

## ***IRMIS - Update***

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***EPICS Collaboration***  
***DESY***  
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## Component database - experience

### Consolidation of the IRMIS 3-hierarchy model

- > 30000 components have been installed in the APS IRMIS database including their control, housing and power relationships
- vigorous test of the component and component-type schema
- component-type definition refinements (esp interfaces)

### Primary (first line of defense) for controls group on-call

- operations usage - 'master source'
- pressure to relate PVs to components (MEDM->hardware)

### Applications

- NRTL (Nationally Recognized Testing Laboratory) component certification
- AOI: >600 applications have been documented
- CCMS: post shutdown communication check of field bus cmpnts
- IOC applications

### Prototype cycling - requirements elucidation/ scope enhancemant

trip to SLS, fall 2006

- investigate integrated approach for separate, legacy systems (including non-Epics control system)
- interest in including accelerator/modeling components
- CIDB: component history

revisit IRMIS component schema

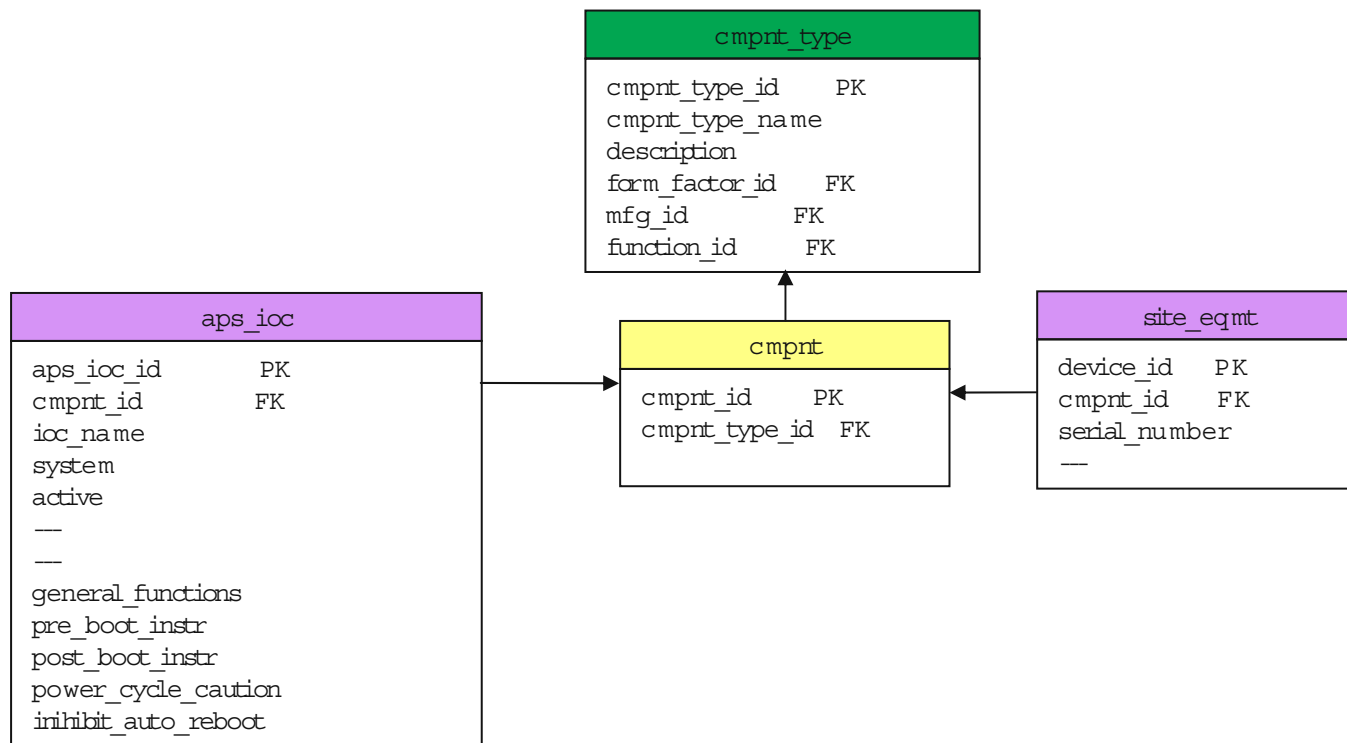
- schema discussions with SLS, FachHochschule Wettingen, TRIUMF
- web based component viewer/editor (SLS prototype)

