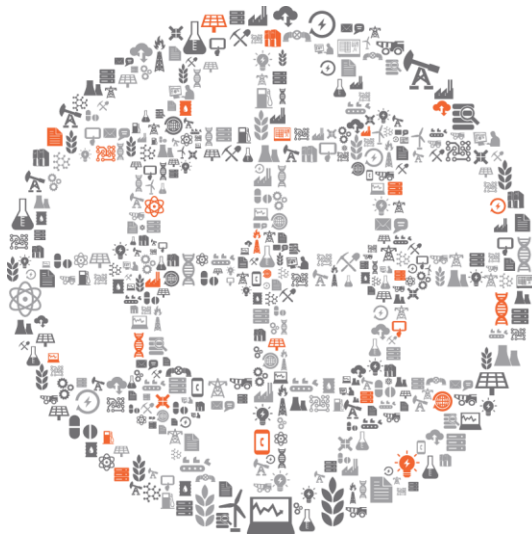




Harnessing the Power of Event Frames Across the PI System

Presented by **Todd Brown, Chris Nelson, and Frank Batke**



OSIsoft.

USERS 2013 CONFERENCE

The Power of Data

E

M

E

A

THRIVING
IN A
WORLD OF
CHANGE

+ Tags

Assets

Data

Mining

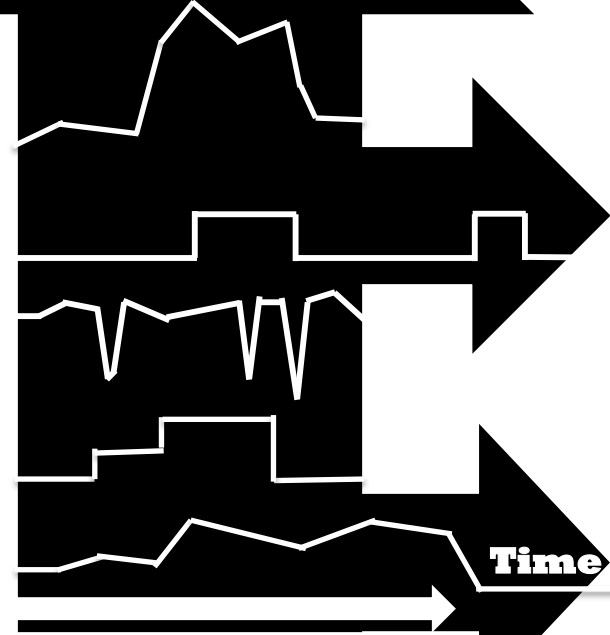


Processing



**50K
Tags**

**100K
Tags**



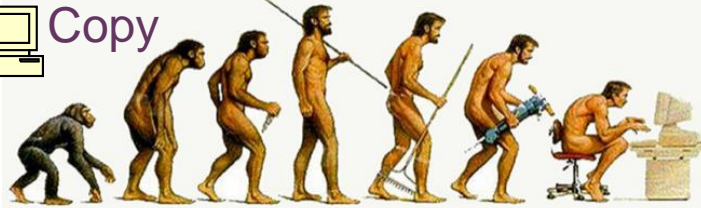
Time

Information Challenges

“Homosapien Data Integration”



Copy



Paste

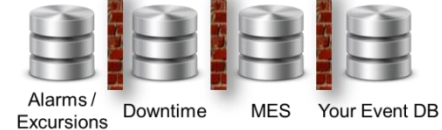
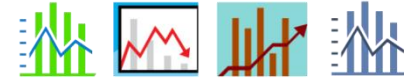
Hard to Find
Related Data

Events &
Process Data
Are Not
Integrated

Increasing
Data

Data

Time

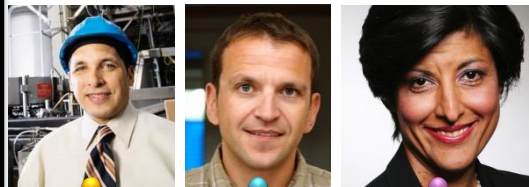


Process Data





Information Challenges



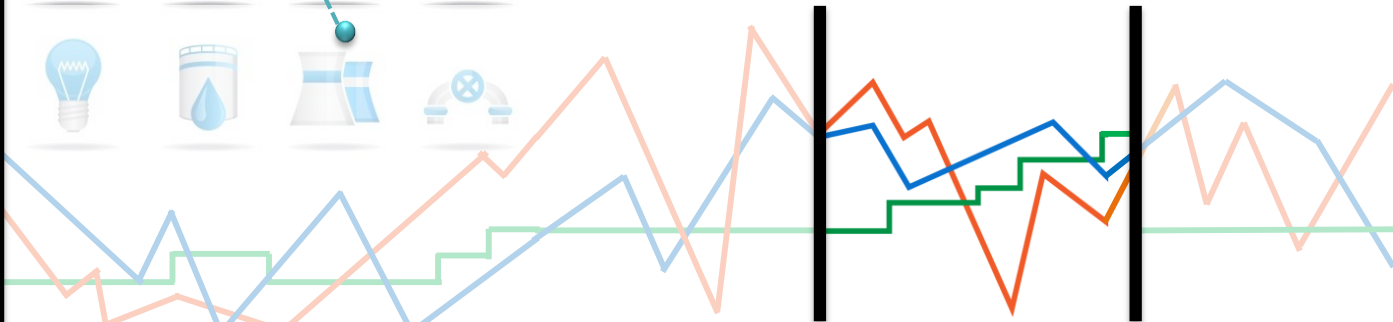
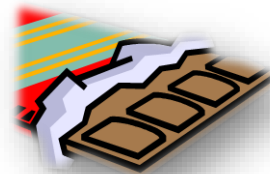
PI Event Frames

Events Shorten the Time to Insight

Too High!

Downtime

Batches



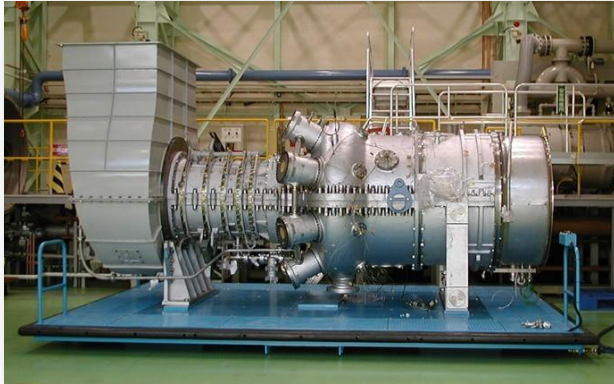


Events Across All Industries



Turbine Startups & Shutdowns

- Events = Startups, Shutdowns
- Goal = Respond to MW dispatch requests efficiently
- Good operating practice has significant impact on power generation economics & equipment maintenance.



Generating Availability Data System (GADS)

- Events = description of equipment failures such as when the event started/ended, type of outage (forced, maintenance, planned), etc.
- Goal = increase grid reliability





Mobile Truck – Oil / Water Inventory Tracking

- Event = truck arrives at a facility & connects to an “Inlet” and off-loads oil/water into facility storage tanks.
- Goal = Inventory Tracking
- Transportation of oil/water mixtures from well locations not connected by pipeline



Off-Shore Well Surveillance

- Events = Pump vibrations, meter pressure, well step number, downtime, ramp ups, ramp downs, etc.
- Goal = safety, production optimization, asset reliability
- Event Triage: Detecting & responding to events. Detailed event analysis, summary write-up, recommendations for fix





Paper Grade Runs & Best Grade Change

- Events = paper runs, time between runs (grade change)
- Goal = Reduce the amount of time the operator takes to perform a grade change
- Compare grade run set points & actuals to current run.



Metal Processing Coil Tracking

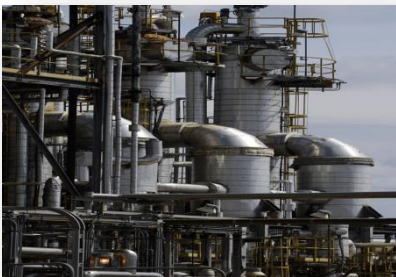
- Events = rolls of aluminum
- Goal = quality, produce better aluminum; comparison and analysis of data from different rolls
- Measure & record average force to create the roll





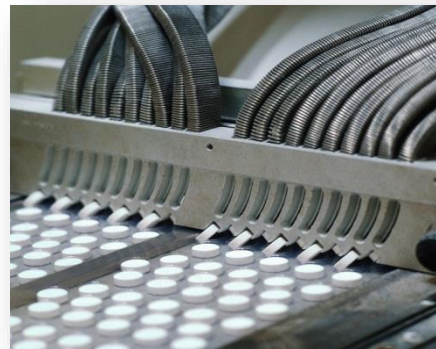
Cycle Time & Loss Time Analysis

- Events = batches, processing steps
- Goal = Identify & utilize “free capacity” by running existing equipment more efficiently. Capital cost avoidance for new equipment.
- Determine mean cycle time for each processing step. Loss/reason code for variations to step target times.



