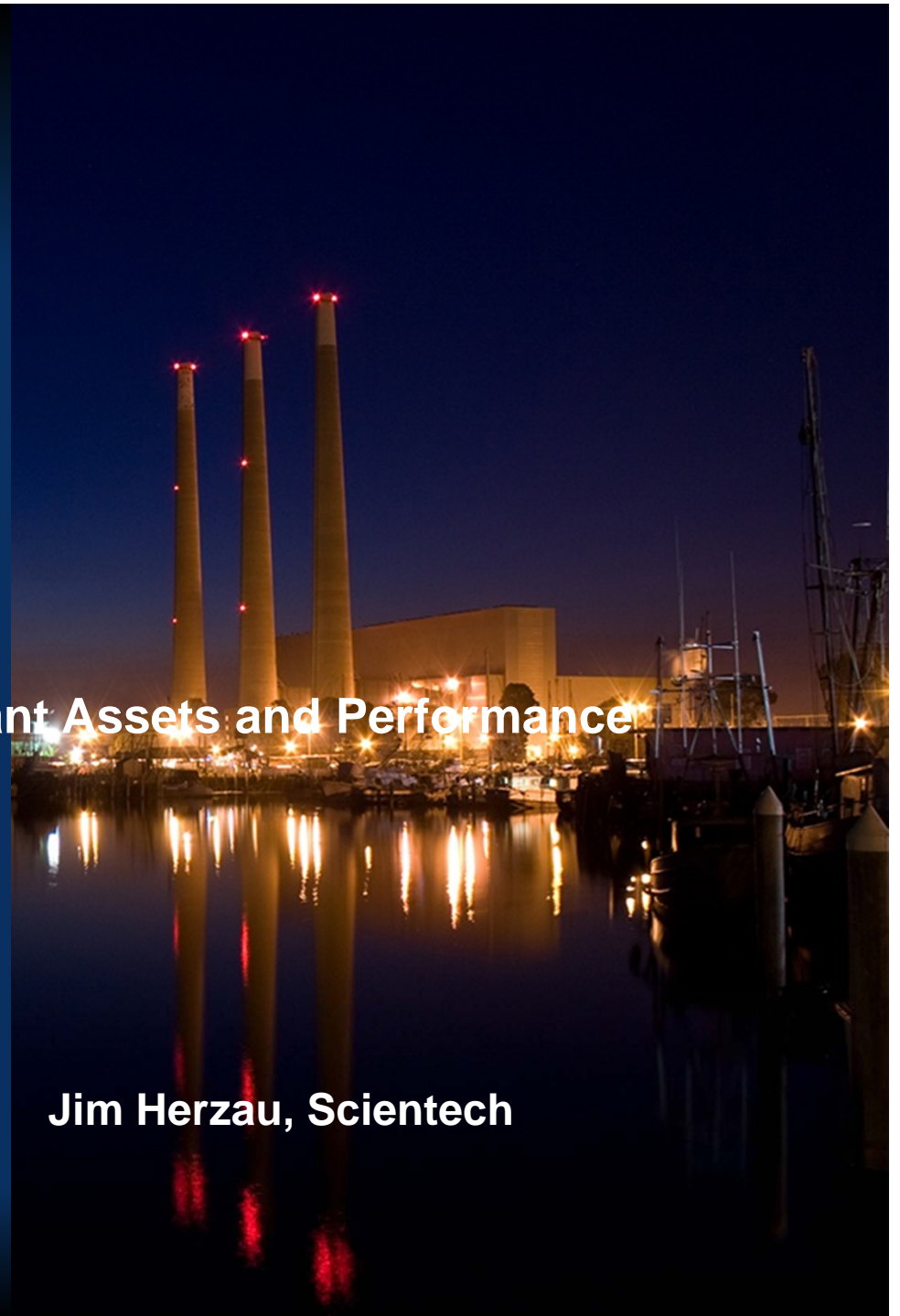




PdP Modeling with FAMOS Architect Tips & Tricks

2013 Symposium: Managing Plant Assets and Performance
Clearwater Beach, Florida
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July, 2013

Jim Herzau, Scientech



Topics Covered

- ✓ **Quick Review of PdP Modeling Components** - *model and reference file structure and configuration*
- ✓ **Reconfiguring an Existing Model** – *reordering and removing sensors from an existing model while preserving the reference file*
- ✓ **Splitting an Existing Model into Submodels** – *and reusing reference file training data*
- ✓ **Using Browse to Find PdP Model Info** - *new tables visible in Browse for fast access to configuration info*
- ✓ **Preserving Reference file** – *techniques for updating rather than replacing reference files when behavior changes*

