

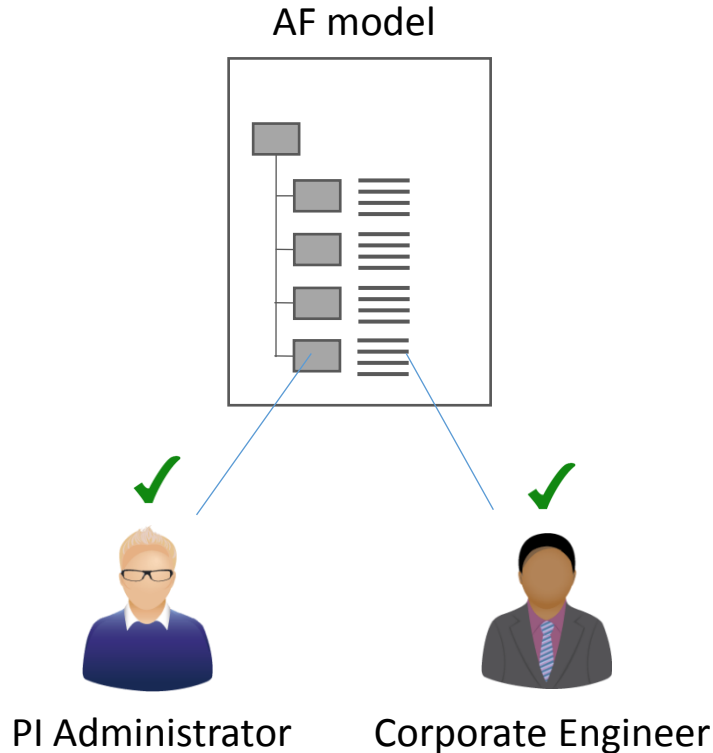
How to use the AF Transformer to deliver business ready AF structures to your customers

Presented by

Chris Coen – Product Manager, Engineering

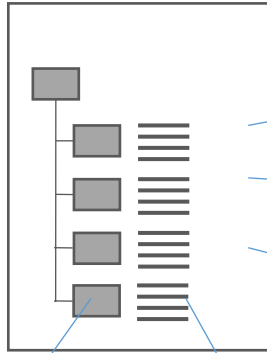
Christopher Sawyer – Technology Enablement Team

Technical models are selfish



Other users have different needs

AF model



?



Process Engineer

?



Accountant

?



