



RootSpy

Status Report

RootSpy

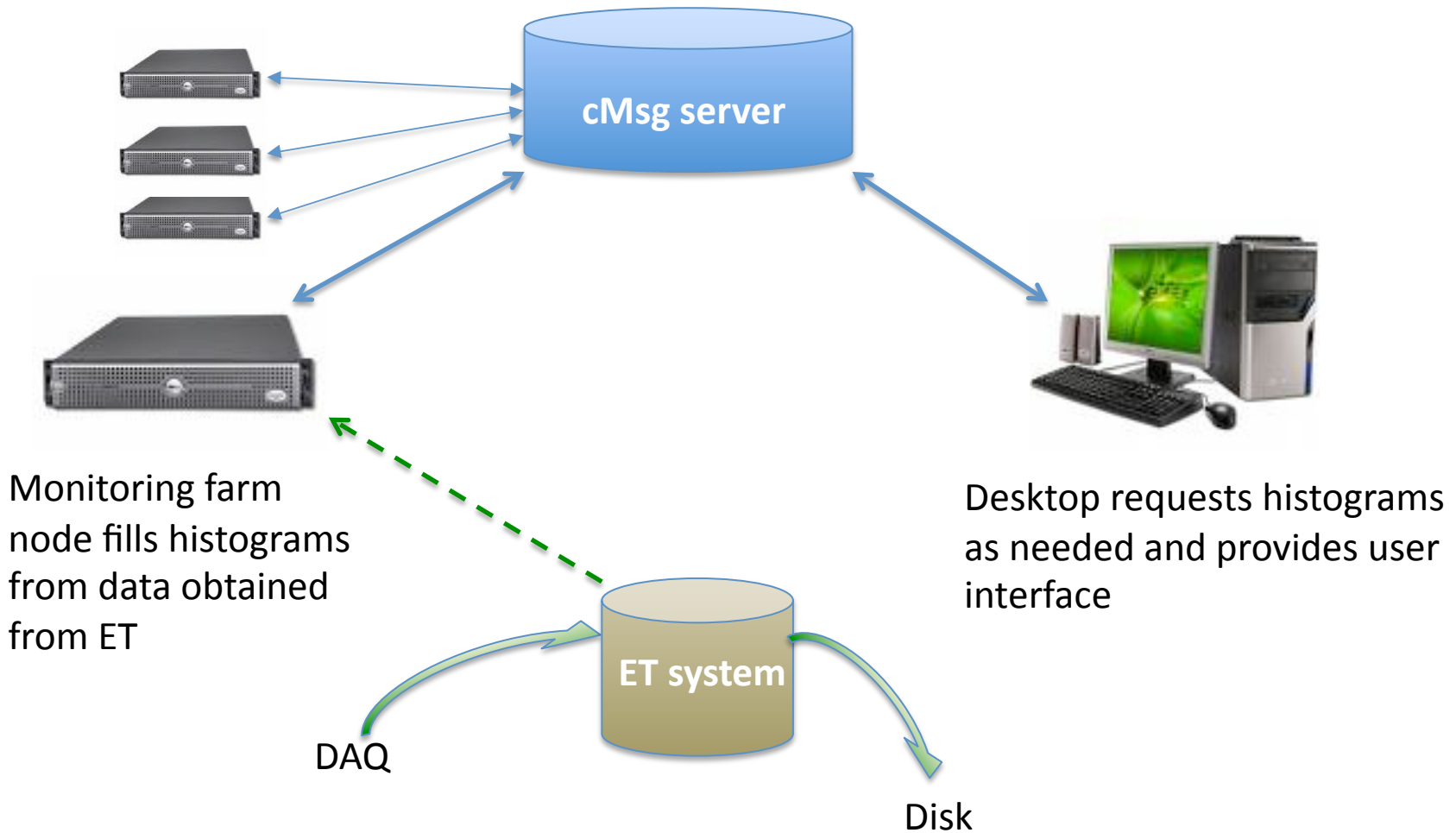
David Lawrence, JLab

Apr. 28, 2010

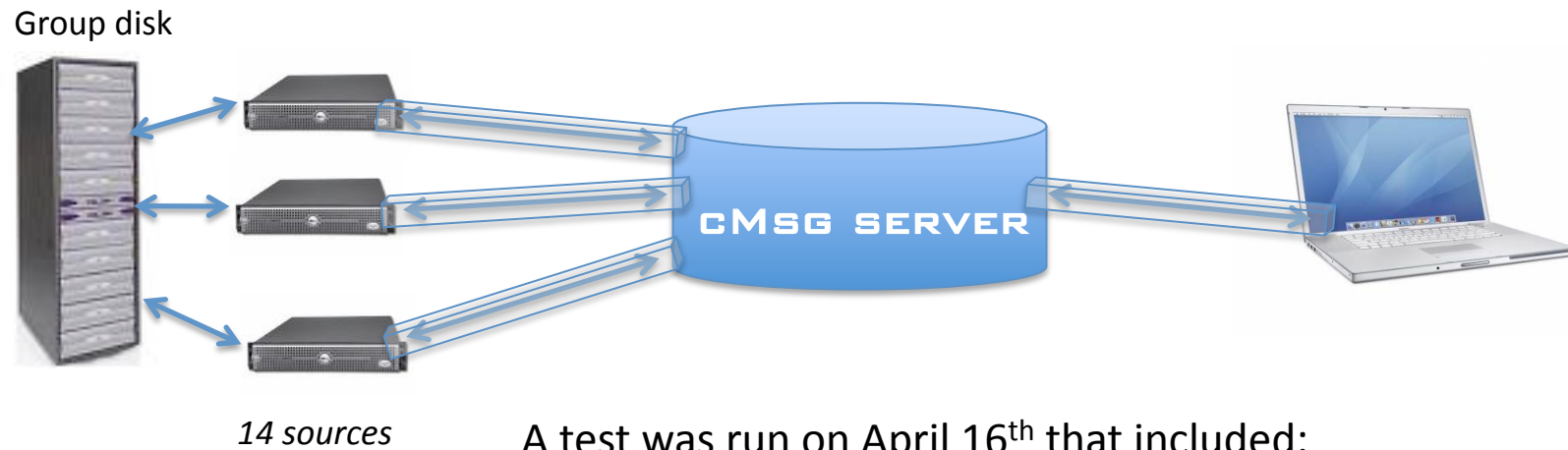
What is RootSpy

- Root Spy is a software package that allows a running program to “publish” its histograms upon request while they are being filled
- Program that generates histograms can be completely unaware of the presence of RootSpy
- RootSpy can be attached as a plugin to any JANA program
- Network communication done via cMsg

Online Monitoring



Test Run



A test was run on April 16th that included:

- 8 dafarm computers
- 3 ifarm 32bit Linux machines
- 1 ifarm 64bit Linux machine
- 1 office desktop (Linux)
- 1 laptop (Mac OS X)

All connections (except 1) made via ssh tunnels
cMsg server run on ifarm16

Codega - Sever Codega - Hd_ana 3 Codega - RootSpy GUI Codega - Kill hd_ana cMsg Monitor RootSpy

RootSpy

Current Histogram Info
 Server: dafarm20_30024 et al. (12)
 Histogram: /THROWN/pmom_vs_theta_gamma
 Retrieved: Several servers: dafarm20_29i

Continuous Update options
 Auto-refresh delay: 4s
 loop over all servers
 loop over all histograms

View By Object
 View By Server

Thrown momentum vs. theta for gammas

pmom_vs_theta_gamma_sum	
Entries	19890
Mean x	7.875
Mean y	1.346
RMS x	7.627
RMS y	1.167

cMsg Info
 UDL = cMsg://localhost/cMsg/rootspy

Codega - Hd_ana 3

```
File Edit View Terminal Tabs Help
Codega - Hd_ana 1 x Codega - Hd_ana 2 x Codega - Hd_ana 3 x
Received message -- Subject:rootspy Type:joebesser_29227 Text:who's there?
