

NuWa Trac + Testing System

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Offline Tutorial, IHEP Beijing, Dec 15th 2008

doc:3091

Tutorial Objectives



- Enable (**and encourage**) users to ...
 - ◇ search Trac for tickets that match issues encountered
 - ◇ **add tickets for the problems they find using NuWa**
 - ◇ create tests for any code they write
 - ◇ browse Trac for work items they can contribute to

Trac newbies should follow along in your Browsers ...
<http://dayabay.ihep.ac.cn/tracs/dybsvn>

- Background + “cool stuff” available in “Backup” slides, for :
 - ◇ Advanced Users
 - ◇ Developers
 - ◇ Administrators

NuWa-Trac Frontpage Before Login



Offline
Software

Almost no functionality
until you login...

[Login](#) | [Help/Guide](#) | [About Trac](#) | [Preferences](#)

[Wiki](#)

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NuWa Trac Login And Preferences

Your SVN account identity is used by Trac, so use this to login using the above link. Before doing this most links will yield **PERMISSION DENIED** messages.

- After log in be sure to set your **email address** in the preferences, in order to be notified of changes to tickets you create.
- While the **dayabay** identity will allow you to login you are **only use this until you get your own SVN identity** from (maqm AT ihep.ac.cn)

[NuWa Trac Login And Preferences](#)
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Offline
Software

Login

Username:

Password:

[Forgot your password?](#)

Firefox is good at
rembering passwords

dayabay/*** works but best to
use your own identity
(get from Qiumei)

After 1st Login : Set Email in Preferences



Offline
Software

Tabs give simple access
to most functionality

 Search

logged in as blyth | [Logout](#) | [Help/Guide](#) | [About Trac](#) | [Preferences](#)

Wiki	Timeline	Roadmap	Browse Source	View Tickets	New Ticket	Search	Tags	Admin	Builds Status
------	----------	---------	---------------	--------------	------------	--------	------	-------	---------------

Preferences

This page lets you customize your personal settings for this site. These settings are stored on the server and are stored in a browser cookie. That cookie allows your settings to be restored on subsequent visits.

General

Account

Date & Time

Keyboard Shortcuts

Full name: Simon Blyth

Email address: blyth@hep1.phys.ntu.edu.tw

allows direct notification of changes to tickets
(and for developers : build/test failures)

This information is used to associate your login name with your email address and full name, which is used for email notification.

Save changes

What if : your dybinst build of trunk fails...



```
#CMT--> compiling ../src/TemporalDataObjectCnv.cc
```

```
[stuff....deleted]
```

```
/eliza7/dayabay/cjslin/
```

```
function `StatusCode Ro
```

```
Object, TranType = DayaBay::TemporalDataObject]’:
```

```
../src/TemporalDataObjectCnv.cc:44: instantiated from here
```

```
/eliza7/dayabay/cjslin/NuWa/trunk_11-05-2008/NuWa-trunk/dybgaudi/InstallArea/include/RootIOSvc/RootIOTypedCn
```

```
cannot allocate an object of type `DayaBay::TemporalDataObject’
```

```
/eliza7/dayabay/cjslin/NuWa/trunk_11-05-2008/NuWa-trunk/dybgaudi/InstallArea/include/RootIOSvc/RootIOTypedCn
```

```
because the following virtual functions are abstract:
```

```
/eliza7/dayabay/cjslin/NuWa/trunk_11-05-2008/NuWa-trunk/dybgaudi/InstallArea/include/Event/TemporalDataObjec
```

```
virtual const std::string& DayaBay::TemporalDataObject::defLoc()
```

```
make[3]: *** [../amd64_linux26/TemporalDataObjectCnv.o] Error 1
```

```
make[2]: *** [PerBaseEventLib] Error 2
```

```
make[1]: *** [common_target] Error 2
```

dybinst indicates that “dybgaudi” step failed ... but the error message in the log leaves you none the wiser, but you do notice that “TemporalDataObject” is showing up repeatedly ...

Search Trac for "TemporalDataObject"



Offline
Software

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Wiki

Timeline

Roadmap

Browse Source

View Tickets

New Ticket

Search

Search

<http://dayabay.ihep.ac.cn/tracs/dybsvn/search?q=TemporalDataObject>

TemporalDataObject

Search

Changesets Tickets Wiki

Results (1 - 3 of 3)

[4718] & [4704] (or r4718 & r4704) refer to commit messages of revisions

#95 corresponds to a ticket, crossed out means that it is closed already

[\[4718\]: Back off on the pure virtual as some bare TemporalDataObjects are ...](#)

Back off on the pure virtual as some bare TemporalDataObjects are created.

By bv — 11/07/2008 01:35:16 AM

[#95: defect: trunk version of dybgaudi fails to build \(closed: fixed\)](#)

... /src/TemporalDataObjectCnv.cc [stuff....deleted] ../src/TemporalDataObjectCnv.cc /eliza7/dayabay/cjslin /NuWa/trunk_11-05-2008/NuWa-trunk/dybgaudi/InstallArea ...

By cjslin — 11/06/2008 04:24:59 PM

[\[4704\]: For now comment out TemporalDataObject as base. I suspect this is not ...](#)

For now comment out TemporalDataObject as base. I suspect this is not required.

By bv — 11/06/2008 05:33:41 AM

Look at ticket:95 or #95



Offline
Software

"Search" for #95 or ticket:95
to jump here

#95

Search

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Wiki

Timeline

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Browse Source

View Tickets

New Ticket

Search

← [Previous Ticket](#) | [Next Ticket](#) →

Ticket #95 (closed defect: fixed)

trunk version of dybgaudi fails to build

Opened 5 weeks ago

Last modified 5 weeks ago

Reported by: cjslin

Owned by: bv

Priority: major

Milestone: [NuWa 1.0.0 - Major release for AD Dry Run Mock Data Challenge](#)

Component: dybgaudi//RootIO

Version: trunk

Keywords:

Cc:

Description (last modified by blyth) (diff)

Compilation fails in the RootIO pack
below:

<http://dayabay.ihep.ac.cn/tracs/dybsvn/ticket/95>

```
#CMT---> compiling ../src/TemporalDataObjectCnv.cc  
[stuff....deleted]
```

```
/eliza7/dayabay/cjslin/NuWa/trunk_11-05-2008/NuWa-trunk/dybgaudi/InstallArea
```

Ticket view #95 continued ...



Changed 5 weeks ago by blyth

Enter #95 in search box to jump here ... for a clearer view

■ **description** modified ([diff](#))

This arises from Bretts commits [r4700](#) [r4701](#) that make TemporalDataObject an abstract class (to enforce defLoc() implementation). It prevents compilation of PerBaseEvent/TemporalDataObjectCnv as an attempt to instantiate the TranType via the template class specification is made.

- [i:source:dybgaudi/trunk/RootIO/RootIOSvc/RootIOSvc/RootIOTypedCnv.h](#)

```
93  /// Do the concrete conversion from ROOT to TDS
94  virtual StatusCode PerObjectToTranObject(DataObject& d
95  MsgStream log(msgSvc(), m_perclassName + "Cnv");
96  TranType* tranobj = new T
97  StatusCode sc = this->Per
98  if (sc.isFailure()) {
99  delete tranobj;
100  dat = 0;
101  r
102  }
103  dat =
```

The ticket + comments attached allow you to **Trace** the life of an issue .. from "new" to "closed"..

