

# EpicsOra

building Epics-db-files from an  
Oracle Database

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# Outline

- Use relational database instead of flat files
  - Basic structure similar to [IRMIS](#)
- Use prototypes (~ OO)
  - Structure and Inheritance
- Plus and minus



# Relational Database

- At DESY use Oracle
  - Records and field values
  - record types und default values (.dbd)
  - EPICS versions
  - IOCs
- At DESY use Oracle Forms for [user interface](#)



# dbd files → epicsOra → db file

```
*****
# Copyright (c) 2002 The University of Chicago, as Oper
# National Laboratory.
# Copyright (c) 2002 The Regents of the University of
# Operator of Los Alamos National Laboratory.
# EPICS BASE Versions 3.13.7
# and higher are distributed subject to a Software Lic
# in file LICENSE that is included with this distrib
*****
recordtype(ai) {
  include "dbCommon.dbd"
  field(VAL,DBF_DOUBLE) {
    prompt("Current EGU Value")
    promptgroup(GUI_INPUTS)
    asl(ASL0)
    pp(TRUE)
  }
  field(INP,DBF_INLINK) {
    prompt("Input Specification")
    promptgroup(GUI_INPUTS)
    interest(1)
  }
  field(PREC,DBF_SHORT) {
    prompt("Display Precision")
    promptgroup(GUI_DISPLAY)
    interest(1)
  }
  field(LINR,DBF_MENU) {
    prompt("Linearization")
    promptgroup(GUI_CONVERT)
    special(SPC_LINCONV)
    pp(TRUE)
    interest(1)
    menu(menuConvert)
  }
  field(EGUF,DBF_DOUBLE) {
    prompt("Engineer Units Full")
    promptgroup(GUI_CONVERT)
    special(SPC_LINCONV)
    pp(TRUE)
    interest(1)
  }
  field(EGUL,DBF_DOUBLE) {
    prompt("Engineer Units Low")
    promptgroup(GUI_CONVERT)
    special(SPC_LINCONV)
    pp(TRUE)
    interest(1)
  }
}
```

Instance record: HZF:F1_ai(ai)	
default	
ai_4.20	\$(desc)
ai_4.20	Stromzufuehrung
old instance	
DESC	ai_4.20 Stromzufuehrung
ASG	
SCAN	ai_4.20 1 second
PINI	NO
PHAS	0
EVNT	0
TSEL	
DTYP	ai_4.20 CANopen
DISV	1
SDIS	
ACKT	NO
DISS	NO_ALARM
PRIO	LOW
UDF	1
FLNK	
VAL	0
INP	@CAN1:N11[2] 'L=0,H=1'
PREC	1
LINR	ai_4.20 LINEAR
EGUF	ai_4.20 600
EGUL	ai_4.20 0

```
record(ai, "HZF:F1_ai") {
  field(DESC, "Stromzufuehrung")
  field(SCAN, "1 second")
  field(DTYP, "CANopen")
  field(INP, "@CAN1:N11[2] 'L=0,H=1'")
  field(PREC, "1")
  field(LINR, "LINEAR")
  field(EGUF, "600")
  field(EGU, "mg/s")
  field(HOPR, "600")
  field(ADEL, "6")
  field(MDEL, ".1")
}
```



# EpicsOra prototypes

- Field values
- Name rules
- Structure
  - record groups
  - Nesting
- ~ OO “classes”
  - parameters = "properties"
  - instances = "objects"