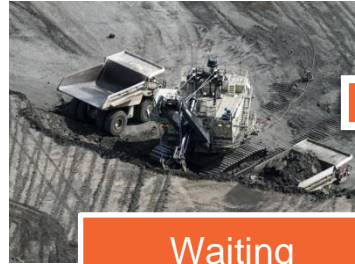
Batch Processing CIP / SIP

- Events = batches, unit procedures, operations, phases
- Goal = ensure product quality & maintain regulatory compliance
- Batch analysis, batch reporting, annual product reports



Truck Events – Round Trip Events

Round Trip



Waiting



Loading



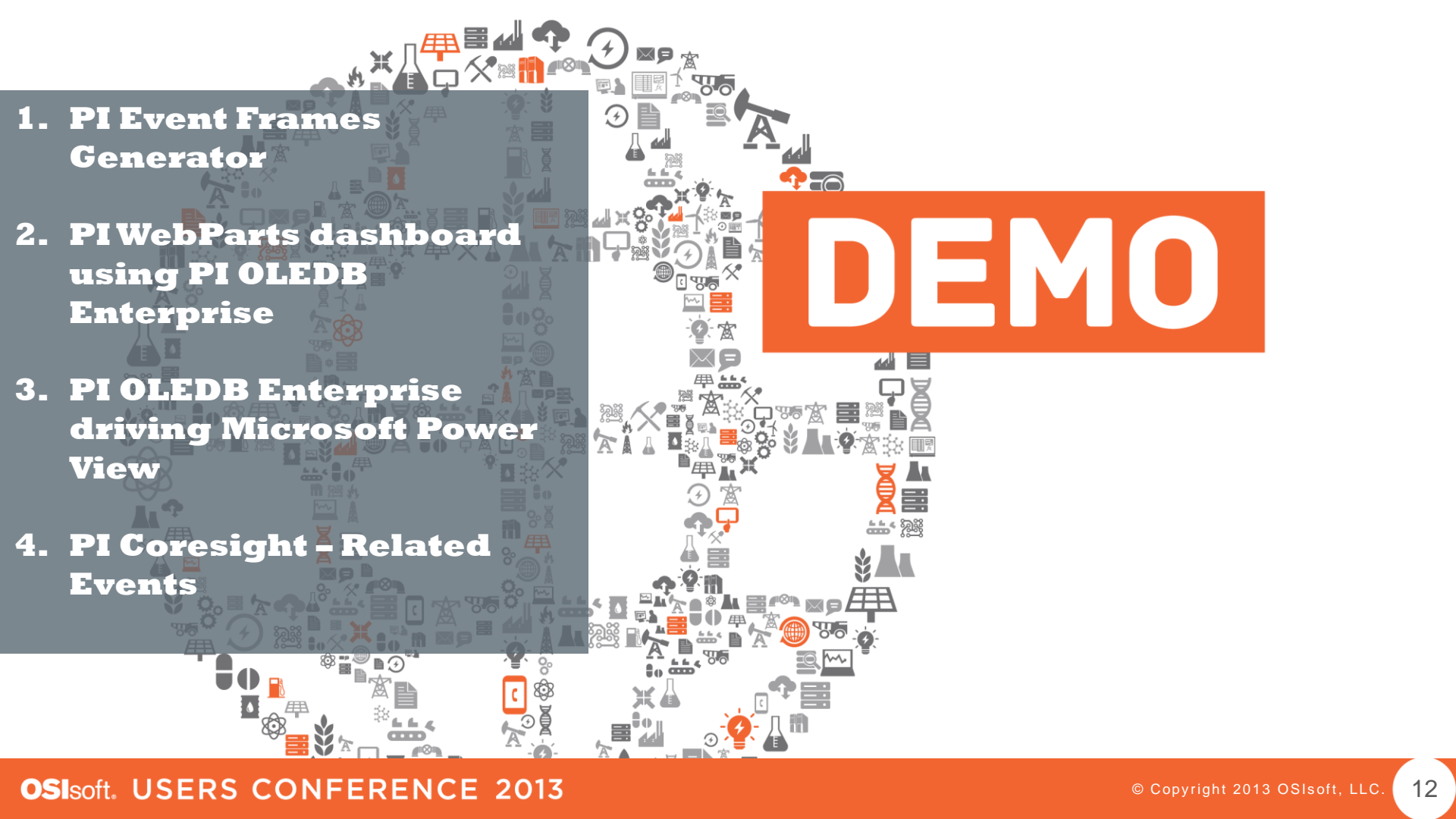
Running Loaded



Dumping



Running Empty



- 1. PI Event Frames Generator**
- 2. PI WebParts dashboard using PI OLEDB Enterprise**
- 3. PI OLEDB Enterprise driving Microsoft Power View**
- 4. PI Coresight – Related Events**

DEMO



DEMO

PI Event Frames Generator

PI Event Frames Interface Manager

The Current Interface is : PIEFGEN3

Event Frames Structure

Configure the event frames structure to define when event frames are created, on which template the event frames are based, and which elements and attributes are associated with the event frame.

Settings

- Interface Selection
- File Selection
- Server Information
- Event Frames Structure
- Templates
- Time Settings
- Operational Settings
- Save Settings

Options

- Test Configuration
- Service Configuration
- Converter

EFConfig_Tree

- Truck 1 Roundtrip
 - Waiting to Load
 - Loading
 - Running Empty
 - Running Loaded
 - Dumping
- Truck 2 Roundtrip
- Truck 3 Roundtrip
- Truck 4 Roundtrip
- Truck 5 Roundtrip

Truck 1 Roundtrip Other Settings

Configuration Name: Truck 1 Roundtrip

Event Frame Template: Truck RoundTrip Template

PIBaGen Compatibility Mode: ☐

Active Point: Tagname: Truck1_Trigger

Behavior: ☒ Pulse ☐ Step ☐ Include Zeroth State (Continuous)

Strings indicating zeroth state: Example: inactive, stop, off

Event Frame Name: ☐ Use Active Point value ☐ Use Static Name ☒ Use this PIPoint value: Mine Truck 1.RouteName

Attribute Name	Configuration	Value
Driver	PIPoint	Mine Truck 1.Driver
Route	PIPoint	Mine Truck 1.Route
Comment	Not Included	
Description	Not Included	

Go to Templates

- Generate Events via Trigger Tags
- Assign to an Event Frame Template
- Populate Event Frame Name
- Populate Event Frame Attributes
- Assign to Element

EFConfig_Tree

- Truck 1 Roundtrip
 - Waiting to Load
 - Loading
 - Running Empty
 - Running Loaded
 - Dumping
- Truck 2 Roundtrip
- Truck 3 Roundtrip
- Truck 4 Roundtrip
- Truck 5 Roundtrip

Truck 1 Roundtrip Other Settings

Add Reference Elements in the grid below.

The Primary Reference Element is: \\DFPIAF\OSI Mining\Trucks\Mine Truck 1.

PI AF Element Search...

\\DFPIAF\OSI Mining\Trucks\Mine Truck 1

Default Settings

☒ Enable

☐ Debug Messages

☐ Merge Consecutive

Recovery Time: 1 day(s)

Evaluation Delay: 0 second(s) Set to -1 to Evaluate At End

PI Event Frames Generator – Results!!!