# Components, Component-types and Site extensions

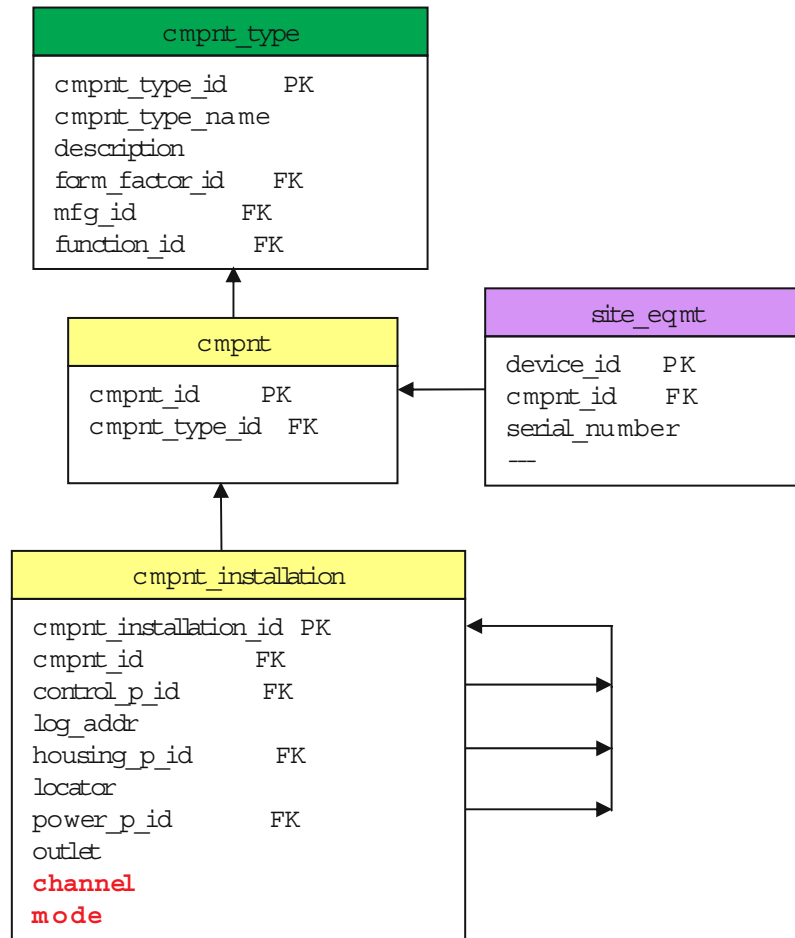
cmpnt_type	
cmpnt_type_id	PK
cmpnt_type_name	
description	
form_factor_id	FK
mfg_id	FK
function	

- component types are derived by successive partitioning of the facility until the “unit-replaceable” point is reached
- component are no given a (site-dependent) ‘role’. They do have a defined set of functions.
- thus a magnet is a component that converts a DC current to a magnetic field. (Rather than a device that provides a horizontal correction in the lebt transfer line)
- IRMIS components are familiar objects: these are the things that you typically purchase (and have spares for. eg: racks, chassis, VME modules, etc)
- explicitly non-object-oriented approach

