

PowerSupplySimu.db

```
# records for EPICS Training at 19. Nov. 2010

#-----
# interface records

record (bo, "PowerSupply1:Switch")
{
    field (DESC, "Switch On or Off")
    field (ZNAM, "Off")
    field (ONAM, "On")
    field (FLNK, "PowerSupply1:Calculation") # after switch set calc output
}

record (ao, "PowerSupply1:SetValue")
{
    field (DESC, "Nominal set value")
    field (EGU, "V")
    field (PREC, "2")
    field (FLNK, "PowerSupply1:Calculation") # after switch set calc output
}

record (ai, "PowerSupply1:Readback")
{
    field (DESC, "Actual readback from HW")
    field (EGU, "V")
    field (PREC, "2")
    field (INP, "PowerSupply1:OutputValue")
    field (SCAN, ".1 second")
}

#-----
# private records (do not use them on clients)

record (calc, "PowerSupply1:Calculation")
{
    field (DESC, "Combine Switch and SetValue")
    field (INPA, "PowerSupply1:Switch")
    field (INPB, "PowerSupply1:SetValue")
    field (CALC, "A=0?0:B") # if switch=Off then Null else setValue
    field (FLNK, "PowerSupply1:OutputValue") # after calculation write output
}

record (ao, "PowerSupply1:OutputValue")
{
    field (DESC, "Value send to HW")
    field (EGU, "V")
    field (PREC, "2")
    field (DOL, "PowerSupply1:Calculation") # get the output value
    field (OMSL, "closed_loop")
}
```

st.cmd

```
# Load drivers and dbd files =====
# Load your record files =====
dbLoadDatabase("PowerSupplySimu.db")

# this is a comment...
#dbLoadTemplate("PowerSupplySimu.subs")

# start the EPICS IOC =====
iocInit
```

PowerSupplySimu.subs

```
#-----
# records for EPICS Training at 19. Nov. 2010

file PowerSupplySimu.template {
    {
        Name = PowerSupply1
    }
    {
        Name = PowerSupply2
    }
}
```

PowerSupplySimu.template

```
# records for EPICS Training at 19. Nov. 2010

#-----
# interface records

record (bo, "$(Name):Switch")
{
    field (DESC, "Switch On or Off")
    field (ZNAM, "Off")
    field (ONAM, "On")
    field (FLNK, "$(Name):Calculation") # after switch set calc output
}

record (ao, "$(Name):SetValue")
{
    field (DESC, "Nominal set value")
    field (EGU, "V")
    field (PREC, "2")
    field (FLNK, "$(Name):Calculation") # after switch set calc output
}

record (ai, "$(Name):Readback")
{
    field (DESC, "Actual readback from HW")
    field (EGU, "V")
    field (PREC, "2")
    field (INP, "$(Name):OutputValue")
    field (SCAN, ".1 second")
}

#-----
# private records (do not use them on clients)

record (calc, "$(Name):Calculation")
{
    field (DESC, "Combine Switch and SetValue")
    field (INPA, "$(Name):Switch")
    field (INPB, "$(Name):SetValue")
    field (CALC, "A=0?0:B") # if switch=Off then Null else setValue
    field (FLNK, "$(Name):OutputValue") # after calculation write output
}

record (ao, "$(Name):OutputValue")
{
    field (DESC, "Value send to HW")
    field (EGU, "V")
    field (PREC, "2")
    field (DOL, "$(Name):Calculation") # get the output value
    field (OMSL, "closed_loop")
}
```

PowerSupply.subs

```
#-----  
# records for EPICS Training at 19. Nov. 2010  
  
#file PowerSupplySimu.template {  
#    {  
#        Name = PowerSupply3  
#        PLC = PLC1  
#    }  
#}  
  
file PowerSupply.template {  
pattern {Name      PLCname }  
    {PowerSupply3   PLC1   }  
}
```

PowerSupply.template page 1

```
# records for EPICS Training at 19. Nov. 2010

#-----
# interface records

record (bi, "$(PLCname):Status")
{
    field (DESC, "Is PLC online?")
    field (ZNAM, "offline")
    field (ONAM, "online")
    field (ZSV, "MAJOR") # alarm when offline
    field (DTYP, "S7plc stat")
    field (INP, "@$(PLCname)") # read from PLC
    field (SCAN, "I/O Intr")
    field (PINI, "YES")
}

record (bi, "$(PLCname):Watchdog")
{
    field (DESC, "Blinks when PLC works")
    field (ZNAM, "Off")
    field (ONAM, "On")
    field (DTYP, "S7plc")
    field (INP, "@$(PLCname)/8 T=BYTE B=7") # read from PLC
    field (SCAN, "I/O Intr")
}

record (bo, "$(Name):Switch")
{
    field (DESC, "Switch On or Off")
    field (ZNAM, "Off")
    field (ONAM, "On")
    field (FLNK, "$(Name):Calculation") # after switch set calc output
}

record (ao, "$(Name):SetValue")
{
    field (DESC, "Nominal set value")
    field (EGU, "V")
    field (PREC, "2")
    field (FLNK, "$(Name):Calculation") # after switch set calc output
}

record (ai, "$(Name):Readback")
{
    field (DESC, "Actual readback from HW")
    field (EGU, "V")
    field (PREC, "2")
    field (DTYP, "S7plc")
    field (INP, "@$(PLCname)/4 T=FLOAT") # read from PLC
    field (SCAN, "I/O Intr")
}
```

PowerSupply.template page 2

```
#-----
# private records (do not use them on clients)

record (calc, "$(Name):Calculation")
{
    field (DESC, "Combine Switch and SetValue")
    field (INPA, "$(Name):Switch")
    field (INPB, "$(Name):SetValue")
    field (CALC, "A=0?0:B") # if switch=Off then Null else setValue
    field (FLNK, "$(Name):OutputValue") # after calculation write output
}

record (ao, "$(Name):OutputValue")
{
    field (DESC, "Value send to HW")
    field (EGU, "V")
    field (PREC, "2")
    field (DOL, "$(Name):Calculation") # get the output value
    field (OMSL, "closed_loop")
    field (DTYP, "S7plc")
    field (OUT, "@$(PLCname)/4 T=FLOAT") # write to PLC
}
```

st.cmd

```
# Load drivers and dbd files =====
dlload /opt/epics-3.14.12/modules/lib/linux-x86/libs7plc.so
dbLoadDatabase /opt/epics-3.14.12/modules/dbd/s7plc.dbd
s7plc_registerRecordDeviceDriver

# Configure the hardware
#s7plcConfigure "PLCname","IPaddr",IPport,inSize,outSize,bigEndian,recvTimeout,sendInterval
s7plcConfigure "PLC1","192.168.0.10",2000,10,10,1,500,100

# Load your record files =====
dbLoadTemplate("PowerSupply.subs")

# start the EPICS IOC =====
iocInit
```