

**2002**  
OSISOFT USERS CONFERENCE



**EXPANDING  
THE POWER OF PI**

**MONTEREY CALIFORNIA**



**OSIsoft™**

# ProcessTemplates

## *Process Templates*

All Processes have repeatable events

- Batches, Operations, Phases
- Product or Grade Changes
- Turbine Start-ups
- Hourly Load Schedules

Measures and Monitors Process Repeatability

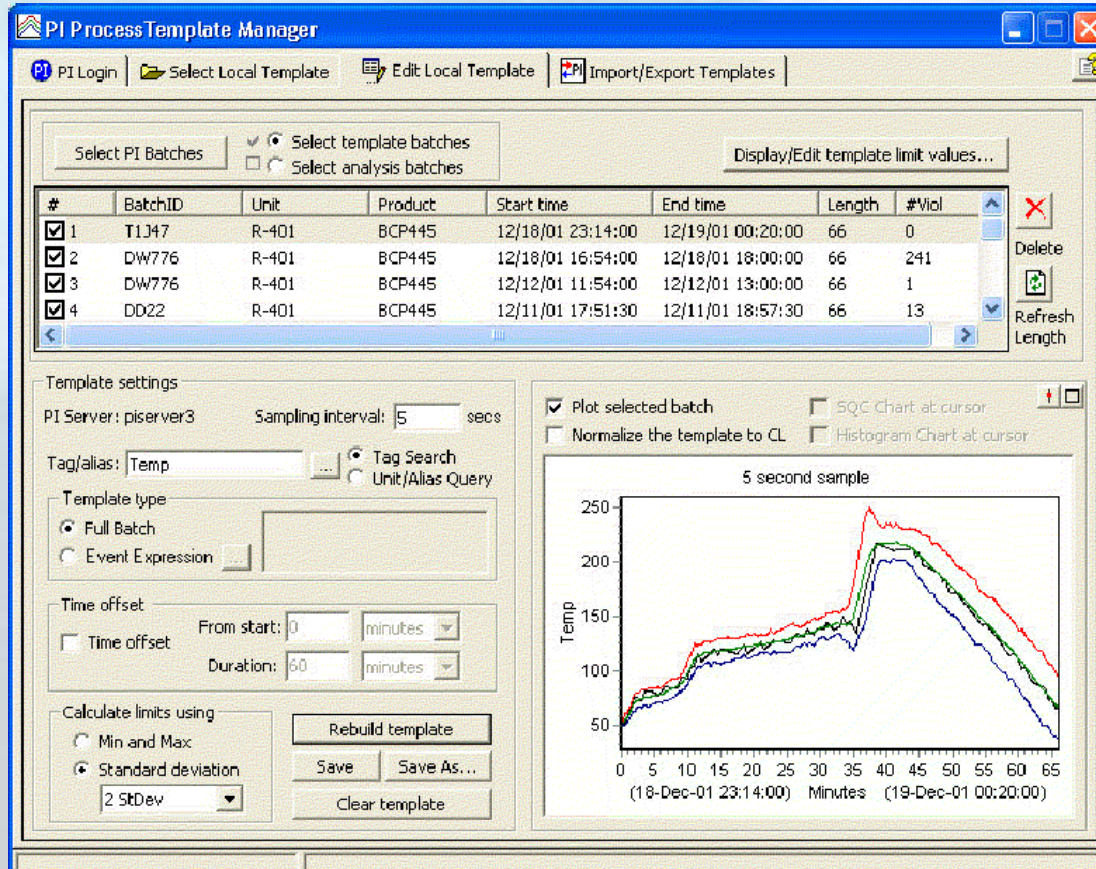
Uses PI, PI Batch and the PI Module Database

