

A New EPICS Device Support for S7 PLCs

S. Marsching, aquenos GmbH, Baden-Baden, Germany

s7nodave

- EPICS Device Support
- Based on libnodave by Thomas Hergenahn
- Direct Access to PLC memory from EPICS, no code on PLC needed.

IOC Startup Script

```
st.cmd
[...]
```

```
# Configure PLC connection.
s7nodaveConfigureIsoTcpPort("myPLC",
    "s7plc.example.com", 0)
# Set polling interval for "default" poll
# group to 1 second.
s7nodaveConfigurePollGroup("myPLC",
    "default", 1.0, 0)
# Create a second poll group for records
# that shall be polled every 100 ms.
s7nodaveConfigurePollGroup("myPLC",
    "fast", 0.1, 0)
[...]
```

Record Definitions

```
record(ai, "AnalogInput")
{
    field(SCAN, "I/O Intr")
    field(DTYP, "s7nodave")
    field(INP, "@myPLC(DLV=0,DHV=27648) IW66")
    field(LINR, "LINEAR")
    field(EGUL, "0")
    field(EGUF, "10")
    field(EGU, "V")
}
```

```
record(bo, "BinaryOutput")
{
    field(DTYP, "s7nodave")
    field(OUT, "@myPLC Q0.3")
}
```

```
record(mbbiDirect, "DirectBits")
{
    field(SCAN, "I/O Intr")
    field(DTYP, "s7nodave")
    field(INP, "@myPLC(PG=FAST) IB0")
    field(NOBT, "8")
}
```

S7 Programmable Logic Controllers

Overview

- Modular platform
- Lots of I/O options

Supported Models

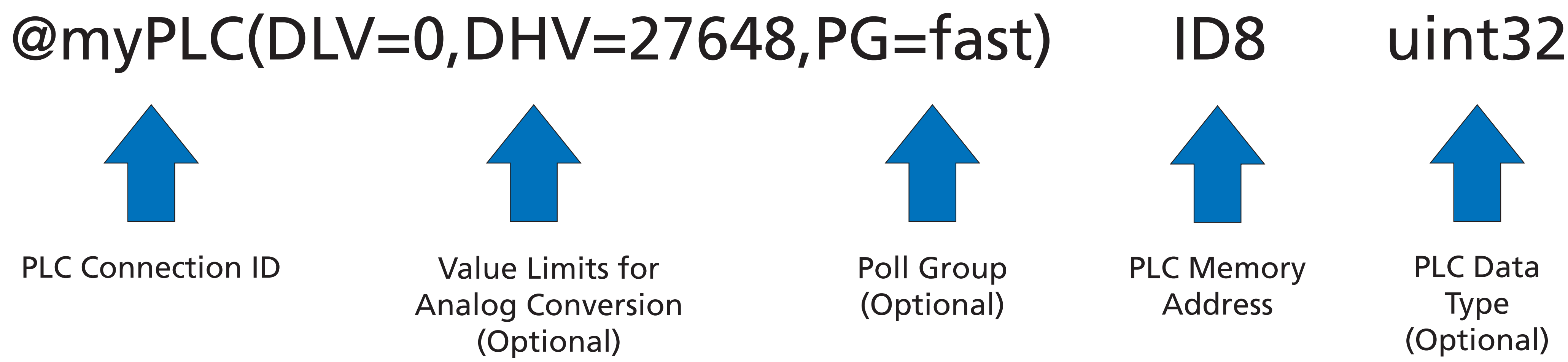
- S7-300 and S7-1200 families have been tested
- S7-400 and S7-1500 are also likely to work
- PROFINET interface is required

Memory Addresses

- Different areas (e.g. input, output, data block, marker)
- Area number (only for data blocks)
- Address width (bit, byte, word, double word)
- Byte offset in area
- Bit number (only for bits)
- Examples:
IB0
QW4
M3.2
DB2.DBID8

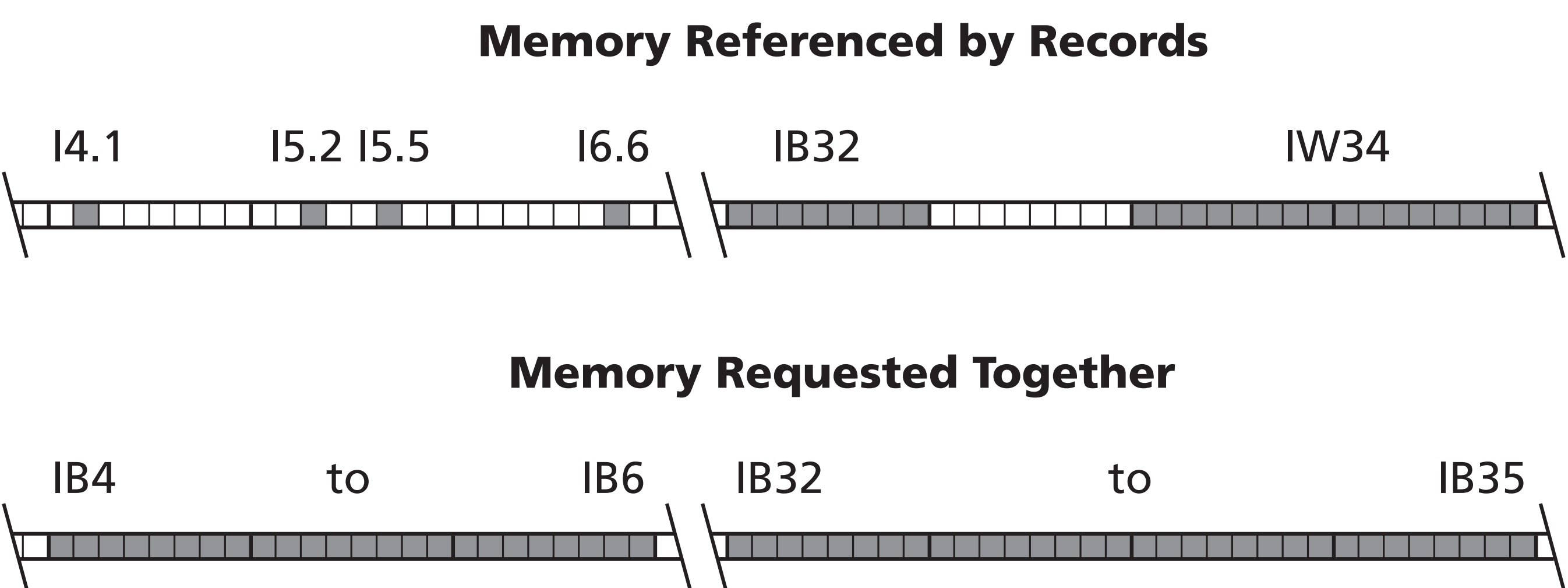


Record Addresses



Poll Groups

- Memory addresses that shall be read with the same update rate are requested together to reduce the number of requests needed, increasing the throughput.
- Memory addresses that are close to each other are joined to reduce the overhead.



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