

The background is a dark purple gradient. On the left, there are two vertical neon lines, one blue and one magenta, with a horizontal magenta line intersecting the blue one. On the right, a large, glowing magenta arc curves from the top towards the bottom. The text 'AVEVA WORLD' is centered in a white, bold, sans-serif font.

AVEVA WORLD

# Streamlining AVEVA PI System O&M by Centralizing PI Message Logs

Presented by Shawn McNabb  
Wednesday April 9, 2025

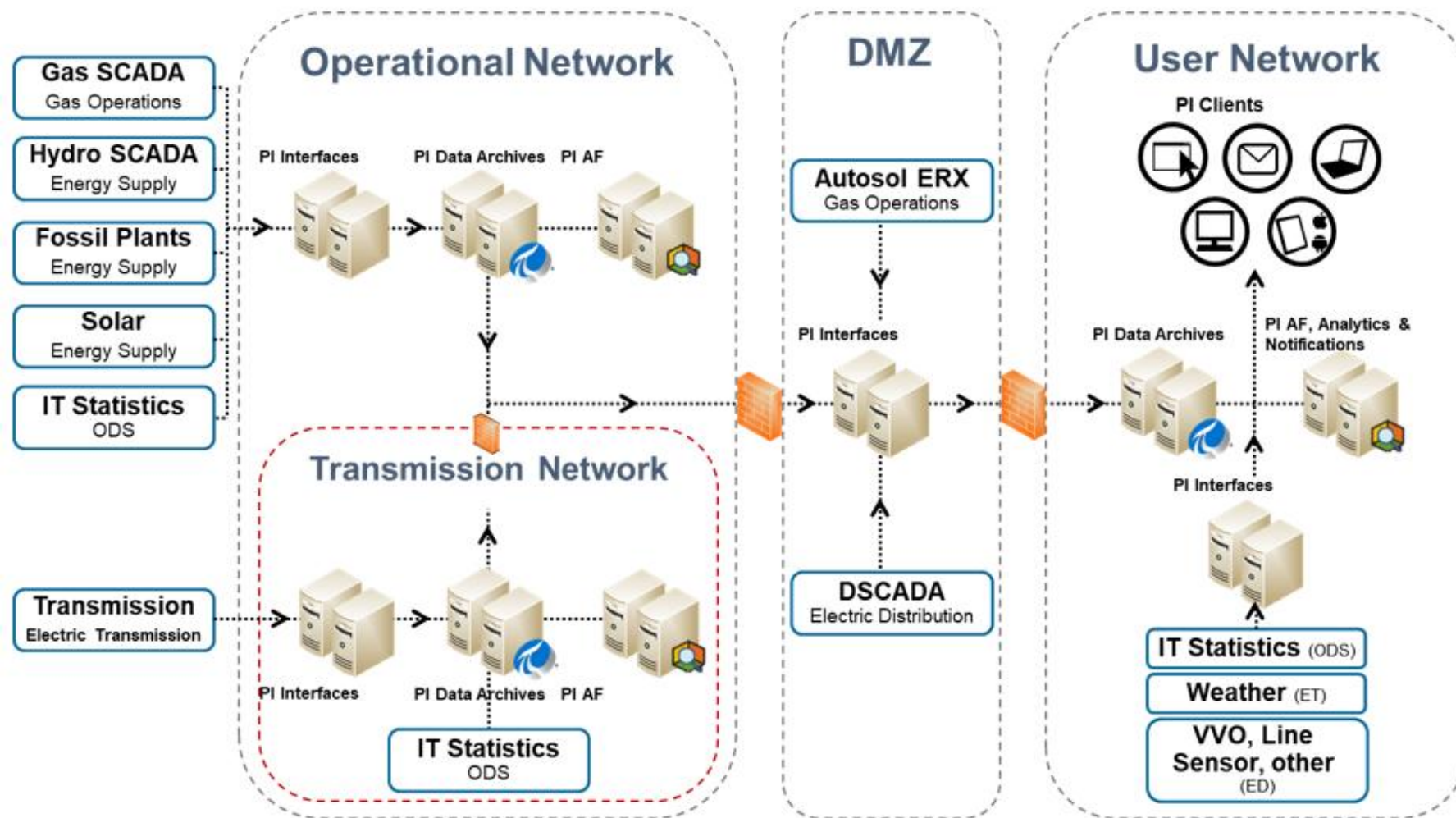




# About Pacific Gas and Electric Company

- Incorporated in California in 1905
- Headquarters in Oakland, California
- Approximately 28,000 employees
- 106,681 Circuit miles of Electric Distribution
- 18,466 Circuit miles of interconnected transmission lines
- 42,141 miles of natural gas distribution pipelines
- 6,438 miles of natural gas transmission pipelines
- 5.5 million electric customer accounts
- 4.5 million natural gas customer accounts

