# IRMIS Sequence Crawler

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- Thanks to Claude, Don and company.
- Thanks to Judy and Ron Chestnut at SLAC

# What was done and why

- Modified pv_crawler.pl in a modular manner.
  - Didn’t write a secondary crawler.
  - Needed to traverse boot tree to see current snapshot.
  - Needed to look into seq.o files and do macro substitution
- Requirements for DB viewing
  - For a given pv, which sequences use it and on which ioc’s.
  - For a given ioc, which pv are used in sequences.
  - For a given sequence.o file, what pv’s are used.

# Scanning the source was considered.

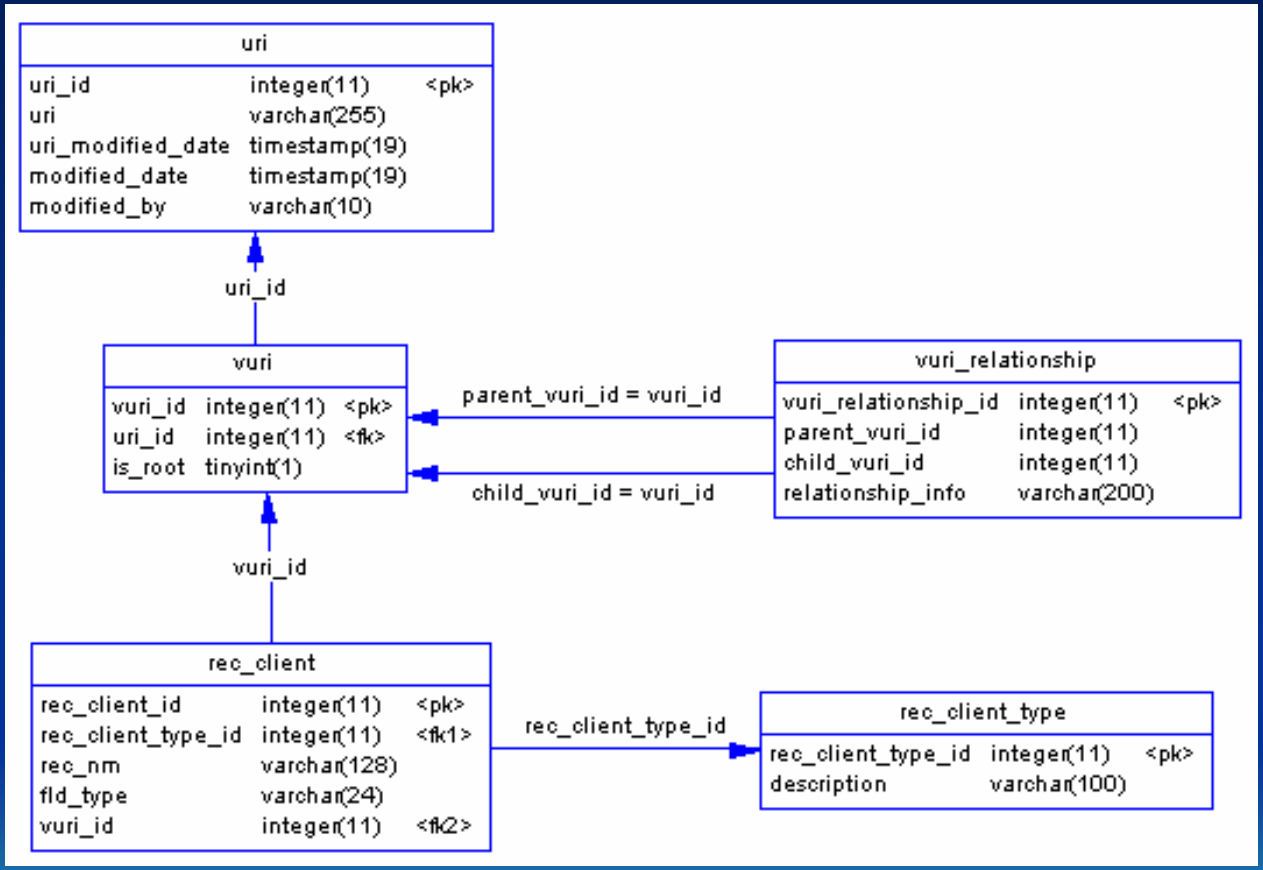
- Macro values not easily available if traversing source
- Problem “seeing” source from startup area.

