# Tips from the Trenches

Presented by **Andreas Müller and Klaus Pohl**


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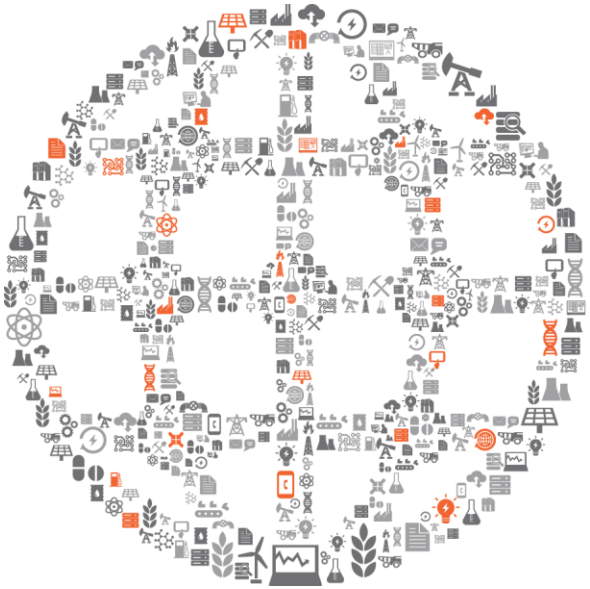

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# USERS CONFERENCE 2013

## The Power of Data

## E M E A

PARIS SEP 16-19 FRANCE

**THRIVING IN A WORLD OF CHANGE**


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# Tech Support and Field Service

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## Proactive

- Protect From Viruses
- Windows Integrated Security


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## Proactive

- Protect From Viruses
- Windows Integrated Security

## Disciplined

- Licensing
- PI Buffer Subsystem
- Logs


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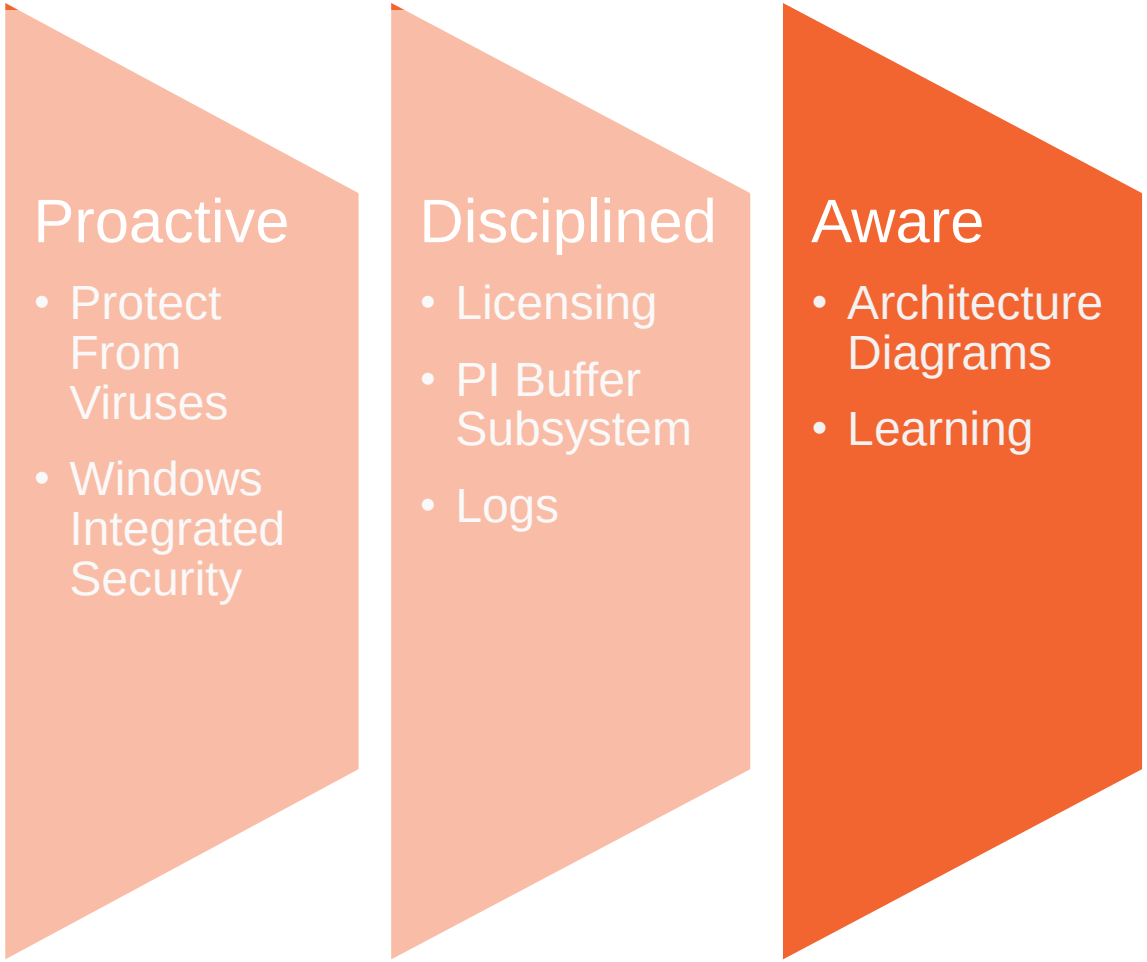



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# Virus Infection at an Electric Utility

> "A third-party technician used a USB-drive to upload software updates during a scheduled outage for equipment upgrades. Unknown to the technician, the USB-drive was infected with crimeware. The infection resulted in downtime for the impacted systems and delayed the plant restart by approximately three weeks."


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# Scan USB Sticks regularly

OSIsoft uses endpoint protection

3rd parties always have the option to scan the device themselves

Always scan thumb drives

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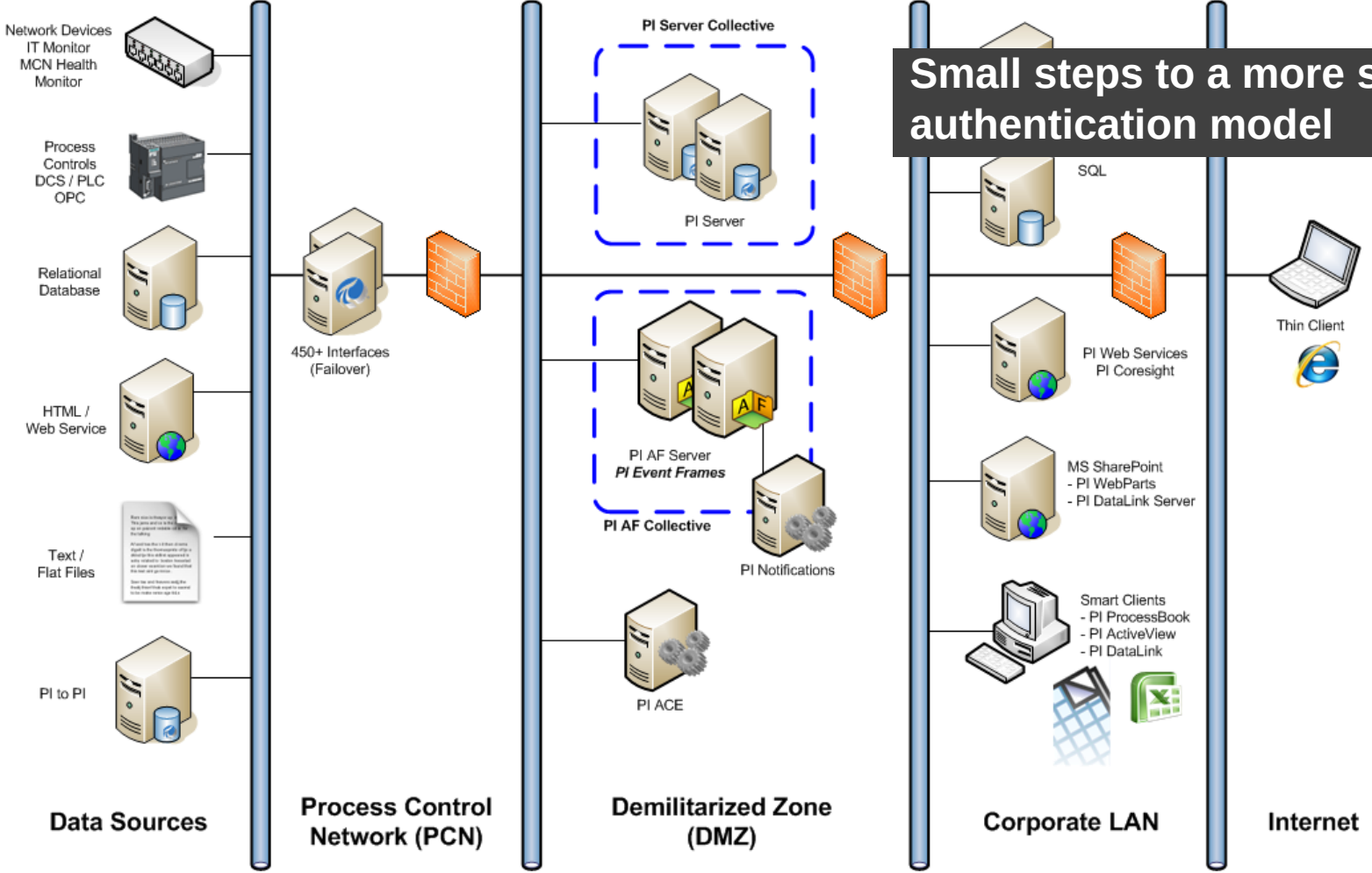
# Small steps to a more secure user authentication model





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# Explicit Login and piadmin

Do not use PI Users with passwords stored in the PI Server

- Especially for the piadmin user!

