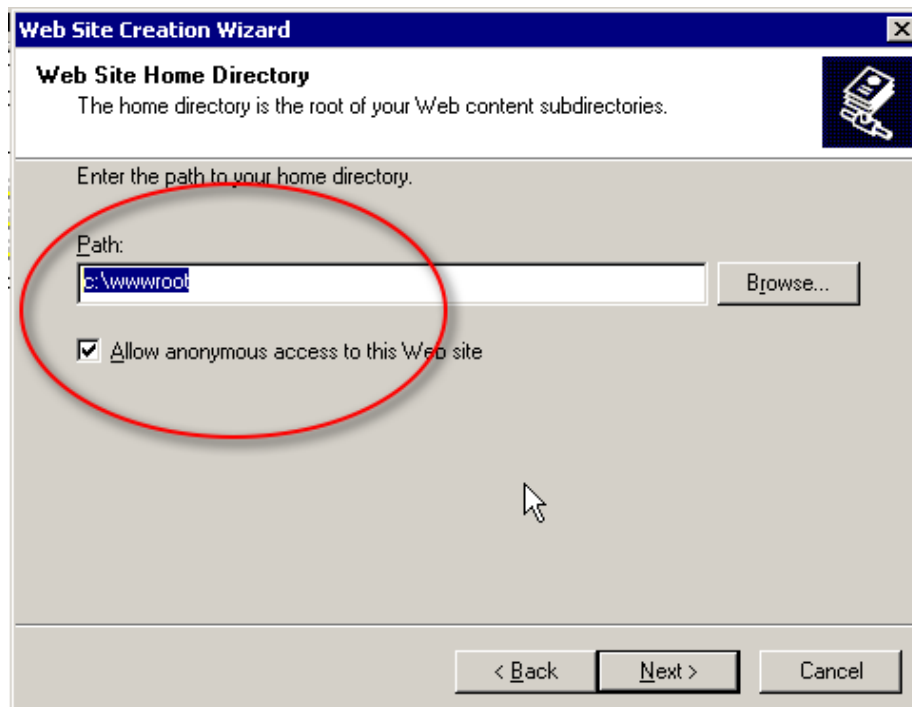
The screenshot shows the 'Web Site Creation Wizard' window, specifically the 'Web Site Description' step. The title bar reads 'Web Site Creation Wizard'. Below the title bar, the section is titled 'Web Site Description' with the instruction 'Describe the Web site to help administrators identify it.' A text box labeled 'Description:' contains the text 'EITS Computer'. A red oval highlights this text box. At the bottom of the window are three buttons: '< Back', 'Next >', and 'Cancel'.

5. Choose the mbari address 134...\* , then select Next

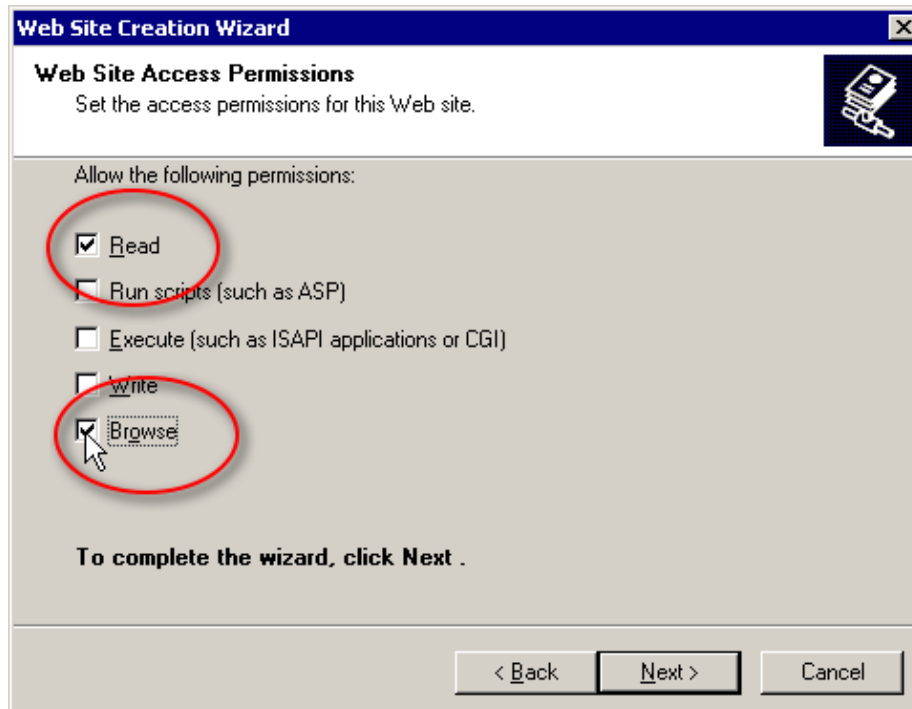


The screenshot shows the 'Web Site Creation Wizard' window, specifically the 'IP Address and Port Settings' step. The title bar reads 'Web Site Creation Wizard'. Below the title bar, the section is titled 'IP Address and Port Settings' with the instruction 'Specify an IP address, port setting, and host header for the new Web site.' A dropdown menu labeled 'Enter the IP address to use for this Web site:' shows a list of options: '[All Unassigned]', '[All Unassigned]', and '134.89.12.144'. A red oval highlights this dropdown menu, and a mouse cursor is pointing at the '134.89.12.144' option. Below the dropdown is a text box for the port, which contains '80'. Further down is a text box for the 'Host header for this Web site (Default: None):'. At the bottom of the window are three buttons: '< Back', 'Next >', and 'Cancel'.

6. Enter C:\wwwroot for the root path of the home directory

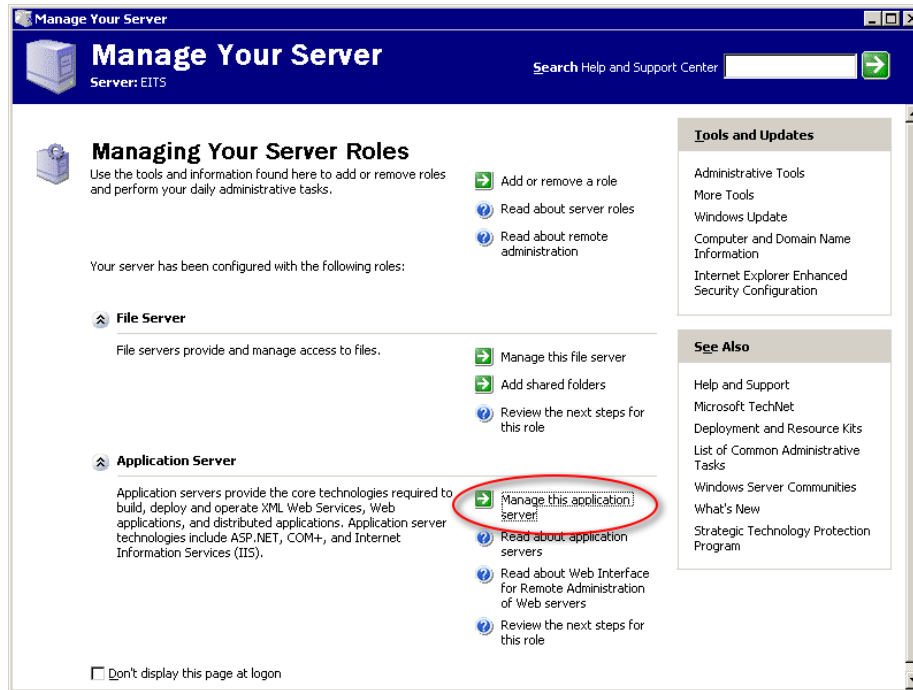


7. Select Read and Browse permissions, then select Next and click Finish on the final window.

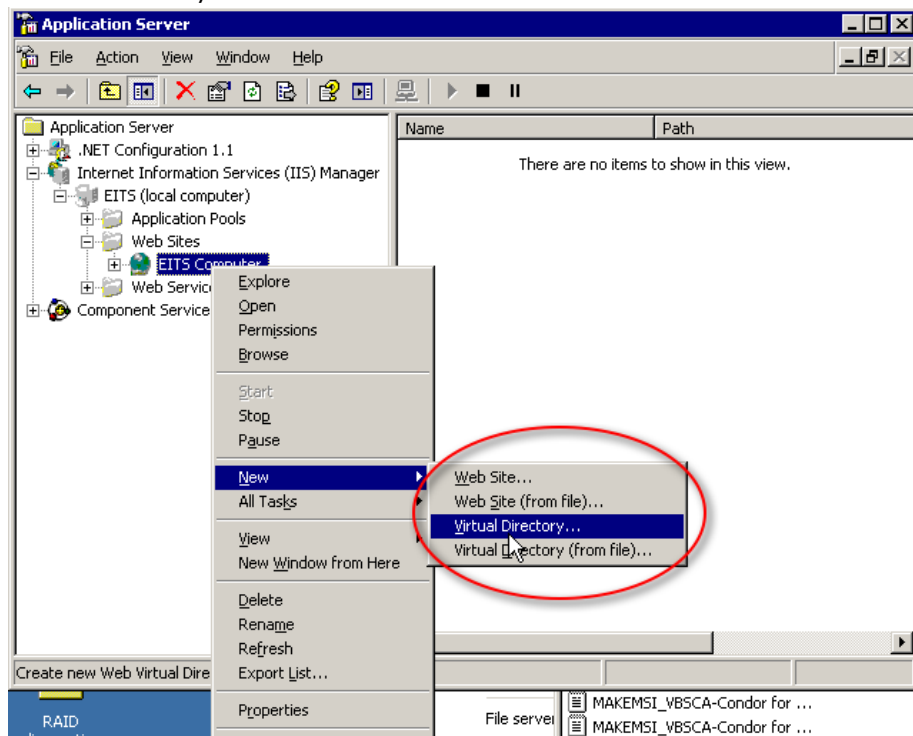


## Add a Virtual Directory to the RAID to make it visible for http access

1. Login as **Administrator**.
2. In the "Manage Your Server" window that opens at login, select *Manage this application Server*



### 3. Select New->VirtualDirectory



### 4. A wizard will come up, and select next. Enter e for the alias to the E: drive

**Virtual Directory Creation Wizard**

**Virtual Directory Alias**  
Specify a short name, or alias, for this virtual directory.

Type the alias you want to use to gain access to this Web virtual directory. Use the same naming conventions that you would for naming a directory.

Alias:

< Back   Next >   Cancel

5. Enter E:\ For the path to the directory that contains the contents

**Virtual Directory Creation Wizard**

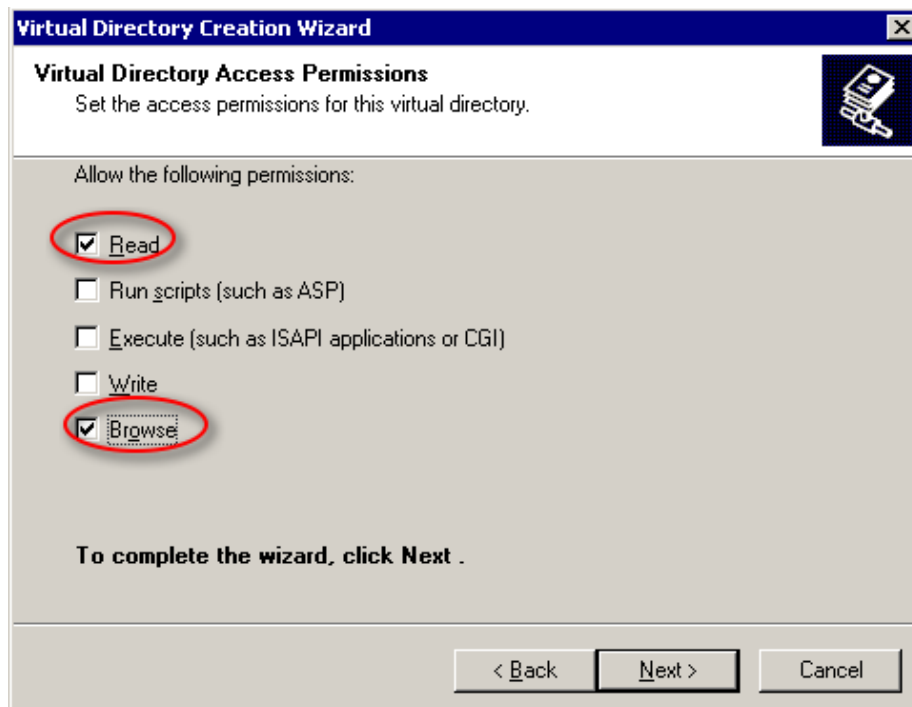
**Web Site Content Directory**  
Where is the content you want to publish on the Web site?

Enter the path to the directory that contains the content for this Web site.

Path:  
   Browse...

< Back   Next >   Cancel

6. Select Read and Browse permissions



Click Finish on the next window and you are done. The virtual directory should now show up as `http://eits.shore.mbari.org/e` in your web browser.

## EITS workflow scripts and cron job installation

This page last changed on May 10, 2010 by [dcline](#).

### Important facts

The EITS workflow must be executed by a user with a local account that mirrors a valid user account in the MBARI network. E.g. if your user name is erika and password is foo, use these same user/password combinations for your local account on EITS. The workflow that processes the EITS data is created by a series of bash and perl scripts. This workflow is then executed by the [Condor](#) software on the [Condor pool and setup for the EITS experiment](#). The following describes how to install the workflow scripts as the user **erika** on the computer EITS.

### Store Condor credentials for the submitting user

This presumes the user **erika** will be processing jobs and has a valid local account on EITS. A small Condor utility must be run to store the user credentials for the submitting user. This is used to authenticate who is submitting the job. Do this with the following in a cygwin shell as user **Administrator**:

```
condor_store_cred add
```

You will be prompted for a user password. Use the same password you use for login.

### ***Problem: condor\_store\_cred is failing, and I'm sure I'm typing my password correctly.***

Frequently, the error is a result of PERMISSION DENIED errors, so make sure you are running this as user **Administrator**:

```
condor_store_cred add -u erika@EITS
```

If that doesn't work, first, make sure the *condor\_schedd* is running. You can also restart the condor service by navigating to the services in the control panel. Next, check the SchedLog. It will contain more detailed information about the failure.

### Check-out the workflow scripts

Work flow scripts consist of both AVED-specific scripts, and EITS workflow scripts. AVED scripts are checked out from the CVS repository Moonjelly and EITS workflow scripts are checked out from the Subversion repository Kahuna. These scripts are used to process the EITS data through AVED.