Hierarchical Events

Truck RoundTrips Last Day											
Filter											
	Name	4. [1.00:42:23] ...	Start Time	End Time	Template	Primary Element	I Driver	I Route	I Engine RPM ...	I Ground ...	
	RT: MT1 2013_04_10 18:39		4/10/2013 6:40:08 PM	4/10/2013 7:43:08 PM	Truck RoundTrip Template	Mine Truck 1	Neil Bardhan	Route C	1837.0831298...	22.82127761	
	RT: MT4 2013_04_09 18:42		4/10/2013 6:43:08 PM	4/10/2013 7:27:08 PM	Truck RoundTrip Template	Mine Truck 4	Lebron James	Route C	1798.2198486...	21.77008056	
	RT: MT3 2013_04_09 18:43		4/10/2013 6:44:08 PM	4/10/2013 7:49:08 PM	Truck RoundTrip Template	Mine Truck 3	Jessica Jacobs	Route B	1740.5742187...	23.2311210E	
	RT: MT2 2013_04_09 17:27		4/10/2013 6:48:08 PM	4/10/2013 8:06:08 PM	Truck RoundTrip Template	Mine Truck 2	Hal Hungry	Route A	1831.3731689...	25.53881263	
	RT: MT5 2013_04_10 18:49		4/10/2013 6:50:08 PM	4/10/2013 7:47:08 PM	Truck RoundTrip Template	Mine Truck 5	Teddy Bigs	Route B	1780.5716552...	21.88333702	
	RT: MT4 2013_04_09 17:27		4/10/2013 7:28:08 PM	4/10/2013 8:12:08 PM	Truck RoundTrip Template	Mine Truck 4	Sorlie Otters	Route A	1814.0427246...	22.11536407	
	RT: MT1 2013_04_10 19:45		4/10/2013 7:46:08 PM	4/10/2013 8:49:08 PM	Truck RoundTrip Template	Mine Truck 1	Brandon Bricks	Route B	1842.0034179...	23.32344436	
	RT: MT3 2013_04_10 19:55		4/10/2013 7:56:08 PM	4/10/2013 9:01:08 PM	Truck RoundTrip Template	Mine Truck 3	Mike Kleener	Route C	1740.8050537...	23.16835975	
	Waiting to Load		4/10/2013 7:56:08 PM	4/10/2013 8:05:38 PM	Truck Waiting for Loading Template	Mine Truck 3	Mike Kleener				
	Loading		4/10/2013 8:05:38 PM	4/10/2013 8:05:38 PM	Truck Loading Template	Mine Truck 3	Butch Bond				
	Running Loaded		4/10/2013 8:25:38 PM	4/10/2013 8:40:08 PM	Truck Running Loaded Template	Mine Truck 3	Neil Macer		1740.8050537...		
	Dumping Load		4/10/2013 8:40:08 PM	4/10/2013 8:54:08 PM	Truck Unloading Template	Mine Truck 3	Neil Macer				
	Running Empty		4/10/2013 8:54:08 PM	4/10/2013 9:01:08 PM	Truck Running Empty Template	Mine Truck 3	Jessica Jacobs		1718.6811523...		
	RT: MT5 2013_04_09 19:59		4/10/2013 8:00:08 PM	4/10/2013 8:57:08 PM	Truck RoundTrip Template	Mine Truck 5	Teddy Bigs	Route C	1770.5921630...	22.08126831	
	RT: MT4 2013_04_09 20:12		4/10/2013 8:13:08 PM	4/10/2013 8:57:08 PM	Truck RoundTrip Template	Mine Truck 4	Chris Scatman	Route A	1812.9135742...	21.91787910	
	RT: MT2 2013_04_09 20:16		4/10/2013 8:17:08 PM	4/10/2013 9:35:08 PM	Truck RoundTrip Template	Mine Truck 2	Hal Hungry	Route B	1861.7774658...	25.81619834	
	RT: MT1 2013_04_09 20:51		4/10/2013 8:52:08 PM	4/10/2013 9:55:08 PM	Truck RoundTrip Template	Mine Truck 1	Mike Moore	Route A	1844.7312011...	22.78274154	
	RT: MT4 2013_04_09 17:27		4/10/2013 8:58:08 PM	4/10/2013 9:42:08 PM	Truck RoundTrip Template	Mine Truck 4	Gretchen Green	Route B	1806.7670898...	22.30278966	
	RT: MT3 2013_04_09 17:27		4/10/2013 9:08:08 PM	4/10/2013 10:13:08 PM	Truck RoundTrip Template	Mine Truck 3	Edna Thompson	Route B	1750.5104980...	23.38118553	
	RT: MT5 2013_04_09 21:09		4/10/2013 9:10:08 PM	4/10/2013 10:07:08 PM	Truck RoundTrip Template	Mine Truck 5	Teddy Bigs	Route C	1770.5393066...	22.00903125	
	RT: MT4 2013_04_09 21:42				oundTrip Template	Mine Truck 4					
	RT: MT2 2013_04_09 21:45				oundTrip Template	Mine Truck 2					
	RT: MT1 2013_04_09 17:27		4/10/2013 9:58:08 PM	4/10/2013 11:01:08 PM	Truck RoundTrip Template	Mine Truck 1	Mike Moore	Route A	1820.4301757...	22.95261383	

Standard Event Data

Event Attributes



DEMO

PI WebParts dashboard using PI OLEDB Enterprise 2012

PI WebParts + PI OLEDB Enterprise 2012 - RoundTrips

Truck RoundTrip Events

Time Range

Start Time

End Time

Apply

Select a Truck

- Trucks
- Mine Truck 1
- Mine Truck 2
- Mine Truck 3
- Mine Truck 4
- Mine Truck 5



OSI Mining Links

Truck Operational States

PI Coresight - HOME

Operational State Attributes

Truck Trip Events Summary

Count	Cum. Duration	Avg Duration (Sec)	Expected Avg Duration (Sec)
29	22:24:00	2880	360

Truck Trip Events

Name	Start Time	End Time	Duration
RT: MT4 2013_04_07 12:44	4/7/2013 12:44:28 PM	4/7/2013 1:32:28 PM	00:48:00
RT: MT4 2013_04_07 13:32	4/7/2013 1:32:58 PM	4/7/2013 2:20:58 PM	00:48:00
RT: MT4 2013_04_07 14:21	4/7/2013 2:21:28 PM	4/7/2013 3:09:28 PM	00:48:00
RT: MT4 2013_04_07 15:09	4/7/2013 3:09:58 PM	4/7/2013 3:57:58 PM	00:48:00
RT: MT4 2013_04_07 15:58	4/7/2013 3:58:28 PM	4/7/2013 4:46:28 PM	00:48:00
RT: MT4 2013_04_07 16:46	4/7/2013 4:46:58 PM	4/7/2013 5:34:58 PM	00:48:00
RT: MT4 2013_04_07 17:35	4/7/2013 5:35:28 PM	4/7/2013 6:23:28 PM	00:48:00
RT: MT4 2013_04_07 18:23	4/7/2013 6:23:58 PM	4/7/2013 7:11:58 PM	00:48:00
RT: MT4 2013_04_07 19:12	4/7/2013 7:12:28 PM	4/7/2013 8:00:28 PM	00:48:00
RT: MT4 2013_04_07 20:00	4/7/2013 8:00:58 PM	4/7/2013 8:48:58 PM	00:48:00

Showing 1 to 10 of 29

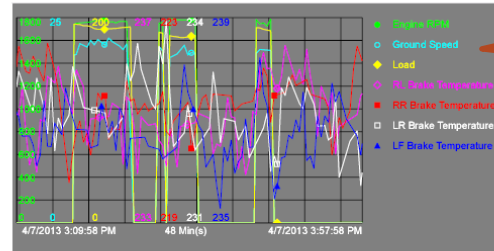
Truck Operational State Events

Name	Start Time	End Time	Duration
Waiting to Load	4/7/2013 3:09:58 PM	4/7/2013 3:19:28 PM	00:09:30
Loading	4/7/2013 3:19:28 PM	4/7/2013 3:25:28 PM	00:06:00
Running Loaded	4/7/2013 3:25:28 PM	4/7/2013 3:36:28 PM	00:11:00
Dumping Load	4/7/2013 3:36:28 PM	4/7/2013 3:41:28 PM	00:05:00
Running Empty	4/7/2013 3:41:28 PM	4/7/2013 3:57:58 PM	00:16:30

Truck Operational State Event Attributes

Attribute	Value	UOM
Comment	Running Empty	
Description	Lebron James	
Driver	990	
Duration	s	s
Duration.Expected	360	s
Engine RPM - Average	1730.04305844085	rpm
Engine RPM - Maximum	1784.16015625	rpm
LF Brake Temperature	236.584747314453	deg F
LF Brake Temperature - Maximum	238.224411010742	deg F
LF Brake Temperature - Minimum	235.461395263672	deg F
LF Brake Temperature - Std	0.541336338240054	deg F
LR Brake Temperature	236.323379516602	deg F
LR Brake Temperature - Maximum	237.286865234375	deg F
LR Brake Temperature - Minimum	235.466247558594	deg F
LR Brake Temperature - Std	0.316483902347557	deg F

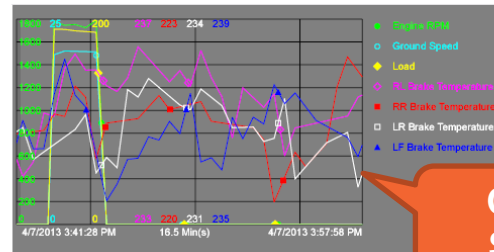
Trip Event Trend



Trip Attributes

Attribute	Value	UOM
Comment	RoundTrip	
Description	Revill Swivel	
Driver	2880	
Duration	s	s
Duration.Expected	360	s
Engine RPM - Average	1723.4249567159	rpm
Engine RPM - Maximum	1784.61865234375	rpm
Ground Speed - Average	20.6147543030977	mi/h
Ground Speed - Maximum	22.7460880279541	mi/h
Load - Maximum	177.920925348455	ton
Load - Range	10.0697290593928	ton
Route	Route C	