# Components, Component-types and Site extensions



# Component Installation

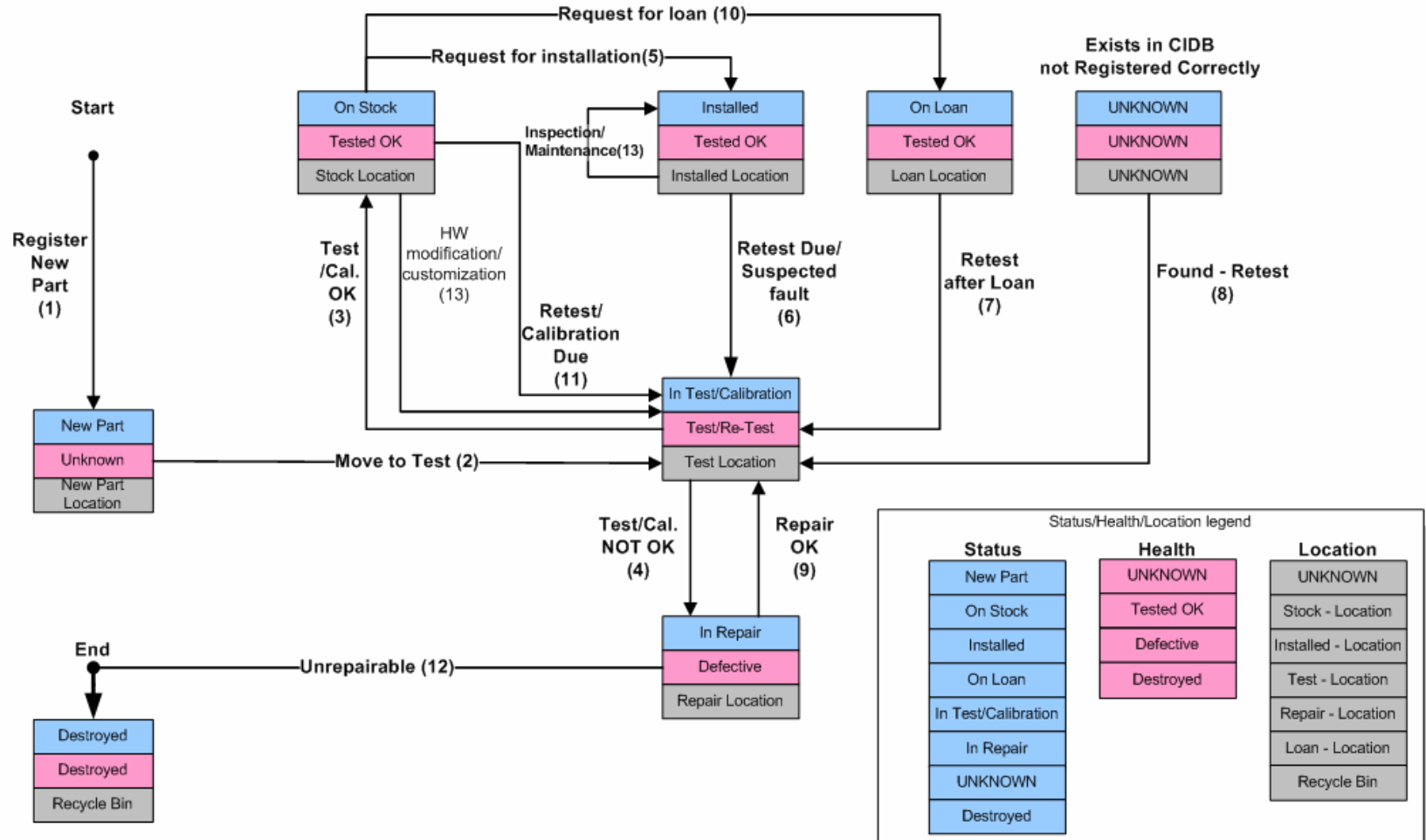


# Component History

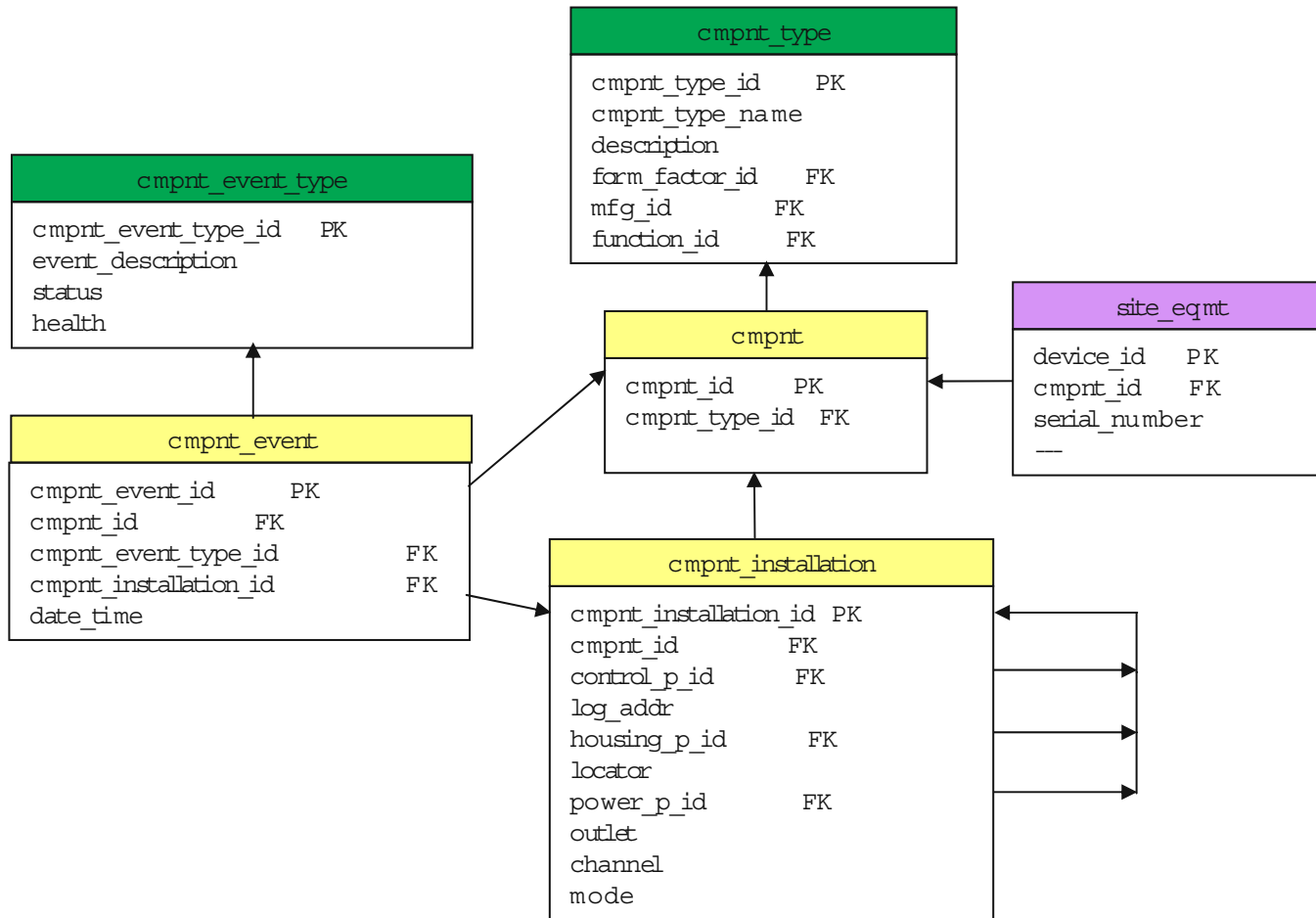
## CIDB Part State Diagram and Flow Chart

