

# BEST PRACTICE GUIDE

Learn all the tips and  
tricks from our  
experts.

## Maintaining your PI Server

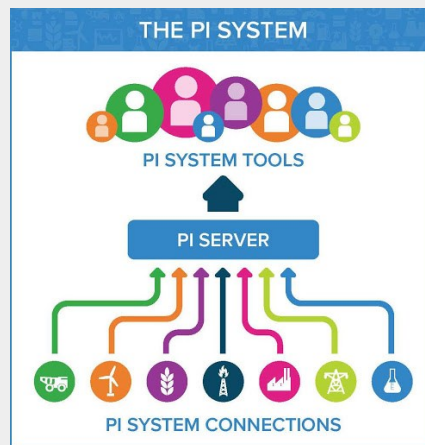


Industrial Data Xchange  
The Industrial Data Communications Experts

So the story begins, your OSIsoft PI Server has been installed and the various interfaces configured to collect your plant data. It is all up and running so what now? If you are the OSIsoft PI system administrator you need to undertake a range of daily, weekly, monthly, and annual tasks to keep your system in the best health possible.

Below is a highlight of the various tasks that should be undertaken by you, as the system administrator, as well as a few additional tips gained over our years of experience with OSIsoft PI.

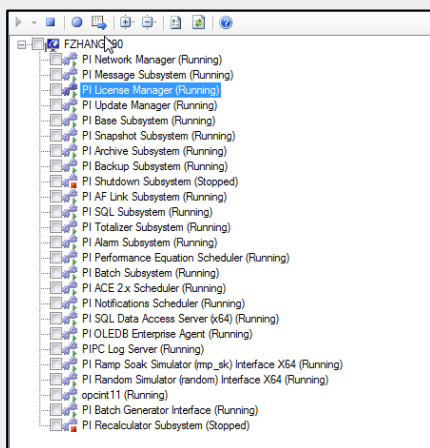
First, let us look at the various tools and utilities OSIsoft provides for managing your PI Server.



## PI System Management Tools (SMT)

PI System Management Tools (SMT) is a graphical user interface that you can use to perform many PI Data Archive administration tasks, including configuring security settings, managing archives, building, and configuring points, and viewing message logs.

## PI System Tray



PI System Tray helps you monitor the PI Data Archive and PI AF servers.

PI System Tray displays as an icon on your Windows taskbar. The icon shows the status of the PI Data Archive and PI AF servers that it monitors, and shows alerts when issues occur. PI System Tray also provides shortcuts for viewing system messages, starting, and stopping PI Data Archive and PI AF, and starting PI System Management Tools (SMT) and PI System Explorer.

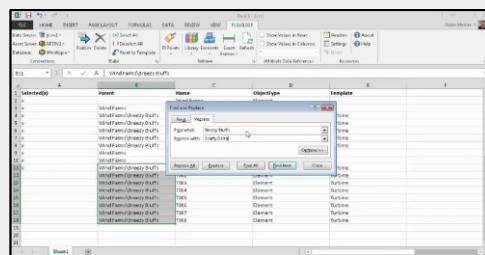
By default, the PI System Tray monitors the default PI Data Archive server or collective and the PI AF application service associated with the default PI AF server. You can monitor additional servers or change the monitored servers as needed.

PI System Tray launches automatically when you install PI SMT. To manually launch it, select *Start > All Programs > PI System > PI System Tray*

## PI Builder (Previously PI Tag Configurator)

PI Builder is a Microsoft Excel add-in that allows you to work with PI Asset Framework and PI Data Archive objects in bulk. Use PI Builder to create, delete, and edit PI objects, such as points, elements, and attributes.

In PI Server 2014 and later, PI Builder replaces PI Tag Configurator.



## PI Interface Configuration Utility (ICU)

PI Interface Configuration Utility (ICU) is a point-and-click tool for configuring PI interfaces. To configure an interface with the ICU, you must run it directly on the interface node. This means you must install the ICU on each interface node.

## PI Collective Manager

Use PI Collective Manager to manage high availability (HA) collectives in PI Data Archive. You can create PI Server collectives, configure existing collectives and their servers, and view the status of collectives. PI Collective Manager is included in the PI SMT installation.