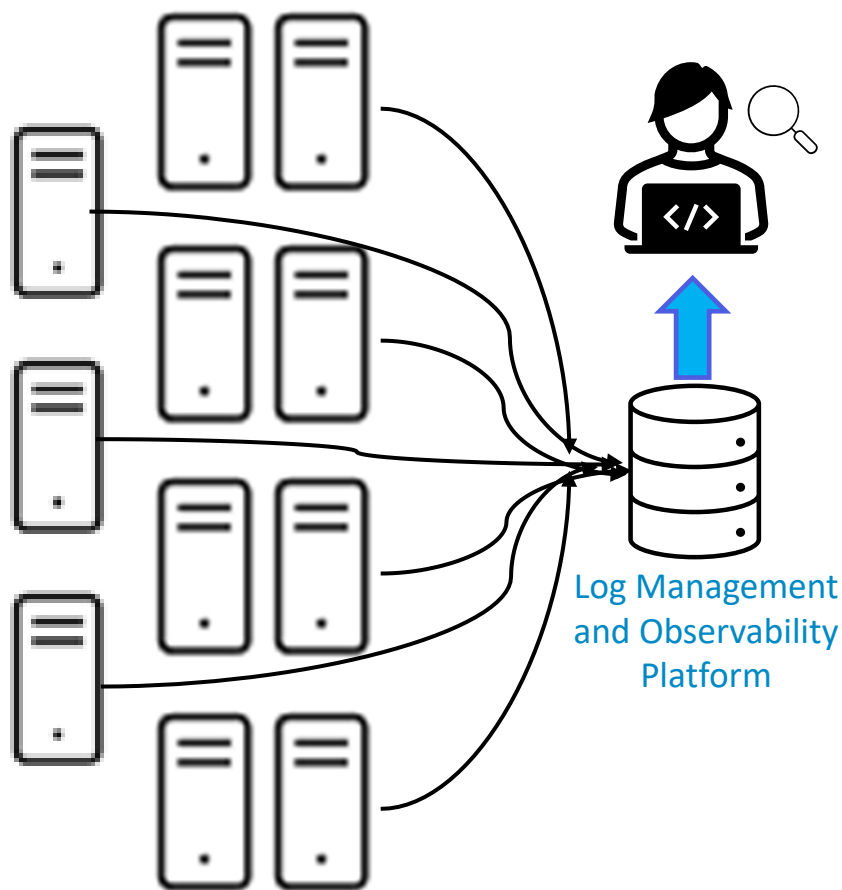
# The PI System at PG&E



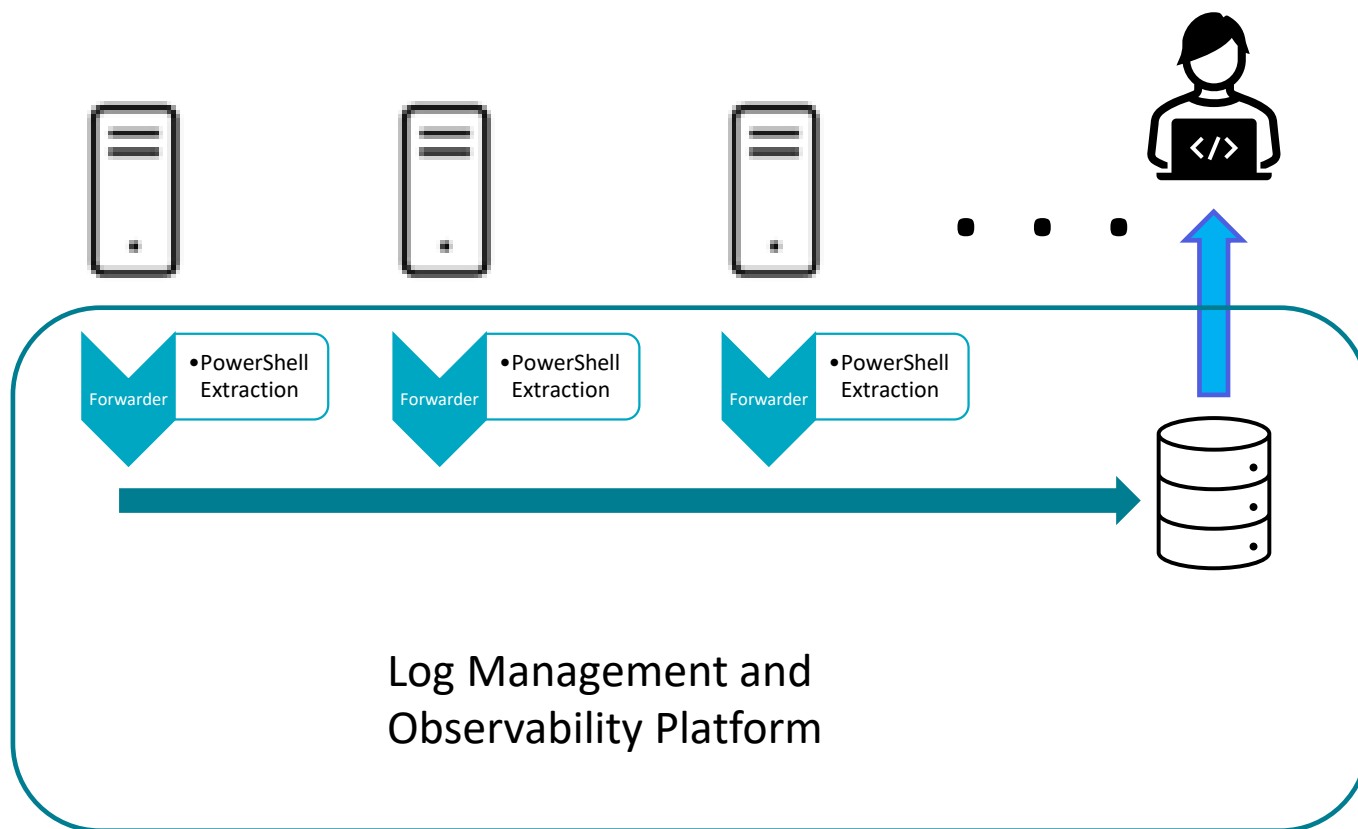
- Started with 2 collectives for all businesses.
- Split into 7 collectives each with their own set of PI servers.
- Largest system now at 10+ million tags hosted on 4 Data Archive Servers.
- Currently consolidating logs from 34 PI Servers
- Overall footprint spans over 150 PI Servers
- Management and access to logs across multiple networks became overly time consuming

# PI Message Log Consolidation Benefits

## Benefits



- Enhanced monitoring capabilities
- Streamlined access to the PI Message Logs
- Pattern recognition, statistics, prediction
- Automated alerts and notifications
- Simplify log collection and sharing
- Extensive filtering and tracing capabilities
- Credential tracking across PI System infrastructure
- Observe issues starting to build and be proactive rather than reactive.
- Facilitates compliance and security efforts
- Logs can be kept longer and can be reviewed even if the source server is unresponsive



## KEY DESIGN FEATURES

- Platform managed forwarder installed on each server
- Custom PowerShell script was created to extract the messages and format them for shipping.
- Checkpoint file is used to allow restarts.
- Prefilters can be used at the source for low bandwidth connections or less critical servers.





# Daily Operations & Monitoring

## Monitoring Overview Screen

AVEVA™ PI Vision™

Monitoring Overview

UDN

EO Overview Gas Overview PG Overview ODS Overview Synchrophasor

ODN

ODN Overview

PCA

PCA Overview

PI to PI

PIOPRPP2RC01 Gas

PIOPRPP2FF01 Gas

PIOPRPP3RC01 EO

PIOPRPP3FF01 PG

UDN Perfmom

PIUPRIF4FF01

PIUPRIF4

PIPerfmon 0

PIPerfmon 1

PIPerfmon 2

PIPerfmon 3

PIPerfmon 4

PIPerfmon 5

ODN Perfmom

PIOPRPP2FF01

PIOPRPP2

PIOPRPP3FF01

PIOPRPP3

PIPerfmon 1

PIPerfmon 1

PIPerfmon 2

PIPerfmon 2

Other Stuff

TCP Response

TCR

Direct Link (VIP)

RCIOC VIP

FXIOC

Application Health

WebAPI

WebAPI

WebAPI

WebAPI

EDPi Site

PIVision

PIVision

PIVision

PIVision

OASyS

ADMS DMD

On Call Tasks

Splunk

Wiki

DynaTrace

Elastic QA

Perfmom Leak

SQL

## Filtered and Centralized Error Log

0 - 24H PI System Error Report (Filtered)

Does not contain Tag errors 2014 and 2134

Last 28 hours

80 events (2/26/25 6:11:41:000 AM to 2/27/25 10:11:41:000 AM)

80 results 100 per page

| S # | Year # | Date #       | Time #          | host # | ID #  | Source1 #      | Source2 #           | Message #   |
|-----|--------|--------------|-----------------|--------|-------|----------------|---------------------|---|
| E   | 2025   | Thu, Feb. 27 | 06:05:02.836 AM | P      | 31027 | PI TCPResponse | TCPRSP_003   31   0 | pt ( ) select() timed out after 5000 milliseconds |
| E   | 2025   | Thu, Feb. 27 | 06:04:32.828 AM | P      | 31027 | PI TCPResponse | TCPRSP_003   31   0 | pt ( ) select() timed out after 5000 milliseconds |
| E   | 2025   | Thu, Feb. 27 | 06:00:02.817 AM | P      | 31027 | PI TCPResponse | TCPRSP_003   31   0 | pt ( ) select() timed out after 5000 milliseconds |
| E   | 2025   | Thu, Feb. 27 | 05:59:32.817 AM | P      | 31027 | PI TCPResponse | TCPRSP_003   31   0 | pt ( ) select() timed out after 5000 milliseconds |
| E   | 2025   | Thu, Feb. 27 | 05:49:02.826 AM | P      | 31027 | PI TCPResponse | TCPRSP_003   31   0 | pt ( ) select() timed out after 5000 milliseconds |
| E   | 2025   | Wed, Feb. 26 | 03:19:32.812 PM | P      | 31027 | PI TCPResponse | TCPRSP_003   31   0 | pt ( ) select() timed out after 5000 milliseconds |
| E   | 2025   | Wed, Feb. 26 | 02:45:35.618 PM | P      | 31027 | PI TCPResponse | TCPRSP_003   31   0 | pt ( ) select() timed out after 5000 milliseconds |
| E   | 2025   | Wed, Feb. 26 | 02:41:54.232 PM | P      | 31027 | PI TCPResponse | TCPRSP_003   31   0 | pt ( ) select() timed out after 5000 milliseconds |
| E   | 2025   | Wed, Feb. 26 | 02:41:32.822 PM | P      | 31027 | PI TCPResponse | TCPRSP_003   31   0 | pt ( ) select() timed out after 5000 milliseconds |
| E   | 2025   | Wed, Feb. 26 | 02:41:08.234 PM | P      | 31027 | PI TCPResponse | TCPRSP_003   31   0 | pt ( ) select() timed out after 5000 milliseconds |
| E   | 2025   | Wed, Feb. 26 | 02:41:08.066 PM | P      | 31027 | PI TCPResponse | TCPRSP_003   31   0 | pt ( ) select() timed out after 5000 milliseconds |
| E   | 2025   | Wed, Feb. 26 | 02:41:06.832 PM | P      | 31027 | PI TCPResponse | TCPRSP_003   31   0 | pt ( ) select() timed out after 5000 milliseconds |
| E   | 2025   | Wed, Feb. 26 | 02:41:07.854 PM | P      | 31027 | PI TCPResponse | TCPRSP_003   31   0 | pt ( ) select() timed out after 5000 milliseconds |
| E   | 2025   | Wed, Feb. 26 | 02:41:06.879 PM | P      | 31027 | PI TCPResponse | TCPRSP_003   31   0 | pt ( ) select() timed out after 5000 milliseconds |
| E   | 2025   | Wed, Feb. 26 | 02:41:06.681 PM | P      | 31027 | PI TCPResponse | TCPRSP_003   31   0 | pt ( ) select() timed out after 5000 milliseconds |
| E   | 2025   | Wed, Feb. 26 | 02:41:06.525 PM | P      | 31027 | PI TCPResponse | TCPRSP_003   31   0 | pt ( ) select() timed out after 5000 milliseconds |
| E   | 2025   | Wed, Feb. 26 | 02:41:06.508 PM | P      | 31027 | PI TCPResponse | TCPRSP_003   31   0 | pt ( ) select() timed out after 5000 milliseconds |
| E   | 2025   | Wed, Feb. 26 | 02:41:06.283 PM | P      | 31027 | PI TCPResponse | TCPRSP_003   31   0 | pt ( ) select() timed out after 5000 milliseconds |
| E   | 2025   | Wed, Feb. 26 | 02:41:06.232 PM | P      | 31027 | PI TCPResponse | TCPRSP_003   31   0 | pt ( ) select() timed out after 5000 milliseconds |
| E   | 2025   | Wed, Feb. 26 | 02:41:04.730 PM | P      | 31027 | PI TCPResponse | TCPRSP_003   31   0 | pt ( ) select() timed out after 5000 milliseconds |
| E   | 2025   | Wed, Feb. 26 | 02:41:04.588 PM | P      | 31027 | PI TCPResponse | TCPRSP_003   31   0 | pt ( ) select() timed out after 5000 milliseconds |
| E   | 2025   | Wed, Feb. 26 | 02:41:02.828 PM | P      | 31027 | PI TCPResponse | TCPRSP_003   31   0 | pt ( ) select() timed out after 5000 milliseconds |
| E   | 2025   | Wed, Feb. 26 | 02:40:57.144 PM | P      | 31027 | PI TCPResponse | TCPRSP_003   31   0 | pt ( ) select() timed out after 5000 milliseconds |
| E   | 2025   | Wed, Feb. 26 | 02:40:56.948 PM | P      | 31027 | PI TCPResponse | TCPRSP_003   31   0 | pt ( ) select() timed out after 5000 milliseconds |
| E   | 2025   | Wed, Feb. 26 | 02:40:56.888 PM | P      | 31027 | PI TCPResponse | TCPRSP_003   31   0 | pt ( ) select() timed out after 5000 milliseconds |
| E   | 2025   | Wed, Feb. 26 | 02:40:56.682 PM | P      | 31027 | PI TCPResponse | TCPRSP_003   31   0 | pt ( ) select() timed out after 5000 milliseconds |
| E   | 2025   | Wed, Feb. 26 | 02:40:56.256 PM | P      | 31027 | PI TCPResponse | TCPRSP_003   31   0 | pt ( ) select() timed out after 5000 milliseconds |



