

Sharing seismic catalogs: a new Antelope bulletin server

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Antelope Users Group Meeting

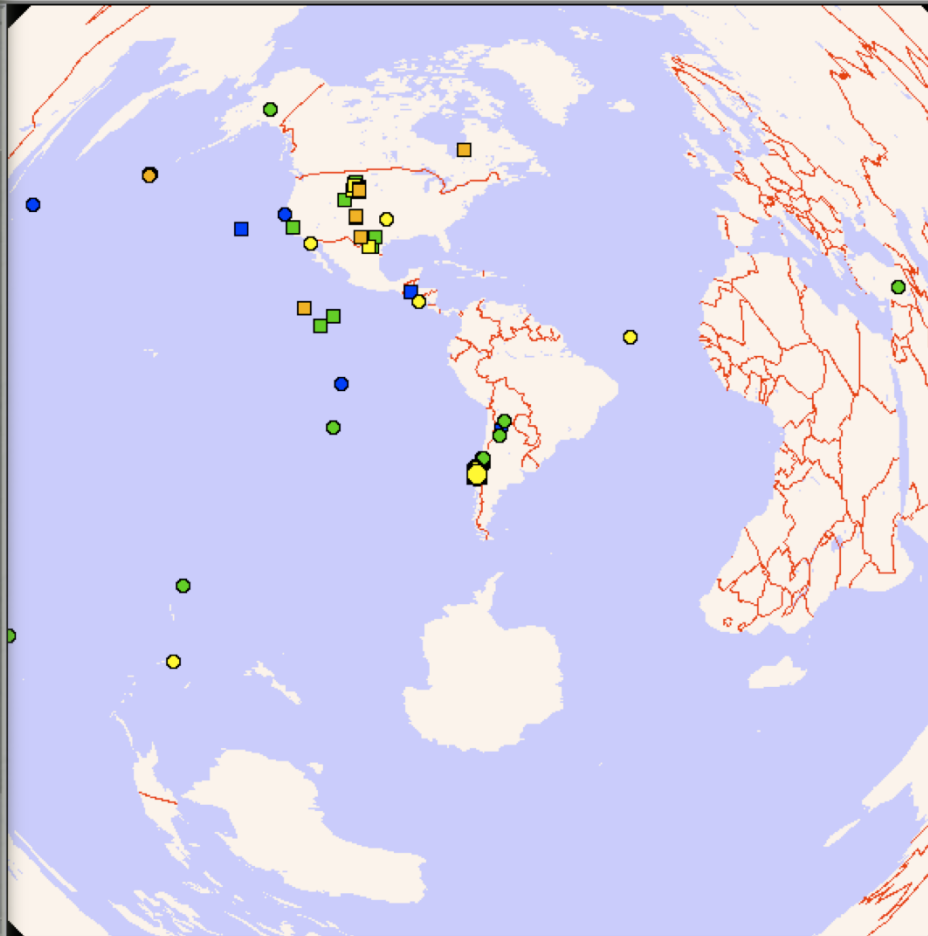
Prague, 24 March 2010

Why external bulletins are needed

ANF - all TA dbevents

File Maps Waveforms

Events Stations NextEvent PrevEvent NextMap QUIT



| date | time | R | ml | mb | ms | H | Hw | ndef | region |
|---|----------|---|-----|----|----|-----|----|------|---------------------------------|
| 2010068(03/09) | 17:41:59 | v | | | | | | | 39 WYOMING |
| 2010068(03/09) | 18:54:08 | v | | | | | | | 39 WYOMING |
| 2010068(03/09) | 19:33:01 | v | | | | | | | 47 WYOMING |
| 2010068(03/09) | 20:05:34 | v | | | | | | | 100 WYOMING |
| 2010068(03/09) | 20:18:40 | v | | | | | | | 49 WYOMING |
| 2010068(03/09) | 20:20:06 | v | | | | | | | 21 WYOMING |
| 2010068(03/09) | 20:30:09 | v | | | | | | | 30 WYOMING |
| 2010068(03/09) | 20:57:12 | v | | | | | | | 34 WYOMING |
| 2010068(03/09) | 21:41:54 | v | | | | | | | 36 WYOMING |
| 2010068(03/09) | 21:59:24 | q | | | | 5.0 | | | 0 OFF COAST OF CENTRAL CHILE |
| 2010068(03/09) | 22:17:35 | v | | | | | | | 37 WYOMING |
| 2010068(03/09) | 22:46:11 | v | | | | | | | 34 MONTANA |
| 2010069(03/10) | 00:19:47 | v | | | | | | | 32 WYOMING |
| 2010069(03/10) | 00:57:27 | v | | | | | | | 14 TEXAS-MEXICO BORDER REGION |
| 2010069(03/10) | 00:57:53 | q | | | | | | | 0 BAJA CALIFORNIA, MEXICO |
| 2010069(03/10) | 01:15:34 | Q | 4.4 | | | | | | 31 OFF COAST OF CENTRAL AMERICA |
| 2010069(03/10) | 02:41:48 | Q | 5.4 | | | | | | 156 NEAR COAST OF CENTRAL CHILE |
| 2010069(03/10) | 05:19:06 | Q | 5.1 | | | | | | 68 VANUATU ISLANDS |
| 2010069(03/10) | 06:04:35 | Q | | | | | | | 9 OKLAHOMA |