Trip Operational State Event Trend



Event Trend

Event Attributes

Operational State Trend



DEMO

PI OLEDB Enterprise 2012 driving Microsoft PowerView

Truck, Operator & Route Report

Route

- No Data
- Route A
- Route B
- Route C
- ROUTE D

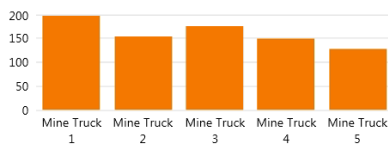
Driver

- Chris Scatman
- Jason Rice
- Latrice Lewis
- Mace Mixon
- Mike Moore
- Neil Macer
- Rylance Rebel
- Sam Spillman
- Sorlie Otters

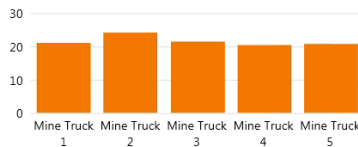
Truck

- Mine Truck 1
- Mine Truck 2
- Mine Truck 3
- Mine Truck 4
- Mine Truck 5

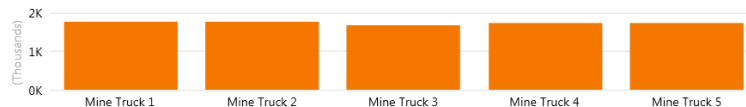
Average of Load - Maximum by Truck



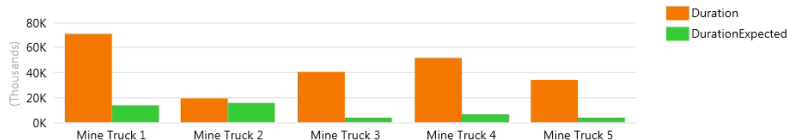
Average of Ground Speed - Average by Truck



Average of Engine RPM - Average by Truck



Duration, and DurationExpected by Truck



Truck Fleet Monitoring:
Filter on Route, Truck, or Driver

Truck, Operator & Route Report

Route

- No Data
- Route A
- Route B
- Route C
- ROUTE D

Driver

- Mike Kleener
- Sam Jackson

Truck

- Mine Truck 1
- Mine Truck 2
- Mine Truck 3
- Mine Truck 4
- Mine Truck 5

Average of Load - Maximum by Truck



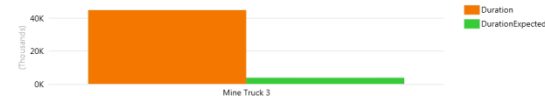
Average of Ground Speed - Average by Truck



Average of Engine RPM - Average by Truck

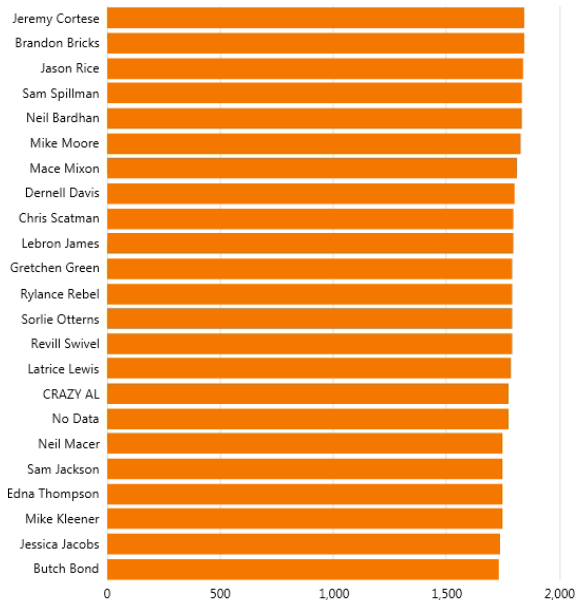


Duration, and DurationExpected by Truck

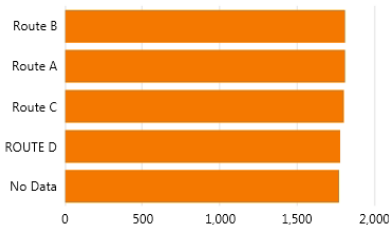


Engine RPM Analysis

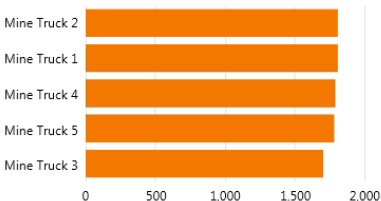
Average of Engine RPM - Maximum by Driver



Average of Engine RPM - Maximum by Route



Average of Engine RPM - Maximum by Truck

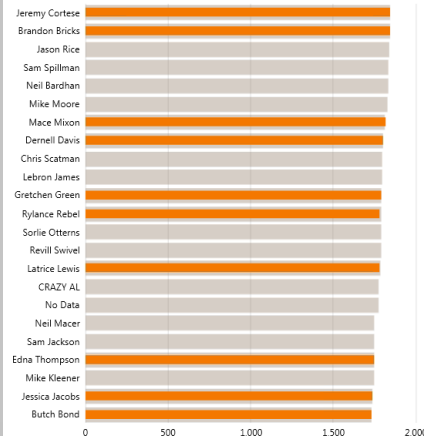


Truck Fleet Monitoring:
Filter on Highest Route (B)

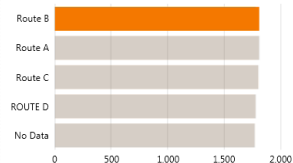
Engine RPM Analysis

sort by Average of Engine RPM - Maximum ▼ desc

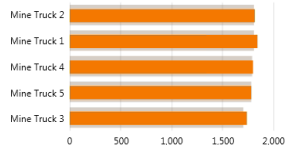
Average of Engine RPM - Maximum by Driver



Average of Engine RPM - Maximum by Route



Average of Engine RPM - Maximum by Truck





DEMO

PI Coresight – Related Events

PI Coresight 2013 – Related Events





PI Coresight 2013 – Related Events





PI Coresight 2013 – Hierarchical Events



PI Event Frames Releases



PI Event Frames Generator



PI System Access 2012



PI Coresight 2013

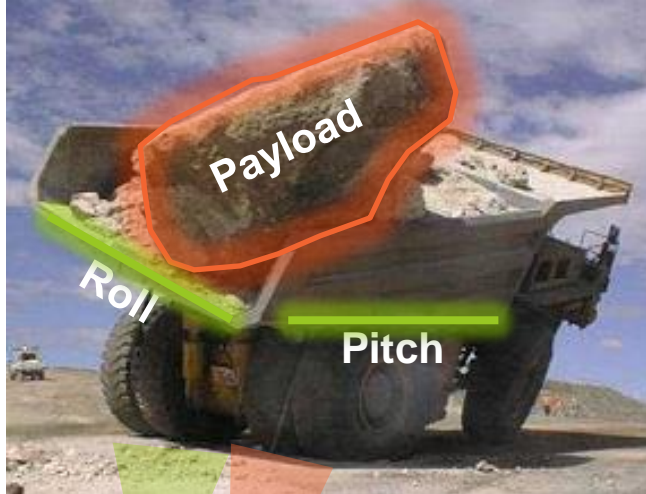


Pt. 2 – More Truck Events!!!