# Streamline Error Discovery

- In one 28 hour period over 71,000 log messages were collected from 34 hosts.
- After filtering, we needed to only review 13 events from 4 hosts.

0 - 24H PI System Error Report (Filtered)

index="pilog" (Severity IN (Error, Critical) OR ID IN(9023,2411)) AND NOT ID IN(1025, 2014, 2111, 2134, 2371, 3023, 5055, 8008, 17028, 31013, 31022, 31024, 31026, 31089)) AND NOT (Source2="PERFMON4\_ODS\*" AND Message="\*Add tag failed\*") AND NOT (Source2="OPC-VISUALTD\_PROD\*" AND ID=2) AND Message!="\*Illegal scan class for tag\*" AND Message!="Could not open registry key\*" AND NOT Source1 IN ("RmpSk", "Pipeschd", "Random")

✓ 13 events (3/6/25 10:06:28.000 AM to 3/7/25 2:06:28.000 PM) No Event Sampling ▾

Events (13) Patterns Statistics (13) Visualization

100 Per Page ▾

Format

Preview ▾

| S | Year | Date       | Time            | host | ID    | Source1   | Source2          | Message  |
|---|------|------------|-----------------|------|-------|-----------|------------------|--|
| E | 2025 | Fri.Mar.07 | 08:33:17.522.AM |      | 7018  |           |                  | Error merging Pircservertablelist from piarchss(16460  |
| E | 2025 | Thu.Mar.06 | 09:42:56.017.PM |      | 2049  | piarcset  | Historical       | Failed to load archive file osigasprd-fs               |
| E | 2025 | Thu.Mar.06 | 09:36:20.100.PM |      | 7300  |           |                  | Network History User Accessor could not be instantiate |
| E | 2025 | Thu.Mar.06 | 04:29:45.604.PM |      | 2106  | pibufmgr< |                  | Snapshot registration failed. [-10733] PINET: RPC Reso |
| E | 2025 | Thu.Mar.06 | 04:26:29.382.PM |      | 31027 | PIToPI-   | CRESTA   342   2 | UniInt failover: Interface in the "Primary" state. Com |
| E | 2025 | Thu.Mar.06 | 04:26:23.195.PM |      | 31027 | PIToPI-   | 0   334   2      | UniInt failover: Interface in the "Primary" state. Com |
| E | 2025 | Thu.Mar.06 | 04:26:00.500.PM |      | 2106  | pibufmgr< |                  | Snapshot registration failed. [-10733] PINET: RPC Reso |
| E | 2025 | Thu.Mar.06 | 04:25:38.163.PM |      | 31027 | PIToPI-   | HYFRES   330   2 | UniInt failover: Interface in the "Primary" state. Com |
| E | 2025 | Thu.Mar.06 | 04:25:06.538.PM |      | 31027 | PIToPI-   | HYCARB   332   2 | UniInt failover: Interface in the "Primary" state. Com |
| E | 2025 | Thu.Mar.06 | 04:24:59.460.PM |      | 31027 | PIToPI-   | CRESTA   342   2 | UniInt failover: Interface in the "Primary" state. Com |
| E | 2025 | Thu.Mar.06 | 02:26:46.127.PM |      | 9042  |           |                  | Security failure encountered during Remove Consumer fo |
| E | 2025 | Thu.Mar.06 | 02:26:46.089.PM |      | 9042  |           |                  | Security failure encountered during Remove Consumer fo |
| E | 2025 | Thu.Mar.06 | 02:26:45.947.PM |      | 9042  |           |                  | Security failure encountered during Remove Consumer fo |

21 | 0





# Example Use Case

## Snapshot Delete Events can cause a system to become unresponsive.

### 11 - Snapshot Delete Event Report

Lists snapshot delete events and sorts by unique pointID and error code. This will allow exporting a CSV file that can be used with PointBuilder to get the list of tags which cause the listed error code.

Edit ▾ More Info ▾ Add to Dashboard ▾

Last 12 months ▾

✓ 71 events (3/14/24 1:45:49.000 PM to 3/14/25 1:45:49.000 PM)