1. Login as the user who will be submitting jobs for processing. This presumes the user **erika** will be processing jobs and this user must have valid accounts on the servers EITS, Moonjelly and Kahuna.
2. Launch cygwin by double-clicking on the desktop icon



3. Check-out aved scripts from moonjelly CVS repository.

```
export CVSROOT=:pserver:erika@moonjelly:/home/cvs
cvs login
cvs co aved/scripts aved/beoscripts
```

4. Check-out EITS workflow scripts from subversion

```
export SVN_SSH='ssh -l erika'
svn co svn+ssh://erika@kahuna.shore.mbari.org/svn/repos/eits/trunk/workflow
```

## Setup the cron job

Now that the service is started, switch to the user who will be submitting jobs for processing, and add the following to their crontab file. This presumes the user **erika** will be processing jobs. First, launch the crontab editor.

```
crontab -e
```

Next, add the following to the crontab to setup the environment variables and runEITS script to run every 5 minutes

```
MAILTO="erika@mbari.org"
USER=erika
PATH=/cygdrive/c/condor/bin:/home/erika/workflow:/home/erika/aved/scripts:
/home/erika/beoscripts:/condor/bin:/usr/bin:/usr/sbin

This sets up the command options to pass to the AVED processing binary called mbarivision
This is a global environment variable that will be applied to processing ALL clips
MBARIVISION_OPTIONS='--mbari-save-non-interesting-events --mbari-tracking-mode=BoundingBox
--mbari-cache-size=15 --mbari-min-event-area=50 --mbari-max-event-area=10000
--mbari-mask-path=videomask.jpg'
```

Every 5 minutes run the EITS script runEITS <directory to place processed results>  
<directory to copy raw data to>

```
0-59/5 * * * * /home/erika/workflow/runEITS /cygdrive/e/EITSprocessed /cygdrive/e/EITSraw > /
var/log/runEITS
```

# Somniosus

## About Somniosus

*Somniosus pacifica* is the Pacific sleeper shark

Somniosus (the computer) is an Apple Leopard XServe 4-core Xeon 2.0GHz 4GB RAM. It's running the built in MySql 5.0 and Apache HTTPD 2.2 servers.

## EITS files

| File                           | Location                              | URL                                                                                             |
|--------------------------------|---------------------------------------|-------------------------------------------------------------------------------------------------|
| Web pages                      | /Library/WebServer/Documents          | <a href="http://somniaus.shore.mbari.org">http://somniaus.shore.mbari.org</a>                   |
| VARs Web Start Application     | /Library/WebServer/Documents/webstart | <a href="http://somniaus.shore.mbari.org/webstart">http://somniaus.shore.mbari.org/webstart</a> |
| VARs Standalone Applications * | /Applications/EITS/VARS-Standalone    |                                                                                                 |
| EITS Standalone Applications * | /Applications/EITS/EITS-Standalone    |                                                                                                 |

\* Standalone applications are to be used for scripting tasks

## Building EITS

I've currently setup the build under `/Users/brian`. However, any administrator can build it. In order to build EITS do the following:

1. Create a directory `~/workspace` and **cd** into it
  - `cd ~;mkdir workspace;cd workspace`
2. Checkout VARs from SVN into `~/workspace/vars`
  - `svn co https://vars.svn.sourceforge.net/svnroot/vars/trunk vars`
3. Checkout EITS from SVN into `~/workspace/eits`
  - `svn co svn+ssh://kahuna.shore.mbari.org/svn/repos/eits/trunk eits`
4. Save [updatevars.sh](#) to a directory on *Somniosus* and execute it. It takes a single optional flag, *update*, that will tell it to update all projects from SVN. This script will build and install VARs Web Start apps, VARs standalone apps and EITS standalone apps.
  - `updatevars.sh`
  - or
  - `updatevars.sh update`to rebuild from SVN.

## EITS Supporting Software

|                                              |
|----------------------------------------------|
| <code>organize_educationmovies.groovy</code> |
|----------------------------------------------|



This script runs daily at 8:00AM in a cronjob as user 'sherman'. It walks through all the organized directories on /smb/EITSRaw and locates the movie nearest the top of every even hour between 2 and 16 days ago. Those movies are copied into /smb/EITSRaw/educationmovies\_temp

#### **organize\_eitsraw.groovy**

This script runs daily at 7:30AM in a cronjob as user 'sherman'. It organizes all files in /smb/EITSRaw that are named like yyyyMMddHHmmssZ and organizes them into directories named yyyyMMdd

#### **process\_datalogs.groovy**

This script runs daily at 7:00AM in a cronjob as user 'sherman'. It reads a list of all log files in <http://eits.shore.mbari.org/e/EITSRaw> and loads them into the EITS database on Somnious and submits the data to SSDS

#### **transcode\_educationmovies.groovy**

This script is run manually as the user 'sherman'. It walks through all the ASF movies in {/smb/EITSRaw/educationmovies\_temp and converts them to quicktime movies for education outreach. The converted movies are copied into /smb/EITSRaw/educationmovies

### **Installed Software**

- [Condor installation on a Mac](#)
- Installed FFMPEG using `sudo port -v install ffmpeg +gpl +x264 +xvid +lame`
- [DataTurbine](#)

### **Mounted Drives**

- eits.shore.mbari.org's EITSRaw directory is mounted on Somnious at /smb/EITSRaw. EITSProcessed directory is mounted at Somnious at /smb/EITSProcessed. **Note:** The first user to access the mounts gets read access, other users are locked out. Don't access the mounts except as the user *sherman*. More details regarding the mount set up are in [JIRA](#)

## Condor installation on a Mac

This page last changed on Dec 22, 2008 by [dcline](#).

### Condor Installation on a Mac

1. Create user Condor
2. Down Condor as user Condor
3. Extract the Condor tar file to /Users/condor/Applications. This should create the directory /Users/condor/Applications/condor-6.8.8.
4. Installed using

```
sudo condor_configure \
--install=/Users/condor/Applications/condor-6.8.8/release.tar \
--install-dir=/opt/condor-6.8.8 \
--local-dir=/Users/condor/Applications/condor-6.8.8 \
--type=execute,submit \
--owner=condor --central-manager=nanomia.shore.mbari.org
```

- which returned

```
Use of uninitialized value in concatenation (.)
or string at ./condor_configure line 932.
```

```
Condor has been installed into:
/opt/condor-6.8.8
```

```
In order for Condor to work properly you must set your
CONDOR_CONFIG environment variable to point to your
Condor configuration file:
/opt/condor-6.8.8/etc/condor_config
before running Condor commands/daemons.
```

5. Edit /Users/condor/.profile to set CONDOR\_CONFIG to /opt/condor-6.8.8/etc/condor\_config
6. Create /opt/condor-6.8.8/sbin/condor\_start.sh with the following content:

```
CONDOR_ROOT=/opt/condor-6.8.8
export PATH=$PATH:$CONDOR_ROOT/sbin:$CONDOR_ROOT/bin
export CONDOR_CONFIG=/opt/condor-6.8.8/etc/condor_config
$CONDOR_ROOT/sbin/condor_master
```

7. Create /opt/condor-6.8.8/sbin/condor\_start.sh with the following content:

```
CONDOR_ROOT=/opt/condor-6.8.8
export PATH=$PATH:$CONDOR_ROOT/sbin:$CONDOR_ROOT/bin
export CONDOR_CONFIG=/opt/condor-6.8.8/etc/condor_config
$CONDOR_ROOT/sbin/condor_off -master
```

8. Edit crontab as user using "sudo crontab -e", then add the following:

```
@reboot sleep 100 && /usr/local/condor/sbin/condor_start.sh
```

9. Edit the /Users/condor/Applications/condor-6.8.8/condor\_config.local file:

- Change DAEMON\_LIST to include only MASTER, STARTD
- Change CONDOR\_IDS to be same uid of condor user 503.20
- Change CONDOR\_ADMIN to be dcline@mbari.org
- Change LOCAL\_DIR = /Users/condor/Applications/condor-6.8.8

10. Reboot to start condor daemon

## DataTurbine

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This page last changed on May 07, 2008 by [brian](#).

## DataTurbine

[DataTurbine](#) is a java-based network ring buffer for streaming data via TCP. It is installed on [Somniosus](#) at <http://somniosus.shore.mbari.org:8081/webTurbine/>

### Installation Instructions for Somniosus

1. Download RBNB from <http://code.google.com/p/dataturbine/>
2. From a terminal run:

```
sudo java -jar RBNB-3.1B3-install.jar
```

- Install into /Applications/RBNB
3. Edit /Applications/RBNB/apache-tomcat-5.5.12/catalina.sh
    - After the header add the line:
  4. Edit /Applications/RBNB/apache-tomcat-5.5.12/conf/server.xml
    - Change

```
CATALINA_HOME=/Applications/RBNB/apache-tomcat-5.5.12
```

```
<Server port="8005" shutdown="SHUTDOWN">
```

to

```
<Server port="8006" shutdown="SHUTDOWN">
```

- Change

```
<Connector port="80" maxHttpHeaderSize="8192"
```

to

```
<Connector port="8081" maxHttpHeaderSize="8192"
```

- Change

```
<Connector port="8006"
```

to

```
<Connector port="8008"
```

5. Create the file /Applications/RBNB/bin/dataturbine-launchd.sh with the following content:

```
#!/bin/bash
```

```
function shutdown()
```

```
{
 $CATALINA_HOME/bin/catalina.sh stop
}
```

```
export CATALINA_OPTS="-mx256m"
```

```
export CATALINA_HOME=/Applications/RBNB/apache-tomcat-5.5.12
```

```
export DATATURBINE_JVM_PID=$TMPDIR/$$
```

```
. $CATALINA_HOME/bin/catalina.sh start
```

```
trap shutdown HUP INT QUIT ABRT KILL ALRM TERM TSTP
```

```
wait `cat $DATATURBINE_JVM_PID`
```

- catalina.sh is just a launcher and exits immediately after Tomcat starts. This makes it look like a dead process to launchd. So launchd kills tomcat. The above script is used as a workaround.
6. Create the file /Library/LaunchDaemons/org.mbari.eits.DataTurbine.plist with the following content