To run Collective Manager, select *Start > All Programs > PI System > PI Collective Manager*



# Back to best practices around maintaining your PI Server

## Daily Tasks:

Component	Task	Tools	Automation Method
Stale & Bad Tags	<p>Check for Stale &amp; Bad Tags. Export the results per section or interfaces.</p> <p>If you have access to the DCS / SCADA / OPC Server then check the tags yourself.</p> <p>Otherwise, ask the relevant Control &amp; Instrumentation person to check the tags.</p>	PI SMT	
CPU & Memory usage	Inspect the CPU and memory use of each PI subsystem.	<p>PI ProcessBook</p> <p>Trend the relevant PI Performance Monitor tags</p>	Set notification for extended high levels of CPU usage.
PI System log files	Check the PI System log files for errors or warnings.	PI SMT	
PI System Interfaces log files	Check the PI System Interfaces log files for errors or warnings.	PI SMT or PI ICU	
Archives	Verify daily that the expected archives are registered and that you have prepared for the next archive shift.	PI SMT piartool -al	See "Set up automatic archive creation" in <i>PI Server Introduction to System Management</i> .
Backups	Verify daily that PI System backups were run for the previous day and that you have sufficient disk space for future backups.	PI SMT piartool -al	See the relevant section in OSIssoft PI pdf guides or <a href="#">online</a> documentation.

## Weekly Tasks:

Component	Task	Tools	Automation Method
Predict the next archive shift	Predict the next archive shift	PI SMT	Configure automatic archive creation.
Backups	Ensure a permanent backup has been made both on and off the PI Server.	PI SMT piartool -al	See the relevant section in OSIssoft PI pdf guides or <a href="#">online</a> documentation.
Check OSIssoft website	Verify OSIssoft's Web site <a href="http://www.osissoft.com">www.osissoft.com</a> for engineering plan and software patches.	Browser	Subscribe to RS Feeds.

## Monthly Tasks:

Component	Task	Tools	Automation Method
License limits and usage	Perform monthly usage statistics and point count checks for your PI System to anticipate license increase needs.	PI SMT pispnap.bat or pispnap.sh	
Update Manager	Verify client connections to the PIServer.	Pilistupd	VB or Power Script to email results.

## Annual Tasks:

Component	Task	Tools	Automation Method
Upgrade OS & PI Software	<ul style="list-style-type: none"> <li>Upgrade operating system version to the latest approved and supported version from OSIsoft.</li> <li>Upgrade PI Server to the latest version from OSIsoft.</li> <li>Upgrade PI interfaces to the latest versions.</li> <li>Upgrade PI clients to the latest versions.</li> </ul>	Relevant installs	
PI Audit	Undertake an extensive audit of the PI System. <ul style="list-style-type: none"> <li>Tags</li> <li>Users</li> <li>Interfaces including buffering</li> <li>Security</li> <li>Backups</li> </ul> Ideally, test the backups and complete a full restore from backup to a test server.	Pilistupd	VB or Power Script to email results.

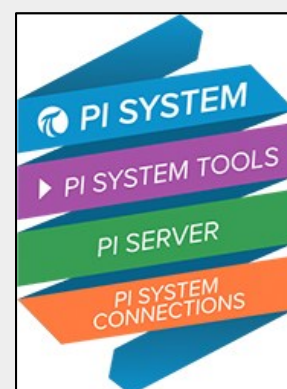
## As Required:

Component	Task	Tools	Automation Method
Tag data	Review archive data reference tags. Add/Edit/Delete as required.	PI SMT pisanap.bat or pisanap.sh	
Update Manager	Verify client connections to the PIServer.	Pilistupd	VB or Power Script to email results.

## Tips and Tricks

Here are a few tips and tricks for administering the tag in your PI Server:

- Correct Shutdown attribute**  
 Use Excel SMT add-in to find tags that belong to data source collected off the PI Server via Interface Nodes (e.g. From DCS, SCADA, OPC, LIMS, Weighbridge, UFL, etc) where buffering is configured with the 'Shutdown' attribute equal to 1 (On) and update just the 'Shutdown' attribute equal 0 (Off). All tags that are collected by interfaces on the PI Server should have the 'Shutdown' attribute equal 1 (On).
- Correct Step attribute**  
 Use Excel SMT add-in to find tags that should be stepped like Lab values, SetPoints, Alarm Levels (High High, High, Low, Low Low) with the 'Step' attribute equal to 0 (Off) and update just the 'Shutdown' attribute equal 1 (On).
- Add Shutdown & Step attributes to tag creation**  
 If you are using Excel SMT to create your tags in bulk or via a template include Shutdown & Step attribute in your columns to export to PI for tags updates and tag creation.
- Install High Availability (HA) Interfaces where possible.
- Install and configure the PI Interface Status Interface to monitor Interface data flow.
- Install and configure PI Perfmon and PI Ping on your PI Server. PI Perfmon to monitor critical PI Server statistics (OSIsoft provides a good template for this) and PI Ping to ping your Interface nodes and other critical infrastructure including an external ip address or domain name such as your company website or www.google.com to validate external access over time.
- Invest time in developing your AF structures, elements, templates etc, however this is a topic on its own.