JANA >>Opening source "hdgeant.hddm"of type: HDDM
JANA >>Opening source "hdgeant.hddm"of type: HDDM1kHz (avg.: 1.8kHz)
JANA >>Opening source "hdgeant.hddm"of type: HDDM1kHz (avg.: 1.9kHz)
Received message -- Subject:rootspy Type:joebesser_29227 Text:who's there?
JANA >>Opening source "hdgeant.hddm"of type: HDDM5kHz (avg.: 1.9kHz)
JANA >>Opening source "hdgeant.hddm"of type: HDDM1kHz (avg.: 1.9kHz)
JANA >>Opening source "hdgeant.hddm"of type: HDDM0kHz (avg.: 1.9kHz)
Received message -- Subject:rootspy Type:joebesser_29227 Text:who's there?
JANA >>Opening source "hdgeant.hddm"of type: HDDM9kHz (avg.: 1.9kHz)
JANA >>Opening source "hdgeant.hddm"of type: HDDM1kHz (avg.: 1.9kHz)
JANA >>Opening source "hdgeant.hddm"of type: HDDM1kHz (avg.: 1.9kHz)
Received message -- Subject:rootspy Type:joebesser_29227 Text:who's there?
JANA >>Opening source "hdgeant.hddm"of type: HDDM1.6kHz (avg.: 1.9kHz)
JANA >>Opening source "hdgeant.hddm"of type: HDDM2.0kHz (avg.: 1.9kHz)
JANA >>Opening source "hdgeant.hddm"of type: HDDM2.1kHz (avg.: 1.9kHz)
Received message -- Subject:rootspy Type:joebesser_29227 Text:who's there?
JANA >>Opening source "hdgeant.hddm"of type: HDDM2.0kHz (avg.: 1.9kHz)
JANA >>Opening source "hdgeant.hddm"of type: HDDM2.1kHz (avg.: 1.9kHz)
JANA >>Opening source "hdgeant.hddm"of type: HDDM2.1kHz (avg.: 1.9kHz)
Received message -- Subject:rootspy Type:joebesser_29227 Text:who's there?
113.3k events processed (113.3k events read) 1030.0Hz (avg.: 1.9kHz)
```