Changed 5 weeks ago by bv

- **status** changed from *new* to *closed*
- **resolution** set to *fixed*

Fixed in [r4718](#).

Chase how Brett fixed this by following the [r4718](#) link .. or search for "[r4718](#)"

Attempting to have a qu

```
svn -r 4699 up d
svn -r 4699 up d
```

View Brett's changeset r4718 that fixed #95



Changeset 4718

Enter "r4718" in search box to jump here ... for a clearer view

Timestamp: 11/07/2008 01:35:16 AM (5 weeks ago)

Author: bv

Message: Back off on the pure virtual as some bare TemporalDataObjects are created.

Location: [dybgaudi/trunk/DataModel/BaseEvent](#)

Files: ■ 1 added ■ 1 modified

- [src/TemporalDataObject.cc](#)
- [xml/TemporalDataObject.xml](#) (1 diff)

View differences
 Show lines around each change
 Ignore:
 Blank lines
 Case changes
 White space changes

Changesets show which files were added/modified/deleted ..

Unmodified Added Removed

dybgaudi/trunk/DataModel/BaseEvent/xml/TemporalDataObject.xml		Tabular	Unified
r4701	r4718		
20	20	desc="Default location in the TES for this type of object"	
21	21	type="const std::string&";	
22		virtual="PURE"/>	
	22	virtual="TRUE"/>	
23	23		
24	24	<attribute	

Files with modifications are presented as line-by-line diffs

No matched tickets from search ... try "View Tickets"



Offline
Software

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	Wiki	Timeline	Roadmap	Browse Source	View Tickets	New Ticket
	Available Reports					Custom C

Available Reports

This is a list of available reports.

Tickets are categorized into "reports" such as **report:3** or **{3}** for Active Tickets by Milestone "Active" ~ "not closed(fixed)"

Report	Title
{1}	Active Tickets
{2}	Active Tickets by Version
{3}	Active Tickets by Milestone
{4}	Active Tickets by Owner
{5}	Active Tickets by Owner (Full Description)
{6}	All Tickets By Milestone (Including closed)
{7}	My Tickets
{8}	Active Tickets, Mine first
{9}	All Tickets By Component (Including closed)
{10}	Component List

Enter "{3}" in search box to jump to report:3

Active Tickets by Milestone : {3} OR report:3

Milestone Dec 2008 Collaboration meeting (12 matches)

Ticket	Summary	Component	Version	Type	Owner
#67	PDGId disagreement	dybgaudi//Simulation	trunk	defect	offline
#25	Ancestor SimHit pointer is not handled in ElecSim Converter	dybgaudi//RootIO	trunk	defect	bseilhan
#99	Fix Historian local coordinates	dybgaudi//Simulation /Historian	trunk	defect	offline
#58	PMT effects in electronics simulation	dybgaudi//Simulation /ElecSim	trunk	enhancement	kboddy
#60	Organize configuration of Reconstruction related packages to new nuwa.py based style.	dybgaudi//	trunk	enhancement	tianxc
#61	Provide nuwa.py based configuration for Fifteen	dybgaudi//Simulation	trunk	enhancement	wangzhe
#78	EventSelector for Push method (MC Mixing)	dybgaudi//Simulation	trunk	task	huangxt
#79	Create a package Mixing for MC mixing (push) method.	dybgaudi//Simulation	trunk	task	mwang
#80	Prepare an IBD sample with full simulation chain for testing the Mixing method	dybgaudi//Simulation /Mixing	trunk	task	zhanl
#82	Prepare radiation samples for testing Mixing method	dybgaudi//Simulation /Mixing	trunk	task	lixb
#83	Add RPC support structure (H-beam) in DetDesc	dybgaudi//Detector	trunk	task	xujl
#93	Add remaining details to the AD radial shield geometry	dybgaudi//Detector	trunk	enhancement	cjslin

Create New Ticket



If do not find pre-existing ticket after searching/browsing for 5 mins create a new ticket

Search

logged in as blyth | [Logout](#) | [Help/Guide](#) | [About Trac](#) | [Preferences](#)

Wiki | Timeline | Roadmap | Browse Source | **View Tickets** | **New Ticket** | Search | Tags | Admin | [Available Reports](#) | [Custom Query](#)

{3} Active Tickets by Milestone (56 matches)

This report shows how to color results by priority, while grouping results by milestone.

Last modification time, description and reporter are included as hidden fields for useful RSS export.

[Edit report](#) | [Copy report](#) | [Delete report](#)

Milestone (11 matches)

Ticket	Summary	Component	Version	Type	Owner	Status	Created
#11	Support input for pull mode of simulation.	dybgaudi//Simulation /Fifteen	trunk	defect	wangzhe	new	09/13/08
#68	Parent particle information is missing in U and Th generator of GenRad	dybgaudi//Generators	trunk	defect	offline	new	10/22/08

Create New ticket, wiki:NuWa_Trac

Create New Ticket

Minimal wiki:WikiFormatting to know :
TracLinks + triple curlies
{{{
code block
}}}

Properties

Summary:

Reporter:

Description: **B I A**
 Reproducible with :

```

{{{
dyb__ dybgaudi/RootIO/RootIOTest
nuwa.py -A -n 10 -o dybtest.root share/dyboutputtest.py ## create
nuwa.py -A -n 10 dybtest.root share/dybinputtest.py
}}}
```

 Gives error...

```

{{{
Traceback (most recent call last):
```

Assign to:

Priority:

Component:

Keywords:

Type:

Milestone:

Version:

Cc:

[edit](#)

Assigning ticket to milestone, allows prioritization

Edit button from "Its All Text"

Set Component/Owner of Ticket

Assign your issue to the best matching component ...

Component:

Keywords:

I have files to upload

- Infrastructure / Official IHEP Web Site
- Infrastructure / SVN
- Infrastructure / Trac
- Installation /**
- Installation / Debian
- Installation / Mac OS X
- Installation / Scientific Linux
- Unclassified /
- dybgaudi//
- dybgaudi//DataModel
- dybgaudi//Database
- dybgaudi//Detector
- dybgaudi//Documentation
- dybgaudi//DybPython
- dybgaudi//Generators
- dybgaudi//RootIO
- dybgaudi//Simulation
- dybgaudi//Simulation/DetSim
- dybgaudi//Simulation/ElecSim



Assign to:

Priority:

Component:

Keywords:

I have files to upload This ticket

- anfp
- blyth
- bseilhan
- bv
- cetull
- cjslin
- dandwyer
- dayabay
- djaffe
- goettj
- huangxt
- jetter
- jliu
- kboddy
- kevin
- liujinc
- lixb
- luhq
- lupyou



Trac 0.11 Software.