# Design

- pv_crawler scans sequence files while it traverses ioc startup tree.
- Finds pv, ioc, and sequence filename
- Database Records updated:
  - Uri, vuri, rec_client, vuri_rel
  - Set Rec_client::current_load = 0 for every PV record associated w/ any sequence for previous runs. Then add new records for this run
- Option to turn off sequence scan

  pv_cralwler.pl --no-sequence-scan option

# (generic) PV_Client Schema




Slide taken from last year's IRMIS presentation by Don Dohan

# Implementation

- When sequence scanning is turned on, boot tree is always processed regardless of boot date.
- Macro names determined as follows
  1. On seq line

     seq(&seqName, getenv("DATABASE_MACROS"))
  2. Look in gbl_var hash
  3. Was set on seq program statement.

     program bic_bunch("STN=HB60,RING=HER")

     It is in seq.o file as macro=value

# Implementation

- Regex used to find PV references in .o file
  - Unix “strings” extracts ascii strings from object
  - Must provide your site’s own Regex.

- PEPII PV examples (strings output from .o file):

  PB60:LUMVAL

  {STN}:FILL:GOAL:NORM

  {STN}:BNCHCURR:FANOUT.PROC

# Sample UNIX “strings” output

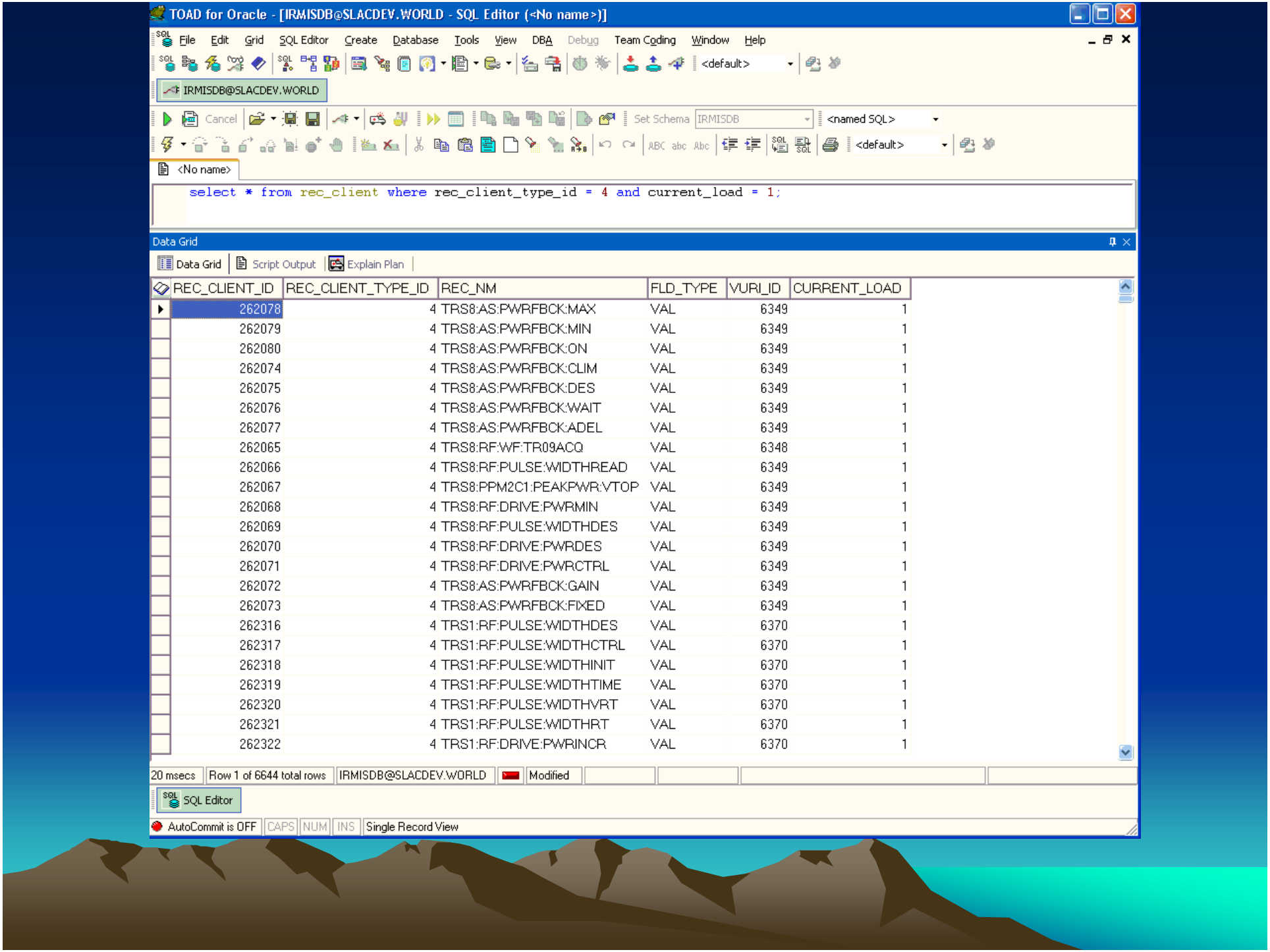
>strings bic_bunch.o

STN=HB60,RING=HER
BUNCH:
May 16 2006
16:20:37
{STN}:BXBCM:SMTEMP:SUM
string
state_msg1
{STN}:BXBCM:SMEAR:ERROR
copy_out_conv
{STN}:BXBCM:SMEAR:COPYOUT
copy_in_conv
{STN}:BXBCM:SMEAR:COPYIN
swap_conv
{STN}:STATE:STOP
long
bic_state
{STN}:STATE:ACT
spin
delay
bic_bunch

# Source files delivered

- src/crawlers/pv/pv_crawler.pl
  - Added SEQ logic to main loop
- src/crawlers/pv/PVCrawlerParser.pm
  - Two new subroutines
- src/crawlers/pv/SEQCrawlerDBLayer.pm
  - New module.

- src/crawlers/pv/README_SEQ
- src/crawlers/pv/README_SEQ_USE_CASES


TOAD for Oracle - [IRMISDB@SLACDEV.WORLD - SQL Editor (<No name>)]