Third Party Product developed by Exele Information Systems



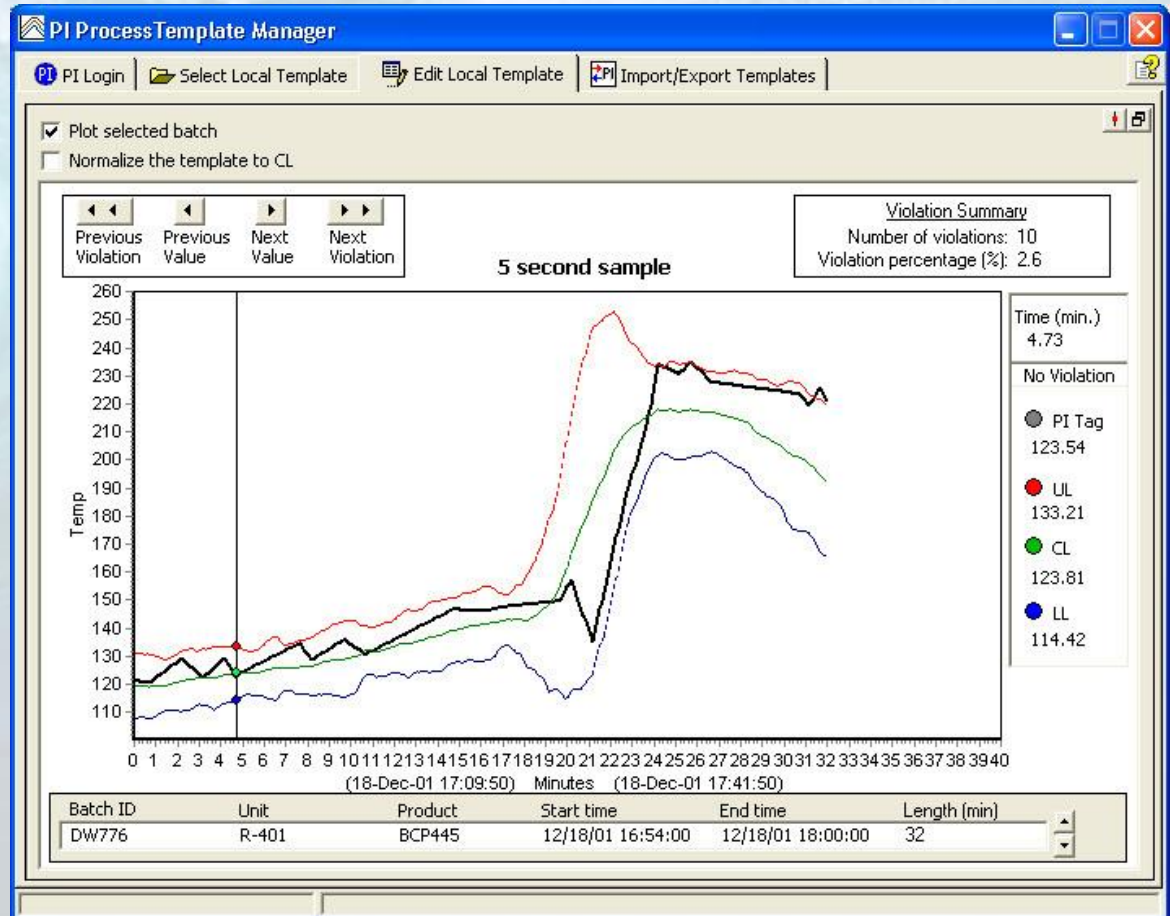
# ProcessTemplate Manager

Client tool to Build Templates and Measure Repeatability



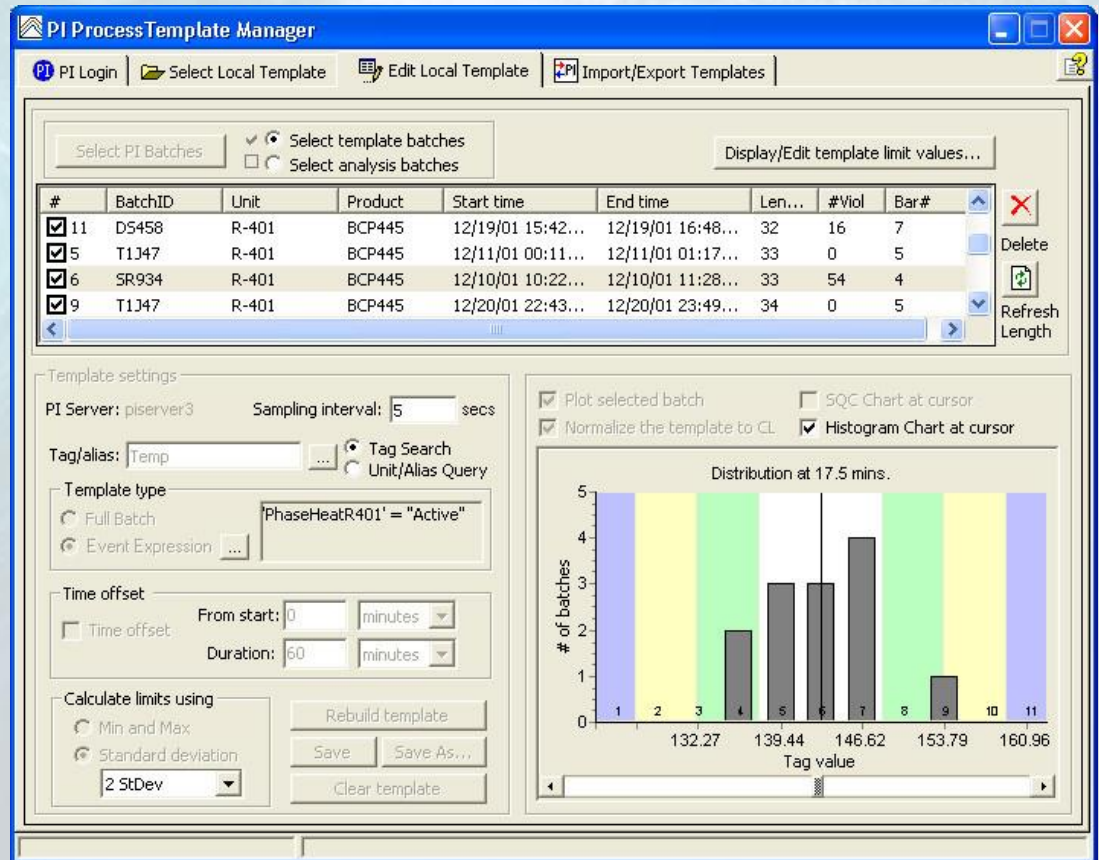