Security Alert: PI Authentication Weakness

- October 2009
- Encryption Algorithm is not safe


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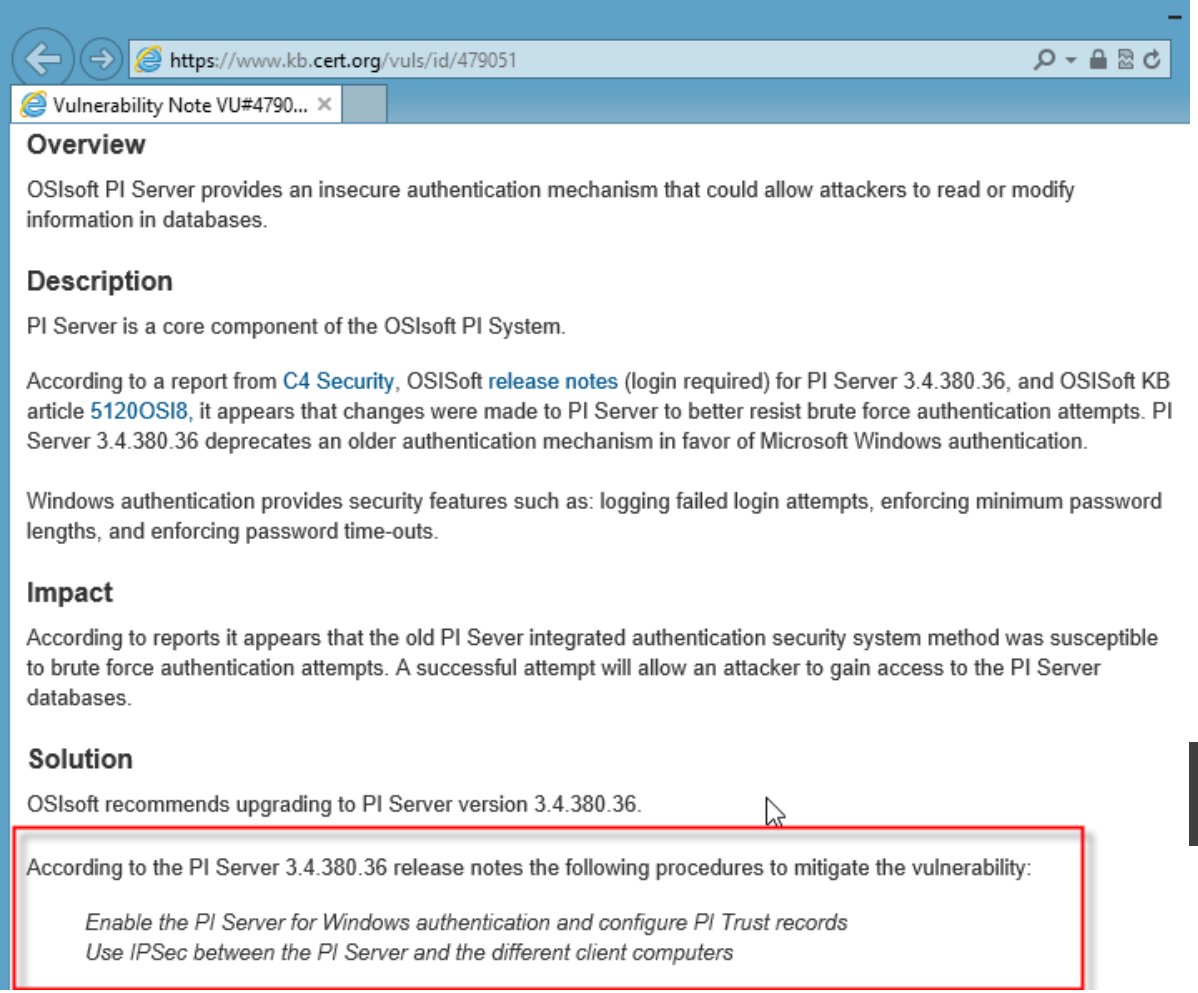


**Public security bulletin**


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## Solution

OSIsoft recommends upgrading to PI Server version 3.4.380.36.

According to the PI Server 3.4.380.36 release notes the following procedures to mitigate the vulnerability:

*Enable the PI Server for Windows authentication and configure PI Trust records*
*Use IPSec between the PI Server and the different client computers*


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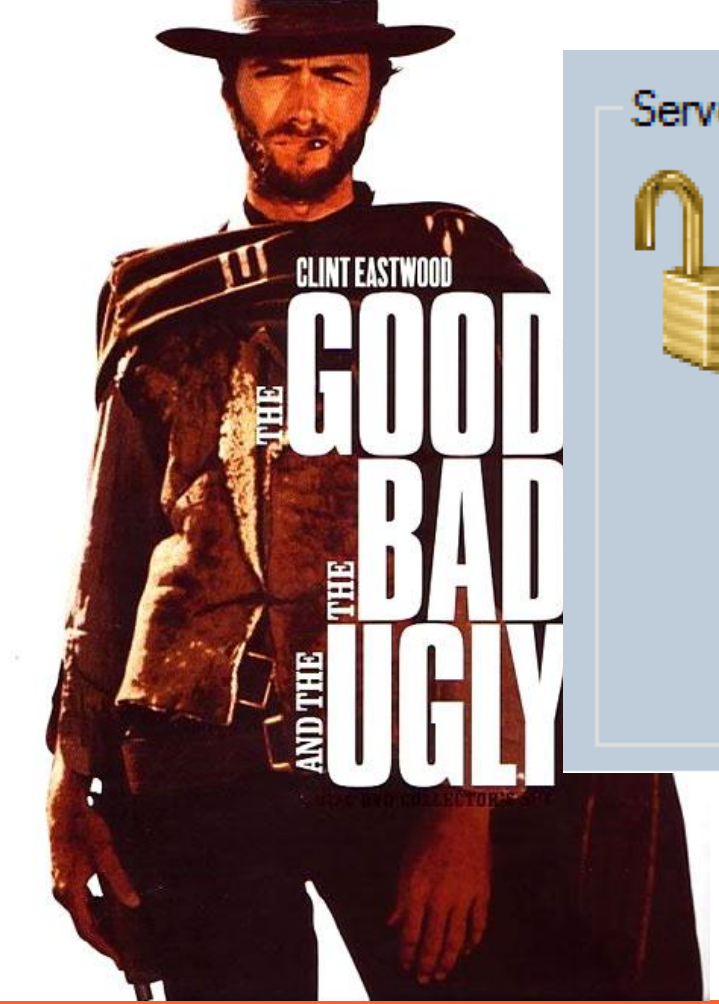


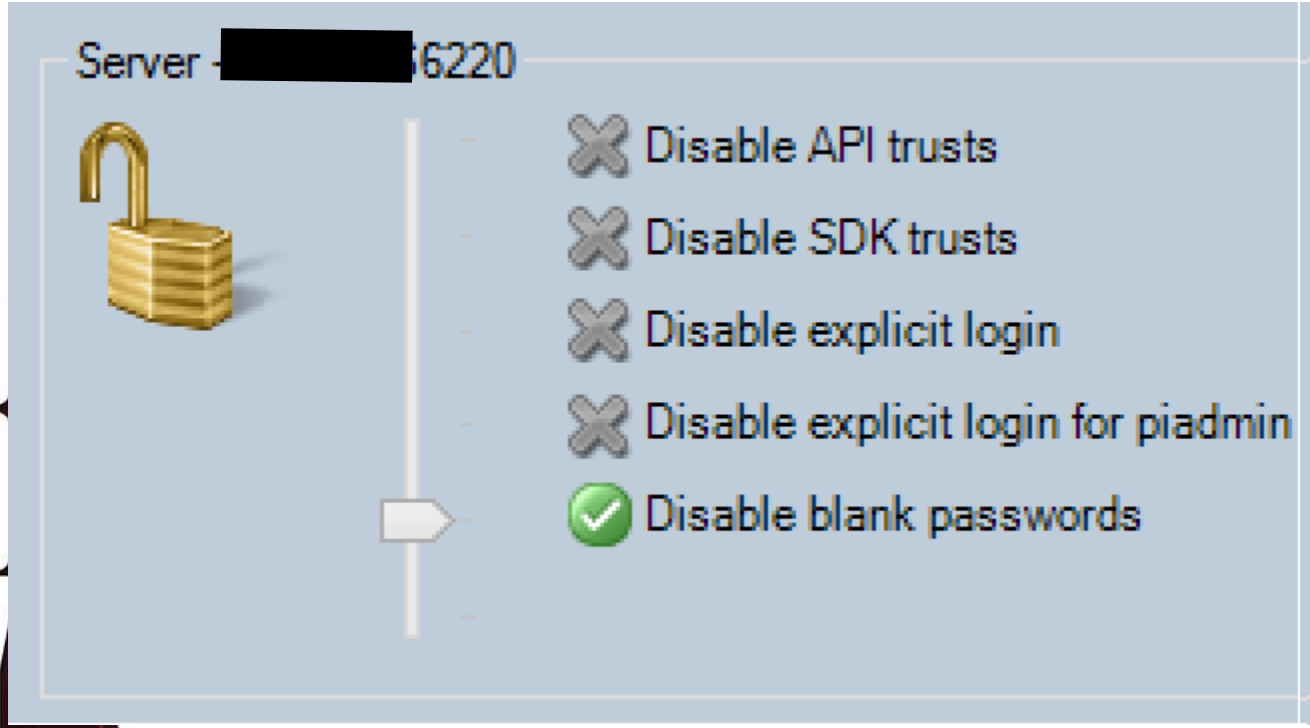


# Explicit Login: How To


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# Security Take Home Points

Do long and complex password for PI Users protect me at all?

**NO**

Do passwords for Windows Users have the same issue?

**NO**


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# A case from the Tech Support trenches

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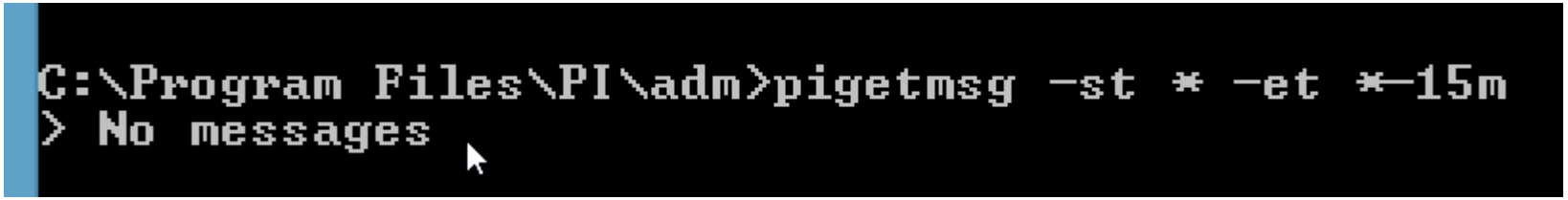
# My PI Server will not start!