| 2010069(03/10) | 06:11:34 | Q | 4.9 | | | | | | 113 ANDREANOF ISLANDS, ALEUTIAN |
| 2010069(03/10) | 08:05:27 | Q | 4.9 | | | | | | 111 ANDREANOF ISLANDS, ALEUTIAN |
| 2010069(03/10) | 08:07:24 | Q | 5.2 | | | | | | 120 CENTRAL MID-ATLANTIC RIDGE |
| 2010069(03/10) | 08:45:23 | Q | 5.1 | | | | | | 123 OFF COAST OF CENTRAL CHILE |
| 2010069(03/10) | 09:04:14 | Q | 5.1 | | | | | | 27 NEAR COAST OF CENTRAL CHILE |
| 2010069(03/10) | 09:37:59 | Q | 5.1 | | | | | | 66 NEAR COAST OF CENTRAL CHILE |
| 2010069(03/10) | 13:17:17 | q | | | | | | | 0 ANDREANOF ISLANDS, ALEUTIAN |
| 2010069(03/10) | 13:45:26 | a | | | | | | | 14 NORTHERN QUEBEC, CANADA |
| 2010069(03/10) | 14:34:09 | a | | | | | | | 20 NEW MEXICO |
| 2010069(03/10) | 14:41:06 | a | | | | | | | 12 WYOMING |
| 2010069(03/10) | 14:55:08 | a | | | | | | | 21 WYOMING |
| 2010069(03/10) | 15:30:44 | a | | | | | | | 11 WESTERN TEXAS |
| 2010069(03/10) | 16:07:44 | a | | | | | | | 13 EAST CENTRAL PACIFIC OCEAN |
| 2010069(03/10) | 09:37:59 | | 5.1 | | | Q | | | 66 NEAR COAST OF CENTRAL CHILE |
| lat = -36.8300, lon = -73.4280, depth = 35.0000 | | | | | | | | | |
| orid = 2793016, nass = 414, evid = 2413005 | | | | | | | | | |
| auth = QED_weekly, algorithm = - | | | | | | | | | |
| latency = 8105 hours | | | | | | | | | |

Status: Time: 2010069(03/10) 17:59:55 Gmt, 00:04:30 since last update, 01:52:11 since last event

How to get bulletins into css3.0 format?

- No one publishes/distributes real-time css3.0 origin information.
- Need to collect information from:
 - Screen scrapes (parsing of tagged HTML)
 - http available text files or xml files
 - ftp
 - RSS
 - Finger

Formats of distributed information and locations for bulletin collection can change with no warning!