Job ▾ || ■ ↺ ↻ 🖨️ ⬇️

71 results 100 per page ▾

| Host ▾ | Date ▾    | Time ▾   | EventDate ▾        | Error ▾  | Message ▾  | Selected(x) ▾ | ObjectType ▾ | pointid ▾ | Name ▾ | creator ▾ | creationdate ▾ | changer ▾ | changedate ▾ |
|--------|-----------|----------|--------------------|----------|--|---------------|--------------|-----------|--------|-----------|----------------|-----------|--------------|
|        | 30-Oct-24 | 15:58:06 | 7-Sep-24 17:34:21. | [-11133] | New snapshot event received while pending delete | x             | PIPoint      | 8918183   |        |           |                |           |              |
|        | 17-Dec-24 | 11:39:41 | 17-Dec-24 11:00:0  | [-11133] | New snapshot event received while pending delete | x             | PIPoint      | 17946612  |        |           |                |           |              |
|        | 17-Dec-24 | 11:39:57 | 15-Dec-24 03:30:0  | [-11133] | New snapshot event received while pending delete | x             | PIPoint      | 17946663  |        |           |                |           |              |
|        | 17-Dec-24 | 11:39:24 | 14-Dec-24 05:00:0  | [-11133] | New snapshot event received while pending delete | x             | PIPoint      | 17946802  |        |           |                |           |              |
|        | 30-Oct-24 | 16:04:00 | 10-Oct-24 11:48:12 | [-11133] | New snapshot event received while pending delete | x             | PIPoint      | 8918153   |        |           |                |           |              |
|        | 30-Oct-24 | 16:35:27 | 12-Sep-24 07:37:47 | [-11133] | New snapshot event received while pending delete | x             | PIPoint      | 8920538   |        |           |                |           |              |
|        | 30-Oct-24 | 16:47:08 | 5-Sep-24 07:13:03. | [-11133] | New snapshot event received while pending delete | x             | PIPoint      | 8920576   |        |           |                |           |              |
|        | 30-Oct-24 | 16:02:07 | 10-Oct-24 13:06:45 | [-11133] | New snapshot event received while pending delete | x             | PIPoint      | 8935268   |        |           |                |           |              |
|        | 30-Oct-24 | 16:00:21 | 10-Oct-24 13:06:45 | [-11133] | New snapshot event received while pending delete | x             | PIPoint      | 8935452   |        |           |                |           |              |
|        | 30-Oct-24 | 16:02:24 | 10-Oct-24 13:06:45 | [-11133] | New snapshot event received while pending delete | x             | PIPoint      | 8935500   |        |           |                |           |              |
|        | 30-Oct-24 | 16:57:55 | 7-Oct-24 16:21:09. | [-11133] | New snapshot event received while pending delete | x             | PIPoint      | 8938528   |        |           |                |           |              |
|        | 30-Oct-24 | 16:06:31 | 8-Oct-24 13:00:02. | [-11133] | New snapshot event received while pending delete | x             | PIPoint      | 8943241   |        |           |                |           |              |
|        | 30-Oct-24 | 16:06:52 | 14-Oct-24 07:04:47 | [-11133] | New snapshot event received while pending delete | x             | PIPoint      | 9029953   |        |           |                |           |              |
|        | 30-Oct-24 | 16:46:27 | 3-Oct-24 18:42:33  | [-11133] | New snapshot event received while pending delete | x             | PIPoint      | 17190068  |        |           |                |           |              |



# Problem Resolution

2. Using source and timestamp from error report, review the individual log for the interface.

**PtoPI Interface Log Report**

```
index="piolog" host="pioprpp3*" AND Source2="*117*"
| eval Severity=substr(Severity,1,1)
| eval MsgDate=strftime(SplunkTime,"%d-%b-%y")
| eval MsgTime=strftime(SplunkTime,"%H:%M:%S")
| strcat ":" Source1 S1
| eval Source1=if((Source1="null"), "", S1)
| eval Source2=if((Source2="null"), "", Source2)
| eval Source3=if((Source3="null"), "", Source3)
| strcat "(" ID ")" ID
| strcat ">> " Message Message
| rename MsgDate as Date MsgTime as Time as Host
| sort Time asc
| table Host,Severity,Date,Time,Source1,Source2,ID,Message
```

✓ 31 events (2/26/25 2:41:08.234 PM to 2/26/25 2:56:52.775 PM) No Event Sampling

Events (31) Patterns Statistics (31) Visualization

100 Per Page ✓ Format Preview

| Host         | Severity | Date      | Time     | Source1  | Source2          | ID      |
|--------------|----------|-----------|----------|----------|------------------|---------|
| PIOPRPP3RC01 | I        | 26-Feb-25 | 14:40:58 | :PIToPI- | HAB-LD   117   1 | (4)     |
| PIOPRPP3FF01 | I        | 26-Feb-25 | 14:41:08 | :PIToPI- | HAB-LD   117   2 | (4)     |
| PIOPRPP3FF01 | E        | 26-Feb-25 | 14:41:08 | :PIToPI- | HAB-LD   117   2 | (31082) |
| PIOPRPP3FF01 | I        | 26-Feb-25 | 14:41:08 | :PIToPI- | HAB-LD   117   2 | (4)     |
| PIOPRPP3FF01 | I        | 26-Feb-25 | 14:41:08 | :PIToPI- | HAB-LD   117   2 | (4)     |
| PIOPRPP3FF01 | I        | 26-Feb-25 | 14:41:08 | :PIToPI- | HAB-LD   117   2 | (4)     |
| PIOPRPP3FF01 | E        | 26-Feb-25 | 14:41:08 | :PIToPI- | HAB-LD   117   2 | (31024) |
| PIOPRPP3FF01 | E        | 26-Feb-25 | 14:41:08 | :PIToPI- | HAB-LD   117   2 | (31080) |
| PIOPRPP3FF01 | I        | 26-Feb-25 | 14:41:08 | :PIToPI- | HAB-LD   117   2 | (4)     |
| PIOPRPP3RC01 | I        | 26-Feb-25 | 14:41:08 | :PIToPI- | HAB-LD   117   1 | (31025) |
| PIOPRPP3RC01 | I        | 26-Feb-25 | 14:41:08 | :PIToPI- | HAB-LD   117   1 | (4)     |
| PIOPRPP3FF01 | E        | 26-Feb-25 | 14:41:16 | :PIToPI- | HAB-LD   117   2 | (31013) |
| PIOPRPP3FF01 | I        | 26-Feb-25 | 14:41:16 | :PIToPI- | HAB-LD   117   2 | (4)     |
| PIOPRPP3RC01 | I        | 26-Feb-25 | 14:41:19 | :PIToPI- | HAB-LD   117   1 | (4)     |
| PIOPRPP3RC01 | I        | 26-Feb-25 | 14:41:19 | :PIToPI- | HAB-LD   117   1 | (4)     |
| PIOPRPP3RC01 | I        | 26-Feb-25 | 14:41:19 | :PIToPI- | HAB-LD   117   1 | (4)     |
| PIOPRPP3RC01 | I        | 26-Feb-25 | 14:41:28 | :PIToPI- | HAB-LD   117   1 | (31047) |

Informational messages reveal the cause

1. Review Error Report

**0 - 24H PI System Error Report (Filtered)**

Does not contain Tag errors 2014 and 2134

Last 28 hours

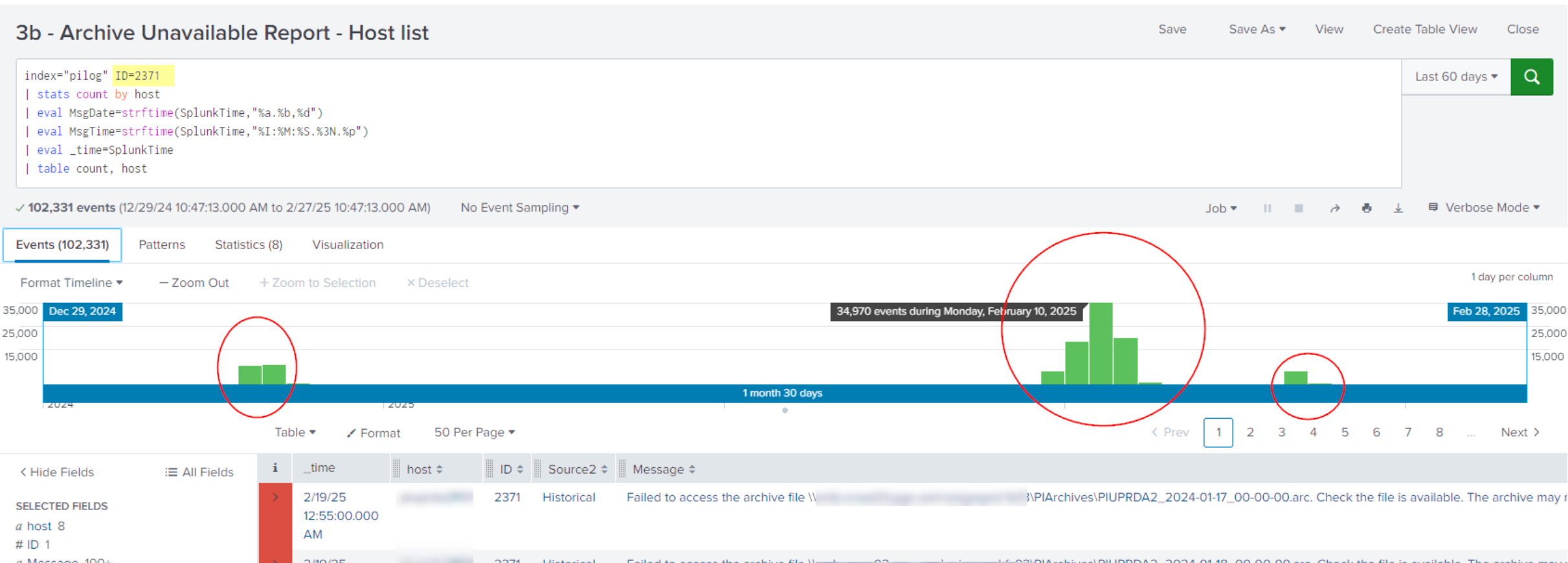
✓ 80 events (2/26/25 6:11:41.000 AM to 2/27/25 10:11:41.000 AM)

