

Generic Applications with the Module Database



Overview of PI System in Entergy

- Started in 1997 for Entergy's fossil plants.
- 171,858 tags on 18 PI systems using 32 interfaces gathering data from DCS systems like Foxboro, Honeywell, Max 1000, WDPF, Ovation, ABB, Bailey, some PLC systems as well as a couple of custom interfaces.
- Currently have 2000 displays in 23 PIW files ranging in size from 15 MB to over 40 MB.



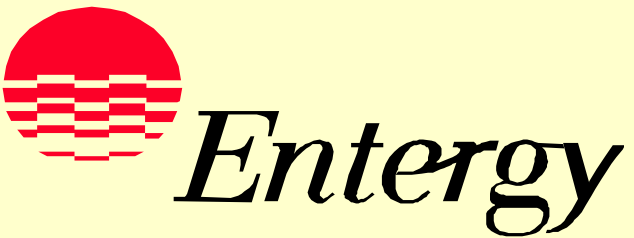
Reasons for Using the MDB

- Tag name inconsistencies between plants and units. With few exceptions, no two DCS points are remotely similar from plant to plant and unit to unit.
- Record keeping. You can store any amount of data in the properties of the Module Database.
- Less confusion of which tags store the desired data for new employees.
- It makes generic applications easier to create.



Generic Applications for the MDB

- Equipment Health Monitoring System (EHMS) – in use
- Operational Information System (OIS) display development – in development
- Operations Transaction Server (OTS)
- Reporting potential both within the MDB and using Excel, Access or other tools.

