

# What's New in Antelope 5.6

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# Introduction - KMI

## Kinemetrics, Inc.

- Founded in 1969
- OYO Corp owned in 1991
- ISO9001 since 1999
- \$35M FY2012 revenue (mostly international)

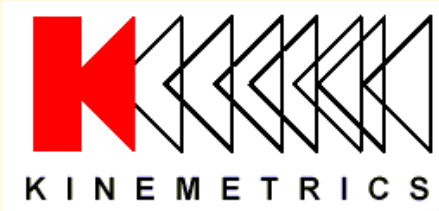


HQ's in Pasadena CA with Sales and Project offices in Switzerland & Abu Dhabi

A screenshot of the Kinemetrics website homepage. The browser address bar shows 'www.kinemetrics.com/p-163-Home.aspx'. The main image shows a person in a blue jacket working inside a large circular well or tunnel, with orange cables and equipment. The Kinemetrics logo is overlaid on the image. Below the image is a navigation menu with links: About Us, Products, Solutions, Projects, News, Downloads, Contact. The main content area features a section titled 'NEW KINEMETRICS WEBSITES: Kinemetrics has launched 3 new websites' and another titled 'MSNBC: EARTHSCOPE: Humankind's largest and most ambitious scientific project'. Below this is a section for 'Quanterra Q330S+ Seismic System' with a small image of the device. To the right, a large heading reads 'The Innovative World Leader In Earthquake Monitoring' with the tagline 'Developer of Technologies, Products and Solutions to Advance How People Live and Work'. Below this, it states 'For forty years, Kinemetrics has been creating products for:' followed by a list of services: Seismic networks, Comprehensive environmental monitoring systems, and Strong motion and weak motion instrumentation. At the bottom, it lists 'Project solutions for' including Structural health monitoring (bridges, dams, buildings) and Seismic arrays.



# Introduction – KMI Team



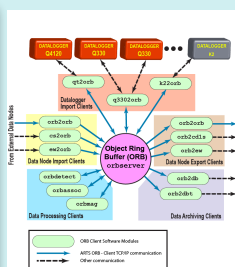
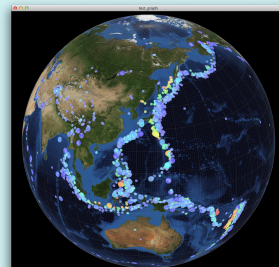
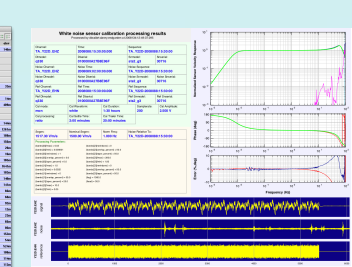
Designs and manufactures sensors and digitizers – Provides complete systems design, installation and operations



Designs High-End Digitizers



Designs High-End Sensors

A screenshot of a data processing results table. The table has columns for 'Time', 'Latitude', 'Longitude', 'Altitude', 'Speed', 'Heading', 'Roll', 'Pitch', 'Yaw', 'Roll Rate', 'Pitch Rate', 'Yaw Rate', 'Roll Acc', 'Pitch Acc', 'Yaw Acc', 'Roll Vel', 'Pitch Vel', 'Yaw Vel', 'Roll Acc', 'Pitch Acc', 'Yaw Acc', 'Roll Vel', 'Pitch Vel', 'Yaw Vel'. The data is organized into rows with alternating green and red background colors.

# Kinematics / BRTT

## Comprehensive Hardware, Software, and Services

### Kinematics Systems Solutions

- Turnkey complete systems including enterprise-class computing centers and full communications

### Kinematics Hardware Manufacturer

- World class Kinematics and Quanterra dataloggers
- World class Kinematics, Metrozet and Streckeisen sensors

### BRTT Software Developer

- World class acquisition software for all Kinematics hardware products
- Proven track record for large networks with difficult remote deployments (USArray)
- World class, comprehensive automated and interactive seismic processing software
- Data neutral architecture for support of non-seismic environmental monitoring networks
- Extraordinary Command & Control capabilities with SOH displaying

### Kinematics Services

- Complete systems procurement, installation and training including all aspects of both hardware and software
- Network operations

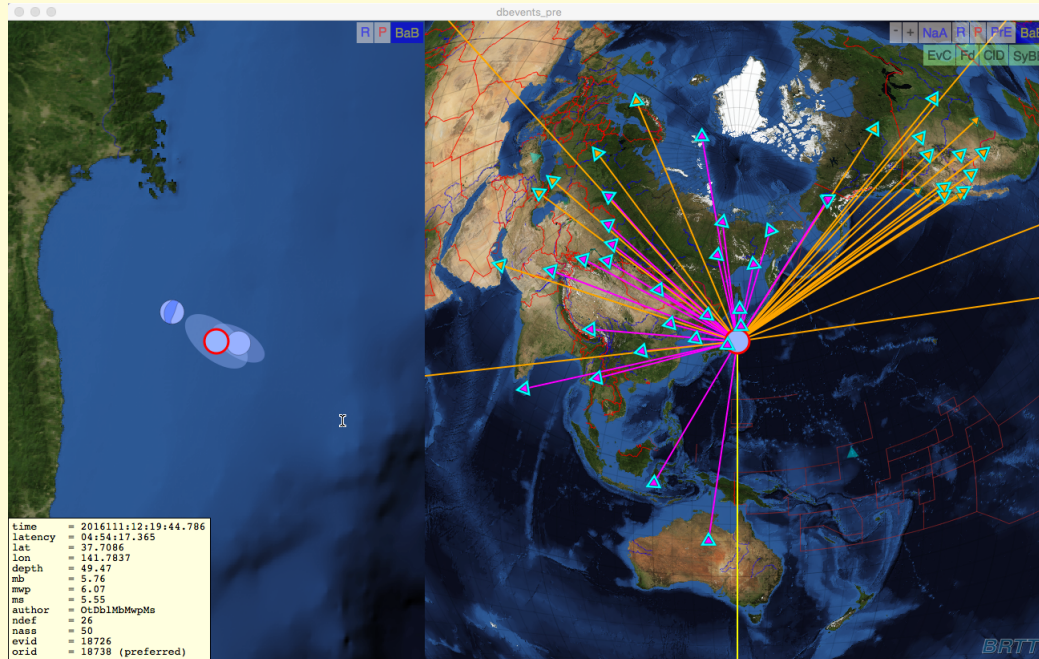




## What's New In Antelope 5.6

- Qt and Python Graphics & Maps
- *orb2orb\_pre*
- Contractors and Contracted Development
  - *dbmoment*
  - *db2stationxml*
- *dbe*
- Internationalization and Localization
- new *demo* database
- Bighorn

# Python / Qt Graphics



- Modern Maps based on NASA Blue Marble
- Python hooks for developers
- Further detail in Danny Harvey's talk

# New Graphics in dbevents\_pre

File Show Waveforms Database editing enabled Current Time: 2016-134 (13 May) 19:43:11 GMT

**Mb 4.8 KYUSHU, JAPAN pref\_depth: 0 km T + 37:21 minutes**

**Displayed Origin**

Preference: Preferred  
 Lat: 31.0859°  
 Lon: 129.5119°  
 Depth: 0.0000 km (±0 km @ 90%)  
 Region: KYUSHU, JAPAN  
 Magnitudes: 4.8 Mb  
 Uncertainties: majax 28.0 km / strike 141°  
 sdots 1.3 sec  
 confidence interval 90%

**Latest Magnitudes**

author	Mb
Antelope	4.81 ± 0.35
USGS	4.9

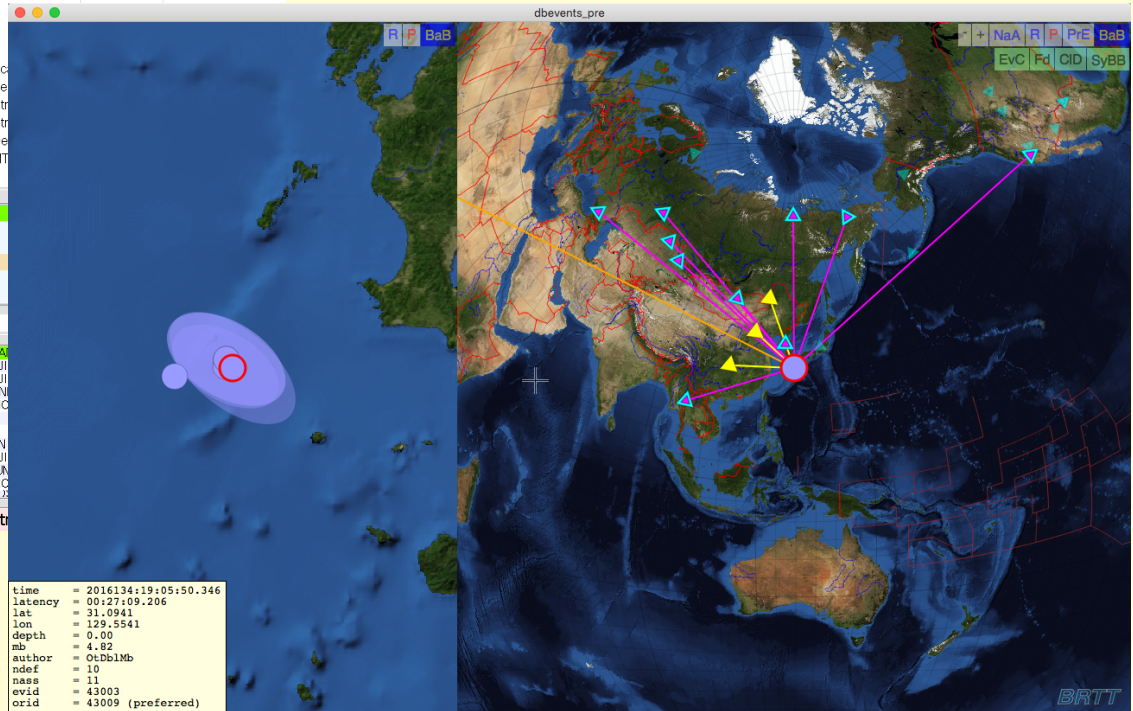
**Best Moment Tensor**

Origin Time (GMT): 2016-134 (13 May) 19:05:50 UTC (±1.4 sec @ 90%)  
 Origin Time (Local): 2016-134 (13 May) 13:05:50 MDT (±1.4 sec @ 90%)  
 Database IDs: evid 43003  
 orid 43011  
 prefor 43011  
 Phases: 13 defining  
 14 associated  
 Author: Antelope Real-time System ('O'DbIMb')

pref	author	orid	depth	ndef	mnt	mags	latency
*	Antelope	43011	0 km	13	4.8 Mb		37:17 minutes
	Antelope	43008	0 km	10	4.8 Mb		27:09 minutes
	Antelope	43007	0 km	10	4.8 Mb		21:58 minutes
	USGS	43005	7 km	0	4.9 Mb		18:27 minutes
	Antelope	43004	0 km	10	4.8 Mb		16:55 minutes
	Antelope	43003	0 km	8	4.8 Mb		11:53 minutes

origin time	evid	ndef	Ri	prefauth	mag	region
2016-134 (13 May) 19:05:50 UTC	43003	13	*	Antelope	4.8 Mb	KYUSHU, JAPAN
2016-134 (13 May) 18:48:34 UTC	42999	0		USGS	5.3 Mb	SOUTH OF FUJI
2016-134 (13 May) 12:57:25 UTC	42301	24	*	Antelope	5.2 Mb	SOUTH OF FUJI
2016-134 (13 May) 10:03:15 UTC	41851	20	*	Antelope	5.2 Mb	TALAUD ISLAND
2016-134 (13 May) 08:24:11 UTC	41625	16	*	Antelope	5.2 Mb	TAIWAN REGION
2016-134 (13 May) 07:01:18 UTC	41493	10	*	Antelope	5.5 Mb	PAKISTAN
2016-134 (13 May) 06:59:31 UTC	41401	26	*	Antelope	5.5 Ms	PAKISTAN
2016-134 (13 May) 04:40:37 UTC	41192	11	*	Antelope	4.0 Mb	SEA OF JAPAN
2016-134 (13 May) 00:54:53 UTC	40982	9	*	Antelope	4.3 Mb	SOUTH OF FUJI
2016-133 (12 May) 18:24:00 UTC	39829	11	*	Antelope	5.0 Mb	SOUTH OF SUN
2016-133 (12 May) 17:43:42 UTC	39524	10	*	Antelope	4.8 Mb	NEAR EAST CO
2016-133 (12 May) 17:28:36 UTC	39463	4	*	Antelope	4.3 Mb	KUNING ISLAND

Status: Database updated 2.896 seconds ago (tables updated: origin, net



(old maps still available with `-noqt` option)

# orb2orb\_pre

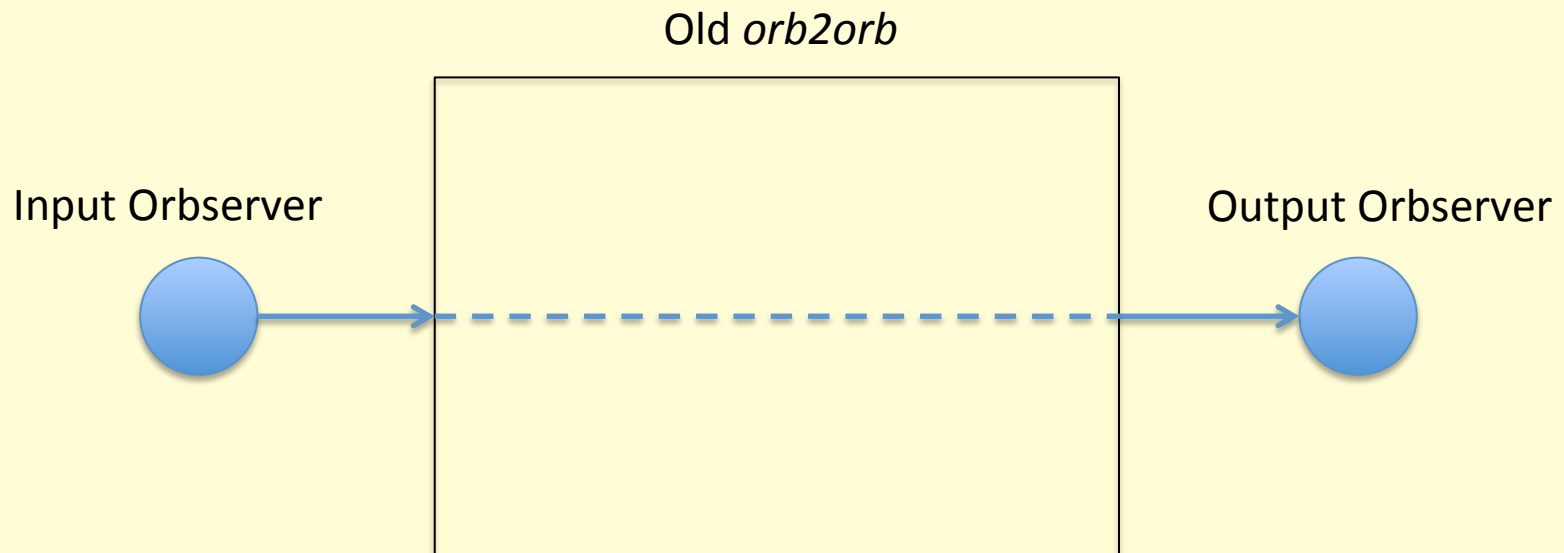
- Design goals
  - Provide datalogger acquisition functionality like *q3302orb* and *altus2orb*
    1. Data ingestion and delivery
      - including repackaging / renaming
      - Point-Of-Contact (POC) call-in capability for dataloggers on dynamic IPs
      - Ultimately: failover support
    2. State-of-Health (SOH) monitoring
      - *dlmon* capabilities
    3. Command-and-control
      - *dlcmd* capabilities
  - Multithreading:
    - multiple *orb2orb* connections with one instance
    - connectivity from *M* source orbs to *N* destination orbs
  - Consolidate slew of related programs (*orb2orb*, *orbxchange*, *orbxthreads*, *orbclone*, etc.)
  - Preserve backwards-compatibility with old *orb2orb*