| Date/Time                         | ID           | Source         | Message   |
|-----------------------------------|--------------|----------------|---|
| 2025 Thu. Feb. 27 06:04:32.020 AM | PIOPRPP3RC01 | PI TCPResponse | TCPRESP_CON3   31   0 pt (TCPRESP.PIOPRPP3RC01->PIUPRDA1FF01_PI) select() timed out after 5000 milliseconds |
| 2025 Thu. Feb. 27 06:00:02.017 AM | PIOPRPP3RC01 | PI TCPResponse | TCPRESP_CON3   31   0 pt (TCPRESP.PIOPRPP3RC01->PIUPRDA1RC02_PI) select() timed out after 5000 milliseconds |
| 2025 Thu. Feb. 27 05:59:32.017 AM | PIOPRPP3RC01 | PI TCPResponse | TCPRESP_CON3   31   0 pt (TCPRESP.PIOPRPP3RC01->PIUPRDA1RC02_PI) select() timed out after 5000 milliseconds |
| 2025 Thu. Feb. 27 05:40:02.026 AM | PIOPRPP3RC01 | PI TCPResponse | TCPRESP_CON3   31   0 pt (TCPRESP.PIOPRPP3RC01->PIUPRDA1FF02_PI) select() timed out after 5000 milliseconds |
| 2025 Wed. Feb. 26 03:10:32.012 PM | PIOPRPP3RC01 | PI TCPResponse | TCPRESP_CON3   31   0 pt (TCPRESP.PIOPRPP3RC01->PIUPRDA1RC01_PI) select() timed out after 5000 milliseconds |
| 2025 Wed. Feb. 26 02:45:35.610 PM | PIOPRPP3RC01 | PIToPI-        | HAB-QC   502   1 UnInt failover: Interface in the "Primary" state. Communication with PI is in error.       |
| 2025 Wed. Feb. 26 02:41:54.232 PM | PIOPRPP3FF01 | PIToPI-        | HAB-QV   516   2 UnInt failover: Interface in the "Primary" state. Communication with PI is in error.       |
| 2025 Wed. Feb. 26 02:41:32.022 PM | PIOPRPP3RC01 | PI TCPResponse | TCPRESP_CON3   31   0 pt (TCPRESP.PIOPRPP3RC01->PIUPRDA1FF01_PI) select() timed out after 5000 milliseconds |
| 2025 Wed. Feb. 26 02:41:08.234 PM | PIOPRPP3FF01 | PIToPI-        | HAB-LD   117   2 Error [2] handling point updates. Updating points failed to complete                       |
| 2025 Wed. Feb. 26 02:41:08.066 PM | PIOPRPP3FF01 | PIToPI-        | HAB-QU   515   2 Error [2] handling point updates. Updating points failed to complete                       |
| 2025 Wed. Feb. 26 02:41:08.032 PM | PIOPRPP3FF01 | PIToPI-        | HAB-LD   117   2 Error [2] handling point updates. pipt_pointsourcelong failed                              |
| 2025 Wed. Feb. 26 02:41:07.854 PM | PIOPRPP3FF01 | PIToPI-        | HAB-QU   515   2 Error [2] handling point updates. pipt_pointsourcelong failed                              |
| 2025 Wed. Feb. 26 02:41:06.879 PM | PIOPRPP3FF01 | PIToPI-        | HAB-QD   503   2 Error [2] handling point updates. Updating points failed to complete                       |
| 2025 Wed. Feb. 26 02:41:06.681 PM | PIOPRPP3FF01 | PIToPI-        | HAB-QU   503   2 Error [2] handling point updates. pipt_pointsourcelong failed                              |
| 2025 Wed. Feb. 26 02:41:06.525 PM | PIOPRPP3FF01 | PIToPI-        | HAB-H   106   2 Error [2] handling point updates. Updating points failed to complete                        |
| 2025 Wed. Feb. 26 02:41:06.508 PM | PIOPRPP3FF01 | PIToPI-        | HAB-QB   501   2 Error [2] handling point updates. Updating points failed to complete                       |
| 2025 Wed. Feb. 26 02:41:06.283 PM | PIOPRPP3FF01 | PIToPI-        | HAB-H   106   2 Error [2] handling point updates. pipt_pointsourcelong failed                               |
| 2025 Wed. Feb. 26 02:41:06.212 PM | PIOPRPP3FF01 | PIToPI-        | HAB-QB   501   2 Error [2] handling point updates. pipt_pointsourcelong failed                              |
| 2025 Wed. Feb. 26 02:41:04.730 PM | PIOPRPP3FF01 | PIToPI-        | HAB-U   115   2 Error [2] handling point updates. Updating points failed to complete                        |
| 2025 Wed. Feb. 26 02:41:04.508 PM | PIOPRPP3FF01 | PIToPI-        | HAB-U   115   2 Error [2] handling point updates. pipt_pointsourcelong failed                               |
| 2025 Wed. Feb. 26 02:41:02.020 PM | PIOPRPP3RC01 | PI TCPResponse | TCPRESP_CON3   31   0 pt (TCPRESP.PIOPRPP3RC01->PIUPRDA1FF01_PI) select() timed out after 5000 milliseconds |
| 2025 Wed. Feb. 26 02:40:57.144 PM | PIOPRPP3FF01 | PIToPI-        | HAB-QC   502   2 Error [2] handling point updates. Updating points failed to complete                       |
| 2025 Wed. Feb. 26 02:40:56.946 PM | PIOPRPP3FF01 | PIToPI-        | HAB-QC   502   2 Error [2] handling point updates. pipt_pointsourcelong failed                              |
| 2025 Wed. Feb. 26 02:40:56.888 PM | PIOPRPP3FF01 | PIToPI-        | HAB-P   112   2 Error [2] handling point updates. Updating points failed to complete                        |



# Archive Unavailable Report

Quickly visualize to narrow down frequency and timeframe of file access issues



## System generates custom email notifications when conditions are met

- Push model of error alert.
- Customizable email templates

Retention Policy: PGE - 30 Days Delete (DeletedItems) (30 days) Expires: 3/1/2028

This message was sent with High importance.  
If there are problems with how this message is displayed, click here to view it in a web browser.

Archive\_Unavailable-2025-03-02.csv 341 KB

Instructions on resetting archives can be found here:  
<https://wiki.../pages/viewpage.action?pageId=149849765&src=contextnavpagetreemode>

Trigger Time: 02:01:34 -0800 on March 02, 2025.

[View results in Splunk](#)

| MsgDate    | MsgTime         | host | ID   | Message  |
|------------|-----------------|------|------|--|
| Sun.Mar,02 | 01:54:46.002 AM |      | 2371 | Failed to access the archive file [redacted]_2024-02-20_00-00-00.arc. Check the file is available. The archive may need to be unregistered and re-registered. [59] An unexpected network error occurred. |
| Sun.Mar,02 | 01:54:46.002 AM |      | 2371 | Failed to access the archive file [redacted]_2024-02-21_00-00-00.arc. Check the file is available. The archive may need to be unregistered and re-registered. [59] An unexpected network error occurred. |
| Sun.Mar,02 | 01:54:46.002 AM |      | 2371 | Failed to access the archive file [redacted]_2024-02-22_00-00-00.arc. Check the file is available. The archive may need to be unregistered and re-registered. [59] An unexpected network error occurred. |
| Sun.Mar,02 | 01:54:46.002 AM |      | 2371 | Failed to access the archive file [redacted]_2024-02-23_00-00-00.arc. Check the file is available. The archive may need to be unregistered and re-registered. [59] An unexpected network error occurred. |
| Sun.Mar,02 | 01:54:46.002 AM |      | 2371 | Failed to access the archive file [redacted]_2024-02-24_00-00-00.arc. Check the file is available. The archive may need to be unregistered and re-registered. [59] An unexpected network error occurred. |
| Sun.Mar,02 | 01:54:46.002 AM |      | 2371 | Failed to access the archive file [redacted]_2024-02-25_00-00-00.arc. Check the file is available. The archive may need to be unregistered and re-registered. [59] An unexpected network error occurred. |
| Sun.Mar,02 | 01:54:46.002 AM |      | 2371 | Failed to access the archive file [redacted]_2024-02-26_00-00-00.arc. Check the file is available. The archive may need to be unregistered and re-registered. [59] An unexpected network error occurred. |
| Sun.Mar,02 | 01:54:46.002 AM |      | 2371 | Failed to access the archive file [redacted]_2024-02-27_00-00-00.arc. Check the file is available. The archive may need to be unregistered and re-registered. [59] An unexpected network error occurred. |
| Sun.Mar,02 | 01:54:46.002 AM |      | 2371 | Failed to access the archive file [redacted]_2024-02-28_00-00-00.arc. Check the file is available. The archive may need to be unregistered and re-registered. [59] An unexpected network error occurred. |
| Sun.Mar,02 | 01:54:46.002 AM |      | 2371 | Failed to access the archive file [redacted]_2024-02-29_00-00-00.arc. Check the file is available.   |

This error can only be found in the message log or by *some* users seeing an archive gap.