Setting the "Component", will set the ticket "owner" to that of the component, no need to "Assign To" also

For a list of "components" and their "owners" see [report:10](#) or `{10}`

Ticket Type

Provides categorization of the ticket

So far we have seen "defect" tickets .. tickets are also used for Tracing "enhancements" and "tasks"

Defect	a bug, anything that does not work as expected
Enhancement	a new feature or an improvement over an existing one
Task	everything else, something that needs to be done

Priority Classification

Priority, for asserting the importance of a ticket

blocker	basic functionality is not available until this is fixed
critical	severe loss of data due to the defect or highly needed enhancement
major	defect with major impact / big enhancement
minor	defect with minor impact / small enhancement
trivial	defect with little or no impact / cosmetic enhancement

All fields can be changed later

Ticket #3 (new defect)

rootio test-dybi is failing since r5004

Opened 0 seconds

Reported by:	blyth	Owned by:	offline
Priority:	major	Milestone:	
Component:	dybgaudi / RootIO	Version:	
Keywords:	RootIO test-dybi	Cc:	

Description

Reference related commits, tickets, documents :
[r3001](#) [#110](#) [doc:101](#)

Reproducible with :

```
dyb__ dybgaudi/RootIO/RootIOTest
nuwa.py -A -n 10 -o dybtest.root share/dyboutputtest.py ## create
nuwa.py -A -n 10 dybtest.root share/dybinputtest.py
```

Gives error...

Good ticket descriptions allow the issue to be reproduced with minimum effort

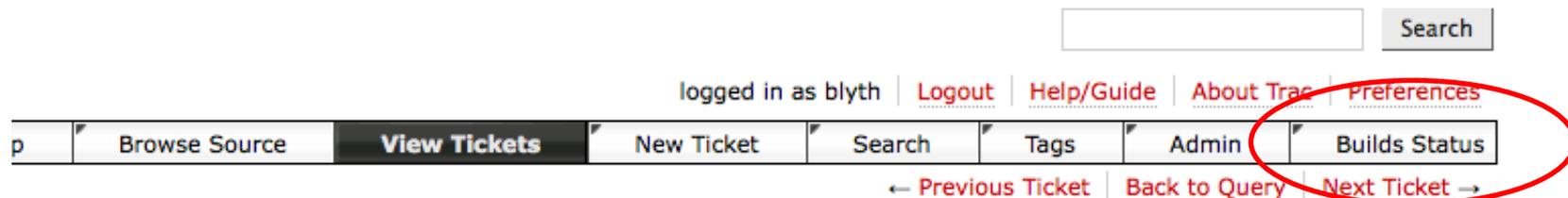
Traceback (most recent

- What kind of problems should be reported as tickets ...
 1. dybinst build failures : including failures to build externals
 2. nuwa.py running reporting ERROR/FATAL messages
 3. any Segmentation Errors, Import Errors, other Errors coming from NuWa code
- You should create a new ticket if :
 1. after 5 mins of searching/browsing you do not find a pre-existing ticket

It is **your DUTY** as a NuWa user to report issues ... they do not fix themselves
- If a pre-existing ticket exists (open or closed), add a comment if :
 1. you have additional information/references relevant to the ticket
 2. the issue looks like it needs confirmation (adding a comment increases it's "weight" and might lead to it being resolved sooner)
 3. you re-open a closed ticket, in order to justify the re-opening

- Update builds & tests are run after each commit using the “Bitten” Trac extension, providing a master/slave system (over HTTP)
 - ◇ **NuWa-Trac** is master http://bitten.edgewall.org
 - ◇ slaves : NuWa installations (2 Linux machines at NTU, Taiwan)
- SVN integration allows :
 - ◇ **builds/tests tailored to commits**
 - ◇ email notification of failed builds sent to culprits ~ 1hr after commit

How does this help users ? ... if your build fails you can check if the problem is specific to your installation by looking at the “Build Status”



Summary of "Build Status" [/build]



Build Status

detdesc

<http://dayabay.ihep.ac.cn/tracs/dybsvn/build>

Commits within `/dybgaudi/trunk/Detector` will trigger an update build and the running of tests checking detector description/overlaps etc..

- <source:installation/trunk/dybttest/recipes/detdesc.xml>

Latest builds

[5062] by ww

12/02/2008 07:49:47 PM

put in the dependence on MedConDetDesc. --- Wei

i686-slc308-gcc323

12/02/2008 08:54:06 PM

i686-slc308-gcc323 (140.112.102.250)
Linux 2.4.21-40.ELsmp / athlon

Success

i686-slc46-gcc346

12/02/2008 08:51:08 PM

i686-slc46-gcc346 (140.112.101.190)
Linux 2.6.9-67.0.20.ELsmp / athlon

Success

dybinst

Commits within `/` that do not match the excluded paths (such as `people`, `groups`, `*/branch`) will trigger an update dybinst build and tests. Builds are only performed after a repository settling process. Builds may fail due to failures due to the splitting-up of related commits.

"build status" from 2 slaves

The builds/tests are configured with **step** elements in the `dybinst.xml` recipe. Follow the pattern of existing tests: `GenTools`, `RootIOTest` to add more. If the **Latest Builds** summary says, *No build yet* it may be due to the commit being within a excluded path OR being too young. In this case view the build status for earlier commits with `/build/dybinst`.

Dan is the Culprit

Latest builds

[5078] by dandwyer

12/04/2008 03:13:12 PM

Catch the case where no readout was produced in a push cycle.

i686-slc308-gcc323

i686-slc308-gcc323
(140.112.102.250)
Linux 2.4.21-40.ELsmp / athlon

In-progress

i686-slc46-gcc346

12/04/2008 04:09:59 PM

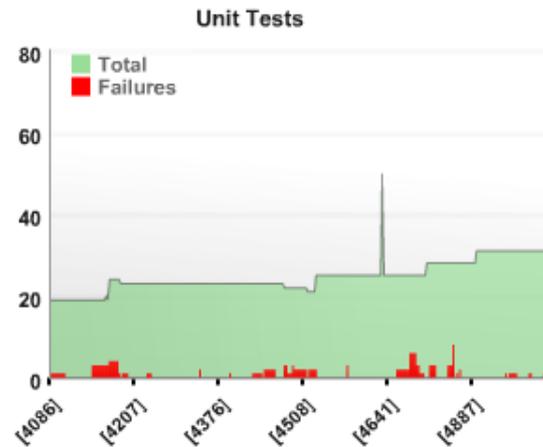
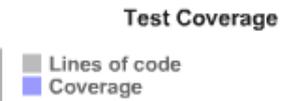
i686-slc46-gcc346
(140.112.101.190)
Linux 2.6.9-67.0.20.ELsmp / athlon

Failed

Chgset	i686-slc308-gcc323	i686-slc46-gcc346
[5078]	1114 In-progress i686-slc308-gcc323 (140.112.102.250) Linux 2.4.21-40.ELsmp / athlon checkout 0:02:52 external 0:00:03 relax 0:00:02 gaudi 0:00:02 lhcb 0:00:02	1115 Failed i686-slc46-gcc346 (140.112.101.190) Linux 2.6.9-67.0.20.ELsmp / athlon checkout 0:01:41 external 0:00:01 relax 0:00:01 gaudi 0:00:01 lhcb 0:00:01 dybgaudi 0:12:58 test-gentools 0:00:30 ■ 1 of 22 tests failed test-rootio 0:03:11 test-simhistex 0:02:00
[5077]	—	—
[5076]	1112 Failed i686-slc308-gcc323 (140.112.102.250) Linux 2.4.21-40.ELsmp / athlon checkout 0:02:46 external 0:00:03 relax 0:00:02 gaudi 0:00:02 lhcb 0:00:02 dybgaudi 0:22:40 test-gentools 0:00:42 ■ 1 of 22 tests failed test-rootio 0:04:01 test-simhis	1113 Failed i686-slc46-gcc346 (140.112.101.190) Linux 2.6.9-67.0.20.ELsmp / athlon checkout 0:01:20 external 0:00:01 relax 0:00:01 gaudi 0:00:01 lhcb 0:00:01 dybgaudi 0:12:22 test-gentools 0:00:29 ■ 1 of 22 tests failed test-rootio 0:03:11

dybinst optimizations
 avoid useless re-building
 via last revision checks

Two slaves (at NTU) poll the master for builds, performing the steps with bash functions dyb__*, reporting results back to the master



<http://dayabay.ihep.ac.cn/tracs/dybsvn/build/dybinst>

test-gentools (44 seconds)

Follow errors thru the web interface gets here...