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE plist PUBLIC "-//Apple//DTD PLIST 1.0//EN" "http://www.apple.com/DTDs/PropertyList-1.0.dtd">
<plist version="1.0">
<dict>
<key>KeepAlive</key>
<false/>
<key>Label</key>
<string>org.mbari.eits.DataTurbine</string>
<key>ProgramArguments</key>
<array>
<string>/Applications/RBNB/bin/dataturbine-launchd.sh</string>
</array>
<key>RunAtLoad</key>
<true/>
<key>EnvironmentVariables</key>
<dict>
<key>CATALINA_HOME</key>
<string>/Applications/RBNB/apache-tomcat-5.5.12</string>
<key>JAVA_HOME</key>
<string>/System/Library/Frameworks/JavaVM.framework/Home</string>
</dict>
</dict>
</plist>
```

- It's easiest to set this up using [Lingon](#)

## Sundog

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This page last changed on Jan 14, 2009 by [brian](#).

## Sundog

An external server hosting support web applications for EITS

### Details

#### eitsweb

1. The web application is accessed through <http://dsg.mbari.org:8080/eitsweb/>
2. Data is loaded each morning into the database at 7:00AM, so the plots are only updated once a day
3. You can access any parameter by name so that you link directly to plots of the last 7 days using a url like <http://dsg.mbari.org:8080/eitsweb/plot/generate?type=salinity>. You can embed those links as images in web pages so that you're always showing up to date plots

## EITS Data Questions

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This page last changed on Oct 23, 2008 by [dcline](#).

### Where is the raw and processed data stored ?

Data is stored on the [EITS](#) computer in the Building B Communications Room. A RAID is attached to this computer that holds all the raw and processed data. This RAID is defined as drive "E:" and data on it can be accessed by either logging into the EITS computer through a [Remote Desktop Connection](#), or through http access from within the MBARI firewall here:

<http://eits.shore.mbari.org/e/>

There are three folders, namely, EITSincoming, EITSprocessed, and EITSraw. Descriptions of the directories can be found here: [EITS RAID directories](#)

### How do I change where the data is stored ?

The data locations are tied to cron jobs. **Don't just randomly change the directories because it will break the data handling workflow.** See the [EITS experiment software](#) section in the EITS documentation for more information about to change the workflow.

## Minutes

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This page last changed on Jan 16, 2008 by [erika](#).

[2007-12-06](#): Meeting with [[~erika](#)] regarding data  
[2007-06-22](#): Teleconference  
[2007-05-23](#): Group Meeting  
[2007-05-11](#): Teleconference  
[2007-05-09](#): Group Meeting  
[2007-04-12](#): Teleconference  
[2007-04-11](#): Group Meeting  
[2007-12-07](#): Group Meeting  
[2008-01-09](#): Group Meeting  
[2008-01-16](#): Group Meeting

**2007-04-11**

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This page last changed on Apr 11, 2007 by [brian](#).

## Minutes from EITS group meeting on 2007-04-11

Attendees: [Brian Schlining](#), [[~jerome](#)], and [[~linda](#)]

[[~jerome](#)]

- Working on saliency code
  - Trying to integrate new version of saliency. Some trouble with integrating it do to changes in directory structure.
  - Is going to try to build it as a shared library
- Processed JAMSTEC video
  - Using FFMpeg, which had issues due to the high resolution of the video. Jerome down-sampled the video before processing it.
  - Processing the high resolution video takes a long time.
  - Lots of marine snow in their video. Saliency has a tough time with it.

[Brian Schlining](#)

- VARS can now annotate video files, frame capture works too. Still finishing up integration testing to:
  1. make sure I didn't break frame capture from video decks
  2. test with files stored on remote server.
- Setting up integration server (mbari649) with MySQL, Apache, Darwin Streaming Server



## Minutes from EITS teleconference on 2007-04-11

Attendees: [Brian Schlining](#), [[~erikar](#)], and [[~lfrey](#)]

[[~lfrey](#)]

- Working on creating log file representing anxillary data. The content of the log has been defined.
  - **Will send us a definitive listing and example log file.**
  - The current plan is to generate daily log files.
- Has MBARI account (lfrey). Unable to access via VPN yet. He's looking into their firewall settings to see if his access attempts are being blocked. His contact for this at MBARI is [[~csewell](#)]
- Instrument is coming along well.

[[~erikar](#)]

- Duane has mentioned having the Floridians out to MBARI to walk through the use of the AVED software and user interfaces. **When do we plan to do this?**

[Brian Schlining](#)

- Gave Lee read/write permissions on EITS wiki
- Setting up server for data needs. (Database Server, Streaming Server, Web Server)

### Notes:

- EITS test tank deployment in Florida is likely to be in May. Lee suggest that we could run the test in Florida and get network access to the data/video so that we can run integration tests at MBARI.
- Test node will be ready in early August. Due to Edie and Erika's schedules (they're out to sea) they won't be available for testing until September.
- The current thinking about deploying the data management software is:
  - Keep the bulk of it at MBARI (since Erika will be here). This includes the Master database, and AVED processing
  - At ORCA in Florida keep we can provide: A replicated database, movie files, VARS.
    - Edie wants to use VARS for other projects as well as for having students work on EITS data.

## Reports

### [\[~jerome\]](#) - Saliency

- Making progress on integrating recent saliency code
- Saliency code is changing rapidly. Maybe ask developers to create milestones or releases that outside users (like MBARI) can build against?
- [Danelle Cline](#) Make sure bug fixes from our saliency code get integrated into recent code base.

### [Brian Schlining](#) - VARS

- Completed loading and editing of AVED data into VARS. Milestone 1 requirements for VARS are completed
- Currently, running integration testing in the video lab in preparation of next internal release of VARS. This release will include all EITS-motivated modifications.
- Moving on to other projects until we get a testing dataset from Lee.

### [Danelle Cline](#) - AVED

- Working with [Condor](#) to create workflows. Condor is a workflow scheduler written in Java.
  - Script everything through Condor.

## Notes

- Need to discuss goals for [Milestone 2](#). Most likely goal is to automate the workflow. We'll talk more about it after the telecon on Friday.
- Need *at least* a 30 minute clip and all associated auxiliary data from Lee ASAP.
- JAMSTEC
  - Very interested in VARS
  - They have a video lab (GODAC)
  - Small staff, currently do not annotate
  - Store video on tape as MPEG-2, Stream as MPEG-1
  - Limited manpower in video lab
  - They have a few questions about VARS: (Send answers to Dhugal -> [dhugal@jamstec.go.jp](mailto:dhugal@jamstec.go.jp), let him know to translate/forward to GODAC)
    1. How do you annotate an animal you are unsure of?
    2. Is there a way to make the interface in Japanese?
    3. Is a history of changes tracked?

## Minutes from EITS teleconference on 2007-04-11

Attendees: [Brian Schlining](#), [\[~erikar\]](#), [Danelle Cline](#), and [\[~jerome\]](#)

### Notes

- Lee provided a movie file sample at <ftp://ftp.hboi.edu/outgoing/lfrey/meits/>.
- Anxillary data should be available at the end of the month after the EITS platform is assembled.
  - We ([Danelle Cline](#) and [Brian Schlining](#) may go out to get familiar with the EITS setup and usage during this test tank deployment.
  - Note from Lee on 5/14/07:

Well, I think that it would be too soon to have you come out here for our tests this month, as we will be consumed with many non-software-related issues, just getting the thing in the tank and all.

I would suggest to meet later, and (as I understand it) the deployment has been pushed back again, so we have plenty of time. June is bad for me as I will be in Seattle for a couple of weeks, and I understand July is bad for Erika.

Perhaps early August?

- [\[~erikar\]](#) is on a cruise from Aug 17th-29th. She should arrive at MBARI around 9/7.
  - She intends to ship the EITS platform to MBARI before she leaves on the cruise.
    - **Where will it be stored?**
  - EITS has 2 connectors: one for MARS and one for testing.
- MARS goes out around the beginning of October. Etch said that it might not be ready for science use until early 2008 though.
- Postpone setting up VARS at ORCA.
  - No one at ORCA is set to manage the annotation effort since Erika will be at MBARI.

## Minutes from EITS teleconference on 2007-06-22

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This page last changed on Jun 22, 2007 by [dcline](#).

## Minutes from EITS teleconference on 2007-04-11

Attendees: [Brian Schlining](#), [[~erikar](#)], [Danelle Cline](#), and [[~lfrey](#)]

### Notes

- Possible MARS deployment Feb 08
- MARS test node \*may\* be ready in October 07
- Next teleconference sometime in July - Erika will contact Duane about details
- Erika is still on schedule to arrive around 9/7/07 and her thesis defense is the week of July 18th so everyone wish her luck !!
- Issues to work out:
  - EITS instrument will be shipped out here before Erika arrives 9/7
  - Where will the EITS be stored - need 3'x3'x6' footprint for main assembly and anchor can be stored separately ?
- Lee will be gone to Gulf of Mexico from Aug. 25 through end October, but will have email access and can travel to MBARI if needed for EITS testing.
- Lee is working out frame rate issues with the AXIS video folks and will get a few sample files when this is fixed.
- Lee suggest that we could run some simulated test betwee Florida and MBARI during their tank test. We would need to work out network access details to get past firewalls and potentially degrade video quality to get reasonable data throughput, but is possible.
- Anxillary data to be provided at TBD later time. We decided it wasn't that important at this time.
- AVED still working out issues with saliency but made some progress this week and will roll in new version to AVED UI for Erika to test when she arrives.
- July and August Lee and Erika have very busy schedules so there isn't a good window of opportunity for [Brian Schlining](#) or [Danelle Cline](#) to visit Florida.

## Minutes from EITS teleconference on 2007-04-11

Attendees: [Brian Schlining](#), [[~erikar](#)], [Danelle Cline](#), [[~linda](#)], [Duane Edgington](#) and [[~jerome](#)]

### Notes

[[~linda](#)]

- [Lonny Lundsten](#) went CenSeam meeting
  - Seamount group is interested in VARS/AVED
  - Tim Shank at WHOI is workin on AVED-like system called fishrock (sp?)
  - Ray Williams (in Tasmania) is using saliency for scallop work.
  - From Lonny:

I just wanted to give you all a quick update on the CenSeam (<http://censeam.niwa.co.nz/>) Image Analysis Standardization Workshop I went to last week. I'll try to summarize the key points with a bulleted list:

- I presented an overview of VARS and a bit of my thesis data. My talk was well received and people were very impressed with VARS.
- In regards to VARS: We need to contact Chris Kelley at Hurl (free trip to Hawaii anyone?) to get him set-up and running with VARS - he's currently using excel and was blown away with VARS! Kerry Howell (University of Plymouth) and Fernando Tempera (University of Azores) have attempted to get VARS up and running, but struggled with the install. I tried troubleshooting Kerry's system while at the meeting, but was unable to get it running for her (although I took the code from her computer and got it running on my Mac). Alan Williams (CSIRO) is actually using VARS and has been working with Brian already. David Bowden (NIWA) has got VARS running, but is not currently using it. He wanted to know if VARS is compatible with PostgreSQL and I told him that it probably is but that I would have Brian contact him. I demoed VARS for a few people using the latest version by annotating some .mov files that were on my computer - they were pretty impressed.
- I took on the task of coming up with the still image metadata standard which will include a standardized set of data to log and a recommendation on where and how to log the data (db, exif, etc.) This is due in one month and I've contacted Mike McCann and John Graybeal about helping me out.
- The CenSeam group was very impressed with both AVED (I played a demo clip) and VARS and requested a paragraph describing AVED's capabilities for an upcoming CenSeam newsletter. The blurb about AVED should include a link to AVED at MBARI's homepage which will hopefully be updated with the current status and demonstration video clips. I was very clear that AVED is only capable of recognizing interesting events and that the technology is still being actively developed. At the same time I started thinking that if we get this task accomplished in a timely manner, we could provide and additional paragraph describing VARS with links to the VARS website etc. The idea being that we could highlight VARS in one newsletter and AVED in the next. I think it would be good exposure for both projects. What do you think? I've asked Linda to work with the AVED group and Nancy to take care of VARS.

CenSeam requested a the link to our ROV configuration webpage and some info on our expedition db schema. I'll take care of these two tasks as well.

[[~jerome](#)]

- Nearly done upgrading saliency. Ready to deploy it.

[Danelle Cline](#)

- Audio track from EITS videos may be dropped during transcoding
- Setting up workflow process is slow. Finalizing setup
  - ASF movie container supplied by Leed doesn't seem to conform to spec.

- Movie format is a headache but we can work with it.
- Movies will be 30 minute clips
- Movies grow during conversion even though there is no change in compression. (from about 300MB to 400MB+) Not sure why. We'll need to keep an eye on it.
- Would like to go to Florida to become familiar with EITS setup/integration
  - Maybe go right after their test tank deployment.

#### [Duane Edgington](#)

- MARS keeps getting postponed.
  - Waiting on Alcatel power system. They will deliver a prototype to MBARI and a *production* system to VENUS/NEPTUNE. Expect to get production system at MBARI eventually.
  - WHOI systems for MARS may not be acceptable; it's being evaluated. There's no money currently allocated to address issues with this system.

#### [Brian Schlining](#)

- Are we using JIRA to track tasks and issues for this project?
  - [Duane Edgington](#) Use it for issue tracking. Concerns that it doesn't integrate with other tools, such as microsoft project, may not be appropriate for task tracking.
- Will start working on AUV port soon. Limited amount of time to devote to EITS for a while.
- Working on streamlining builds fo VARS for external users.

2007-12-06

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This page last changed on Dec 06, 2007 by [brian](#).

## In Attendance

[Brian Schlining](#), [[~erika](#)]

## Notes

### VARs Knowledgebase

Erika thinks it's best to build up a modest sized knowledgebase from scratch. We may want a couple of folks from the video lab to help populate it.

### Databases

The current plan is not to modify the VARs database to handle additional datatypes, such as current velocities. Instead, all data will go into the EITS database. A standard merge will be setup between VARs and EITS for the standard VARs properties like salinity, temperature, position, etc.

At some point, when Erika decides what science questions she wants to ask, we can create a few scripts for extracting the data in an appropriate format.

### Anxillary Data File Loading

Anxillary data will be sampled at a 1 minute period. Additional *events*, such as illuminator activation/deactivation, can trigger samples outside of the normal period.

# Minutes from EITS meeting on 2007-12-07

### Important:

- Brian, Erika, and Danelle are meeting with Edie next Tuesday 12-11-07 at 11 am to discuss how things are going. Where is this meeting to be held ?
- NOVA file contractor Lone Wolf Documentary Group was supposed to be here at MBARI next week filming EITS, but that has been scrubbed due to unresolved legal issues.

### [Danelle Cline](#)

- Summarized milestone1 workflow testing results. Results posted here
- Some RAID items are on backorder, but expected to arrive before end of the year. I'll know early next week of expected arrival date

### [~erika]

- New EITS lab cable works 😊
- ODI cable expected today
- New laser filters installed
- Pan/tilt problem still not resolved
- Invited Todd Ruston to discuss anti-virus issue, but was unavailable to join; will invite to next meeting
- Some discussion about possibly installing anti-virus and opening specific address/port ranges, but unknown if this will solve problem
- Test tank testing on schedule for next week
  - both day and night testing planned
  - camera field-of-view calibration test
  - PMT calibration using chemilluminescent balls

### [Brian Schlining](#)

- VARS installed on new Mac for experiment
- Waiting for railings to arrive to move to the Bldg D MARS lab
- EITS ancillary log data import to VARS working okay
- Discussed pro/cons of how EITS log data to be stored and queried from VARS.
  - Decided canned query through scripts is most flexible, and data should be stored separately from VARS DB for easier maintenance
- Also discussed knowledge base
  - Decided will build a knowledge base from scratch, but use the MBARI Knowledge Base Application for a reference guide



**2008-01-09**

This page last changed on Jan 16, 2008 by [erika](#).

## Minutes from EITS meeting on 2008-01-09

- Tentatively plan trip out to ORCA (Florida) with Danelle, Erika, Brian and Duane around May.

### [Danelle Cline](#)

- Danelle has been working with Todd Ruston to upgrade the operating system and install anti-viral software on the EITS control computer.
- Danelle also worked on preparing a poster to present the work on the Eye-In-The-Sea project at the upcoming International Conference on Computer Vision Theory and Applications.
- Received all orders for topside computer (EITS) and cluster.
- RAID formatting in process but waiting to hear back from technician about proper RAID formatting methods.

### [~erika]

- PMT trigger mode still contains bugs in the code. This should be fixed by next week so Erika can send the PMT back for calibrations.
- ROV pilots made frame modification suggestions for EITS deployments and recovery. Jim Schofield is making a new illuminator mount for the white light, which will free up space inside the frame for the ROV's manipulator arm.
- Pier tests at Cal Poly are scheduled for the week of Feb. 4th.
  - New anchor system is being developed for these tests. Erika has discussed this new design with Larry Bird.
- Final tank tests will occur in mid February after Cal Poly deployment and before MARS deployment on schedule. Mike Kelly has been notified about these plans.

### [Brian Schlining](#)

- Brian wants to know if we need VPN access to MARS servers.
- How the MARS and MBARI firewall are configured are important issues for VARS annotation.

### [Duane Edgington](#)

- Preparing poster for ASLO presentation in Orlando, FL, early March. May require data from Erika and Danelle for the poster presentation.

**2008-01-16**

This page last changed on Jan 16, 2008 by [erika](#).

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## Minutes from EITS meeting on 2008-01-16

!! NEW MEETING TIME Thursdays at 10AM !!

[Danelle Cline](#)

- Finishing documentation for RAID, set-up procedures, and workflow diagrams for wiki site.
- Danelle is finishing a poster to present the work on the Eye-In-The-Sea project at the upcoming International Conference on Computer Vision Theory and Applications.
- Contacted seller about order on a bad cluster.
- RAID initialization and formatting in progress.

[~erika]

- Tank tests for EITS and the Wet Node Simulator (WNS) will occur on Jan. 30th starting at 9AM.
  - we will either conduct end-to-end tests, where the WNS will connect to EITS's RAID topside, or test the WNS connected to a laptop at the test tank.
- Erika met with the Cal Poly group to finalize deployment plans, cable modifications and data management for the pier deployment.

[Brian Schlining](#)

- Installed and configured Condor (workload management system) on the EITS database server, somniosis.
- Modified database and AVED Event data-processing software to accommodate changes to the AVED XML Schema.

0 Comments | [Add Comment](#)

**2008-12-07**

This page last changed on Jan 14, 2008 by [erika](#).

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## **Minutes from EITS meeting on 2008-01-09**

[Danelle Cline](#)

- Summarized milestone1 workflow testing results. Results posted here
- Some RAID items are on backorder, but expected to arrive before end of the year. I'll know early next week of expected arrival date

[~erika]

- ODI cable expected today
- New laser filters installed
- Pan/tilt problem still not resolved
- Invited Todd Ruston to discuss anti-virus issue, but was unavailable to join; will invite to next meeting
- Some discussion about possibly installing anti-virus and opening specific address/port ranges, but unknown if this will solve problem
- Test tank testing on schedule for next week
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  - camera field-of-view calibration test
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[Brian Schlining](#)

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  - Decided canned query through scripts is most flexible, and data should be stored separately from VARS DB for easier maintenance
- Also discussed knowledge base
  - Decided will build a knowledge base from scratch, but use the MBARI Knowledge Base Application for a reference guide

## Notes from Porting Segmentation Code from Matlab to C++

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This page last changed on Jan 23, 2007 by [kgomes](#).

I am using the OpenCV libraries where I can so I had to build them and store them locally in my home directory on nanomia. After build them, I needed to include them in the LD\_LIBRARY\_PATH. So in order to run the test-segmentation program, I have to do the following (example for Baxter clips):

1. cd originalppms/Baxter
2. export LD\_LIBRARY\_PATH=/usr/lib/aved:/home/kgomes/opencv-install/lib
3. ~/aved/mbarivision/test-segmentation --input-frames=500-501@0 --mbari-segment-algorithm=AdaptiveThreshold --mbari-segment-algorithm-se-type=Benthic baxter

Now in order to view images, I had to export my display using:

1. export DISPLAY=skagit.shore.mbari.org:0.0

and run a Xserver on skagit. Then I could view the results with:

1. gm display baxter\_segmented\_000500.ppm

---

1/19/2007

I have the adapative thresholding working, but the results are quite different. I am going to try to examine the differences in each step of the process to see if I can minimize the differences.

The first step in the Matlab code is to convert the raw image to greyscale calling rgb2gray, in the C++ code, is uses the method called luminance to convert it to grayscale. When I take a difference of the two images and look at a histogram, they are close, but there are some differences (in the list below the rest of the values were 0).

0	1103
1	2790
2	7560
3	30549
4	86626
5	104728
6	70701
7	19907
8	1848
9	448
10	255
11	164
12	166
13	76
14	77
15	53
16	24
17	22
18	18
19	4
20	1
21	0

So the starting point looks like the luminance and rgb2gray and not exactly the same, but maybe they are close enough. If the errors compound, I will come back to this. Oh, by the way, I also converted the image to an OpenCV image and back to make sure that conversion was not causing any errors. I got the exact same results, so the conversion seems to be fine.

So now, I moved to the next step, which is the matlab imopen function using a structing element in the shape of a disk of radius 15. In OpenCV I constructed one of their structing elements and then ran the cvMorphologyEx function and compared that to the matlab opened image. Fortunately, not much changed and they looked very close, here is the histogram of the differences:

0	1639
1	4581
2	9865

3	36890
4	89465
5	108729
6	62680
7	12125
8	590
9	217
10	193
11	89
12	27
13	14
14	10
15	0
16	0
17	5
18	0

Now the next step is to compare the images after subtracting the background from the original image. Here is the difference histogram:

0	150603
1	142764
2	20474
3	3754
4	1887
5	1542
6	1124
7	1005
8	876
9	835
10	736
11	432
12	358
13	235
14	172
15	109
16	77
17	50
18	21
19	25
20	11
21	8
22	8
23	4
24	7
25	0
26	2
27	1
28	0

Although the images have diverged a little as the histogram spreads out, it actually is getting closer as the number move more towards zero. Now here is where it gets messy. OpenCV did not have a adaptive histogram equalization algorithm, so I took the one from the Graphic Gems IV code and tried to get it working here. There are a large number of variables to tweak so I am just playing with those variables to try to shrink the differences down (if that is possible). As a first pass, the results weren't horrible (leaving off bin numbers), but could be better. Let the iterations begin!

23265  
53846  
26447  
64754  
28573  
25928  
25770  
29613  
9120

12304  
7148  
4507  
3050  
2213  
1583  
909  
946  
825  
608  
434  
476  
465  
375  
312  
397  
342  
269  
275  
337  
258  
199  
163  
149  
149  
128  
121  
99  
95  
99  
79  
69  
58  
57  
58  
50  
48  
38  
33  
19  
12  
5  
4  
7  
11  
3  
4  
5  
2  
2  
2  
1  
0  
0  
1  
0  
0  
1

So after some iteration, it looks like an fClipLimit of 5.1 or 5.2 is the best for the test image. The only question I would have is whether or not this will change from image to image. I think, though because it is simply matrix manipulations, the most closely matched will always be the most closely matched. For now I will leave it at 5.1. If you are interested in how I found the best value, you can look at the excel spreadsheet I've attached ([AdaptFClipLimitChart.xls](#)).

The next step is to compare them after converting it to a binary image. In matlab, the `graythresh` function is used to find the threshold value using Otsu's method. After this is found, then that is applied to threshold the image using `im2bw`. In the C++ code, I used the `cvThreshold` method and used an undocumented type called `CV_THRESH_OTSU` (found in a forum). The results were not that good. I had 15,000 pixels (out of 45,000) that were thresholded differently. I grabbed the value from the threshold matlab method and used that as the threshold (matlab generated a level of 0.2 which comes out to 51.2 that I used in the `cvThreshold` with type `CV_THRESH_BINARY`). The results were WAY better and only 3,000 pixels were different. Now, the level that `cvThreshold` calculates is done by a routine called `icvGetThreshVal_Otsu()` and there is no visibility to see what value that is calculating. A forum suggested cutting/pasting the open code into my code ... maybe I will try that ...

## Releases

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This page last changed on Feb 21, 2007 by [brian](#).

## Releases

[Milestone 1](#)

[Milestone 2](#)



## Milestone 1

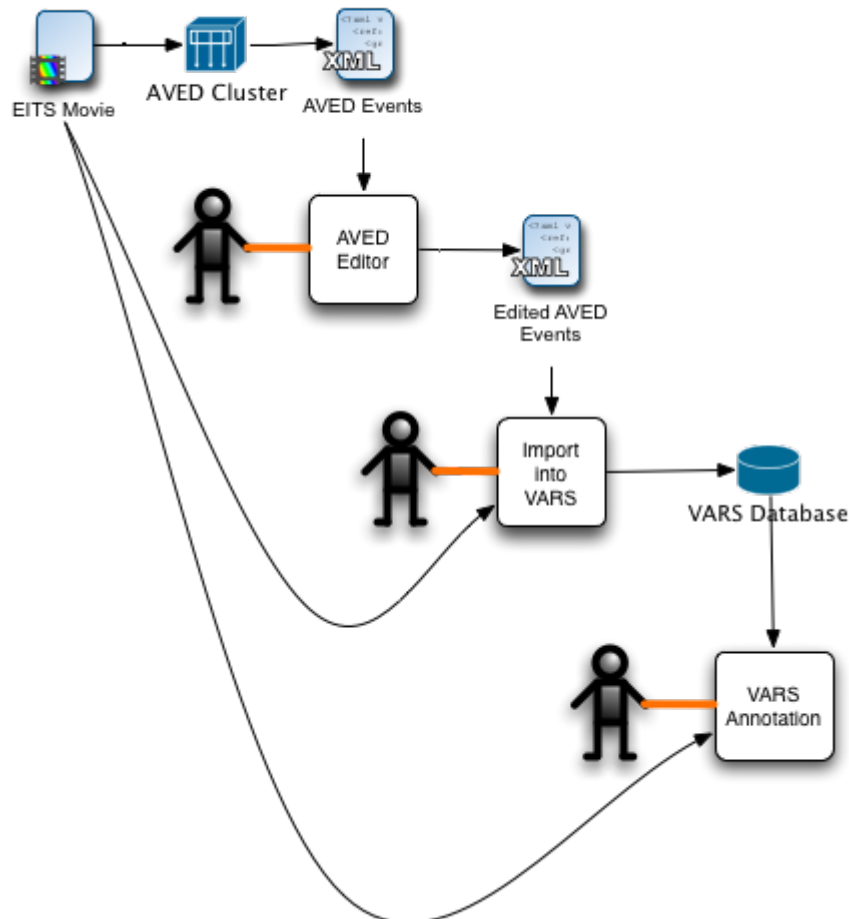
This page last changed on Jun 23, 2008 by [brian](#).

### Overview

From meeting on 2/21/07 with [Brian Schlining](#), [Danelle Cline](#), and [Duane Edgington](#)

#### EITS Milestone 1

by Brian Schlining  
2007-03-09



### Issues Assigned to 1.0M1

jiraissues: Could not download[ <https://oceana.mbari.org/jira/secure/IssueNavigator.jspa?reset=true&mode=hide&sorter/order=DESC&sorter/field=priority&resolution=-1&pid=10003&fixfor=10002>] : caused by :  
sun.security.validator.ValidatorException: PKIX path building failed:  
sun.security.provider.certpath.SunCertPathBuilderException: unable to find valid certification path to requested target  
jiraissues: Could not download[ <http://oceana.mbari.org/jira/secure/IssueNavigator.jspa?view=rss&pid=10001&fixfor=10012&sorter/field=updated&sorter/order=DESC&sorter/field=priority&sorter/order=DESC&tempMax=100&reset=true&decorator=none>] :  
caused by : sun.security.validator.ValidatorException: PKIX path building failed:  
sun.security.provider.certpath.SunCertPathBuilderException: unable to find valid certification path to requested target

# Tasks

## EITS

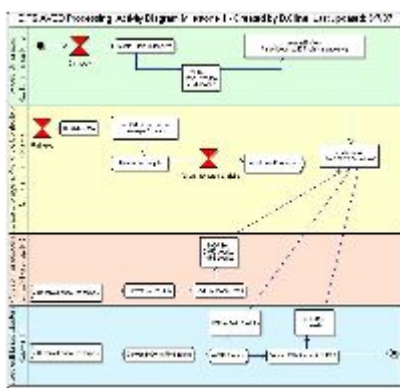
- Create simulator that 'fetches' video and copies it to a movie archive
  - The arrival of a movie in the archive should kick off the processing
- Movies need to have a unique ID. Will this output be something like what is currently used in the [EITS testing directory](#). For example, will an Id be like [09232005\\_054508](#). This could be used to build a URL to the movie and XML output, using some base URL reference and the id.
- Associate movie with time of recording
  - Are we going to use UTC time as the timecode? Where will we encode/store date information?
- Specify timecode encoding. See [VARS/ETIS Data Handling](#)
- Investigate ASF media container format
  - ASF is a windows container around MPEG-4
  - Is it acceptable for our workflow and use by VARS?
    - In short...No.
  - Can QuickTime read it?
    - Not really. On Mac if you install Flip4Mac and the DivX codec it's supposed to be able to read it. It seems to barf still. Opening [the test movie that Lee sent us](#) in VLC indicates that there are some funkiness with the ASF file.
- Use QuickTime (.mov) as the preferred container
  - Add TimeCode Track
  - Add streaming hint to container

## AVED

- Finish editor UI
- Populate XML with movie reference. The movie reference is contained in the AVED SourceMetaData element see . For the EITS milestone1 experiment, it will be e.g.[file:/nanomiaRAID/EITS/milestone1/video/20061031T112213.avi](#)" rel="nofollow" linktype="raw" linktext="http://oceana.shore.mbari.org:8081/download/attachments/927/Aved+Event+File+Schema+-+Vers+1C.xsd?version=1. For the EITS milestone1 experiment, it will be e.g.[file:/nanomiaRAID/EITS/milestone1/video/20061031T112213.avi](#)">[http://oceana.shore.mbari.org:8081/download/attachments/927/Aved+Event+File+Schema+-+Vers+1C.xsd?version=1](#). For the EITS milestone1 experiment, it will be e.g.[file:/nanomiaRAID/EITS/milestone1/video/20061031T112213.avi](#)
- Finish workflow to execute AVED. Using Condor workload management system [http://www.cs.wisc.edu/condor/](#)
- Integrate new segmentation.
  - Build on cluster
- What should/does transcode system look like? See [EITS Video](#).

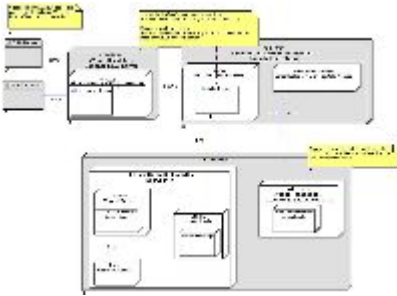
## Activity Diagram of the AVED Processing

For AVED testing, a short 1 minute AVI clip is generated and processed through the [Condor](#) workflow software. This is done through a series of "jobs". The AVI use the same audio and video codec as the final EITS experiment. This diagram shows the activities on particular servers (each represented as different horizontal color), inputs and output files, and the general data storage locations for this milestone. Click on the thumbnail for a larger view.



## AVED Deployment Diagram

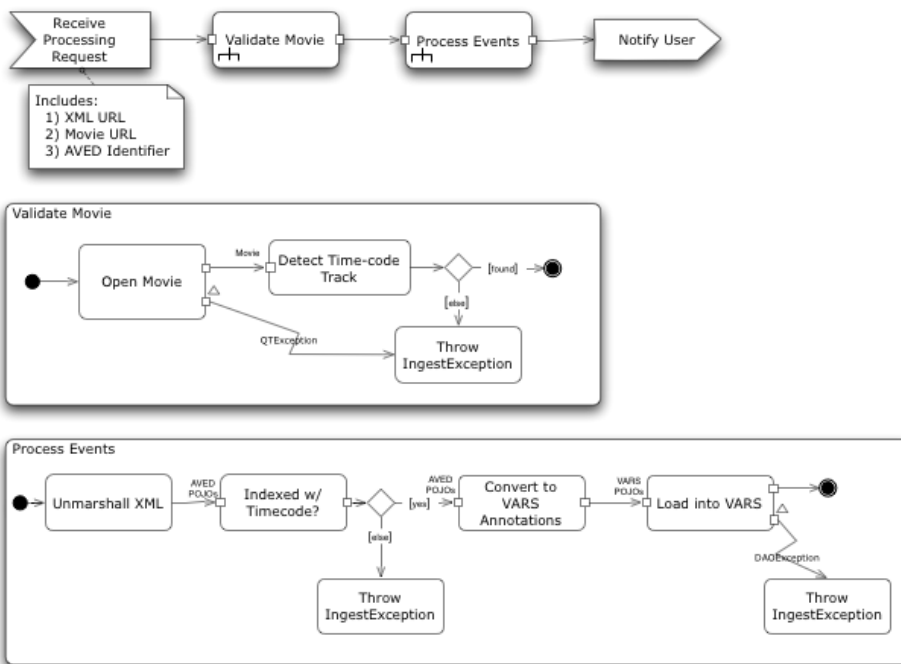
This is the deployment diagram that describes the servers used in AVED processing. There are 10 Linux Servers (including the 8 cluster nodes) and 1 Windows desktop PC described here. Click on the thumbnail for a larger view.



## VARS

### Load *Events XML* into VARS

#### Events XML Handling for EITS by Brian Schlining 2007-03-09



### How will we reference the source movie file?

Some options are:

1. Setup webserver and reference as URL
  - Translate XML movie identifier to URL or other file reference?
  - Movies would be fetched to local cache. QuickTime handles caching.
  - Tried this approach. Movie at [http://nanomia.shore.mbari.org/EITS\\_testing/RESULTS/09232005\\_054508/09232005\\_054508.mov](http://nanomia.shore.mbari.org/EITS_testing/RESULTS/09232005_054508/09232005_054508.mov) does not work. Movie at [http://nanomia.shore.mbari.org/EITS\\_testing/RESULTS/09222005\\_153508proc/09222005\\_153508proc/09222005\\_153508proc.mov](http://nanomia.shore.mbari.org/EITS_testing/RESULTS/09222005_153508proc/09222005_153508proc/09222005_153508proc.mov) works fine. May be due to the size. This implies that the streaming hint may be **very important** to add to the QuickTime container. My current approach will be to fetch the movie to a local temp file. This will be **slow** but we can optimize it when we have Movies with streaming hints

added. [Danelle Cline](#) These movies are uncompressed, so fetching these over web server, even in MBARI's fast network won't work well. Jerome and I will work on converting these file to a streaming format and put them on a streaming server in my office so you can test that. For streaming, you can use the RTSP URL or it can be tunnelled through HTTP. I think there was some confusion here - these examples were UNCOMPRESSED video converted from a video codec the EITS team sent us that we couldn't transcode in Linux, so we converted them to a format we could process. Fortunately, we will not be working with uncompressed video in the EITS experiment. We will be working with compressed video in the final experiment , and the codec is supported in Linux. This means the files will be smaller, and shouldn't be too difficult to mov around, although hinting them to optimize playback is required because they will be long (30 minutes ?).

- [Brian Schlining](#) In order to simplify the VARS side of the processing, **movies are required to have a Time-code track**. If they don't they will not be loaded into VARS. In order streaming to work, we need to add the TimeCode track and hint that track for streaming or it won't be visible. There's no way to do this from QT4J, so it will need to be done before the Events XML loader tries to read the movie file. Investigating a method to add hints from Java so that we can integrate it into the *eits-db* scripting package.
- [Brian Schlining](#) I tested VARS (from Mac OS X, not windows) against <http://mbari649.shore.mbari.org/data/20050923T043059.mov>, which is not served by a streaming server. This movie contains both a TimeCodeTrack and streaming hints. It worked fine with VARS (e.g. **A Streaming server is not needed but streaming hints are**)

### Modify to annotate movie files

## Testing server: *mbari649.shore.mbari.org*

- Installed servers
  1. Apache 2
    - Directory for served documents - */Library/WebServer/Documents*.
    - Raid on nanomia has been automounted on */private/var/automount/Network/RAID*. However, I haven't been able to configure permissions correctly so that the web server can access this directory. The *httpd.conf* is correctly configured, but I mounted the directory using my account, Apache is probably tryign to read it using a local user account.
  2. MySQL 5.0
    - For EITS work the user account to use is *eitsuser* with password *eits4mbari*
  3. [Darwin Streaming Server](#)
    - Administration console - 127.0.0.1:1220 (I'm the current admin)
    - Directory for served movies - */Library/QuickTimeStreaming/Movies*
    - Example URL: [rtsp://mbari649.shore.mbari.org:7070/sample\\_300kbit.mov](rtsp://mbari649.shore.mbari.org:7070/sample_300kbit.mov)
    - **Initial testing shows that a streaming server is not required**

## Milestone 2

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This page last changed on Jun 23, 2008 by [brian](#).

### Overview

So far we just have a few notes from the first [Milestone 1](#) meeting

### Issues Assigned to 1.0M2