Codega - Kill hd_ana

```
File Edit View Terminal Tabs Help
Codega - Kill hd_ana x Codega - Kill RootSpy x
joebesser:~>killall -9 hd_ana
joebesser:~>killall -9 hd_ana
joebesser:~>killall -9 hd_ana
joebesser:~>killall -9 hd_ana
joebesser:~>killall -9 hd_ana
joebesser:~>
```

Codega - RootSpy GUI

```
File Edit View Terminal Tabs Help
rs_cmsg.cc:367 Adding 35449 from joebesser_29333 to hist
rs_cmsg.cc:367 Adding 4580 from ifarml6_22109 to hist
rs_cmsg.cc:367 Adding 347215 from dafarm23_29836 to hist
rs_cmsg.cc:367 Adding 91694 from dafarm20_30024 to hist
rs_cmsg.cc:367 Adding 164080 from dafarm22_4102 to hist
rs_cmsg.cc:367 Adding 268993 from dafarm2_12588 to hist
rs_cmsg.cc:367 Adding 352370 from dafarm27_13529 to hist
rs_cmsg.cc:367 Adding 259190 from dafarm25_30050 to hist
rs_cmsg.cc:367 Adding 325657 from dafarm24_30125 to hist
rs_cmsg.cc:367 Adding 354223 from dafarm26_25344 to hist
rs_cmsg.cc:367 Adding 39041 from joebesser_29333 to hist
rs_cmsg.cc:367 Adding 1890 from ifarml6_22109 to hist
rs_cmsg.cc:367 Adding 2000 from dafarm26_25344 to hist
rs_cmsg.cc:367 Adding 2000 from dafarm22_4102 to hist
rs_cmsg.cc:367 Adding 2000 from dafarm27_13529 to hist
rs_cmsg.cc:367 Adding 2000 from dafarm2_12588 to hist
rs_cmsg.cc:367 Adding 2000 from dafarm20_30024 to hist
rs_cmsg.cc:367 Adding 2000 from dafarm25_30050 to hist
rs_cmsg.cc:367 Adding 2000 from dafarm24_30125 to hist
rs_cmsg.cc:367 Adding 0 from joebesser_29333 to hist
rs_cmsg.cc:367 Adding 2000 from dafarm23_29836 to hist
Added "ifarml4_5675" to server list.
Added "ifarml3_30031" to server list.
```

cMsg Monitor

Monitor UDL: cMsg://localhost/cMsg/r

Help cMsg://localhost/cMsg/rootspy

Monitor Data

- server = ifarml6.jlab.org:45000
 - client = monitor_1271446247250
 - client = RootSpy GUI
 - client = dafarm25_30050
 - client = joebesser_29333
 - client = dafarm26_25344
 - client = dafarm27_13529
 - client = dafarm24_30125
 - client = dafarm2_12588
 - client = dafarm22_4102
 - client = ifarml6_22109
 - client = ifarml4_5675
 - client = monitor_1271445206592
 - client = dafarm23_29836
 - client = dafarm20_30024
 - client = ifarml3_30031