Errors

1 of 22 tests failed

"Test Results" tab :
 - test list
 - annotated source links

Test Fixture	Total	Failures	Error
test_consistency.test_ConistencyOne details	1	1	0
test_consistency.test_setUp	1	0	0
test_consistency.test_tearDown	1	0	0

Failure/Error Details

Switch to plain text view

test_consistency.test_ConistencyOne

```
+++

@@ -6,7 +6,7 @@

                'simFlag': 0,
                'site': 0,
                'timeStamp': {'_class': 'TimeStamp',
-                   'asString': 'Thu, 01 Jan 1970 00:00:00 +0000 (GMT) + 30407316
+                   'asString': 'Thu, 01 Jan 1970 00:00:00 +0000 (GMT) + 30407317
                'defLoc': "'/Event/Gen/GenHeader'",
```

27	27
28	28
29	29
30	30
31	31
32	32
33	33
34	34
35	35
36	36
37	37
38	38
39	39
40	40
41	41
42	42
43	43
44	44
45	45
46	46
47	47
48	48
49	49
50	50

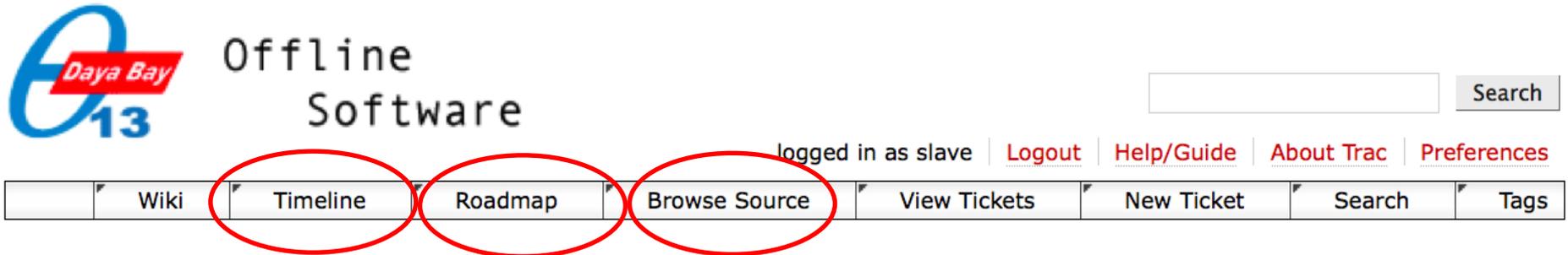
```

def test_dybo():
    'Trivial test of base classes - output '
    Run("nuwa.py -n 10 -o dybtest.root share/dyboutputtest.py")()
def test_dybi():
    'Trivial test of base classes - input '
    Run("nuwa.py -n 10 dybtest.root share/dybinputtes
def test_geno():
    'Include GenTools - output '
    Run("nuwa.py -o geniotest.root -n 3 share/geniotest.py share/rootiotest.py")()
def test_geni():
    'Include GenTools - input '
    Run( "nuwa.py -n 3 share/rootiotest.py geniotest.root" )()
def test_simo():
    'GenTools + DetSim - output '
    Run( "nuwa.py -o simiotest.root -n 3 share/geniotest.py share/simiotest.py share/rootiotest
def test_simi():
    'GenTools + DetSim - input '
    Run( "nuwa.py -n 3 share/rootiotest.py simiotest.root" )()

```

Annotated source links yield..

- coloured PASS/FAIL/ERROR
- FAIL/ERROR lines highlighted



<http://dayabay.ihep.ac.cn/tracs/dybsvn/timeline>

- event summary : commits / ticket changes / build failures

<http://dayabay.ihep.ac.cn/tracs/dybsvn/roadmap>

- milestone status : tickets left to be resolved ...

<http://dayabay.ihep.ac.cn/tracs/dybsvn/browser>

- intuitive source browser : project history

How to run tests ? What are they ? How to create them ?

- Get into package directory and CMT environment

```
cd NuWa-trunk
cd dybgaudi/RootIO/RootIOTest/cmt
cmt config
source setup.sh ## or .csh
cd ..
```

Browse source of tests by searching for :
`/dybgaudi/trunk/RootIO/RootIOTest/tests`

- Run : all tests, a single modules tests OR a single test

```
which nosetests          ## must be in package env and dir
nosetests -v             ## -v for verbose
nosetests -v tests/test_io.py
nosetests -v tests/test_io.py:test_dybo
```

```
nosetests --help
pydoc nose
```

nosetests uses "nose" a popular python test finding/running package

python functions named **test_*** in module called **test_*.py** in directory called **tests** in CMT package directory

```
def test_pass():  
    pass  
def test_exception():  
    raise Exception  
def test_import():  
    import nonexistent  
def test_assert():  
    assert False
```

```
nosetests -v test_basics.py
```

```
test_exits.test_pass ... ok  
test_exits.test_exception ... ERROR  
test_exits.test_import ... ERROR  
test_exits.test_assert ... FAIL
```

```
... error output snipped ...  
Ran 4 tests in 0.035s  
FAILED (errors=2, failures=1)
```

FAIL : asserted on anticipated issue
ERROR : non-anticipated problem

```
from dybtest import Matcher, Run
```

```
checks = { '.*ERROR':1,  
          '.*FATAL':2,  
          '.*\*\*\* Break \*\*\* segmentation violation':3,  
          '.*IOError':4, }
```

Browse current source by searching for :
/dybgaudi/trunk/RootIO/RootIOTest/tests/test_io.py

```
Run.parser = Matcher( checks, verbose=False )
```

```
Run.opts = { 'maxtime':300 }
```

dybtest.Run invokes any cmd in a subprocess,
pattern matches output, enforces maxtime

```
def test_dybo():
```

```
    Run("nuwa.py -A -n 10 -o dybtest.root share/dyboutputtest.py" )()
```

```
def test_dybi():
```

```
    Run("nuwa.py -A -n 10 dybtest.root share/dybinputtest.py" )()
```

```
def test_genoc():
```

```
    Run("nuwa.py -A -o geniotest.root -n 3 share/geniotest.py share/rootiotest.py" )()
```