Check the PI Server Message Logs




Check the Event Viewer Logs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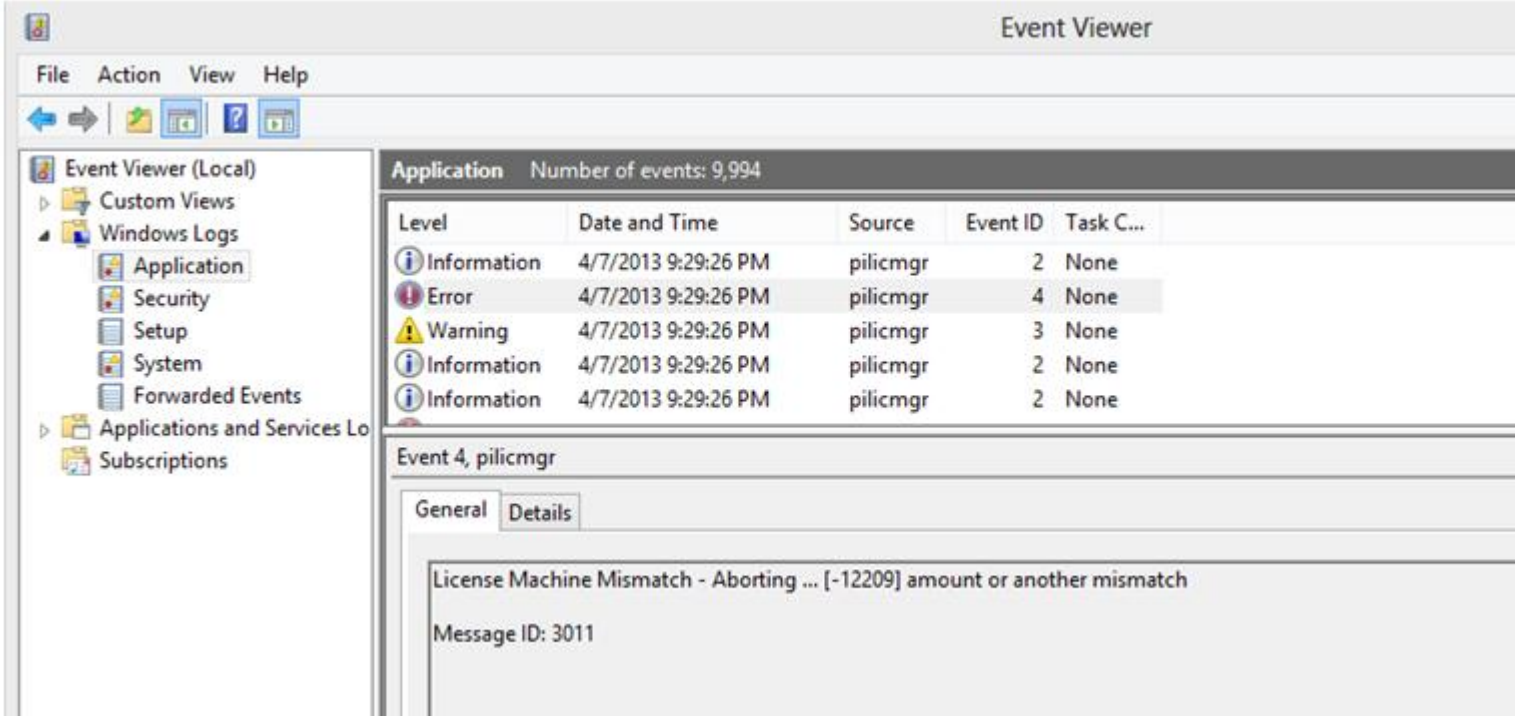
# My PI Server will not start!





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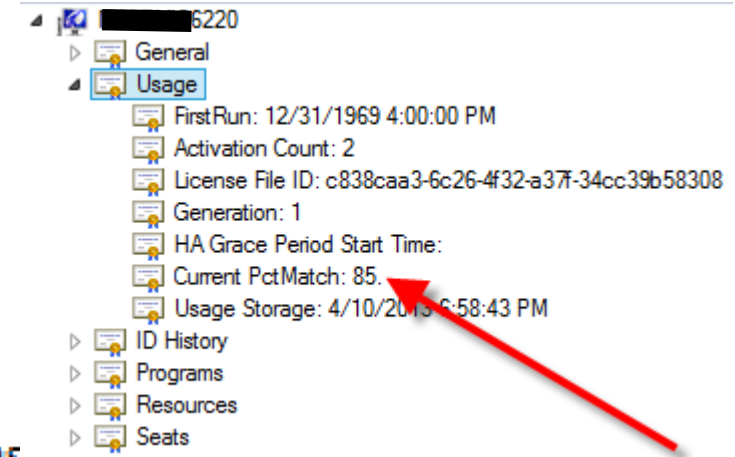
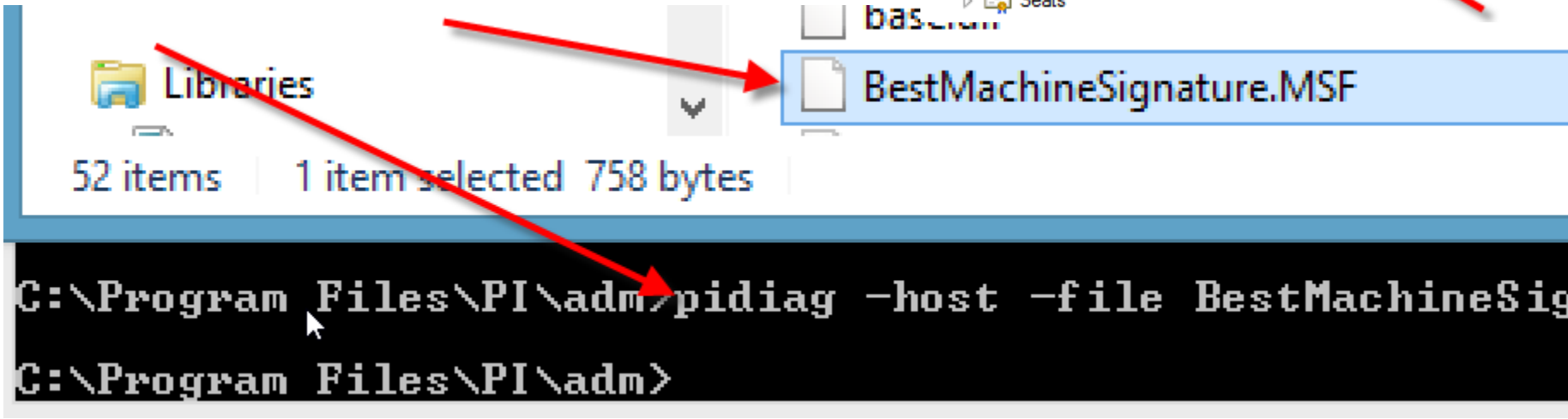
# Licensing

Need highest percent match

Field Service Standards





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# Sample Setup PI Buffer Subsystem

- Windows Integrated Security
- Everyone group has read access
- Machines map to the Everyone group

```
D 05-Apr-13 10:30:26 pinetmgr                                          (7082)
 >> Successful login  ID: 63. Address:   . Name: pibufss. Identity List: PIEngine
ers ! PIWorld. Environment Username : NT AUTHORITY\SYSTEM. Method: Windows Login
<SSPI,KERBEROS>
```

- PI Buffer Subsystem may connect as a read-only user


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# PI Buffer Subsystem Example

- Use Windows Integrated Security
- Allow the buffer to connect as a PI Identity with write access to the Points which it owns


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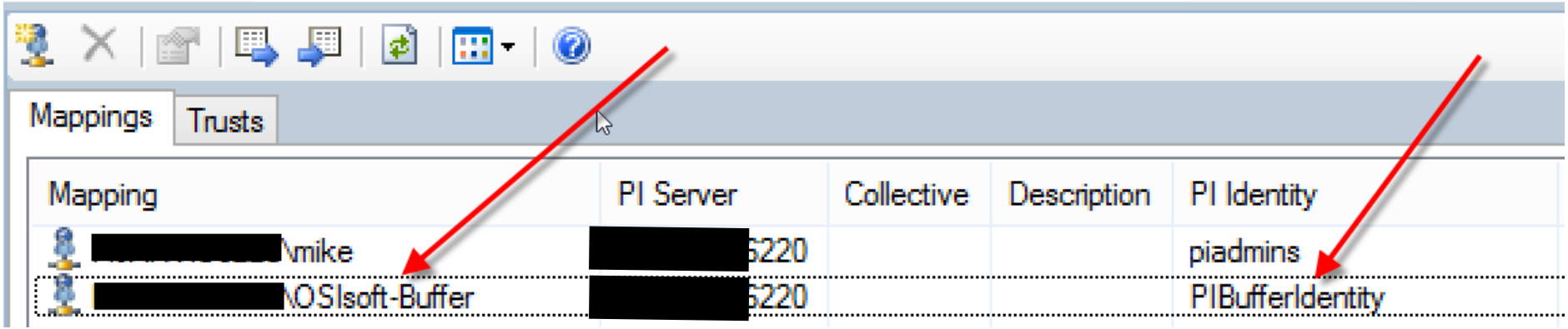
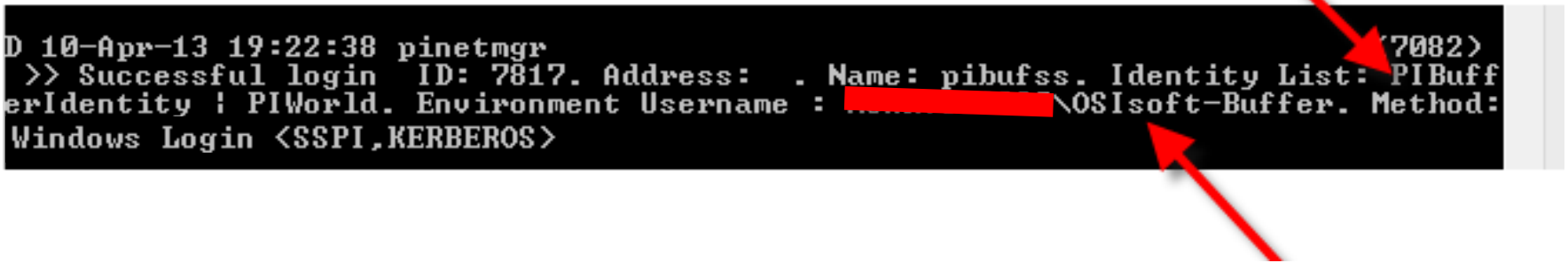
# PI Buffer Subsystem: How To