# orb2orb\_pre: current version

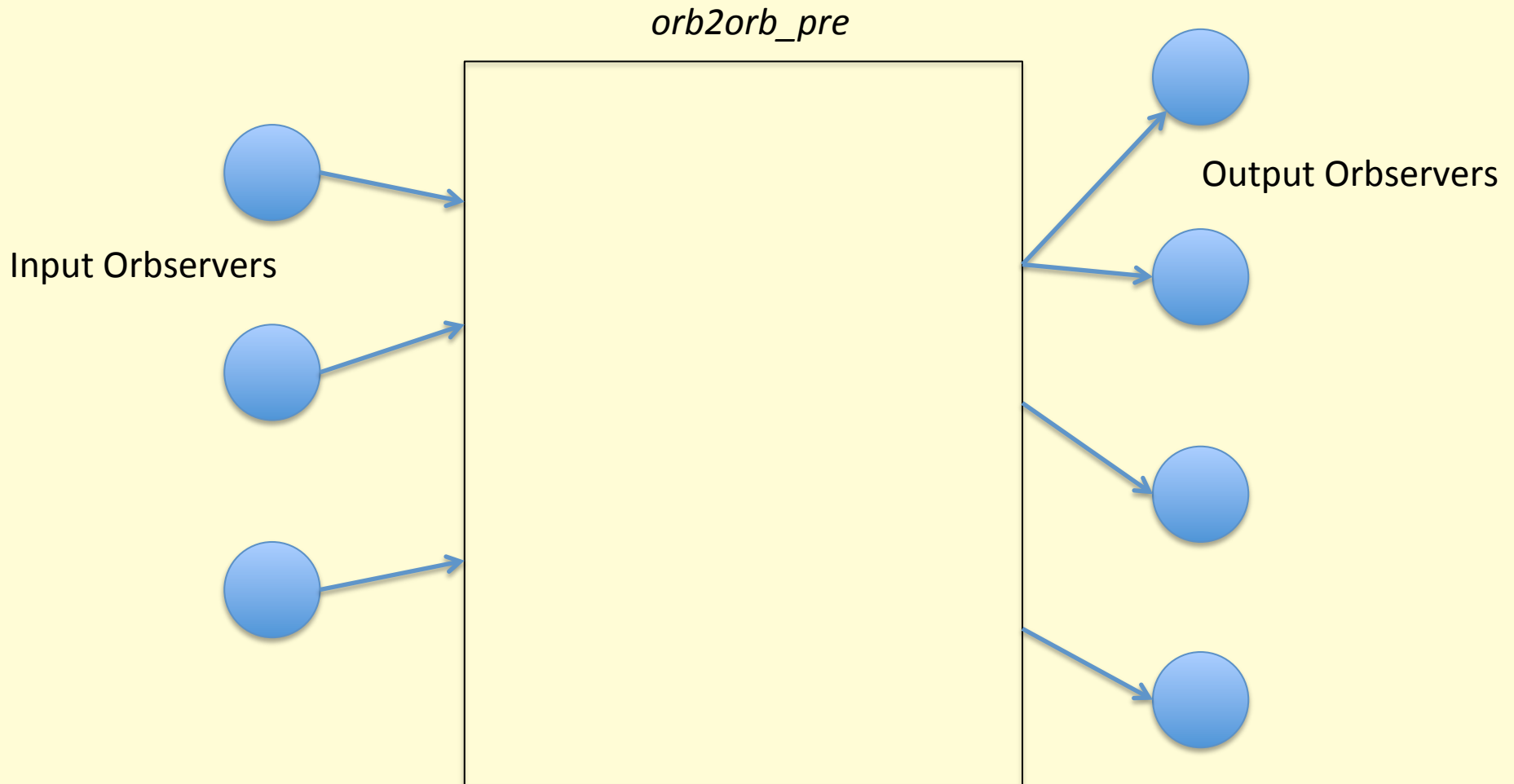
- Basic data acquisition capabilities (*orb2orb*)
- many-to-many connections in one instance
  - Fully Multithreaded
- Basic *dlmon*-compatible SOH output
- Backwards compatibility with
  - Legacy command-line format
  - Legacy parameter-file format
  - [N.B. Not all parameters/options supported yet]
- Embedded in GSN *rtdemo(1)*

# orb2orb: old architecture

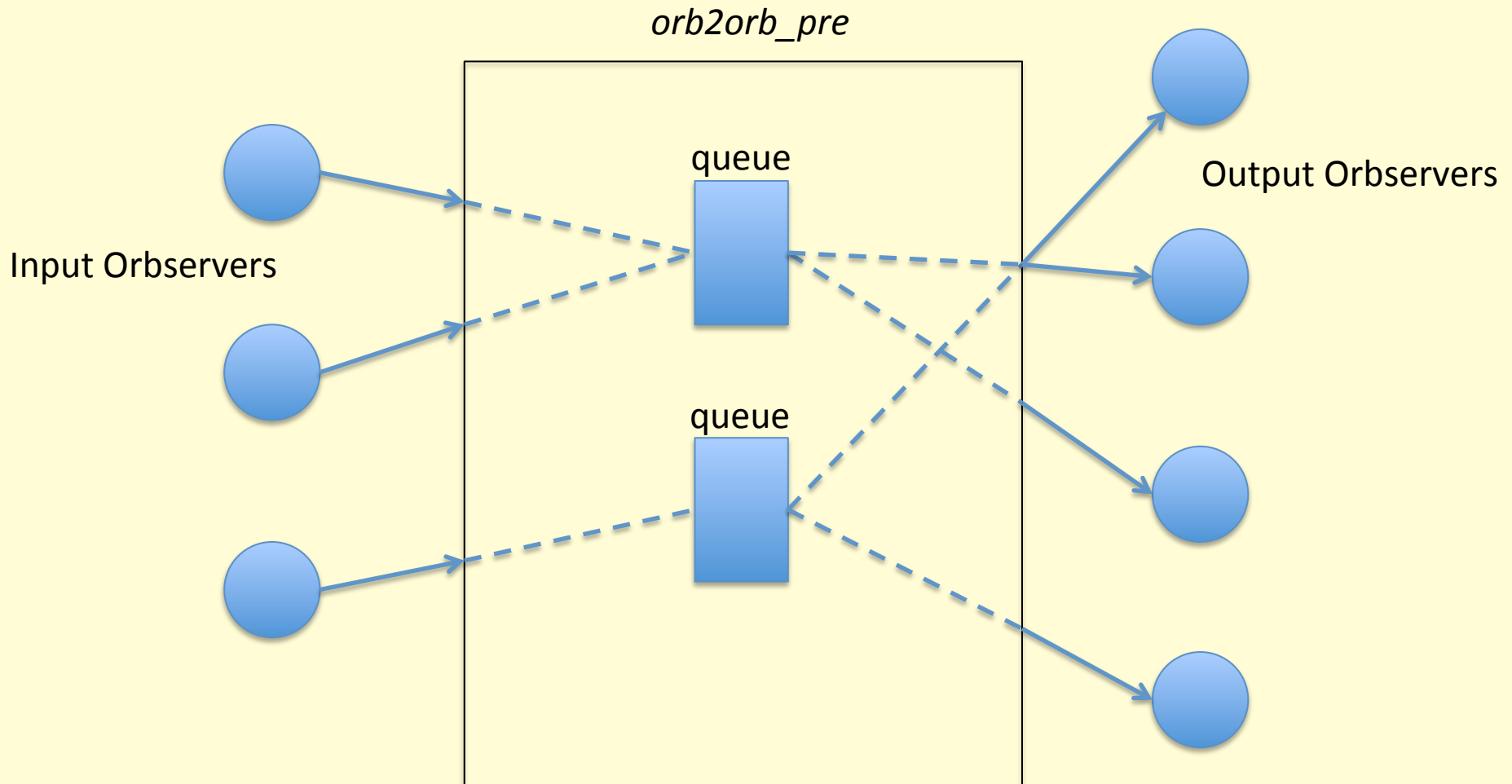


- Served well for many years
- Large networks might have hundreds of individual instances
- Manual configuration becomes burdensome
- Insufficiently supportive of direct data-acquisition role from dataloggers

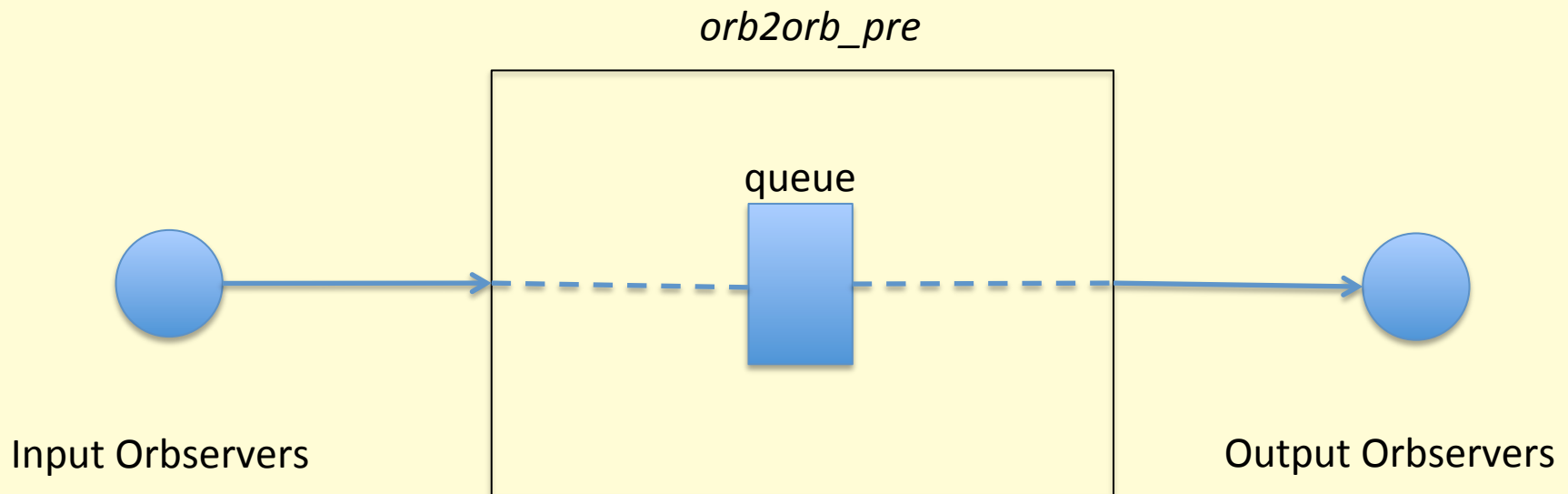
# orb2orb\_pre: new architecture



# orb2orb\_pre: new architecture

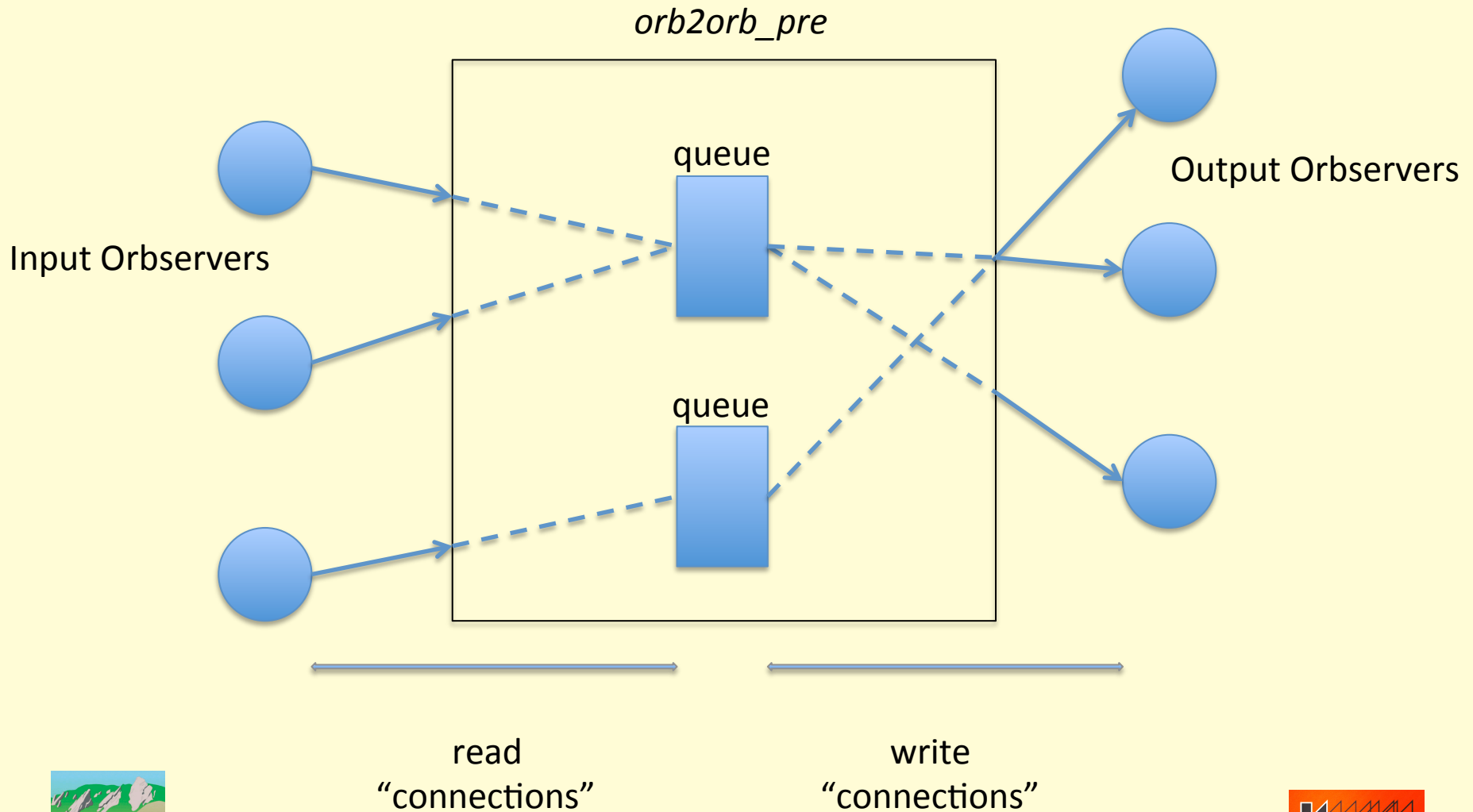


# orb2orb\_pre: new architecture

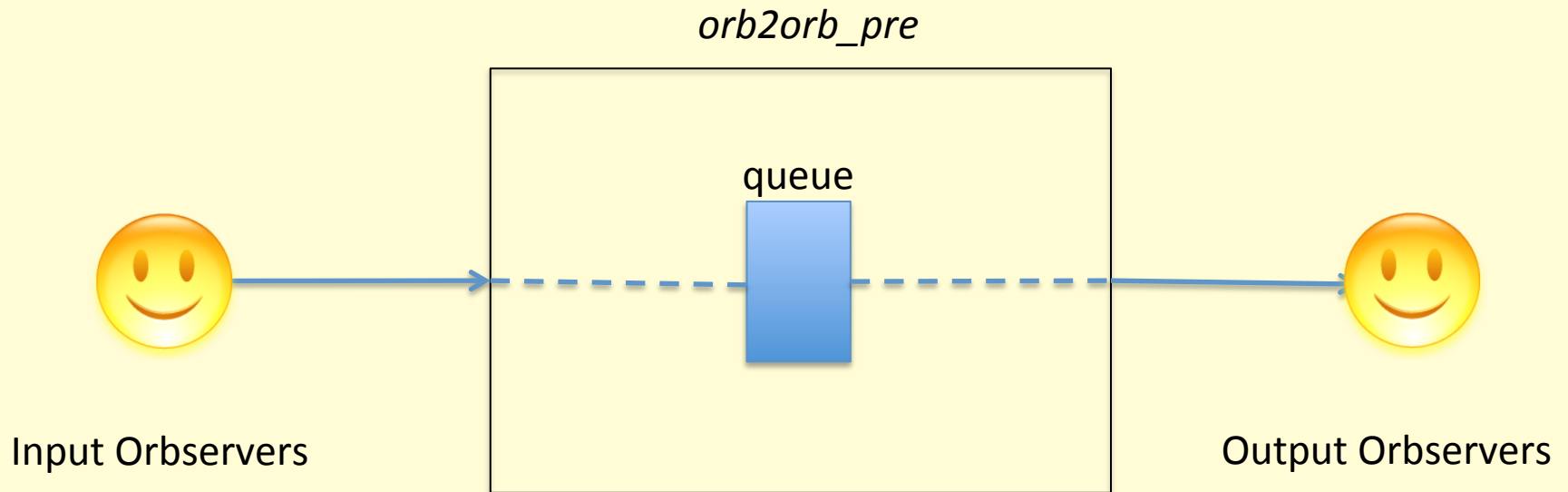


- Separate the connection into two parts:
  - The “read” half
  - The “write” half
- Configure each connection independently
- Add an internal *queue* to buffer data
- Allows you to acquire once, distribute to many destinations
- Allows you to fine-tune outputs
  - different match expressions to different outputs