# ProcessTemplate Manager

Compare a key performance indicator against a Template



# ProcessTemplate Manager

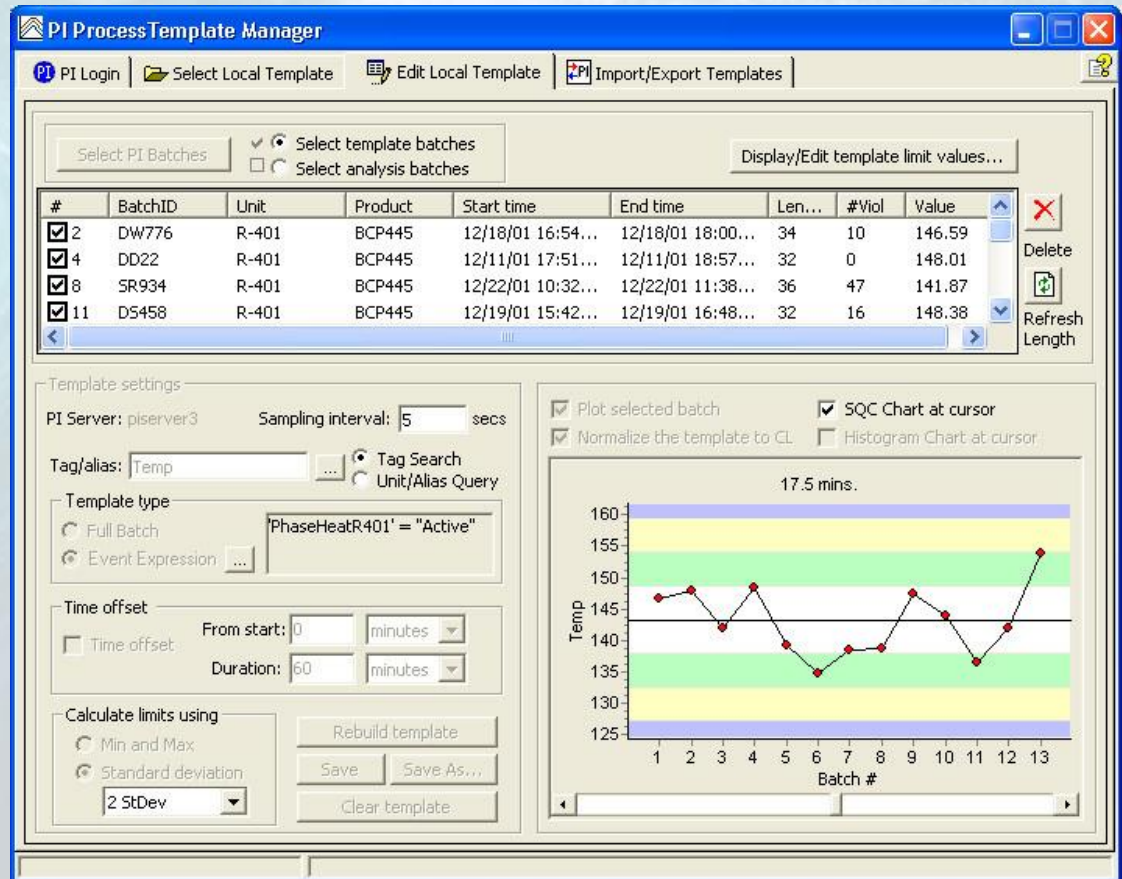
View the Distribution of values at a given time into an event