Continuously verified commands (+documentation)

Almost no restriction on what tests can do... just conventions for naming/arguments/placement

```
g = alg = None
def test_setUp():
    from GaudiPython import AppMgr
    from consistency import ConsistencyAlg
    global g, alg
    g = AppMgr()
    alg = ConsistencyAlg()
    g.addAlgorithm(alg)
def test_consistency():
    global g, alg
    g.run(g.EvtMax)
    alg.compare()
```

Better to keep the tests short, implement most functionality in separate modules and import that into the test

- Run tests for pkg: `/tutorial/trunk/Simulation/SimHistsExample` , some hints :
 - ◇ You may need to build the package first
 - ◇ You will need to edit the tests to “switch” them on, access the history of the file to show you how to do this

The winner is the first to get 3 passed tests ... should be doable in < 1 min

- Add a test to `SimHistsExample/tests/test_SimHistExample.py` that:
 - ◇ checks that the mean of a histogram in `simhists.root` file is within a certain range

The winner will complete this with the minimum lines of code added, re-using existing code is encouraged, should be doable in < 3 min

Solution

r5227

Conclusion

- You should now be comfortable with :
 - ◇ searching Trac for tickets that match issues encountered
 - ◇ adding tickets for the problems you find
 - ◇ creating tests for your NuWa related code
 - ◇ browsing Trac for work items to contribute to

Covered in the "Backup" slides

How Volunteers can find work items [/report]



Offline
Software

Tickets describe "enhancements" and "tasks" as well as "defects"

logged in as blyth | [Logout](#) | [Help/Guide](#) | [About Trac](#) | [Preferences](#)

Wiki	Timeline	Roadmap	Browse Source	View Tickets	New Ticket
Available Reports					Custom C

Available Reports

This is a list of available reports.

Find work items by looking for Active tickets owned by "offline", eg from the "by owner" reports {4} {5}

Report	Title
{1}	Active Tickets
{2}	Active Tickets by Version
{3}	Active Tickets by Milestone
{4}	Active Tickets by Owner
{5}	Active Tickets by Owner (Full Description)
{6}	All Tickets By Milestone (Including closed)
{7}	My Tickets
{8}	Active Tickets, Mine first
{9}	All Tickets By Component (I

Discuss the task with ticket reporters and others that have commented on it on the offline+simulation mailing lists

Active Tickets by Owner {4}

The "offline" identity is used as a catchall for tasks that are not yet claimed by volunteers

Ticket	Summary		Status	Milestone	Type
#67	PDGId disagreement		new	Dec 2008 Collaboration meeting	defect
#48	Optical surfaces		new	AD Dry Run	defect
#68	Parent particle information is missing in U and Th generator of GenRad	dybgaudi//Generators	new		defect
#70	Add "seed" for Cf252 & PuC generators	dybgaudi//Generators	new		defect
#22	Add elliptical shapes to DetDesc	dybgaudi//Detector	new	Dec 2008 Collaboration meeting	enhancement
#87	Multi file input for Fifteen	dybgaudi//Simulation /Fifteen	new	Integration of fifteen minutes simulation	enhancement
#1	Realistic attenuation lengths for MO, GdLS, LS	dybgaudi//Detector	new		task
#2	Realistic attenuation length for acrylic	dybgaudi//Detector	new	AD Dry Run	task
#37	Implementation of encapsulated radioactive sources and support cables	dybgaudi//Detector	new	AD Dry Run	task
#44	Implement RPC support structures in NuWa.	dybgaudi//Detector	new	AD Dry Run	task
#74	Implement DBI IcableSvc	Unclassified /	new	Online/Offline Integration	task
#75	Implement DBI service for ICalibDataSvc	dybgaudi//Database	new	Online/Offline Integration	task
#76	Implement DBI ISimDataSvc	dybgaudi//Database	new	Online/Offline Integration	task
#65	Effects of AD supporting structures	Unclassified /	new	AD Dry Run	defect
#69	Possible improvement for U and Th generators	dybgaudi//Generators	new		enhancement
#31	Implement representation of gas distribution and electrical interface box on AD lid	dybgaudi//Detector	new		task
#38	Need interactive and searchable troubleshooting guide for shift problems.	Infrastructure /	new		task
#63	Optical properties of teflon and viton	Unclassified /	new	AD Dry Run	task
#66	Spill-in/out effect under new conical design	Unclassified /	new	AD Dry Run	task

Reassign Ticket / Accept Ticket

Change Properties

Summary: Implement DBI ISimDataSvc

Type: t

bseimari

bv

cetull

cjslin

dandwyer

dayabay

djaffe

goettj

huangxt

jetter

jliu

kboddy

kevin

liujinc

lixb

luke

slave

Priority: major

Milestone: C

Integration

Component: dybgaudi//Da

Version: t

Keywords:

Add to Cc: sla

Action

leave as new

resolve as

reassign to

accept

Reassign the task to someone else or accept it yourself, (also see p39)

The resolution will be set. Next status will be 'closed'

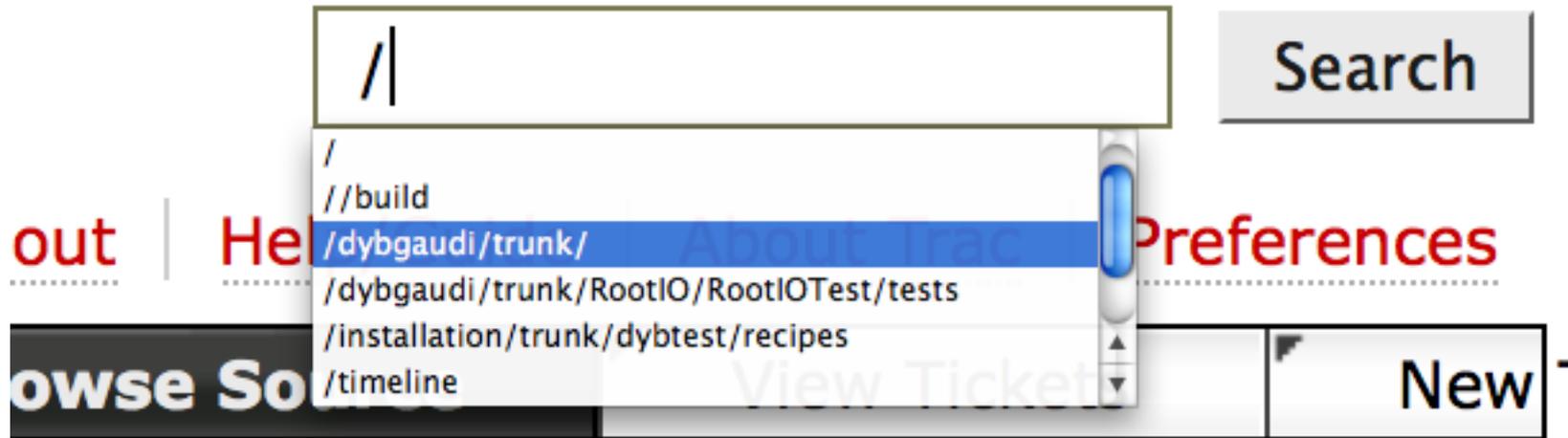
The owner will change. Next status will be 'new'