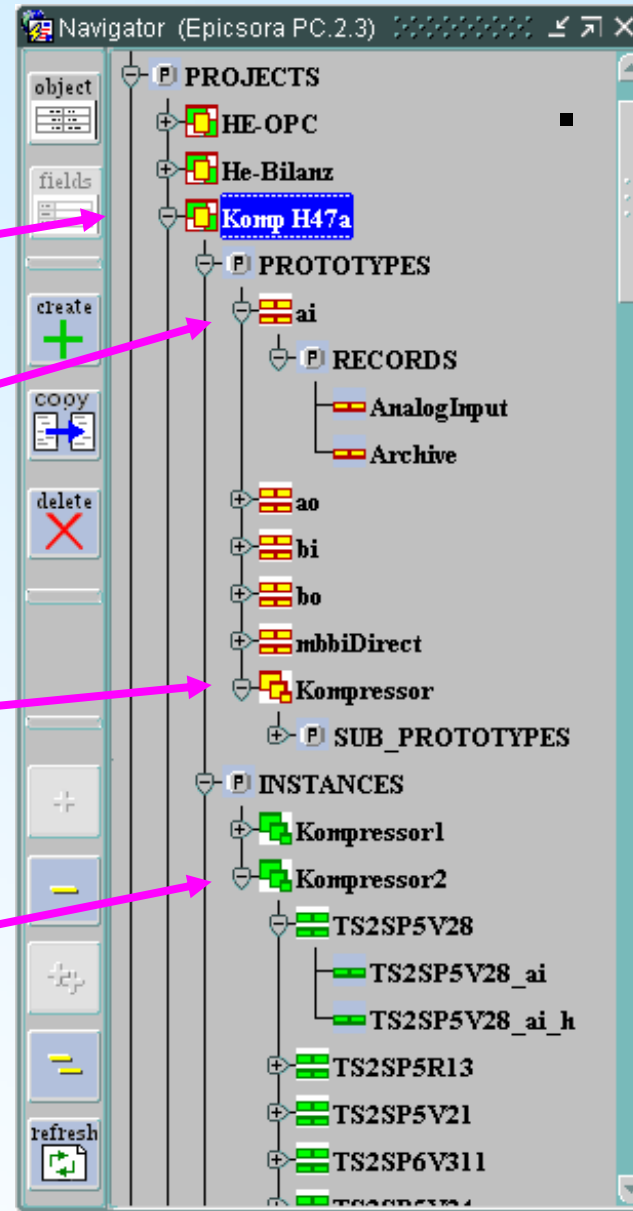
# Structure

**Project**

**(base)  
prototype**

**composite  
prototype**

**Instance**



# EpicsOra prototypes: inheritance for record-fields

Name	Initial value
DESC	
ASG	
SCAN	Passive
PINI	NO
PHAS	0
EVNT	0
TSEL	
DTYP	
DISV	1
SDIS	
DISS	NO_ALARM
PRIO	LOW
FLNK	
INP	
PREC	0

default		
ai_4-20		\$(desc)
DESC	ai_4-20	\$(desc)
ASG		
SCAN	ai_4-20	1 second
PINI		NO
PHAS		0
EVNT		0
TSEL		
DTYP	ai_4-20	CANopen
DISV		1
SDIS		
ACKT		NO
DISS		NO_ALARM
PRIO		LOW
UDF		1
FLNK		
VAL		0
INP		
PREC	ai_4-20	2
LINR	ai_4-20	LINEAR
EGUF	ai_4-20	\$(high)
EGUL	ai_4-20	\$(low)
EGU	ai_4-20	\$(egu)

default		
ai_4-20		\$(desc)
ai_4-20		Stromzufuehrung
old instance		
DESC	ai_4-20	Stromzufuehrung
ASG		
SCAN	ai_4-20	1 second
PINI		NO
PHAS		0
EVNT		0
TSEL		
DTYP	ai_4-20	CANopen
DISV		1
SDIS		
ACKT		NO
DISS		NO_ALARM
PRIO		LOW
UDF		1
FLNK		
VAL		0
INP		@CAN1:N11[2] 'L=0,H=1'
PREC		1
LINR	ai_4-20	LINEAR
EGUF	ai_4-20	600
EGUL	ai_4-20	0



# Plus and minus

- + reusability
  - different projects
  - change of EPICS version
- + connect to other info in db
  - calculate hardware address string from info in asset db
  - can use logical name "IO\_name"
- - programmer gone





# Inside EpicsOra

(Oracle AS 10g, Forms 9)

Property Palette

Project: Komp H47a

Name	Komp H47a
Description	Vakuu Kompressoren Hall ...
Default Epics	EpicsR3.13.1.0-D2 ...
Default IOC	...
Date created	14-01-03 14:52:52
Created by	Gerke

Parameters  Set  Declare

Set parameter values

Name	Value
P	TS

Navigator (Epicsora PC.2.3)

- EPICS RELEASE
  - TEMPLATES
  - PROJECTS
    - HE-OPC
    - He-Bilanz
    - Komp H47a**
      - PROTOTYPES
      - INSTANCES
      - HARDWARES
        - Magnet-Testhalle
        - SMES
        - TTF2
        - TdoT2003
        - XFEL
        - Zeus Feedbox
        - test\_siegfried
      - IOC
      - UTIL

Prototype Fields

Prototype record: AnalogInput(ai) top level: ai

DESC	ai	\$(desc)
ASG		
SCAN	ai	1 second
PINI		NO
PHAS		0
EVNT		0
TSEL		
DTYP	ai	S7mem
DISV		1
SDIS		
DISS		NO_ALARM
NO		LOW
LNK		
IP	ai	@_..._S7: \$ROUND(\$(K)-1.2)/\$(W) T=F
PREC	ai	2
LINR		
EGUF		
EGUL		0
EGU	ai	\$(egu)
HOPR	ai	\$(high)
LOPR	ai	\$(low)
AOFF		0

Record: 1/1

