

# Using Antelope in an Operational Environment for Real-Time Networks

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# Topics of Discussion

- Initial layout of rt data collection host
- Review of rtxexec files
- Antelope parameter files
- Starting/stopping the system manually and upon reboot
- Initial database setup and maintenance
- Day-to-day maintenance and upkeep
- Email from cronjobs - when is a problem truly a problem?



# Initial layout and setup of rt data collection host

- /export/rt - home directory
  - ◆ Modify .tcshrc (.setup) to include

```
setenv $ANTELOPE /opt/antelope/4.4
source $ANTELOPE/setup.csh
setenv PFPATH $ANTELOPE/data/pf:./pf:./
```
  - ◆ Create directories for each rtexec

```
mkdir net1 net2 catalogs
```
  - ◆ Run the rtinit program in each directory
    - ✦ Creates directories:

bin/	db/	dbmaster/
logs/	orb/	pf/
rtsys/	state/	
    - ✦ Copies rtexec.pf and other parameter files

# Review of rtextec files

- Standard - most seismic data acquisition experiments
  - ◆ orbserver, “something”2orb, orbdetect, orbtrigger, orbassoc, etc.
- “Alternative” - no orbserver
  - ◆ Collect external catalogs/bulletins
  - ◆ Use to spawn external processes such as vnc

# Standard rtextec file

```
# The definitions from Defines are substituted into the environment variables  
# and commands below. For example, $ANTELOPE in an environment definition or  
# command line below will become the value of ANTELOPE from the array Defines.
```

```
Defines &Arr{  
  ANTELOPE  PRESERVE || /opt/antelope/dev # location of the rt software  
  ORB      :anza  # orbname:port  
  DB       db/anza # database name  
}
```

- Choose a port name/number for ORB
- Select database name

# Standard rtexec file

```
# The Processes list specifies the names and execution lines for each
# subprocess which can be run by rtexec.
Processes &Tbl{
orbserver orbserver -p $ORB orbserver

toro2loc orb2orb -m 'AZ.*' -S state/toro2loc 132.239.4.241 $ORB
ipd242 ipd2 -s 16384 132.239.4.242 $ORB
ipd243 ipd2 -s 16384 132.239.4.243 $ORB
quanterra2loc orb2orb -m 'CI.*HL./QCDAT' -S state/quanterra2loc igpprt:9999 $ORB
clc2loc orb2orb -m '.*CPSCLHS' -S state/clc2loc 172.16.139.25 $ORB
trinet2loc orb2orb -m 'CI.*[BHL][HL].*' -S state/trinet2loc rtdev.gps.caltech.edu $ORB
cit2loc orb2orb -m 'CI.*[BHL][HL].*' -S state/cit2loc rtdev.gps.caltech.edu:trinet $ORB

orb2dbvel orb2db -m '(AZ.*/[BHL]S|AZ.*CBB[HL1]S)' -r '(AZ_I.*|./DAS|./RTX|AZ_KSW.*)'
-S state/orb2dbvel $ORB $DB
orb2dblh orb2db -m '(CI.*LH.)' -S state/orb2dblh $ORB $DB
orb2dbcit_bh orb2db -m '(CI.*BH.)' -S state/orb2dbcit_bh $ORB $DB
orb2dbt orb2dbt -state state/orb2dbt -overwrite $ORB $DB

orbdetect orbdetect -out $ORB $ORB $DB
orbtrigger orbtrigger -out $ORB $ORB
orbassoc orbassoc $ORB $ORB tgrid_2
orbmag orbmag -state state/orbmag $ORB $ORB $DB
dbassoc dbassoc_rt -v /hf/hifreq/qed/qed_2002 $DB
```

## ■ Edit Processes

- ◆ Name the process, then give command line

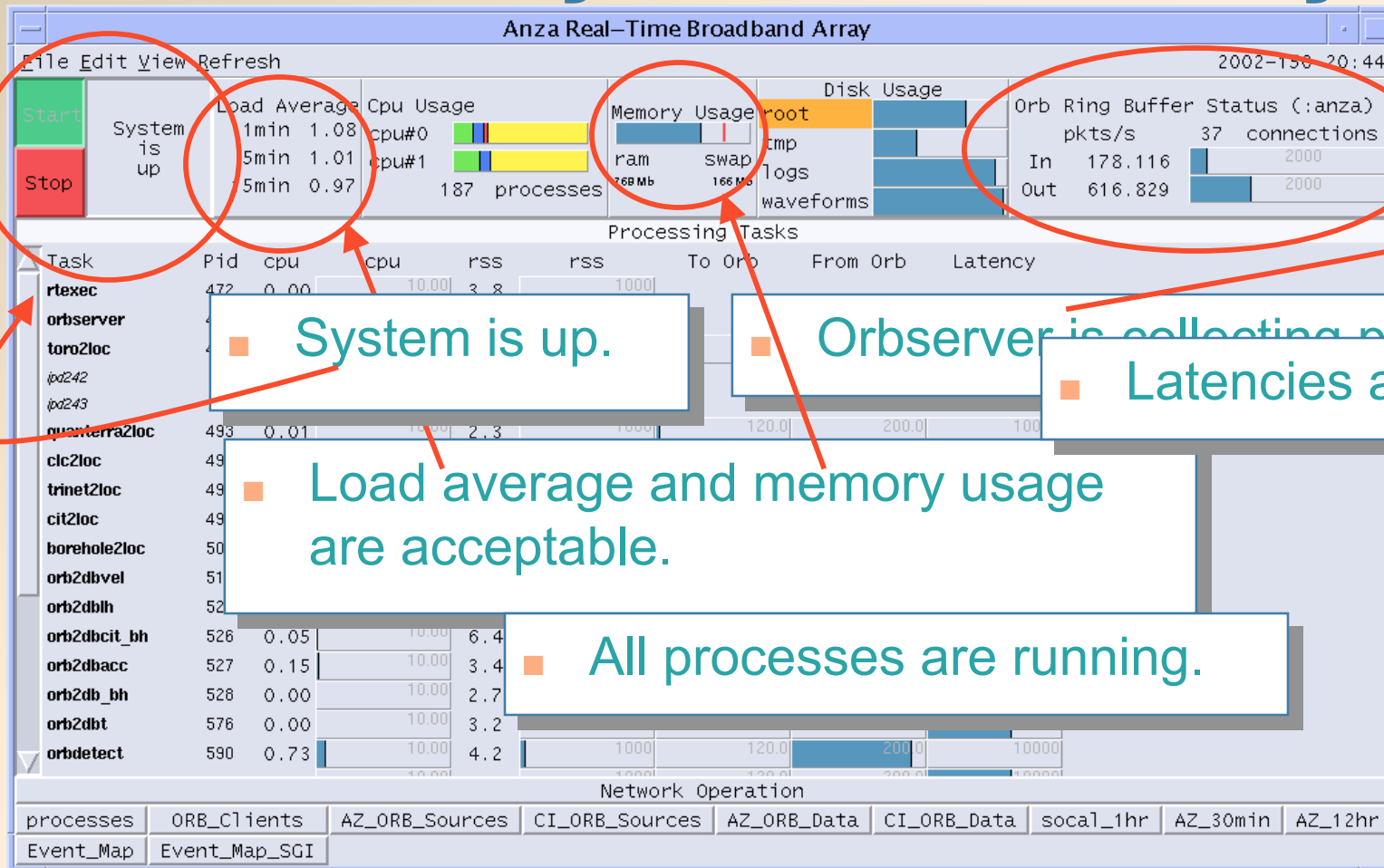
# Standard rteexec file

```
# Only tasks which have a non-zero value in the following list are
# actually run.
Run &Arr{
  orbserver 1
  toro2loc yes
  ipd242 0
  ipd243 0
  cit2loc 1
  trinet2loc yes
  clc2loc 1
  quanterra2loc 1

  orb2dbvel yes
  orb2dblh yes
  orb2dbcit yes
  orb2dbt yes
  orbdetect yes
  orbtrigger yes
  orbassoc yes
  orbmag yes
  dbassoc yes
}
```

- Edit Run
- Edit shutdown\_order
  - ◆ *Wish List:* for rtm - add function that automates adding to Processes, Run, and Shutdown\_order.
- Add your email address to the startup\_shutdown\_email list
- Edit crontab

# Standard rtextec file - is the system healthy?



System is up.