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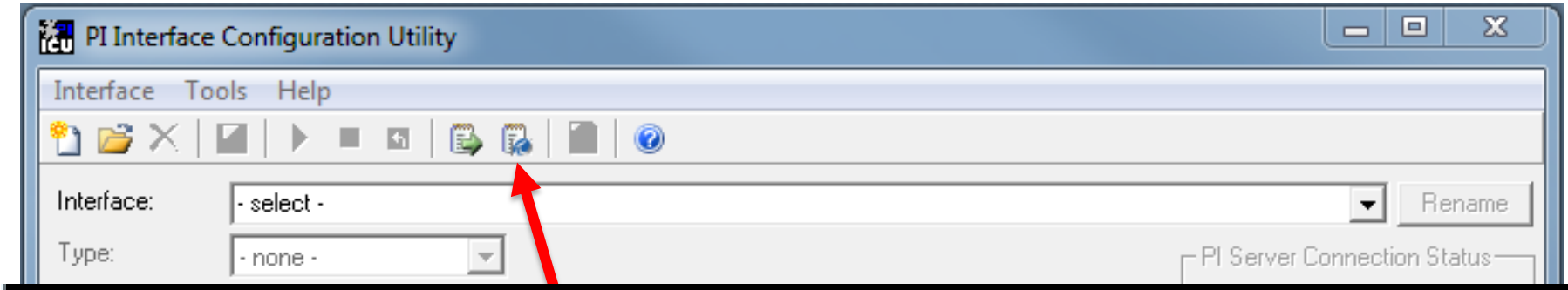
# Listen to your system: PI Message log




```
I 10-Apr-13 19:16:16 pinetmgr:Connection Information                    (7080)
 >> New Connection ID: 47 ; Process name: Procbook.exe(8772) ; User: piadmins !
PIWorld ; OS User: OSI\dirkules ; Hostname: ; IP:    ; AppID: 552 ; AppName: Proc
essBook

I 10-Apr-13 19:16:16 Procbook                                              (4)
 >> Successfully connected to server DIRKULES1234 as piadmins ! PIWorld

I 10-Apr-13 19:16:27 piaflink                                          (17002)
 >> Retrieved migration configuration information from PI Base Subsystem.
```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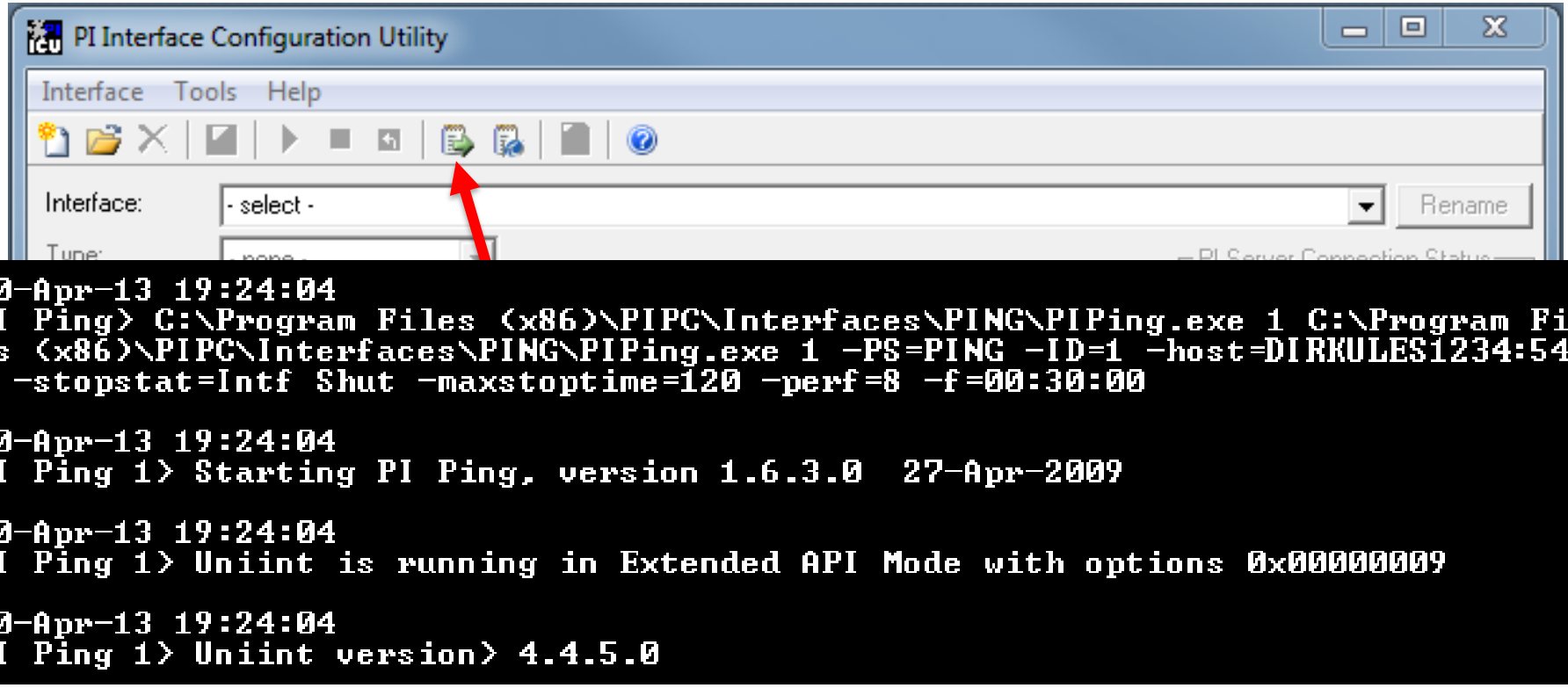
# Listen to your system: PIPC log





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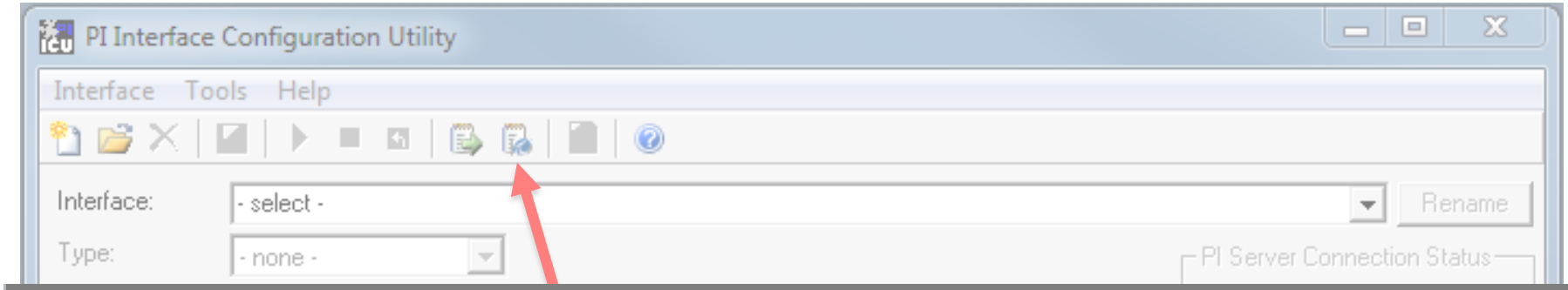
# Listen to your system: PI Message log

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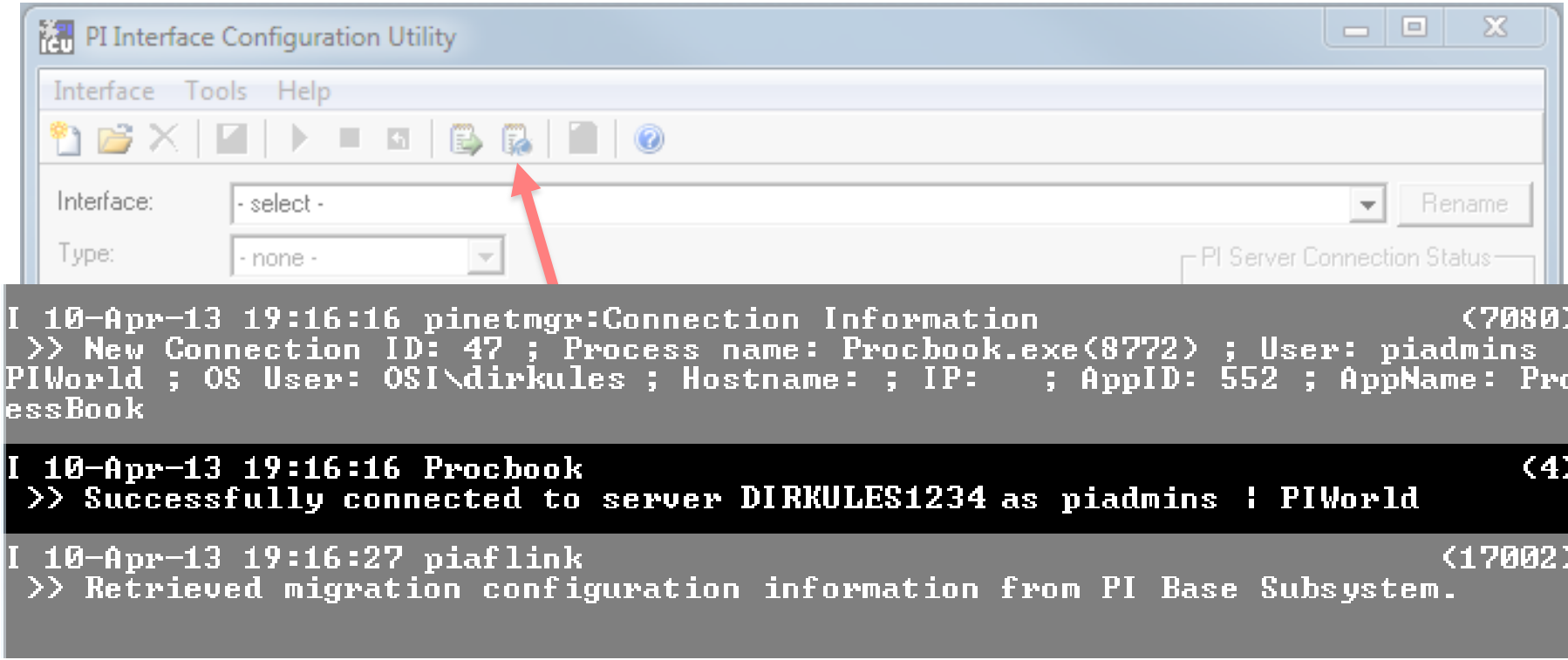