PdP Model Components

Model

Point Tag	Description	Units
WTG01-ACTIVEPOWER	WTG01-ACTIVE POWER	KW
WTG01-REACTIVEPOWE	WTG01-REACTIVE POWER	KVAR
WTG01-ROTORRPM	WTG01-ROTOR RPM	RPM
WTG01-GENERATORRPM	WTG01-GENERATOR RPM	RPM
WTG01-AMBTEMP	WTG01-AMBIENT TEMPERATURE	DEGC
WTG01-NACELLETEMP	WTG01-NACELLE TEMP	DEGC
WTG01-CURRENTA	WTG01-GENERATOR 1 PHASE 1 C	AMPS
WTG01-CURRENTB	WTG01-GENERATOR 1 PHASE 2 C	AMPS
WTG01-CURRENTC	WTG01-GENERATOR 1 PHASE 3 C	AMPS
WTG01-VOLTAGEA	WTG01-GENERATOR 1 PHASE 1 C	V
WTG01-VOLTAGEB	WTG01-GENERATOR 1 PHASE 2 C	V
WTG01-VOLTAGEC	WTG01-GENERATOR 1 PHASE 3 C	V
WTG01-G1ATEMP	WTG01-GENERATOR 1 PHASE 1 C	DEGC
WTG01-G1BTEMP	WTG01-GENERATOR 1 PHASE 2 C	DEGC
WTG01-G1CTEMP	WTG01-GENERATOR 1 PHASE 3 C	DEGC
WTG01-CABTOPBOXTMP	WTG01-TOP BOX CABINET TEMP	DEGC
WTG01-BTMCAPSECTMP	WTG01-BOTTOM CAPACITOR PAN	DEGC
WTG01-BTMCNTSECTMP	WTG01-BOTTOM CONTROL SECTI	DEGC

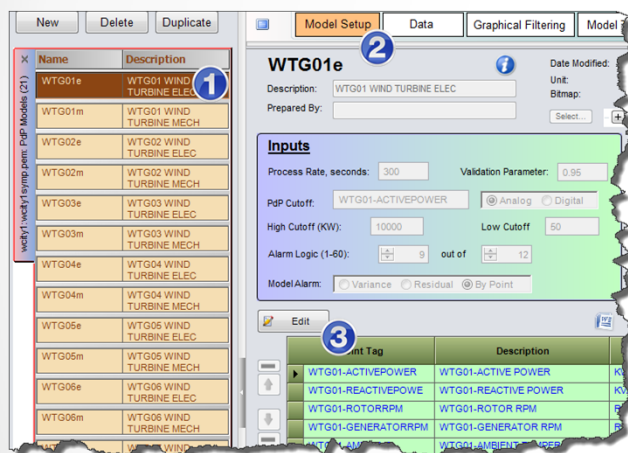
Corresponding Reference File Data

Excluded	Index	Date	WTG01-ACTIVEPOWER	WTG01-REACTIVEPOWER	WTG01-ROTORRPM	WTG01-GENERATORRPM	WTG01-AMBTEMP	WTG01-NACELLETEMP
		Filtered Data Max:	2169.645	263.9058	16.52509	1902.808	33	41.41628
		Filtered Data Min:	-8.863593	-304.554	13.91351	178	-19.72869	-11.95715
		Filtered Data Avg:					9.276504	16.58384
		Filter:	Filter High:					
		Filter Low:						
<input type="checkbox"/>	1	01-Jun-08 00:00:00	666.5394	-8.863593	15.04734	181	19	26
<input type="checkbox"/>	2	01-Jun-08 02:00:00	389.632	16.69644	14.87	1809.232	18.53069	25
<input type="checkbox"/>	3	01-Jun-08 05:00:00	83.31233	30.07772	14.60399	1802.469	18.90375	26
<input type="checkbox"/>	4	01-Jun-08 06:00:00	183.4952	30.14312	14.51532	1802.998	19	25
<input type="checkbox"/>	5	01-Jun-08 12:00:00	163.4321	39.29543	14.94583	1804.235	26.12308	33.38279
<input type="checkbox"/>	6	01-Jun-08 14:00:00	861.41	102.227	15	1819.612	27.84044	32
<input type="checkbox"/>	7	01-Jun-08 17:00:00	236.1159	100.1207	15.04288	1804.616	27.21221	32
<input type="checkbox"/>	8	01-Jun-08 19:00:00	163.2294	34.00213	14.71732	1802.099	25.92069	31.87477
<input type="checkbox"/>	9	02-Jun-08 01:00:00	55.88096	35.12788	14.58841	1801.599	24.43058	30.55562
<input type="checkbox"/>	10	02-Jun-08 05:00:00	966.0519	-0.401935	14.82958	1821.07	22.19891	28.77485
<input type="checkbox"/>	11	02-Jun-08 07:00:00	477.6509	9.599896	14.80565	1809.553	21	27.75643
<input type="checkbox"/>	12	02-Jun-08 19:00:00	570.9297	5.385478	15.38195	1811.101	17.15991	24
<input type="checkbox"/>	13	02-Jun-08 22:00:00	755.8716	48.7727	15.53219	1817.433	15	22
<input type="checkbox"/>	14	03-Jun-08 01:00:00	359.9472	84.57059	15.68243	1807.925	15	22.37209
<input type="checkbox"/>	15	03-Jun-08 04:00:00	2124.821	-0.560972	15.16449	1877.617	14	22.66355
<input type="checkbox"/>	16	03-Jun-08 06:00:00	478.1208	4.677035	14.8316	1810.304	15.96317	22
<input type="checkbox"/>	17	03-Jun-08 15:00:00	299.3827	26.2548	15.46893	1807.137	17.42855	24.03267

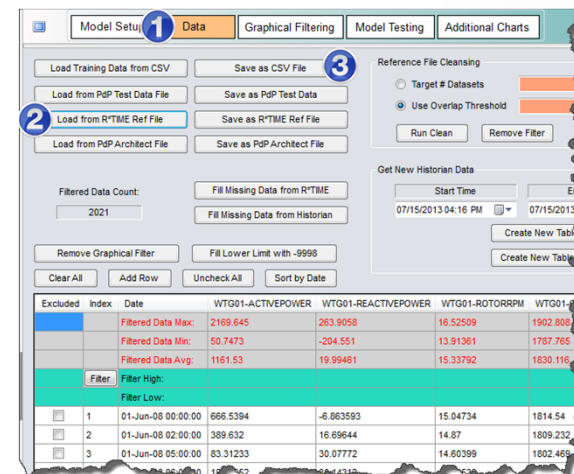
Runtime *.ref file is binary, with data for sensors ordered just like the columns in the tabular Data tab

Reconfiguring an Existing Model

If we have invested time to create a reference file by selecting normal data for the model, it usually makes sense to perform maintenance in a manner that translates the existing reference file into a functional reference file for the reconfigured model.