Methods for bulletin collection in Antelope

- In-house developed scripts
- contrib script(s)
 - `update_weekly_qed`, `scec2db`, `mchedr2db`, etc.

Drawbacks:

- Repetition of coding
- Lack of maintainability

What catalog hypocenters are needed?

1 Danny's approach

Select solutions only for events over magnitude threshold

- Good for fully tuned network and/or group with no additional projects and no post-processing or review

2 Future direction

Select only published solutions with user specified interest criteria

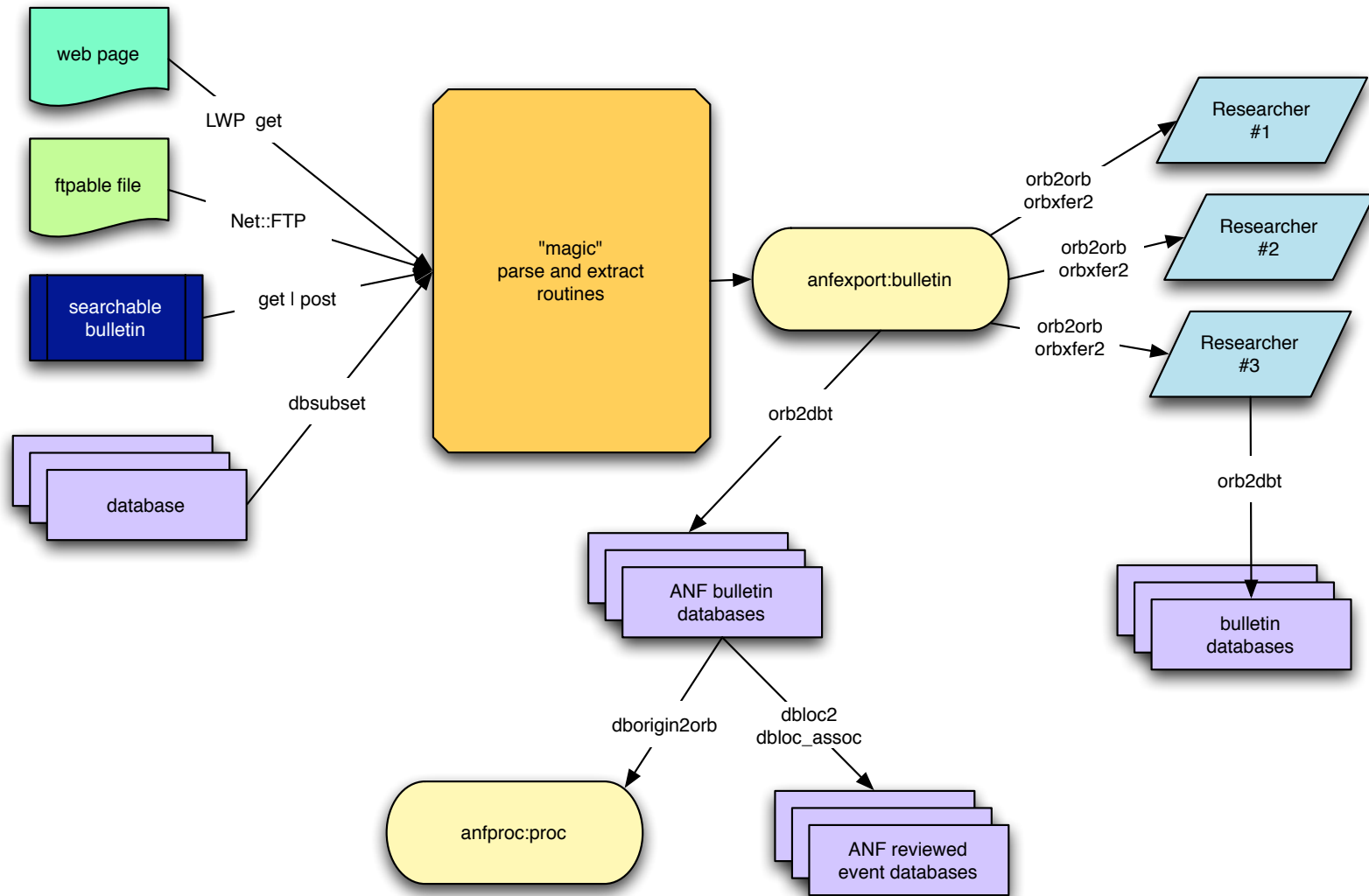
- Good for significant global events, and local/regional