Wednesday, November 08, 2006

Legend: STATUS HEALTH LOCATION



# Component History (proposed)

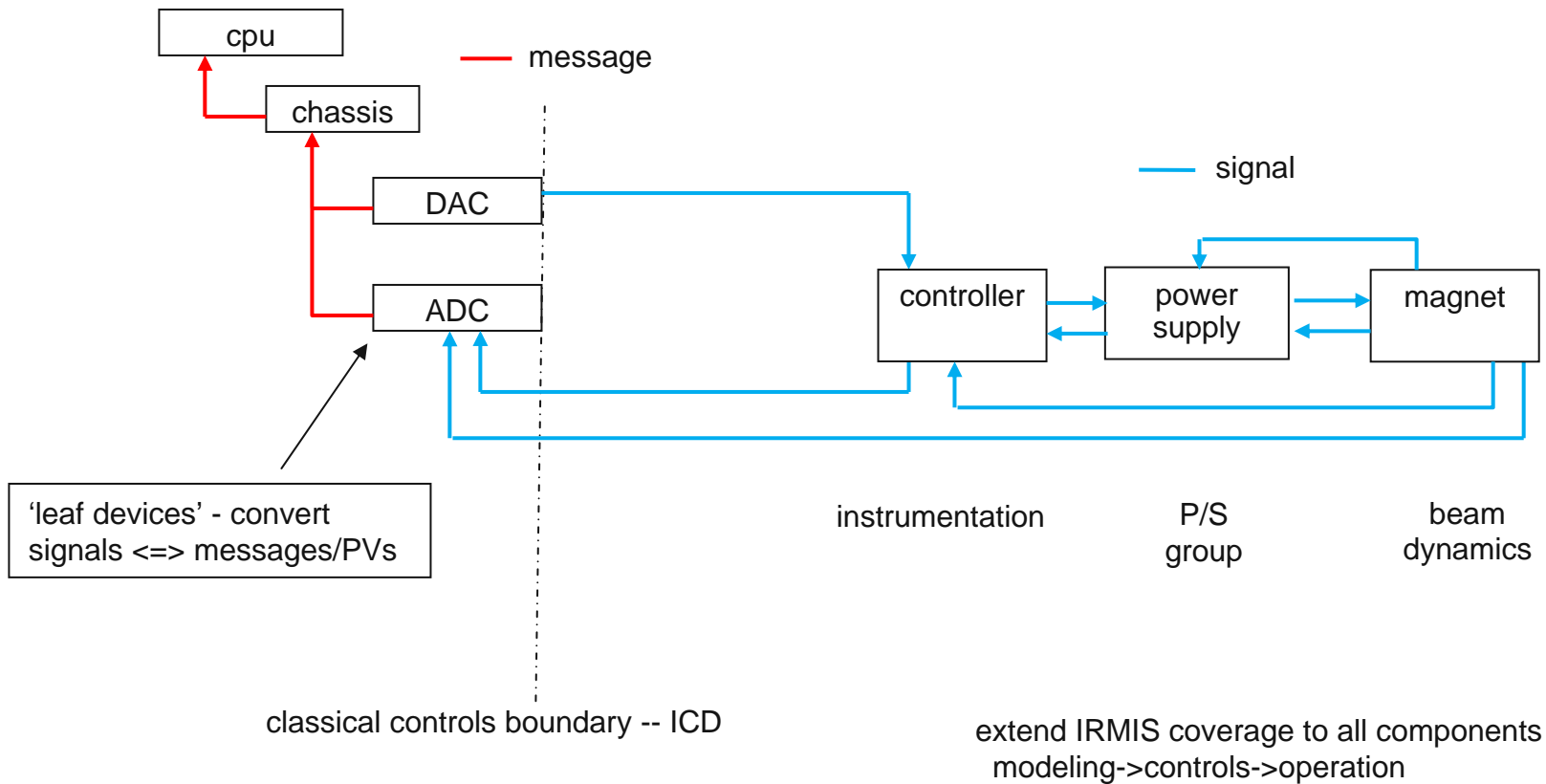




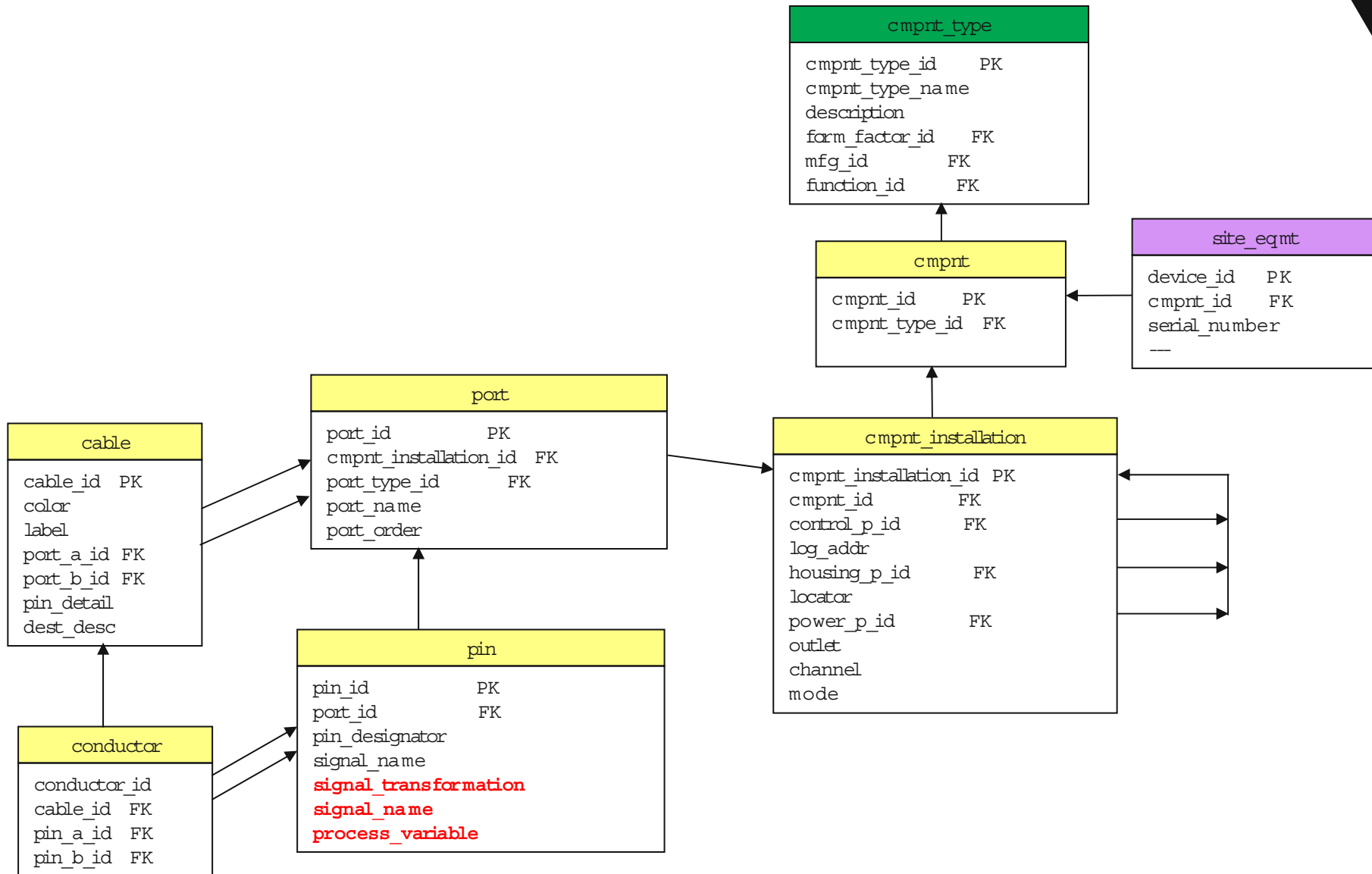
# Accelerator objects and signals

cmpnts - hierarchical topology

“accelerator cmpnts” - network topology  
‘master table’ -- naming convention

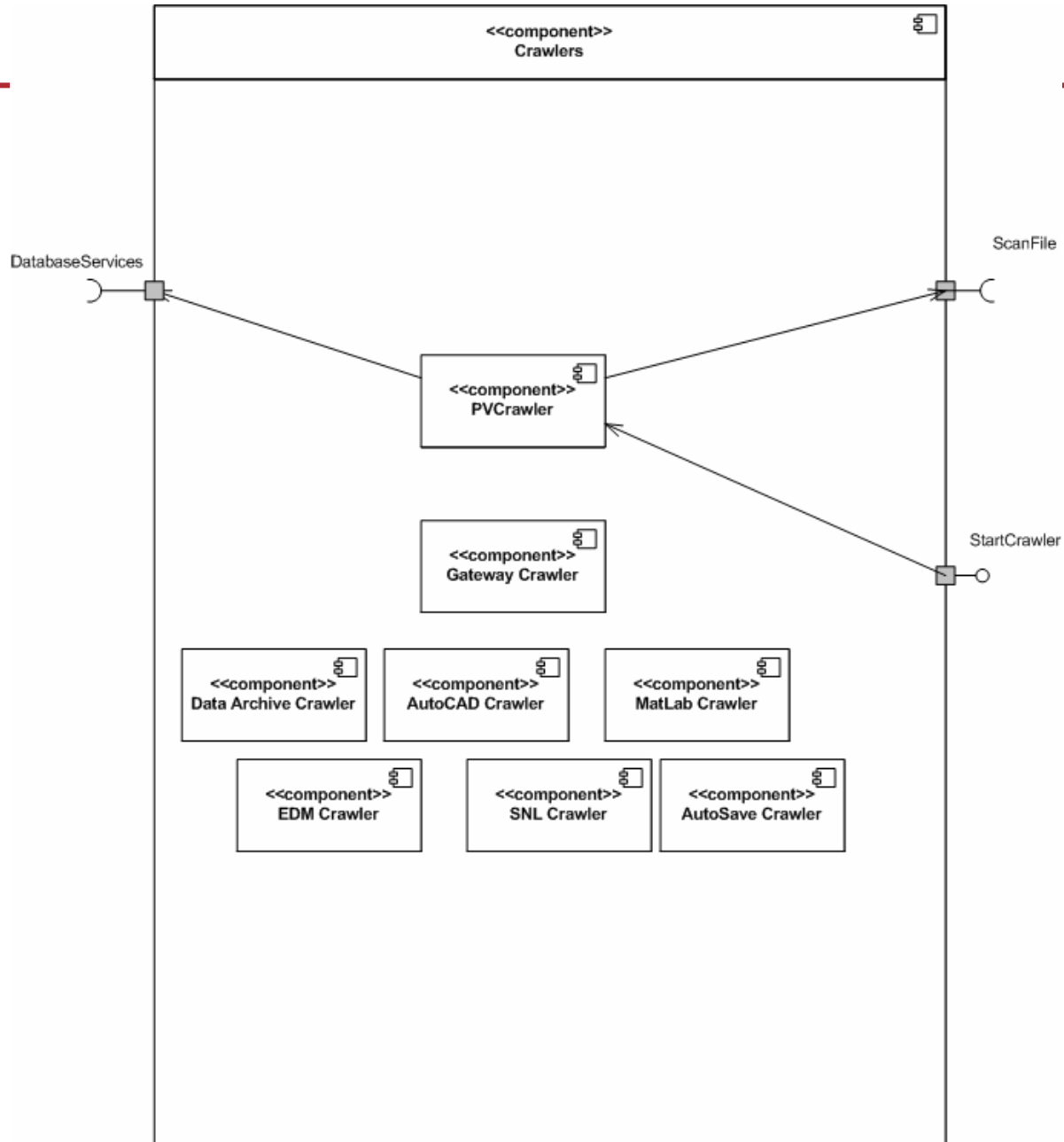


# Cables and Signals



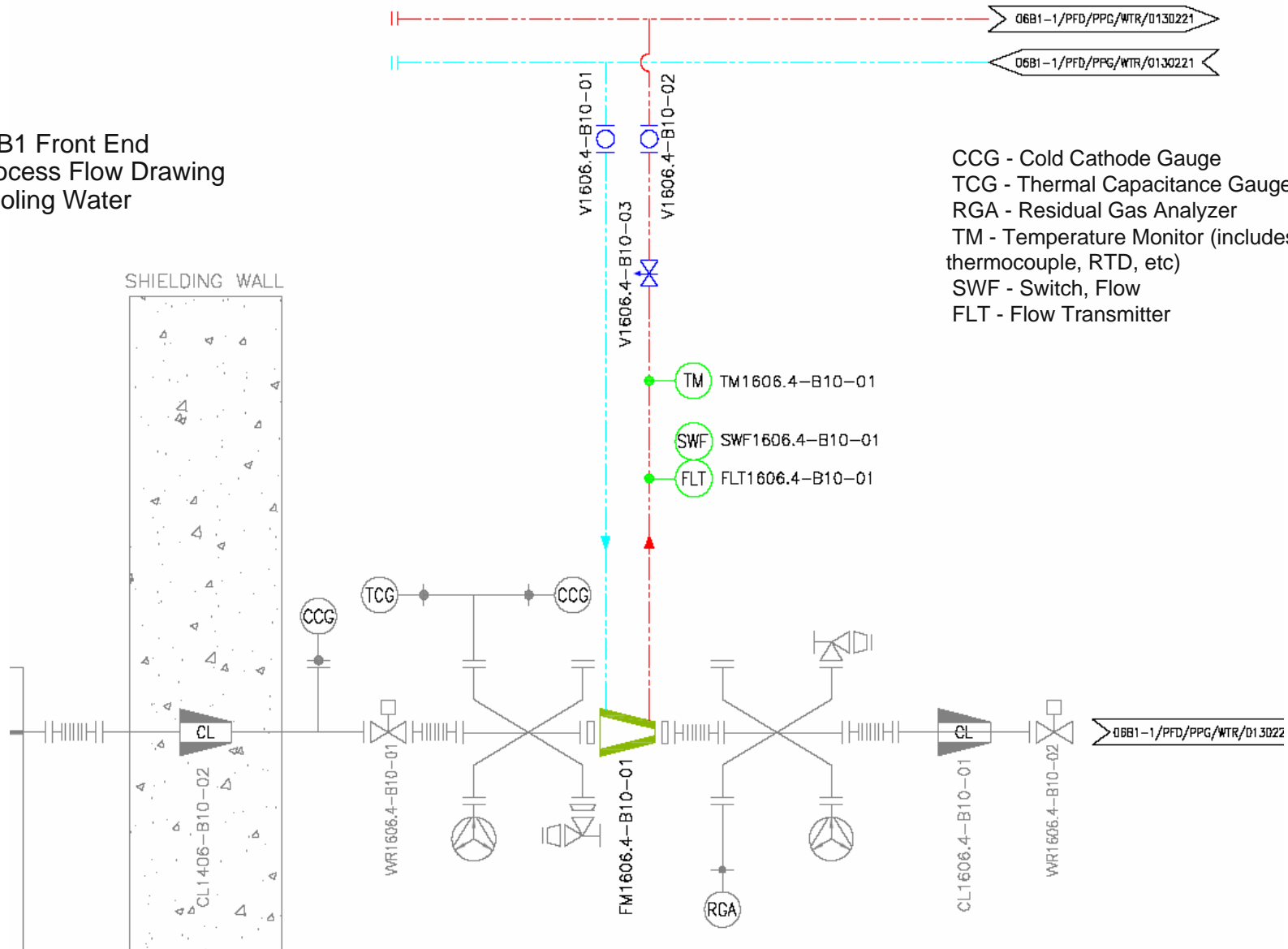
### Canadian Light Source (visit)

- web-service based PV viewer
- uses web services layer between crawler, client and the RDB
- RDB implemented in MS SQL Server
- plans to increase the role of RDB in site operation and maintenance



# Process Flow Drawing

06B1 Front End  
Process Flow Drawing  
Cooling Water



CCG - Cold Cathode Gauge  
TCG - Thermal Capacitance Gauge  
RGA - Residual Gas Analyzer  
TM - Temperature Monitor (includes thermocouple, RTD, etc)  
SWF - Switch, Flow  
FLT - Flow Transmitter

### CCMS - Control Component Monitoring System

- post shutdown checks:
- 'leaf' devices - children of a components with function 'subnet'  
(typically field buses (BB, GPIB, Allen Bradley,,,), serial lines, etc)
- locate at least 1 PV for each CCMS component - test for connectivity
- 2880 CCMS components identified at the APS

This work is proving to be helpful in increasing the confidence level in IRMIS component database.

