

Network Analyser for EPICS

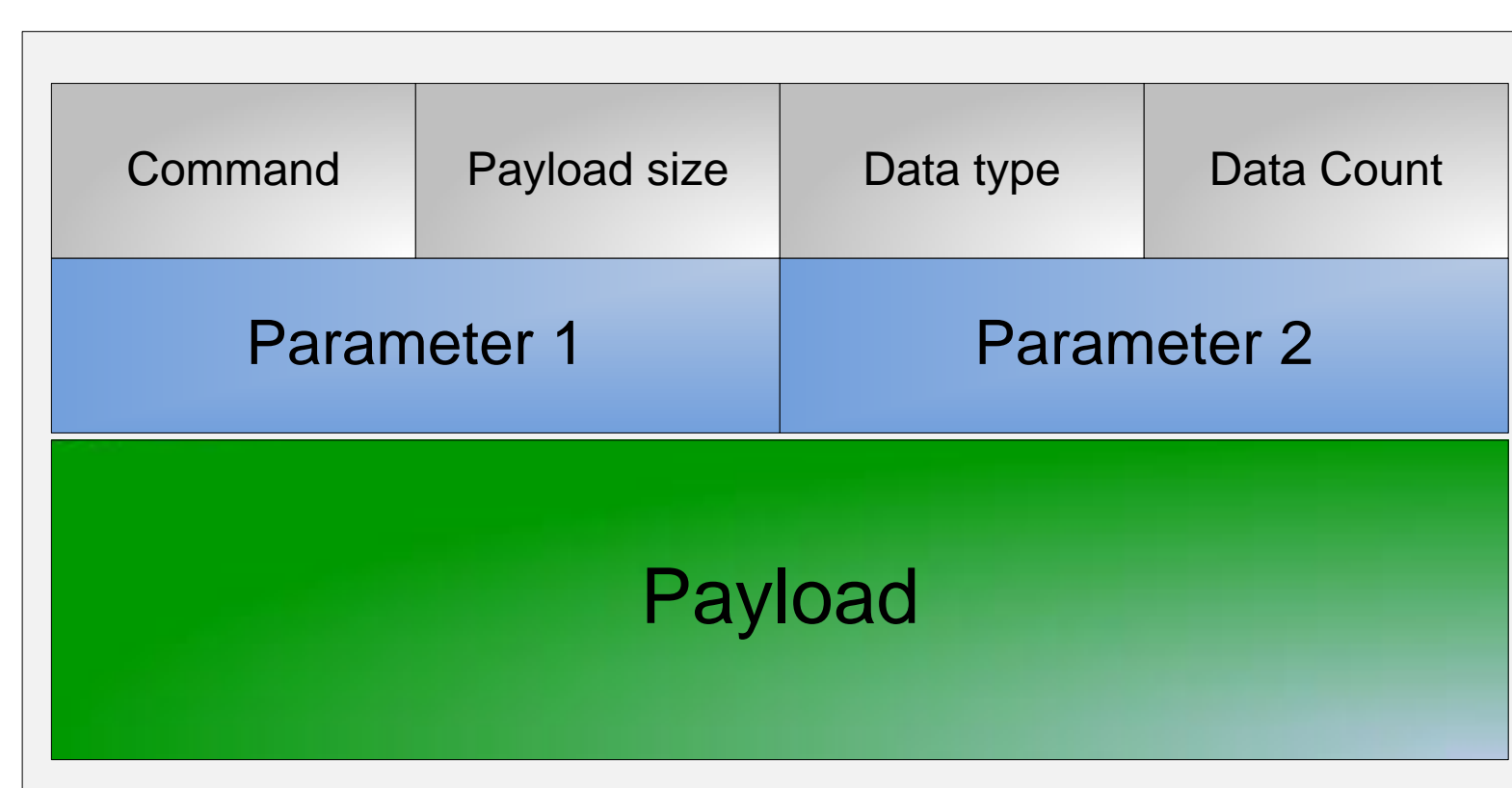
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Motivation

- ✓ 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.