Select a Model and Open for Editing



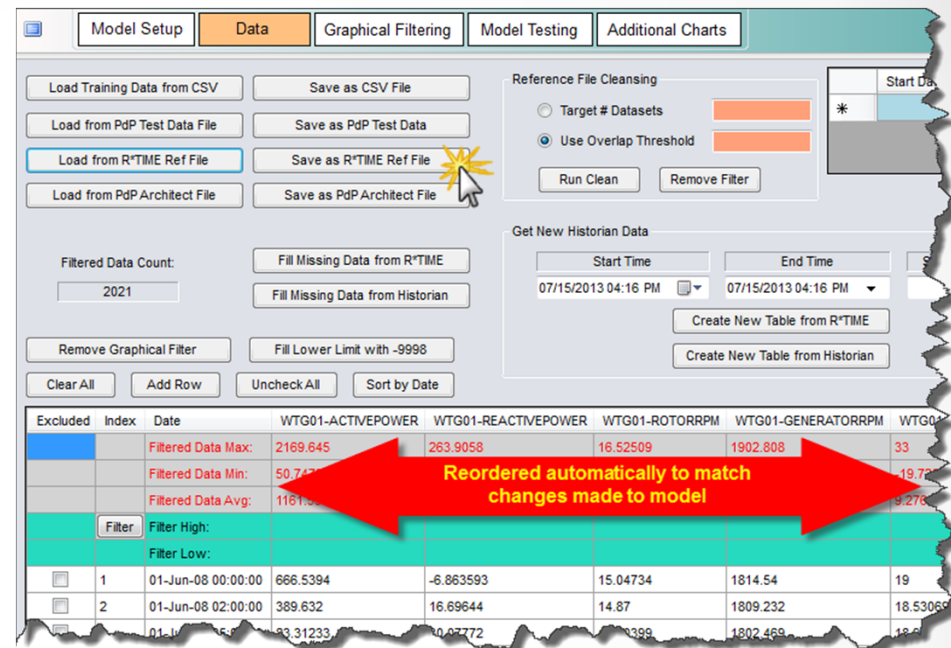
Open its reference file and save it as a *.csv

Tip: Begin any work requiring a reference file update by saving a copy of the existing reference file as a *.csv file

Reconfiguring an Existing Model (cont)



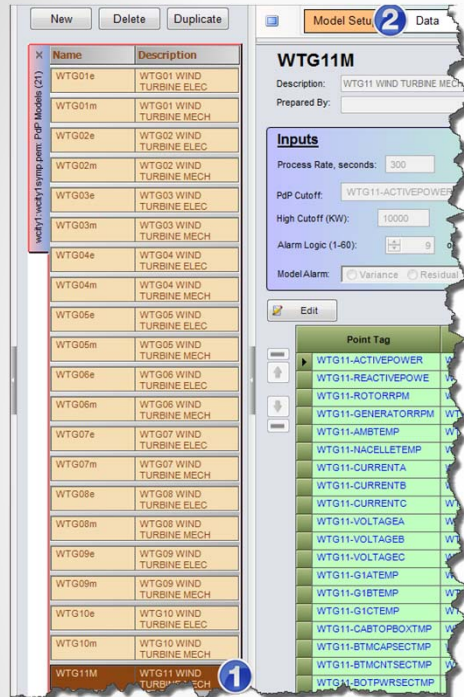
Select Sensors and Delete or reorder as desired... then save the model.



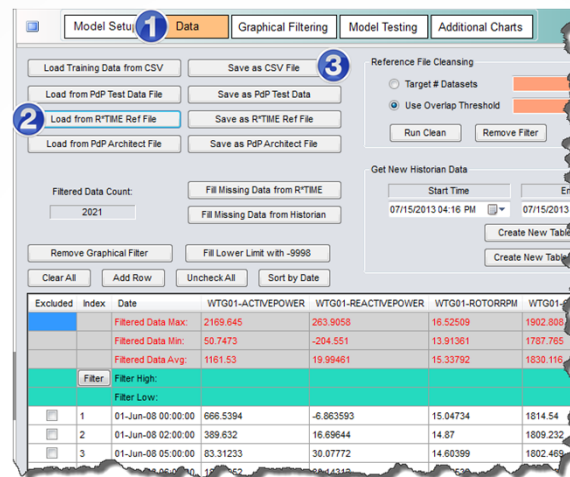
The columns have been reordered automatically to reflect the model changes. Save the reference file and download your model.... It will then be up and running.

Tip: The order of the sensors in the list is the default order they will appear in the Point Summary in runtime. Organize in groups that reflect how you like to review data.