3 My approach

Select all published solutions

- Useful for research purposes, detection tuning, analyst re-review of events, and any future reprocessing

Central bulletin server via Antelope



Central bulletin server via Antelope

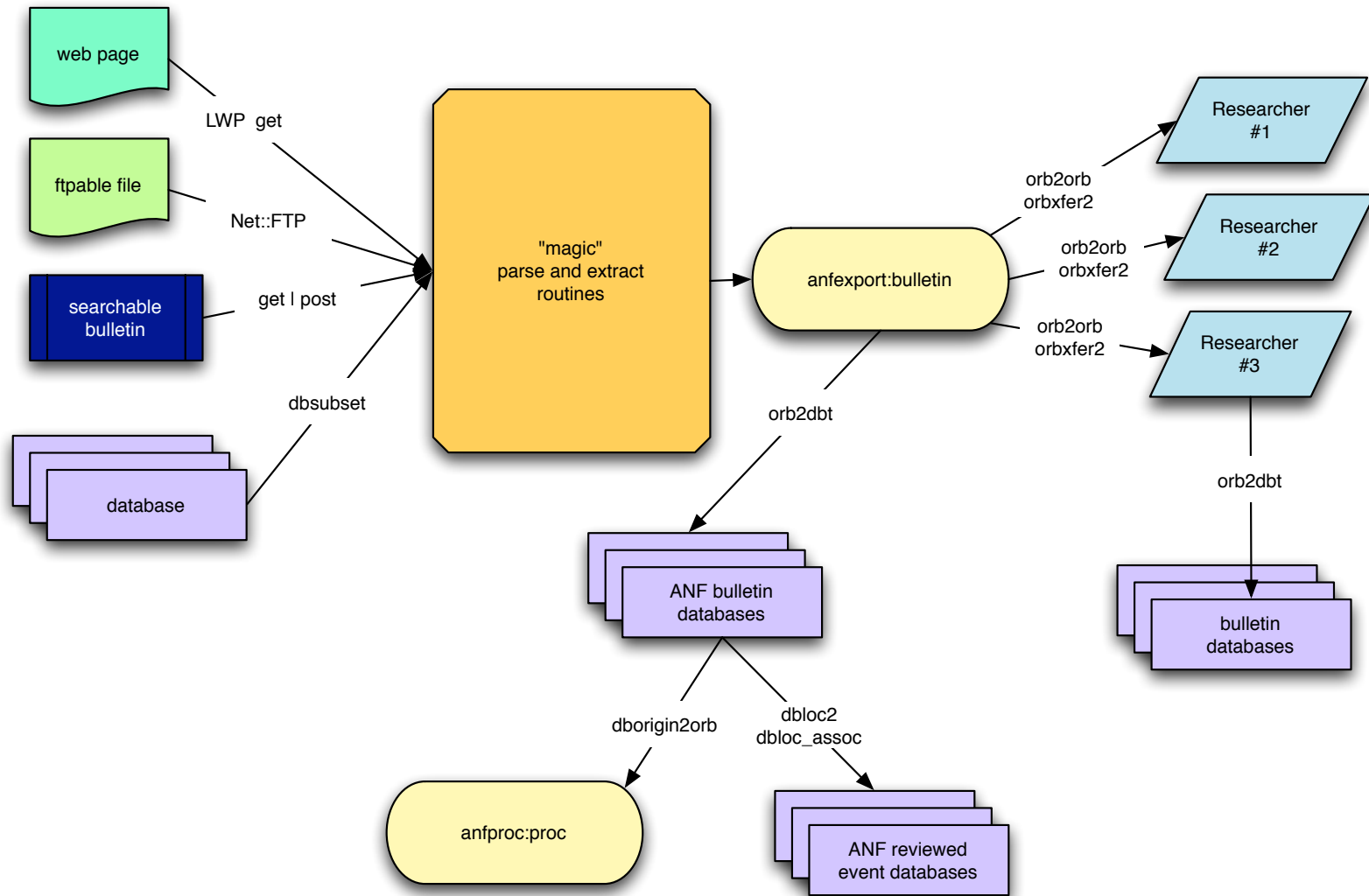
- Single institution maintains codes for parsing known bulletin distribution points
- Open access point for orb2orb connections of origin information
- Customizable on receiver side for what bulletins to collect

