

Spvirit

Exploring PVAccess with Rust

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ISIS Neutron and
Muon Source



Spvirit-scry

Captures live PVAccess network traffic and decodes it in real time.

- Passive traffic monitoring
- Decodes PVAccess connection states, channels, operations and PV names
- Provides a TUI for remote shell monitoring
- InfluxDB and Loki export for production monitoring with Grafana

spvirit-scry has two parts



Terminal User Interface (--tui)

```

Data Rate      29.67 b/s      Packet Rate    0.33 pps      Events         6      Buffer         0.1% (6/5000)
Options
Options (focus)
→ [ ] Pause
[ ] Show Host
Reset Charts
Event Filters
[x] ACL_CHANGE
[x] ARRAY
[x] AUTHNZ
[x] BEACON
[x] CANCEL_REQUEST
[x] CONNECTION_VALIDATED
[x] CONNECTION_VALIDATION
[x] CREATE_CHANNEL
[x] DESTROY_CHANNEL
[x] DESTROY_REQUEST
[x] ECHO
[x] GET
[x] GET_FIELD
[x] MESSAGE
[x] MONITOR
[x] MULTIPLE_DATA
[x] ORIGIN_TAG
[x] PROCESS
[x] PUT
[x] PUT_GET
[x] RPC
[x] SEARCH
[x] SEARCH_RESPONSE

Top Sources (1)
# Source      Count
1 192.168.1.227 6

Top Destinations (2)
# Destination  Count
1 224.0.0.128  4
2 192.168.1.255 2

Top Request Types (2)
# Request      Count
1 BEACON        4
2 SEARCH        2

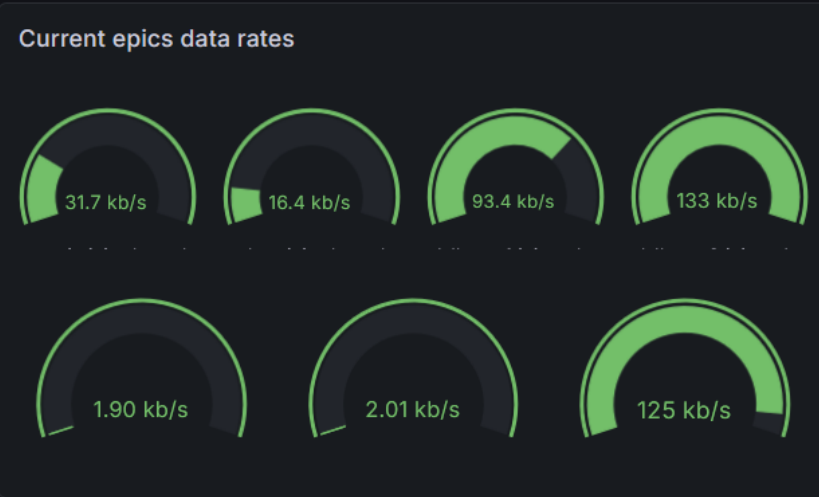
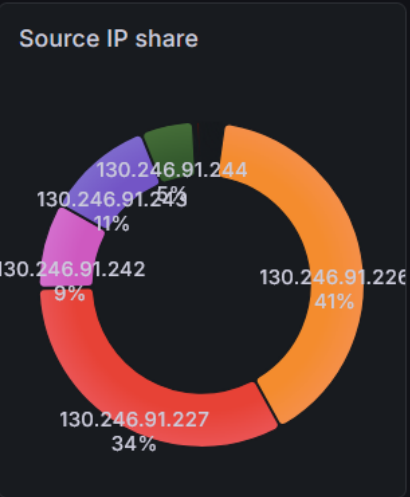
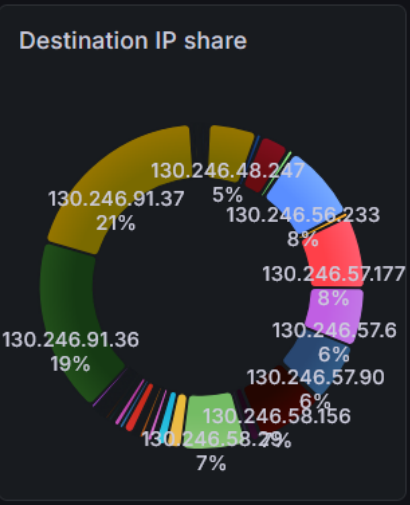
Recent Decoded Feed (6)
Time Req      Source      Destination  Context
22:50:11.432 BEACON 192.168.1.227 224.0.0.128 Beacon:GUID=[cab664cee991a71800000000],Flags=[0],SeqId=[0],..
22:50:26.425 BEACON 192.168.1.227 224.0.0.128 Beacon:GUID=[cab664cee991a71800000000],Flags=[0],SeqId=[1],..
22:50:41.425 BEACON 192.168.1.227 224.0.0.128 Beacon:GUID=[cab664cee991a71800000000],Flags=[0],SeqId=[2],..
22:50:42.890 SEARCH 192.168.1.227 192.168.1.255 Search:PVs=[DEV:DWS:03:SINE]
22:50:52.642 SEARCH 192.168.1.227 192.168.1.255 Search:PVs=[DEV:DWS:03:SINE]
22:50:56.417 BEACON 192.168.1.227 224.0.0.128 Beacon:GUID=[cab664cee991a71800000000],Flags=[0],SeqId=[3],..

Legend
1 Dashboard | 2 Connections | 3 Decoded | 4 Diagnostics | q Quit | h Help | i Next IF | I Pick IF | Left/Right Panel
Status
RUNNING | Lag 0ms | IF 2/14 eth3
  