- parse dbhcr reports - develop a list of heuristics.
- remove components with no PV
- add missing components for which a PV exists

# Work in Progress

**PV Info**

Record Name	Type	IOC
L3:DG3:aOutputPolSetB0	bo	ioclie2

DB File(s)

/net/helios/iocapps/R3.13.10/ioc/linac/2/linacApp/timingDb/dg1234567.dat

**PV Fields**

Field	Value
DOL	0
DTP	DG535 Delay Generator (GP1B)
EVNT	0
FLNK	L3:DG3:aOutputPolBI.VAL
HIGH	0
IWOA	Continue normally
IWOV	0
LALM	
LCNT	
MASK	0
MLST	
NAME	
NSEV	
NSTA	
OMSL	supervisory
ONAM	
ORAW	0
ORBV	0
OSV	NO_ALARM
OUT	#L0 A17 @15
PACT	

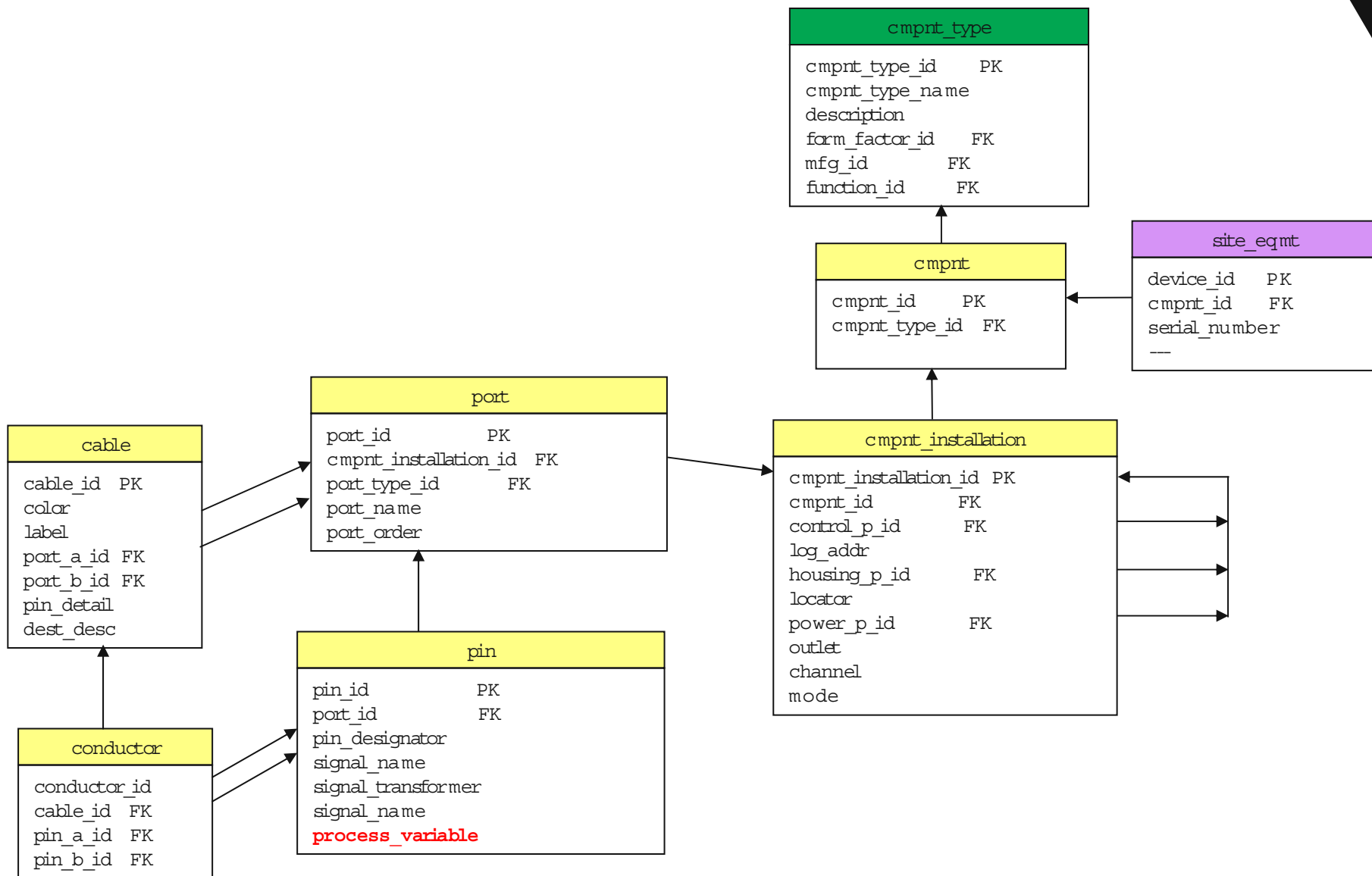
**Control**

- MVME 5100-013x ioclibpm5
- MVME 167-xxx DBL ioclic1
- MVME 167-xxx DBL ioclic2
  - VME Chassis - System 22 Type 1-A
    - CTM100 (CTC100) \_
    - 1014D 0,1
      - GP1B\_Link 0
        - HP8648D 7
          - DG535 15
          - DG535 16
          - DG535 17
          - DG535 18
          - DG535 19
          - DG535 20
          - DG535 21
          - DG535 22
          - DG535 23
        - GP1B\_Link 1
          - P1
          - P2
      - 6008-SV 0
      - 6008-SV 1
      - VMOD-2 0,1
      - VMOD-2 2,3
      - HPE1368A 41
      - FOM112 \_
      - TIM100 \_
      - DDPG02 0
      - DDPG02 1
      - DDPG02 2
      - DDPG02 3
      - FOM102 \_
      - CTS100 0
      - LTG100 1
      - PPV100 \_
      - VME Power Supply - Type 1 \_
      - z\_Ancillary Devices \_
      - z\_Parallel status \_

