

Network Analyser for EPICS

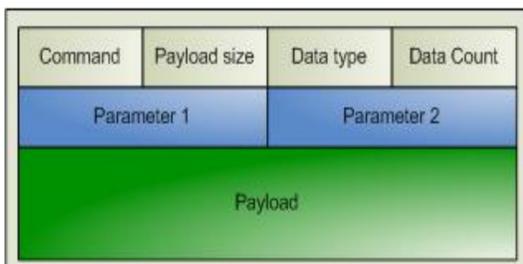
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Motivation

Facilitate troubleshooting of EPICS Channel Access issues during deployment of an EPICS system and development of EPICS applications.

EPICS Channel Access

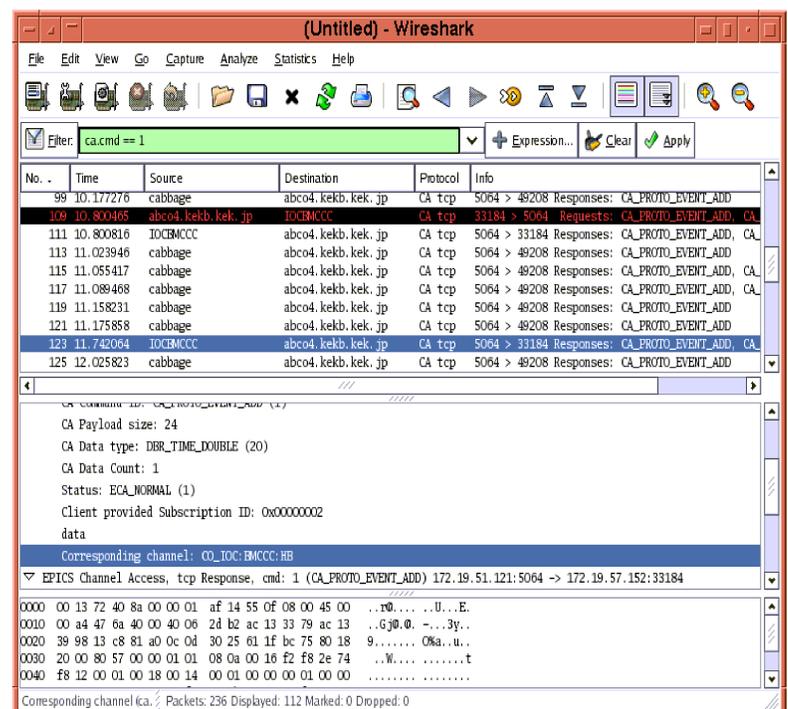
- A network protocol used by EPICS
 - Discovery of input-output controllers (IOCs) hosting EPICS records (typically via UDP/IP broadcasts)
 - Subscription requests to changes of EPICS record values (client-to-IOC)
 - Monitoring of EPICS record values (IOC-to-client)
 - Setting of values (client-to-IOC)



Header of a Channel Access message.

Wireshark (former Ethereal)

- A network analyzer
 - Cross-platform (Windows, Linux, Darwin, ...)
 - Written in C
- Supports plug-ins
 - Shared libraries (.so, .dll)
 - Introduce a dissector without re-compiling
- Can capture packets off a network interface
 - Save/load to trace files
- Support for higher-level protocol analysis
 - Awareness of TCP sessions, etc.



Conclusion

- We implemented a dissector plug-in for Wireshark
 - Non-intrusive analysis of EPICS interactions (no change to clients or IOCs required)
- Recognizes all EPICS CA messages
- Shows connection-specific channel IDs as human-readable channel names
- Plugin available for Linux, Windows and Darwin
- Binaries and source code available here

<http://www-linac.kek.jp/cont/epics/wireshark>