Truck Events



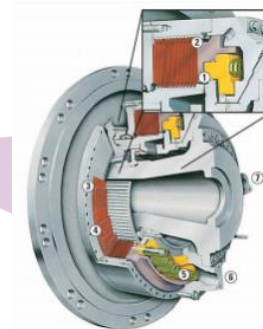
Pitch & Roll
& Rack
Excursions



Maximum
Payload
Exceeded

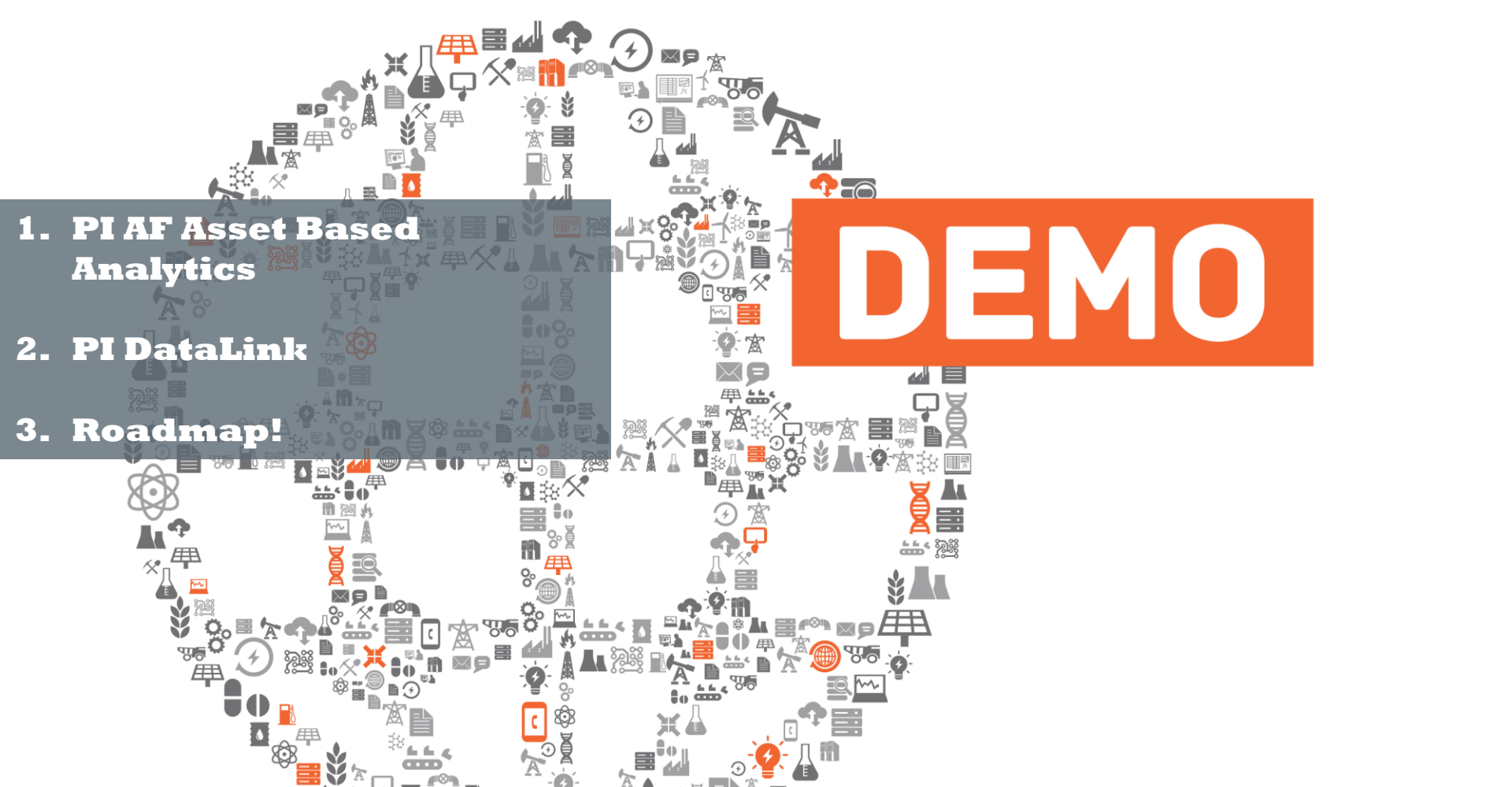


Motor Tilt Dump Amps
During Dumping



High Brake
Temperatures





1. PI AF Asset Based Analytics

2. PI DataLink

3. Roadmap!

DEMO



DEMO

PI AF Asset Based Analytics – Event Detection

Automatic Event Generation



Trigger PI Tags



PI AF Attributes

Category: Process Parameters	
Agitation	41.379638671875 rpm
Concentration	44.1733856201172 kg/L
Level	39.4587707519531 L
Temperature	52.3757171630859 deg C
Weight	1743.02749652183 kg

External Systems



PI Event Frames Generator

Trigger Hierarchical Events



AF Asset Based Analytics

[Temperature >= 180]

Detect Events



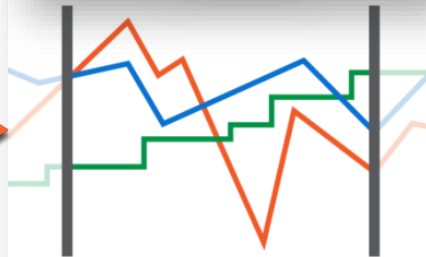
PI Interfaces for BES / MES

Batch Events



Auto-create Assets & Attributes

Events



Assets



PI AF: Asset Based Analytics – Event Detection

\\UCAFSVR\OSI Mining - PI System Explorer (Administrator)

File Edit View Go Tools Help

Database Query Date Back Check In Refresh New Element New Analysis Search Elements

Elements

- Corporation
 - Company 1
 - Company 2
 - Trucks
 - Mine Truck 1
 - Mine Truck 2
 - Mine Truck 3
 - Mine Truck 4
 - Mine Truck 5

Mine Truck 1

General Child Elements Attributes Ports Analyses Version

Enable Disable

Name	Backfilling
EX: MT1 LF Brake Temp	
EX: MT1 LR Brake Temp	
EX: MT1 Motor Amps Dumping	
EX: MT1 Payload	
EX: MT1 RF Brake Temp	

Event Frame Template: Truck Dumping Motor Excursion

Name: EX: MT1 Motor Amps Dumping

Description:

Categories: Event Detection

Analysis Type: ☐ Expression ☐ Rollup ☒ Event Frame Generation

Start Trigger

Variable	Expression
Output	('Operating State'="Unloading") AND ('Tilt Dump Amps'>'Tilt Dump Amps High Limit')
	Add a new expression

End Trigger ☐ Same as start trigger

Variable	Expression
Output	('Tilt Dump Amps'<'Tilt Dump Amps High Limit')
	Add a new expression

Unit of Measure

Trigger on Any Input

Mine Truck 1 Modified:8/27/2013 6:10:23 PM. Version: 1/1/1970 12:00:00 AM, Revision 2

Functions

All

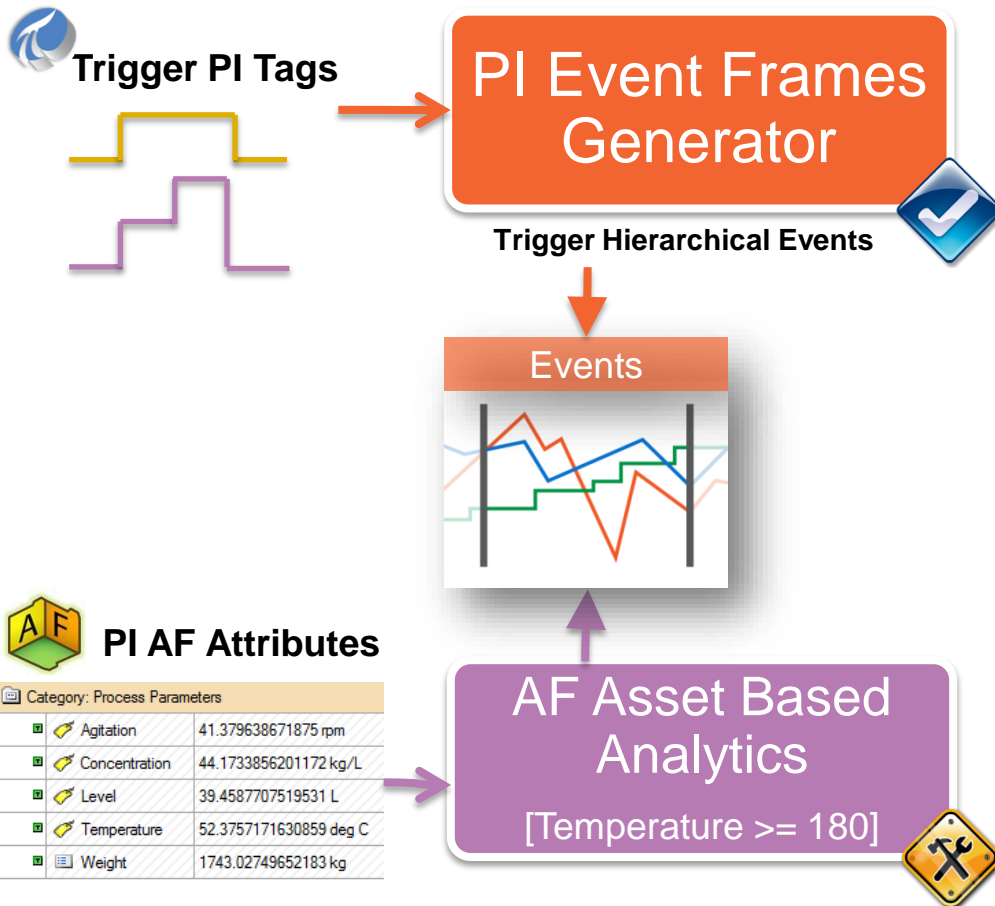
- Abs
- Acos
- And
- Ascii
- Asin
- Atn
- Atn2
- Avg

Abs(number x)
Return the absolute value of an integer or real number.
Example: Abs(1)

Attributes

Connected to the PI Analysis Service.