```
jiraissues: Could not download[http://oceana.mbari.org/jira/IssueNavigator.jspa?
view=rss&&pid=10003&fixfor=10002&sorter/field=updated&sorter/order=DESC&sorter/
field=priority&sorter/
order=DESC&tempMax=100&reset=true&decorator=none&os_username=everyone&os_password=guest] :
caused by : sun.security.validator.ValidatorException: PKIX path building failed:
sun.security.provider.certpath.SunCertPathBuilderException: unable to find valid certification path to
requested target
jiraissues: Could not download[http://oceana.mbari.org/jira/secure/
IssueNavigator.jspa?view=rss&&pid=10001&fixfor=10020&sorter/
field=updated&sorter/order=DESC&sorter/field=priority&sorter/
order=DESC&tempMax=100&reset=true&decorator=none&os_username=everyone&os_password=guest] :
caused by : sun.security.validator.ValidatorException: PKIX path building failed:
sun.security.provider.certpath.SunCertPathBuilderException: unable to find valid certification path to
requested target
```

### Tasks

- Create EITS data fetcher
- Automate VARS load from AVED editor output

### Investigations

- Carry event frame images through from AVED into VARS. This would require keeping a reference to the image in the Event XML or doing a bit of hacking in the loader script to resolve the image URLs.
- VARS may need seek *next* and *previous* annotation buttons. This would advance the selected row in VARS to the next annotation and seek to that annotations timecode in the vide.

## Reprocessing instructions

---

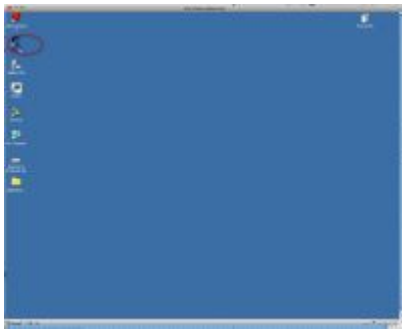
This page last changed on Mar 26, 2009 by [dcline](#).

### Overview

Reprocessing an EITS clip requires access to the EITS computer. The basic steps are to login to the EITS computer, and through a cygwin window simply resubmit the condor workflow that executes the processing.

### Instruction for reprocessing a single clip:

1. Login into EITS using a Remote Desktop Connection, or equivalent. Use the user name: erika, and ask Erika for the password.
2. Once logged in, click the cygwin icon  
(click to enlarge)



3. In the cygwin window navigate to the folder of the clip you need to reprocess. **Note the need for the /cygdrive notation, instead of E: when working in a cygwin window**

