TDCT – A CONFIGURATION TOOL FOR EPICS RUNTIME DATABASES

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ISAC Control System Highlights [1]

- ❑ Uses EPICS
- ❑ 4500 Devices
- ❑ 130 000 EPICS records
- ❑ Beam diagnostics: VME
- ❑ Beam optics: CANbus micros
- ❑ Vacuum, Ion sources,
  Cryo distribution: Modicon PLC
- ❑ Cryo Plant (Linde):   Siemens PLC

EPICS Databases

- ASCII files
- collection of function blocks (EPICS records)
- linked together into execution units
- loaded into Input/Output Computers (IOCs)
- IOC provides framework for
  - timed schedules
  - event driven schedules

Control System "Programmer"

- does not write code
- instantiates EPICS records
- assigns record properties (fields)
- defines paths for data flow
- defines paths for control flow

Database Configuration Tools (1996)

- Text editor
  - not EPICS aware
- DCT
  - fully EPICS aware
  - not graphical
- GDCT
  - fully EPICS aware
  - graphical
  - no hierarchy support
- Capfast™ [2]
  - electronics schematics capture tool
  - EPICS "parts" = record library
  - partially EPICS aware
  - graphical
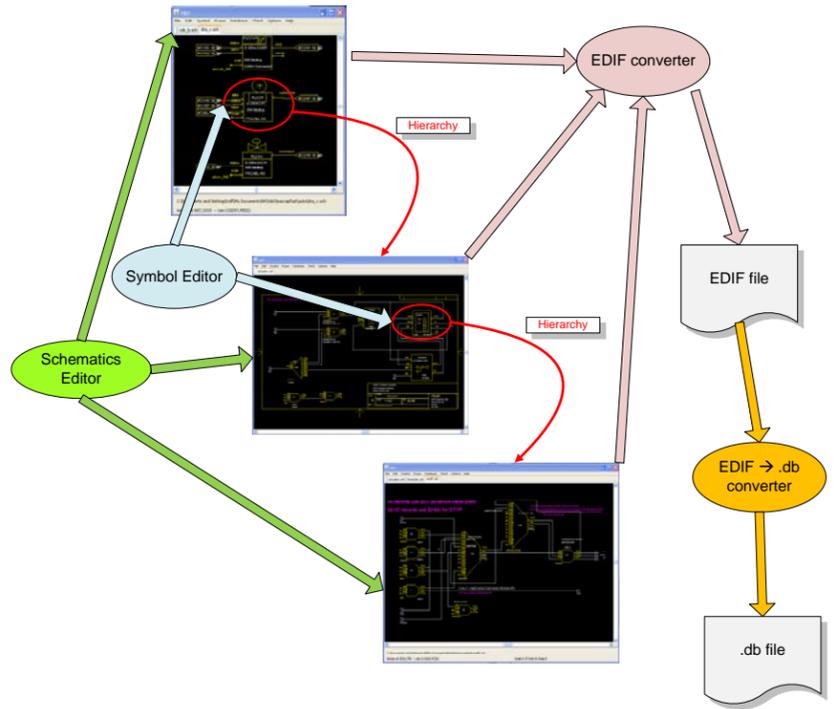 - excellent hierarchy support

TRIUMF/ ISAC

- wanted to implement
- object-like device model
  - reusable component objects
  - assigns record properties (fields)
- *needed hierarchy!!!*

- *selected Capfast™*

TRIUMF/ISAC has significant investment in Capfast™

- 350 reuseable components
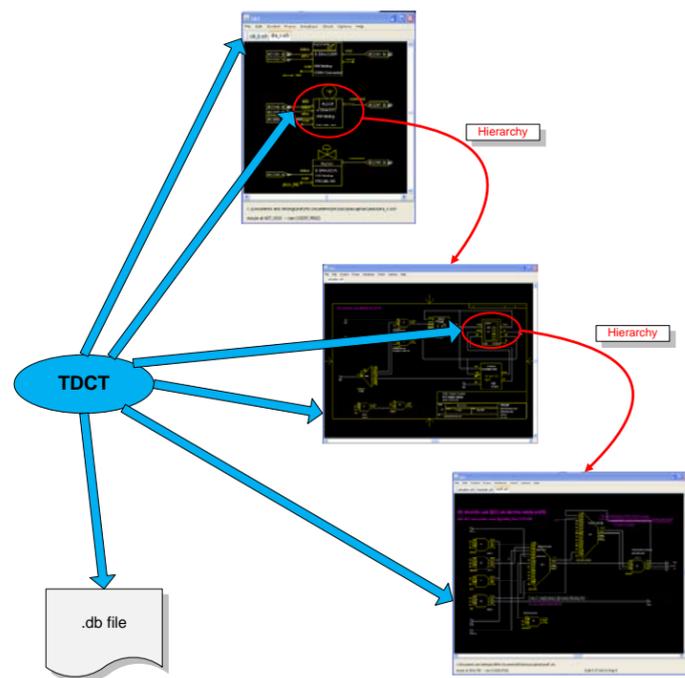- 900 schematic files