Orbserver is collecting packets.

Latencies are small.

Load average and memory usage are acceptable.

All processes are running.





# “Alternative” rtextec file

```
# Only processes which are named and have a non-zero value in the Run array below
# are actually started.
#
Processes &Tbl{
finger_quakeAZ /hf/sw/scripts/finger_quake -p mk_finger_anza -e 75 -a /home/yin/quake
/hf/igpprt1/anza/db/anza
finger_quakeKN /hf/sw/scripts/finger_quake -p mk_finger_knet -e 100 -a /home/yin/quake_KN
/hf/igpprt2/knet/db/knet

qedd qedd /hf/hifreq/qed/qed_2002
qedd_USGS qedd -l -ipfinger lahr@giseis.alaska.edu -author QED_ALT /hf/hifreq/qed/qed_al
qedd_idaho qedd -ipfinger quake@sisyphus.idbsu.edu -author IDAHO /hf/hifreq/idaho/idah
qedd_utah qedd -ipfinger quake@eqinfo.seis.utah.edu -author UTAH /hf/hifreq/utah/utah
qedd_mtech qedd -ipfinger quake@mbmgsun.mtech.edu -author MTECH /hf/hifreq/mtech/
qedd_usbr qedd -ipfinger quake@seismo.do.usbr.gov -author USBR /hf/hifreq/usbr/usbr
qedd_scec qedd -l -ipfinger quake@scec.gps.caltech.edu -author SCEC /hf/hifreq/scec/scec
qedd_ncec qedd -l -ipfinger quake@quake.geo.berkeley.edu -author NCEC /hf/hifreq/ncec/r
qedd_unr qedd -ipfinger quake@seismo.unr.edu -author UNR /hf/hifreq/unr/unr
qedd_alaska qedd -l -ipfinger quake@giseis.alaska.edu -author AK /hf/hifreq/cat_test/qed_a
qedd_canada qedd -l -ipfinger quake@seismo.nrcan.gc.ca -author CAN /hf/hifreq/canada/ca
qedd_AZ qedd -l -ipfinger quake@epicenter.ucsd.edu -author ANZA db/jen_test
}
```

- Port name/number and db name are not important (no orbserver).
- Edit Run and Processes

# “Alternative” rtexec file

```
# add email addresses to this parameter to have email sent
# automatically when the system is started or stopped.
startup_shutdown_email jeakins@ucsd.edu
```

```
Startup_tasks &Tb{
```

```
# These are one-shot processes to be run when rtexec first starts.
```

```
# The format is the same as in the process table: a task name, followed by the execution line
```

```
socal1hr vncserver :50 -httpd /home/yin/eakins/.vnc/socal1hr/ -name "San Diego area 1 hr orbmonrtd display" -alwaysshared -geometry 1250x775 -xstartup xstartup_socal1hr
anza1hr vncserver :6 -httpd /home/yin/eakins/.vnc/anza1hr/ -name "Anza 1 hour orbmonrtd display" -alwaysshared -geometry 1200x700 -xstartup xstartup_anza1hr
anza12hr vncserver :4 -httpd /home/yin/eakins/.vnc/anza12hr/ -name "Anza 12 hour orbmonrtd display" -alwaysshared -geometry 1200x750 -xstartup xstartup_anza12hr
knet1hr vncserver :7 -httpd /home/yin/eakins/.vnc/knet1hr/ -name "KNET 1 hour orbmonrtd display" -alwaysshared -geometry 1200x500 -xstartup xstartup_knet1hr
knet12hr vncserver :5 -httpd /home/yin/eakins/.vnc/knet12hr/ -name "KNET 12 hour orbmonrtd display" -alwaysshared -geometry 1200x500 -xstartup xstartup_knet12hr
}
```

```
Shutdown_tasks &Tb{
```

```
# These are one-shot processes to be run when rtexec is shutting down.
```

```
# The format is the same as in the process table: a task name, followed by the execution line
```

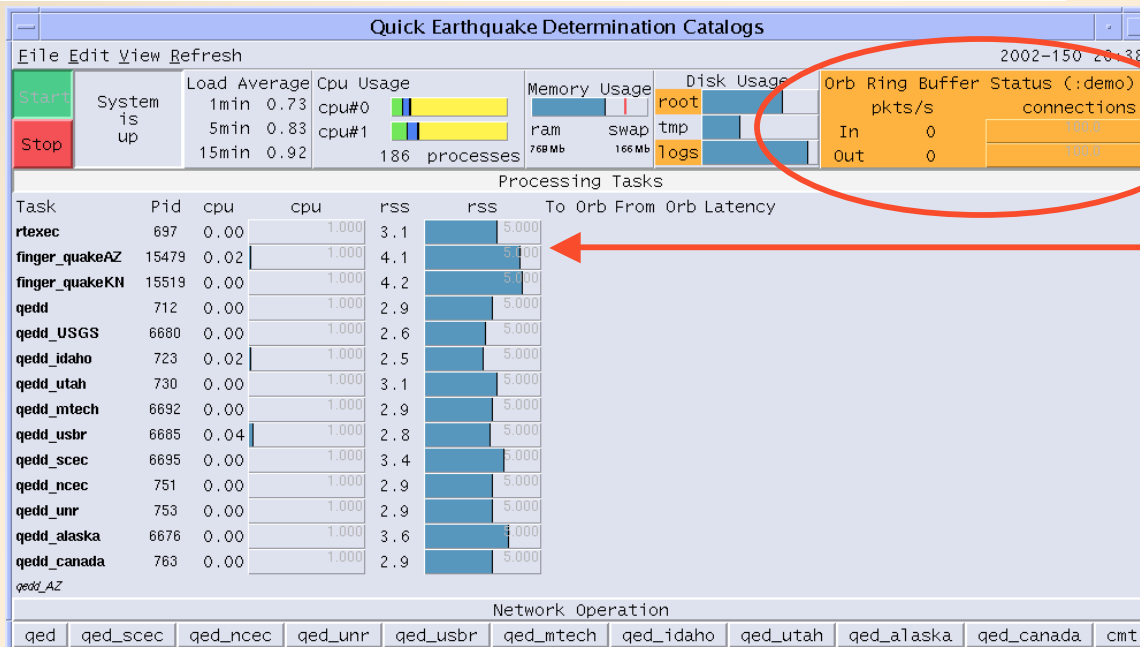
```
kill_socal1 vncserver -kill :50
kill_anza1 vncserver -kill :6
kill_anza12 vncserver -kill :4
kill_knet1 vncserver -kill :7
kill_knet12 vncserver -kill :5
}
```

- Add your email to notification list.
- Edit Startup\_tasks
- Edit Shutdown\_tasks

# “Alternative” rtexec file

```
Buttons & Tbl{ # Use {} instead of " to conform to tcl's quoting
qed_dbe /hf/hifreq/qed/qed_2001
qed_scec dbe /hf/hifreq/scec/scec
qed_ncec dbe /hf/hifreq/ncec/ncec
qed_unr dbe /hf/hifreq/unr/unr
qed_usbr dbe /hf/hifreq/usbr/usbr
qed_mtech dbe /hf/hifreq/mtech/mtech
qed_idaho dbe /hf/hifreq/idaho/idaho
qed_utah dbe /hf/hifreq/utah/utah
qed_alaska dbe /hf/hifreq/cat_test/qed_alaska
qed_canada dbe /hf/hifreq/canada/canada
cmt dbe /hf/hifreq/cmt/cmt
}
```

- Modify Buttons
- Edit crontab



No orbserver!