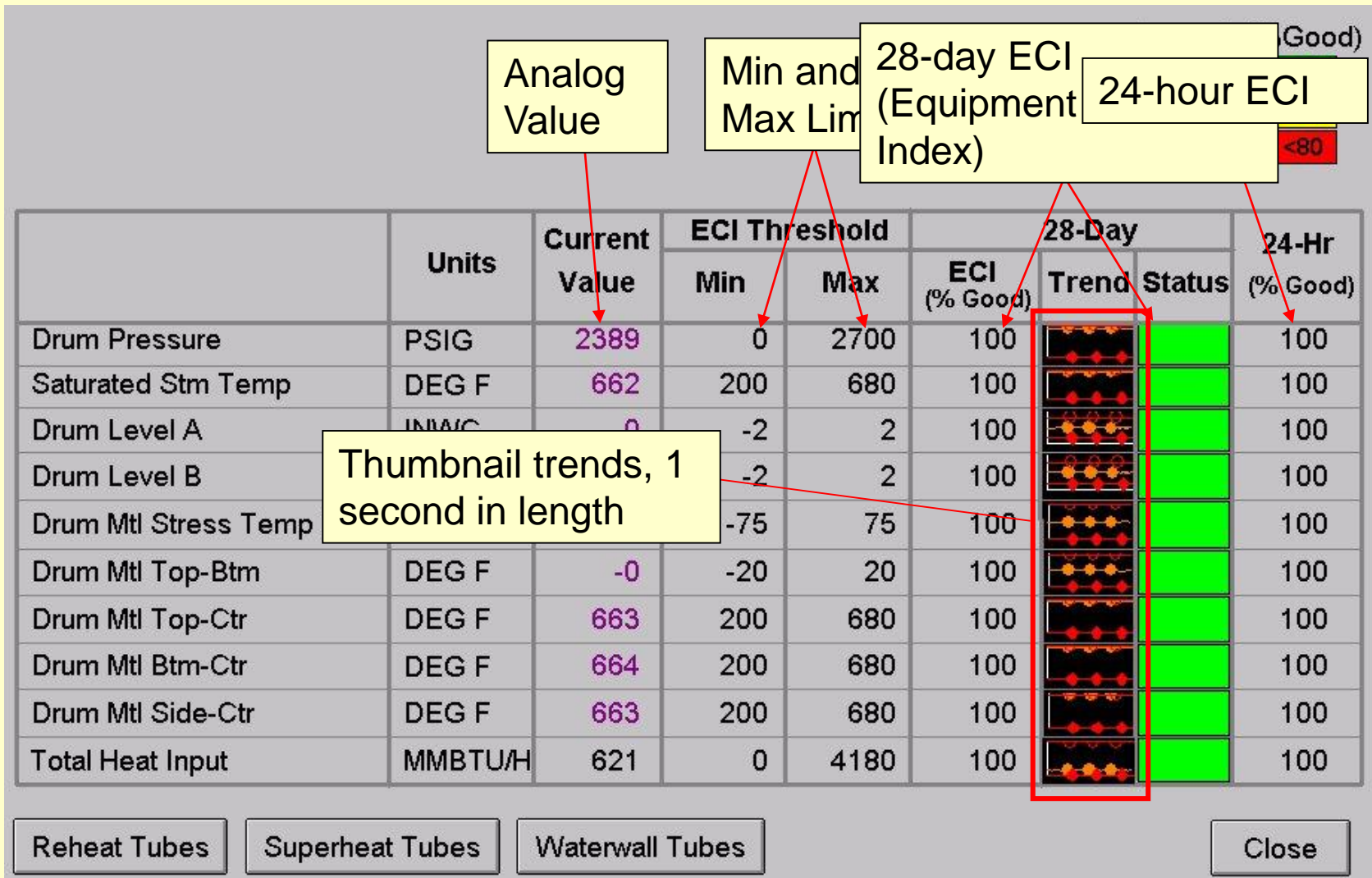


Reasons for implementing the MDB in EHMS

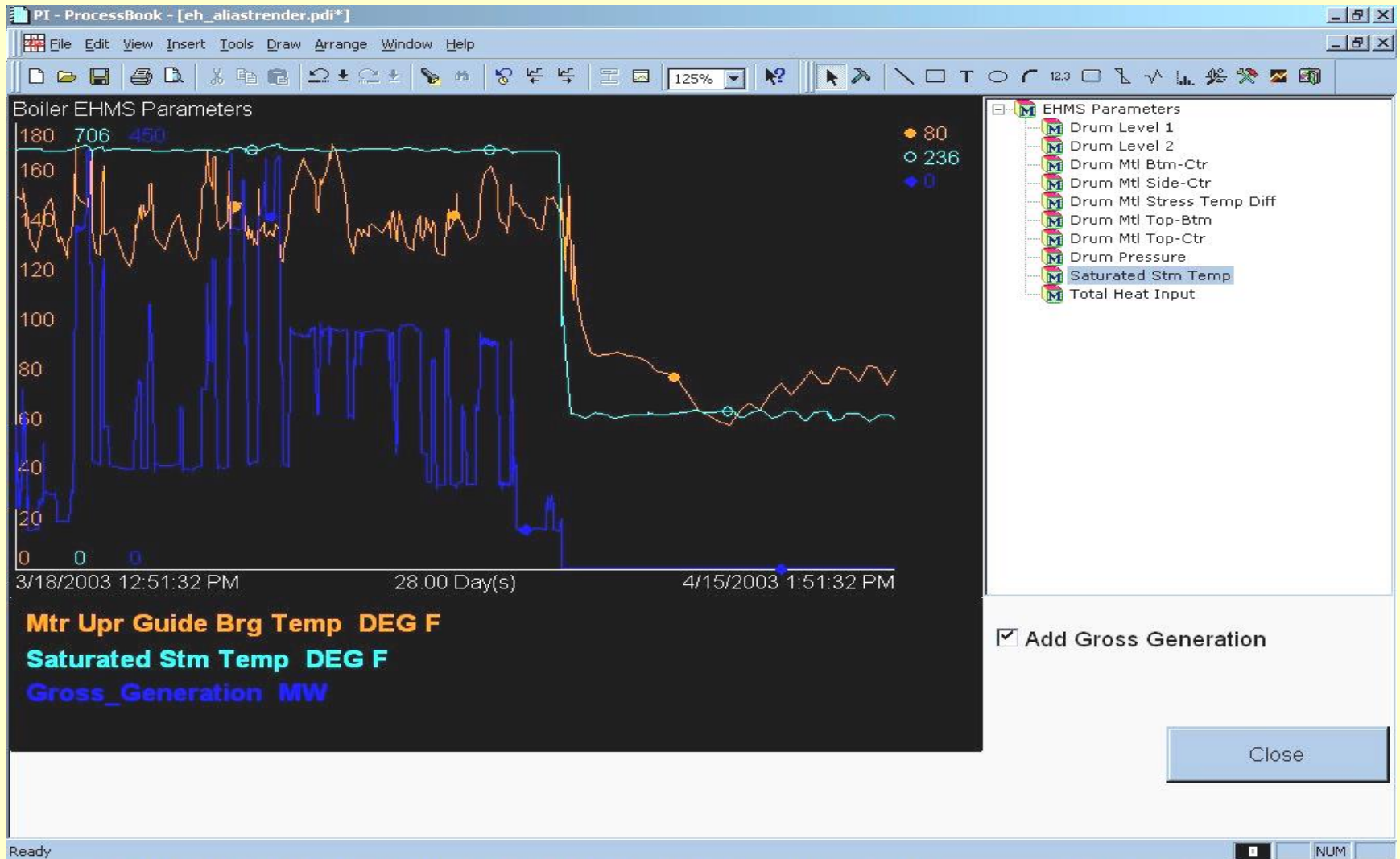
- After creating the displays for only six critical pieces of equipment, the size of the EHMS PIW was over 8 MB for **one unit**.
- Due to the formatting of our details displays, the display load time could take as long as one to two minutes on a fast connection.