Split an Existing Model in Two



Select the to model to be split and open the Data tab



Open its reference file and save it as a *.csv

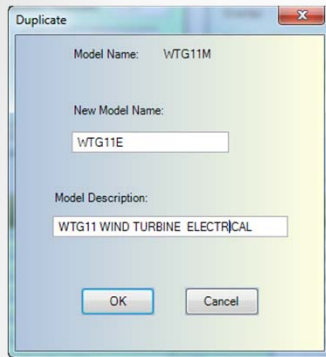


Return to Model Setup
Select and Duplicate the model

Tip: Begin any work requiring a reference file update by saving a copy of the existing reference file as a *.csv file

Split an Existing Model in Two (cont)

1. Name the new model and open for editing
2. Delete unwanted sensors and reorder as desired, then replace PNs assigned to outputs since they are duplicates from the original model ... and save the model



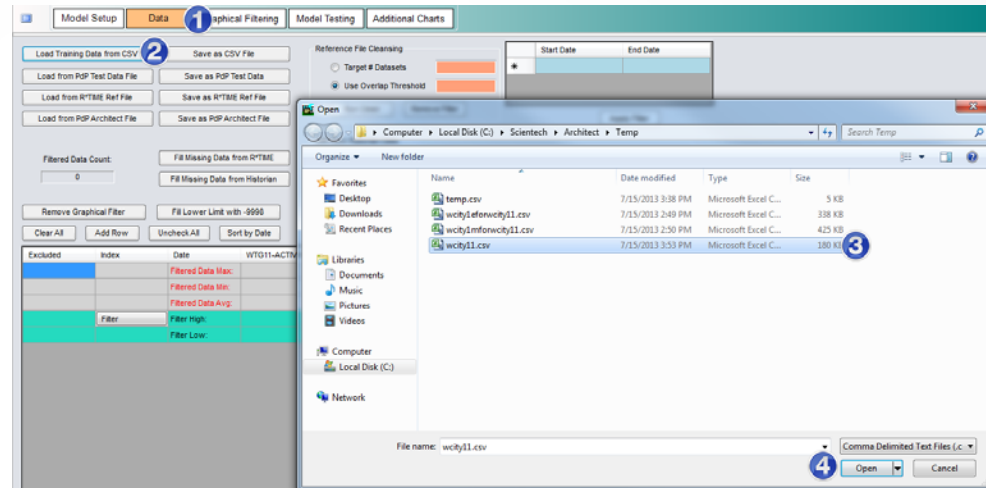
Point Tag	Description	Units	Historian Tag ID	Signal Active	Alarm Level	Alarm Active	Alarm Basis	Variance Limit Value
WTG11-CURRENTA	WTG11-PHASE AMPS A	AMPS	WC.SZ.S88.WTG	Yes	Default	No	Variance	3
WTG11-CURRENTB	WTG11-PHASE AMPS B	AMPS	WC.SZ.S88.WTG	Yes	Default	No	Variance	3
WTG11-CURRENTC	WTG11-PHASE AMPS C	AMPS	WC.SZ.S88.WTG	Yes	Default	No	Variance	3
WTG11-VOLTAGEA	WTG11-PHASE VOLTAGE A	V	WC.SZ.S88.WTG	Yes	Default	No	Variance	3
WTG11-VOLTAGEB	WTG11-PHASE VOLTAGE B	V	WC.SZ.S88.WTG	Yes	Default	Yes	Variance	3
WTG11-VOLTAGEC	WTG11-PHASE VOLTAGE C	V	WC.SZ.S88.WTG	Yes	Default	Yes	Variance	3
WTG11-G1ATEMP	WTG11-GENERATOR 1 PHASE 1 C	DEGC	WC.SZ.S88.WTG	Yes	Default	Yes	Variance	3
WTG11-G1ATEMP	WTG11-GENERATOR 1 PHASE 2 C	DEGC	WC.SZ.S88.WTG	Yes	Default	Yes	Variance	3
WTG11-G1ATEMP	WTG11-GENERATOR 1 PHASE 3 C	DEGC	WC.SZ.S88.WTG	Yes	Default	Yes	Variance	3
WTG11-CABTOPBOXTMP	WTG11-TOP BOX CABINET TEMP	DEGC	WC.SZ.S88.WTG	Yes	Default	Yes	Variance	3
WTG11-BTMCAPSECTMP	WTG11-BOTTOM CAPACITOR PAN	DEGC	WC.SZ.S88.WTG	Yes	Default	Yes	Variance	3
WTG11-BTMCNTSECTMP	WTG11-BOTTOM CONTROL SECTI	DEGC	WC.SZ.S88.WTG	Yes	Default	Yes	Variance	3
WTG11-BOTPWSECTMP	WTG11-BOTTOM POWER SECTION	DEGC	WC.SZ.S88.WTG	Yes	Default	Yes	Variance	3
WTG11-WINDDIRECTION	WTG11-WIND DIRECTION	DEG	WC.SZ.S88.WTG	Synthetic	Default	Yes	Variance	3
WTG11-WINDSPEED	WTG11-WIND SPEED	M/S	WC.SZ.S88.WTG	Yes	Default	Yes	Variance	3
WTG11-YAWANGLE	WTG11-TURBINE YAW ANGLE	DEG	WC.SZ.S88.WTG	Synthetic	Default	Yes	Variance	3
WTG11-YAWDIRECTION	WTG11-YAW POSITION	DEG	WC.SZ.S88.WTG	Synthetic	Default	Yes	Variance	3
WTG11-BLADEANGLE	WTG11-PITCH POSITION	DEG	WC.SZ.S88.WTG	Yes	Default	Yes	Variance	3
WTG11-BLADEANGLE	WTG11-PITCH POSITION A	DEG	WC.SZ.S88.WTG	Yes	Default	Yes	Variance	3
WTG11-BLADEANGLE	WTG11-PITCH POSITION B	DEG	WC.SZ.S88.WTG	Yes	Default	Yes	Variance	3