# Antelope parameter files

- Default parameter files are found under `/opt/antelope/4.4/data/pf`  
Create local copies of pf files under `/export/rt/pf`
- `$PFPATH` is key to determining which parameter file(s) the program recognizes.  
Make sure to `setenv PFPATH` in your login scripts!

```
thrust% echo $PFPATH  
/opt/antelope/4.4/data/pf:/export/rt/pf:./pf:.
```

- Use `pfwhich` to determine which parameter file is being used. `Pfecho` returns values from parameter file.

# Antelope parameter files

## ■ Orbserver.pf

- ◆ Allow local/remote access.
- ◆ Change buffer size.

```
# orbserver.pf
valid_ip_addresses      &Tbl{
# ip-address            mask
127.0.0.1               255.255.255.255 # local host
132.239.4.0             255.255.255.0   # IGPP
131.215.65.0            255.255.255.0   # Caltech
131.215.66.0            255.255.255.0   # Caltech
206.168.219.0           255.255.255.0   # brtt.com
128.95.166.0            255.255.255.0   # gore at IRIS-DMC
204.227.215.0           255.255.255.0   # IRIS demo
}
```

## ■ Orbdetect.pf / orbtrigger.pf / orbassoc.pf

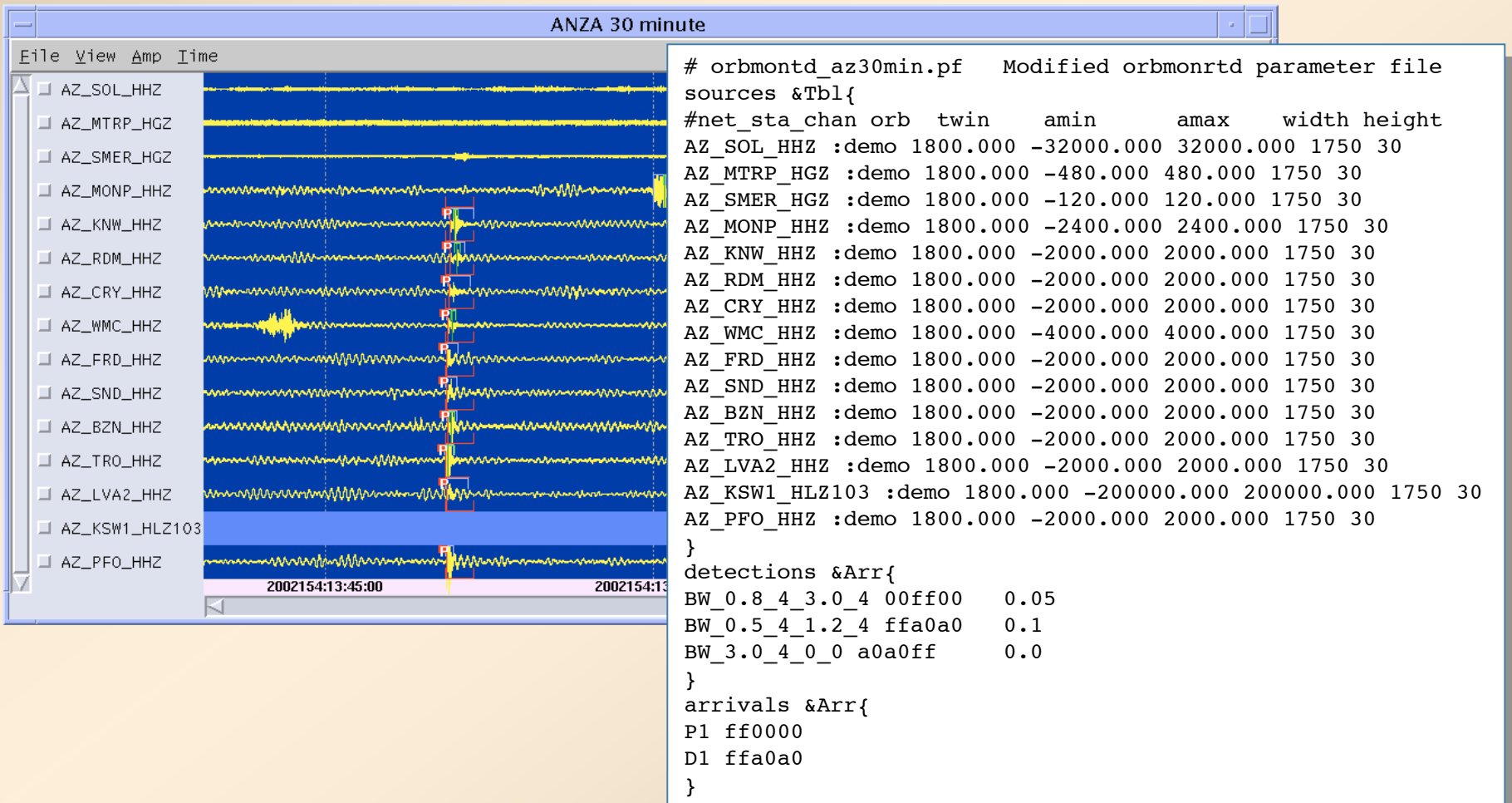
- ◆ Change net | sta | chan | loc for your system. Wildcards can be used.
  - ◆ Change detection filters and nsta thresholds.
  - ◆ *Wish List:* generate net/sta/chan based on database or via a check of selected orb.
- ## ■ “something”2orb.pf (qt2orb, q3302orb, guralp2orb,...)
- ◆ Which pf you use depends on how you are planning on collecting data.

# Antelope parameter files

- Orbmonrtd.pf
  - ◆ Change station/channels, time window, and scale factors as needed.
  - ◆ Create multiple parameter files for varying displays.
    - ✦ *Wish List:* automatic generation of file based on check of database or via a check of status of selected orb.
    - ✦ *Thank You:* Orbmonrtd now allows titles for orbmonrtd windows.