# Maintenance

## Tag Not Found Report

| 4 - Tag Not Found Stat Report   |                |                    |  |  | Edit ▾                        | More Info ▾ | Add to Dashbo |
|---|----------------|--------------------|--|--|-------------------------------|-------------|---------------|
| Shows count of errors by ID during the designated timeframe. Click through on the ID to get to the list of actual messages. |                |                    |  |  |                               |             |               |
| Last 28 hours ▾   |                |                    |  |  |                               |             |               |
| ✓ 4,437 events (3/13/25 11:41:48.000 AM to 3/14/25 3:41:48.000 PM)  |                |                    |  |  | Job ▾    ■ ↺ ↻ ↪              |             |               |
| 1,538 results   | 100 per page ▾ |                    |  |  | < Prev 1 2 3 4 5 6 7 8 ... Ni |             |               |
| count ▴   | ID ▴           | Tag ▴              |  |  | Source2 ▴                     |             |               |
| 84  |                | IR.76.AC.Q         |  |  | H                             | 508         | 2             |
| 34  |                | 230WIND.TRIG.Q     |  |  | H                             | 509         | 2             |
| 34  |                | SW1.OPCL.Q         |  |  | H                             | 509         | 2             |
| 34  |                | 11.OPCL.Q          |  |  | H                             | 509         | 2             |
| 33  |                | 115WIND.VHZ.Q      |  |  | H                             | 509         | 2             |
| 33  |                | 3.OPCL.Q           |  |  | H                             | 509         | 2             |
| 33  |                | 3.OPCL.Q           |  |  | H                             | 509         | 2             |
| 33  |                | ANK3.MV.Q          |  |  | H                             | 509         | 2             |
| 17  |                | ILIP               |  |  | H                             | 101         | 2             |
| 17  |                | -BAIR_6.DEG        |  |  | H                             | 101         | 2             |
| 17  |                | D20S_3.D20S        |  |  | H                             | 101         | 2             |
| 17  |                | 142.V              |  |  | H                             | 101         | 2             |
| 17  |                | 212.VC             |  |  | H                             | 101         | 2             |
| 17  |                | GRIZZ-BUCKSCRK.AVB |  |  | H                             | 101         | 2             |
| 16  |                | 59.PDNM            |  |  | H                             | 101         | 2             |
| 16  |                | GRIZZ-BUCKSCRK.BVB |  |  | H                             | 101         | 2             |
| 16  |                | 2_230-115.LMV      |  |  | H                             | 101         | 2             |
| 9   |                | 02.AA              |  |  | H                             | 103         | 2             |
| 9   |                | 00.AB              |  |  | H                             | 103         | 2             |
| 9   |                | 2.LOCA             |  |  | H                             | 103         | 2             |
| 9   |                | _BUS.BHZ           |  |  | H                             | 103         | 2             |
| 9   |                | 115-70.LHZ         |  |  | H                             | 103         | 2             |

- We have built a library of reports that can be run on demand.
- Reports easily modified as needed.
- Also have a library of Notifications.

## Reports

Reports are based on single searches and can include visualizations, statistics and/or events. Click the name to view the report. Open the report in Pivot or Search to refine the parameters or further explore the data.

61 Reports

All Yours This App's

| i | Title ^                                       | Actions        |
|---|---|----------------|
| > | 0 - 24H PI System Error Report (Filtered)     | Open in Search |
| > | 00 - Heavy Hitter Report (Draft)              | Open in Search |
| > | 00_Duplicate_Tag_Report                       | Open in Search |
| > | 2 - DMZ Interface Tag Error Report            | Open in Search |
| > | 3 - Archive Unavailable Report -- All Systems | Open in Search |
| > | 3a - Archive Mount Report                     | Open in Search |
| > | 3a - Archive Mount Status Report              | Open in Search |
| > | 3b - Archive Unavailable Report - Host list   | Open in Search |
| > | 3c - Archive Unavailable Report - Path List   | Open in Search |
| > | 4 - Tag Not Found Stat Report                 | Open in Search |
| > | 5 - Data Range Report                         | Open in Search |
| > | 6 - Archive NAS File Registration Sync Issue  | Open in Search |
| > | 7 - Analytics Security Error Report           | Open in Search |
| > | 7a - Analytics Error Exportable Report        | Open in Search |
| > | 9 - State Not Found Report                    | Open in Search |
| > | 10 - Archive File Not Found Report            | Open in Search |
| > | 11 - Snapshot Delete Event Report             | Open in Search |
| > | 24 Hour Gas OOO Event Report                  | Open in Search |
| > | 36H Buffer Lock Error -- Lost data report     | Open in Search |
| > | 99 - 24 Hour ED OOO Event Report              | Open in Search |