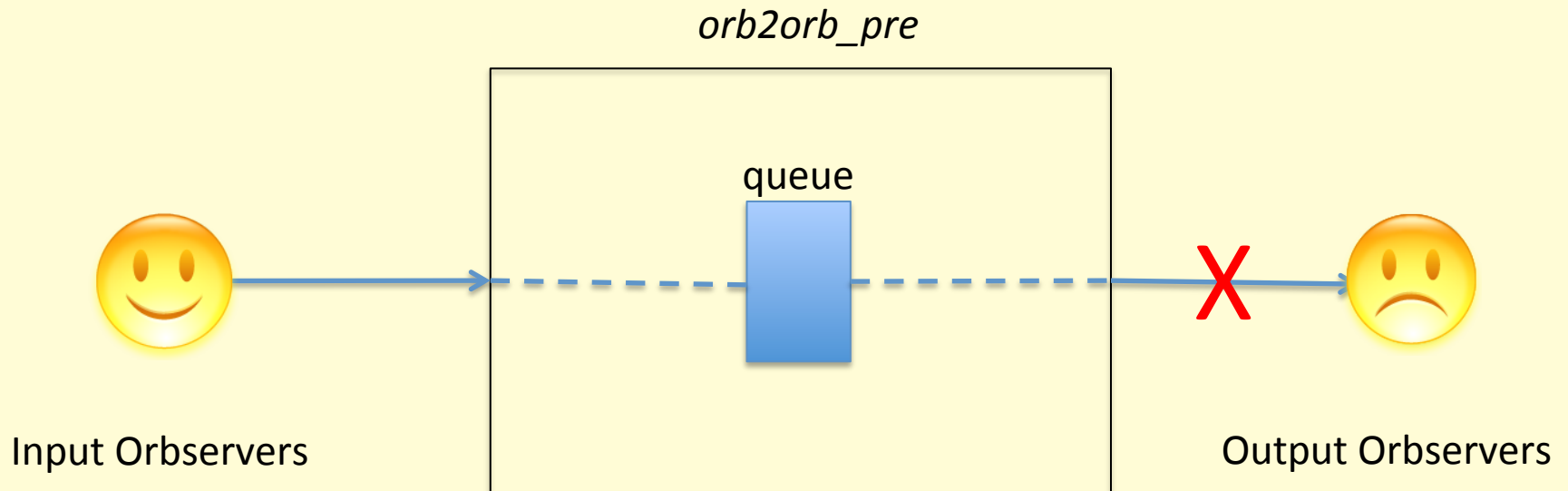
# orb2orb\_pre: new architecture



# orb2orb\_pre: new architecture

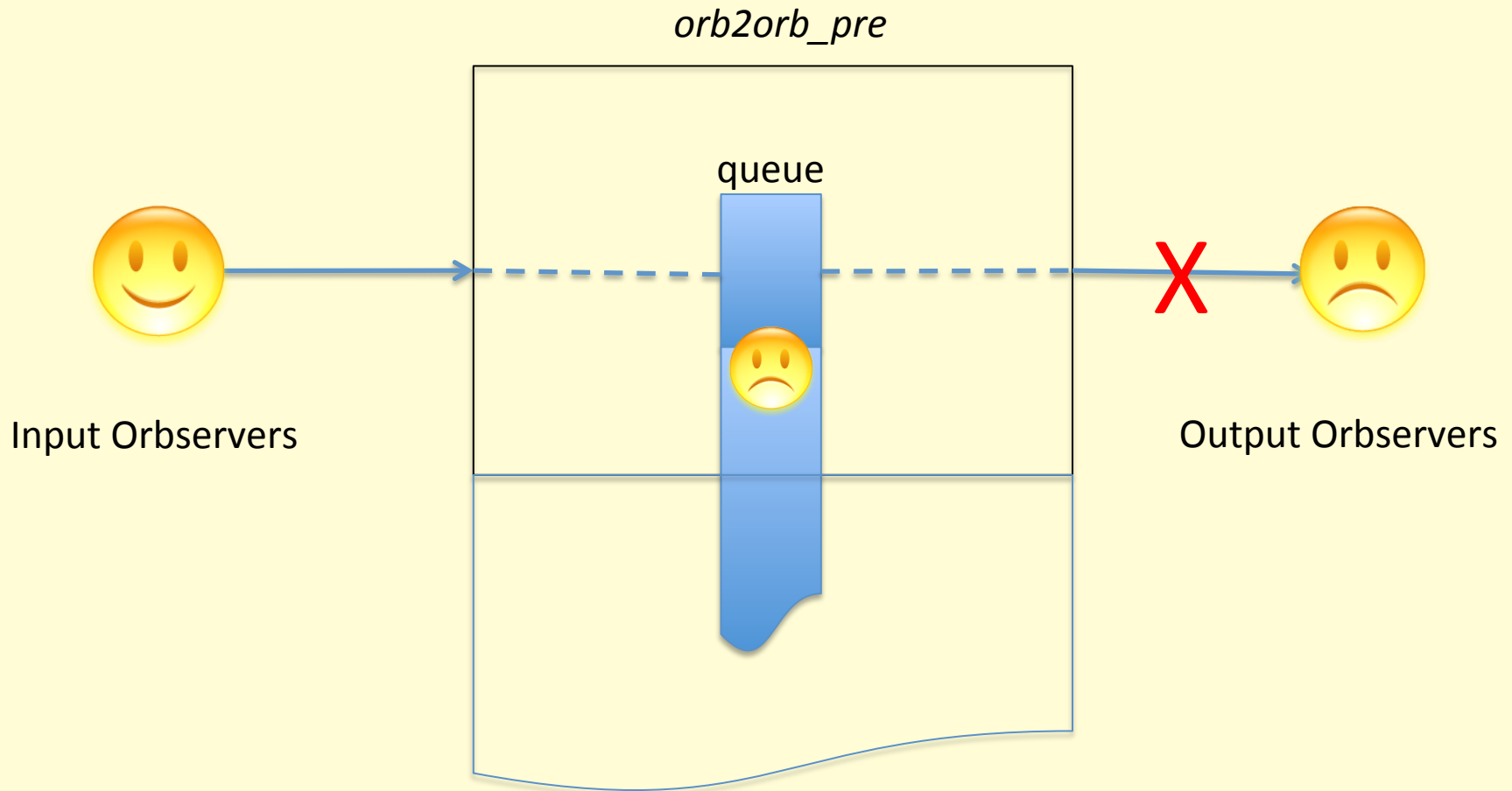


# orb2orb\_pre: new architecture

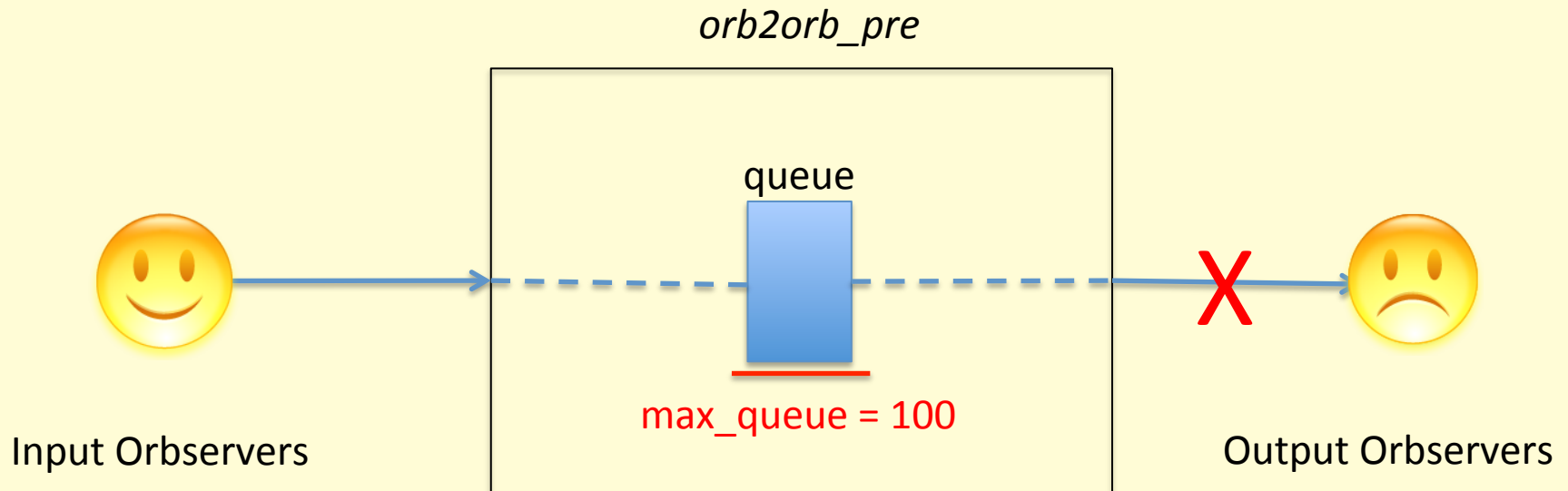




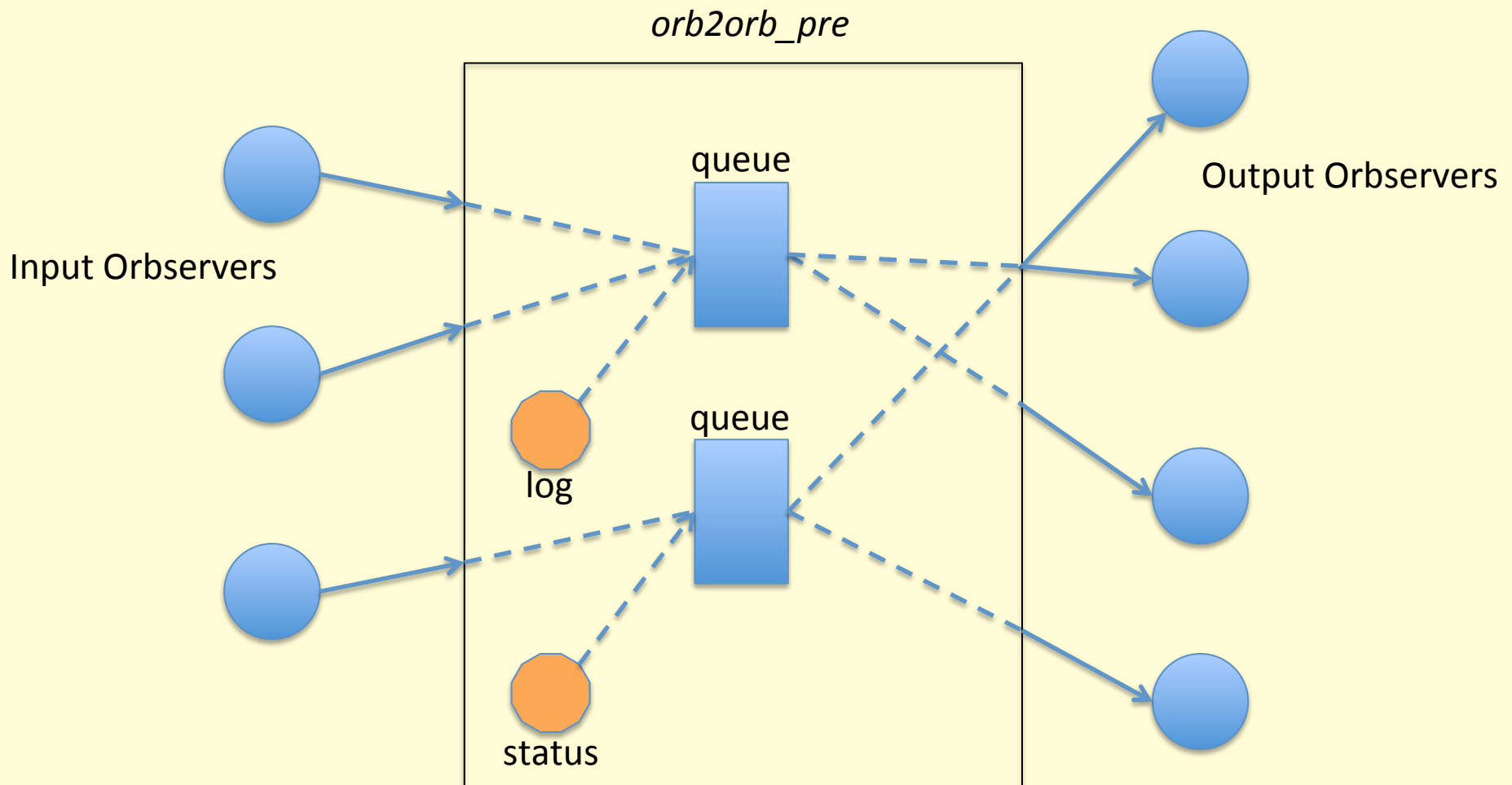
# orb2orb\_pre: new architecture



# orb2orb\_pre: new architecture



# orb2orb\_pre: new architecture



# orb2orb\_pre: dlmon output

dlname	comt	orbname	dir	queue	nq	runtm	SLT	dltncy	rss
1/orb2orb_pre	rint	bbarray.ucsd.edu:gsn@	->read	mainq		32s	00s	01m05s	3MB
2/orb2orb_pre	rint	:gsn@	<-write	mainq	0	32s	00s	01m05s	3MB

“connection”