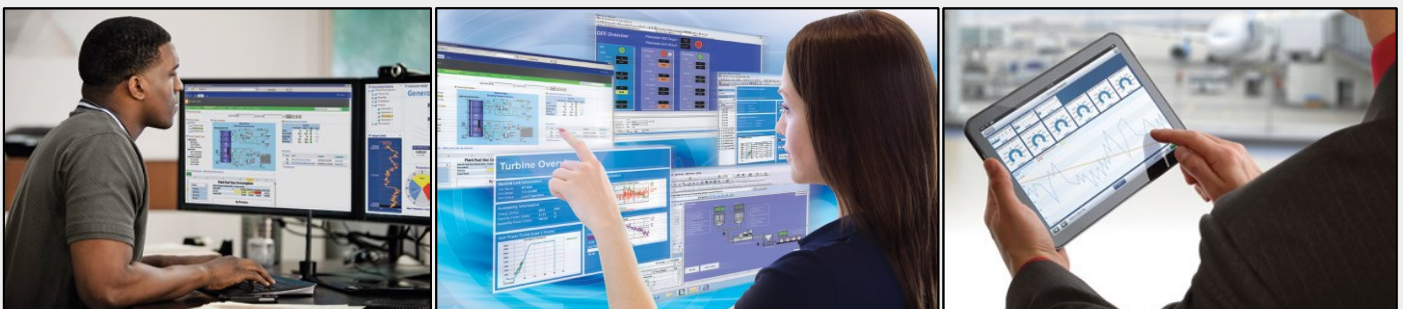
## PI Data Archive command-line utilities

PI Data Archive includes several command-line utilities that you can use to configure points, monitor data flow, manage archives, and configure security settings. Use the `-?` argument to view details about any PI Data Archive command-line utility. For example:

```
pilistupd -?
```

Executable	Location	Purpose
apisnap.exe	PI\adm	Check snapshot values.
ipisql.exe	PI\adm	Execute SQL statements directed at the PI Data Archive server.
piarchss.exe	PI\bin	Manage offline archive files.
piarcreate.exe	PI\adm	Create archive files.
piartool.exe	PI\adm	Mount archive files, and monitor, inspect, or modify the state of a running PI Data Archive.
piconfig.exe	PI\adm	Configure PI Data Archive databases and tables, such as the PI point database and the digital state table.
pidiag.exe	PI\adm	Diagnose and repair the PI Data Archive server offline.
pigetmsg.exe	PI\adm	View messages in the PI message log.
pilistupd.exe	PI\adm	Monitor PI Update Manager, update producers, update consumers and update queues.
pipetest.exe	PI\adm	Test PI Performance Equation syntax.
pisetpass.exe	PI\adm	Change user passwords.
pisnap.bat	PI\adm	Start apisnap.exe against the local PI Data Archive server.
piversion.exe	PI\adm	Find the version and build numbers of the PI Data Archive server.

We hope you found this best practice guide to be useful and high-level in maintaining your PI Server. We welcome your comments and/or feedback.



### About Industrial Data Xchange:

Industrial Data Xchange (IDX) provides industrial IT & IIoT solutions and related services to primary and manufacturing industries. We mainly service the following sectors: food & beverage, mining & metals, power, pulp & paper, renewables, telecommunications & water, and the large EPCs & small to medium system integrators servicing these sectors. Our services include building automation, custom development, custom & legacy integration, data migration, and industrial IT consulting. IDX also provides services to help keep your control networks, especially PROFIBUS & PROFINET, running in tip-top shape. Our industrial network audits will proactively assess the health of your control networks and our industrial network emergency callouts to get you back reactively quickly up and running when a breakdown occurs. Our developed solutions include IDX Nexus, IDX Suite, IDX Data Historian, IDX StarNet Gateway, IDX ifm VSE Gateway. We also have solutions related to building automation, IIoT, network components, and analysis tools as well as protocol converters for industrial control networks. Our IDX Academy offers internationally certified PROFIBUS & PROFINET training as well as ASi, CANbus, Modbus protocol training, and more. Contact us for all of your connectivity challenges: phone us on +27 (11) 548 9960 or email us on [info@idx.co.za](mailto:info@idx.co.za).