Point Tag	Description	Units	Historian Tag ID	Signal Active	Alarm Level	Alarm Active	Alarm Basis	Variance Limit Value	Residual Lo Limit	Residual Hi Limit	Actual EU
WTG11-ACTIVEPOWER	WTG11-ACTIVE POWER	KW	WC.SZ.S88.WTG	Yes	Default	Yes	Variance	3	-125	125	5219
WTG11-REACTIVEPOWER	WTG11-REACTIVE POWER	KVAR	WC.SZ.S88.WTG	Synthetic	Default	No	Variance	3	-60	60	5227
WTG11-ROTORRRM	WTG11-ROTOR RPM	RPM	WC.SZ.S88.WTG	Yes	Default	Yes	Variance	3	-0.3	0.3	5235
WTG11-GENERATORRRM	WTG11-GENERATOR RPM	RPM	WC.SZ.S88.WTG	Yes	Default	Yes	Variance	3	-20	20	5243
WTG11-AMBIENTTEMP	WTG11-AMBIENT TEMPERATURE	DEGC	WC.SZ.S88.WTG	Yes	Default	Yes	Variance	3	0	0	5257
WTG11-IMPELLERTEMP	WTG11-IMPELLER TEMP	DEGC	WC.SZ.S88.WTG	Yes	Default	No	Variance	3	0	0	5265
WTG11-CURRENTA	WTG11-PHASE AMPS A	AMPS	WC.SZ.S88.WTG	Yes	Default	No	Variance	3	0	0	5273
WTG11-CURRENTB	WTG11-PHASE AMPS B	AMPS	WC.SZ.S88.WTG	Yes	Default	No	Variance	3	0	0	5501
WTG11-CURRENTC	WTG11-PHASE AMPS C	AMPS	WC.SZ.S88.WTG	Yes	Default	No	Variance	3	0	0	5509
WTG11-VOLTAGEA	WTG11-PHASE VOLTAGE A	V	WC.SZ.S88.WTG	Yes	Default	No	Variance	3	-1	1	5517
WTG11-VOLTAGEB	WTG11-PHASE VOLTAGE B	V	WC.SZ.S88.WTG	Yes	Default	Yes	Variance	3	-1	1	5525
WTG11-VOLTAGEC	WTG11-PHASE VOLTAGE C	V	WC.SZ.S88.WTG	Yes	Default	Yes	Variance	3	-1	1	5533
WTG11-G1ATEMP	WTG11-GENERATOR 1 PHASE 1 C	DEGC	WC.SZ.S88.WTG	Yes	Default	Yes	Variance	3	-1	1	5547
WTG11-G1ATEMP	WTG11-GENERATOR 1 PHASE 2 C	DEGC	WC.SZ.S88.WTG	Yes	Default	Yes	Variance	3	-3	3	5555
WTG11-G1ATEMP	WTG11-GENERATOR 1 PHASE 3 C	DEGC	WC.SZ.S88.WTG	Yes	Default	Yes	Variance	3	-3	3	5563
WTG11-CABTOPBOXTMP	WTG11-TOP BOX CABINET TEMP	DEGC	WC.SZ.S88.WTG	Yes	Default	Yes	Variance	3	-3	3	5791
WTG11-BTMCAPSECTMP	WTG11-BOTTOM CAPACITOR PAN	DEGC	WC.SZ.S88.WTG	Yes	Default	Yes	Variance	3	-3	3	5799
WTG11-BTMCNTSECTMP	WTG11-BOTTOM CONTROL SECTI	DEGC	WC.SZ.S88.WTG	Yes	Default	Yes	Variance	3	-3	3	5807
WTG11-BOTPWSECTMP	WTG11-BOTTOM POWER SECTION	DEGC	WC.SZ.S88.WTG	Yes	Default	Yes	Variance	3	-3	3	5815

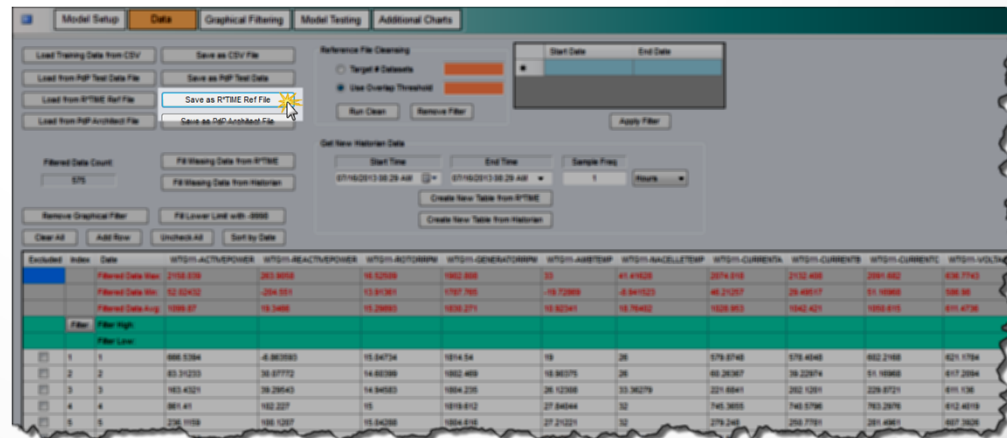
Split an Existing Model in Two (cont)