*number of  
packets  
in queue*

*run  
time*

*Status  
Latency*

*Data  
Latency*

*orb name*

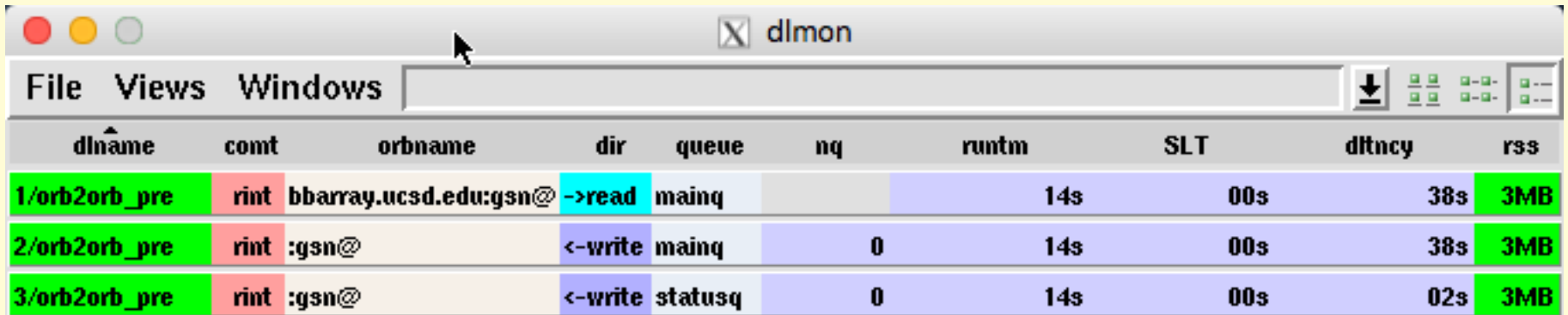
*queue name*

*direction*

*Resident  
Set  
Size  
(memory)*

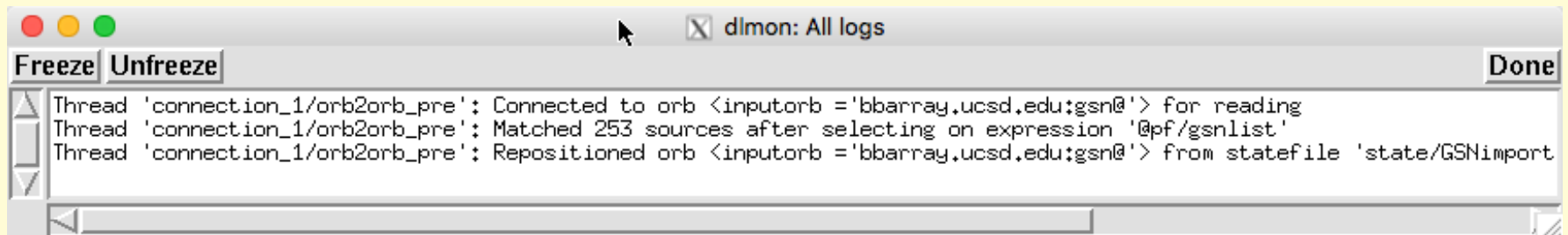


# orb2orb\_pre: dlmon output



The screenshot shows the dlmon application window with a table of connections. The table has the following columns: dlname, comt, orbname, dir, queue, nq, runtm, SLT, dltncty, and rss. The data is as follows:

dlname	comt	orbname	dir	queue	nq	runtm	SLT	dltncty	rss
1/orb2orb_pre	rint	bbarray.ucsd.edu:gsn@	->read	mainq		14s	00s	38s	3MB
2/orb2orb_pre	rint	:gsn@	<-write	mainq	0	14s	00s	38s	3MB
3/orb2orb_pre	rint	:gsn@	<-write	statusq	0	14s	00s	02s	3MB



The screenshot shows the dlmon: All logs window with the following log entries:

```
Thread 'connection_1/orb2orb_pre': Connected to orb <inputorb = 'bbarray.ucsd.edu:gsn@'> for reading
Thread 'connection_1/orb2orb_pre': Matched 253 sources after selecting on expression '@pf/gsnlist'
Thread 'connection_1/orb2orb_pre': Repositioned orb <inputorb = 'bbarray.ucsd.edu:gsn@'> from statefile 'state/GSNimport'
```

# orb2orb\_pre: command line

orb2orb\_pre [-v] [CURRENT SYNTAX]  
[-p pf]  
[-S statefile]  
[-t targetname]  
[[orbtag orbname] ...]

orb2orb\_pre [-v] [LEGACY SYNTAX]  
[-m match]  
[-p pf]  
[-r reject]  
[-S statefile]  
[-t targetname]  
orb in orb out [start-time [period | end-time]]

# orb2orb\_pre: command line

- Example from *rtdemo* GSN:

```
orb2orb_pre -v -S state/GSNimport inputorb bbarry.ucsd.edu:gsn outputorb :gsn
```

- “orbtag” parameters label each actual orbname
  - just as in *q3302orb*, *altus2orb*

## orb2orb\_pre: parameter file

```
connections &Tbl{
  &Arr{
    read_from_orbtag    inputorb
  }
  &Arr{
    write_to_orbtag    outputorb
  }
}
```



# orb2orb\_pre: parameter file

```
connections &Tbl{
  &Arr{
    read_from_orbtag    inputorb
  }
  &Arr{
    write_to_orbtag     outputorb
  }
  &Arr{
    read_from_queue     statusq
    write_to_orbtag     outputorb
  }
}
```

# orb2orb\_pre: parameter file

```
connections_defaults &Arr{
  read &Arr{
    read_from_orbname
    read_from_orbtag
    write_to_queue      mainq
    starttime
    endtime
    too_old
    too_new
    check_unstuff      false
    suppress_unstuff_errors false
  }
  write &Arr{
    read_from_queue      mainq
    write_to_orbname
    write_to_orbtag
    max_queue            100
  }
  shared &Arr{
    name                auto
    run                 true
    match
    reject
  }
}
```



# orb2orb\_pre: parameter file

```
connections_special &Arr{
  status_create &Arr{
    run                true
    write_to_queue    statusq
  }
  log_create &Arr{
    run                true
    write_to_queue    mainq
  }
}

time_intervals_sec &Arr{
  pfstatusreport      2
  internal_timeout    1
  shutdown_grace_period 15
}
```



# orb2orb\_pre: planning for next year

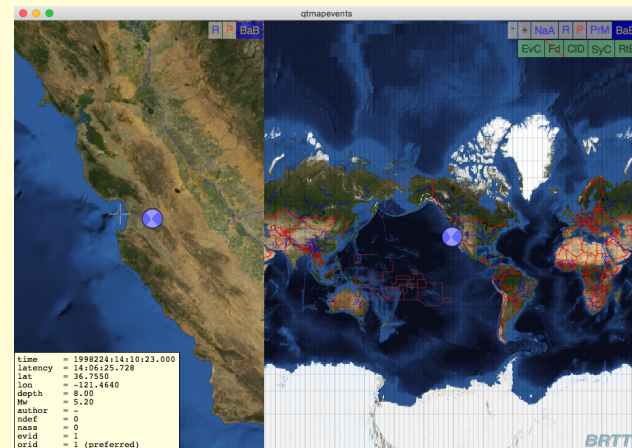
- Time and Multiplex repackaging
- More status metrics (dataflow, rates, etc.)
- POC Capability
- Command-and-control (*dlcmd*)
- Duplicate packet rejection
- Additional legacy option & parameter support
- Failover to alternate input orbserver

# Contractors

- Continuing strategy of doing Antelope infrastructure development in-house and contracting externally for some well-defined applications and capabilities
- Juan Reyes, *Reyes' Code*
  - *dbmoment*
- Celso Reyes, *Celso Reyes Consulting*
  - *db2stationxml*

# dbmoment

- Contributed-code wrapper around Dreger's regional moment-tensor code
- Further detail in Juan Reyes' talk
  - Focal Mechanism Framework in Antelope



# db2stationxml

- Station-metadata export capability from Datascope to FDSN StationXML format
- Further detail in Celso Reyes' talk

*% db2stationxml -L network /opt/antelope/data/db/demo/demo*

```
<FDSNStationXML xmlns="http://www.fdsn.org/xml/station/1" schemaVersion="1.0" xsi:schemaLocation="http://www.fdsn.org/xml/station/1 http://www.fdsn.org/xml/station/fdsn-station-1.0.xsd"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:css30="http://www.brrt.com/xml/station/css30" >
  <Source>ZZ</Source>
  <Sender>BRTT</Sender>
  <Module>db2stationxml</Module>
  <ModuleURI><!-- UNKNOWN --></ModuleURI>
  <Created>2016-05-13T19:29:38.17847</Created>
  <Network code="AZ" startDate="1970-01-01T00:00:00" endDate="2599-12-31T23:59:59" css30:netType="-" >
    <Description>Anza Real-Time Broadband Network</Description>
    <SelectedNumberStations>38</SelectedNumberStations>
  </Network>
  <Network code="PB" startDate="1970-01-01T00:00:00" endDate="2599-12-31T23:59:59" css30:netType="ww" >
    <Description>Plate Boundary Observatory Borehole Seismic Network</Description>
    <SelectedNumberStations>11</SelectedNumberStations>
  </Network>
  <Network code="YN" startDate="1970-01-01T00:00:00" endDate="2599-12-31T23:59:59" css30:netType="-" >
    <Description>San Jacinto Fault Zone (SJFZ)</Description>
    <SelectedNumberStations>4</SelectedNumberStations>
  </Network>
</FDSNStationXML>
%
```



# dbe

- Complete rewrite of venerable database editor
- First version introduced last year as *dbe\_pre*
- Original *dbe* is still available as *dbe\_dep(1)*
- Very hard to rewrite to established standard
- A few features still missing
- Feedback welcome!!
  - Add and vote on feature requests:
  - <https://brtt.zendesk.com/hc/en-us/community/topics/200361606-Feature-Requests-dbe>
  - (also [support@brtt.com](mailto:support@brtt.com), especially for bugs )



# dbe

db: /opt/antelope/data/db/demo/demo

File Edit View Options Graphics Help

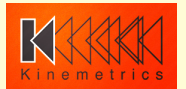
Tables New Window

	arrival	assoc	calibration	event	instrument	lastid	netmag	network	origerr	origin	schanloc	sensor	site	sitechan	snetsta	stage	stamag	wfdisc	dlensor	sensormodel	
	lat	lon	depth	time		orid	evid	idate	nass	ndef	grn	srn	review	dtype	ml	mlid	algorithm	auth	ldate		
0	33.9213	-117.0097	18.5671	1/12/16 (012)	03:29:00.40717 UTC	1	6	2016012	23	23	43	3	y		1.08	7	locsot:iosp91	UCSD:rtML	3/07/16 (067)	20:15:55.16547 UTC	
1	33.9365	-117.0487	14.0700	1/12/16 (012)	03:29:00.73000 UTC	2	6	2016012	23	53			y					USGS:ct	3/08/16 (068)	18:15:21.35713 UTC	
2	33.2327	-116.0130	4.0900	1/12/16 (012)	03:41:57.43000 UTC	3	7	2016012	26	51			y					USGS:ct	3/08/16 (068)	18:20:54.64229 UTC	
3	33.3031	-116.0195	17.0050	1/12/16 (012)	03:41:57.62942 UTC	4	7	2016012	26	26	43	3	y	f	1.61	9	locsot:iosp91	UCSD:rtML	3/07/16 (067)	20:32:08.88114 UTC	
4	33.4805	-116.5786	8.1322	1/12/16 (012)	03:41:59.00487 UTC	5	2	2016012	18	18	43	3	y	f	0.83	8	locsot:iosp91	UCSD:rtML	3/07/16 (067)	20:28:31.23204 UTC	
5	33.4896	-116.4647	11.3246	1/12/16 (012)	03:56:18.89440 UTC	6	3	2016012	14	14	43	3	y	f				UCSD:rt	3/07/16 (067)	20:37:20.11660 UTC	
6	33.3967	-116.2553	10.3066	1/12/16 (012)	17:24:25.65183 UTC	7	8	2016012	28	28	43	3	y	f	1.46	1	locsot:iosp91	UCSD:rtML	2/29/16 (060)	21:02:14.42536 UTC	
7	33.3863	-116.2863	0.7400	1/12/16 (012)	17:24:25.98000 UTC	8	8	2016012	28	46			y					USGS:ct	3/08/16 (068)	18:41:55.24185 UTC	
8	33.7511	-116.6978	10.2729	1/12/16 (012)	17:29:37.53821 UTC	9	1	2016012	24	24	43	3	y	f	0.55	2	locsot:iosp91	UCSD:rtML	2/29/16 (060)	21:10:56.07277 UTC	
9	33.9541	-116.8587	20.5127	1/12/16 (012)	17:37:24.14660 UTC	10	9	2016012	39	39	43	3	y	f	2.47	3	locsot:iosp91	UCSD:rtML	2/29/16 (060)	21:31:06.94678 UTC	
10	33.9707	-116.8662	1.7100	1/12/16 (012)	17:37:24.53000 UTC	11	9	2016012	40	105			y					USGS:ct	3/08/16 (068)	18:43:49.91111 UTC	
11	34.6847	-116.1387	0.0000	1/12/16 (012)	18:39:53.45746 UTC	12	10	2016012	23	23	43	3	y	f	2.37	10	locsot:iosp91	UCSD:rtML	3/07/16 (067)	22:30:05.99745 UTC	
12	34.6933	-116.2410	1.9100	1/12/16 (012)	18:39:53.79000 UTC	13	10	2016012	23	30			y					USGS:ct	3/08/16 (068)	18:44:59.22234 UTC	
13	34.6960	-116.2377	2.3300	1/12/16 (012)	18:40:35.35000 UTC	14	11	2016012	24	29			y					USGS:ct	3/08/16 (068)	18:44:59.22767 UTC	
14	34.6754	-116.1481	0.0000	1/12/16 (012)	18:40:35.52294 UTC	15	11	2016012	24	24	43	3	y	f	2.46	16	locsot:iosp91	UCSD:rtML	3/08/16 (068)	16:44:14.77726 UTC	
15	34.6983	-116.2368	2.3700	1/12/16 (012)	19:11:22.79000 UTC	16	13	2016012	18	21			y					USGS:ct	3/08/16 (068)	18:48:23.01093 UTC	
16	34.6221	-116.2193	5.2469	1/12/16 (012)	19:11:24.11168 UTC	17	13	2016012	18	18	43	3	y	f	2.41	4	locsot:iosp91	UCSD:rtML	2/29/16 (060)	22:39:32.13351 UTC	
17	34.6953	-116.2363	2.7600	1/12/16 (012)	19:11:41.23000 UTC	18	12	2016012	28	23			y					USGS:ct	3/08/16 (068)	18:48:09.65175 UTC	
18	34.6795	-116.3875	10.1784	1/12/16 (012)	19:11:42.16418 UTC	19	12	2016012	28	28	43	3	y	f	2.85	15	locsot:iosp91	UCSD:rtML	3/08/16 (068)	16:41:28.03439 UTC	
19	33.7533	-116.8147	13.7953	1/13/16 (013)	05:05:22.14992 UTC	20	14	2016013	45	45	43	3	y	f				UCSD:rt	3/07/16 (067)	23:16:56.11251 UTC	
20	33.7538	-116.8303	12.6300	1/13/16 (013)	05:05:22.52000 UTC	21	14	2016013	45	44			y					USGS:ct	3/08/16 (068)	18:53:42.34453 UTC	
21	-15.1946	-174.9013	293.3900	1/13/16 (013)	05:55:59.72000 UTC	22	15	2016013	27	0			y					USGS:us	3/08/16 (068)	18:56:01.25018 UTC	
22	33.5357	-116.4816	9.7193	1/13/16 (013)	06:06:37.81113 UTC	23	4	2016013	13	13	43	3	y	f				dbgenloc:iosp91	UCSD:rt	3/08/16 (068)	15:50:21.75212 UTC
23	33.5310	-116.4713	6.4297	1/13/16 (013)	06:06:37.83234 UTC	24	4	2016013	13	13	43	3	y	f				UCSD:rt	3/08/16 (068)	15:51:56.88571 UTC	
24	33.5321	-116.4673	7.0669	1/13/16 (013)	06:06:40.33282 UTC	25	5	2016013	20	20	43	3	y	f	-0.03	12	locsot:iosp91	UCSD:rtML	3/08/16 (068)	15:52:21.46812 UTC	
25	33.5355	-116.4824	9.8919	1/13/16 (013)	06:06:40.36563 UTC	26	5	2016013	20	20	43	3	y	f	-0.05	11	dbgenloc:iosp91	UCSD:rtML	3/08/16 (068)	15:50:28.44908 UTC	
26	32.6990	-115.7656	15.0563	1/13/16 (013)	12:05:12.70967 UTC	27	18	2016013	31	31	45	3	y	f	2.05	13	dbgenloc:iosp91	UCSD:rtML	3/08/16 (068)	16:24:30.55457 UTC	
27	32.7010	-115.7925	17.8874	1/13/16 (013)	12:05:13.12403 UTC	28	18	2016013	31	31	45	3	y	f	2.05	14	locsot:iosp91	UCSD:rtML	3/08/16 (068)	16:24:05.42086 UTC	
28	32.7142	-115.8113	6.6600	1/13/16 (013)	12:05:15.00000 UTC	29	18	2016013	31	46			y					USGS:ct	3/08/16 (068)	19:07:58.36671 UTC	
29	33.4818	-116.3940	7.2209	1/13/16 (013)	13:37:05.51998 UTC	30	19	2016013	36	36	43	3	y	f				locsot:iosp91	UCSD:rt	3/08/16 (068)	16:40:09.59342 UTC
30	33.4723	-116.4090	5.6700	1/13/16 (013)	13:37:05.88000 UTC	31	19	2016013	36	61			y					USGS:ct	3/08/16 (068)	19:12:36.79769 UTC	
31	33.8651	-116.9679	27.4629	1/13/16 (013)	16:03:18.89497 UTC	32	20	2016013	29	29	43	3	y	f	1.14	5	locsot:iosp91	UCSD:rtML	3/07/16 (067)	19:03:10.20193 UTC	
32	33.9283	-116.9580	13.5200	1/13/16 (013)	16:03:19.63000 UTC	33	20	2016013	29	60			y					USGS:ct	3/08/16 (068)	19:15:16.49818 UTC	
33	34.6950	-116.2373	1.8300	1/13/16 (013)	16:50:11.87000 UTC	34	21	2016013	28	29			y					USGS:ct	3/08/16 (068)	19:24:46.91726 UTC	
34	34.5962	-116.2674	5.1955	1/13/16 (013)	16:50:13.91490 UTC	35	21	2016013	28	28	43	3	y	f	2.22	6	locsot:iosp91	UCSD:rtML	3/07/16 (067)	19:10:03.12921 UTC	
35	34.6907	-116.2408	1.4200	1/13/16 (013)	06:53:53.23000 UTC	36	16	2016013	34	50			y					USGS:ct	3/08/16 (068)	21:23:58.13404 UTC	
36	34.6289	-116.2552	0.0000	1/13/16 (013)	06:53:54.11081 UTC	37	16	2016013	34	34	43	3	y	f	2.31	33	locsot:iosp91	UCSD:rtML	3/08/16 (068)	21:23:47.83167 UTC	
37	32.7000	-115.8003	10.9900	1/13/16 (013)	12:01:04.33000 UTC	38	17	2016013	31	58			y					USGS:ct	3/08/16 (068)	21:27:48.58127 UTC	