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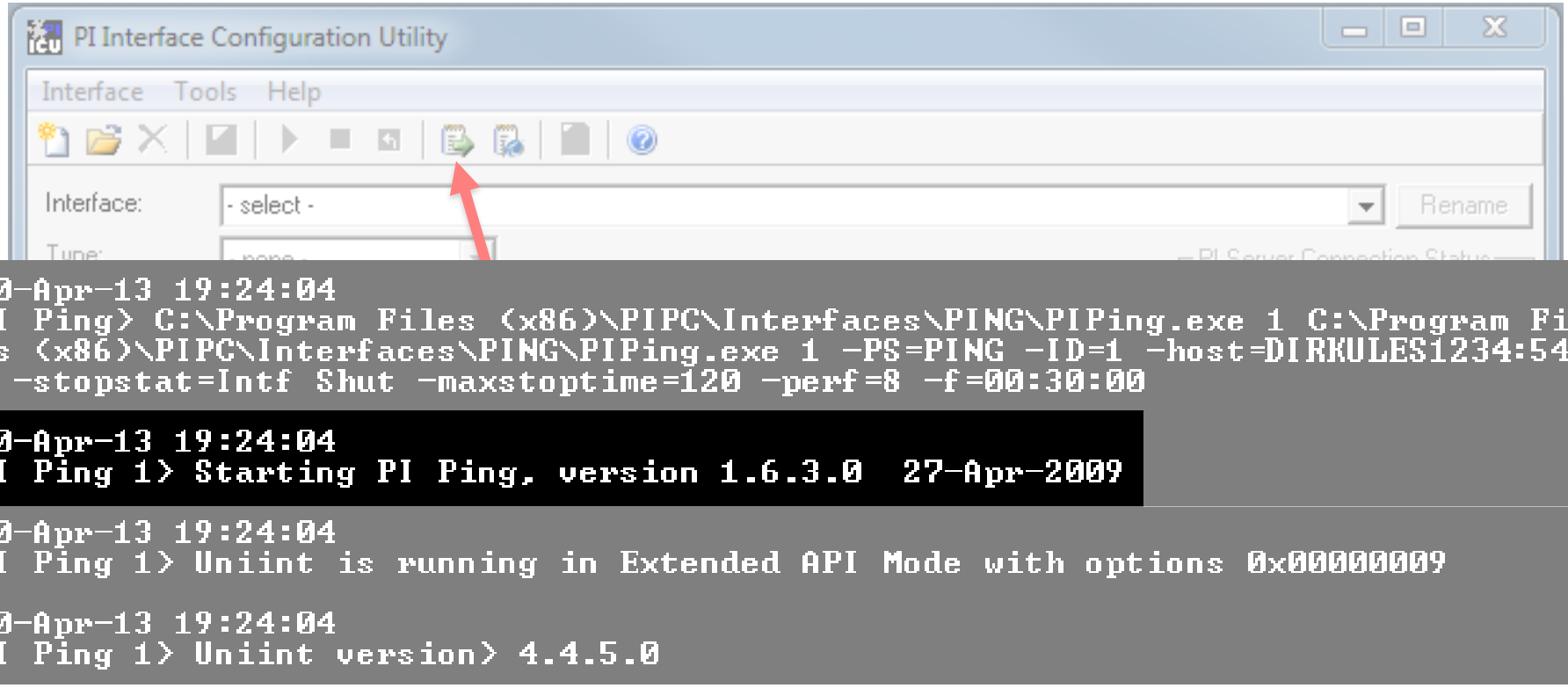
# Listen to your system: PIPC log





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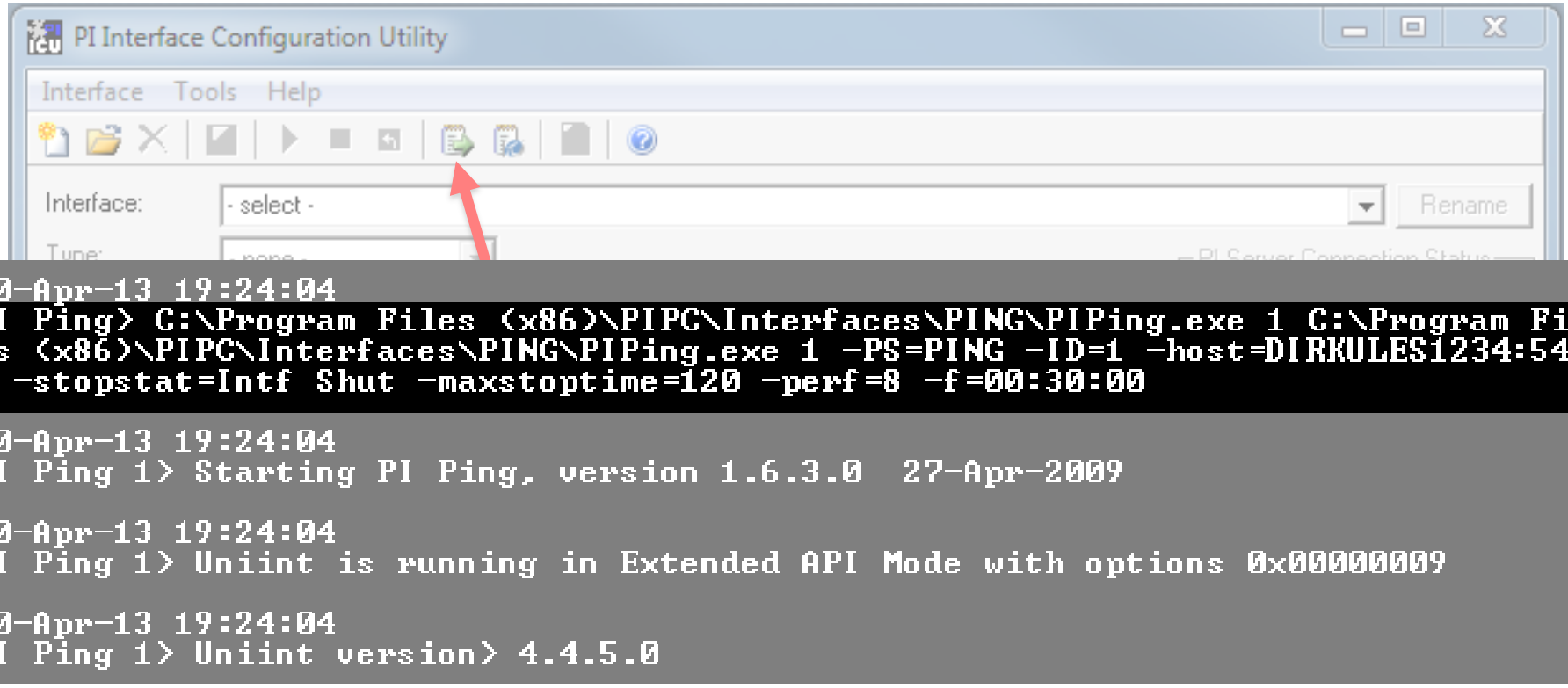
# Listen to your system: PIPC log