Automatic Event Generation – Which One?



- ✓ **Inputs: PI Tags**
- ✓ **Hierarchical Events**
- ✓ **Batch Merging**
- ✓ **Migration from PIBaGen**
- ✓ **Availability: Released!**

- ✓ **Inputs: AF Attributes**
- ✓ **Configurable Trigger Rules**
- ✓ **Leverages AF Element Templates**
- ✓ **Availability: 1H2014**



DEMO

PI DataLink – Event in Excel

PI DataLink [NEXT VERSION]: Events in Excel

The screenshot displays the PI DataLink Excel application window. The main data table lists event details for various trucks and routes. The 'Explore Events' dialog box is open, showing a list of 58 events and a selection of column headers.

Event name	Child 1	Primary element	Route	Driver
RT: MT5 2013_08_28 21:55	Running Empty	Mine Truck 5	Route C	Latrice Lewis
RT: MT5 2013_08_28 21:55	Waiting to Load	Mine Truck 5		Teddy Bigs
RT: MT5 2013_08_28 21:55	Loading	Mine Truck 5		Latrice Lewis
RT: MT5 2013_08_28 21:55	Running Loaded	Mine Truck 5		Teddy Bigs
RT: MT5 2013_08_28 21:55	Dumping Load	Mine Truck 5		Teddy Bigs
RT: MT1 2013_08_28 21:56	Running Empty	Mine Truck 1	Route A	Mike Moore
RT: MT1 2013_08_28 21:56	Waiting to Load	Mine Truck 1		Mike Moore
RT: MT1 2013_08_28 21:56	Loading	Mine Truck 1		Jason Rice
RT: MT1 2013_08_28 21:56	Running Loaded	Mine Truck 1		Sam Spillma
RT: MT1 2013_08_28 21:56	Dumping Load	Mine Truck 1		Neil Bardhar
RT: MT2 2013_08_28 21:58	Running Empty	Mine Truck 2	Route B	Mace Mixon
RT: MT2 2013_08_28 21:58	Loading	Mine Truck 2		Hal Hungry
RT: MT2 2013_08_28 21:58	Running Loaded	Mine Truck 2		Mace Mixon
RT: MT2 2013_08_28 21:58	Dumping Load	Mine Truck 2		Mace Mixon
RT: MT2 2013_08_28 21:58	Waiting to Load	Mine Truck 2		Mace Mixon
RT: MT4 2013_08_28 22:21	Running Loaded	Mine Truck 4	Route A	Sorlie Otter
RT: MT4 2013_08_28 22:21	Dumping Load	Mine Truck 4		Lebron Jame
RT: MT4 2013_08_28 22:21	Running Empty	Mine Truck 4		Gretchen Gre

Explore Events

Events (58 found)

- RT: MT5 2013_08_28 21:55
- RT: MT1 2013_08_28 21:56
- RT: MT2 2013_08_28 21:58
- RT: MT4 2013_08_28 22:21
- RT: MT1 2013_08_28 23:03
- RT: MT5 2013_08_28 23:05
- RT: MT4 2013_08_28 23:06

Column headers

☒ Select all

- ☒ Event name
- ☒ Primary element
- ☒ Route
- ☒ Driver
- ☒ Start time
- ☒ End time
- ☒ Duration
- ☒ Event template

Number of child event levels: 1

Output cell: LIVE EXPLORE!\$E\$1

OK Apply

Preview of next PI DataLink release showing support for PI Event Frames!

EF Search Criteria

Results Preview

EF Attributes Output



PI DataLink: Events in Excel



EMEA Mining Truck Reports - Excel

FILE HOME INSERT PAGE LAYOUT FORMULAS DATA REVIEW VIEW ADD-INS PI BUILDER PI DATALINK

Current Value Compressed Data Sampled Data Timed Data Calculated Data Time Filtered Calculation Explore Compare Search Properties Update Settings About Help

Single Value Multiple Value

={PIEFdat('LIVE EXPLORE'!\$C\$2,'LIVE EXPLORE'!\$C\$3,'LIVE EXPLORE'!\$C\$4,0,'LIVE EXPLORE'!\$C\$5,'Truck RoundTrip Template','LIVE EXPLORE'!\$C\$6,"*",",","","","active in range",

	A	B	C	D	E	I	J	K	L	M	N
					Event name	Driver	Start time	End time	Duration	Event template	Engine RPM - Average
1		AF Database	\\DFPIAF\OSI Mining		RT: MT5 2013_08_28 21:55	Latrice Lewis	28-Aug-13 21:55:37	28-Aug-13 22:52:37	0 0:57:00	Truck RoundTrip Template	1726.915389
2		Search Start	*-12h		RT: MT5 2013_08_28 21:55	Teddy Bigs	28-Aug-13 22:44:07	28-Aug-13 22:52:37	0 0:08:30	Truck Running Empty Template	1749.517225
3		Search End	*		RT: MT5 2013_08_28 21:55	Latrice Lewis	28-Aug-13 21:55:37	28-Aug-13 22:02:37	0 0:07:00	Truck Waiting for Loading Template	1722.675976
4		EF Name	*		RT: MT5 2013_08_28 21:55	Latrice Lewis	28-Aug-13 22:02:37	28-Aug-13 22:15:07	0 0:12:30	Truck Loading Template	1728.516089
5		Truck	*		RT: MT5 2013_08_28 21:55	Teddy Bigs	28-Aug-13 22:15:07	28-Aug-13 22:23:07	0 0:08:00	Truck Running Loaded Template	1731.687412
6		Route	*		RT: MT5 2013_08_28 21:55	Teddy Bigs	28-Aug-13 22:23:07	28-Aug-13 22:44:07	0 0:21:00	Truck Unloading Template	
7					RT: MT1 2013_08_28 21:56	Mike Moore	28-Aug-13 21:56:37	28-Aug-13 22:59:37	0 1:03:00	Truck RoundTrip Template	1770.087403
8					RT: MT1 2013_08_28 21:56	Mike Moore	28-Aug-13 22:52:07	28-Aug-13 22:59:37	0 0:07:30	Truck Running Empty Template	1772.870162
9		Fill in Search Criteria			RT: MT1 2013_08_28 21:56	Mike Moore	28-Aug-13 21:56:37	28-Aug-13 22:06:07	0 0:09:30	Truck Waiting for Loading Template	1791.673846
10		Select Truck RoundTrip Template			RT: MT1 2013_08_28 21:56	Jason Rice	28-Aug-13 22:06:07	28-Aug-13 22:20:37	0 0:14:30	Truck Loading Template	1766.207912
11		Adv Filter on Route			RT: MT1 2013_08_28 21:56	Sam Spillman	28-Aug-13 22:20:37	28-Aug-13 22:40:07	0 0:19:30	Truck Running Loaded Template	1758.296092
12		Select All Column Header Attribs			RT: MT1 2013_08_28 21:56	Neil Bardhan	28-Aug-13 22:40:07	28-Aug-13 22:52:07	0 0:12:00	Truck Unloading Template	
13		Child Events = 1			RT: MT2 2013_08_28 21:58	Mace Mixon	28-Aug-13 21:58:37	28-Aug-13 23:16:37	0 1:18:00	Truck RoundTrip Template	1778.013502
14					RT: MT2 2013_08_28 21:58	Hal Hungry	28-Aug-13 22:54:07	28-Aug-13 23:16:37	0 0:22:30	Truck Running Empty Template	1790.742043
15					RT: MT2 2013_08_28 21:58	Hal Hungry	28-Aug-13 22:14:07	28-Aug-13 22:27:37	0 0:13:30	Truck Loading Template	1767.85702
16		EXPLORE EVENTS			RT: MT2 2013_08_28 21:58	Mace Mixon	28-Aug-13 22:27:37	28-Aug-13 22:36:37	0 0:09:00	Truck Running Loaded Template	1788.363381
17					RT: MT2 2013_08_28 21:58	Mace Mixon	28-Aug-13 22:36:37	28-Aug-13 22:54:07	0 0:17:30	Truck Unloading Template	
18					RT: MT2 2013_08_28 21:58	Mace Mixon	28-Aug-13 21:58:37	28-Aug-13 22:14:07	0 0:15:30	Truck Waiting for Loading Template	1776.29196
19					RT: MT4 2013_08_28 22:21	Sorlie Otterns	28-Aug-13 22:21:37	28-Aug-13 23:05:37	0 0:44:00	Truck RoundTrip Template	1738.466666
20					RT: MT4 2013_08_28 22:21	Lebron James	28-Aug-13 22:43:07	28-Aug-13 22:46:07	0 0:03:00	Truck Running Loaded Template	1714.474869
21					RT: MT4 2013_08_28 22:21	Lebron James	28-Aug-13 22:46:07	28-Aug-13 22:53:37	0 0:07:30	Truck Unloading Template	
22					RT: MT4 2013_08_28 22:21	Gretchen Green	28-Aug-13 22:53:37	28-Aug-13 23:05:37	0 0:12:00	Truck Running Empty Template	1753.792307
23					RT: MT4 2013_08_28 22:21	Gretchen Green	28-Aug-13 22:53:37	28-Aug-13 23:05:37	0 0:12:00	Truck Running Empty Template	1753.792307