```



Grafana Stats

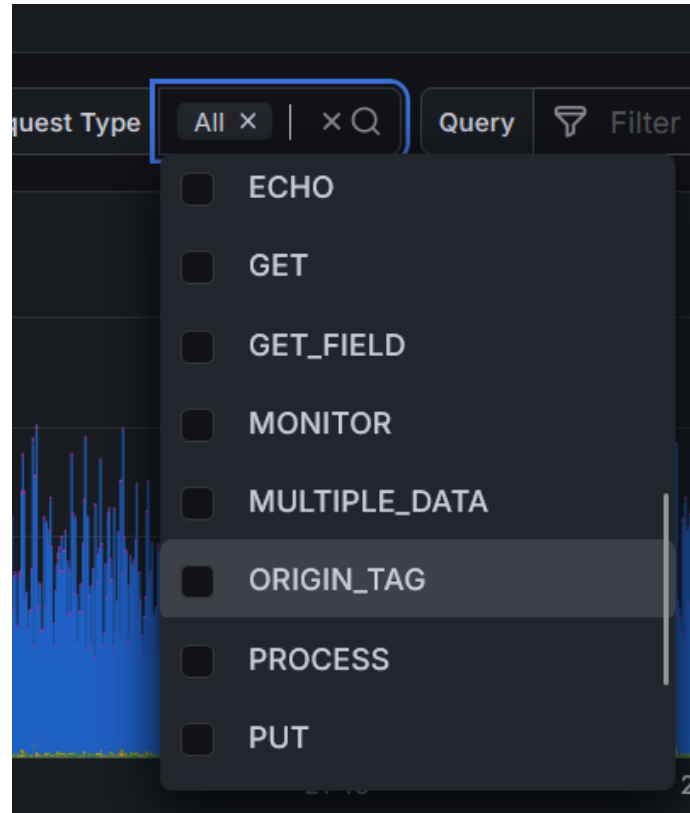
FROM	TO	Count ↓
130.246.91.243	130.246.91.255	71083
130.246.91.242	130.246.91.255	56171
130.246.91.242	130.246.91.243	47908
130.246.91.244	130.246.91.243	39930
130.246.91.243	130.246.91.242	31868
130.246.91.243	130.246.91.244	29372
130.246.91.243	130.246.91.36	28963
130.246.91.243	130.246.91.37	28839
130.246.91.242	130.246.91.36	27226
130.246.91.244	130.246.91.36	27082
130.246.91.242	130.246.91.37	26859
130.246.91.244	130.246.91.37	26304
130.246.91.37	130.246.91.255	26154
130.246.91.226	130.246.58.171	21579



Grafana Events



Grafana Filters



Spvirit

Rust library for working with EPICS PVAccess protocol

- Encoding/Decoding and connection state tracking
- Tools for monitoring and testing PVAccess connections

Note, This is not production ready, All tools presented are open source, please feel free to contribute

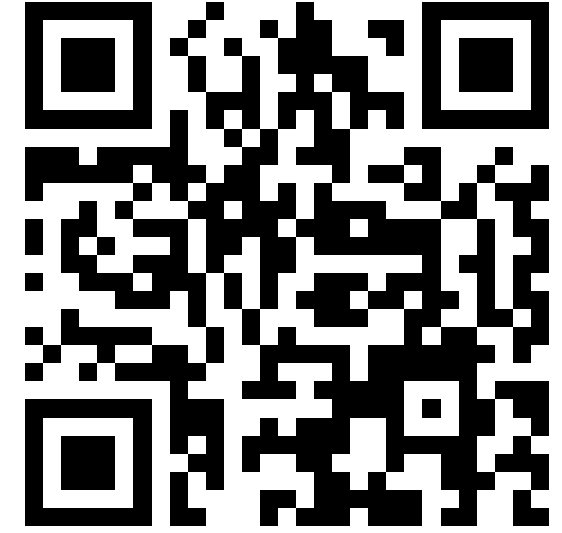


Contribute



Spvirit

github.com/ISISNeutronMuon/spvirit



Spvirit-scry

github.com/ISISNeutronMuon/spvirit-scry



ISIS Neutron and
Muon Source

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