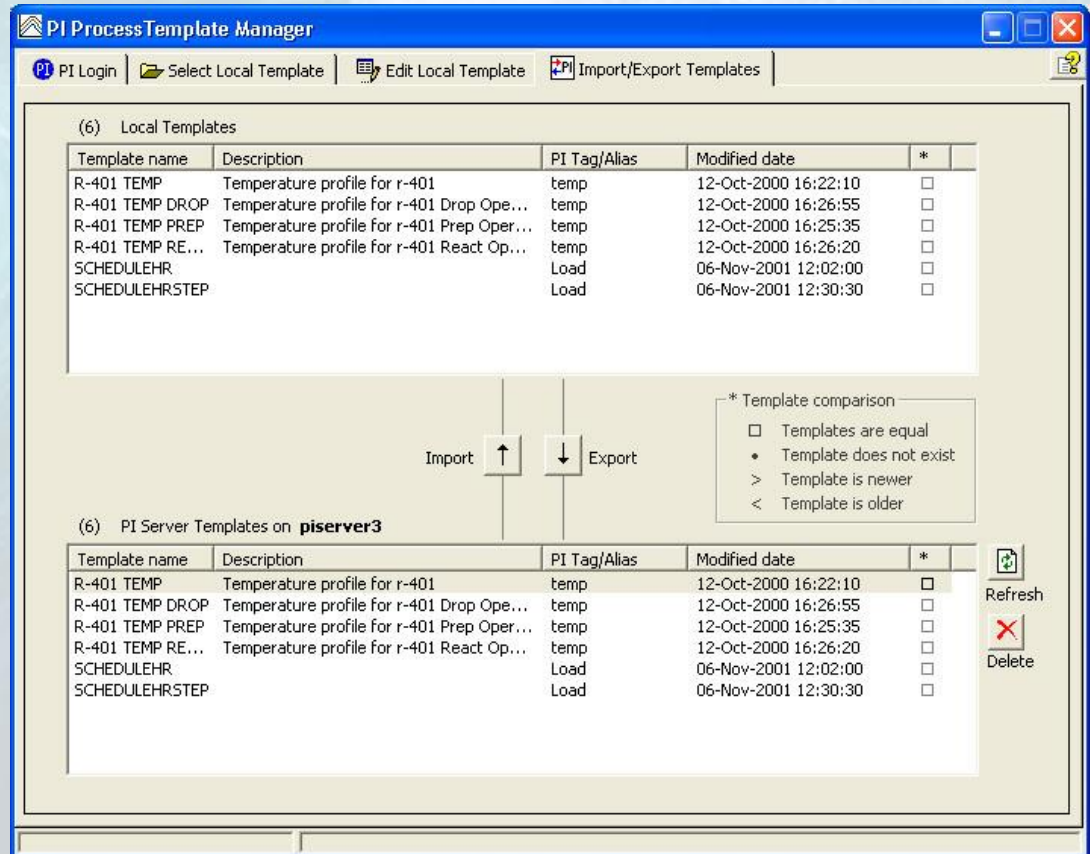
# ProcessTemplate Manager

View the actual values of a key performance indicator at a given time into an event



