

## Antelope databases

a few thoughts

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				🔀 dbhelp	:css3.0				
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Center for Seismic Studies S									
Timestamp field: Modifications from origi	Iddate								
and instrument.rsptyp JNUT values corrected 2) offdate added to prin 3) endtime added to prin 3) endtime added to prin 3) arid and erange values exp 7) added vfredit relation 2) added vfredit relation 2) changed the primary key 00) added calibration an 11) changed primary key 12) changed primary key 13) changed primary key 13) changed primary key	ey in sitechan to chanid, in sensor to force joins h sensor table. in moment and centryd tab	type and unit: ich it occurs ich it occurs ing. ting and added le to orid. pe, sta, orid , offdate) atrix	5						
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#### schema basics



schema is made up of

- attributes
  - name, type, format
  - units, range, null, description, detail optional
- relations
  - name, fields
  - primary, alternate, foreign keys optional
  - defines, separator, description, detail optional

rules for schema definition unclear what are the rules for Units, Range,...?

definitions possible in files at various locations \$ANTELOPE/data/schemas/<schemaname> \$ANTELOPE/data/schemas/<schemaname>.ext/\* \$ANTELOPE/contrib/data/schemas/<schemaname> \$ANTELOPE/contrib/data/schemas/schemaname.ext/\* \$SCHEMA\_DIR/<schemaname> \$SCHEMA\_DIR/<schemaname>.ext/\*

```
Attribute tmeas

Time (17)

Format ("%17.5f")

Null ("-99999999999900")

Units ("Seconds")

Description ("epoch time")

Detail {

Epoch time of a discrete measurement

made on waveform data

}
```

same attribute can be defined multiple times requires **identical** formatting previously defined attributes can be used how to avoid duplicated definitions ?

error messages sometimes misleading meaningless definitions possible

#### schema verification



#### new utility check\_schema

iterate over all files that make up the schema

- check attributes
  - null reasonable
  - field sizes make sense
  - type corresponds with formatting and null value
  - ...
- check if attribute definitions identical

if no serious problems so far

- iterate over all relation
  - check if keys make sense
- iterate over all attributes
  - check null values
  - check if attribute is used in any relation







etype in origin – should be in event mb, ml, ms in origin confusing

event info missing – would be nice to have evname/evmag/evurl/evtype various flavours exist in contributed tables

event.evname too short

preferred "magnitude" missing

no clear "order" of magnitudes

site/sitechan/sensor/instrument

- note really intuitive
- ondate::offdate ⇔ time::endtime
- sta/chan ⇔ chanid

#### wfid

• what is it good for?

• • • • x origin											
Data on event location and size											
Information descri particular event i				origin f	or a						
Rrimary key: time lat lon depth ndef nass											
Alternate key:	orid										
Defines id:	orid										
Foreign keys: evid commid grn srn											
Record Size (bytes): 238											
lat	lon	depth	time	orid	evid	jdate	nass	ndef	ndp	grn	
srn	etype	review	depdp	dtype	mb	mbid	ms	msid	ml	mlid	
algorithm	auth	commid	Iddate								
Dismiss										Quit	

calibration

- wfdisc.calib
- calibration.calib
- seismometer.calib
- instrument.ncalib



#### evinfo – event info missing in event

- etype
- levname / sevname
- puburl / privurl
- magnitude / magtype / magid

#### meffects - macroseismic effects

- heard, felt  $\rightarrow$  lights, liquefaction
- specify uncertainites

#### origqual - origin quality

- mindist/maxdist
- azgap/azgap2
- nsta\_def
- nsta $\overline{3}$ 0/nsta125  $\rightarrow$  nsta300

#### pregion/pdist - cache geographical search results

- join keys: id/id\_name
- allows for different types (e.g. city/province)

#### filehash/hashsum - checkums

- hash
- method
- length

#### evissues – event issues

- issue
- source of problem
- time checked/fixed
- open/closed

#### **staproblem** – site problems

- sta time::endtime
- class
- description

### **meval/massoc/mdp/mmap/mreport –** macroseimic stuff

- multiple evaluations possible
- holds raw felt reports to evaluations



#### extension - generic table for "whatever"

- join on key (key value)
- numeric value / unit
- string

#### evt\_record/evt\_channel- triggered waveforms

- time::endtime triggertime
- filename
- channelwise statistics (min/max/...)

#### Problems

- extensions generally poorly documented
- avoid collision of fieldnames
- each problem a new table  $\rightarrow$  so many tables



# questions?

000	🔀 origin										
Data on event loca Information desc particular event	ribing a	derived or		origin f	or a						
Primary key:	time lat lon depth ndef nass										
Alternate key:	orid										
Defines id:	orid										
Foreign keys:	evid com	mid grn srn									
Record Size (bytes	: 238										
lat	lon	depth	time	orid	evid	jdate	nass	ndef	ndp	grn	
srn	etype	review	depdp	dtype	mb	mbid	ms	msid	mi	mlid	
algorithm	auth	commid	Iddate								
			Disr	niss						Quit	





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