EPICS 'Stream' Device Lab

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Start "Simple Instrument"

Python-based demo device:

```
cd ~/epics-train/examples/devices
python simpleInstrument.py
```

For tests, access from other terminal, then try all the commands listed on next page:

```
telnet localhost 24742
```

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Test Example Device Commands

*IDN?   Device Name (up to 100 chars long)

ON 0   Turn off

ON 1   Turn on

VOLTS 5.0   Set voltage, +-10V range

ON?   Returns off/on state

VOLTS?   Returns voltage setting

CURR?   Returns current, +-11A

LOAD?   Returns CPU load (1, 5, 15 minute average)

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Study examples

- **CombinedApp/src/Makefile**
  - **Adds asyn & stream support to IOC**

- **CombinedApp/Db/si_stream.db, si.proto**
  - **Records and protocol for the Simple Instrument**

- **iocBoot/iocCombined**
  - **IOC startup file**

Support all Simple Instrument Commands

- **Extend database and protocol file**

- **Add display**

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Hints

ON? Replies with "0" or "1"

Use BI record with protocol `in "%d"`

Set records ZNAM and ONAM to show as "Off", "On" on display.

ON needs "0" or "1"

Use BO record with protocol `out "%d"`

Again set records ZNAM and ONAM for display.

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Hints

*IDN? Provides up to 100 chars

Use WAVEFORM record,
FTVL="CHAR", NELM=100,
with protocol `in "%s"`

In display, use Text Update with Format: String.

Hints

LOAD? Replies with e.g. "0 0.01 0.05"

Use I/O Intr processing and value skipping (%*)

```
read_L1 { out "LOAD?"; in "%f %*f %*f";}
read_L2 { in " "%*f %f %*f"; }
```
.. same for L3

```
record (ai, "SI:Load1")
{
  field (DTYP, "stream")
  field (INP, "@si.proto read_L1 SI")
  field (SCAN, "1 second")
}
record (ai, "SI:Load2")
{
  field (DTYP, "stream")
  field (INP, "@si.proto read_L2 SI")
  field (SCAN, "I/O Intr")
}
```
.. same for L3

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