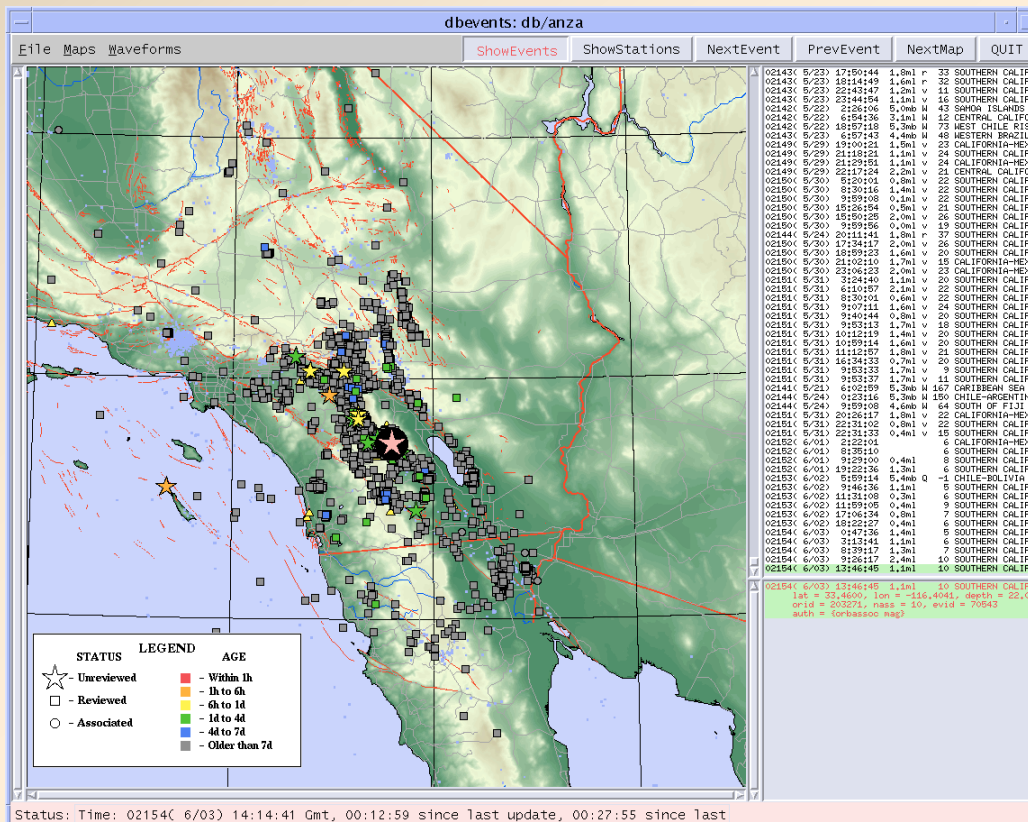
# Orbmonrtd - pf example

- Command line: orbmonrtd \$ORB -title 'ANZA 30 minute' -pf orbmonrtd\_az30min -wmax 1500



# Dbevents - pf example

- Dbevents.pf
  - ◆ Include parameters for maps you wish to use.
  - ◆ Need to make maps using external software (GMT, Matlab, etc.)
  - ◆ Events are retrieved from rt database.



```
maps &Arr{
  anza_0_5 &Arr{
    file /opt/antelope/dev/data/maps/images/anza_0_5.gif
    format gif
    proj edp
    palette 4/4/4
    latc 33.600
    lonc -116.460
    xdelmin -0.500
    xdelmax 0.500
    ydelmin -0.500
    ydelmax 0.500
    symsize 8
    latminbb 33.099
    latmaxbb 34.099
    lonminbb -117.057
    lonmaxbb -115.856
    priority 8
  }
  anza_1_5 &Arr{
    file /opt/antelope/dev/data/maps/images/anza_1_5.gif
    format gif
  }
}
```



# Orbserver\_names - pf example

- Orbserver\_names.pf (Exception!)

```
igpprt% pfwhich orbserver_names
/opt/antelope/4.4/data/pf/orbserver_names.pf
igpprt% pfecho orbserver_names
alaska 31415
anza 6510
anzapar 6511
bba1 6530
bba2 6540
comserv 9999
demo 6770
gsn 2718
kaznet 6790
knet 6520
nevada 7777
pinon 6565
qcmd 39872
replay 30897
scdemo 32742
status 30896
toro 2222
trinet 6620
trinet_rcvr 6630
unr-ucb 5555
uw 6666
weather 30895
```

- ◆ Don't keep a local copy of orbserver\_names.pf!!

- ★ Modify /opt/antelope/4.4/data/pf/ to include orb port-name mapping. (Not just your local ./pf/orbserver\_names.pf!)

- ★ Requests for permanent port-name mappings should be sent to BRTT.

# Auto start/stop of real-time system at reboot or shutdown

## ■ /etc/init.d/antelope

Allows auto-restart upon reboot

Edit these

```
# To restart systems on reboot
# 1) edit @dirs and $user below to fill in the directories
#     where systems are running and the user who runs them.
#     edit $sleep to cause a delay of $sleep seconds between
#     startups in multiple directories.
#
# 2) install this script as
#     /etc/init.d/antelope
#     and
#     /etc/rc[01].d/K01_antelope
#     and
#     /etc/rc3.d/S99_antelope
#
# 3) test it by executing "/etc/init.d/antelope stop" as root.
#
# 4) test it by executing "/etc/init.d/antelope start" as root.

@dirs = qw(/export/rt/quanterra /export/rt/anza /export/rt/knet /export/rt/catalogs);
$user = "rt" ;
```

Follow instructions

Copy \$ANTELOPE/data/system/S99\_antelope to /etc/init.d/antelope.

# Initial setup of a database

- Db/

- ◆ Create or modify descriptor file

- ✦ Old format
- ✦ New format

```
rt1.0      Old
./{mydb}:/{otherdb}
```

```
#
schema rt1.0      New
dbpath    ./{mydb}:/{otherdb}
dbidservr
dblocks  none
```

- Dbmaster/

- ◆ Get dataless seed if possible (psd2db)
- ◆ Build your own with stapars (ucsdsp2db)

# Building your own database (stapar files)

- Key information needed:
  - ◆ Site: latitude, longitude, elevation
  - ◆ Sensor: channels, orientation, sensor type, depth (borehole)
  - ◆ Digitizer: type, sample rate, filters
    - ✦ Many response files exist under `/opt/antelope/4.4/data/responses`

# Building your own database

- A unique stapar file is needed for each change to network (ie. when a station is added or moved, a DAS is swapped, etc.)

```
thrust{eakins}14% ls stapars/BH
001650936.59S 932530100.00S 942520605.00S
912440807.07S 932630100.00S 942550647.50S
912570602.24S 932640100.00S 942550648.00S
922392359.59S 933042359.50S 942550810.00S
922400000.00S 933050000.00S 942560831.00S
922610414.40S 940030653.00S 942570918.00S
922610414.47S 940451600.00S 942700918.00S
932392359.51S 940730000.00S 950051000.00S
932400000.01S 942412359.59S 950051100.01S
932401012.00S 942420001.00S 952230511.00S
932401012.10S 942450421.50S 960912359.00S
932420938.50S 942450422.00S 960920000.01S
932420939.00S 942500415.00S 992200000.00S
932501032.00S 942501125.00S
932510132.00S 942510700.00S
```

- ◆ Stapars are named with a YYJJJHHMM.SS format and always end with a “S”.
- ◆ Use unique stapar directories (ie. create stapars/BH, stapars/HH, stapars/HG) if you have a network with 6+ channel DAS’s or you are recording multiple sample rates per station.
- ◆ You can merge databases with the dbmerge program.