**Housing**

- Room LINAC\_Gallery\_Area#1
- Room LINAC\_Gallery\_Area#2
- Room LINAC\_Gallery\_Area#3
  - AC Panel ERP-J2
  - AC Panel ERP-J5
  - Rack L3:BC:RA:1
  - Rack L3:BC:RA:2
  - Rack L3:BC:RA:3
  - Rack L3:CO:RA:1
  - Rack L3:DU:RA:1
  - Rack L3:DU:RA:2
  - AC Panel L3:EL:SO1
  - Rack L3:HV:RA:1
  - Enclosure L3:IC1
  - Rack L3:IO:RA:1
  - Rack L3:IO:RA:2
  - Rack L3:IO:RA:3
    - BUG300 2
    - BUG300 4
    - BUG300 4
    - HP8648D 7
    - DG535 16
    - DG535 17
      - T0
      - A
      - B
      - AB+
      - AB-
      - C
      - D
      - CD+
      - CD-
      - Ext Trig
      - Trig Inhibit
      - T0 (Back)
      - A (Back)
      - B (Back)
      - C (Back)

# Cables, signals and PVs





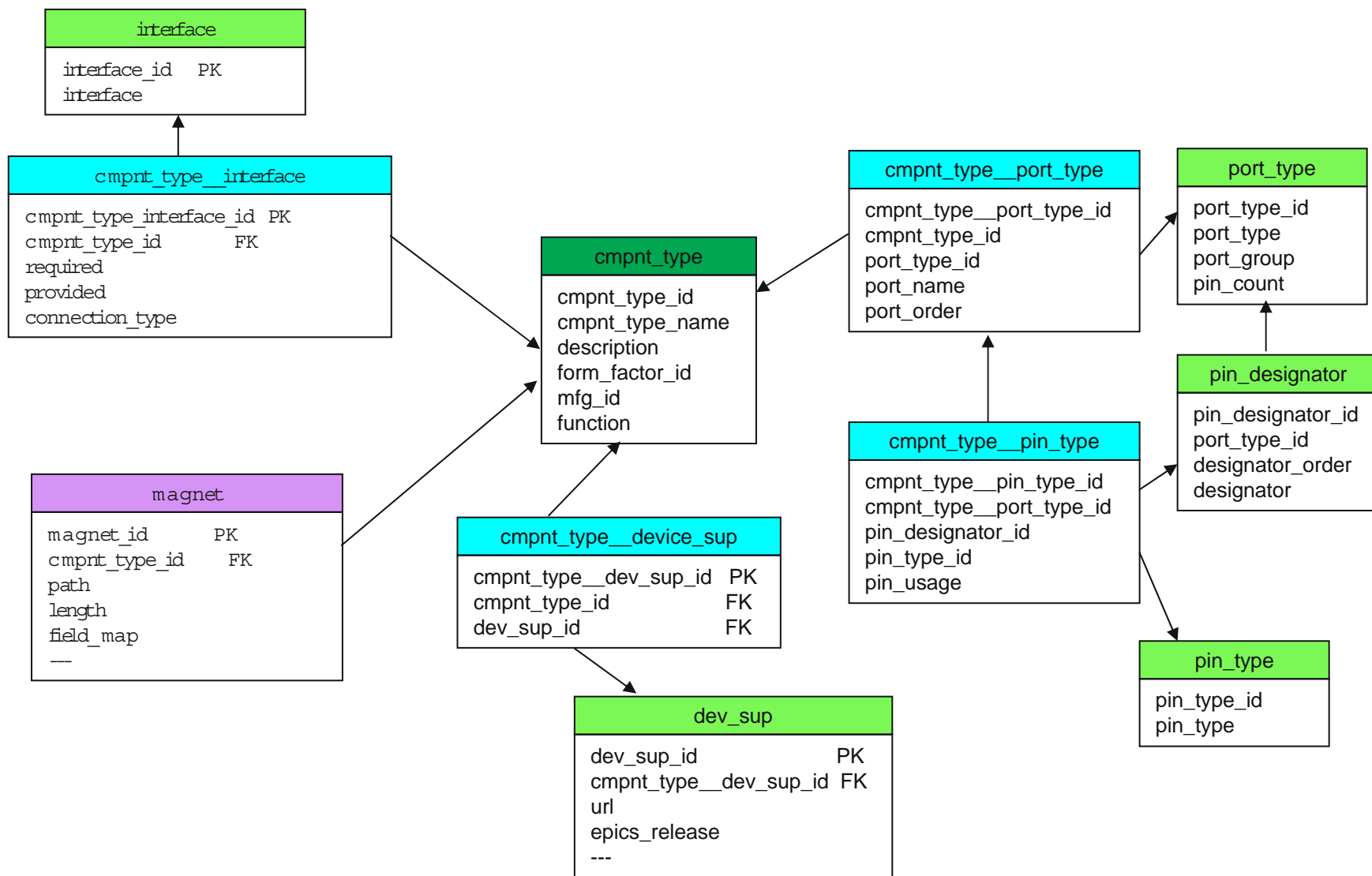
# Universal Component Types

- APS Control
- IPNS
- BCDA
- IT

===>

- universal component types
- associated device support (for each EPICS release)

# Universal Component-types



## RDB - wish list

- display the EPICS logic of an IRMIS PV query result set.
  - A 'cross-IOC' VDCT. AOI-based rather than IOC-based DCT
- RDB based EPICs database configuration (JERI, generalized)
- RDB<>CVS interface
  - RDB retains cvs tags, and relations between them
  - RDB initiates cvs commits (cross IOC)
  - 'prescriptive' IRMIS