# ProcessTemplate Manager

## Export Templates to PI Module Database



# ProcessTemplate Monitor

Monitor Processes against stored Templates

The screenshot shows the 'ProcessTemplate Monitor Configuration' window. At the top, there are two dropdown menus: 'Template Storage:' and 'Sensors and PI Batch:', both set to 'piserver2'. To the right of these are buttons for 'Login', 'Connections...', 'Point Edit', 'Groups', and 'Backup'. Below the dropdowns, the text '(5) Active Monitors on piserver2' is displayed. A table lists the active monitors with columns: Active Monitor, Unit, Product, Template, Tag/Alias, Alarm tag, UL Tag, CL Tag, LL Tag, and AlarmSi. The table contains five rows of data, with the second row highlighted. To the right of the table are buttons for 'Edit', 'New', and 'Delete'.

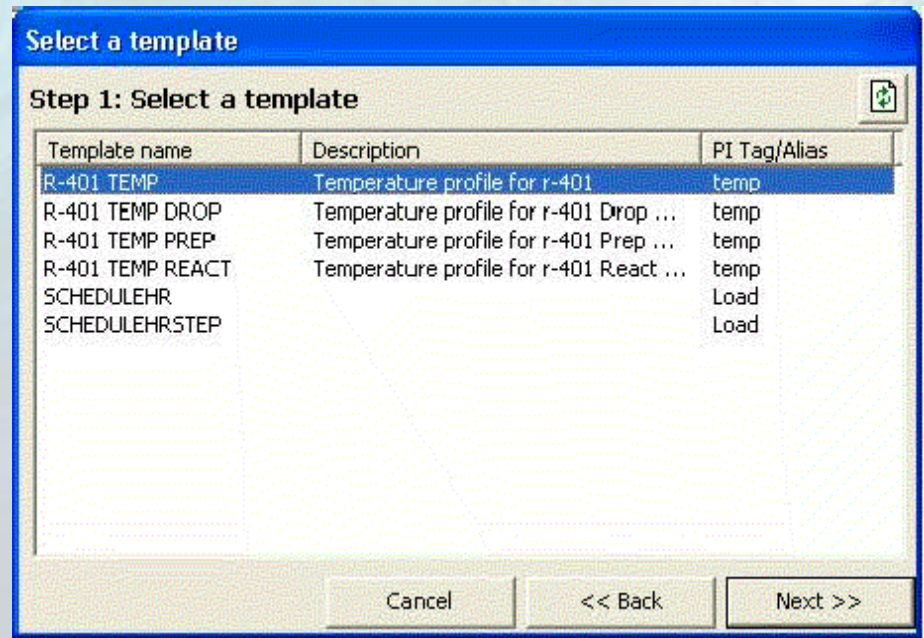
Active Monitor	Unit	Product	Template	Tag/Alias	Alarm tag	UL Tag	CL Tag	LL Tag	AlarmSi
LOADSCHEDU...	Coal ...	*	SCHEDULEHRS...	Load	CoalFire...				FALSE
R401 TEMP B...	R-401	*	R-401 TEMP	temp	TempQu...	TempHig...	Temp Ce...	TempLo...	FALSE
R401 TEMP D...	R-401	*	R-401 TEMP DR...	temp	TempQu...				FALSE
R401 TEMP P...	R-401	*	R-401 TEMP PREP	temp	TempQu...				FALSE
R401 TEMP R...	R-401	*	R-401 TEMP RE...	temp	TempQu...				FALSE



