

dbbuild : a new approach to metadata

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Problem

- Create base database
 - site (station location)
 - sitechan (channel orientation)
 - instrument (responses)
 - sensor (connect response to channel)
- Previous approaches
 - by hand
 - SEED
 - station parameter files

dbbuild

- interactive gui for new configuration
- batch mode to create database from simple input command file

Gather data

- station
 - name
 - lat, lon, elevation
- datalogger info
 - model
 - s/n
 - sample rates
- sensor info
 - model
 - orientation
 - s/n

Master Database Construction

Database Configuration Help

Configuration time Comment

6/08/2004 15:00:00

Network effective time for this configuration

net network name

XX Westward Look Temporary Deployment

Station

| sta | latitude | longitude | elevation | station name |
|------|----------|-----------|-----------|--------------------------------|
| SAGU | 32.33704 | -110.9688 | .787 | Saguaro Room Antelope Workshop |

Datalogger

Quanterra 330 Linear Phase Composite

Passcal_q330_linear

serial number: Q330_s/n dlsba: 01_23

Sensor

? Streckeisen STS-2 Clear

| 1 | serial number | edepth | band | rsptype | loc code | | | | | | | | |
|-------------|---------------|-------------------------------------|------|-------------|----------|-------------------------------------|--------------|-----|-------|-------------------------------------|------|-----|-------|
| 1 | sts2 | | | | | | | | | | | | |
| 2 | STS-2_s/n | 0.0001 | b | V | | | | | | | | | |
| 3 | axis | hang | wang | sensor gain | lead | preamp gain | preamp stage | | | | | | |
| 4 | Z | 0 | 0 | 1.5e-06 | | | | | | | | | |
| 5 | N | 0 | 90 | 1.5e-06 | | | | | | | | | |
| 6 | E | 90 | 90 | 1.5e-06 | | | | | | | | | |
| sample rate | | on | chan | loc | dchan | on | chan | loc | dchan | on | chan | loc | dchan |
| 50sps | | <input checked="" type="checkbox"/> | BHZ | | | <input checked="" type="checkbox"/> | BHN | | | <input checked="" type="checkbox"/> | BHE | | |
| | | <input type="checkbox"/> | | | | <input type="checkbox"/> | | | | <input type="checkbox"/> | | | |

Add

dbbuild

- specify station configuration at a time
- add that configuration to the database
- not a database editor
 - can't change something that is already entered into database

Complications

- orientation angles
- more sample rates
- more than 1 sensor
- loc codes
- different field sta/chan codes
- gains by axis
- preamp
- horizontal components neglected

Master Database Construction

Database Configuration Help

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Network effective time for this configuration

net network name

XX Westward Look Temporary Deployment

Station

| sta | latitude | longitude | elevation | station name |
|------|----------|-----------|-----------|--------------------------------|
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Datalogger

Quanterra 330 Linear Phase Composite

Passcal_q330_linear

serial number: Q330_s/n d1sta: 01_23

Sensor

Streckeisen STS-2 Clear

| 1 | 2 | 3 | 4 | 5 | 6 | | | | | | | |
|---------------|-------------------------------------|------|-------------|----------|-------------------------------------|--------------|-----|--------|-------------------------------------|------|-----|--------|
| serial number | edepth | band | rsptype | loc code | | | | | | | | |
| sts2 | 0.0001 | b | V | | | | | | | | | |
| axis | hang | wang | sensor gain | lead | preamp gain | preamp stage | | | | | | |
| Z | 0 | 0 | 1.5e-06 | | | | | | | | | |
| N | 0 | 90 | 1.5e-06 | | | | | | | | | |
| E | 90 | 90 | 1.5e-06 | | | | | | | | | |
| sample rate | on | chan | loc | d1chan | on | chan | loc | d1chan | on | chan | loc | d1chan |
| 50sps | <input checked="" type="checkbox"/> | BHZ | | | <input checked="" type="checkbox"/> | BHN | | | <input checked="" type="checkbox"/> | BHE | | |
| | <input type="checkbox"/> | | | | <input type="checkbox"/> | | | | <input type="checkbox"/> | | | |

Add

Batch mode

- simple command language

```
time 6/08/2004 15:00:00.000
net XX Westward Look Temporary Deployment
sta SAGU 32.33704 -110.9688 .787 Saguaro Antelope
datalogger Passcal_q330_linear Q330_s/n 01_23
sensor sts2 0.0001 STS-2_s/n
add
```

Corrections to database

- by hand, eg dbe, dbset
- edit dbbuild batch script, regenerate database
- still some problems because of ids like chanid
- dbbuild automatically keeps a batch script as it adds configurations: db-dbbuild