Now to create the reference file

Select the data tab and Load Training Data from CSV, opening the *.csv file you saved before you created the duplicate model



Save as R*TIME Reference file



You now have a matched model and reference file

Split an Existing Model in Two (cont)

Still have to modify the original model

1. Select the original model and open for editing
2. Delete and reorder sensors as desired
3. For this model, you do not have to replace the output PNs unless you want to. They will still be unique since the PNs in the other split of the model were reassigned.
4. Save the Model
5. Open the Data tab and Load Training Data from the same CSV your created before creating the duplicate
6. Save the data as an RTIME reference file
7. Download PdP

You now have two models processing with reference files in place of one

Using Browse to Examine PdP Settings

The screenshot displays the FAMOS Architect software interface. The 'Browse' button in the top menu bar is highlighted with a red arrow. A 'Browse' dialog box is open, showing a grid of available tables. Two red callout boxes point to specific tables in the grid:

- PdP Model Configuration** points to the 'PdP' table.
- All PdP Sensor Configuration** points to the 'PdP Senso...' table.

The 'Available Tables' grid includes the following items:

Icon	Table Name
Cooling To...	Cooling To...
Cycle	Cycle
Digital Point...	Digital Point...
Expansion...	Expansion...
Fan	Fan
Feedwater...	Feedwater...
General X...	General X...
Heat Exch...	Heat Exch...
HP Turbine	HP Turbine
LP Turbine	LP Turbine
Manual Dat...	Manual Dat...
Mixer	Mixer
Move Data	Move Data
MSR	MSR
Network	Network
OPC Cross	OPC Cross
PdP	PdP
PdP Senso...	PdP Senso...
PdP X-ref	PdP X-ref
PMAX/PEP...	PMAX/PEP...
Pump	Pump
Radiant St...	Radiant St...
Report	Report
SEQ	SEQ
Sequence	Sequence
Tu...	Tu...

PdP Table (Model Info)

Table: CMAXPDP

Drag a column header here to group by that column.

Select Push Pin to fix columns at left for scrolling

Save Changes Close

DBNAME	DBTITLE	ALARMLOGIC1	ALARMLOGIC2	DBDATE	PROJECT	PAGENO	UPDATE	POINTARRAY	ALERTTAG	PCTCHGTAG	PCTRATETAG	RANGETAG	DISABLED	OUTOFSERVICEPN	OUTOFSERVICEVAL
WTG01m	WTG01 WIND...	9	12	09/04/2012				System Byte[]					0		0
WTG02m	WTG02 WIND...	9	12	09/04/2012				System Byte[]					0		0
WTG03m	WTG03 WIND...	9	12	09/04/2012				System Byte[]					0		0
WTG04m	WTG04 WIND...	9	12	09/04/2012				System Byte[]					0		0
WTG05m	WTG05 WIND...	9	12	09/04/2012				System Byte[]					0		0
WTG06m	WTG06 WIND...	9	12	09/04/2012				System Byte[]					0		0
WTG07m	WTG07 WIND...	9	12	09/04/2012				System Byte[]					0		0
WTG08m	WTG08 WIND...	9	12	09/04/2012				System Byte[]					0		0
WTG09m	WTG09 WIND...	9	12	09/04/2012				System Byte[]					0		0
WTG10m	WTG10 WIND...	9	12	12/20/2012				System Byte[]					0		0
WTG01e	WTG01 WIND...	9	12	12/19/2011				System Byte[]					0		0
WTG02e	WTG02 WIND...	9	12	11/12/2010				System Byte[]					0		0
WTG03e	WTG03 WIND...	9	12	11/12/2010				System Byte[]					0		0
WTG11M	WTG11 WIND...	9	12	07/15/2013									0		0
WTG11E	WTG11 WIND...	9	12	07/15/2013									0		0
WTG04e	WTG04 WIND...	9	12	11/12/2010				System Byte[]					0		0
WTG05e	WTG05 WIND...	9	12	11/12/2010				System Byte[]					0		0
WTG06e	WTG06 WIND...	9	12	11/12/2010				System Byte[]					0		0
WTG07e	WTG07 WIND...	9	12	11/12/2010				System Byte[]					0		0
WTG08e	WTG08 WIND...	9	12	11/12/2010				System Byte[]					0		0
WTG09e	WTG09 WIND...	9	12	11/12/2010				System Byte[]					0		0
WTG10e	WTG10 WIND...	9	12	11/12/2010				System Byte[]					0		0

Drag to Resize Dialogue

1. Pin Columns for Scrolling (note many columns are unused)
2. Drag and Drop Grouping or reordering of columns, sort by column by clicking on header
3. With caution.... You can make edits and save changes

Overlap = EU (PN Number) for Model Health
 Overlap Status = EU for Model Status
 AlarmLogic1 = X (from X out of Y)
 AlarmLogic2 = X (from X out of Y)

PdP Sensor Table (Model Info)

Browse

Table: PDPSENSORS

Save Changes Close

Drag a column header here to group by that column.