## *ProcessTemplate Monitor*

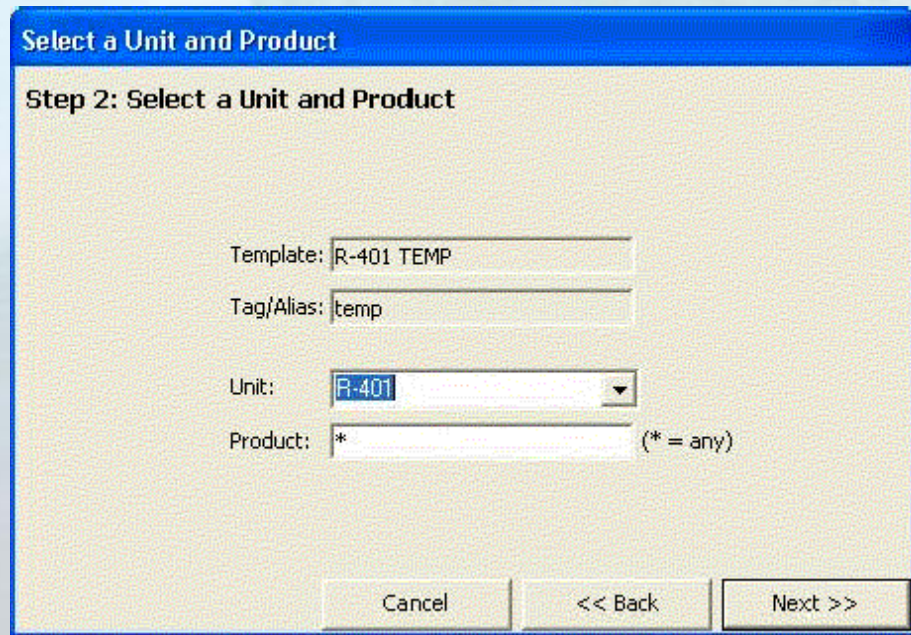
Create a Monitor to Monitor Processes against stored Templates

Select a Template  
for the Monitor



## *ProcessTemplate Monitor*

Specify the Unit to Monitor and the Product for which it Applies



The screenshot shows a dialog box titled "Select a Unit and Product". Inside the dialog, the text "Step 2: Select a Unit and Product" is displayed. There are four input fields: "Template:" with the value "R-401 TEMP", "Tag/Alias:" with the value "temp", "Unit:" with a dropdown menu showing "R-401", and "Product:" with the value "\*". To the right of the "Product:" field is the text "(\* = any)". At the bottom of the dialog are three buttons: "Cancel", "<< Back", and "Next >>".

Select a Unit and Product

Step 2: Select a Unit and Product

Template: R-401 TEMP

Tag/Alias: temp

Unit: R-401

Product: \* (\* = any)

Cancel << Back Next >>

## *ProcessTemplate Monitor*

Processes that violate a given Template are alarmed with a PI Tag

The 'as run' Template is optionally stored in PI Tags

The screenshot shows a Windows-style dialog box titled "Select PI tags". Inside, the section "Step 3: Select Monitor output PI tags:" is active. It contains a checkbox for "Only alarm on new snapshot values" which is unchecked. To the right is a "Search method" group box with two radio buttons: "Tag Search" (selected) and "Unit/Alias Query". A "Point Edit" button is to the right of the search methods. Below this is an "Alarm tag:" label followed by a text box containing "TempQualityFlagR401" and a browse button "...". A note below the text box states: "will receive the current alarm condition" and "Digital PI Tag where (0=Inactive) (1=Low alarm) (2=Compliant) (3=High Alarm)". Further down are three rows for template limits: "Template Upper Limit:" with text box "TempHighLimit R401", "Template Center Line:" with text box "Temp Center Line R401", and "Template Low Limit:" with text box "TempLowLimit R401". Each text box has a browse button "...". A note below these fields says "Must be Float16 or Float32 PI Tags". At the bottom are three buttons: "Cancel", "<< Back", and "Save".

Select PI tags

Step 3: Select Monitor output PI tags:

These PI tags are optional and can be used to hold results of the Monitor

☐ Only alarm on new snapshot values

Search method

☒ Tag Search

☐ Unit/Alias Query

Point Edit

Alarm tag: TempQualityFlagR401 ...

will receive the current alarm condition

Digital PI Tag where (0=Inactive) (1=Low alarm) (2=Compliant) (3=High Alarm)

Template Upper Limit: TempHighLimit R401 ...

Template Center Line: Temp Center Line R401 ...

Template Low Limit: TempLowLimit R401 ...