but Capfast™ ...

- differs between Windows and other platforms
- unusual user interface
- limited EPICS awareness
- has licensing and support issues

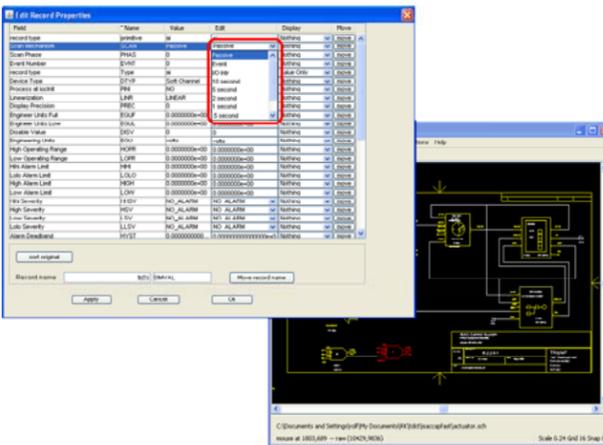→ **Uneasiness about being dependent on Capfast™**
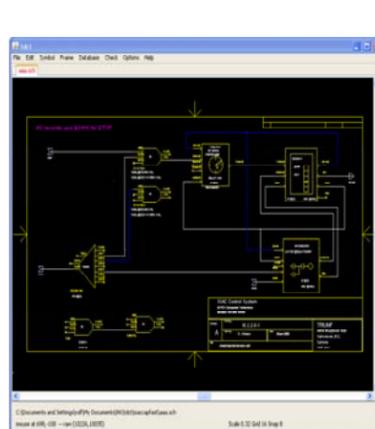
Database Configuration Tools (2007)

- VDCT [3]
  - fully EPICS aware
  - builds database
  - hierarchy support
  - Java – cross-platform
  - graphical
  - no configurable symbols
  - boxes only

Not acceptable!

→ **Decided to develop TDCT**
(**T**RIUMF **D**atabase **C**onfiguration **T**ool)

TDCT Features

- fully EPICS aware   *
- builds database
- hierarchy support
- Java – cross-platform
- graphical
- configurable symbols
- work on multiple schematics and symbols simultaneously
- copy/cut/paste between schematics
- Capfast™ compatible (read/write)
- Colour configurable   ***
- Schematics checks
  - record name syntax
  - link connections   **

EPICS Database Configuration with Capfast™ - 4 tools

EPICS Database Configuration with TDCT – one-stop shopping
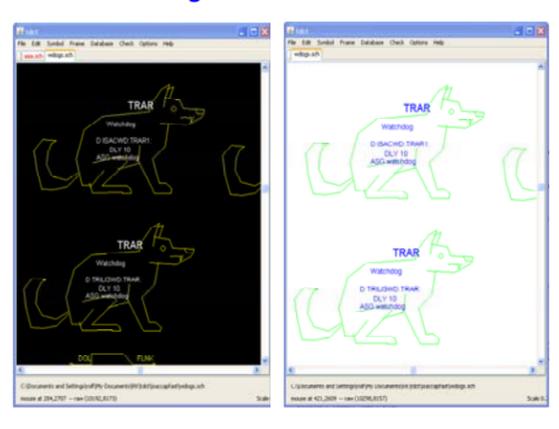

TDCT is EPICS aware *

TDCT checks schematics **

TDCT is configurable ***

References:
[1] R.Keitel et al., "The ISAC Control System - Phase II", ICALEPCS 2005, Geneva
[2] Phase Three Logic, Beaverton, Oregon, http:// www.phase3.com/
[3] http://www.cosylab.com/solutions/particle_accelerators/VisualDCT