Bulletins supported

- **USGS/NEIC (world):** CUBE, QED, QED_weekly, mines, PDE
- **EMSC (Europe)**
- **NRCAN (Canada):** PGC and GSC
- **US Regional networks:** BC-NESN, Lamont-LCSN, CERI-NMSN, Montana Tech-MBMG, US-PNSN, UNR-NBE, UUSS-Utah, UUSS-Yellowstone, UCSD-Anza, Berkeley-NCSN, Caltech-SCSN, UAF-AEIC
- **ANF (US)**

Pending: Mexico/N. Baja, Puerto Rico, Ecuador, CMT, Geofon(?), others

Central bulletin server via Antelope

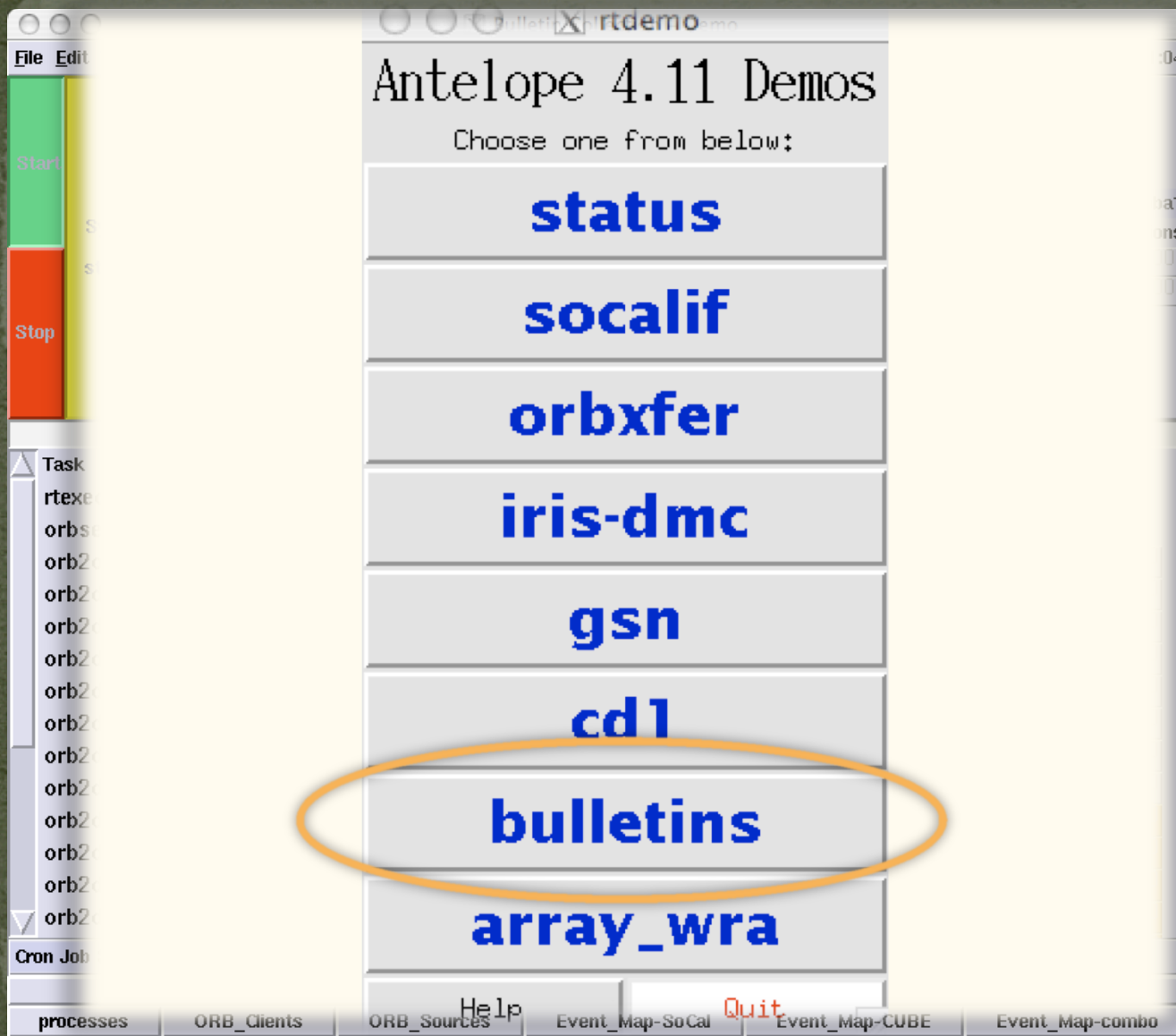


Contents of anfexport.ucsd.edu:bulletin

Sources

| Srcname | Thread | #pkts | kbytes | pktid | Oldest time | Latest pktid | Latest time | Average kbps | Average latency |
|------------------------------|--------|--------|----------|---------|----------------|-----------------|----------------|-----------------|--------------------|
| /pf/AEIC/finger/orb2dbt | 0 | 132000 | 56034.0 | 5090738 | 062 23:47:29 | 3139417 | 069 20:32:34 | 0.8 | 13:40 minutes |
| /pf/AEIC/orb2dbt | 0 | 469102 | 199441.9 | 5701052 | 063 23:27:40 | 3128277 | 069 20:28:01 | 3.1 | 18:14 minutes |
| /pf/ANF/orb2dbt | 0 | 51886 | 17822.8 | 5100578 | 063 0:27:48 | 3128479 | 069 20:28:13 | 0.2 | 18:02 minutes |
| /pf/EMSC/orb2dbt | 0 | 47700 | 20248.7 | 5087818 | 062 23:44:03 | 3140619 | 069 20:44:05 | 0.3 | 2:10 minutes |
| /pf/LCSN/orb2dbt | 0 | 102772 | 43626.7 | 5091730 | 062 23:48:09 | 3140381 | 069 20:33:16 | 0.6 | 12:59 minutes |
| /pf/MTECH/A/orb2dbt | 0 | 829080 | 351944.5 | 5088858 | 062 23:46:52 | 3138735 | 069 20:32:06 | 4.7 | 14:09 minutes |
| /pf/MTECH/R/orb2dbt | 0 | 97222 | 41270.7 | 5087810 | 062 23:33:33 | 3140519 | 069 20:33:27 | 0.6 | 12:48 minutes |
| /pf/NBE/orb2dbt | 0 | 179216 | 76077.2 | 5090938 | 062 23:47:41 | 3139665 | 069 20:32:47 | 1.0 | 13:28 minutes |