```
$ cd /cygdrive/e/EITSprocessed/20090210/20090210T220644Z/
```

4. Resubmit the workflow for processing use the condor\_submit\_dag command

```
$ condor_submit_dag EITSworkflow.dag
```



#### Important

It is important to submit the EITSworkflow.dag in the same directory it resides in. Do not execute this command outside the dag directory or it will fail.

## Running Condor Jobs

This page last changed on Jan 05, 2009 by [dcline](#).

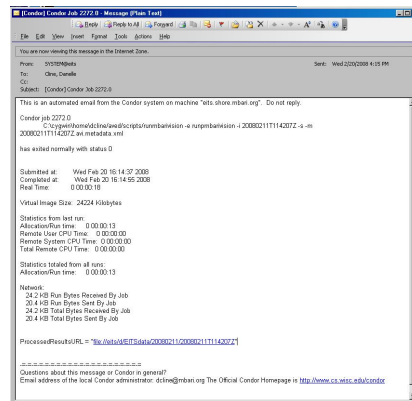
### How do I know when a job has completed ?

Jobs will not return any information per Erika's request to not receive an email following every job completion. This would generate too many emails to manage.

When a job has failed, you will receive an email message from SYSTEM@eits like the following. The key phrase indicated this job has completed is the phrase

"has exited normally with status 0".

**A zero exit status means the job completed, and a non-zero exit status indicates an error.**



### How do I stop a job ?

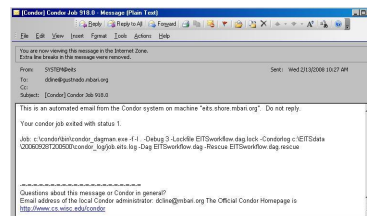
TODO: add information here...

### How do I know when a job has failed ?

When a job has failed, you will receive an email message from SYSTEM@eits like the following. The key phrase indicated this job has failed is the phrase

"Your condor job exited with status 1".

**A zero exit status means the job completed, and a non-zero exit status indicates an error.**



## Source Code

---

This page last changed on Jan 16, 2008 by [dcline](#).

### About Subversion

SVN (Subversion) is a tool used by many software developers to manage changes within their source code tree. SVN provides the means to store not only the current version of a piece of source code, but a record of all changes (and who made those changes) that have occurred to that source code. Use of SVN is particularly common on projects with multiple developers, since SVN ensures changes made by one developer are not accidentally removed when another developer posts their changes to the source tree.

In order to access a Subversion repository, you must install a special piece of software called a Subversion client. Subversion clients are available for most any operating system. Information about the official subversion client can be found at <http://subversion.tigris.org/>. Excellent documentation on using Subversion can be found at <http://svnbook.red-bean.com/>

### Subversion Access

This project's Subversion repository can be checked out through SVN with the following instruction set:

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



#### Warning

This is a generic Subversion checkout command which will pull all modules, tags and/or branches of the project. In most cases, you will want to add '/trunk' to the SVN URL above to check out only trunk (main development line).



#### Note

The EITS project references external subversion projects, such as *vars* and *aved-db*. Even if you have commit privileges on the EITS repository you may not be able to check in code changes to all modules.



# About The EITS Workflow Software

A workflow is a term to describe the sequence of steps required to meet the processing requirements of a particular workload.

Because AVED processing is computationally expensive, and the video must be converted to various formats to make it suitable for analysis, a distributed network of computers to manage data storage, video transcoding, and AVED processing is required. To manage the EITS workflow, we use the workflow management and batch job management tools Condor DAGMan. Condor provides many capabilities useful for the experiment including:

- Scalable computing
  - Install AVED and Condor on as many machines as needed
  - Jobs are matched to the available machines
- Resource management
  - Memory and CPU load monitoring
  - Configure policy to only run if resource available
- Checkpoint mechanism
  - Take snapshot of current program state in such a way that the program can be restarted from that state at a later time
  - Allows for preemptive-resume scheduling

## About The Condor and Pegasus tools

From the website <http://www.cs.wisc.edu/condor/>

Condor is a specialized workload management system for compute-intensive jobs. Like other full-featured batch systems, Condor provides a job queueing mechanism, scheduling policy, priority scheme, resource monitoring, and resource management. Users submit their serial or parallel jobs to Condor, Condor places them into a queue, chooses when and where to run the jobs based upon a policy, carefully monitors their progress, and ultimately informs the user upon completion.

Pegasus is a tool that can be used in addition to Condor for mapping execution. It is not currently planned for use in the EITS experiment, however it has some capabilities that may be useful in future video experiments so it is listed here for reference.

From the website <http://pegasus.isi.edu/>

"Pegasus (Planning for Execution in Grids) is a workflow mapping engine developed and used as part of several NSF ITR projects (GriPhyN, NVO, and SCEC-CME). Pegasus bridges the scientific domain and the execution environment by automatically mapping the high-level workflow descriptions onto distributed infrastructures such as the TeraGrid, the Open Science Grid, and others. Pegasus enables scientists to construct workflows in abstract terms without worrying about the details of the underlying CyberInfrastructure. Pegasus provides robustness and reliability through dynamic workflow remapping. Pegasus automatically manages data generated during workflow execution and capturing their provenance information. Pegasus is used in a variety of scientific applications ranging from astronomy, biology, earthquake science, gravitational-wave physics and others."

## Condor installation notes

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This page last changed on May 15, 2009 by [dcline](#).

Condor installation notes for each operating system in the pool can be found here:

- [Installing Condor as Execute-only Node on Linux](#)
- [Installing Condor As Master Node on Linux](#)
- [Installing Condor as Execute-only Node on Windows](#)
- [Installing Condor as Execute-only Node on Mac OS X](#)

TODO: add notes here on location/installation of the custom Condor configuration files in the subversion repository eits/workflow

## Installing Condor As Execute-Only Node on Linux

This page last changed on Oct 05, 2010 by [dcline](#).

### RPM installation

\* Set JAVA\_MAXHEAP\_ARGUMENT to null, to disable the default of max RAM

```
export JAVA_MAXHEAP_ARGUMENT=
```

\* As root install condor RPM

```
[root@nanomia condor\]# rpm -ivh condor-6.8.4-linux-x86-rhel3-dynamic-1.i386.rpm
Preparing; ##### [100%] condor
[100%]
ERROR "The following configuration macros appear to contain default values that must be changed
before Condor will run. These macros are:
hostallow_write (found on line 215 of /opt/condor-6.8.4/etc/condor_config) " at line 223 in file
condor_config.C
Unable to find local directory!
```



#### hostallow\_write ERROR

This error is normal in the installation process. By default the installation only allows read access for security purposes.

\* Run configure script to setup installation as a submit and execute only node to the central manager nanomia

```
[root@nanomia condor]# /opt/condor-6.8.4/condor_configure --type=submit,execute --central-
manager=nanomia.shore.mbari.org --owner=root --install-dir=/opt/condor-6.8.4
```

\* Edit /opt/condor-6.8.4/etc/condor\_config changing the lines to allow WRITE access and an address where email should be sent when something goes wrong

```
HOSTALLOW_WRITE = *.shore.mbari.org
CONDOR_ADMIN = dcline@mbari
MAIL = /bin/mail
```

Open the local configuration file /opt/condor-7.2.3/local.nanomia/condor\_config.local. Modify DAEMON\_LIST to include VIEW\_SERVER and add the START expression

```
CONDOR_VIEW_HOST = $(CONDOR_HOST):9619
DAEMON_LIST = VIEW_SERVER, ...
START = ($(CPUIdle) || (State != "Unclaimed" && State != "Owner"))
UID_DOMAIN = $(FULL_HOSTNAME)
FILESYSTEM_DOMAIN = $(FULL_HOSTNAME)
TRUST_UID_DOMAIN = True
```

### Installing Condor as a service on Linux

\* Create condor.sh file in /etc/profile.d then add the following to it:

```
CONDOR_ROOT=/opt/condor-6.8.4
export PATH=$PATH:$CONDOR_ROOT/sbin:$CONDOR_ROOT/bin
export CONDOR_CONFIG=$CONDOR_ROOT/etc/condor_config
```

- Install condor service script to execute condor on bootup

```
[root@nanomia condor]# cd /opt/condor-6.8.4/etc/examples
[root@nanomia condor]# cp condor.boot /etc/init.d/condor
```

- Edit condor boot service script replacing MASTER line and Add . /etc/profile.d/condor.c/sh \*before\* the line MASTER

```
. /etc/profile.d/condor.sh
MASTER=$CONDOR_ROOT/sbin/condor_master
```

- Add soft links to the condor startup script

```
ln -s /etc/init.d/condor /etc/rc5.d/S100condor
ln -s /etc/init.d/condor /etc/rc5.d/K100condor
```

- Start the condor service

```
[root@nanomia condor]# service condor start
```

## Installing Condor as Execute-only Node on Mac OS X

This page last changed on Dec 09, 2013 by [dcline](#).

### Condor Installation on a Mac

1. Download Condor as user condor. This user must have administrative privileges.
2. Extract the Condor tar file to /Users/admin/Applications. This should create the directory /Users/condor/Applications/condor-7.4.2.
3. Download this [condor\\_config](#) file and store to the /etc/condor directory:

```
sudo mkdir /etc/condor
sudo cp condor_config /etc/condor
```

4. Installed using

```
sudo condor_configure \
--install=/Users/condor/Applications/condor-7.4.2/release.tar \
--install-dir=/opt/condor-7.4.2 \
--local-dir=/Users/condor/Applications/condor-7.4.2 \
--type=execute,submit \
--owner=condor
```

- which returned

```
Installing Condor from /Users/sherman/Applications/condor-7.4.2 to /opt/condor-7.4.2
```

```
Condor has been installed into:
/opt/condor-7.4.2
```

```
Configured condor using these configuration files:
global: /opt/condor-7.4.2/etc/condor_config
local: /opt/condor-7.4.2/local.somniosus/condor_config.local
```

```
In order for Condor to work properly you must set your CONDOR_CONFIG
environment variable to point to your Condor configuration file:
/opt/condor-7.4.2/etc/condor_config before running Condor commands/daemons.
Created scripts which can be sourced by users to setup their
Condor environment variables. These are:
sh: /opt/condo!Lingon.png|thumbnail!r-7.4.2/condor.sh
csh: /opt/condor-7.4.2/condor.csh
```

5. Copy the generated environment variables to your ~/.profile

```
sudo cat /opt/condor-7.4.2/condor.sh >> ~/.profile
```

6. Replace the local condor config file with EITS experiment settings in this [condor\\_config.local](#)

```
sudo cp condor_config.local /opt/condor-7.4.2/local.somniosus/condor_config.local
```

7. Create /opt/condor-7.4.2/sbin/condor\_start.sh with the following content:

```
CONDOR_ROOT=/opt/condor-7.4.2
export PATH=$PATH:$CONDOR_ROOT/sbin:$CONDOR_ROOT/bin
export CONDOR_CONFIG=$CONDOR_ROOT/etc/condor_config
$CONDOR_ROOT/sbin/condor_master
```

8. Create /opt/condor-7.4.2/sbin/condor\_start.sh with the following content:

```
CONDOR_ROOT=/opt/condor-7.4.2
export PATH=$PATH:$CONDOR_ROOT/sbin:$CONDOR_ROOT/bin
export CONDOR_CONFIG=$CONDOR_ROOT/etc/condor_config
$CONDOR_ROOT/sbin/condor_off -master
```

9. Use [Lingon](#) to create a launchd item to execute condor\_start.sh as a service.



10. In Lingon, Click expert mode in the bottom right, then add the following

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE plist PUBLIC "-//Apple//DTD PLIST 1.0//EN" "http://www.apple.com/DTDs/
PropertyList-1.0.dtd">
<plist version="1.0">
<dict>
...
<key>EnvironmentVariables</key>
<dict>
<key>CONDOR_CONFIG</key>
<string>/opt/condor-7.4.2/etc/condor_config</string>
</dict>
...
</dict>
</plist>
```

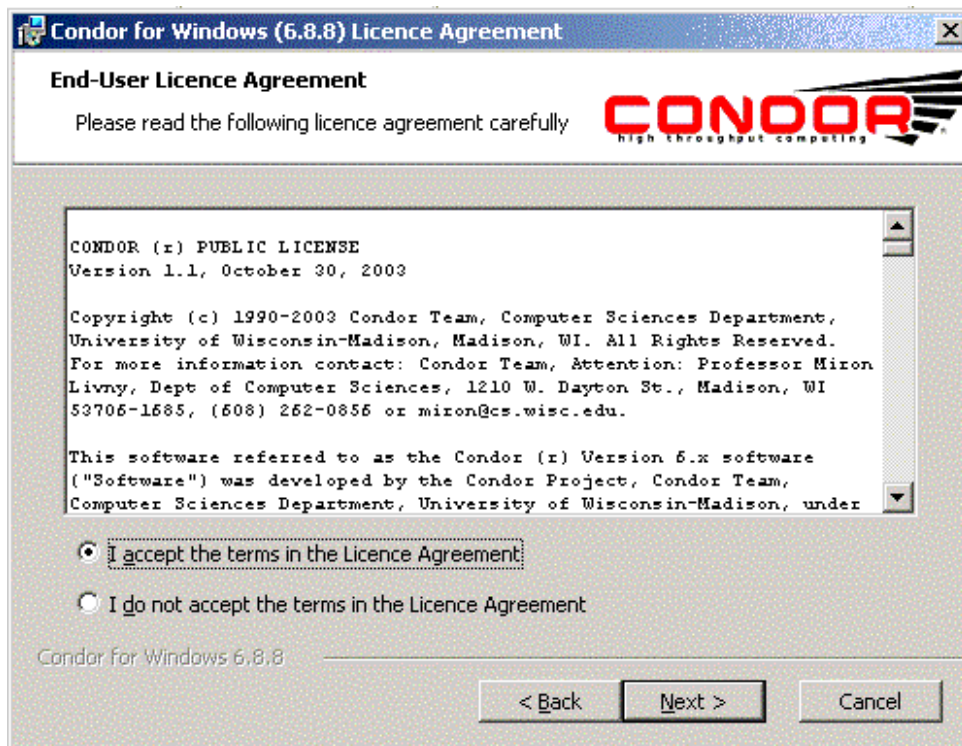
## Installing Condor As Execute-Only Node on Windows

This page last changed on Aug 21, 2008 by [dcline](#).

# Installing Condor As Execute-Only Node on Windows

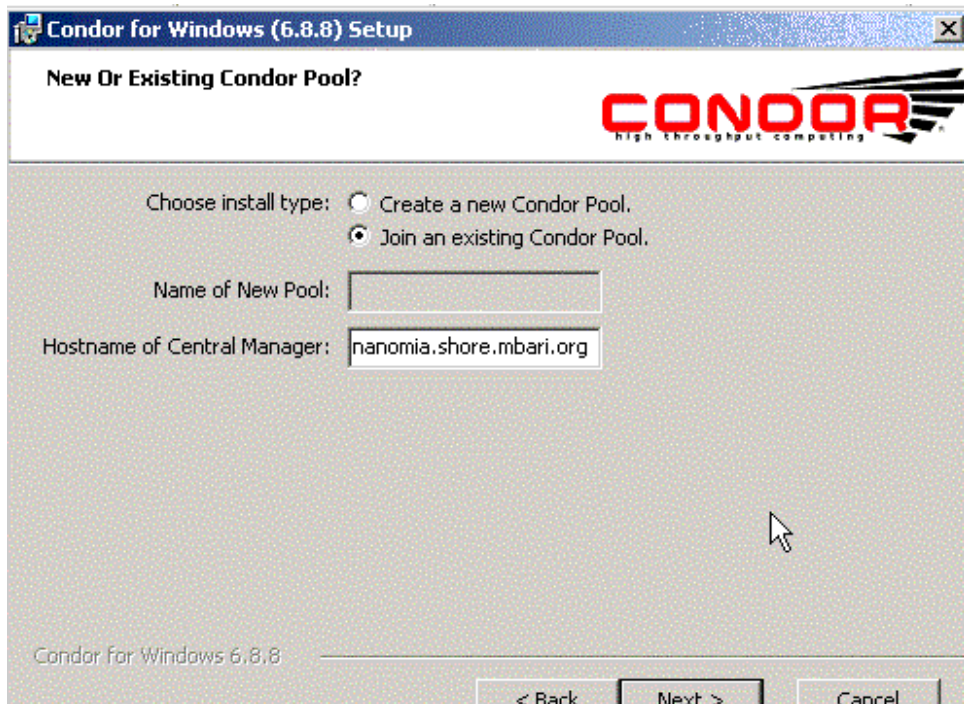
As user **Administrator**, install Condor as Execute-only node. This will by default, allow this node to submit jobs. First download the condor-6.8.8 from <http://parrot.cs.wisc.edu/>. Get the condor-6.8.8-winnt50-x80.msi installer from condor web site. To get this file, first need to accept disclaimer and give them your email, company info etc., then you will get access to the installer site right away.

Step 1

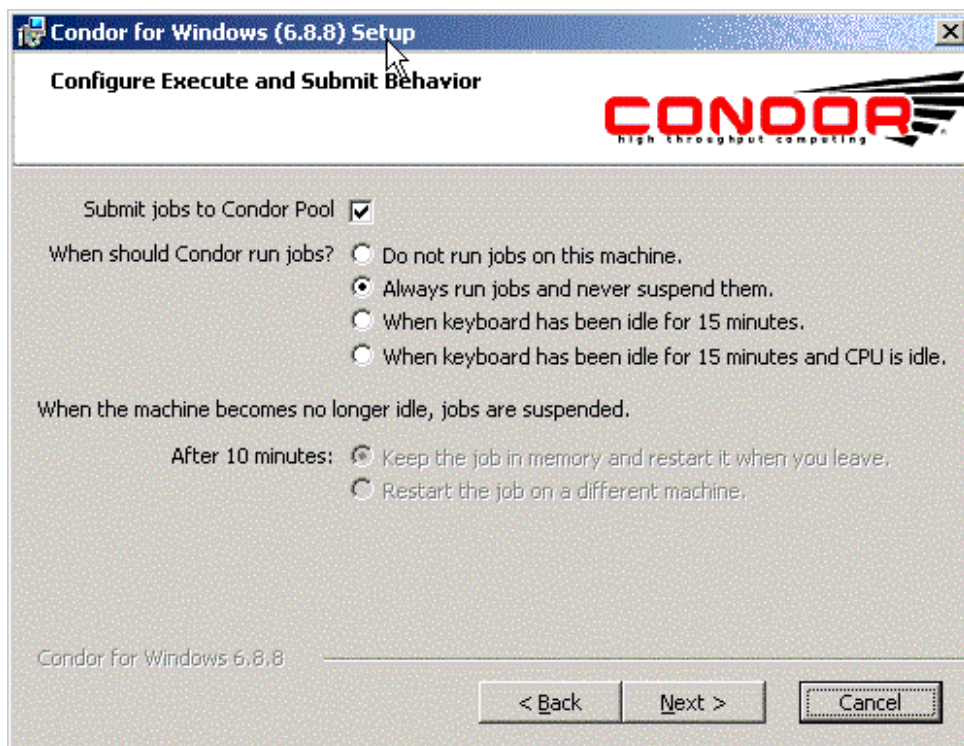


Step 2, join the nanomia central manager



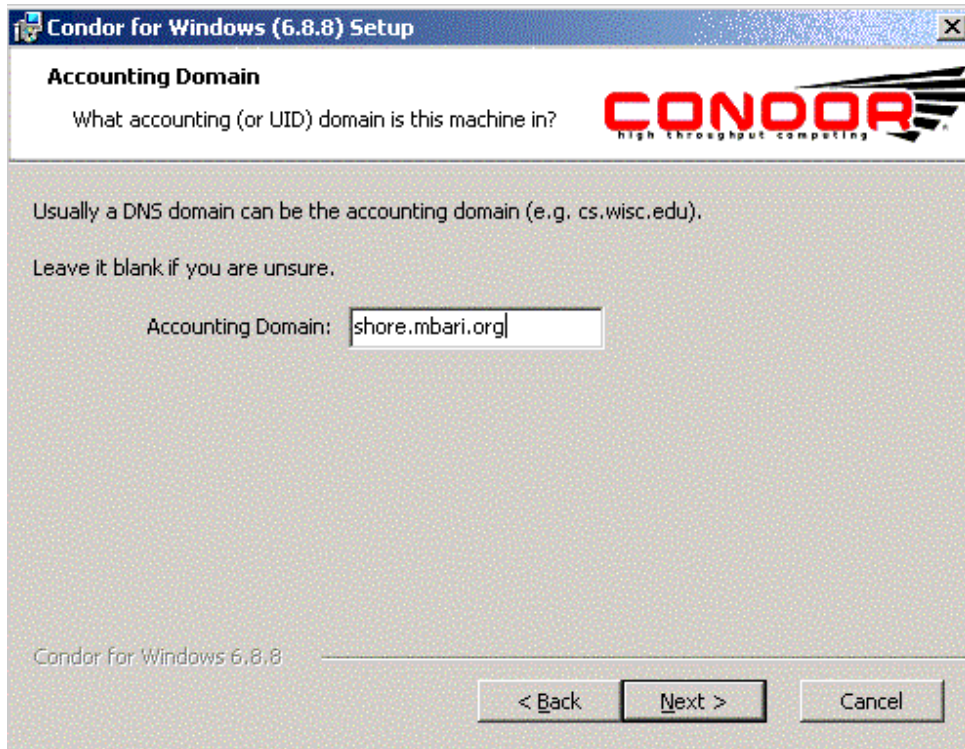


Step 3, Select Always run jobs and never suspend them. Even if the machine is intended to submit only as the case of the EITS, selecting running jobs sets up the configuration to add it to the pool. If it's in the pools we can use as a resource in case more resources are needed.