The owner will change to slave. Next status will be 'assigned'

Cool Stuff

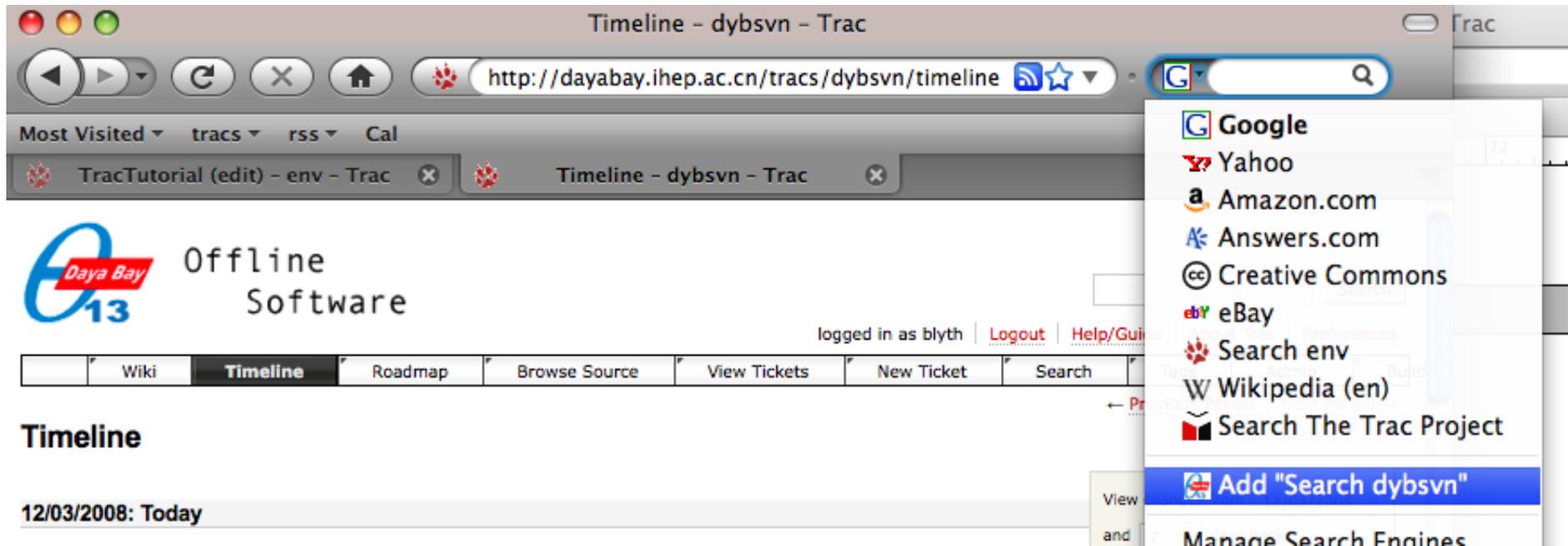
Jump Browsing

Tip : browse source by searching for paths such as
/
/dybgaudi/trunk
/dybgaudi/trunk/RootIO/RootIOTest/tests
/tutorial/trunk/Simulation/SimHistsExample



Tips and Tricks : use Firefox

- Firefox highly recommended :
 - ◇ good at remembering/autofilling passwords
 - ◇ plugin **"It's All Text!"** <http://trac.gerf.org/itsalltext> (edit text fields in your preferred editor) eg for ticket descriptions/comments
 - ◇ Single Click OpenSearch integration : allows use of all TracLinks (r5020 , #110, doc:250) from Firefox search field, without navigating to dybsvn



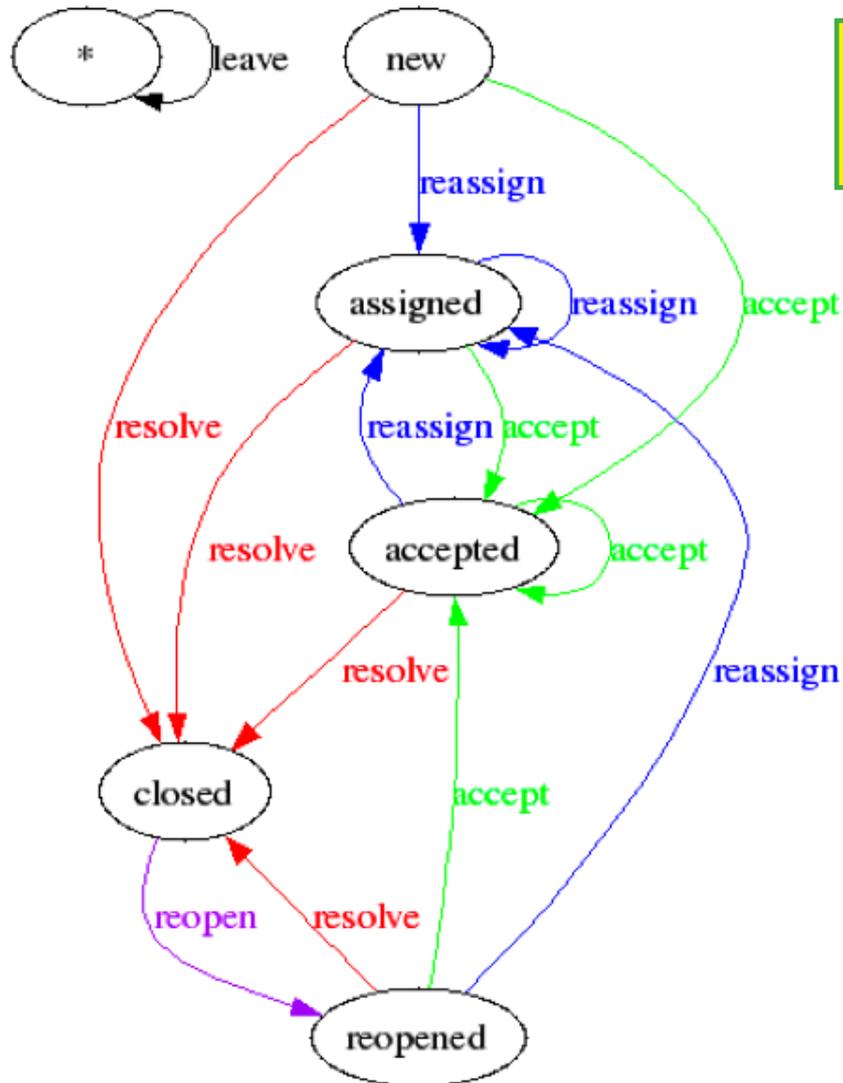
- Usable most everywhere, including :
 - ◇ SVN commit commandline / **Search box at top right**
 - ◇ Ticket Descriptions + Comments

<code>/dybgaudi/trunk</code>	browse repository path (source:)
<code>r5060</code> or <code>[5060]</code>	changeset view
<code>#110</code>	ticket view
<code>{6}</code>	report on selection of tickets
<code>log:/lcgcmnt</code>	history of repository path
<code>doc:1001</code>	external link to docdb document
<code>wiki:TracLinks</code>	wikipage, much more on TracLinks
<code>root:TH1</code>	external link to root documentation