39 Rows

Table 'origin' updated: 3/16/16 (076) 16:34:53.26436 UTC (50 days 5.0 hours ago)

updated: 5/05/16 (126) 21:34:59.75065 UTC



# dbe: major new features

- All tables are in one window
  - New Windows available on request
- Modern interface
  - Cocoa substrate on Mac
    - `$(ANTELOPE)/bin/native/dbe`
    - (run `$(ANTELOPE)/bin/x11/dbe` over `ssh`)
- In-cell editing
- New mapping tools integrated into application
  - more sophistication to come here
- Internationalized (thanks to Translators!)
- Dynamic updating

## dbe: minor features

- Lots of tooltips
  - *dbhelp* info integrated into tables, fields tooltips
  - Full contents of each row
- Quick-access database-operations toolbar
- Context-sensitive (right click) find-forward, find-backward, subset
- Separate background colors for null and blank values

# dbe: tooltips

orig	schanloc	sensor	site	sitechan	snetsta	stage	stamag	wfdisc	dlsens
review									
<b>Table:</b> <i>origin</i> <b>Table type:</b> Base Table <b>Description:</b> Data on event location and size <b>File:</b> /Volumes/Users/antelope/data/db/demo/demo.origin <b>Unix permissions:</b> Read/Write <b>Modified:</b> 3/16/2016 10:34:53.264 MDT(50 days 22.4 hours ago) <b>Table size:</b> 9.1 kilobytes <b>Record size:</b> 238 bytes per record <b>Record count:</b> 39 records <b>Primary keys:</b> <i>time, lat, lon, depth, ndef, nass</i> <b>Alternate keys:</b> <i>orid</i> <b>Foreign keys:</b> <i>evid, commid, grn, srn</i> <b>Defines:</b> <i>orid</i> <b>Detailed description:</b> Information describing a derived or reported origin for a particular event is stored in this table.									
f			dbaenloc:iasp91	UCSD:rt		3/08/16 (068)	15:50:21.75212 UTC		

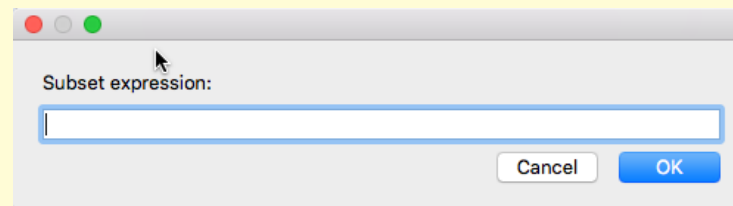
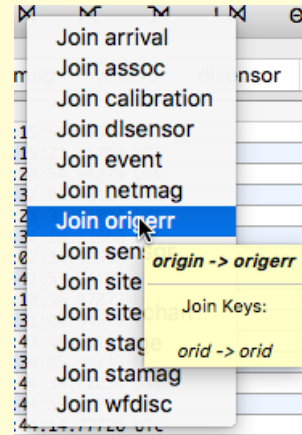
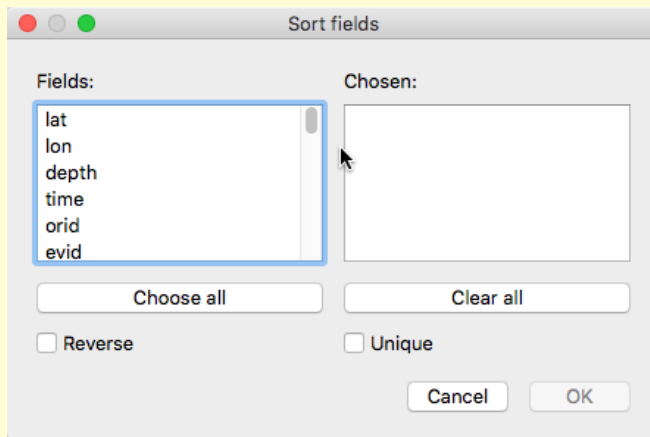
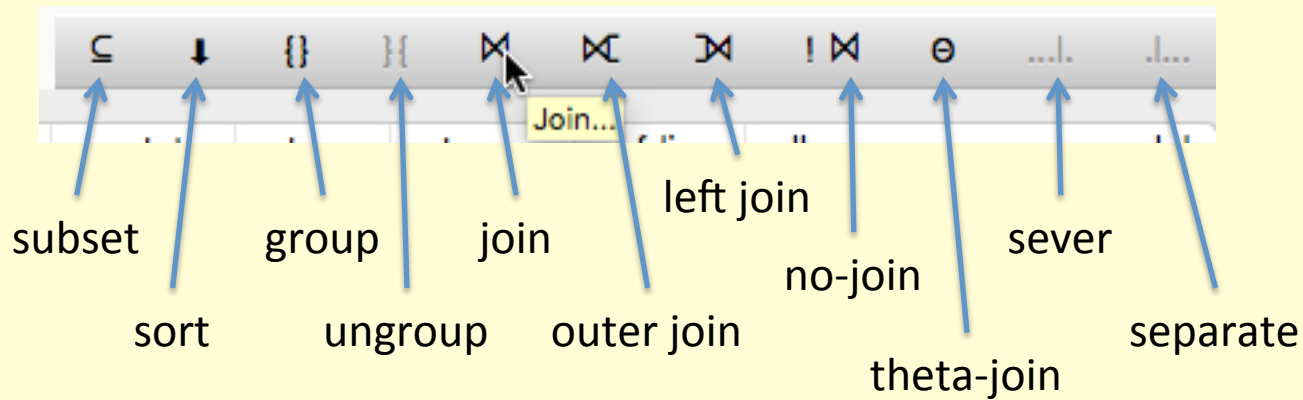
orid	evid	jdate	nass	ndef	grn	srn	review	dt
1	6	2016012	23	23	43	3	y	f
<b>Field:</b> <i>orid</i> <b>Description:</b> origin id <b>Type:</b> integer <b>Size:</b> 8 bytes <b>Format:</b> %8ld <b>Position in row:</b> 48-56 (zero offset) <b>Range:</b> orid > 0 <b>Units:</b> <b>Null value:</b> -1 <b>Defining for table:</b> <i>origin</i> <b>Key type for 'origin':</b> Alternate <b>Column empty:</b> No <b>Detailed description:</b> Each origin is assigned a unique positive integer which identifies it in a data base. The orid is used to identify one of the many hypotheses of the actual location of the event.								

18	34.6795	-116.3875	10.1784	1/12/16 (0)
19	33.7533	-116.8147	13.7953	1/13/16 (0)
20	<b>Record index:</b> 18			
21	<b>Record size:</b> 238 bytes			
22				
23	<b>lat:</b>	34.6795		
24	<b>lon:</b>	-116.3875		
25	<b>depth:</b>	10.1784		
26	<b>time:</b>	1/12/16 (012) 19:11:42.16418 UTC		
27	<b>orid:</b>	19		
28	<b>evid:</b>	12		
29	<b>jdate:</b>	2016012		
30	<b>nass:</b>	28		
31	<b>ndef:</b>	28		
32	<b>ndp:</b>	43		
33	<b>grn:</b>	3		
34	<b>srn:</b>	3		
35	<b>etype:</b>	y		
36	<b>review:</b>	y		
37	<b>depdp:</b>	f		
38	<b>dtype:</b>	f		
	<b>mb:</b>			
	<b>mbid:</b>			
	<b>ms:</b>			
	<b>msid:</b>			
	<b>ml:</b>	2.85		
	<b>mlid:</b>	15		
	<b>algorithm:</b>	locsat:iasp91		
	<b>auth:</b>	UCSD:rtMl		
	<b>commid:</b>			
	<b>lddate:</b>	3/08/16 (068) 16:41:28.03439 UTC		

# dbe: tooltips

		View100		View101		View102		View103			
Table:	lon	View103				time	orid		evid		
<b>Table type:</b>	-116.8303	View	12.6300	1/13/16 (013)	05:05:22.52000	UTC	21				
<b>Record count:</b>	-116.8303	556 records	12.6300	1/13/16 (013)	05:05:22.52000	UTC	21				
<b>View tables:</b>	-116.8303	origin, assoc		1/13/16 (013)	05:05:22.52000	UTC	21				
<b>Table creation:</b>	-116.8303	dbopen origin		1/13/16 (013)	05:05:22.52000	UTC	21				
	-116.8303	dbsubset depth < 40		1/13/16 (013)	05:05:22.52000	UTC	21				
	-116.8303	dbjoin assoc		1/13/16 (013)	05:05:22.52000	UTC	21				
	-116.8303	dbsubset delta < 1		1/13/16 (013)	05:05:22.52000	UTC	21				
	-116.8303	dbsort origin.ml		1/13/16 (013)	05:05:22.52000	UTC	21				
33.5357	-116.4816	9.7193	12.6300	1/13/16 (013)	06:06:37.81113	UTC	23				
33.5357	-116.4816	9.7193	12.6300	1/13/16 (013)	06:06:37.81113	UTC	23				
33.5357	-116.4816	9.7193	12.6300	1/13/16 (013)	06:06:37.81113	UTC	23				
33.5357	-116.4816	9.7193	12.6300	1/13/16 (013)	06:06:37.81113	UTC	23				