# Example of stapar file

```

Site ? _SID  __Latitude  _Longitude  _Elevation  N-offset  E-offset  V-offset
CHM  Y    1   42.99860    74.75130         655    40580    20856     0
UCH  Y    2   42.22750    74.51340        3850   -45044     1562     0
USP  N    3   43.26690    74.49970         740    70330     428      0

Site Comp Type Serial  Theta Phi    _Freq    _Damp    _Coil  RponseFile  Sens  Depth
CHM   1  VEL  19003    0  0    0.008    0.7    15.0    sts2_vel    BHZ   0
      2  VEL  19003    90 0    0.008    0.7    15.0    sts2_vel    BHN   0
      3  VEL  19003    90 90   0.008    0.7    15.0    sts2_vel    BHE   0
UCH   1  VEL  19019    0  0    0.008    0.7    15.0    sts2_vel    BHZ   0
      2  VEL  19019    90  0    0.008    0.7    15.0    sts2_vel    BHN   0
      3  VEL  19019    90 90   0.008    0.7    15.0    sts2_vel    BHE   0
USP   1  VEL  19017    0  0    0.008    0.7    15.0    sts2_vel    BHZ   0
      2  VEL  19017    90  0    0.008    0.7    15.0    sts2_vel    BHN   0
      3  VEL  19017    90 90   0.008    0.7    15.0    sts2_vel    BHE   0

_SID Serial  DataLogger  SampleRate  FilterResponseFiles
  1     1    RT72A-08      40.0  NoAA cf1 cf2 cf2 cf2 cf3  RT72A_5_s RT72A_5_f
  2     2    RT72A-08      40.0  NoAA cf1 cf2 cf2 cf2 cf3  RT72A_5_s RT72A_5_f
  3     3    RT72A-08      40.0  NoAA cf1 cf2 cf2 cf2 cf3  RT72A_5_s RT72A_5_f

_SID Comp  dbPreAmp  __dbGain  Corner  Roll  Counts/V  HighCorner  _HPR
  1     1     0.0     0.0    16.0   95   526315     0.0    0
      2     0.0     0.0    16.0   95   526315     0.0    0
      3     0.0     0.0    16.0   95   526315     0.0    0
  2     1     0.0     0.0    16.0   95   526315     0.0    0
      2     0.0     0.0    16.0   95   526315     0.0    0
      3     0.0     0.0    16.0   95   526315     0.0    0
  3     1     0.0     0.0    16.0   95   526315     0.0    0
      2     0.0     0.0    16.0   95   526315     0.0    0
      3     0.0     0.0    16.0   95   526315     0.0    0

```

Sanity check: Never use tabs when creating a new stapar file!

# Database maintenance

- Dbmaster (site, sitechan, network, sensor, stage, instrument) tables are static until field work necessitates update.
  - ◆ Wftar table grows with daily backups
  - ◆ Sanity check: Shutdown your running rtexec when updating or modifying your dbmaster database tables.
- Db tables (arrival, assoc, origin, event, detection, wfdisc, etc.) are constantly modified and growing.
  - ◆ Save continuous data with daily rtbackup
  - ◆ Save event segmented data with event\_archive
  - ◆ Clean/truncate tables with rtdbclean

# Day-to-Day monitoring



- Monitoring tools:
  - ◆ Orbstat
  - ◆ Orbmonrtd
  - ◆ Dbevents
  - ◆ Orbllookup (*under development for contrib*)
  - ◆ Qtmon (if you run qt2orb)
  - ◆ Cronjobs



# Orblookup

- Check status of orbs via web browser.

Netscape: igpprt:anza real-time status

File Edit View Go Communicator Help

## igpprt:anza real-time status

last update: June 04 2002 17:58 UTC [ [Update Now](#) ]

**ORB LIST**

[igpprtanza](#)  
[rtquakeanza](#)

**NETWORKS**

[AZ](#)  
[CI](#)

**LEGEND**

Station is operating normally.  
 Station is reporting alert conditions.  
 Station has not reported.  
 Station has not been added to the database.

Network	# of stations	# expected	# of channels	min latency	median latency	max latency
<a href="#">Anza Real-Time Broadband Array</a>	22	17	180	4 secs	5 secs	1 mins

**Anza Real-Time Broadband Array**

<a href="#">242</a>	<a href="#">243</a>	<a href="#">BZN</a>	<a href="#">CRY</a>	<a href="#">DHL</a>	<a href="#">FRD</a>	<a href="#">GLA</a>	<a href="#">IREF</a>
<a href="#">KNW</a>	<a href="#">LVA2</a>	<a href="#">MONP</a>	<a href="#">PFO</a>	<a href="#">RDM</a>	<a href="#">SMTC</a>	<a href="#">SND</a>	<a href="#">SOL</a>
<a href="#">STS2</a>	<a href="#">THSB</a>	<a href="#">TRIL</a>	<a href="#">TRO</a>	<a href="#">WMC</a>	<a href="#">YAQ</a>		

---

**Anza Real-Time Broadband Array**

station	latency	numchans	skew	voltage	AC failure	hazard	clock lock
<a href="#">242</a>	32 secs	0			off	off	off
<a href="#">243</a>	35 secs	0			off	off	off

**Fields to display:**

AC failure  
 clock lock  
 hazard  
 latency  
 numchans  
 skew  
 temp(C)  
 temp(F)  
 voltage

Show alerts only

# Orblookup

- Check status of orbs via web browser.

Netscape: igpprt:anza real-time status

File Edit View Go Communicator Help

**Anza Real-Time Broadband Array**

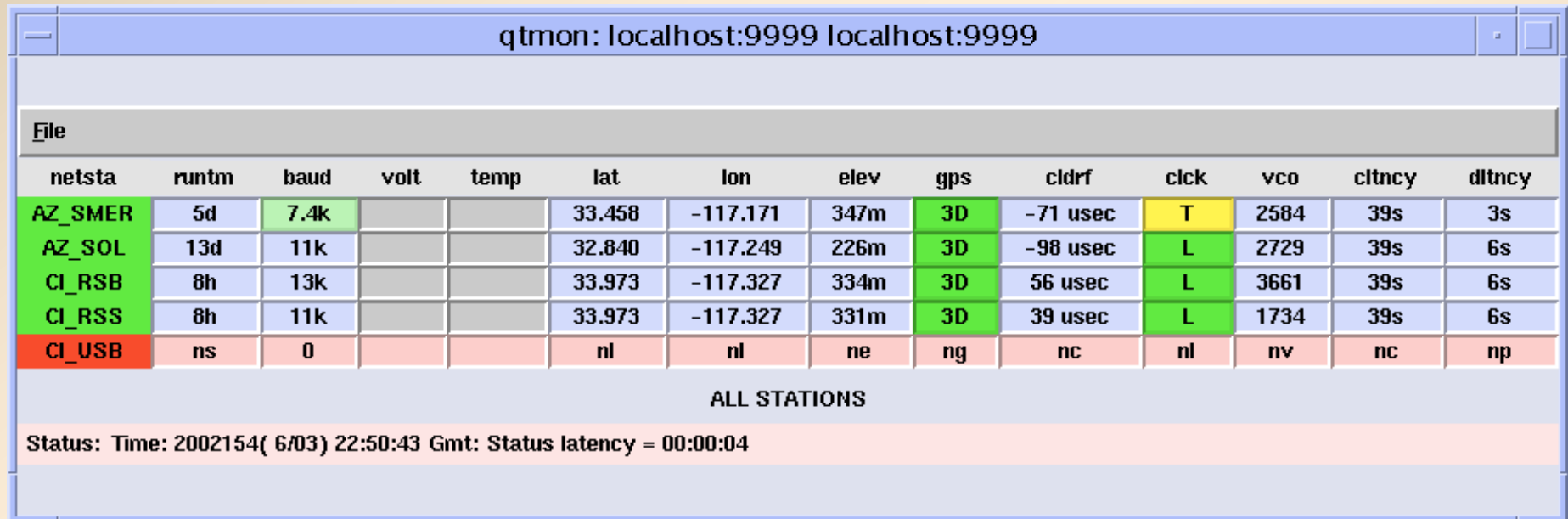
station	latency	numchans	skew	temp(F)	temp(C)	voltage	AC failure	hazard	clock lock
242	30 secs	0					off	off	off
243	33 secs	0					off	off	off
BZN	4 secs	12		71.0 °F	21.7 °C	13.30 V			
CRY	5 secs	12		71.0 °F	21.7 °C	13.60 V			
DHL	15 secs	3		71.0 °F	21.7 °C	11.80 V			
FRD	5 secs	12		71.0 °F	21.7 °C	13.21 V			
GLA									
IREF	28 secs	6		86.0 °F	30.0 °C	14.01 V			
KNW	4 secs	12		66.0 °F	18.9 °C	12.68 V			
LVA2	4 secs	12		73.3 °F	22.9 °C	13.30 V			
MONP	5 secs	9		75.0 °F	23.9 °C	13.31 V			
PFO	4 secs	12		78.0 °F	25.6 °C	13.81 V			
RDM	4 secs	12		71.0 °F	21.7 °C	12.39 V			
SMTC									
SND	4 secs	12		78.0 °F	25.6 °C	13.70 V			
SOL									
STS2	14 secs	9		71.0 °F	21.7 °C	11.50 V			
THSB	13 secs	12							
TRIL	13 secs	9		69.0 °F	20.6 °C	11.85 V			
TRO	1 mins	12		62.0 °F	16.7 °C	12.30 V			
WMC	4 secs	12		69.0 °F	20.6 °C	13.22 V			
YAQ	4 secs	12		88.7 °F	31.5 °C	14.14 V			