Capturing linkages between data sources improves access (3 seconds effort saves minutes for 10 people ... including you)

```
svn ci -m "This together with r6004 implements reconstruction algorithm described in doc:5005, closing #205 #208 #209 "
```

Background for Advanced Users



We are using the default Trac 0.11 workflow

For simplicity we currently do not stress the distinction between "assigned" and "accepted"

<http://dayabay.ihep.ac.cn/tracs/dybsvn/wiki/TracWorkflow>

- Informative commit messages :
 - ◇ NOT : blank OR equally useless, such as “fix”, “bugfix” etc..
 - ◇ consider the text as keywords for the search indexer
 - ◇ if you have short tips / references (**doc:101**) for subsequent persons (it might be you) include them in the message
 - ◇ when committing, refer to/close related tickets (**#110**)
 - ◇ if no tickets are related, consider if there should be and create them
 - ◇ when closing/editing tickets, refer to related commits (**r5020**)

<http://dayabay.ihep.ac.cn/tracs/dybsvn>

- In total 38 users have logged in to the "dybsvn" Trac instance (NuWa-Trac) out of a possible total of 76 SVN identities
 - ◇ 30 distinct users within the past month
 - ◇ 22 within the past 10 days
- Most users are returning to NuWa-Trac frequently
 - ◇ almost all the frequent committers
- Everyone using NuWa can benefit from (and contribute to) NuWa-Trac
 - ◇ users / developers / management

If you are not using NuWa-Trac you are missing out

- Issue/Enhancement (**ticket**) tracking
 - ◇ reports (**ticket** presentation)
 - ◇ roadmap (**ticket** prioritization)
- Intuitive SVN repository Browser
 - ◇ changeset/**revision** diff presentation
 - ◇ “blame” annotation : who did what ?
 - ◇ **revision** history
- Wiki system
 - ◇ Trac wikitext used throughout
 - ◇ URL shortcuts, doc:101 root:TQObject

Integrated : via **TracLinks**
#123
{5}
r3001
log:/lsgcmt

+ **Timeline** of project
events

11/30/2008:

- 🔨 21:20 Build of [dybinst \[5058\]](#) on i686-slc308-gcc323 completed
- 🔨 21:11 Build of [detdesc \[5058\]](#) on i686-slc308-gcc323 completed
- 🔨 21:01 Build of [dybinst \[5058\]](#) on i686-slc46-gcc346 completed
- 🔨 20:54 Build of [detdesc \[5058\]](#) on i686-slc46-gcc346 completed
- ⚙️ 19:57 Changeset [\[5058\]](#) by wenlj
 - 📁 dybgaudi/trunk/Detector/XmlDetDesc/DDDB/structure.xml
 - 📁 dybgaudi/trunk/Detector/XmlDetDesc/cmt/requirements
 - Make AdReflectorStructure visible in XmlDetDesc.
- ⚙️ 19:54 Changeset [\[5057\]](#) by wenlj
 - 📁 dybgaudi/trunk/Detector/XmlDetDesc/python/XmlDetDescGen/AD/gen.py
 - 📁 dybgaudi/trunk/Detector/XmlDetDesc/python/XmlDetDescGen/AdReflectorStruct
 - 📁 dybgaudi/trunk/Detector/XmlDetDesc/python/XmlDetDescGen/AdReflectorStruct
 - Define DetectorElement for the ESR film, for the purpose to get its position in DetDesc.
- 🔨 04:41 Build of [dybinst \[5056\]](#) on i686-slc308-gcc323 completed
- 🔨 04:38 Build of [dybinst \[5056\]](#) on i686-slc46-gcc346 completed
- ⚙️ 03:30 Changeset [\[5056\]](#) by cjslin
 - 📁 dybgaudi/trunk/Production/MDC
 - Delete MDC directory. Replaced by MDC08
- 📄 03:27 Ticket [#34](#) (Implementation LED cables and weights for AD.) updated by cjslin
 - milestone* changed
 - Changing milestone to Tutorial Release. Need this by December 5 to make ...
- 📄 03:22 Ticket [#73](#) (Implement DBI service for PMT test bench data) updated by cjslin
 - milestone* changed
 - Changing milestone to Tutorial release. The three DBI services we would ...

View changes from

and days back.

- Repository checkins
- Builds
- Ticket changes
- Ticket details
- Milestones
- Wiki changes

Tip : reduce "days back" for faster loads

History of a repository path, [log:/lgcmt](#)



root / **lgcmt**

[View Latest Revision](#) | [Older Revisions](#) →

Added Modified Copied or renamed

[View changes](#)

Revision Log Mode:

- Stop on copy
- Follow copies
- Show only adds and deletes

View log starting at and back to

Show at most revisions per page.

Show full log messages

[Update](#)

		Rev	Chgset	Date	Author	Log Message
<input checked="" type="radio"/>	<input type="checkbox"/>	@5054	[5054]	6 days	bv	Add more aliases for newer GCC 4.2.x
<input type="radio"/>	<input type="checkbox"/>	@4924	[4924]	2 weeks	blyth	Bring trunk fix r4657 over to 1.0.0-rc03 ... Use relative paths with ...
<input type="radio"/>	<input type="checkbox"/>	@4657	[4657]	4 weeks	blyth	Use relative paths with Geant4 liblist to avoid silent truncation of libs ...
<input type="radio"/>	<input type="checkbox"/>	@4296	[4296]	2 months	patton	Given correct version name
<input type="radio"/>	<input type="checkbox"/>	@4295	[4295]	2 months	patton	Captured changes needed for release.
<input type="radio"/>	<input type="checkbox"/>	@4275	[4275]	2 months	wangzhe	Some compilation errors are found in K40 and Co60. The errors are like: ...
<input type="radio"/>	<input type="checkbox"/>	@4273	[4273]	3 months	patton	Updated MySQL and Python packages
<input type="radio"/>	<input type="checkbox"/>	@4265	[4265]	3 months	patton	Modified to support 64 bit builds on PDSF

Links to : `path@rev`,
changesets & into timeline

- Objectives of dyb__* functions
 - ◇ allow build system slaves to do dybinst steps, environment setup and test running in a coherent manner
 - ◇ allow developers to run some/all tests prior to committing
 - ◇ provide basic validation of dybinst'allations
 - ◇ discerning (bash) users might find them useful

Decouples NuWa specifics from the testing system slaves
(and users too)
providing more efficient development/usage

- Define the functions by sourcing ..
cd NuWa-trunk ; . ../installation/trunk/dybttest/scripts/dyb__.sh
OR
. dyb__.sh ## works when nuwa-python in PATH

dyb__<tab> ## see the available functions
dyb__usage ## help message

- Find and Run all tests, getting into each pkg environment

```
cd NuWa-trunk
```

```
dyb__testall -v    ## all tests beneath PWD
```

- Anchor operations on a single package with BUILD_PATH, many dyb__* use this as default context of operations

```
export BUILD_PATH=dybgaudi/trunk/RootIO/RootIOTest
```

```
dyb__          ## into pkg env
```

```
dyb__test -v
```

```
nosetests -v
```

```
dyb__test ~ nosetests  
for interactive use  
(after into env)
```