# dbe: database operations toolbar



Danke: Stefan Radman

# dbe: row viewer and editor

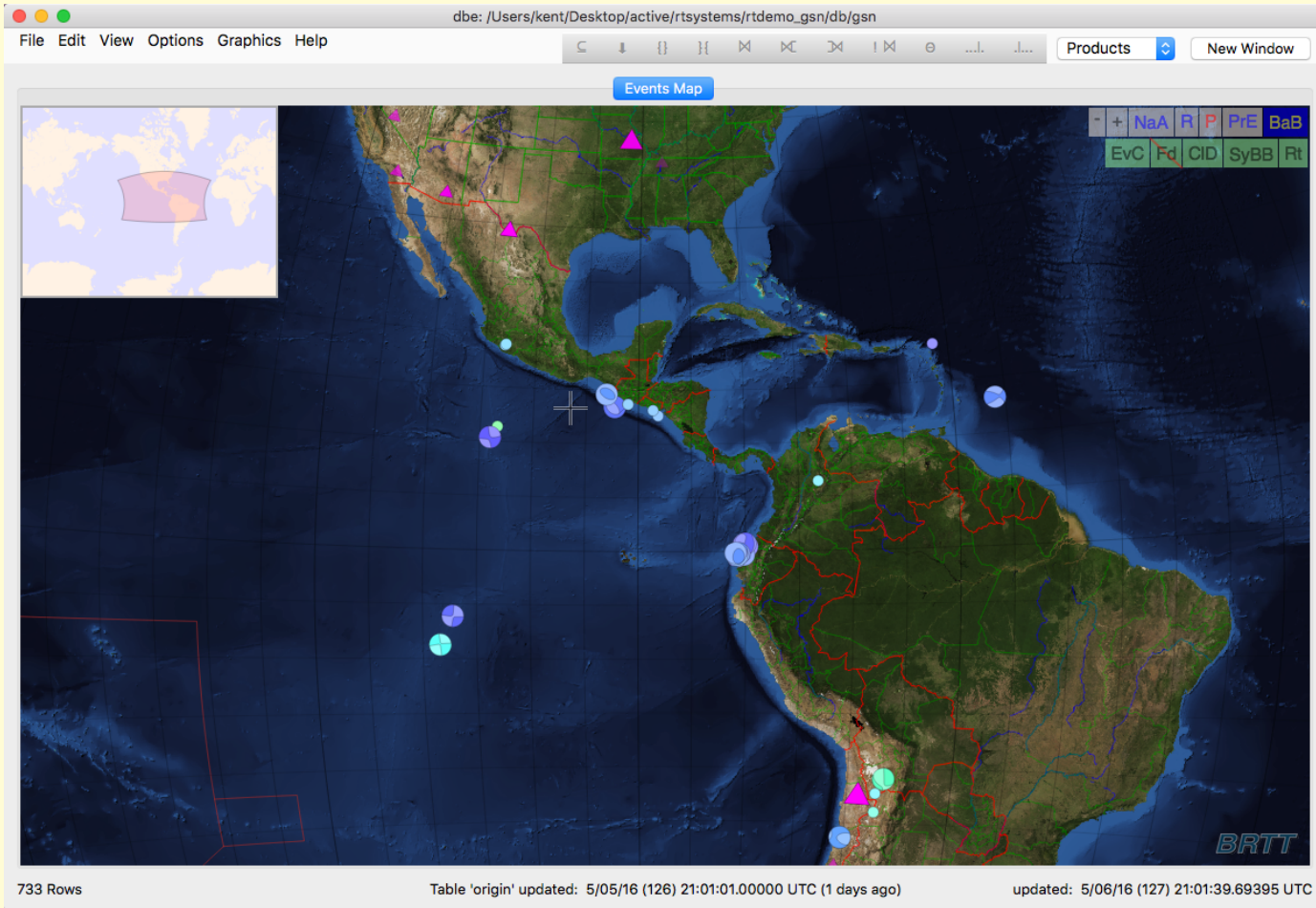
dbe Row Viewer

Row index  in table 'origin' (39 total rows) ◀ ▶

Allow Edits  Readable Times  Local Timezone

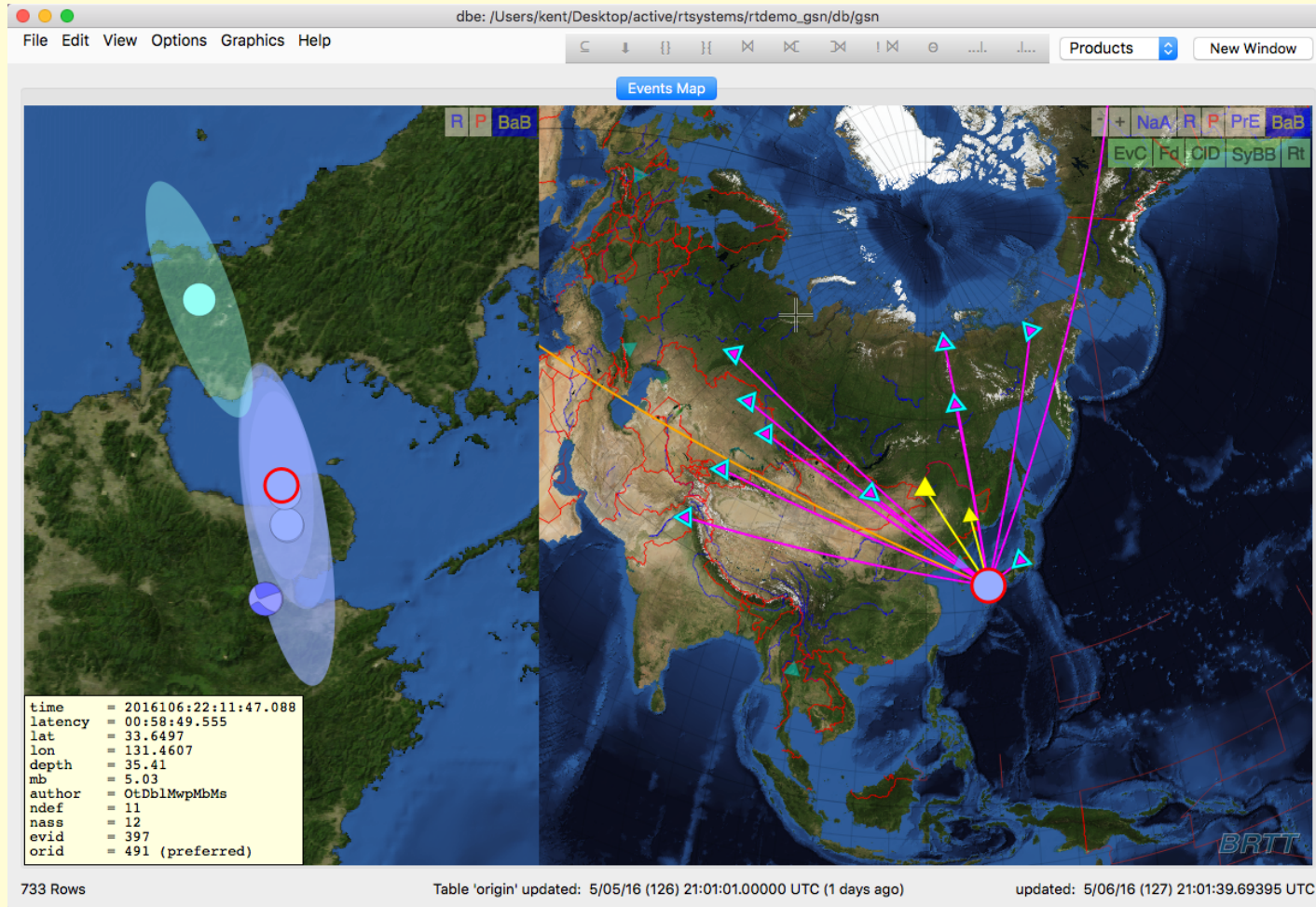
lat:	<input type="text" value="34.6795"/>	review:	<input type="text" value="y"/>
lon:	<input type="text" value="-116.3875"/>	depdp:	<input type="text"/>
depth:	<input type="text" value="10.1784"/>	dtype:	<input type="text" value="f"/>
time:	<input type="text" value="1/12/16 (012) 19:11:42.16418 UTC"/>	mb:	<input type="text"/>
orid:	<input type="text" value="19"/>	mbid:	<input type="text"/>
evid:	<input type="text" value="12"/>	ms:	<input type="text"/>
jdate:	<input type="text" value="2016012"/>	msid:	<input type="text"/>
nass:	<input type="text" value="28"/>	ml:	<input type="text" value="2.85"/>
ndef:	<input type="text" value="28"/>	mlid:	<input type="text" value="15"/>
ndp:	<input type="text"/>	algorithm:	<input type="text" value="locsat:iasp91"/>
grn:	<input type="text" value="43"/>	auth:	<input type="text" value="UCSD:rtML"/>
srn:	<input type="text" value="3"/>	commid:	<input type="text"/>
etype:	<input type="text"/>	lddate:	<input type="text" value="3/08/16 (068) 16:41:28.03439 UTC"/>

# dbe: maps



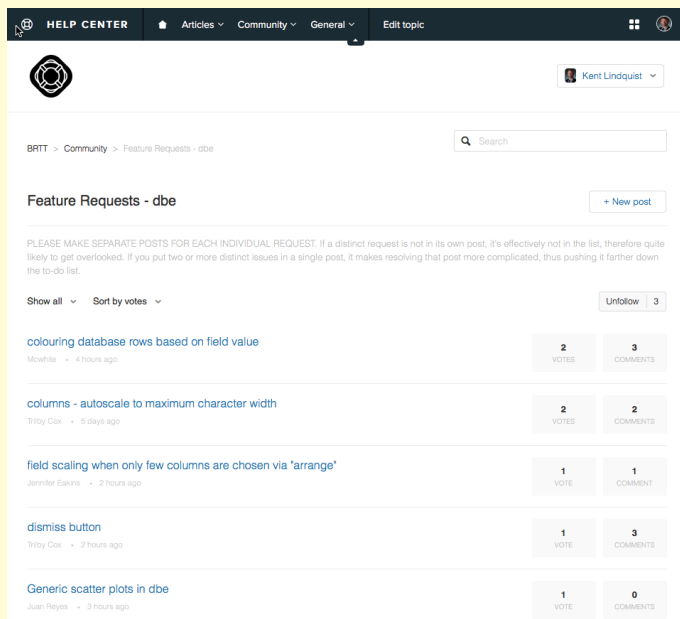


# dbe: maps



# dbe: feedback welcome!

- Add and *vote on* feature requests:
- <https://brtt.zendesk.com/hc/en-us/community/topics/200361606-Feature-Requests-dbe>



- One Request per post!
- Each detail in its own post!
- Vote!



- (also [support@brtt.com](mailto:support@brtt.com), especially for bugs )



# Internationalization and Localization

- Internationalization “I18n”
  - The *capability* to support multiple languages; the software-development side of the problem
  - New library *libbqtr(3)* to support translating program controls
  - All Unicode-supported languages allowed
  - This is our first, basic foray – will require more investment if there is sustained interest

# Internationalization and Localization

- Localization “I10n”
  - The *expression* into specific languages; the application-configuration side of the problem
  - New manpage *antelope\_i10n(5)* on how to add a language
  - Languages may be added/changed by BRTT, by the AUG community, or privately
  - Can do most of the work in Microsoft Excel – use *ts2x/sx(1)* program

# Internationalization and Localization: Caveats

- All support requests must be in English
- This includes screen-dumps
  - *Command-E* or *Ctrl-E* shortcut to switch to English
- We do not translate, and do not foresee translating, database content, table names, schema descriptions etc.

# dbe: Italian

file Modifica Visualizza **Opzioni** Grafica Guida

Abilita modifica  
 Colora le righe in modo alternato  
 Colora lo sfondo di bianco  
 Rimuovi il colore di sfondo  
 Colore di sfondo bianco...  
 Nessun colore di sfondo...  
 Carattere...  
 Includi l'intestazione nel salvataggio del testo  
 Lingua  
 Ora locale 'America/Denver'  
 Valori nulli in formato grezzo  
 Tempi leggibili  
 Richiesta nomi viste  
 Mostra colonne vuote  
 Strumenti  
 Aggiorna Intervallo...

db: /opt/antelope/data/db/demo/demo

Tabelle Nuova Finestra

mag	network	origerr	origin	schanloc	sensor	site	sitochan	snetsta	stage	stamag	wfdisc	dlsensor	sensormodel									
id	evid	idate	nass	ndef	grn	srn	review	dtype	ml	miid	7	locsat:iasp91	UCSD:rtML	auth	iddate							
0	33.9213	-117.0097		23	23																	
1	33.9365	-117.0487		23	53																	
2	33.2327	-116.0130		26	51																	
3	33.3031	-116.0195		26	26	43	3	y	1.61	9	locsat:iasp91	UCSD:rtML	3/07/16 (067)	20:32:08.88114	UTC							
4	33.4805	-116.5786		18	18	43	3	y	0.03	8	locsat:iasp91	UCSD:rtML	3/07/16 (067)	20:28:31.23204	UTC							
5	33.4896	-116.4647		14	14	43	3	y														
6	33.3967	-116.2553		28	28	43	3	y	1.46	1	locsat:iasp91	UCSD:rtML	2/29/16 (060)	21:02:14.42536	UTC							
7	33.3863	-116.2863		28	46																	
8	33.7511	-116.6978		24	24	43	3	y	0.55	2	locsat:iasp91	UCSD:rtML	2/29/16 (060)	21:10:56.07277	UTC							
9	33.9541	-116.8587		39	39	43	3	y	2.47	3	locsat:iasp91	UCSD:rtML	2/29/16 (060)	21:31:06.94678	UTC							
10	33.9707	-116.8662		40	105																	
11	34.6847	-116.1387		23	23	43	3	y	2.37	10	locsat:iasp91	UCSD:rtML	3/07/16 (067)	22:30:05.99745	UTC							
12	34.6933	-116.2410		30	30																	
13	34.6960	-116.2377		24	29																	
14	34.6754	-116.1481		24	24	43	3	y	2.46	16	locsat:iasp91	UCSD:rtML	3/08/16 (068)	18:44:14.77726	UTC							
15	34.6983	-116.2368		18	21																	
16	34.6221	-116.2193		18	18	43	3	y	2.41	4	locsat:iasp91	UCSD:rtML	2/29/16 (060)	22:39:32.13351	UTC							
17	34.6953	-116.2363		28	23																	
18	34.6795	-116.3875		28	28	43	3	y	2.85	15	locsat:iasp91	UCSD:rtML	3/08/16 (068)	16:41:28.03439	UTC							
19	33.7533	-116.8147	13.7953	1/13/16 (013)	05:05:22.14992	UTC	20	14	2016013	45	45	43	3	y	f	locsat:iasp91	UCSD:rt	3/07/16 (067)	23:16:56.11251	UTC		
20	33.7538	-116.8303	12.6300	1/13/16 (013)	05:05:22.52000	UTC	21	14	2016013	45	44											
21	-15.1946	-174.9913	233.3900	1/13/16 (013)	05:55:59.72000	UTC	22	15	2016013	27	0											
22	33.5357	-116.4816	9.7193	1/13/16 (013)	06:06:37.81113	UTC	23	4	2016013	13	13	43	3	y	f							
23	33.5310	-116.4713	6.4297	1/13/16 (013)	06:06:37.83234	UTC	24	4	2016013	13	13	43	3	y	f							
24	33.5321	-116.4673	7.0669	1/13/16 (013)	06:06:40.33282	UTC	25	5	2016013	20	20	43	3	y	f	-0.03	12	locsat:iasp91	UCSD:rtML	3/08/16 (068)	15:52:21.46812	UTC
25	33.5355	-116.4824	9.8919	1/13/16 (013)	06:06:40.36563	UTC	26	5	2016013	20	20	43	3	y	f	-0.05	11	dbgenloc:iasp91	UCSD:rtML	3/08/16 (068)	15:50:28.44908	UTC
26	32.6990	-115.7656	15.0563	1/13/16 (013)	12:05:12.70967	UTC	27	18	2016013	31	31	45	3	y	f	2.05	13	dbgenloc:iasp91	UCSD:rtML	3/08/16 (068)	16:24:30.55457	UTC
27	32.7010	-115.7925	17.8874	1/13/16 (013)	12:05:13.12403	UTC	28	18	2016013	31	31	45	3	y	f	2.05	14	locsat:iasp91	UCSD:rtML	3/08/16 (068)	16:24:05.42086	UTC
28	32.7142	-115.8113	6.6600	1/13/16 (013)	12:05:15.00000	UTC	29	18	2016013	31	46											
29	33.4818	-116.3940	7.2209	1/13/16 (013)	13:37:05.51998	UTC	30	19	2016013	36	36	43	3	y	f							
30	33.4723	-116.4090	5.6700	1/13/16 (013)	13:37:05.88000	UTC	31	19	2016013	36	61											
31	33.8651	-116.9679	27.4629	1/13/16 (013)	16:03:18.89497	UTC	32	20	2016013	29	29	43	3	y	f	1.14	5	locsat:iasp91	UCSD:rtML	3/07/16 (067)	19:03:10.20193	UTC
32	33.9283	-116.9580	13.5200	1/13/16 (013)	16:03:19.63000	UTC	33	20	2016013	29	60											
33	34.6950	-116.2373	1.8300	1/13/16 (013)	16:50:11.87000	UTC	34	21	2016013	28	29											
34	34.5962	-116.2674	5.1955	1/13/16 (013)	16:50:13.91490	UTC	35	21	2016013	28	28	43	3	y	f	2.22	6	locsat:iasp91	UCSD:rtML	3/07/16 (067)	19:10:03.12921	UTC
35	34.6907	-116.2408	1.4200	1/13/16 (013)	06:53:53.23000	UTC	36	16	2016013	34	50											
36	34.6289	-116.2552	0.0000	1/13/16 (013)	06:53:54.11081	UTC	37	16	2016013	34	34	43	3	y	f	2.31	33	locsat:iasp91	UCSD:rtML	3/08/16 (068)	21:23:47.83167	UTC
37	32.7000	-115.8003	10.9900	1/13/16 (013)	12:01:04.33000	UTC	38	17	2016013	31	58											
38	32.7769	-115.8205	22.3493	1/13/16 (013)	12:01:04.02651	UTC	39	17	2016013	31	31	45	3	y	f	2.42	34	locsat:iasp91	UCSD:rtML	3/08/16 (068)	21:27:48.58127	UTC