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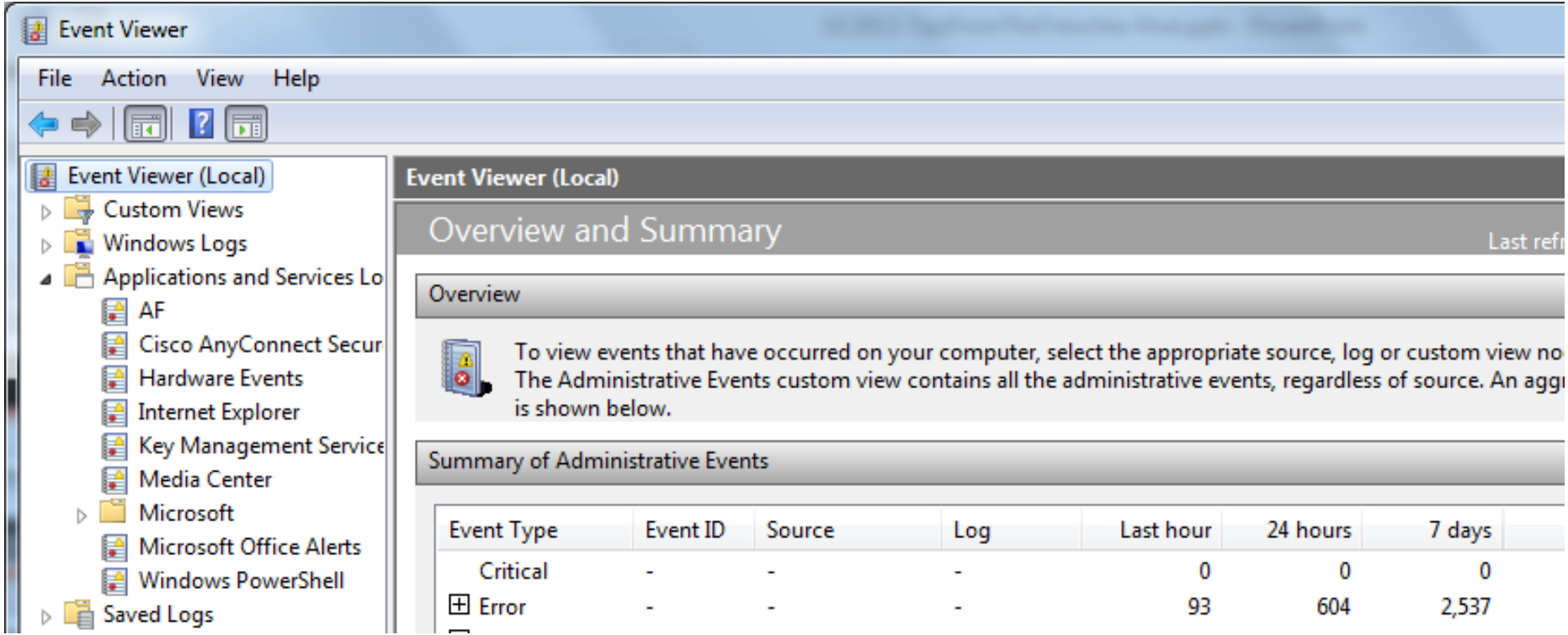
# Listen to your system: eventvwr





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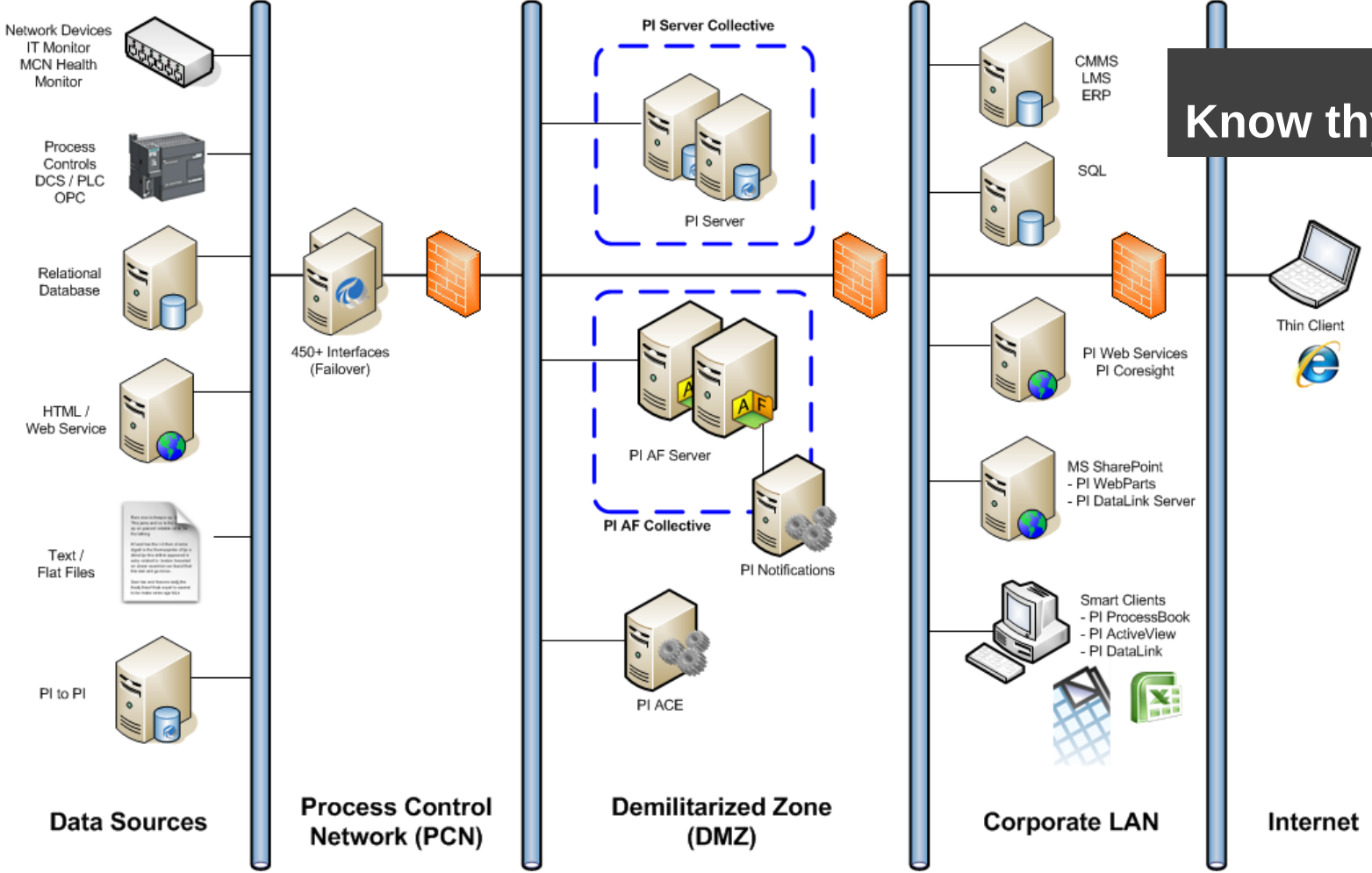
# Know thy system





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```
1   HQ server HQPI1
2
3   PI to PI - on it's own machine
4
5   site server
6   name Mountain View MtnViewPI
7
8
9   data not matching
0
```

**We start simple …**


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```
HQ server
  HQPI1
  PI server 2010
  3.4.385.59 64bit

PItoPI - get version.
  HQ-Int1 local to HQPI1

site server
  MtnViewPI
  3.4.385.77 32bit


data not matching
looks ok on the source PI server
```

**… and we build**


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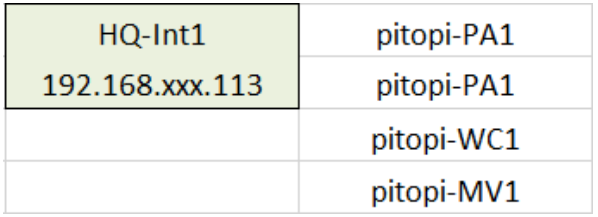

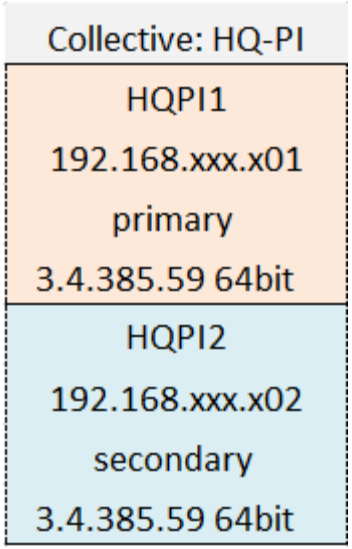


| 10 ms | 250 ms | 50 ms |
|---|---|---|
| | | |
| PaloAlto (PA) | WalnutCreek (WC) | MountainView (MV) |
| 192.168.xxx.248 | 192.168.xxx.xxx | 192.168.xxx.xxx |
| PaloAltoPI | name? | MtnVwPI |
| 3.4.385.77 32bit | 3.4.385.77 32bit | 3.4.385.77 32bit |
| | | |
| opcint1 | opcint1 | opcint1 |
| opcint2 | opcint2 | -- |
| rdbms1 | rdbms1 | rdbms1 |

**… and build**


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| HQ-Int1 | pitopi-PA1 |
|---|---|
| 192.168.xxx.113 | pitopi-PA1 |
| | pitopi-WC1 |
| | pitopi-MV1 |

| Collective: HQ-PI |
|---|
| HQPI1 |
| 192.168.xxx.x01 |
| primary |
| 3.4.385.59 64bit |
| HQPI2 |
| 192.168.xxx.x02 |
| secondary |
| 3.4.385.59 64bit |

| 10 ms | 250 ms | 50 ms |
|---|---|---|
| | | |
| PaloAlto (PA) | WalnutCreek (WC) | MountainView (MV) |
| 192.168.xxx.248 | 192.168.xxx.xxx | 192.168.xxx.xxx |
| PaloAltoPI | name? | MtnVwPI |
| 3.4.385.77 32bit | 3.4.385.77 32bit | 3.4.385.77 32bit |
| | | |
| opcint1 | opcint1 | opcint1 |
| opcint2 | opcint2 | -- |
| rdbms1 | rdbms1 | rdbms1 |

+12?

**… and build**


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| HQ-Int1 | pitopi-PA1 |
|---|---|
| 192.168.xxx.113 | pitopi-PA1 |
| | pitopi-WC1 |
| | pitopi-MV1 |

36 instances

| Collective: HQ-PI |
|---|
| HQPI1<br>192.168.xxx.x01<br>primary<br>3.4.385.59 64bit |
| HQPI2<br>192.168.xxx.x02<br>secondary<br>3.4.385.59 64bit |

| 10 ms | 250 ms | 50 ms |
|---|---|---|
| | | |
| PaloAlto (PA) | WalnutCreek (WC) | MountainView (MV) |
| 192.168.xxx.248 | 192.168.xxx.xxx | 192.168.xxx.xxx |
| PaloAltoPI | name? | MtnVwPI |
| 3.4.385.77 32bit | 3.4.385.77 32bit | 3.4.385.77 32bit |
| | | |
| opcint1 | opcint1 | opcint1 |
| opcint2 | opcint2 | -- |
| rdbms1 | rdbms1 | rdbms1 |

+12?