# Export PI Message Log for Support

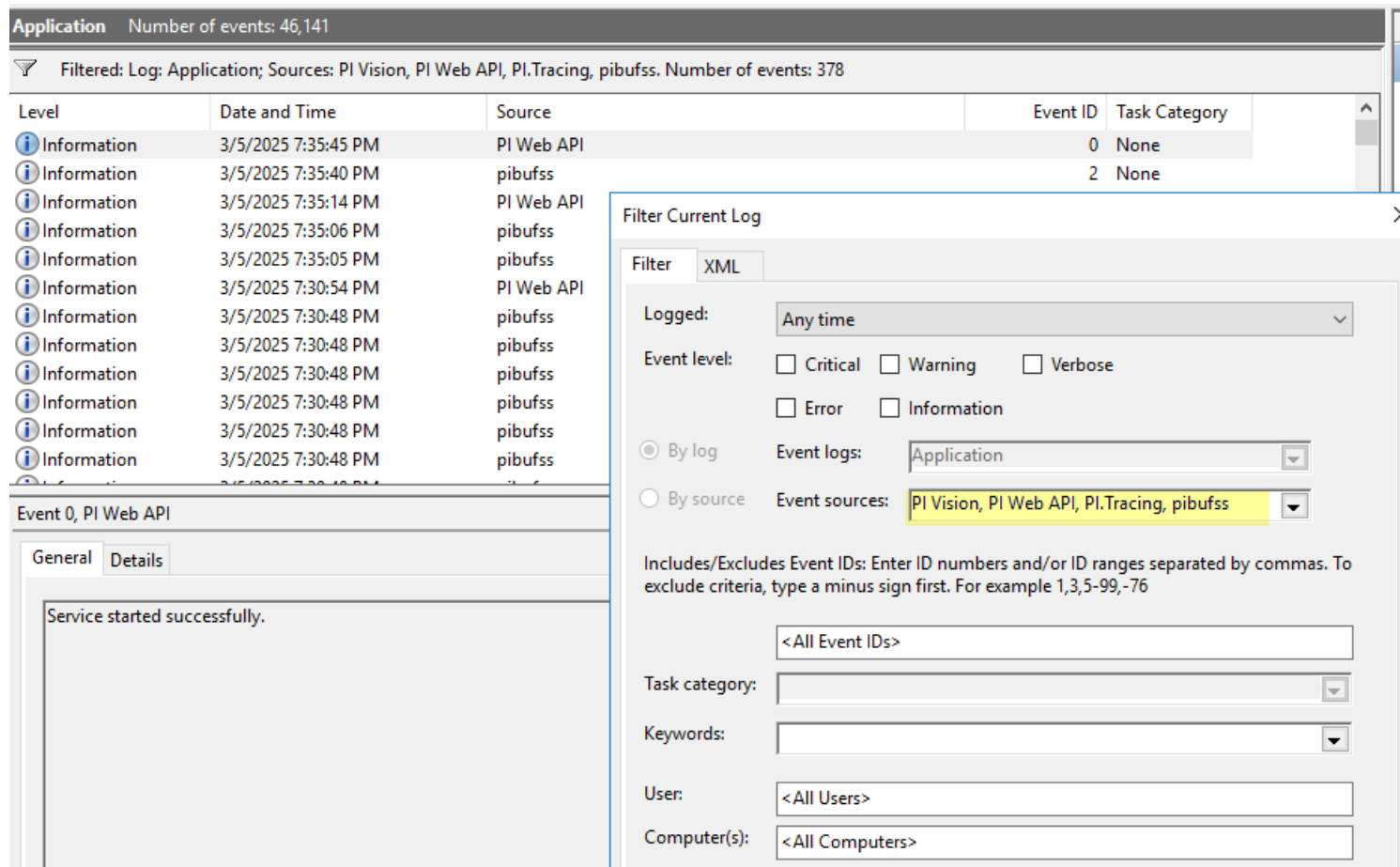
## Features

- Can easily export logs for support tickets in any format
- Filter on any message field and timeframe to limit output
- No need to log directly into server.
- Can export logs of unresponsive systems.
- Obfuscate sensitive information as needed.
- Stitch together multiple logs
- Timeframe only limited by availability of index storage space.

## PI Message Log Export

|    | A    | B        | C             | D         | E           | F           | G           | H                      | I       | J   | K     | L |
|----|------|----------|---------------|-----------|-------------|-------------|-------------|------------------------|---------|---|-------|---|
| 1  | Host | Severity | Date          | Time      | ProgramName | ProcessName | Source1     | Source2                | Source3 | Message   | ID    |   |
| 2  | p    | 1        | Informational | 10-Mar-25 | 11:35:01    | pinetmgr    |             |                        |         | Deleting connection: Accepting TCP/IP Connection, wait    | 7121  |   |
| 3  | p    | 1        | Informational | 10-Mar-25 | 11:35:01    | pinetmgr    |             | Connection Information |         | Disconnected ID: 16798 ; Process name: Accepting TCP/IP   | 7079  |   |
| 4  | p    | 1        | Informational | 10-Mar-25 | 11:35:02    | pinetmgr    |             |                        |         | Deleting connection: Accepting TCP/IP Connection, wait    | 7121  |   |
| 5  | p    | 1        | Informational | 10-Mar-25 | 11:35:02    | pinetmgr    |             | Connection Information |         | Disconnected ID: 10045 ; Process name: Accepting TCP/IP   | 7079  |   |
| 6  | p    | 1        | Informational | 10-Mar-25 | 11:35:02    | pinetmgr    |             |                        |         | Deleting connection: tcpE, Asynch read failed. [2] The s  | 7121  |   |
| 7  | p    | 1        | Informational | 10-Mar-25 | 11:35:02    | pinetmgr    |             | Connection Information |         | Disconnected ID: 10255 ; Process name: tcpE ; User: ; C   | 7079  |   |
| 8  | P    | 01       | Informational | 10-Mar-25 | 11:35:03    | piBufss     | pisnapmgr[  |                        |         | Cannot coerce or compress an event. Will send the         | 18004 |   |
| 9  | p    | 1        | Error         | 10-Mar-25 | 11:35:04    | piArchss    | piArcset    | Historical             |         | Add event failed. Mode: 0, Point ID: 8838898, Rec ID: 683 | 2014  |   |
| 10 | p    | 1        | Informational | 10-Mar-25 | 11:35:05    | piBasess    | Point Table |                        |         | Point [Name: CAMP EVERS BK 1 LOCKOUT ABC_q, ID: 159       | 6079  |   |
| 11 | p    | 1        | Informational | 10-Mar-25 | 11:35:05    | piBasess    | Point Table |                        |         | Point [Name: CAMP EVERS BK 1 LOCKOUT ABC, ID: 15969       | 6079  |   |
| 12 | p    | 1        | Informational | 10-Mar-25 | 11:35:05    | piBasess    | Point Table |                        |         | Point [Name: CAMP EVERS BK 2 LTC OIL SUDDEN PRESS A       | 6079  |   |
| 13 | p    | 1        | Informational | 10-Mar-25 | 11:35:05    | piBasess    | Point Table |                        |         | Point [Name: CAMP EVERS BK 2 LTC OIL SUDDEN PRESS A       | 6079  |   |
| 14 | p    | 1        | Informational | 10-Mar-25 | 11:35:05    | piBasess    | Point Table |                        |         | Point [Name: CAMP EVERS 2105/2 GE D20C COMM WDOG          | 6079  |   |
| 15 | p    | 1        | Informational | 10-Mar-25 | 11:35:05    | piBasess    | Point Table |                        |         | Point [Name: CAMP EVERS 2105/2 GE D20C COMM WDOG          | 6079  |   |
| 16 | p    | 1        | Informational | 10-Mar-25 | 11:35:05    | piBasess    | Point Table |                        |         | Point [Name: CAMP EVERS 2106/2 GE D20C COMM WDOG          | 6079  |   |
| 17 | p    | 1        | Informational | 10-Mar-25 | 11:35:05    | piBasess    | Point Table |                        |         | Point [Name: CAMP EVERS 2106/2 GE D20C COMM WDOG          | 6079  |   |
| 18 | p    | 1        | Debug         | 10-Mar-25 | 11:35:07    | pinetmgr    |             |                        |         | Pinet accepted TCP/IP connection, cnxn ID 14382 Hostna    | 7004  |   |
| 19 | p    | 1        | Debug         | 10-Mar-25 | 11:35:07    | pinetmgr    |             |                        |         | Pinet accepted TCP/IP connection, cnxn ID 14383 Hostna    | 7004  |   |
| 20 | p    | 1        | Debug         | 10-Mar-25 | 11:35:07    | pinetmgr    |             |                        |         | Pinet accepted TCP/IP connection, cnxn ID 17374 Hostna    | 7004  |   |
| 21 | p    | 1        | Debug         | 10-Mar-25 | 11:35:07    | pinetmgr    |             |                        |         | Pinet accepted TCP/IP connection, cnxn ID 17370 Hostna    | 7004  |   |
| 22 | p    | 2        | Debug         | 10-Mar-25 | 11:35:07    | pinetmgr    |             |                        |         | Pinet accepted TCP/IP connection, cnxn ID 18648 Hostna    | 7004  |   |
| 23 | p    | 2        | Debug         | 10-Mar-25 | 11:35:07    | pinetmgr    |             |                        |         | Pinet accepted TCP/IP connection, cnxn ID 18650 Hostna    | 7004  |   |
| 24 | p    | 1        | Debug         | 10-Mar-25 | 11:35:07    | pinetmgr    |             |                        |         | New Pinet 1 connection: tcpE Protocol: 00010008           | 7051  |   |
| 25 | p    | 1        | Debug         | 10-Mar-25 | 11:35:07    | pinetmgr    |             |                        |         | New Pinet 1 connection: tcpE Protocol: 00010008           | 7051  |   |
| 26 | p    | 1        | Debug         | 10-Mar-25 | 11:35:07    | pinetmgr    |             |                        |         | New Pinet 1 connection: tcpE Successful Trust-Relation    | 7053  |   |
| 27 | p    | 1        | Debug         | 10-Mar-25 | 11:35:07    | pinetmgr    |             |                        |         | New Pinet 1 connection: tcpE Successful Trust-Relation    | 7053  |   |
| 28 | p    | 2        | Debug         | 10-Mar-25 | 11:35:07    | pinetmgr    |             |                        |         | New Pinet 1 connection: tcpE Protocol: 00010008           | 7051  |   |
| 29 | p    | 2        | Debug         | 10-Mar-25 | 11:35:07    | pinetmgr    |             |                        |         | New Pinet 1 connection: tcpE Successful Trust-Relation    | 7053  |   |
| 30 | p    | 1        | Informational | 10-Mar-25 | 11:35:07    | pinetmgr    |             |                        |         | Deleting connection: Accepting TCP/IP Connection, wait    | 7121  |   |
| 31 | p    | 1        | Informational | 10-Mar-25 | 11:35:07    | pinetmgr    |             | Connection Information |         | Disconnected ID: 29159 ; Process name: Accepting TCP/IP   | 7079  |   |
| 32 | p    | 1        | Informational | 10-Mar-25 | 11:35:07    | pinetmgr    |             |                        |         | Deleting connection: tcpE, Asynch read failed. [2] The s  | 7121  |   |
| 33 | p    | 1        | Informational | 10-Mar-25 | 11:35:07    | pinetmgr    |             | Connection Information |         | Disconnected ID: 29158 ; Process name: tcpE ; User: ; C   | 7079  |   |
| 34 | P    | 01       | Informational | 10-Mar-25 | 11:35:09    | PItoPI      | PIToPI-     | HAB-QD   503   1       |         | EO.SUBSTN.DIVIDE.ANNUNC.115_C-30_2.AN24.Q: pipt_fi        | 4     |   |
| 35 | p    | 2        | Debug         | 10-Mar-25 | 11:35:10    | pinetmgr    |             |                        |         | Successful login ID: 18648. Address: Host:                | 7076  |   |
| 36 | p    | 2        | Informational | 10-Mar-25 | 11:35:10    | pinetmgr    |             | Connection Information |         | New Connection ID: 18648 ; Process name: tcpE ; User:     | 7080  |   |
| 37 | p    | 1        | Informational | 10-Mar-25 | 11:35:10    | pinetmgr    |             | Connection Information |         | New Connection ID: 8776 ; Process name: tcpE ; User: E    | 7080  |   |