New dataloggers and sensors

- dbbuild uses a database of dataloggers and sensors in \$ANTELOPE/data/instruments.
- if your datalogger or sensor is not already present, you must develop the corresponding parameter file.
- datalogger parameter file describes the samplerates and corresponding fir filters
- sensor parameter file describes sensor response, instrument axes/orientation

sensor example

```
description      Streckeisen STS-2
dfile            sts2
rsptype          V      # velocity instrument
band             b      # broad band
gtype            sensor
gnom             15e-7
iunits           nm/s
ounits           V
orientations     &Tbl{
Z                0      0
N                0      90
E                90     90
}
response         &datafile (responses/sts2)
```

response example

| theoretical | 1 anti-alias | paz | pz6seismo |
|-------------|--------------|------------|------------|
| 5.92E+07 | | | |
| 5 | Poles | | |
| -.3701E-01 | 0.3701E-01 | 0.0000E+00 | 0.0000E+00 |
| -.3701E-01 | -.3701E-01 | 0.0000E+00 | 0.0000E+00 |
| -0.2513E+03 | 0.0000E+00 | 0.0000E+00 | 0.0000E+00 |
| -0.1310E+03 | 0.4673E+03 | 0.0000E+00 | 0.0000E+00 |
| -0.1310E+03 | -.4673E+03 | 0.0000E+00 | 0.0000E+00 |
| 2 | Zeros | | |
| 0.0000E+00 | 0.0000E+00 | 0.0000E+00 | 0.0000E+00 |
| 0.0000E+00 | 0.0000E+00 | 0.0000E+00 | 0.0000E+00 |

datalogger example

```
description      Canadian GD1 Datalogger
dfile gd1
streams          40sps
40sps           40    a/d f1 f2 f3
a/d             &Arr{
samprate        15000
gtype           digitizer
gnom            107374182.4
iunits          V
ounits          counts
sn              datalogger
}
f1              &Arr{
gtype           FIR_decimator
decifac 25
response        &datafile (responses/dsp_gd1.f1)
gnom            1
}
```