EHMS



EHMS



EHMS

Legend: (% Good)

Normal =>90

Caution <90

Warning <80

	Unit	IS	24-Hr (% Good)
Drum Pressure	PSIG		100
Saturated Stm Temp	DEG I		100
Drum Level A	IN/AC		100
Drum Level B			100
Drum Mtl Stress Temp Di			100
Drum Mtl Top-Btm			100
Drum Mtl Top-Ctr			100
Drum Mtl Btm-Ctr	DEG I		100
Drum Mtl Side-Ctr	DEG I		100
Total Heat Input	MMBT		100

No trends, less load time.

Possible long load time

Properties

CommandButton1

Alphabetic | Categorized

(Name) | Color

Accelerator

AutoSize | False

BackColor |

BackStyle | 1 -

Caption | Drum

Enabled | True

Font | Arial

ForeColor | Blue

Height | 63

Left | -13

Properties

MDBPath Text

Alphabetic | Categorized

(Name) | MDBPath

BackColor | -1

Contents | \\wf12nh\Waterford 1&2\2\boiler\Boiler Drum\EHMS Parameters\

Enabled | True

EnableScript | True

FillColor | 255

Height | 43

Left | -14300

LineColor | 0

Rotation | 0

Selected | True

13864

False

986

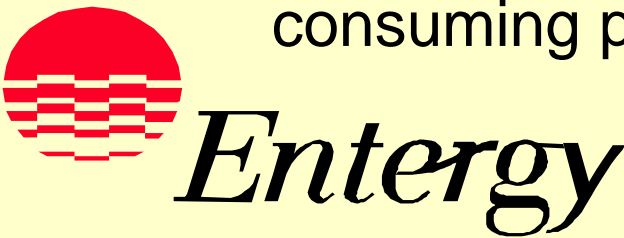
Module Location: \\wf12nh\Waterford 1&2\2\boiler\Boiler Drum\EHMS Parameters\

- Reheat Tubes
- Superheat Tubes
- Waterwall Tubes
- Close

Operational Information System (OIS)

Reasons for using the MDB to develop Processbook displays:

- Many displays to build that are similar if not identical in design
- The display holds a considerable amount of information that is similar or identical to other units' or plant's needs. We currently have displays that hold up to 100 or more tags.
- There appeared to be a significant decrease to the required man-hours when compared to the time-consuming point-and-click including tag searches.



Module Database Issues

- **Who needs to be involved in determining the names of the modules and aliases?**

One man team for module/alias naming. Why? Too many cooks. This insures consistency with the naming and locations of the modules, aliases, and properties.