Show alerts only

Update

# Qtmon

- Check state of health of digitizer.



qtmon: localhost:9999 localhost:9999

File

netsta	runtm	baud	volt	temp	lat	lon	elev	gps	cldrf	clck	vco	cltncy	dltncy
AZ_SMER	5d	7.4k			33.458	-117.171	347m	3D	-71 usec	T	2584	39s	3s
AZ_SOL	13d	11k			32.840	-117.249	226m	3D	-98 usec	L	2729	39s	6s
CI_RSB	8h	13k			33.973	-117.327	334m	3D	56 usec	L	3661	39s	6s
CI_RSS	8h	11k			33.973	-117.327	331m	3D	39 usec	L	1734	39s	6s
CI_USB	ns	0			nl	nl	ne	ng	nc	nl	nv	nc	np

ALL STATIONS

Status: Time: 2002154( 6/03) 22:50:43 Gmt: Status latency = 00:00:04

# Day-to-Day maintenance



## ■ Cronjobs

- ◆ Rtreport - % data return and some network statistics
- ◆ Rtsys - summary of log files
- ◆ Rtdbclean - removal of excess data and table rows
- ◆ Rtbackup - backup of previous day's waveforms
- ◆ Event\_archive - extract and archive segmented events
- ◆ Truncate\_logs - remove excess(old) lines from log files
- ◆ *Orbup(under development for contrib) - check for expected running orbs, 'stray' orbs, rtextecs to auto-restart*

# Crontab editing tool

- Graphical User Interface found under the “Edit” menu of rtm.

rt@igpprt crontab

Cron Table for rt@igpprt

```
# These cron jobs are actually run by rtxec.
# Their environment is the same as the rtxec environment.
# stdout and stderr are redirected to logs/name.
#
# task-name UTC/LOCAL Min Hour Day Month DayOfWeek Command
clearlogs\tUTC 0 3 * * 5 truncate_log -v -r -d 14 logs/* | mailx -v -s "ANZA truncate logs" jeakins@ucsd.edu
rtdbclean UTC 5 3 * * * rtdbclean -v -m flvernon@ucsd.edu,jeakins@ucsd.edu $ORB $DB
sysreport \tUTC 15 3 * * * rtsys -v -m flvernon@ucsd.edu,jeakins@ucsd.edu,dkilb@epicenter.ucsd.edu,jbo
datareport\tUTC 20 3 * * * rtreport -z -v -s "sta!~/PFEN|PREF|PFL1|PFL4|GLA|SMTCIYAQ|I.*/" -m flvernon@ucsd
rtbackup \tUTC 45 3 * * * rtbackup -v -m flvernon@ucsd.edu,jeakins@ucsd.edu,dkilb@epicenter.ucsd.edu,jbo
```

Comments Enable all Disable all

Task Name  
rtdbclean

Cron command line  
|rtdbclean -v -m flvernon@ucsd.edu,jeakins@ucsd.edu \$ORB \$DB

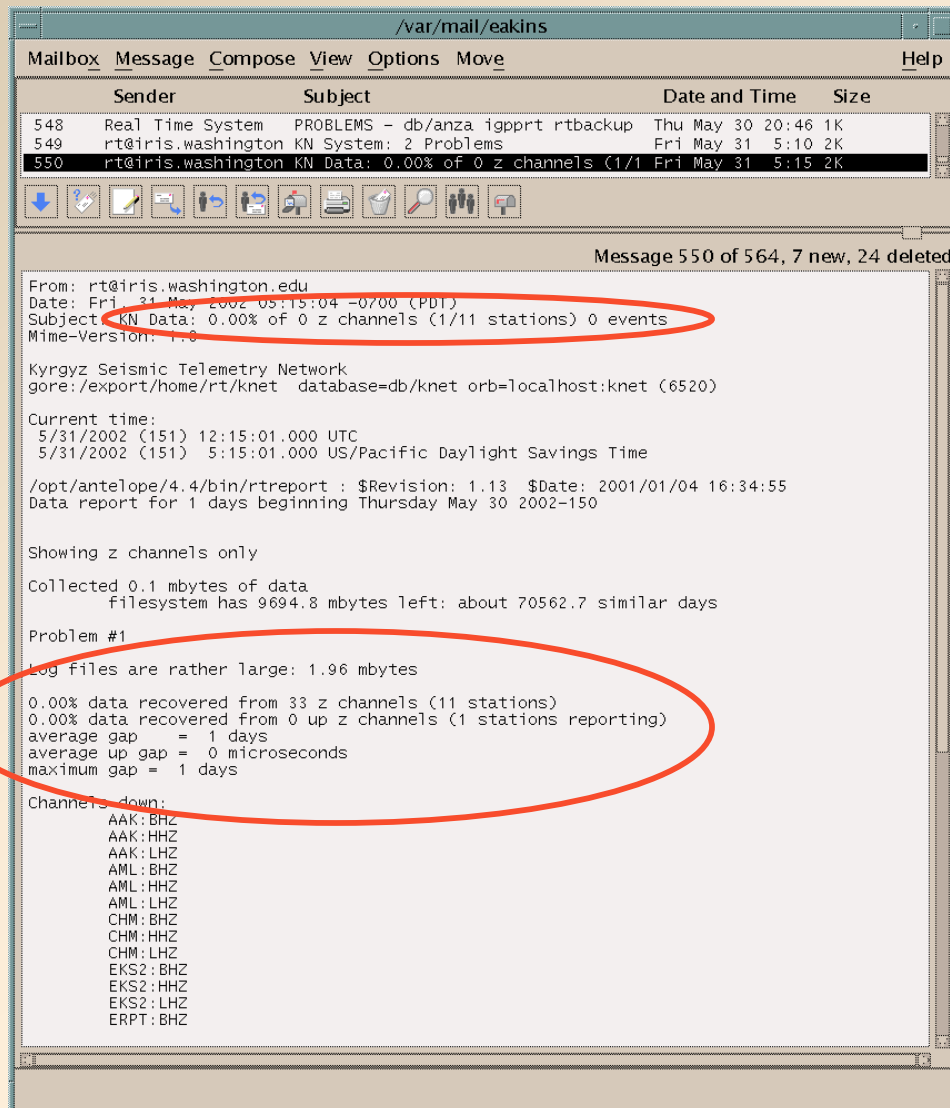
When to run try command Ok

<input checked="" type="checkbox"/> UTC	5	3	*	*	*	<span>run now</span>	<span>New</span>
	Minute	Hour	Day of Month	Month	Day of Week		<span>Revert</span>