DBNAME	SENSOR	DESCRIPTION	UNITS	SENSORNO	SIGNAL	ALARM	ALARMBASIS	VARIANCELIMIT	VARIANCELIMITEU	RESHILIMIT	RESLOLIMIT	PREDICTIONEU	PINAME
WTG11M	WTG11-CURR...	WTG11-PHASE A...	AMPS	8	1	0	1	3	5505	0	0	5502	WC.SZ.S88.WT
WTG11M	WTG11-CURR...	WTG11-PHASE A...	AMPS	9	1	0	1	3	5513	0	0	5510	WC.SZ.S88.WT
WTG11M	WTG11-VOLTA...	WTG11-PHASE V...	V	10	1	0	1	3	5521	1	-1	5518	WC.SZ.S88.WT
WTG11M	WTG11-VOLTA...	WTG11-PHASE V...	V	11	1	1	1	3	5529	1	-1	5526	WC.SZ.S88.WT
WTG11M	WTG11-VOLTA...	WTG11-PHASE V...	V	12	1	1	1	3	5543	1	-1	5534	WC.SZ.S88.WT
WTG11M	WTG11-G1ATE...	WTG11-GENERA...	DEGC	13	1	1	1	3	5551	1	-1	5548	WC.SZ.S88.WT
WTG11M	WTG11-G1BTE...	WTG11-GENERA...	DEGC	14	1	1	1	3	5559	3	-3	5556	WC.SZ.S88.WT
WTG11M	WTG11-G1CT...	WTG11-GENERA...	DEGC	15	1	1	1	3	5787	3	-3	5564	WC.SZ.S88.WT
WTG11M	WTG11-CABT...	WTG11-TOP BOX...	DEGC	16	1	1	1	3	5795	3	-3	5792	WC.SZ.S88.WT
WTG11M	WTG11-BTMC...	WTG11-BOTTOM...	DEGC	17	1	1	1	3	5803	3	-3	5800	WC.SZ.S88.WT
WTG11M	WTG11-BTMC...	WTG11-BOTTOM...	DEGC	18	1	1	1	3	5811	3	-3	5808	WC.SZ.S88.WT

More ...

- ✓ Output EU (PN Numbers)
- ✓ Limit Settings
- ✓ Point and Alarm Activation
- ✓ Alarm Basis

Preserving a Reference File – Behavior Changes

For changes in behavior to a “new normal” where majority of other sensors are still predicting well.... Like a temperature or pressure step change higher or lower.

Highlight an entire column of data. Select Add Constant to or Multiply by Constant to adjust to approximate the new normal

Excluded	Index	Date	WTG01-ACTIVEPOWER	WTG01-REACTIVEPOWER	WTG01-ROTORRPM	WTG01-GENERATORRPM	WTG01-AMBTMP	WTG01-NACELLETEMP	V
		Filtered Data Max:	2169.645	263.9058	16.52509	1902.808	33	41.41628	21
		Filtered Data Min:	50.7473	-204.551	13.91381	1787.765	-19.72869	-11.95715	41
		Filtered Data Avg:	1161.53	19.99461	15.33792	1830.116	9.276504	16.58364	11
		Filter High:							
		Filter Low:							
<input type="checkbox"/>	1	01-Jun-08 00:00:00	666.5394	-6.863593	15.04734	1814.54	19	26	5
<input type="checkbox"/>	2	01-Jun-08 02:00:00	389.632	16.69644	14.87	1809.232	18.53069	25	3
<input type="checkbox"/>	3	01-Jun-08 05:00:00	83.31233	30.07772	14.60399	1802.469	18.90375	26	61
<input type="checkbox"/>	4	01-Jun-08 06:00:00	183.4952	30.14312	14.51532			25	21
<input type="checkbox"/>	5	01-Jun-08 12:00:00	163.4321	39.29543	14.94583			33.36279	2
<input type="checkbox"/>	6	01-Jun-08 14:00:00	861.41	102.227	15			32	7
<input type="checkbox"/>	7	01-Jun-08 17:00:00	236.1159	100.1207	15.04288			32	2
<input type="checkbox"/>	8	01-Jun-08 19:00:00	163.2294	34.00213	14.71732			31.87477	2
<input type="checkbox"/>	9	02-Jun-08 01:00:00	55.88096	35.12788	14.58841			30.55562	1
<input type="checkbox"/>	10	02-Jun-08 05:00:00	966.0519	-0.401935	14.82958	1821.07	22.19891	28.77465	9
<input type="checkbox"/>	11	02-Jun-08 07:00:00	477.6509	9.599896	14.80585	1809.553	21	27.75643	5
<input type="checkbox"/>	12	02-Jun-08 19:00:00	570.9297	5.385478	15.38195	1811.101	17.15991	24	5
<input type="checkbox"/>	13	02-Jun-08 22:00:00	755.8716	48.7727	15.53219	1817.433	15	22	71
<input type="checkbox"/>	14	03-Jun-08 01:00:00	359.9472	84.57059	15.68243	1807.925	15	22.37209	3
<input type="checkbox"/>	15	03-Jun-08 04:00:00	2124.821	-0.560972	15.16449	1877.617	14	22.66355	21
<input type="checkbox"/>	16	03-Jun-08 06:00:00	478.1208	4.677035	14.8316	1810.304	15.96317	22	41
<input type="checkbox"/>	17	03-Jun-08 15:00:00	299.3827	26.2548	15.46893	1807.137	17.42855	24.03267	3
<input type="checkbox"/>	18	03-Jun-08 19:00:00	347.7647	27.15281	15.28639	1806.474	15	23	3

In some cases, current behavior may track another sensor value with an offset. Data can be created by copying one column of data to the other and then adjusting with the addition and/or multiplication by a constant.