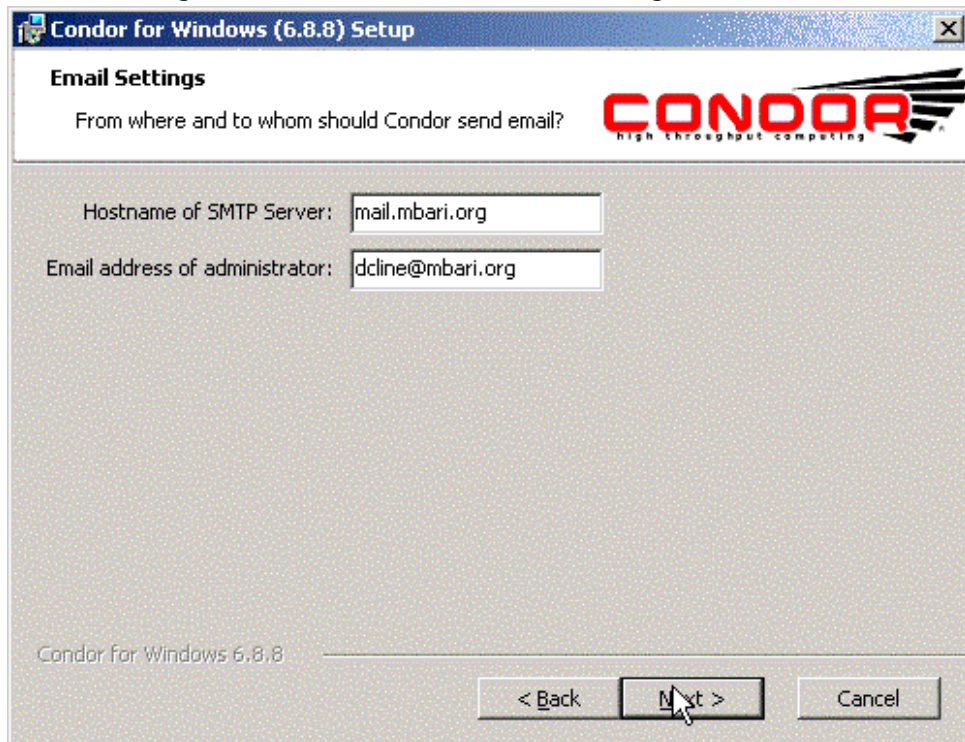


Step 4, enter shore.mbari.org for the UID domain.

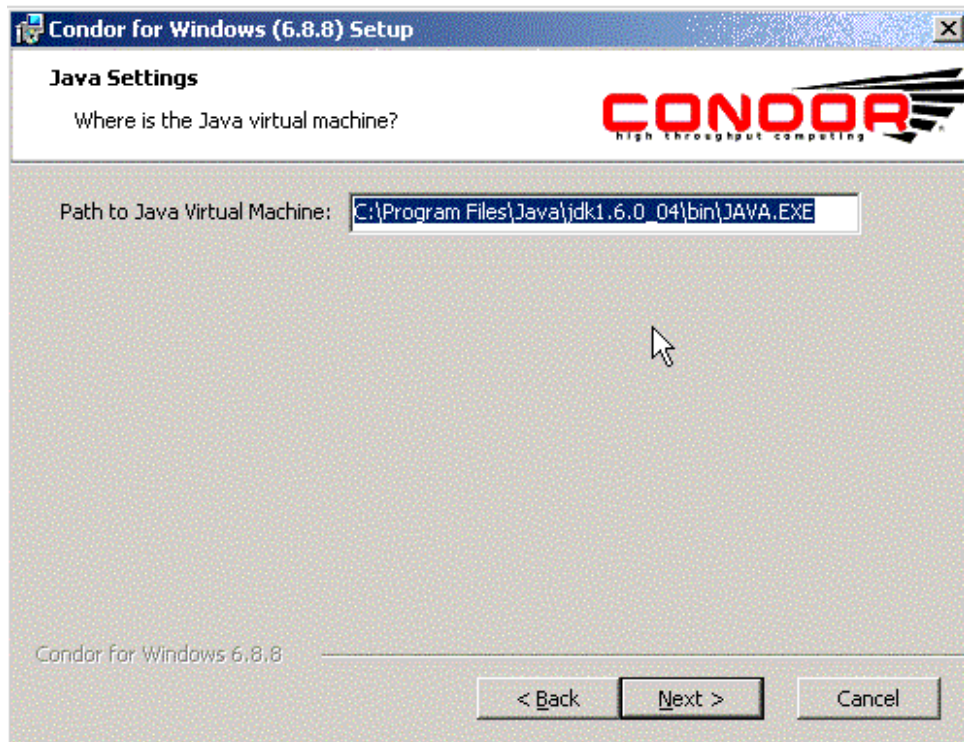




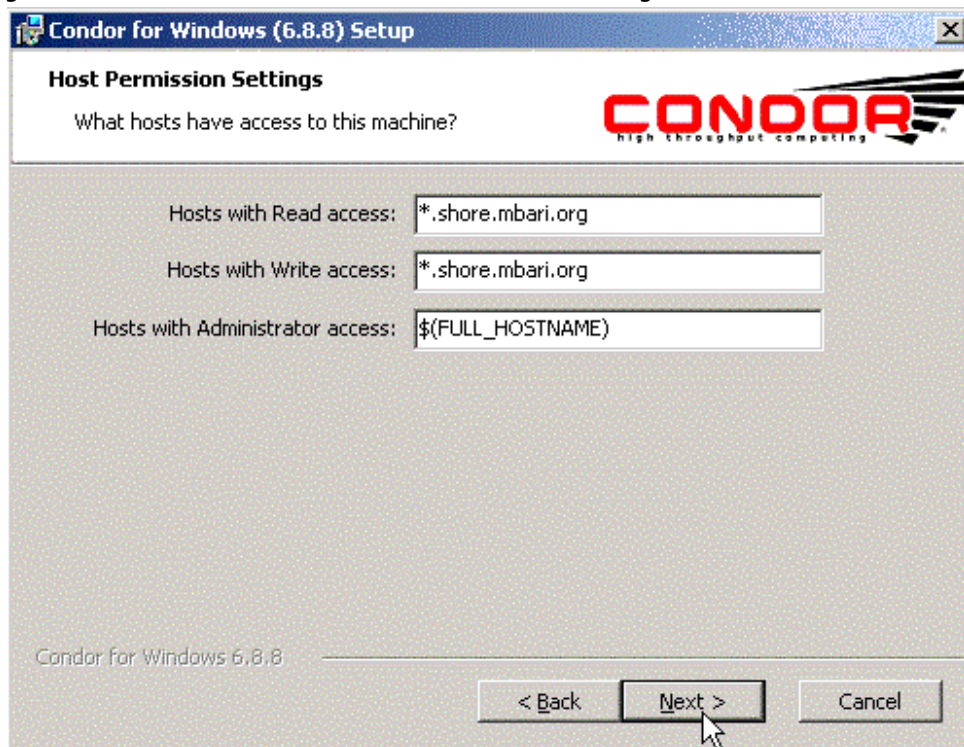
Step 5. enter mail.mbari.org for SMTP server and dcline@mbari.org for email address of administrator.



Step 6. keep default which should be something like C:\Program Files\Java\jdk1.6.0\_04\bin\JAVA.EXE

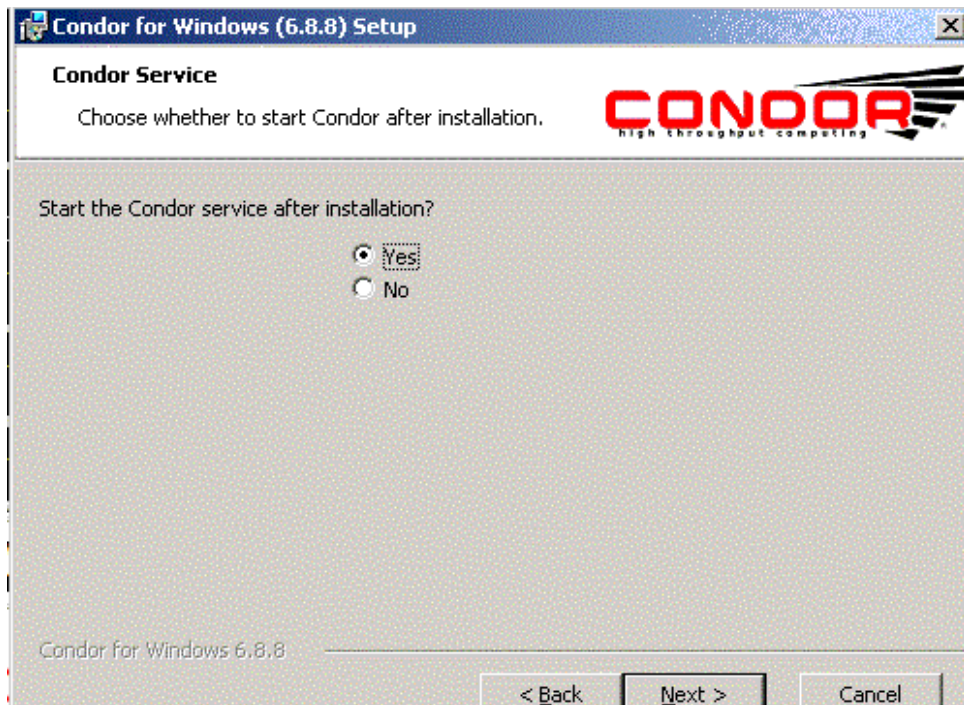


Step 7. Change read access and Write access to \*.shore.mbari.org

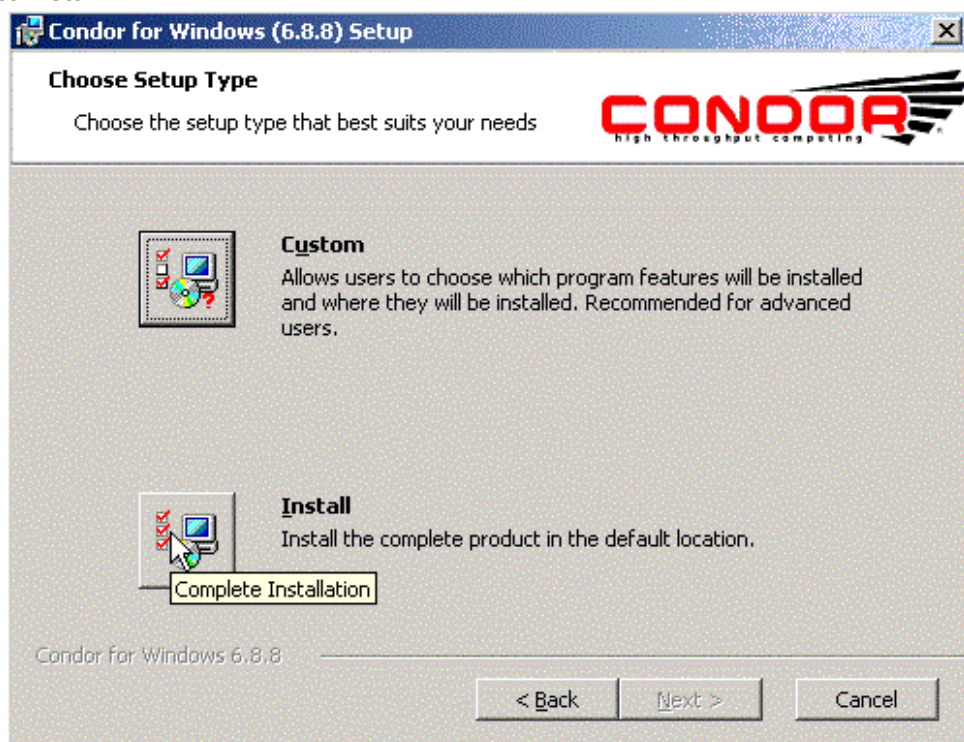


Step 8. keep default.

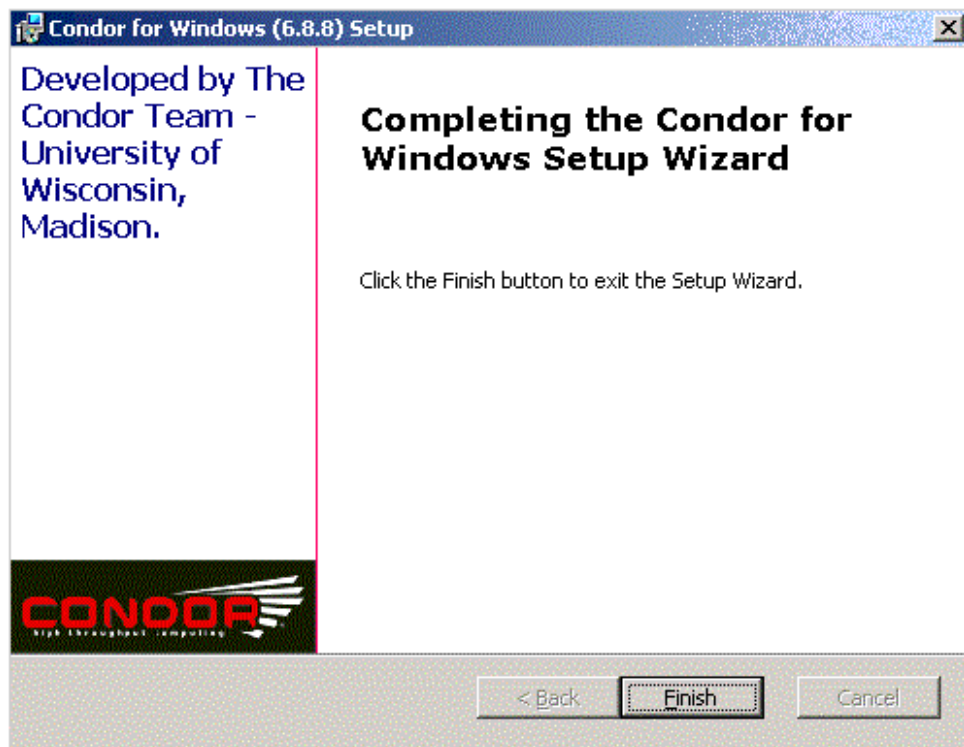




Step 9. Select Install.



Step 10. Finish.



### **Sendmail setup on Windows**

Edit c:\condor\condor\_config.local, adding the following lines:

```
For Condor on Win32 we need to specify an SMTP server so
that Condor is able to send email.
SMTP_SERVER = mail.shore.mbari.org
```

### **Windows 2000 issues (this came up for the machine ULUA, which may be retired from the pool soon)**

Had problems with java path and missing math libraries. Download scimark2lib from <http://math.nist.gov/scimark2> and unpack into c:\condor\lib\scrimark2.