| /pf/NCSN/orb2dbt | 0 | 283572 | 120376.3 | 5103336 | 063 0:29:19 | 3132121 | 069 20:29:50 | 1.6 | 16:24 minutes |
| /pf/NEIC/mines/orb2dbt | 0 | 326 | 138.2 | 5151780 | 063 2:28:17 | 2856107 | 069 11:30:06 | 0.0 | 9:16 hours |
| /pf/NEIC/qed/orb2dbt | 0 | 344752 | 146347.2 | 5088052 | 062 23:46:24 | 3137257 | 069 20:31:31 | 2.0 | 14:44 minutes |
| /pf/NEIC/qedw/orb2dbt | 0 | 26086 | 11169.4 | 6048418 | 064 11:29:01 | 2854025 | 069 11:29:27 | 0.2 | 9:17 hours |
| /pf/NESN/orb2dbt | 0 | 6686 | 3171.1 | 5100538 | 063 0:27:03 | 3125307 | 069 20:27:04 | 0.0 | 19:11 minutes |
| /pf/NMSN/orb2dbt | 0 | 363116 | 154142.7 | 5091184 | 062 23:47:54 | 3140221 | 069 20:33:04 | 2.1 | 13:11 minutes |
| /pf/NRCAN/GSC/orb2dbt | 0 | 105326 | 44710.9 | 5088698 | 062 23:46:39 | 3137419 | 069 20:31:44 | 0.6 | 14:31 minutes |
| /pf/NRCAN/PGC/orb2dbt | 0 | 329014 | 139666.4 | 5090174 | 062 23:47:13 | 3139217 | 069 20:32:23 | 1.9 | 13:52 minutes |
| /pf/PNSN/A/orb2dbt | 0 | 39846 | 16914.6 | 5087918 | 062 23:46:01 | 3140667 | 069 20:46:02 | 0.2 | 13.142 seconds |
| /pf/PNSN/R/orb2dbt | 0 | 8772 | 3723.7 | 5886428 | 064 5:31:11 | 3071653 | 069 18:19:24 | 0.1 | 2:27 hours |
| /pf/SCSN/orb2dbt | 0 | 139916 | 59394.3 | 5100802 | 063 0:28:00 | 3128943 | 069 20:28:27 | 0.8 | 17:48 minutes |
| /pf/UUSS/combo/orb2dbt | 0 | 48038 | 20392.1 | 5087972 | 062 23:46:12 | 3140723 | 069 20:46:12 | 0.3 | 2.522 seconds |
| /pf/UUSS/utah/orb2dbt | 0 | 358066 | 151999.0 | 5101332 | 063 0:28:39 | 3130981 | 069 20:29:17 | 2.1 | 16:58 minutes |
| /pf/UUSS/yellowstone/orb2dbt | 0 | 757096 | 321387.3 | 5104570 | 063 0:29:43 | 3136765 | 069 20:30:40 | 4.4 | 15:35 minutes |