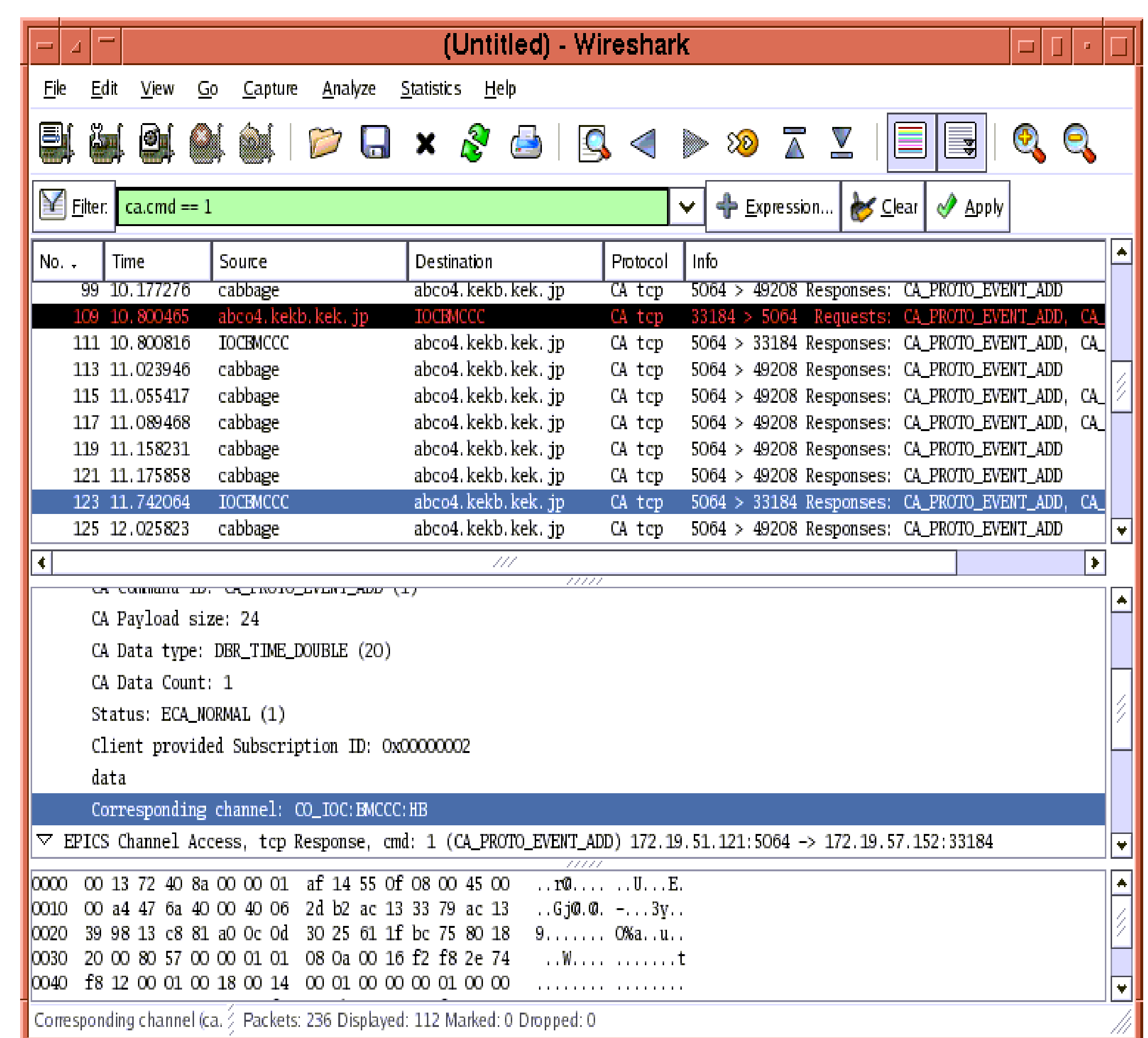
Conclusion

- ✓ We implemented a dissector plug-in for Wireshark
 - ✓ Non-intrusive analysis of EPICS interactions (no change to clients, IOCs or configuration 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>

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.



Screenshot of Wireshark dissecting a CA packet.