Pause Update period (sec): 2

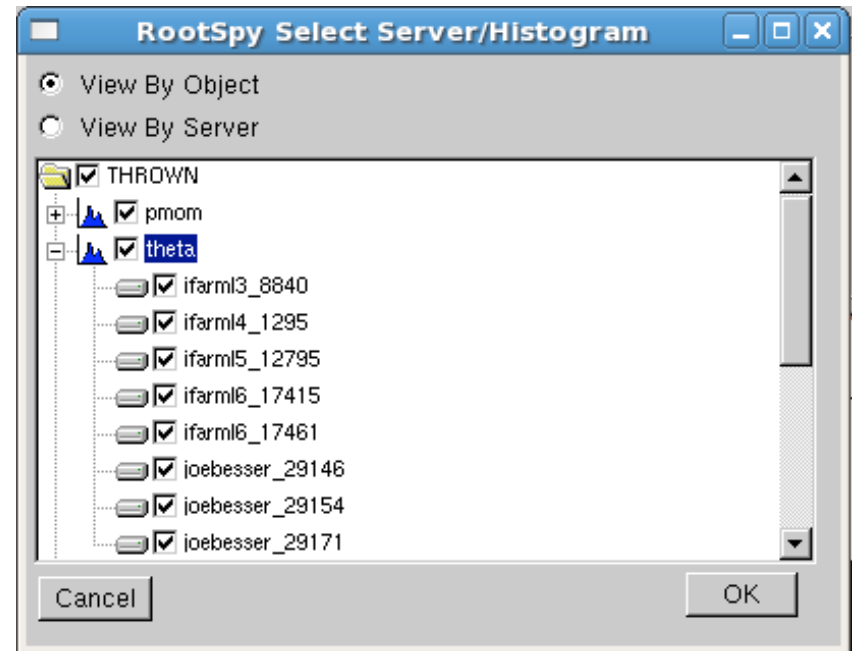
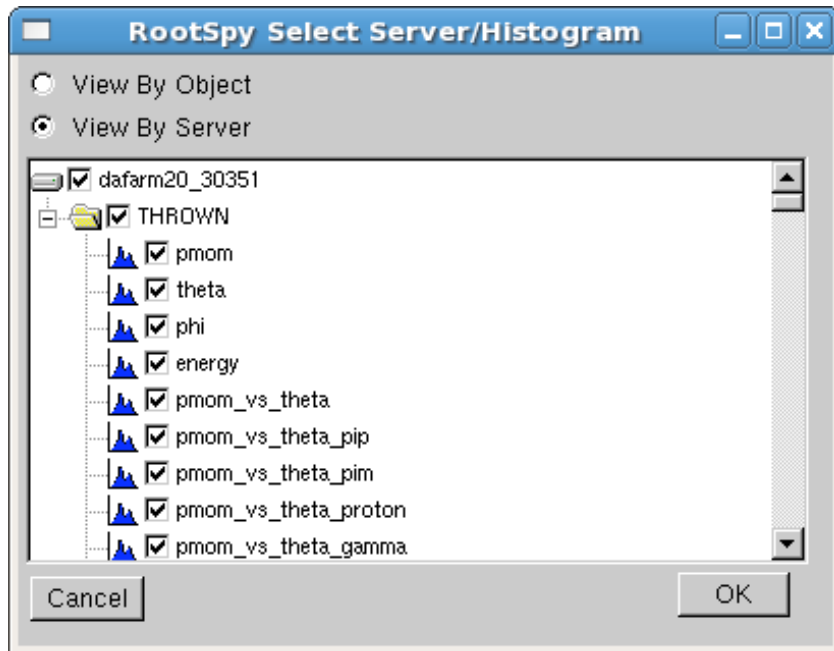
Codega - Sever

```
File Edit View Terminal Tabs Help
Codega - Sever x Codega - Monitor x
joebesser:~>cd Builds/Latest/
joebesser:Latest>source SetENV.csh
joebesser:Latest>cd RootSpy/src/RootSpy/
joebesser:RootSpy>ls
Dialog_SelectHists.C      Makefile.in      rs_info.h
Dialog_SelectHists.cc     README           rs_info.o
Dialog_SelectHists_Dict.cc RootSpy          rs_mainframe.cc
Dialog_SelectHists_Dict.h RootSpy.cc       rs_mainframe_Dict.cc
Dialog_SelectHists_Dict.o RootSpyGUI.C     rs_mainframe_Dict.h
Dialog_SelectHists.h      RootSpy.h        rs_mainframe_Dict.o
Dialog_SelectHists.o      RootSpy.o        rs_mainframe.h
hdef_t.h                  rs_cmsg.cc       rs_mainframe.o
hinfo_t.h                 rs_cmsg.h        server_info_t.h
Makefile                  rs_cmsg.o        start_cmsg_monitor
Makefile.am               rs_info.cc       start_cmsg_server
joebesser:RootSpy>./start_cmsg_server
>> **** cMsg server successfully started at Tue Apr 13 15:17:22 EDT 2010 **
** <<

joebesser:RootSpy>./start_cmsg_server
>> **** cMsg server successfully started at Tue Apr 13 15:29:26 EDT 2010 **
** <<

joebesser:RootSpy>
```

View by object or server



Summary

- RootSpy has been successfully tested with 14 independent sources
- Student (James Codega) project will be completed with presentation on May 19th
- First official production version will be made available probably sometime in June
- Abstract submitted to CHEP2010