LIVE EXPLORE LIVE COMPARE Truck Relative RoundTrip Details RoundTrip Data GLOBAL

READY

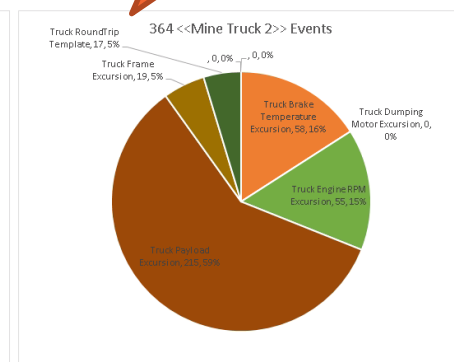
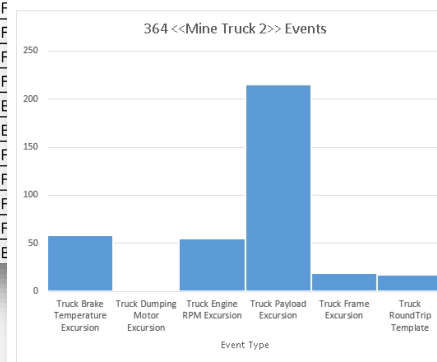
PI AF
Automatically
calculates and
retrieves EF
Attribute Values
for you!

PI DataLink: Events in Excel – Truck Event Report

A	B	C	D	E	F	G
2	Search Start	*-1d	10-Apr-13 09:00:13	Truck	Mine Truck 2	
3	Search End	*	11-Apr-13 08:57:43			
18	EF NAME					
19	Truck Events [PI EF] (364)	*	Event Category	*	Event Template	*
20						
21			Minimum	0 0:00:10	Minimum	0.2
22			Average	0 0:06:42	Average	6.7
23			StdDev	0 0:18:20	StdDev	18.3
24			Maximum	0 2:36:30	Maximum	156.5
26	Name	Start Time	End Time	Duration	Template	Duration (min)
27	EX: MT2 Payload 20130411 12:04:21	11-Apr-13 12:04:21	11-Apr-13 12:10:51	0 0:06:30	Truck Payload Excursion	6.5
28	RT: MT2 RoundTrip 20130411 12:02:30	11-Apr-13 12:02:30			Truck RoundTrip Template	
29	EX: MT2 Payload 20130411 11:59:21	11-Apr-13 11:59:21	11-Apr-13 12:03:51	0 0:04:30	Truck Payload Excursion	4.5
30	EX: MT2 Payload 20130411 11:58:21	11-Apr-13 11:58:21	11-Apr-13 11:58:51	0 0:00:30	Truck Payload Excursion	0.5
31	EX: MT2 Payload 20130411 11:55:51	11-Apr-13 11:55:51	11-Apr-13 11:56:51	0 0:01:00	Truck Payload Excursion	1.0
32	EX: MT2 RR Brake Temp 20130411 11:46:51	11-Apr-13 11:46:51	11-Apr-13 11:49:21	0 0:02:30	Truck Brake Temperature Excurs	2.5
33	EX: MT2 Payload 20130411 11:46:51	11-Apr-13 11:46:51	11-Apr-13 11:50:21	0 0:03:30	Truck Payload Excursion	3.5
34	EX: MT2 Payload 20130411 11:42:51	11-Apr-13 11:42:51	11-Apr-13 11:43:51	0 0:01:00	Truck F	
35	EX: MT2 Payload 20130411 11:40:51	11-Apr-13 11:40:51	11-Apr-13 11:42:21	0 0:01:30	Truck F	
36	EX: MT2 Payload 20130411 11:39:51	11-Apr-13 11:39:51	11-Apr-13 11:40:21	0 0:00:30	Truck F	
37	EX: MT2 Payload 20130411 11:38:21	11-Apr-13 11:38:21	11-Apr-13 11:38:51	0 0:00:30	Truck F	
38	EX: MT2 RR Brake Temp 20130411 11:37:51	11-Apr-13 11:37:51	11-Apr-13 11:46:21	0 0:08:30	Truck E	
39	EX: MT2 RR Brake Temp 20130411 11:31:21	11-Apr-13 11:31:21	11-Apr-13 11:35:21	0 0:04:00	Truck E	
40	EX: MT2 Payload 20130411 11:27:51	11-Apr-13 11:27:51	11-Apr-13 11:34:21	0 0:06:30	Truck F	
41	EX: MT2 Payload 20130411 11:26:51	11-Apr-13 11:26:51	11-Apr-13 11:27:21	0 0:00:30	Truck F	
42	EX: MT2 Payload 20130411 11:13:51	11-Apr-13 11:13:51	11-Apr-13 11:17:51	0 0:04:00	Truck F	
43	EX: MT2 Payload 20130411 11:07:51	11-Apr-13 11:07:51	11-Apr-13 11:08:21	0 0:00:30	Truck F	
44	EX: MT2 RR Brake Temp 20130411 11:04:21	11-Apr-13 11:04:21	11-Apr-13 11:16:21	0 0:12:00	Truck E	