If the machine Java installation is in the "Program files" directory, you may need to edit the c:/condor/condor\_config, and add quotes around the change JAVA variable executable because "Program files" white space can cause problems.

```
JAVA = "C:\Program Files\Java\jdk1.5.0_08\jre\bin\JAVA.EXE"
```

## Installing Condor As Master Node on Linux

This page last changed on Nov 07, 2012 by [dcline](#).

# Overview

The master node is the most important node in the Condor pool and should be the highest reliability machine. Do the following steps and user root:

## Install

To install as the role manager and view server:

```
[root@nanomia condor]# /opt/condor-7.2.3/condor_configure --type=submit,execute,manager --central-manager=`hostname` --long --owner=aved --install-dir=/opt/condor-7.2.3
```

- Edit /opt/condor-7.2.3/etc/condor\_config changing the lines to allow READ/WRITE access and an address where email should be sent when something goes wrong

```
HOSTALLOW_WRITE = *.shore.mbari.org
CONDOR_ADMIN = dcline@mbari
MAIL = /bin/mail
```

- Open the local configuration file /opt/condor-7.2.3/local.nanomia/condor\_config.local. Many modifications are required, including modifying the DAEMON\_LIST to include VIEW\_SERVER, changing the START expression, and

```
POOL_HISTORY_DIR=$(RELEASE_DIR)/local.nanomia/poolhistory
KEEP_POOL_HISTORY=True
CONDOR_VIEW_HOST = $(CONDOR_HOST)
VIEW_SERVER=$(CONDOR_HOST):9619
VIEW_SERVER_LOG=$(RELEASE_DIR)/local.nanomia/viewserverlog
START = ($(CPUIdle) || (State != "Unclaimed" && State != "Owner"))
UID_DOMAIN = $(FULL_HOSTNAME)
FILESYSTEM_DOMAIN = $(FULL_HOSTNAME)
TRUST_UID_DOMAIN = True
DEFAULT_DOMAIN_NAME = shore.mbari.org
```

## View server directory setup

**As user aved**, create the necessary directories as defined in the configuration file. If anything goes wrong, a good reference for setting up the server <https://www.lsc-group.phys.uwm.edu/lscdatagrid/doc/condorview.html>.

```
[aved@nanomia condor] mkdir /opt/condor-7.2.3/local.nanomia/poolhistory
[aved@nanomia condor] mkdir /opt/condor-7.2.3/local.nanomia/viewserverlog
```

## Setup view client

As user root,

- Download view client module from here: <http://www.cs.wisc.edu/condor/downloads/contrib.license.html>
- Uncompress into web served directory

```
[root@nanomia condor] mkdir /var/www/html/condor-view-applet
[root@nanomia condor] cd /var/www/html/condor-view-applet
[root@nanomia condor] cp <mydownloads>/view_client-2.0-Any-Java.tar.Z .
[root@nanomia condor] tar -zxvf view_client-2.0-Any-Java.tar.Z
[root@nanomia condor] tar -xvf view_client.tar
```

- Edit make\_stats, changing ORGNAME, CONDORADMIN, etc. to reflect the installation, then run the installation

- ```
[root@nanomia condor] ./make_stats setup
[root@nanomia condor] crontab cronentries
```
- The page should be visible <http://nanomia.shore.mbari.org/condor-view-applet/condor/condorview/>.

MBARI Mail setup

Condor can be configured to email to users on job completion, or failure. By default the root user will receive any emails if the condor daemons go awry. The following instructions are to setup the machine to correctly forward the emails. To send mail correctly to the MBARI exchange server, with the following:

Assuming sendmail is installed, make sure sendmail-cf RPM is installed, and if not *you must install this first*

```
[root@nanomia condor]# yum install sendmail-cf
```

The /etc/mail/sendmail.mc File

Only a few things must be changed from the default sendmail configuration to work with the MBARI email server:

- Add following line - this change allows sendmail to redirect to the MBARI mail server
- Comment out the following line in /etc/mail/sendmail.mc. This change allows sendmail to receive mail from the Internet and not just the local loopback address. This is not necessary unless your condor is setup as a master, but a good idea if you ever want to test your condor as a master.

```
define(`SMART_HOST', `mail.mbari.org')
dn1 DAEMON_OPTIONS('Port=smtp,Addr=127.0.0.1,Name=MTA')dn1
```

The /etc/mail/virtusertable File

- If your machine runs jobs as the user "aved", the account will need to be forwarded to a legitimate MBARI user, e.g. dclinembari.org. If you are running as a user other than aved, then skip this

```
aved@nanomia.shore.mbari.org: @mbari.org
```

- Otherwise, forward your mail to a legitimate MBARI user, e.g. dcline@mbari.org, by adding the following line:

```
dcline@nanomia.shore.mbari.org: dcline@mbari.org
```

Restart sendmail

To reset sendmail with the changes in /etc/mail/sendmail.mc and /etc/mail/virtusertable restart the sendmail service

```
[root@nanomia mail]/sbin/service sendmail restart
```

Comments

mail.mbari.org is now mbarimail.mbari.org

Posted by [dcline](#) at May 21, 2013.

Condor pool and setup for the EITS experiment

This page last changed on Apr 28, 2008 by [dcline](#).

Condor pool and setup for the EITS experiment

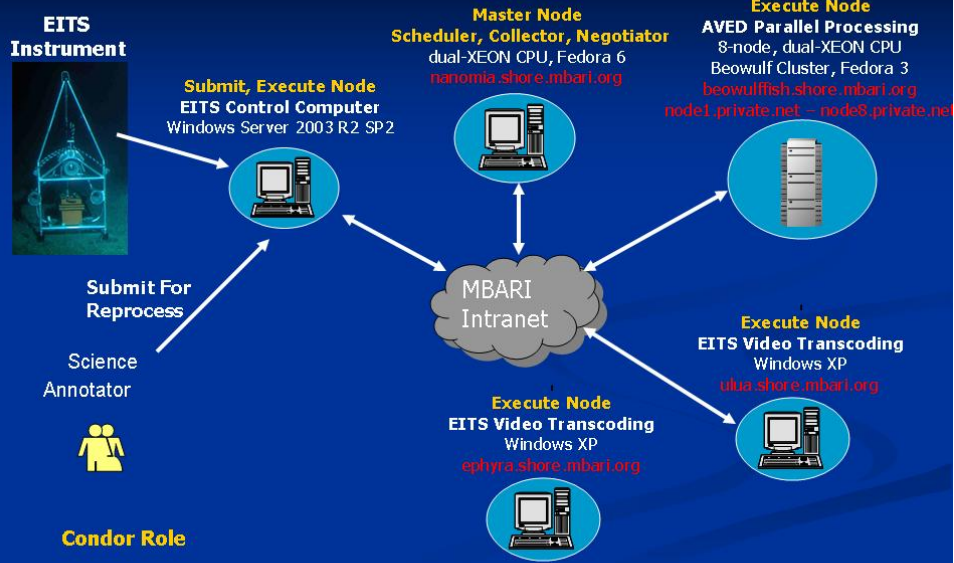
[Condor installation notes for the EITS experiment](#)

There are currently 13 computers in the pool. Each computer and their Condor roles are defined here:

| Computer | General Function | Location | Condor Role |
|--------------------------------------|---|---------------------------------------|--|
| EITS.shore.mbari.org | EITS control computer | Building B Communications Room | Submit Node |
| Nanomia.shore.mbari.org | AVED project RAID Host and Condor Master. This machine is only used to host AVED data and to control Condor jobs, but it is not used for any AVED processing. | Building B Communications Room | Master Node, scheduler, and collector. This is a high availability machine that jobs are submitted to, to run on the pool. |
| Somniosus.shore.mbari.org | EITS-VARS database host computer | Building B Communications Room | Execute Node |
| Ulua.shore.mbari.org | Video transcoding computer. Danelle's old Desktop HP Workstation X2100 | Building B Room 248. Danelle's office | Execute Node |
| Ephyra.shore.mbari.org | Video transcoding computer. AVED desktop computer | Building A. AVED lab | Execute Node |
| | | | |
| | | | |

The following diagram describes the compute resources in the Condor pool:

Condor Pool for EITS experiment on MARS



11/27/2007

An Automated Visual Event Detection System for Cabled Observatory Video, MBARI

1

TODO

This page last changed on Jul 16, 2007 by [dcline](#).

About this page

Most of the TODO items should be entered into [JIRA](#). This page is a scratch pad for questions and items that need to be dealt with.

Pending Questions

Q. Still not clear on the flow of video processing. A notional outline activity diagram can be found at [EITS Video](#). However, some questions (noted by '?' on the diagram) remain.

[Danelle Cline](#) -> The EITS video page [EITS Video](#) has been updated. Don't know the specific question this is referring to from the diagram, if you could post a more specific question that would be helpful.

Q. Lee needs to tell us how video and ancillary data [Danelle Cline](#) will be delivered to shore.

[Danelle Cline](#) -> I think this is relevant. This is what it says in Lee's "Eye In The Sea - MARS Top-Level System Configuration" under Integration with VARS & AVED:

As a first thought...functions calls will be made by EITS software to VARS to log appropriate data...data stored into VARS by EITS will consist of a comma-delimited string, transmitted at a frequency of no greater than 1HZ...

[~erikar] The above quote is correct. Lee will need an API from you to make calls and put data into the VARS system.

[Brian Schlining](#) From Feb 23rd 2007 conference call: Lee will deliver Video files and CSV text ancillary data to the RAID drive on shore. We will write up a loader to stuff the ancillary data into EITS database tables.

Q. We intend to start processing video here at MBARI. Will the EITS team buy a computer cluster to use in Florida? (If processing is done at MBARI, we will need to back-up all video before we ship it to Florida.)

[~erikar] If all the initial AVED processing is done at MBARI, we will only need to view the processed video in FL. Therefore, our group will need to purchase a workstation in FL that can run VARS and AVED for post-processing purposes.

[~erikar] We still plan to keep all the original data from the mirrored RAID, as you mentioned. It is my understanding that we will also need to have VARS and AVED loaded onto a computer here in Florida if we want to edit any AVED events; however, the computer in Florida will not require the same cluster arrangement as the AVED processing computer at MBARI. Is this correct? Our group will pay for the computer in Florida. **Yes, you will not need a cluster. The project has allocated time to setup a workstation for deployment at ORCA which will have what you need to edit the events.** We also have travel money to come to Florida to help setup this computer and for any needed training. I imagine this computer will be a mirrored setup to what we have on the shore-side system here at MBARI (AVED, VARS, etc.), but we still need to work out those details.

Q. Where will we store all the data?

[~erikar] Our group would like to have back-ups of all video in FL and can store the data there; however, it might be easier to store the data at MBARI.....we will need to discuss this during our Friday meeting.

[Brian Schlining](#) From Feb 23rd 2007 conference call: The current plan is to host a *replicated* database both at MBARI and ORCA. MySQL 5.0 does support replication but we'll need to test this.

[Brian Schlining](#) From 2007-04-11. Setting up a server for integration testing. *mbari649* (Mac OS X 10.4) is being setup with MySQL 5, Apache, and Darwin Streaming Server. Also setting up automount of RAID on nanomia.

Q. Is reprocessing of video in AVED a requirement? (Warn users that once data is edited in VARS it may not be practical to reprocess the corresponding video in AVED and load it back into VARS.)

[~erikar] Right now I don't see reprocessing video in AVED unless major changes have been made to the code and earlier data needed to be reprocessed with the modified version.

[~erikar] Lee had a suggestion. In the beginning we store 3 different video archives 1) all raw EITS data 2) AVED processed data and 3) edited AVED data. VARS would have three fields, one for each archive. The pointers in VARS would specify a directory path to the correct archive. I can explain this better over the phone if you want to call me 772-321-5879.

[Brian Schlining](#) From Feb 23rd 2007 conference call: We will run through a demonstration of the entire data flow before we decide how to manage reprocessing.

Q. Where will the EITS computers live?

Initially at MBARI

Q. What are the requirements for supporting *time-code*? Will we use *time-code* or *run-time*?

[Danelle Cline](#) -> The current plan on this is to use the AVED project cluster during the experiment, and setup a workstation for them to use to reprocess if they want. If the EITS team needs a compute cluster to reprocess video we can certainly help them setup, but it isn't in the proposed budget to buy a cluster. RE: ...we will need to back-up all video before we ship it to Florida. The current back-up plan is to create an mirrored image of the data. How/when this mirror is created is still TBD, but I imagine a mirrored RAID will be setup to handle this automatically.

[~erikar] Lee will provide you with a time-code from EITS

[Brian Schlining](#) From Feb 23rd 2007 conference call: Lee is going to investigate using a QuickTime container with MPEG-4 encoding. We'll send him sample code of how to write a TimeCode track. TimeCode will be written as GMT/UTC time.

[Brian Schlining](#) The current plan is for us to add the TimeCode track as part of our workflow. We have a script for doing this.

Q. We originally wanted to schedule a test-tank deployment in June; Craig says MARS the interface won't be ready. (i.e. no point in testing EITS). When will we reschedule?

[~erikar] forwarded the email about this:

Subject: RE: ROV and tank test questions
Date: Thu, 25 Jan 2007 16:53:39 -0800
From: Dawe, Craig <dacr@mbari.org>
To: Erika H. Raymond <erika@oceanrecon.org>
Hi Erika
As to test tank trials. I believe you are referring to a test using the Wet Node Simulator yes? If so, there are a couple of issues, first the simulator has to be built and that is dependent of some hardware from the MARS Electronics package. We do not know when that will arrive however.... The second issue is that the Wet Node Simulator is not scheduled to be completed until the middle of October. Hopefully, both of these issues will go away but that is the schedule for now.
Craig



Because of the test-tank delay, EITS delivery to MBARI may be pushed back to early April.

We will start our tank tests in Florida during April.

TODO

TODO. If you edit results in the AVED editor they're gone forever. We need to make backups of data before it's edited in the editor and warn users.

Comments

To further clarify this, the AVED editor is not aware of the VARS database, and simply edits on the XML results file. In that sense, it is like an XML document editor and simply keeps temporary snapshots of the edited XML data until the user exits the program, or saves the data to a new file using a "save as" type operation. One way to solve this is to make it convention to only edit a copy of the data. There are, however issues with merging results back into VARS, so we should discuss this further.

Posted by [dcline](#) at Jan 19, 2007.

Work Flow Diagrams

This page last changed on Apr 28, 2008 by [dcline](#).