Changeset 4963

Timestamp: 11/21/2008 02:04:01 PM (12 days ago)
Author: blyth

Links to timeline +
Diff presentation

Message: Add -K --leak-check-execute option to nuwa.py for using Hephaestus memory tracker

Files: 1 modified

[dybgaudi/trunk/DybPython/python/DybPython/Control.py \(2 diffs\)](#)

Unmodified Added Removed

dybgaudi/trunk/DybPython/python/DybPython/Control.py

r4856	r4963	
92	92	parser.add_option("-G", "--detector", default= "",
93	93	help="Specify a non-default, top-level geometry file")
	94	
	95	parser.add_option("-K", "--leak-check-execute", action="store_true", default= False,
	96	help="Use Hephaestus memory tracker for Algorithm::sysExecute ")
	97	
94	98	
95	99	parser.disable_interspersed_args()
...	...	
142	146	pass
143	147	
	148	
	149	if self.opts.leak_check_execute:
	150	try:
	151	import Hephaestus.MemoryTracker as memtrack
	152	except ImportError:

Background for Developers

Test Flavor	Level	Creation/Maintenance Cost vs Benefits
Unit Test	class level	Cost > Gain
Integration Test	multi classes package / intra-pkg	Cost ~ Gain [cheaper for pkg author]
Functional Test	top level invokation (eg nuwa.py cmd)	Cost << Gain [most tests like this]
Detector Qty Test	AutoValidation style	

- Factors against writing/maintaining Unit Tests
 - ◇ interface design activity, only makes sense early in development when prepared to change interface
 - ◇ py config/control surface layer above C++ ocean
- Why test at python level ?

Require low entry price for creating tests

 - ◇ Encourage functionality exposed at py level
 - ◇ C++ testing is too big an overhead

- Integration of **Bitten Trac plugin** : a master/slave system communicating over HTTP + **nose** python test runner
 - ◇ **NuWa-Trac** is master , slaves : any NuWa installation
 - ◇ SVN integration allows **builds/tests tailored to commit location**
- Master implemented with :
 - ◇ Trac + Bitten plugin <http://bitten.edgewall.org>
 - ◇ BittenNotify (email notifications)
 - ◇ BitExtra (presentation enhancements, eg result source annotation)
- Slave implemented with **nosebit** NuWa external (since r4360) :
 - ◇ **bitten-slave** <http://somethingaboutorange.com/mrl/projects/nose/>
 - ◇ **nose** : popular python test discovery and running system
 - ◇ **setuptools** : nose + bitten-slave prerequisite
 - ◇ **xmlnose** : nose plugin creating xml test reports for the master

```
<step id="test-rootio" description="test-rootio" onerror="continue" >
  <sh:exec executable="bash" output="test-rootio.out"
    args=" -c &quot; &env;
    export BUILD_TEST=rootio ;
    export BUILD_PATH=dybgaudi/$NUWA_VERSION/RootIO/RootIOTest ;
    &test; &quot; " />
  <python:unittest file="test-rootio.xml" />
</step>

<step id="test-simhistex" description="test-simhistex" onerror="continue" >
  <sh:exec executable="bash" output="test-simhistex.out"
    args=" -c &quot; &env;
    export BUILD_TEST=simhistex ;
    export BUILD_PATH=tutorial/$NUWA_VERSION/Simulation/SimHistsExample ;
    &test; &quot; " />
  <python:unittest file="test-simhistex.xml" />
</step>
```

</installation/trunk/dybttest/recipes/dybinst.xml>

- Configure testing of additional CMT package
 - ◇ add **step** to recipe : follow pattern setting BUILD_PATH, BUILD_TEST
 - ◇ slaves will attempt to run **dyb__test** with the Master controlled env
- Recipes associated to repository locations (exclusions: people, groups..)
 - ◇ dybinst.xml : / [overlap checking only after Detector changes](#)
 - ◇ detdesc.xml : </dybgaudi/trunk/Detector>

Background for Administrators

- **NuWa-Trac** sources (patches, scripts...) managed in “env”, “tracdev” instances @ NTU, Taiwan

- ◇ <http://dayabay.phys.ntu.edu.tw/tracs/env>

- Heirarchical suite of bash functions, used to :

- ◇ build prerequisites + NuWa-Trac
- ◇ configure : plugins + permissions
- ◇ make nightly backups, rsyncs to NTU

Developed/Tested at NTU,
used at IHEP by Xinchun->Qiumei

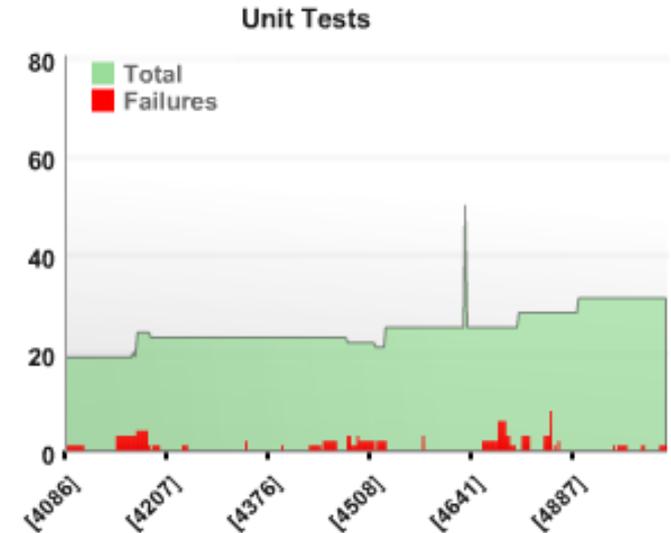
Composition of NuWa-Trac

1.	tracrac	7236	tags/trac-0.11	local-mods
2.	genshi	873	tags/0.5.0	pristine
3.	accountmanager	4117	trunk	local-mods
4.	tractoc	3783	0.11	local-mods
5.	tractags	3882	trunk	pristine
6.	tracnav	HEAD	<div style="background-color: yellow; border: 1px solid black; padding: 5px; text-align: center;"> NuWa-Trac is comprised of 15 python packages ... 5 patched , 3 hosted at NTU </div>	
7.	docutils	HEAD		
8.	pygments	HEAD		
9.	silvercity	HEAD	SilverCity-0.9.7.tar.gz	not-svn
10.	textile	HEAD	textile-2.0.11.tar.gz	not-svn
11.	trac2latex	HEAD	trunk	pristine
12.	trac2mediawiki	HEAD	trunk/0.11	pristine
13.	bitten	561	branches/experimental/trac-0.11	local-mods
14.	bitextra	HEAD	trunk	pristine
15.	bittennotify	28	trunk	local-mods

Server Side
 of Testing
 System

Future Developments

- re-purpose existing SW metric machinery
 - ◇ establish simple xml structure for recording metrics (analogous to test results)
 - ◇ "metric reports" PUT to master and inserted into Trac DB tables after qualifying commits
 - ◇ alternative views of resulting SQLite tables possible



Factorize the 4 facets of metric handling
creation / persisting / presenting / monitoring

- Package validation experts need to implement tests that :
 - ◇ create the required histograms (could be just a nuwa.py commandline)
 - ◇ summarize the histograms into metrics (means, fitting parameters ...) and write the xml "metric report"