39 Righe

Tabella 'origin' aggiornata: 3/16/16 (076) 16:34:53.26436 UTC (50 days 5.3 hours' fa)

aggiornato/a: 5/05/16 (126) 21:56:44.71930 UTC

Grazie: Alessandra Papparelli



# dbe: Chinese

文件 编辑 视图 选项 图形 帮助

db: /opt/antelope/data/db/demo/demo

表

arrival	assoc	calibration	event	instrument	lastid	netmag	network	origerr	origin	schanloc	sensor	site	site	stage	stamag	wfdisc	dlensor	sensormodel
sta	ondate	offdate	lat	lon	elev		staname					statype		lddate				
0	BSAP	2011224	33.2602	-116.3223	0.1600		Borrogo Springs Airport, CA, USA				2/01/16 (032)	22:04:47.8451						
1	BZN	1983020	33.4915	-116.6670	1.3010		Buzz Northens Place, Anza, CA, USA				2/01/16 (032)	22:04:48.6101						
2	CPE	2004125	32.8889	-117.1051	0.1500		Camp Elliot, Miramar, CA, USA				2/01/16 (032)	22:05:21.2411						
3	CRY	1982274	33.5654	-116.7373	1.1280		Cary Ranch, Anza, CA, USA				2/01/16 (032)	22:05:26.3861						
4	CSLB	2003001	2010193	33.7793	-118.1126	0.0170	Cal State Long Beach, Long Beach, CA, USA				2/01/16 (032)	22:06:06.5221						
5	CSLB	2012230		33.7799	-118.1123	0.0170	Cal State Long Beach, Long Beach, CA, USA				2/01/16 (032)	22:06:07.0911						
6	FRD	1982274		33.4947	-116.6022	1.1640	Ford Ranch, Anza, CA, USA				2/01/16 (032)	22:06:07.3771						
7	GARR	2012306		33.5918	-116.6708	1.4420	Garrison Ranch, CA, USA				2/01/16 (032)	22:06:45.0451						
8	HSSP	2012305		33.5847	-116.6641	1.3880	Hill Street, Anza, CA, USA				2/01/16 (032)	22:06:46.5361						
9	KNN	1982274		33.7141	-116.7119	1.5070	Keenwild Fire Station, Mountain Center, CA, USA				2/01/16 (032)	22:06:46.9581						
10	LVAZ	1993108		33.3516	-116.5615	1.4350	Lost Valley Scout Camp, CA, USA				2/01/16 (032)	22:07:19.2891						
11	MONP	1998033	2007310	32.8927	-116.4225	1.9200	Monument Peak, Mt. Laguna, CA, USA				2/01/16 (032)	22:07:52.7901						
12	MONPZ	2007258		32.8920	-116.4223	1.8750	Monument Peak TA Vault, Mt. Laguna, CA, USA				2/01/16 (032)	22:07:52.9881						
13	MTRP	2002005		32.8203	-117.0567	0.2007	Mission Trails Regional Park, Santee, CA, USA				2/01/16 (032)	22:07:56.2871						
14	PFO	1982274		33.6117	-116.4594	1.2590	Pinyon Flats Observatory, CA, USA				2/01/16 (032)	22:07:56.4961						
15	RDM	1982274		33.6300	-116.8478	1.3650	Red Mountain, Riverside Co, CA, USA				2/01/16 (032)	22:08:40.97791	UTC					
16	RSP	2013024		33.6515	-116.7394	1.6100	Rouse Ridge, CA, USA				2/01/16 (032)	22:09:09.51628	UTC					
17	SETM	2011056		33.5097	-116.5615	1.2160	South East Table Mountain, Anza, CA, USA				2/01/16 (032)	22:09:11.30829	UTC					
18	SMER	2002040		33.4577	-117.1708	0.3557	Santa Margarita Ecological Reserve, CA, USA				2/01/16 (032)	22:09:12.34944	UTC					
19	SND	1982274		33.5519	-116.6129	1.3580	Jim Saunders Place, Anza, CA, USA				2/01/16 (032)	22:09:22.59255	UTC					
20	SOL	1996040		32.8410	-117.2480	0.2450	Mt. Soledad, San Diego, CA				2/01/16 (032)	22:10:10.10350	UTC					
21	TMSF	2013034		33.6192	-116.6809	2.0770	TMSF, CA, USA				2/01/16 (032)	22:10:23.35299	UTC					
22	TONN	2011063		33.1442	-116.1193	0.0536	Tonner Ranch, Anza, CA, USA				2/01/16 (032)	22:10:29.59911	UTC					
23	TRAN	2011065		33.4955	-116.5834	1.1970	Tranquility, Anza, CA, USA				2/01/16 (032)	22:10:32.13424	UTC					
24	TRO	1982274		33.5234	-116.4257	2.6280	Toro Peak, Riverside Co, CA, USA				2/01/16 (032)	22:10:32.37662	UTC					
25	TUBB	2011021		33.2101	-116.4091	0.3940	Tubb Canyon, CA, USA				2/01/16 (032)	22:11:01.56125	UTC					
26	WMC	1983259		33.5736	-116.6747	1.2710	Walmic Ranch, Anza, CA, USA				2/01/16 (032)	22:11:04.10737	UTC					
27	B081	2006166	2599365	33.7112	-116.7142	1.4670	keenwi081bcs2006, Anza, CA, USA			ss	2/01/16 (032)	21:58:21.96652	UTC					
28	B082	2006161	2599365	33.5982	-116.5960	1.3748	pathfi082bcs2006, Anza, CA, USA			ss	2/01/16 (032)	21:58:22.17672	UTC					
29	B082A	2013061	2599365	33.5982	-116.5960	1.3748	pathfi082bcs2006, Anza, CA, USA			ss	2/01/16 (032)	21:58:22.29291	UTC					
30	B084	2006169	2599365	33.6116	-116.4564	1.2710	pinyon084bcs2006, Anza, CA, USA			ss	2/01/16 (032)	21:58:22.48604	UTC					
31	B086	2006168	2599365	33.5575	-116.5310	1.3920	santar086bcs2006, Anza, CA, USA			ss	2/01/16 (032)	21:58:22.65097	UTC					
32	B086A	2013044	2599365	33.5575	-116.5310	1.3920	santar086bcs2006, Anza, CA, USA			ss	2/01/16 (032)	21:58:22.74798	UTC					
33	B087	2006168	2599365	33.4955	-116.6027	1.1390	fordr087bcs2006, Anza, CA, USA			ss	2/01/16 (032)	21:58:22.83296	UTC					
34	B088	2007027	2599365	33.3749	-116.6205	1.4039	skyoks088bcs2007, Anza, CA, USA			ss	2/01/16 (032)	21:58:22.90817	UTC					
35	B088A	2013065	2599365	33.3749	-116.6205	1.4039	skyoks088bcs2007, Anza, CA, USA			ss	2/01/16 (032)	21:58:23.00524	UTC					
36	B093	2007263	2599365	33.5937	-116.7641	1.2296	trippf093bcs2007, Anza, CA, USA			ss	2/01/16 (032)	21:58:23.08940	UTC					
37	B946	2010204	2599365	33.5373	-116.5925	1.4290	sagebf946bcs2010, Anza, CA, USA			ss	2/01/16 (032)	21:58:23.30717	UTC					
38	TFPO	2010099		33.6060	-116.4544	1.2750	Pinon Flats, CA, USA				2/01/16 (032)	21:58:44.09304	UTC					
39	JORD	2011327	2016366	33.4722	-116.6450	1.2350	JORD				2/01/16 (032)	21:56:56.53317	UTC					

54的行

已更新的'site'表: 3/16/16 (076) 16:34:53.29536 UTC (先前的50 days 5.5 hours)

已更新的: 5/05/16 (126) 22:04:57.70621 UTC

谢谢: Margaret Chen



# dbe: Arabic

db: /opt/antelope/data/db/demo/demo

ملف تحرير عرض خيارات رسومات تعليمات

إطار جديد جداول

sensormodel		dlsensor	wfdisc	stamag	stage	snetsa	sitechan	site	sensor	schanloc	origin	origerr	network	netmag	lastid	instrument	event	calibration	assoc	arrival
iddate		auth	algorithm	mid	ml	dtype	review	srn	arn	ndef	nass	date	evid	orid	time	depth	lon	lat		
UTC 20:15:55.16547(067)	3/07/16	UCSD:rTML	locsat:iasp91	7	1.08	f	y	3	43	23	23	2016012	6	1	UTC 03:29:00.40717(012)	1/12/16	18.5671	117.0097	33.9213	0
UTC 18:15:21.35713(068)	3/08/16	USGS:cl							53	23	2016012	6	2	UTC 03:29:00.73000(012)	1/12/16	14.0700	117.0487	33.9365	1	
UTC 18:20:54.64229(068)	3/08/16	USGS:cl														4.0900	116.0130	33.2327	2	
UTC 20:32:08.88114(067)	3/07/16	UCSD:rTML	locsat:iasp91	9	1.61	f	y	3								17.0050	116.0195	33.3031	3	
UTC 20:28:31.23204(067)	3/07/16	UCSD:rTML	locsat:iasp91	8	0.03	f	y	3								8.1322	116.5786	33.4805	4	
UTC 20:37:20.11668(067)	3/07/16	UCSD:rt	locsat:iasp91			f	y	3								11.3246	116.4647	33.4896	5	
UTC 21:02:14.42536(068)	3/07/16	UCSD:rTML	locsat:iasp91	1	1.46	f	y	3								10.3066	116.2553	33.3967	6	
UTC 18:41:55.24185(068)	3/08/16	USGS:cl														0.7400	116.2863	33.3863	7	
UTC 21:10:56.07277(060)	2/29/16	UCSD:rTML	locsat:iasp91	2	0.55	f	y	3								10.2729	116.6978	33.7511	8	
UTC 21:31:06.94678(060)	2/29/16	UCSD:rTML	locsat:iasp91	3	2.47	f	y	3								20.5127	116.8587	33.9541	9	
UTC 18:43:49.91111(068)	3/08/16	USGS:cl														1.7100	116.8662	33.9707	10	
UTC 22:30:05.99745(067)	3/07/16	UCSD:rTML	locsat:iasp91	10	2.37	f	y	3								0.0000	116.1387	34.6847	11	
UTC 18:44:59.22234(068)	3/08/16	USGS:cl														1.9100	116.2410	34.6933	12	
UTC 18:44:59.22767(068)	3/08/16	USGS:cl														2.3300	116.2377	34.6960	13	
UTC 16:44:14.77726(068)	3/08/16	UCSD:rTML	locsat:iasp91	16	2.46	f	y	3								0.0000	116.1481	34.6754	14	
UTC 18:48:23.01093(068)	3/08/16	USGS:cl														2.3700	116.2368	34.6983	15	
UTC 22:39:32.13351(060)	2/29/16	UCSD:rTML	locsat:iasp91	4	2.41	f	y	3								5.2469	116.2193	34.6221	16	
UTC 18:48:09.65175(068)	3/08/16	USGS:cl														2.7600	116.2363	34.6953	17	
UTC 16:41:28.03439(068)	3/08/16	UCSD:rTML	locsat:iasp91	15	2.85	f	y	3								10.1784	116.3875	34.6795	18	
UTC 23:16:56.11251(067)	3/07/16	UCSD:rt	locsat:iasp91			f	y	3								13.7953	116.8147	33.7533	19	
UTC 18:53:42.34453(068)	3/08/16	USGS:cl														12.6300	116.8303	33.7538	20	
UTC 18:56:01.25018(068)	3/08/16	USGS:us														233.3900	174.9013	15.1946	21	
UTC 15:50:21.75212(068)	3/08/16	UCSD:rt	dbgenloc:iasp91			f	y	3								9.7193	116.4816	33.5357	22	
UTC 15:51:56.88571(068)	3/08/16	UCSD:rt	locsat:iasp91			f	y	3								6.4297	116.4713	33.5310	23	
UTC 15:52:21.46812(068)	3/08/16	UCSD:rTML	locsat:iasp91	12	0.03	f	y	3								7.0669	116.4673	33.5321	24	
UTC 15:50:28.44908(068)	3/08/16	UCSD:rTML	dbgenloc:iasp91	11	0.05	f	y	3								9.8919	116.4824	33.5355	25	
UTC 16:24:30.55457(068)	3/08/16	UCSD:rTML	dbgenloc:iasp91	13	2.05	f	y	3								15.0563	115.7656	32.6990	26	
UTC 16:24:05.42086(068)	3/08/16	UCSD:rTML	locsat:iasp91	14	2.05	f	y	3								17.8874	115.7925	32.7010	27	
UTC 19:07:58.36671(068)	3/08/16	USGS:cl														6.6600	115.8113	32.7142	28	
UTC 16:40:09.59342(068)	3/08/16	UCSD:rt	locsat:iasp91			f	y	3								7.2209	116.3940	33.4818	29	
UTC 19:12:36.79769(068)	3/08/16	USGS:cl														5.6700	116.4090	33.4723	30	
UTC 19:03:10.20193(067)	3/07/16	UCSD:rTML	locsat:iasp91	5	1.14	f	y	3	43	29	29	2016013	20	32	UTC 16:03:10.09999(013)	1/13/16	27.4629	116.9679	33.8651	31
UTC 19:15:16.49818(068)	3/08/16	USGS:cl							60	29	28	2016013	20	33	UTC 16:03:19.63000(013)	1/13/16	13.5200	116.9580	33.9283	32
UTC 19:24:46.91726(068)	3/08/16	USGS:cl							29	28	2016013	21	34	UTC 16:50:11.87000(013)	1/13/16	1.8300	116.2373	34.6950	33	
UTC 19:10:03.12921(067)	3/07/16	UCSD:rTML	locsat:iasp91	6	2.22	f	y	3	43	28	28	2016013	21	35	UTC 16:50:13.91400(013)	1/13/16	5.1955	116.2674	34.5962	34
UTC 21:23:58.13404(068)	3/08/16	USGS:cl							50	34	2016013	16	36	UTC 06:53:53.23000(013)	1/13/16	1.4200	116.2408	34.6907	35	
UTC 21:23:47.83167(068)	3/08/16	UCSD:rTML	locsat:iasp91	33	2.31	f	y	3	43	34	34	2016013	16	37	UTC 06:53:54.11081(013)	1/13/16	0.0000	116.2552	34.6289	36
UTC 21:27:48.58127(068)	3/08/16	USGS:cl							58	31	2016013	17	38	UTC 12:01:04.33000(013)	1/13/16	10.9900	115.8003	32.7000	37	
UTC 21:27:36.47932(068)	3/08/16	UCSD:rTML	locsat:iasp91	34	2.42	f	y	3	45	31	31	2016013	17	39	UTC 12:01:04.02651(013)	1/13/16	22.3493	115.8205	32.7769	38

جداول (days 5.3 hours 50 منذ) UTC 16:34:53.26436 (076) 3/16/16 'origin' تحديث: جدول

عدد الصفوف 39

شكرًا: Toufik Allili





# dbe: Español

db: /opt/antelope/data/db/demo/demo

Archivo Editar Vista Opciones Gráficos Ayuda

Tablas Ventana Nueva

arrival	assoc	calibration	event	instrument	lastid	netmag	network	origerr	origin	schanloc	sensor	site	sitechan	snetsta	stage	stamag	wfdisc	dlsensor	sensormodel	
0	33.9213	-117.0097	18.5671	1/12/16 (012)	03:29:00.40717 UTC															
1	33.9365	-117.0487	14.0700	1/12/16 (012)	03:29:00.73000 UTC															
2	33.2327	-116.0130	4.0900	1/12/16 (012)	03:41:57.43000 UTC															
3	33.3031	-116.0195	17.0050	1/12/16 (012)	03:41:57.62942 UTC															
4	33.4805	-116.5786	8.1322	1/12/16 (012)	03:41:59.00487 UTC															
5	33.4896	-116.4647	11.3246	1/12/16 (012)	03:56:18.89440 UTC															
6	33.3967	-116.2553	10.3066	1/12/16 (012)	17:24:25.65183 UTC															
7	33.3863	-116.2863	0.7400	1/12/16 (012)	17:24:25.98000 UTC															
8	33.7511	-116.6978	10.2729	1/12/16 (012)	17:29:37.53821 UTC															
9	33.9541	-116.8587	20.5127	1/12/16 (012)	17:37:24.14660 UTC															
10	33.9707	-116.8662	1.7100	1/12/16 (012)	17:37:24.53000 UTC															
11	34.6847	-116.1387	0.0000	1/12/16 (012)	18:39:53.45746 UTC															
12	34.6933	-116.2410	1.9100	1/12/16 (012)	18:39:53.79000 UTC															
13	34.6960	-116.2377	2.3300	1/12/16 (012)	18:40:35.35000 UTC															
14	34.6754	-116.1481	0.0000	1/12/16 (012)	18:40:35.52294 UTC															
15	34.6983	-116.2368	2.3700	1/12/16 (012)	19:11:22.79000 UTC															
16	34.6221	-116.2193	5.2469	1/12/16 (012)	19:11:24.11168 UTC															
17	34.6953	-116.2363	2.7600	1/12/16 (012)	19:11:41.23000 UTC															
18	34.6795	-116.3875	10.1784	1/12/16 (012)	19:11:42.16418 UTC															
19	33.7533	-116.8147	13.7953	1/13/16 (013)	05:05:22.14992 UTC															
20	33.7538	-116.8303	12.6300	1/13/16 (013)	05:05:22.52000 UTC															
21	-15.1946	-174.9013	233.3900	1/13/16 (013)	05:55:59.72000 UTC															
22	33.5357	-116.4816	9.7193	1/13/16 (013)	06:06:37.81113 UTC															
23	33.5310	-116.4713	6.4297	1/13/16 (013)	06:06:37.83234 UTC															
24	33.5321	-116.4673	7.0669	1/13/16 (013)	06:06:40.33282 UTC															
25	33.5355	-116.4824	9.8919	1/13/16 (013)	06:06:40.36563 UTC															
26	32.6990	-115.7656	15.0563	1/13/16 (013)	12:05:12.70967 UTC															
27	32.7010	-115.7925	17.8874	1/13/16 (013)	12:05:13.12403 UTC															
28	32.7142	-115.8113	6.6600	1/13/16 (013)	12:05:15.00000 UTC															
29	33.4818	-116.3940	7.2209	1/13/16 (013)	13:37:05.51998 UTC															
30	33.4723	-116.4090	5.6700	1/13/16 (013)	13:37:05.88000 UTC															
31	33.8651	-116.9679	27.4629	1/13/16 (013)	16:03:18.89497 UTC															
32	33.9283	-116.9580	13.5200	1/13/16 (013)	16:03:19.63000 UTC															
33	34.6950	-116.2373	1.8300	1/13/16 (013)	16:50:11.87000 UTC															
34	34.5962	-116.2674	5.1955	1/13/16 (013)	16:50:13.91490 UTC															
35	34.6907	-116.2408	1.4200	1/13/16 (013)	06:53:53.23000 UTC															
36	34.6289	-116.2552	0.0000	1/13/16 (013)	06:53:54.11081 UTC															
37	32.7000	-115.8003	10.9900	1/13/16 (013)	12:01:04.33000 UTC															
38	32.7769	-115.8205	22.3493	1/13/16 (013)	12:01:04.02651 UTC															