soon Disable Delete

Quit without saving Save Save and Quit

# Is it a problem?



```

/var/mail/eakins
Mailbox Message Compose View Options Move Help

Sender      Subject      Date and Time  Size
548 Real Time System PROBLEMS - db/anza igpprt rtbackup Thu May 30 20:46 1K
549 rt@iris.washington KN System: 2 Problems Fri May 31 5:10 2K
550 rt@iris.washington KN Data: 0.00% of 0 z channels (1/11 stations) 0 events Fri May 31 5:15 2K

Message 550 of 564, 7 new, 24 deleted

From: rt@iris.washington.edu
Date: Fri, 31 May 2002 05:15:04 -0700 (PDT)
Subject: KN Data: 0.00% of 0 z channels (1/11 stations) 0 events
Mime-Version: 1.0

Kyrgyz Seismic Telemetry Network
gore:/export/home/rt/knet database=db/knet orb=localhost:knet (6520)

Current time:
 5/31/2002 (151) 12:15:01.000 UTC
 5/31/2002 (151) 5:15:01.000 US/Pacific Daylight Savings Time

/opt/antelope/4.4/bin/rtreport : $Revision: 1.13 $Date: 2001/01/04 16:34:55
Data report for 1 days beginning Thursday May 30 2002-150

Showing z channels only

Collected 0.1 mbytes of data
filesystem has 9694.8 mbytes left: about 70562.7 similar days

Problem #1
Log files are rather large: 1.96 mbytes

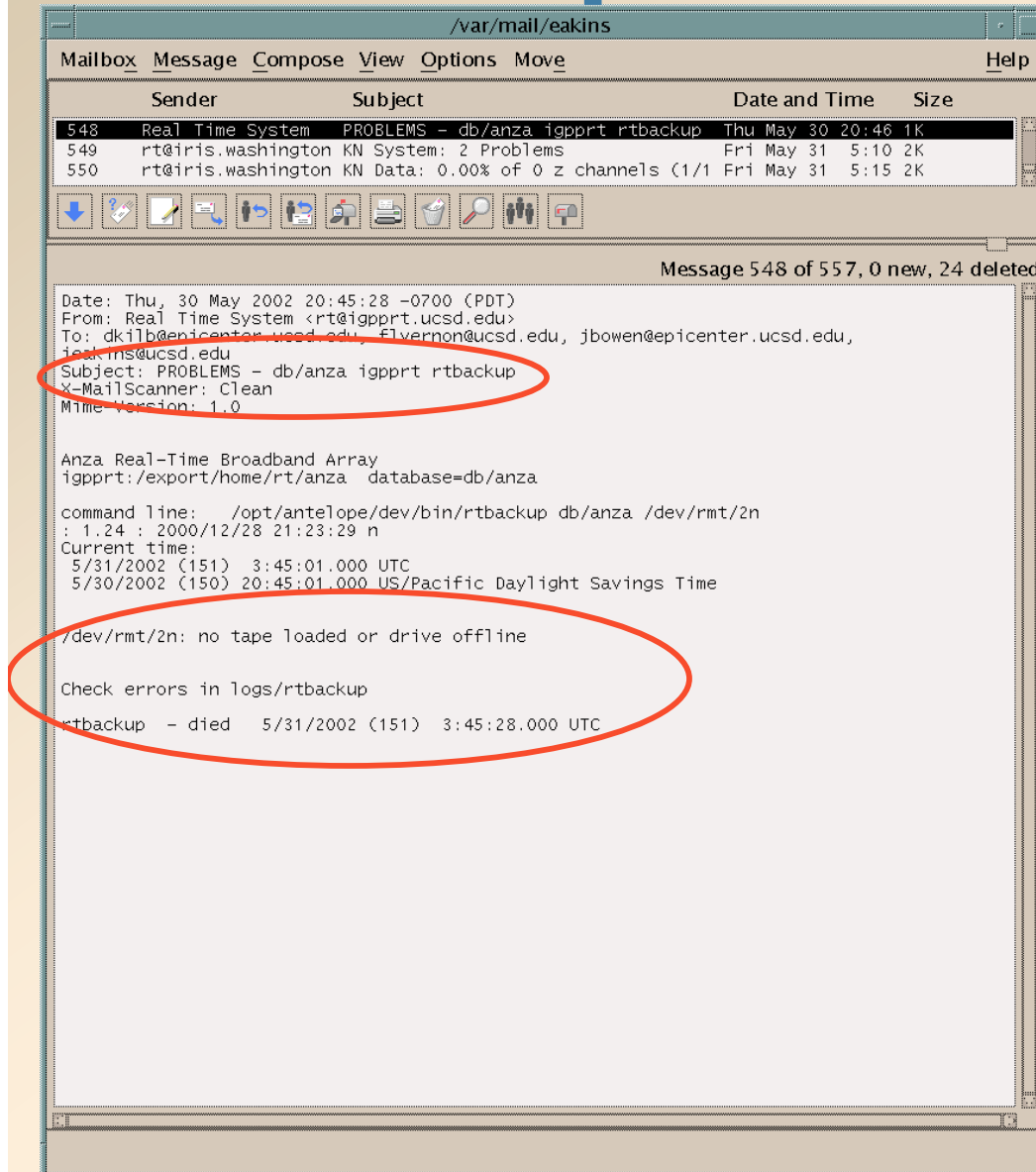
0.00% data recovered from 33 z channels (11 stations)
0.00% data recovered from 0 up z channels (1 stations reporting)
average gap = 1 days
average up gap = 0 microseconds
maximum gap = 1 days

Channels down:
AAK: BHZ
AAK: HHZ
AAK: LHZ
AML: BHZ
AML: HHZ
AML: LHZ
CHM: BHZ
CHM: HHZ
CHM: LHZ
EKS2: BHZ
EKS2: HHZ
EKS2: LHZ
ERPT: BHZ

```

- Rtreport (datareport)
- ◆ Subject line suggests that you look at this email closely (0% data return).
- ◆ Text of message confirms you have a problem.

# Is it a problem?



## ■ Rtbackup

- ◆ Subject line suggests that you look at this email closely.
- ◆ Text of message suggests you have a problem - and what logs to check.