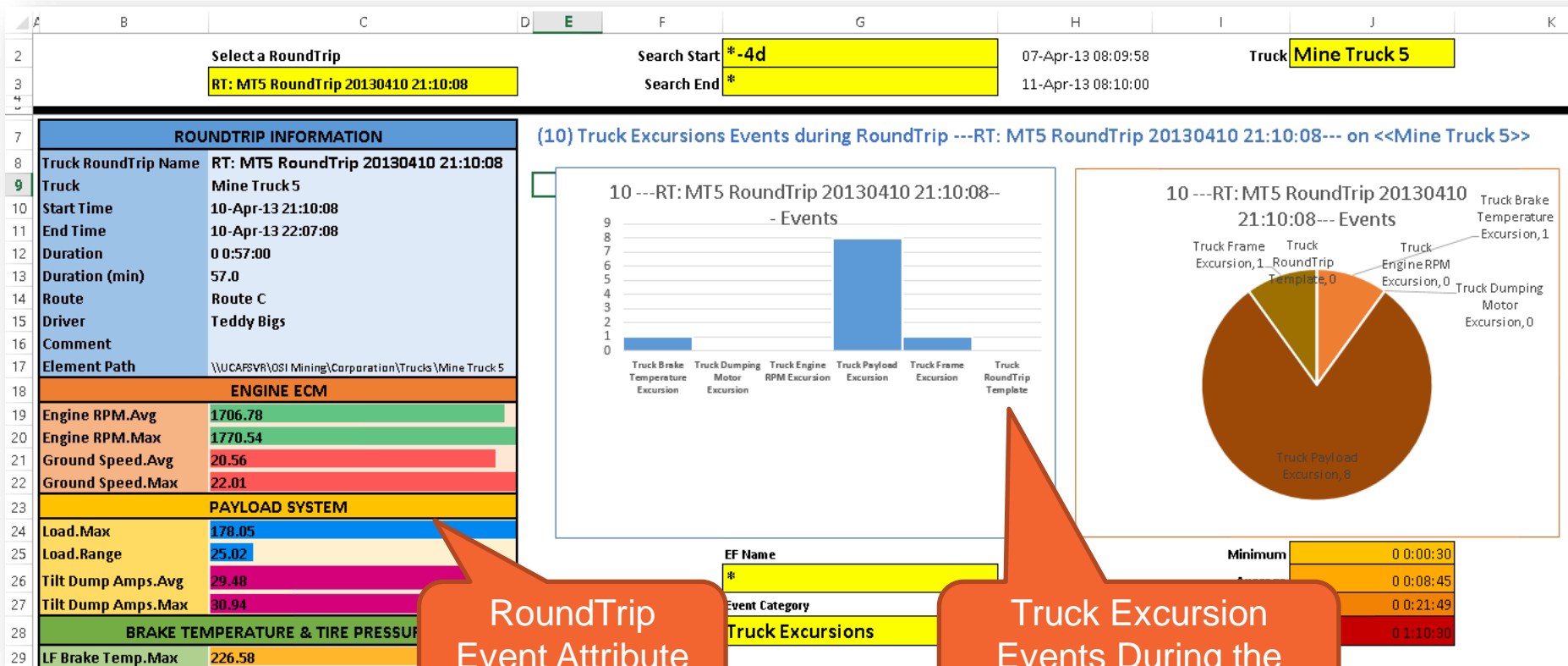
Truck Relative Event Report

Out of the box Excel Charting





PI DataLink: Events in Excel – Truck RoundTrip Report

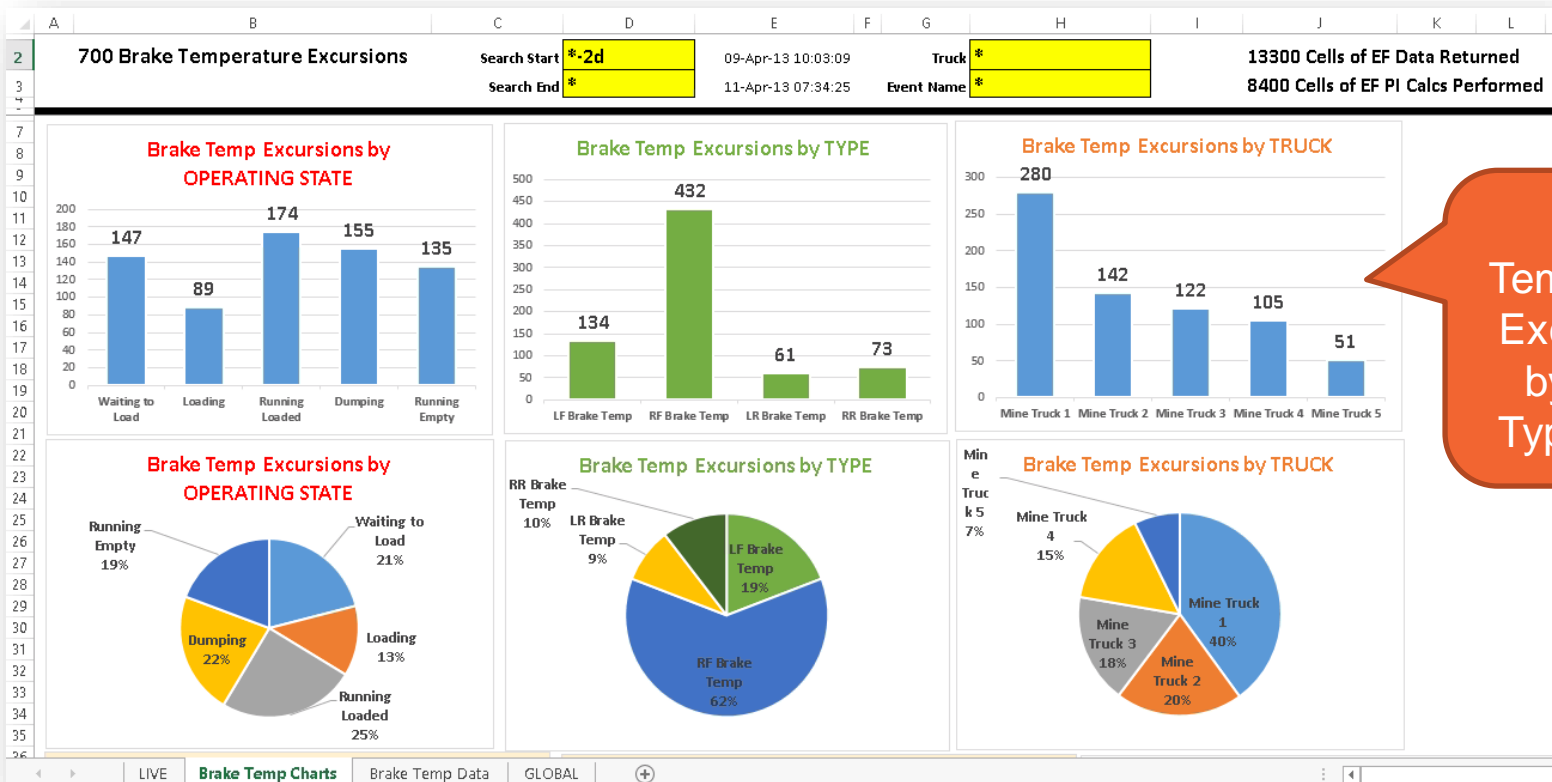


RoundTrip
Event Attribute
Data

Truck Excursion
Events During the
Selected RoundTrip



PI DataLink: Events in Excel – Brake Temp Excursion Report



Brake Temperature Excursions by State, Type, Truck




PI Event Frames Roadmap

2012	2013		2014	FUTURE
4Q	1H	2H	1H	See PI System Roadmap on Tech Support site for updates






Wave 2 – PI Event Frames for the Mainstream


Wave 3 – PI Batch to PI Event Frames [+-]




PI Event Frames Generator
Trigger Hierarchical Events (Tags)
Trigger Batches, PI BaGen Migration


PI Interfaces for BES / MES
Batch Events











PI System Access
Event Integration




PI Coresight
Related Events





PI Coresight
Hierarchical Events

PI ProcessBook (TBD)
Recent Events

PI Data Archive (TBD)
Batch to EF Migration

PI AF Asset Based Analytics (TBD)
Event Detection

PI DataLink (TBD)
Events in Excel



Product	Theme
PI AF	Audit Trail Viewer
PI Coresight	Event Overlay Trending
PI Coresight Mobile	Events in Your Pocket
RtReports	EF Integrated into Compliance Reports
PI Manual Logger	Log Events / Event Attributes
PI Notifications	Event Subscription & Notification
PI Data Archive	Batch Link / Redirection [TBD]

* Items in green indicate that development has started, but release projections are not yet available.

NOTE: Future dates are subject to change. Last Updated: 09-17-2013

vCampus Live! 2013

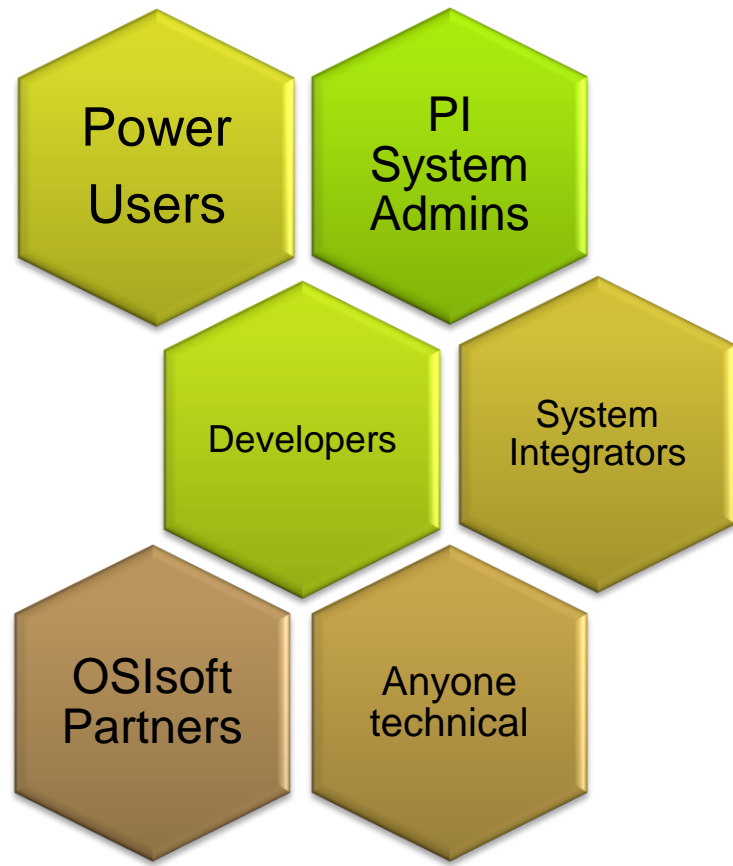
WHERE PI GEEKS MEET



SAVE THE DATE

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

- Hands On with PI Event Frames Generation
- Hands On with PI Event Frames Visualization



PI Event Frames – Contact Us!

Todd Brown

tbrown@osisoft.com

Product Manager

OSIsoft, LLC

Chris Nelson

cnelson@osisoft.com

Development Lead

OSIsoft, LLC

Frank Batke

frank.batke@osisoft.com

Sr. Systems Engineer

OSIsoft, LLC

Give us Product Feedback:

<http://fluidsurveys.com/s/PIEventFrames/>



**THANK
YOU**

Brought to you by