**… and build**


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| HQ-Int1 | pitopi-PA1 |
|---|---|
| 192.168.xxx.113 | pitopi-PA1 |
| | pitopi-WC1 |
| | pitopi-MV1 |

36 instances

| Collective: HQ-PI |
|---|
| HQPI1<br>192.168.xxx.x01<br>primary<br>3.4.385.59 64bit |
| HQPI2<br>192.168.xxx.x02<br>secondary<br>3.4.385.59 64bit |

WAN links

| 10 ms | 250 ms | 50 ms |
|---|---|---|
| | | |
| PaloAlto (PA) | WalnutCreek (WC) | MountainView (MV) |
| 192.168.xxx.248 | 192.168.xxx.xxx | 192.168.xxx.xxx |
| PaloAltoPI | name? | MtnVwPI |
| 3.4.385.77 32bit | 3.4.385.77 32bit | 3.4.385.77 32bit |
| | | |
| opcint1 | opcint1 | opcint1 |
| opcint2 | opcint2 | -- |
| rdbms1 | rdbms1 | rdbms1 |

+12?

**… and build**


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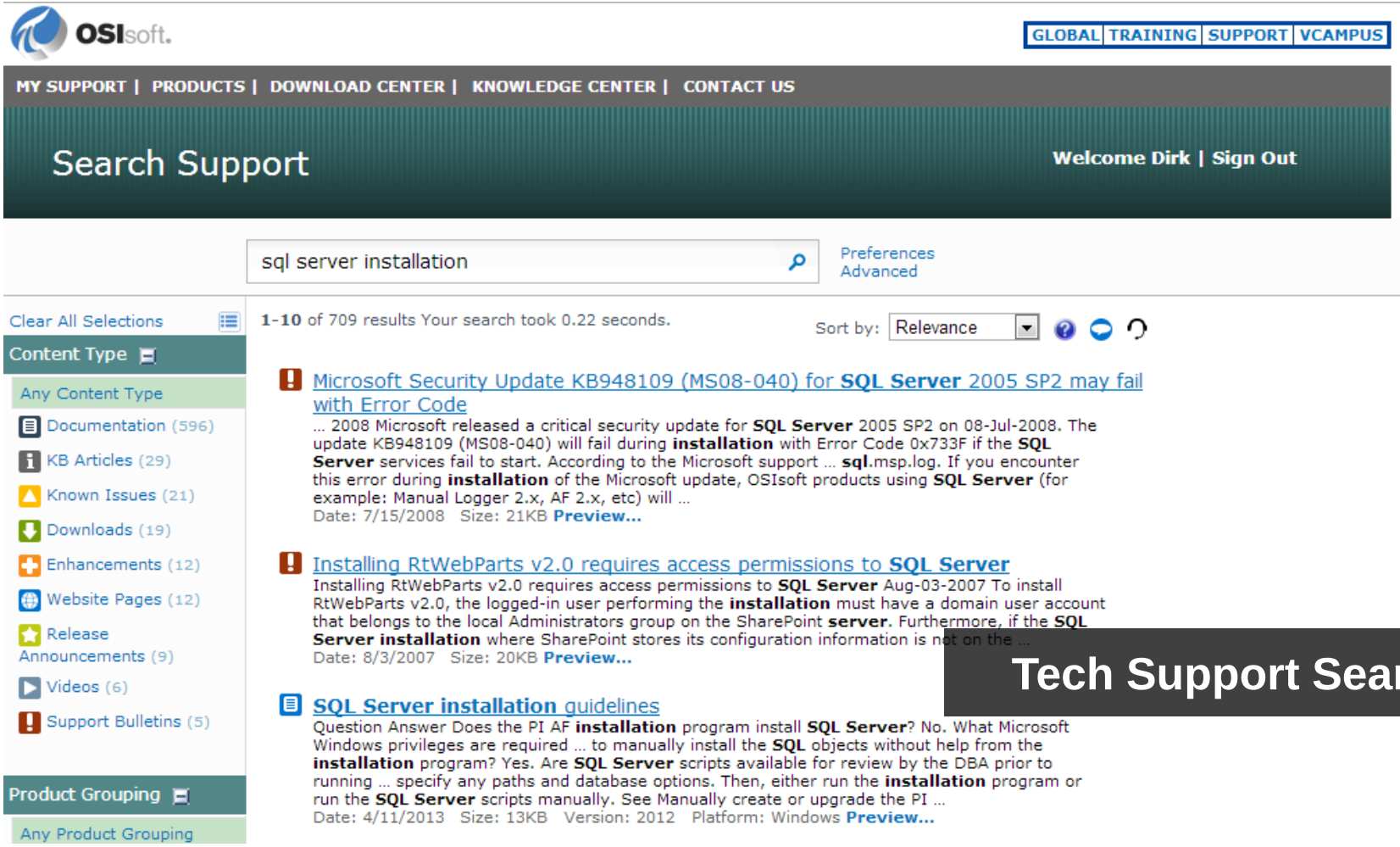



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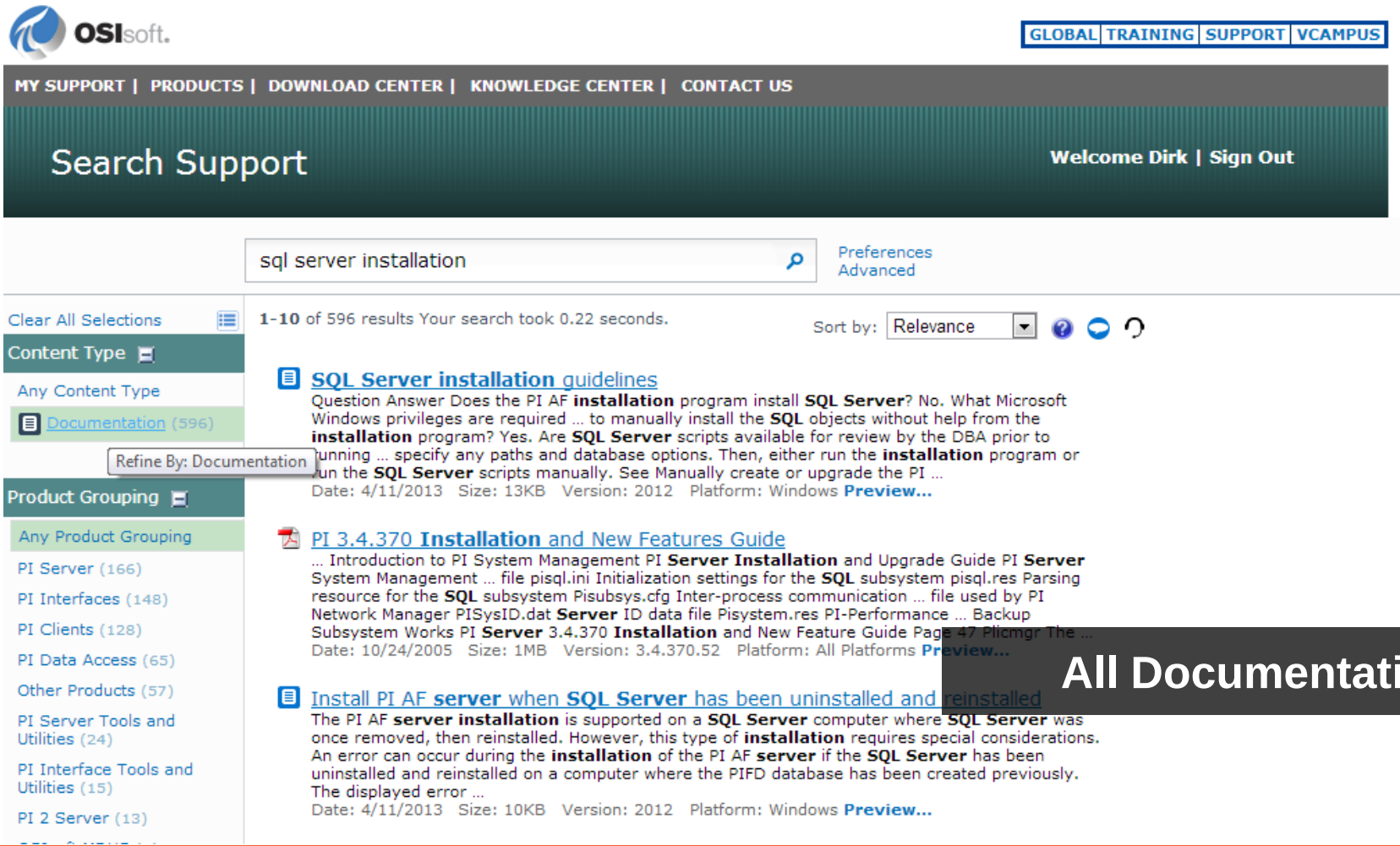



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PI Live Library - BETA

Contents Home

- System requirements
- Roles and permissions for use with PI AF
- Synchronize time settings on PI System computers
- Install or enable OSIsoft prerequisites
- Download the PI AF setup kit
- Install Microsoft SQL Server
  - SQL Server requirements
  - SQL Server considerations
  - SQL Server installation guidelines
- PI Asset Framework installation and upgrade tasks
- Manually create or upgrade the PI AF SQL database
- Install or upgrade PI AF SQL database on a mirrored SQL Server
- Install PI AF Server on Microsoft Cluster Service (MSCS)
- Upgrade PI AF on MSCS
- Create and configure a PI AF collective
- Upgrade a PI AF collective

> Installation > PI Asset Framework Installation and Upgrade > PI AF pre-installation tasks > Install Microsoft SQL Server > SQL Server installation gu

# SQL Server installation guidelines

| Question | Answer |
|---|---|
| Does the PI AF installation program install SQL Server? | No. |
| What Microsoft Windows privileges are required on the database server for the database installation program? | Optionally, none. The installation of the SQL scripts, as well as verification of the SQL connection, |
| Is it possible for the DBA to manually install the SQL objects without help from the installation program? | Yes. |
| Are SQL Server scripts available for review by the DBA prior to running? | Yes. The setup kit installs the SQL scripts to the PIPC\AF\SQL directory and can optionally be in: These scripts can be run manually after the installation is complete. Alternately, install on a test sy or back up or detach the PIFD database and restore |
| What SQL Server privileges are required on the database server for the database installation program? | SysAdmin privilege is required if opting for the installation program to create the database. If opti necessary. See Manually create or upgrade the PI AF SQL database. |
| In a database-only installation, what | None. No files are installed on the database server, other than database files. No registry keys are |