- **How do we prioritize what needs to be “modularized” first or even determine what needs to be in the MDB?**
 - Address those items that are currently needed in the development of Processbook displays.
 - Modularize the parameters that will be used by outside applications such as Excel or external VB applications
 - Anything else



Operational Information System (OIS)

The screenshot displays the PI - ProcessBook interface for a 'Generic Condenser Overview'. The main window shows a process diagram with components like 'Circ Water Pumps', 'Cond Vacuum Pumps', and 'Hotwell Make-up Flow'. A 'Properties' window is open over the diagram, showing details for an 'MDBPath' object. The path is '\fosne\lewis creek\1\Condenser and Circulating Water'. The 'Contents' field is highlighted, and the 'Alphabetic' checkbox is checked. The 'Categorized' checkbox is also visible but unchecked. The 'Background Color' is set to 12632256. The 'Contents' field contains the text: '\\fosne\lewis creek\1\Condenser and Circulating Water'. The 'Properties' window also shows a list of other properties such as 'Enabled', 'EnableScript', 'FillColor', 'Height', 'Left', 'LineColor', 'Rotation', 'Selected', 'Top', 'Visible', and 'Width'.

Generic Condenser Overview

Net MW 50 00/50/ 50 00:00:50
Net HR 50

Advisor Says:
Run 50 Pump(s)

Circ Water Pumps
1A
1B

Cond Vacuum Pumps
1A
1B

Hotwell Make-up Flow
50 GPM

Properties

MDBCondenser Text

Properties

MDBPath Text

Alphabetic Categorized

(Name)	MDBPath
BackgroundColor	12632256
Contents	\\fosne\lewis creek\1\Condenser and Circulating Water
Enabled	True
EnableScript	True
FillColor	255
Height	42
Left	-14607
LineColor	8388736
Rotation	0
Selected	True
Top	14894
Visible	True
Width	827

Operational Information System (OIS)

PI Module Database Editor - Microsoft Internet Explorer provided by EntergyNET

File Edit View Favorites Tools Help

Address: C:\pi_dlink\SMT\MDBEditor\MDBEditor.html

Condenser

Folder Items

- My Module Databases
 - fos-dbh2vn01
 - FOSNE
 - PI BatchDB
 - PI ModuleDB
 - %OSI
 - ETR_Templates
 - Gerald Andrus
 - Independence
 - Lewis Creek
 - 1
 - Boiler
 - Condenser and Circulating
 - Circulating Water
 - Condenser
 - Vacuum Pumps
 - Feedwater & Condensate S
 - Feedwater Heater
 - Generator
 - Steam Turbine
 - 2
 - Little Gypsy
 - Michoud
 - NineMile
 - Plants
 - PMDC
 - Sabine
 - Test Plant
 - Waterford 1&2
 - White Bluff
 - Willow Glen

Sub-Modules PI Aliases PI Properties

PIProperty Name	Value	Datatype
OISTRN Condenser	Circ Water Inlet Tem...	String
Default Min	0	String
Default Max	400	String
Trace 1		String
Min	0	String
Alias	Circ Water Inlet Tem...	String
Max	600	String
Trace 2		String
Alias	Circ Water Inlet Tem...	String
Min	0	String
Max	600	String
Trace 3		String
Alias	!Unit Net Load	String
Min	-20	String
Max	500	String
Hotwell Level Bar		String
Alias	\\lcpnd\LE1:CHT1CN...	String
Upper	100	String
Lower	0	String
Start	0	String
Condenser Cleanliness MS		String
Alias	\\lcpnd\LE1:CXAGOC...	String
ColorBad	Gray	String
State 1		String
Upper		String
Lower		String
Color	Fuschia	String
State 2		String
Upper		String
Lower		String
Color	Red	String
Condenser Target Backpres...	Condenser Target B...	String

0 Objects Type: PIModule Aliases: 28 Properties: 8 Effective Date: 12/31/1969 6:00:01 PM Query Date: 4/14/2003 10:34:12 AM Heading: SubSystem(Level=4) Creator: pia

Done My Computer

Questions?

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