ringbuffer has 6 days 21.2 hours of data
2000.000 Mbytes data in 4719590 packets
average packet size = 424 bytes



How to collect
css3.0 bulletin
from orb?

New rtdemo
example in
Antelope 5.0
release

Collected bulletins

- Using rtdemo, bulletins will be collected to

“catalogs”

```
rt@anfanalyst:/export/home/rt/rtsystems/rtdemo/rtdemo_bulletins/catalogs
```

```
anfanalyst{rt}63% pwd
/export/home/rt/rtsystems/rtdemo/rtdemo_bulletins/catalogs
anfanalyst{rt}64% ls *origin *netmag
aeic.netmag          mtech.netmag        nmsn.origin         scsn.netmag
aeic.origin          mtech.origin        nrcan.netmag        scsn.origin
anf.origin           nbe.netmag          nrcan.origin        uuss.netmag
combined.netmag     nbe.origin          pnsn.netmag         uuss.origin
combined.origin     ncsn.netmag         pnsn.origin         yellowstone.netmag
emsc.netmag         ncsn.origin         qed.netmag          yellowstone.origin
emsc.origin         nesn.netmag         qed.origin
lcsn.netmag         nesn.origin         qed_weekly.netmag
lcsn.origin         nmsn.netmag         qed_weekly.origin
anfanalyst{rt}65% █
```

- Change \$CATALOGS in rtdemo rtxexec.pf to local save location

Future directions

- Program to split/segregate collected bulletins by year
- Additional parsers
- “README” files sent to :bulletin for all institutions to be transferred via orbxfer2
- Resend “old” bulletins previously collected at ANF
- Client-side customization examples – criteria based subset/removal of events that are not of interest?

Try it!!!

Collect from anfexport.ucsd.edu:bulletin