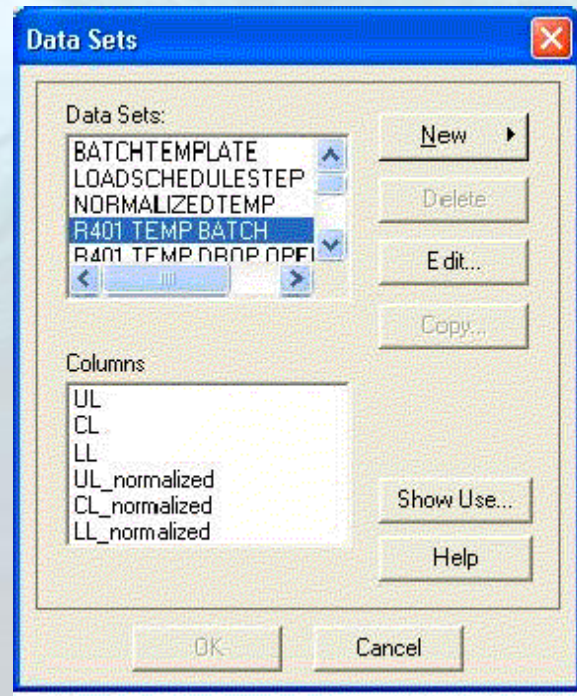
Must be Float16 or Float32 PI Tags

Cancel << Back Save



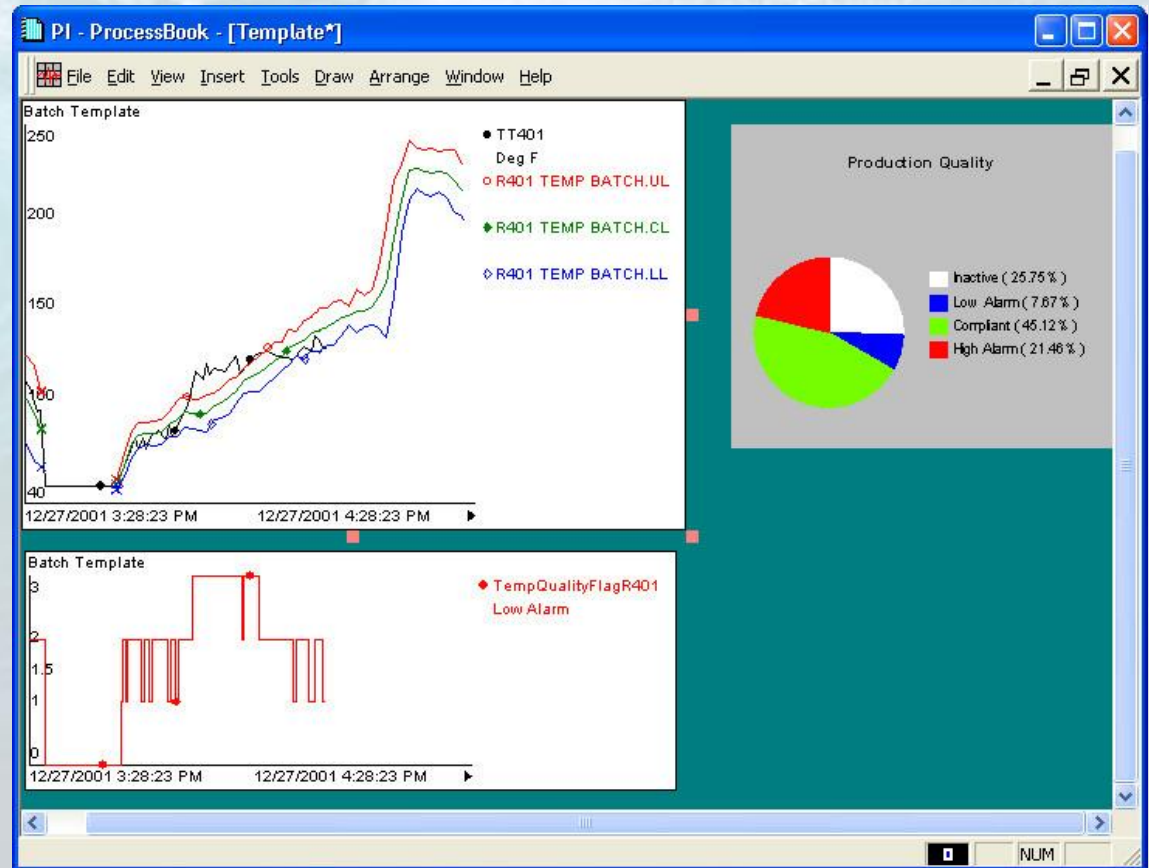
## *ProcessTemplate Add-In*

Add-In to ProcessBook that Presents Templates as Data Sets



## ProcessTemplate Add-In

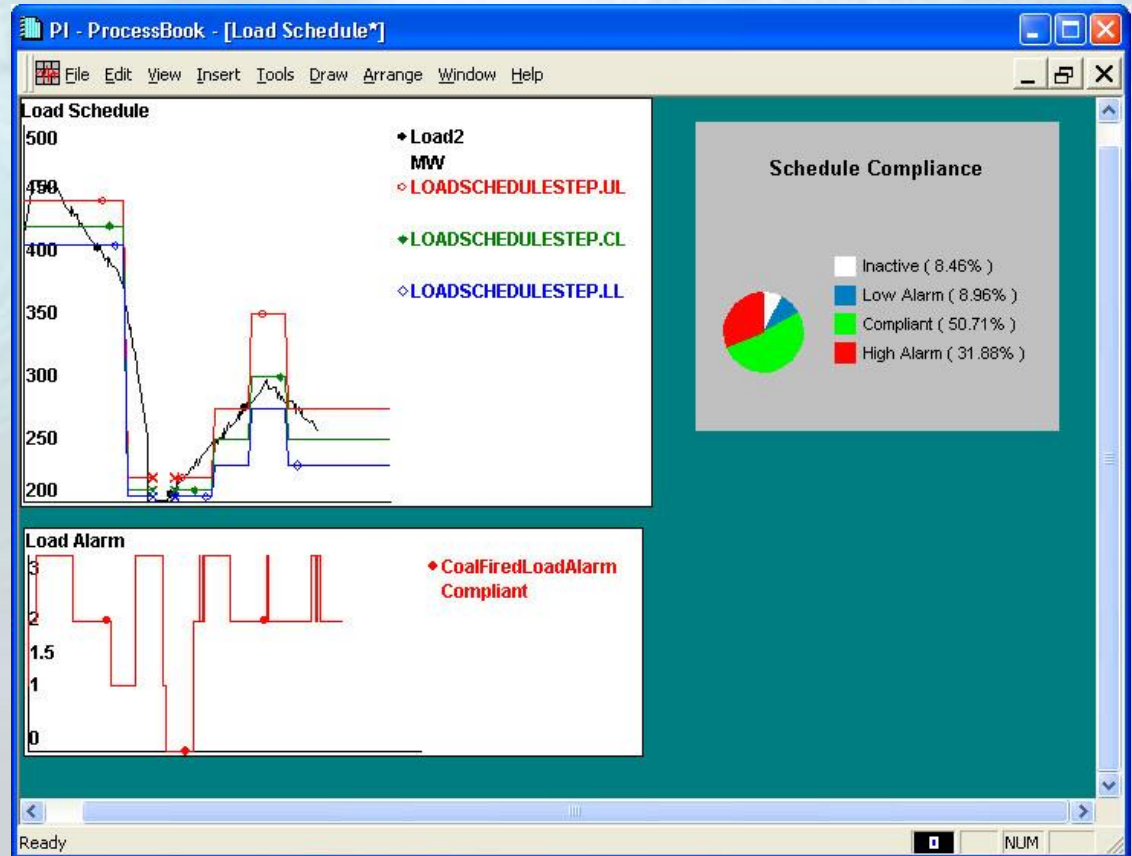
Templates are plotted into the future against current operating conditions.



## ProcessTemplate Add-In

An Active X Server  
allows Templates to be  
updated in real time.

Measure Generator  
Performance with  
dynamic Load  
Schedules





# *ProcessTemplates*

## Key Benefits

- Reduce Cycle Times
- Reduce Product Variability
- Identify Process Bottlenecks
- Improve Product Quality
- Raise real-time alarms on non-linear limits
- Notify when events do not conform to schedule
- Increase repeatability of turbine start-ups
- Buy or sell power on the spot market by comparing power generation to Load Schedules

## **ProcessTemplates**

***“ProcessTemplate Manager is the most intuitive batch analytical software I have seen...”***

**Raj Bhadauria, AOC**

***“PI and PI Batch was used to reduce the cycle times of our batches by 40% and saved \$5 million in two years...”***

**Barry MacGregor, Dow Corning Corporation**