- Ingest Windows Event Logs
- Inclusion of remaining PI Servers including QA and DEV
- Custom tool development
- Additional Reporting and Enhanced Notifications
- Migration to the ELK stack
  - (Elastic,Logstash,Kibana)



The screenshot displays a log management application interface. At the top, a header bar shows 'Application' and 'Number of events: 46,141'. Below this, a filter bar indicates 'Filtered: Log: Application; Sources: PI Vision, PI Web API, PI.Tracing, pibufss. Number of events: 378'. The main area contains a table of log events.

| Level       | Date and Time       | Source     | Event ID | Task Category |
|-------------|---------------------|------------|----------|---------------|
| Information | 3/5/2025 7:35:45 PM | PI Web API | 0        | None          |
| Information | 3/5/2025 7:35:40 PM | pibufss    | 2        | None          |
| Information | 3/5/2025 7:35:14 PM | PI Web API |          |               |
| Information | 3/5/2025 7:35:06 PM | pibufss    |          |               |
| Information | 3/5/2025 7:35:05 PM | pibufss    |          |               |
| Information | 3/5/2025 7:30:54 PM | PI Web API |          |               |
| Information | 3/5/2025 7:30:48 PM | pibufss    |          |               |
| Information | 3/5/2025 7:30:48 PM | pibufss    |          |               |
| Information | 3/5/2025 7:30:48 PM | pibufss    |          |               |
| Information | 3/5/2025 7:30:48 PM | pibufss    |          |               |
| Information | 3/5/2025 7:30:48 PM | pibufss    |          |               |
| Information | 3/5/2025 7:30:48 PM | pibufss    |          |               |
| Information | 3/5/2025 7:30:48 PM | pibufss    |          |               |

Below the table, a 'Filter Current Log' dialog box is open. It has tabs for 'Filter' and 'XML'. The 'Filter' tab is active, showing various filtering options:

- Logged:** Any time (dropdown)
- Event level:**
  - ☐ Critical ☐ Warning ☐ Verbose
  - ☐ Error ☐ Information
- By log:** Event logs: Application (dropdown)
- By source:** Event sources: PI Vision, PI Web API, PI.Tracing, pibufss (dropdown)
- Includes/Excludes Event IDs:** Enter ID numbers and/or ID ranges separated by commas. To exclude criteria, type a minus sign first. For example 1,3,5-99,-76
- Task category:** (dropdown)
- Keywords:** (dropdown)
- User:** <All Users> (dropdown)
- Computer(s):** <All Computers> (dropdown)

The main interface also shows a 'General' tab with the message 'Service started successfully.'



## PG&E Streamlines O&M with Log Consolidation

### Challenge

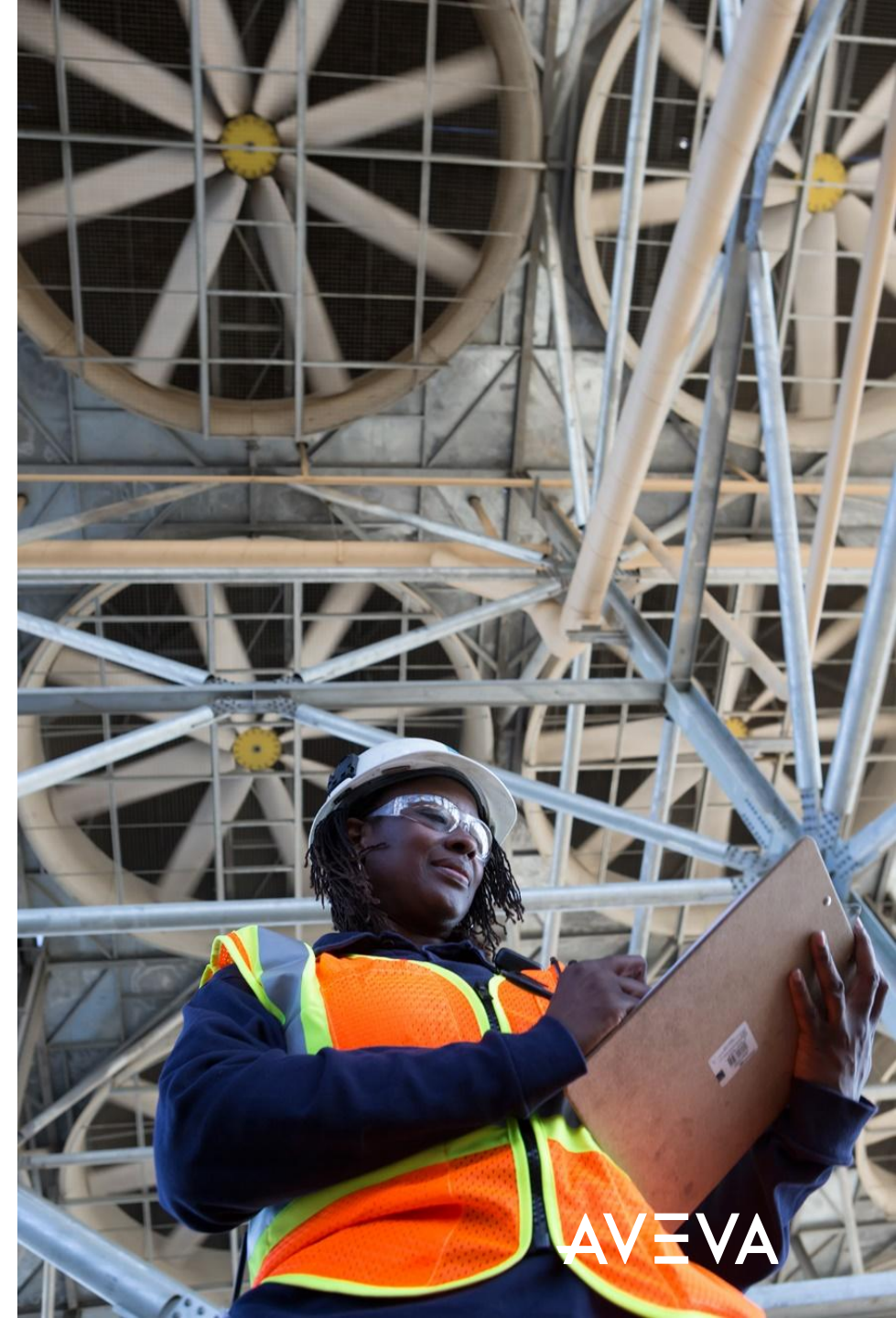
- Health monitoring PI System infrastructure and accessing logs across 3 networks and 150+ servers became overly time consuming and tedious.
- PI Message Logs are valuable but need to be extracted.
- Not all errors are apparent from health counters.
- Needed a streamlined way to collect logs for support calls.

### Solution

- Developed and deployed a Log Management and Observation Solution to collect and centralize all AVEVA PI System related logs in one central location

### Results

- **Streamlined Health Monitoring and Daily Operational Reviews.**
- **Automatic notifications of critical errors.**
- **Ability to review errors across entire infrastructure**
- **Simplified log extraction for support calls.**
- **Proactively address pending performance issues.**



# Questions?







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**Thank you for your attendance!**