Odds and Ends

- Ending a station

- close SAGU 6/13/2004 6:45

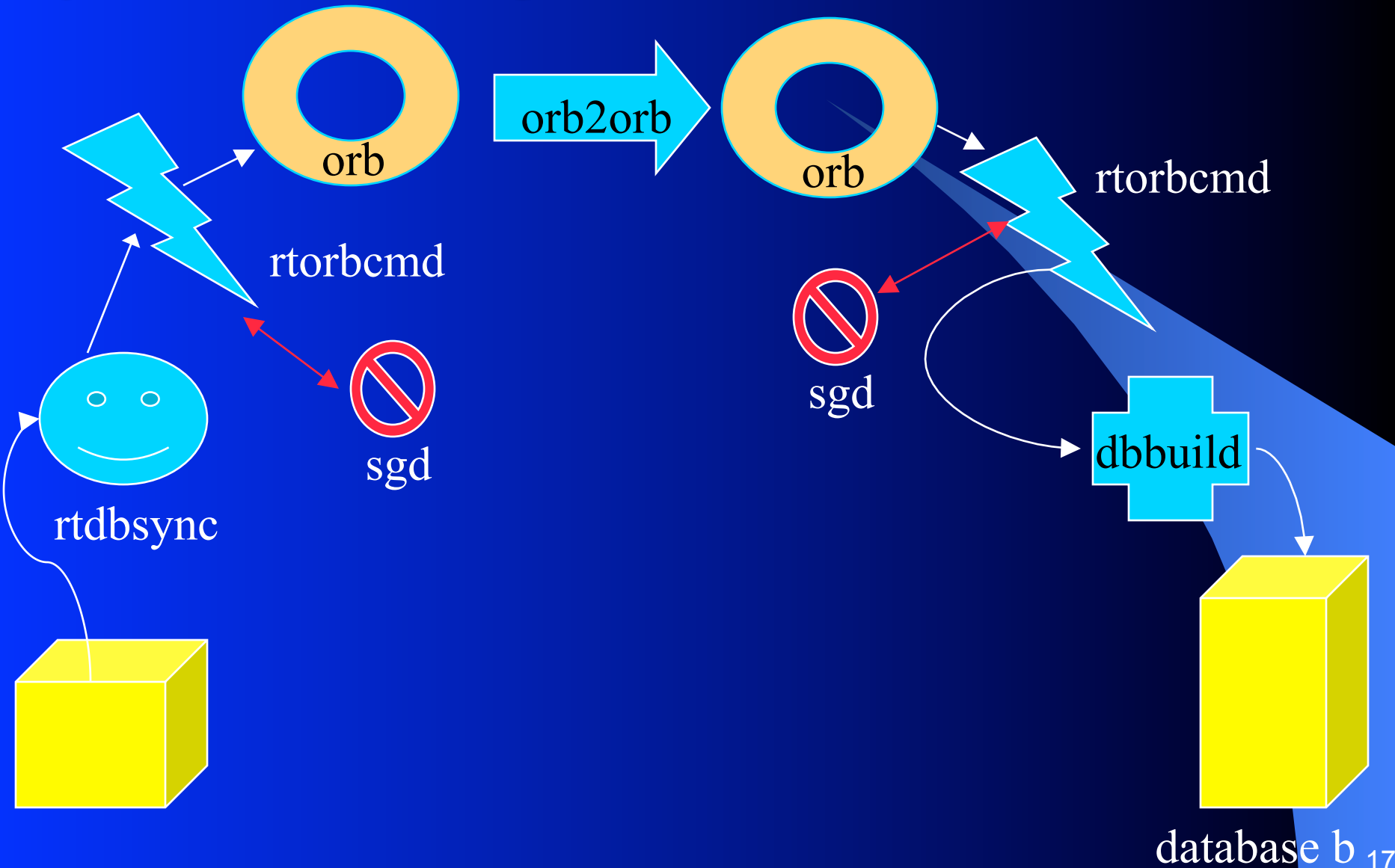
- Terminating a database

- raze

Summary

- new, simple method for generating station database records
- batch mode allows generation of larger configurations
- corrections applied by editing batch file and rerunning
- can easily extend to new data loggers and sensors

Synchronizing Databases I

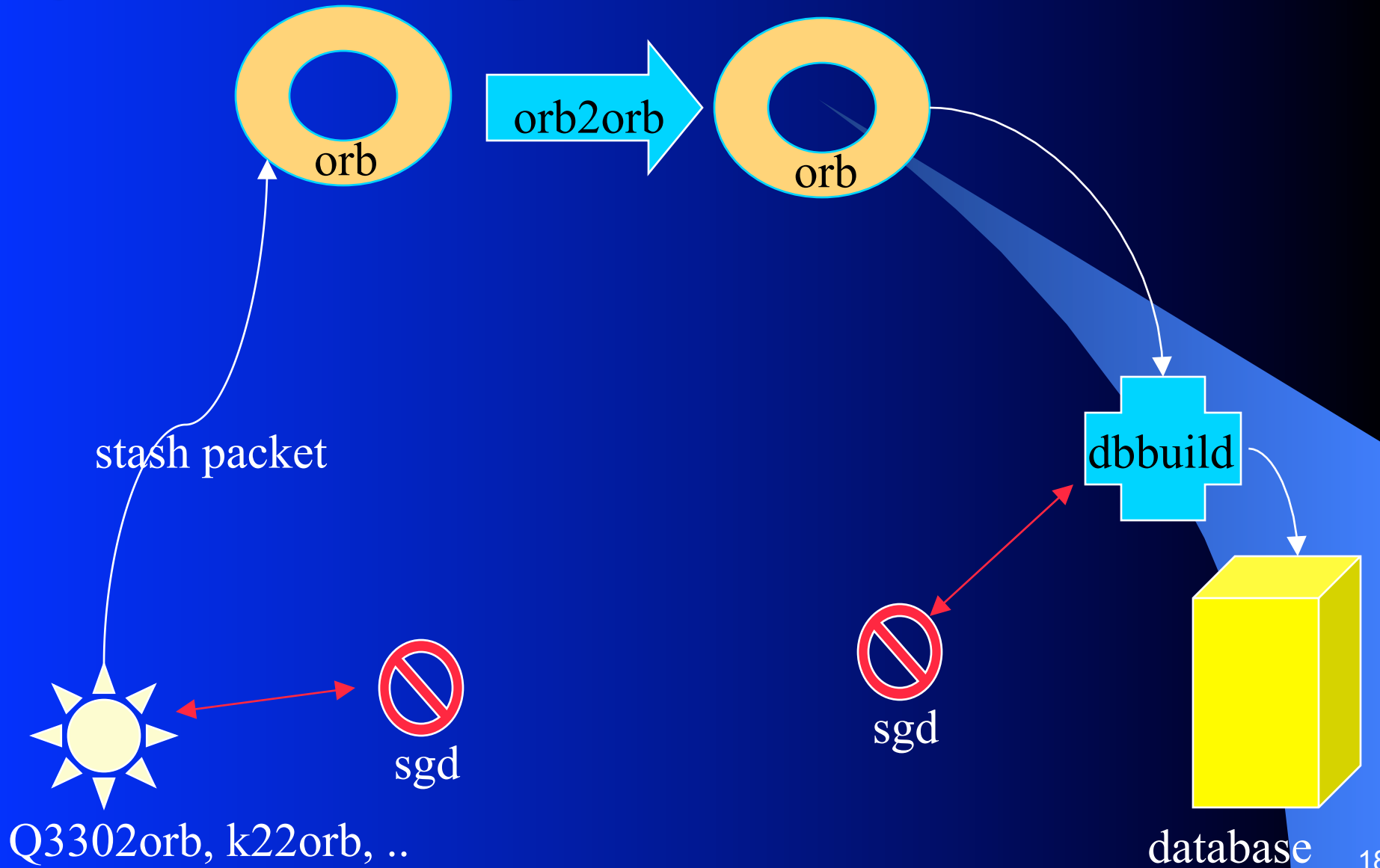


Database A

database b ₁₇

June, 2004

Synchronizing Databases II



Q3302orb, k22orb, ..

More Information

- `dbbuild(1)`
- `dbbuild(5)`
- `dbbuild_batch(5)`
- Try it out!
- `mk_dataless_seed`