Tip: Sometimes the best reference file data available for a sensor may not come from the sensor itself

Preserving a Reference File

For changes in behavior to a “new normal” where majority of other sensors are still predicting well.... Like a temperature or pressure step change higher or lower.

Highlight an entire column of data. Select Add Constant to or Multiply by Constant to adjust to approximate the new normal

Excluded	Index	Date	WTG01-ACTIVEPOWER	WTG01-REACTIVEPOWER	WTG01-ROTORRPM	WTG01-GENERATORRPM	WTG01-AMBTMP	WTG01-NACELLETEMP	V
		Filtered Data Max:	2169.645	263.9058	16.52509	1902.808	33	41.41628	21
		Filtered Data Min:	50.7473	-204.551	13.91381	1787.765	-19.72869	-11.95715	41
		Filtered Data Avg:	1161.53	19.99461	15.33792	1830.116	9.276504	16.58364	11
	Filter	Filter High:							
		Filter Low:							
<input type="checkbox"/>	1	01-Jun-08 00:00:00	666.5394	-6.863593	15.04734	1814.54	19	26	5
<input type="checkbox"/>	2	01-Jun-08 02:00:00	389.632	16.69644	14.87	1809.232	18.53069	25	3
<input type="checkbox"/>	3	01-Jun-08 05:00:00	83.31233	30.07772	14.60399	1802.469	18.90375	26	61
<input type="checkbox"/>	4	01-Jun-08 06:00:00	183.4952	30.14312	14.51532			25	21
<input type="checkbox"/>	5	01-Jun-08 12:00:00	163.4321	39.29543	14.94583			33.36279	2
<input type="checkbox"/>	6	01-Jun-08 14:00:00	861.41	102.227	15			32	7
<input type="checkbox"/>	7	01-Jun-08 17:00:00	236.1159	100.1207	15.04288			32	2
<input type="checkbox"/>	8	01-Jun-08 19:00:00	163.2294	34.00213	14.71732			31.87477	2
<input type="checkbox"/>	9	02-Jun-08 01:00:00	55.88096	35.12788	14.58841			30.55562	1
<input type="checkbox"/>	10	02-Jun-08 05:00:00	966.0519	-0.401935	14.82958	1821.07	22.19891	28.77465	9
<input type="checkbox"/>	11	02-Jun-08 07:00:00	477.6509	9.599896	14.80585	1809.553	21	27.75643	5
<input type="checkbox"/>	12	02-Jun-08 19:00:00	570.9297	5.385478	15.38195	1811.101	17.15991	24	5
<input type="checkbox"/>	13	02-Jun-08 22:00:00	755.8716	48.7727	15.53219	1817.433	15	22	71
<input type="checkbox"/>	14	03-Jun-08 01:00:00	359.9472	84.57059	15.68243	1807.925	15	22.37209	3
<input type="checkbox"/>	15	03-Jun-08 04:00:00	2124.821	-0.560972	15.16449	1877.617	14	22.66355	21
<input type="checkbox"/>	16	03-Jun-08 06:00:00	478.1208	4.677035	14.8316	1810.304	15.96317	22	41
<input type="checkbox"/>	17	03-Jun-08 15:00:00	299.3827	26.2548	15.46893	1807.137	17.42855	24.03267	3
<input type="checkbox"/>	18	03-Jun-08 19:00:00	347.7647	27.15281	15.28639	1806.474	15	23	3

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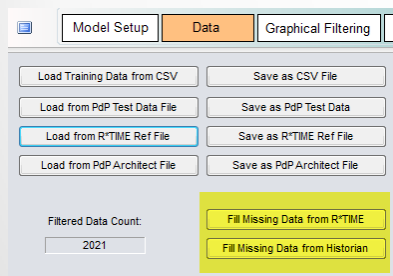
Preserving a Reference File – Adding Sensor(s)

Before adding the sensors save a copy of the reference file (just in case). Modify the model by adding the sensors and ordering as desired Blank columns for data will appear on the data tab.



WT001-REACTIVEPOWER	WT001-REACTIVEPOWER	NEWSENSOR1	WT001-CURRENTS	WT001-CURRENTS
10	47.415228		2574.8116	2743.2888
10	10.728859		448.21257	28.489117
10	9.270594		1085.12	1082.206
10				
10	25		579.8748	579.4148
10	5.33889		579.8183	579.11384
10	983375		448.28367	38.22874
10	25		254.1482	184.81183

Option 1 ... fill in data from historian, matching time stamps in ref file



Option 2 ... copy data from another sensor and modify as needed

Option 3 ... not for the feint hearted, but can very effective.

Option 4...???

Create a new reference file with recent good data for all sensors and use model testing with new sensor in synthetic to run original reference file as test data... predicted values from output can be substituted for the sensor's missing data

Tip: Sometimes the best reference file data available for a sensor may not come from the sensor itself

Questions