PI Live Library


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# KB Article # KB00772

## Quickstart Series - PI OPC Interface: Advise Tag Example

**Product:** PI OPC DA Interface

**Version(s):** 2.3.x

**Platform:** Windows All

**Question**

**How do you set up an Advise Tag on the PI Interface for OPC DA?**

*The Quickstart Series is meant as a tool for those who are familiar with the basics of PI interfaces (confi services) and wish to see a specific tag configuration example. Those who are newer to interface configu the complete interface manual for full instructions.*

**Quickstart series**


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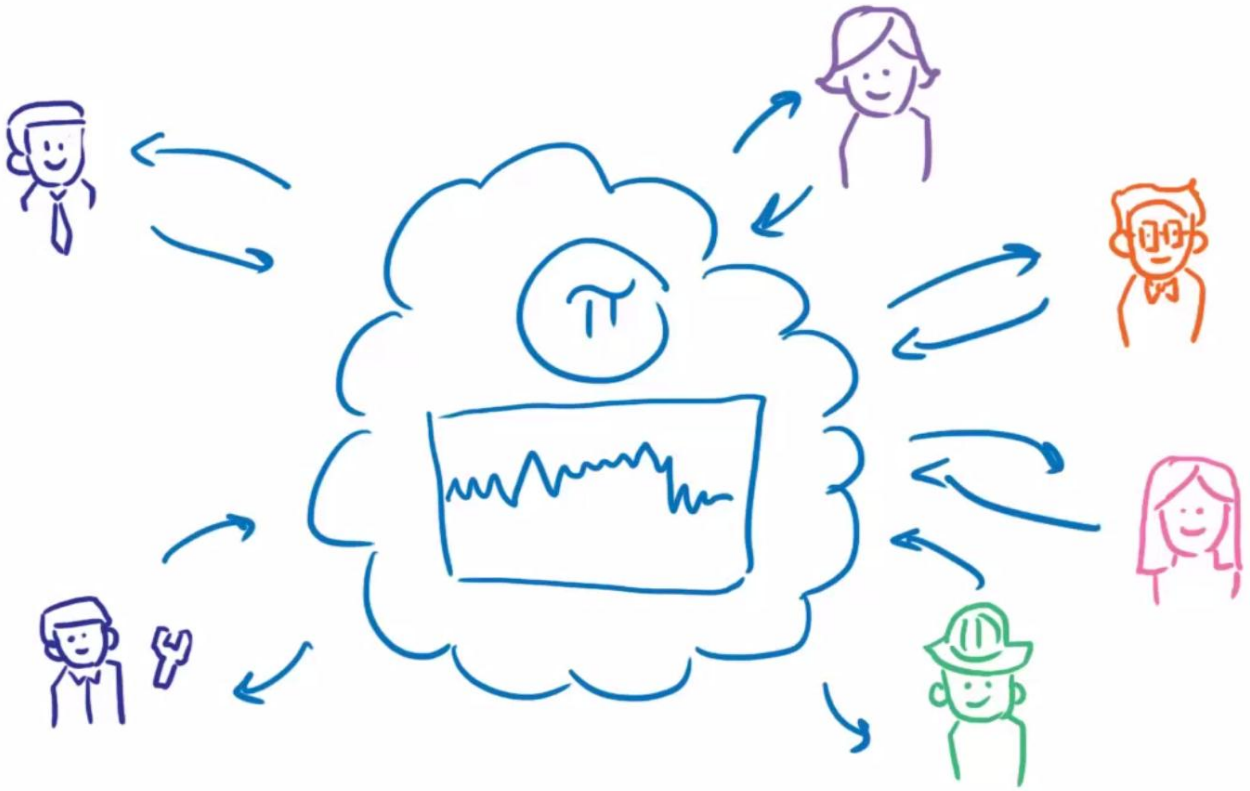


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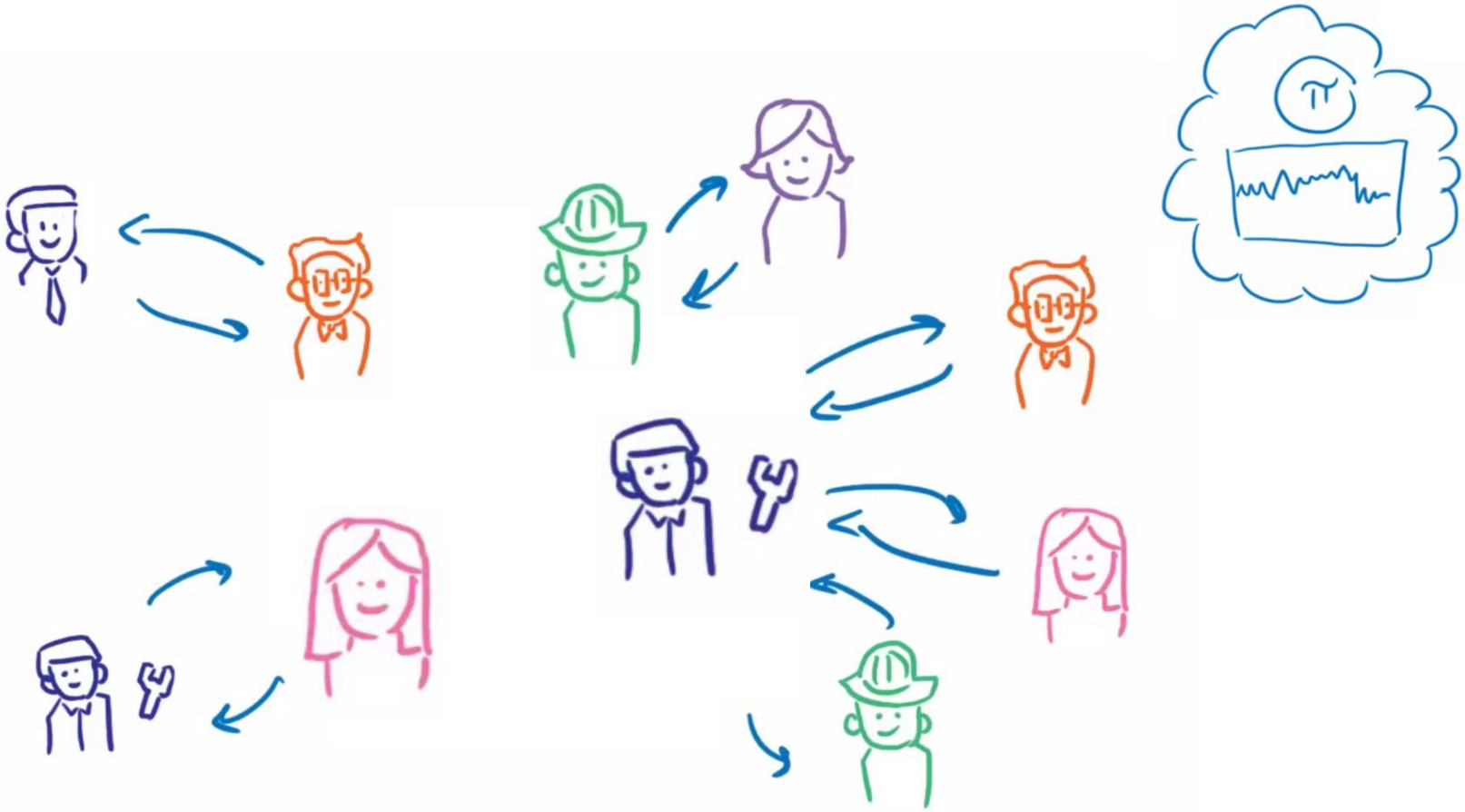


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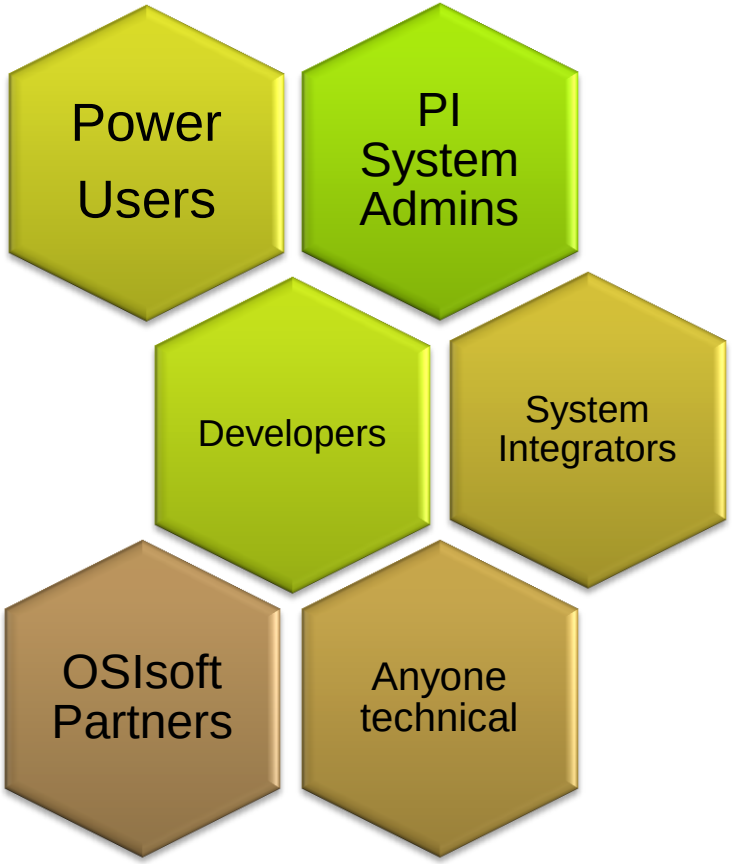
# Get hands on knowledge of how to use and get value from the PI System





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