Tabla 'origin' Actualizada: 3/16/16 (076) 16:34:53.26436 UTC (50 days 5.5 hours atrás)

actualizado: 5/05/16 (126) 22:07:27.70349 UTC

Filas 39

Tabla 'origin' Actualizada: 3/16/16 (076) 16:34:53.26436 UTC (50 days 5.5 hours atrás)

actualizado: 5/05/16 (126) 22:07:27.70349 UTC

Gracias: Juan Reyes



# Internationalization and Localization: *Special Offer*

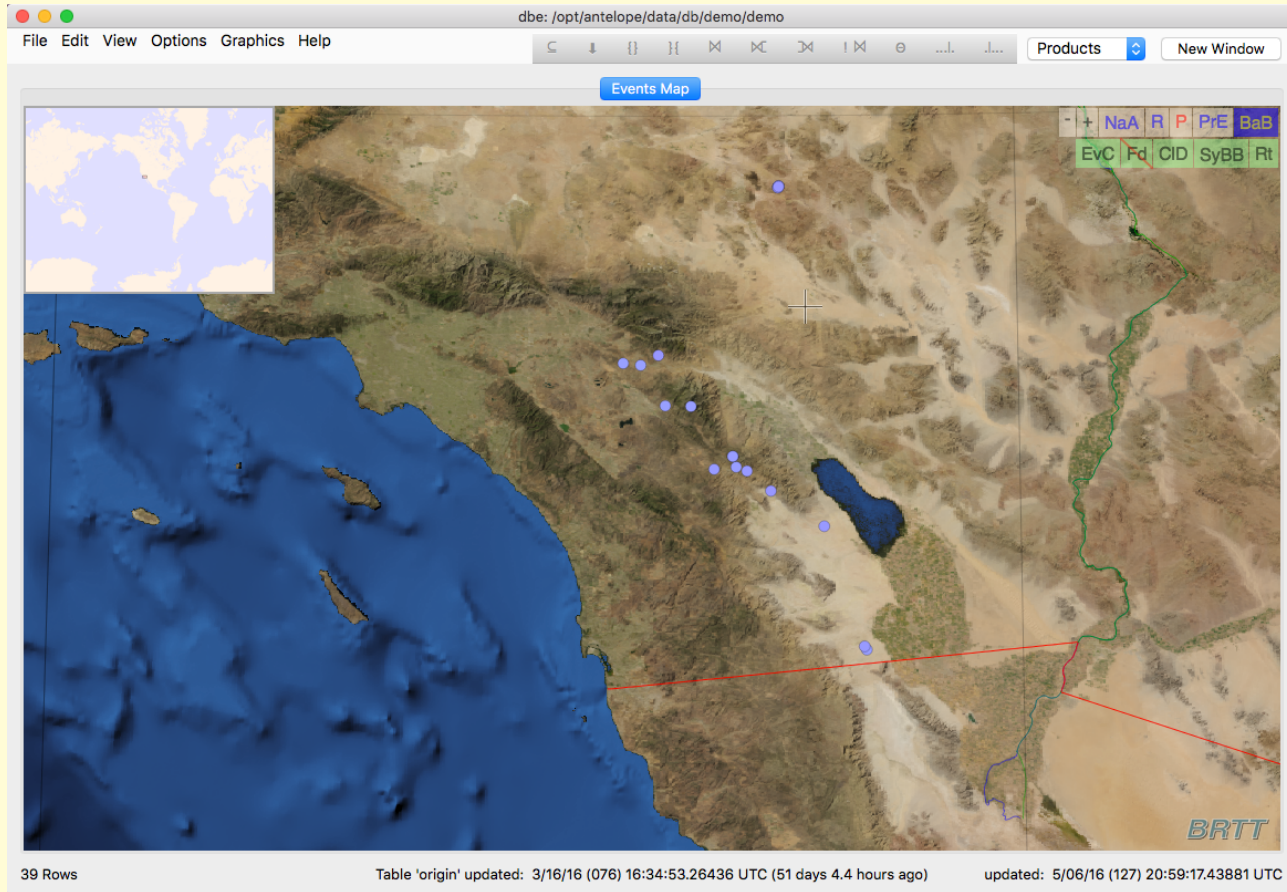
- If you'd like *dbe* controls in your language, we'll give you a *Microsoft Excel* spreadsheet at this meeting (about 170 strings to translate), you translate it, we'll put your language in the next Antelope 5.6 patch

# new demo database

- Original demo database was showing it's age
  - No event table
  - Limited station metadata
  - Old-format *lddates* in places
  - many other anachronisms
- New demo database courtesy UCSD / Jennifer Eakins
  - 20 events from Anza network, Southern California
  - Segmented waveform data
  - Full station metadata

# new demo database

***/opt/antelope/data/db/demo/demo***



# Bighorn

## *Bighorn*

is now delivered at no additional cost with  
Antelope 5.6!

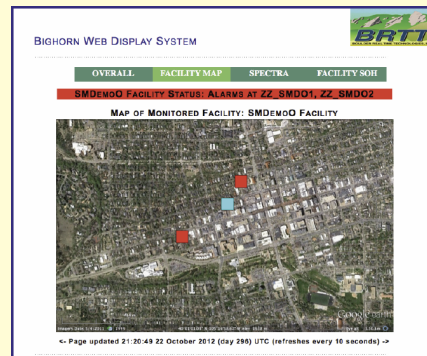
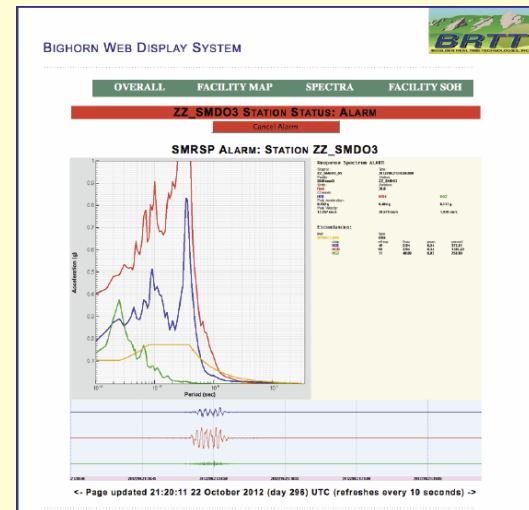


# Bighorn

## Main Features

- **Now-casting** of wavefield spectral content
- Real-time, continuous response spectra exceedence
- Immediate results tailored for response team
- Automatic alarms against engineered criteria (Structural Health Monitoring)
- **Independent of Earthquake Location**
  - No need to wait for location
  - Applicable for non-earthquake sources
  - Very close to Earthquake Early Warning
- Quantitative, **critical decision support**

## Facility Monitoring



Bundled into Antelope 5.6

State-of-Health  
Monitoring

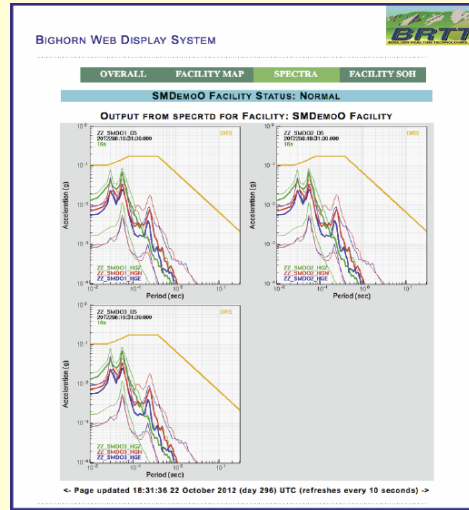


# Bighorn

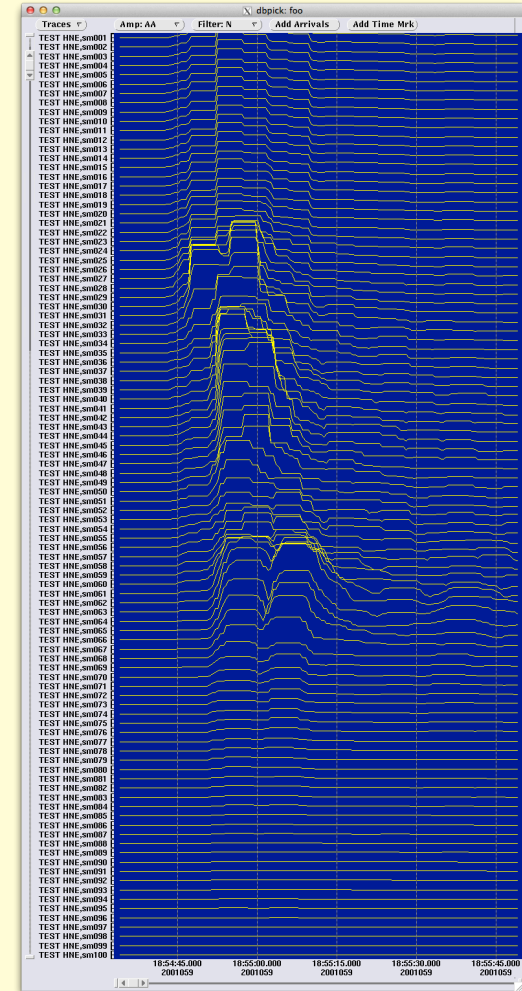
- Method vetted by Nuclear Regulatory Commission
- Faithful translation from
  - After-the-fact event-based review; to
  - Streaming, real-time, continuous now-casting



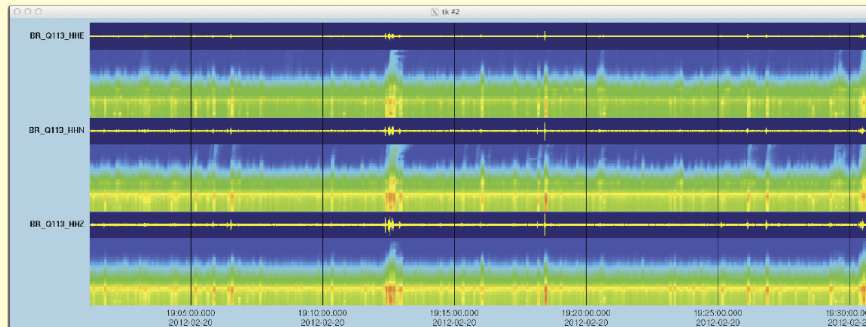
-> Synthesize  
Real-time  
Spectral  
Calculations



Multiple  
Time-domain filters  
Of incoming wavefield

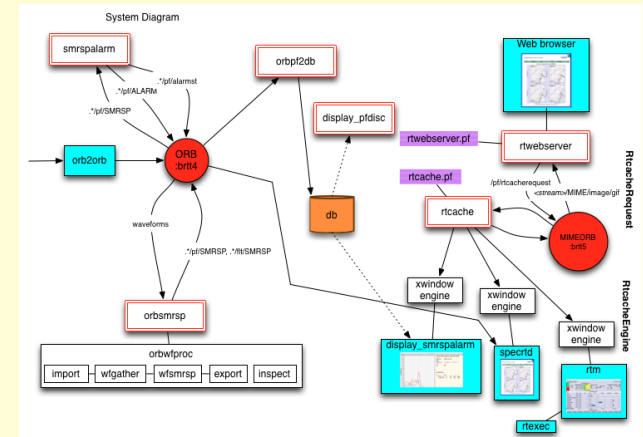


Blue: Traditional post-processing  
Red: Streaming real-time processing  
(or vice versa...)



# Bighorn

- Alarms based on exceedence of Operating Basis Earthquake (OBE)
- Building-block nature of Antelope/Bighorn system and open-architecture APIs allow construction of wide variety of systems for Structural-Health Nowcasting, Earthquake Early Warning, and Post-Earthquake Response (e.g. Critical Facility alert / Alarm Acknowledgment system)



BIGHORN WEB DISPLAY SYSTEM

OVERALL FACILITY MAP SPECTRA FACILITY SOH

**SMD03 FACILITY STATUS: ALARM AT ZZ\_SMD03, ZZ\_SMD03**

MAP OF MONITOR

BIGHORN WEB DISPLAY SYSTEM

OVERALL FACILITY MAP SPECTRA FACILITY SOH

**ZZ\_SMD03 STATION STATUS: ALARM**

Cancel Alarm

**SMRSP ALARM: STATION ZZ\_SMD03**

Alarm Time	Alarm State
17:58:23 19 October 2012 (day 293) UTC	final-ack
18:24:20 19 October 2012 (day 293) UTC	final-ack
18:32:20 19 October 2012 (day 293) UTC	final-ack
18:25:40 19 October 2012 (day 293) UTC	final-ack
18:10:50 19 October 2012 (day 293) UTC	final-ack
18:10:50 19 October 2012 (day 293) UTC	final-ack
22:37:10 18 October 2012 (day 292) UTC	final-ack
06:27:10 17 October 2012 (day 291) UTC	final-ack
16:18:30 12 October 2012 (day 289) UTC	final-ack
14:28:00 13 October 2012 (day 289) UTC	final-ack

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< Page updated 21:19:59 22 October 2012 (day 296) UTC (refreshes every 10 seconds) >

BIGHORN WEB DISPLAY SYSTEM

OVERALL FACILITY MAP SPECTRA FACILITY SOH

**ZZ\_SMD03 STATION STATUS: ALARM**

Cancel Alarm

**SMRSP ALARM: STATION ZZ\_SMD03**

Response Spectrum ALARM

Shoron: ZZ\_SMD03\_DS  
Facility: SMD03\_DS  
Station: ZZ\_SMD03  
Divisior: 20.0  
Scale: 20.0

Character: HGE HGE HGE  
Peak Acceleration: 0.192 g 0.137 g  
Peak Velocity: 12.257 cm/s 1.328 cm/s

Exceedences:

Int	DRS	type	freq	prob	percent
48	HGE	2.94	0.34	373.11	
58	HGE	2.94	0.34	195.62	
11	HGE	0.80	0.83	258.33	

< Page updated 21:20:11 22 October 2012 (day 296) UTC (refreshes every 10 sec) >





## Future: Antelope 5.7 (May 2017)

- Feature-completeness and promotion of *orb2orb\_pre* (datalogger-acquisition compliance: expanded SOH reporting, data repackaging/renaming capability, POC processing dlcmd compatibility)
- Continued campaign to modernize graphics and rewrite applications
- Feedback and requests?



Thank You!

Questions?