# Is it a problem?

```
734 Real Time System AZ System: 11 Problems Mon Jun 3 16:00 13K

Message 577 of 577, 0 new, 157 deleted

Date: Mon, 3 Jun 2002 15:59:40 -0700 (PDT)
From: Real Time System <rt@igpprt.ucsd.edu>
Subject: AZ System: 11 Problems
To: undisclosed-recipients:;
X-Mailer: Scanner: Clean
Mime-Version: 1.0

System report for Sunday June 02 2002-153

/opt/antelope/dev/bin/rtsys : $Revision: 1.14 $Date: 2001/02/12 21:22:37

Anza Real-Time Broadband Array
igpprt:/export/home/rt/anza database=db/anza orb=:anza (6510)

Current time:
6/03/2002 (154) 22:59:01.000 UTC
6/03/2002 (154) 15:59:01.000 US/Pacific Daylight Savings Time

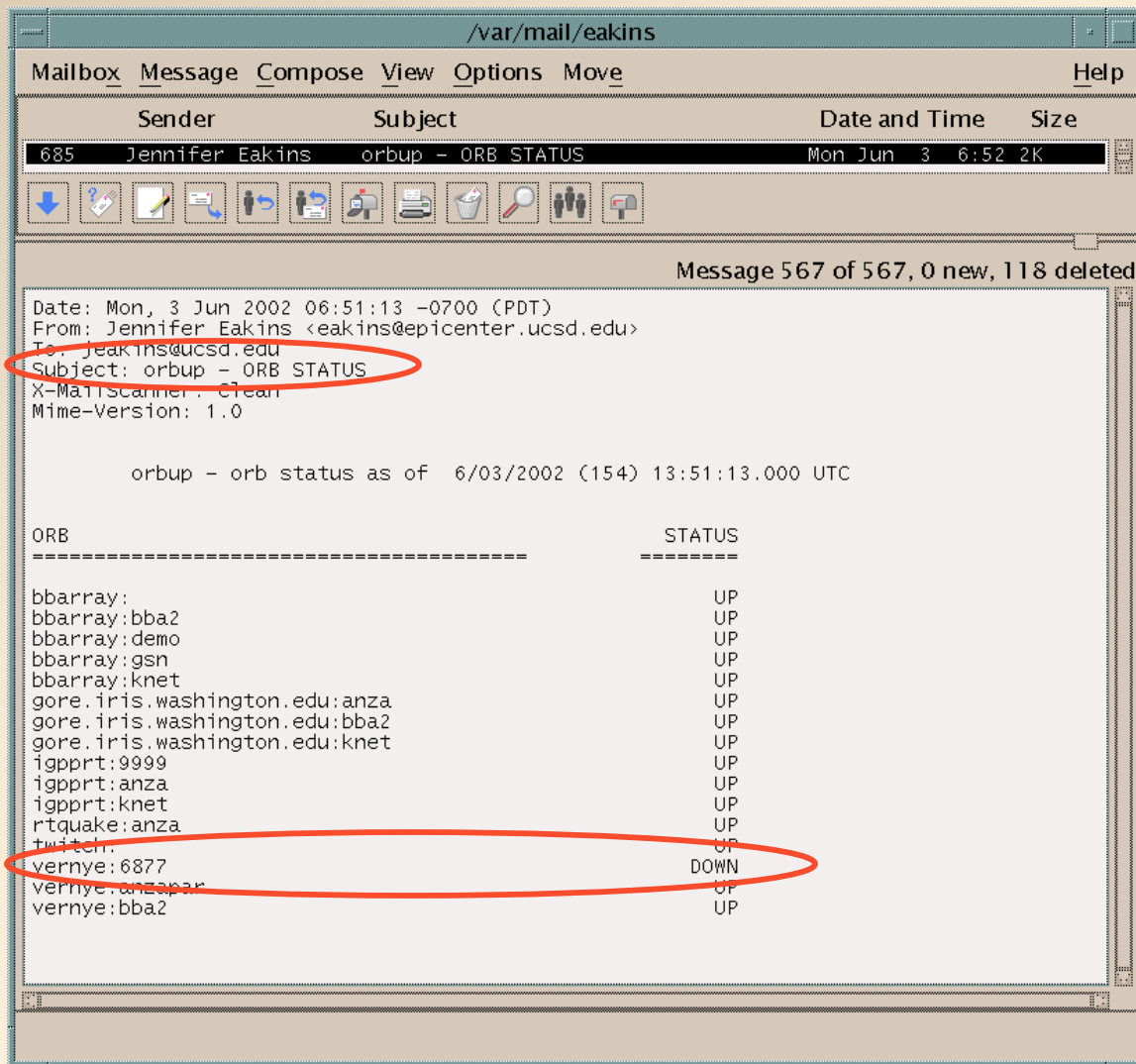
No System shutdowns since midnight 6/02/2002 UTC
Last shutdown was 5/03/2002 23:30:09.000 : fix libstock for Dang

Problem #1
Restarts since midnight 6/02/2002 UTC:
datareport
6/02/2002 3:20:00.000 rtreport -z -v -m
flvernon@ucsd.edu,goffield@ucsd.edu,jeakins@ucsd.edu,cgeddes@ucsd.edu
6/03/2002 3:20:00.000 rtreport -z -v -m
flvernon@ucsd.edu,goffield@ucsd.edu,jeakins@ucsd.edu,cgeddes@ucsd.edu
orb2dbacc
6/03/2002 2:42:23.000 orb2db -m '(CI.*QCDATIAZ.*CPSCLHSIAZ_KSW[12].*)'
-r '(./DASI.*/RTX|.*/[BLJS])' -S state/orb2dba
6/03/2002 2:42:45.000 orb2db -m '(CI.*QCDATIAZ.*CPSCLHSIAZ_KSW[12].*)'
-r '(./DASI.*/RTX|.*/[BLJS])' -S state/orb2dba
6/03/2002 2:43:31.000 orb2db -m '(CI.*QCDATIAZ.*CPSCLHSIAZ_KSW[12].*)'
-r '(./DASI.*/RTX|.*/[BLJS])' -S state/orb2dba
6/03/2002 2:44:54.000 orb2db -m '(CI.*QCDATIAZ.*CPSCLHSIAZ_KSW[12].*)'
-r '(./DASI.*/RTX|.*/[BLJS])' -S state/orb2dba
6/03/2002 2:47:34.000 orb2db -m '(CI.*QCDATIAZ.*CPSCLHSIAZ_KSW[12].*)'
-r '(./DASI.*/RTX|.*/[BLJS])' -S state/orb2dba
6/03/2002 6:47:34.000 orb2db -m '(CI.*QCDATIAZ.*CPSCLHSIAZ_KSW[12].*)'
-r '(./DASI.*/RTX|.*/[BLJS])' -S state/orb2dba
orb2dbcit_bh
6/03/2002 2:42:25.000 orb2db -m '(CI.*BH.)' -S state/orb2dbcit_bh :anza
db/anza 2001304:07:45:00
6/03/2002 2:43:32.000 orb2db -m '(CI.*BH.)' -S state/orb2dbcit_bh :anza
db/anza 2001304:07:45:00
6/03/2002 2:45:15.000 orb2db -m '(CI.*BH.)' -S state/orb2dbcit_bh :anza
db/anza 2001304:07:45:00
6/03/2002 2:46:35.000 orb2db -m '(CI.*BH.)' -S state/orb2dbcit_bh :anza
```

- Rtsys (sysreport)
- ◆ Subject line suggests that there may be problems - more than one suggests your check more thoroughly.
- ◆ Text of message suggests you have a problem - and what logs to check.



# Is it a problem?



- Orbup
- ◆ Subject line does not suggest a problem.
- ◆ Text of message suggests one potential problem - you should know if this is a 'normal' state

# Where to find answers and documentation

- Manpages
- User's guide
  - ◆ /opt/antelope/doc (ARTS, datascope, scripting/programming, Matlab)
- Webpages (FAQ's)
  - ◆ <http://www.brnt.com/faq/>
  - ◆ <http://eqinfo.ucsd.edu/faq/>
- Antelope User's Discussion Group
  - ◆ <http://www.indiana.edu/~aug/>