File Edit Grid SQL Editor Create Database Tools View DBA Debug Team Coding Window Help
IRMISDB@SLACDEV.WORLD
Cancel
Set Schema IRMISDB
<named SQL>
<default>
<No name>
select * from rec_client where rec_client_type_id = 4 and current_load = 1;
Data Grid
Data Grid
Script Output
Explain Plan
REC_CLIENT_ID REC_CLIENT_TYPE_ID REC_NM FLD_TYPE VURI_ID CURRENT_LOAD
262078 4 TRS8:AS:PWRFBCK:MAX VAL 6349 1
262079 4 TRS8:AS:PWRFBCK:MIN VAL 6349 1
262080 4 TRS8:AS:PWRFBCK:ON VAL 6349 1
262074 4 TRS8:AS:PWRFBCK:CLIM VAL 6349 1
262075 4 TRS8:AS:PWRFBCK:DES VAL 6349 1
262076 4 TRS8:AS:PWRFBCK:WAIT VAL 6349 1
262077 4 TRS8:AS:PWRFBCK:ADEL VAL 6349 1
262065 4 TRS8:RF:WF:TR09ACQ VAL 6348 1
262066 4 TRS8:RF:PULSE:WIDTHREAD VAL 6349 1
262067 4 TRS8:PPM2C1:PEAKPWR:VTOP VAL 6349 1
262068 4 TRS8:RF:DRIVE:PWRMIN VAL 6349 1
262069 4 TRS8:RF:PULSE:WIDTHDES VAL 6349 1
262070 4 TRS8:RF:DRIVE:PWRDES VAL 6349 1
262071 4 TRS8:RF:DRIVE:PWRCTRL VAL 6349 1
262072 4 TRS8:AS:PWRFBCK:GAIN VAL 6349 1
262073 4 TRS8:AS:PWRFBCK:FIXED VAL 6349 1
262316 4 TRS1:RF:PULSE:WIDTHDES VAL 6370 1
262317 4 TRS1:RF:PULSE:WIDTHCTRL VAL 6370 1
262318 4 TRS1:RF:PULSE:WIDTHINIT VAL 6370 1
262319 4 TRS1:RF:PULSE:WIDTHTIME VAL 6370 1
262320 4 TRS1:RF:PULSE:WIDTHVRT VAL 6370 1
262321 4 TRS1:RF:PULSE:WIDTHRT VAL 6370 1
262322 4 TRS1:RF:DRIVE:PWRINCR VAL 6370 1
20 msecs
Row 1 of 6644 total rows
IRMISDB@SLACDEV.WORLD
Modified
SQL Editor
AutoCommit is OFF
CAPS
NUM
INS
Single Record View

# What does the future hold?

- Browser
  - Using Toad / Sql to view database for now.
  - Requirements for browser in README_SEQ_USE_CASES file
- Sequencer dumps files
  - Is easy file scan using a secondary crawler
  - Pv_crawler.pl sequence crawler still useful.

# Project Status

- Sequence crawler code incorporated into 2.0 (thank you Claude!).