Maintenance Engineer

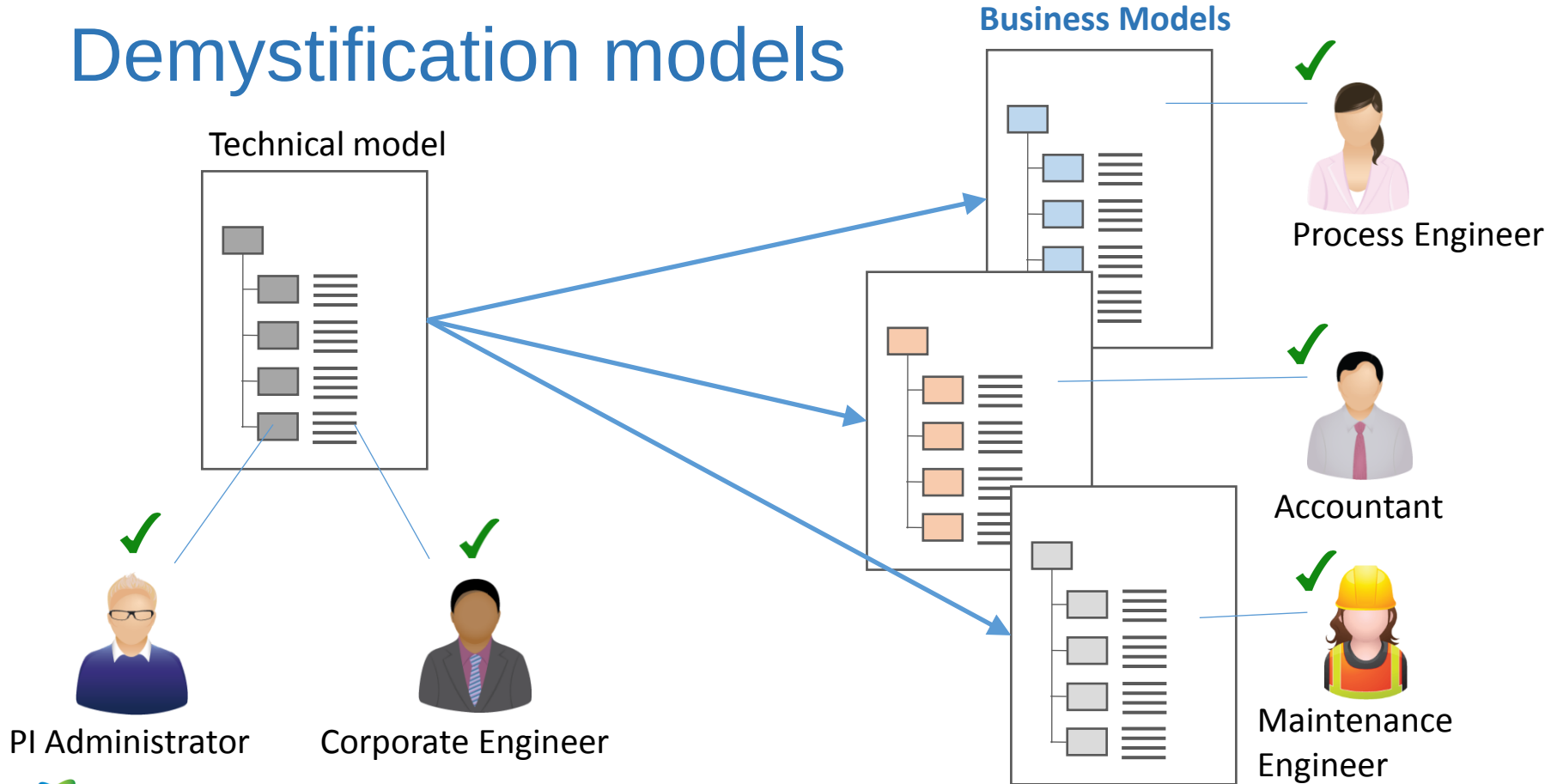


PI Administrator



Corporate Engineer

Demystification models



What is AF Transformer?

- It's a modeling tool
- It can take one or more AF structures and reshape them into target structure(s) matching your desired criteria
- It reduces the burden to write your own “mapping” tool

Say your AF Model looks like this...

The screenshot displays two panels from an AF Model interface. The left panel, titled 'Elements', shows a hierarchical tree structure. Under 'Elements', there is a 'Connectors' folder, which contains a 'Meter_Connector' folder. This folder lists 16 elements with IDs: 1ND000000001 through 1ND000000015, and 3KD000000001. The right panel, also titled 'Elements', shows a search results table. The table has columns for 'Name' and 'Description'. The 'Connectors' folder is expanded, and the 'Meter_C...' element is selected, showing a list of 16 elements with IDs starting with '1ND00...'.

Name	Description
Connectors	
Meter_C...	
1ND00...	
1ND00...	
1ND00...	
1ND00...	
1ND00...	
1ND00...	
1ND00...	
1ND00...	
1ND00...	
1ND00...	
1ND00...	
1ND00...	
1ND00...	
1ND00...	
1ND00...	
1ND00...	

But you need it to look like this...

The left screenshot shows a hierarchical tree view of elements. The tree structure is as follows:

- Elements
 - Meters by Substation
 - Substation_1000
 - Feeder_12222
 - Transformer_7000080001
 - 1ND000000001
 - 1ND000000002
 - 1ND000000003
 - 1ND000000004
 - 1ND000000005
 - 1ND000000006
 - TCA000000009
 - TCA000000010
 - TCA000000011
 - TCA000000012
 - X8D000000015
 - X8D000000016
 - Transformer_7000080002
 - Transformer_7000080003
 - Feeder_12223
 - Substation_2000
 - Feeder_20001
 - Feeder_20002

The right screenshot shows a search results table with the following data:

Name	Description
Meters by Substation	
Substation_1000	Substation
Feeder_12222	Feeder
Transformer_7000080001	Transformer
1ND000000001	
1ND000000002	
1ND000000003	
1ND000000004	
1ND000000005	
1ND000000006	
TCA000000009	
TCA000000010	
TCA000000011	
TCA000000012	
X8D000000015	
X8D000000016	
Transformer_7000080002	Transformer
Transformer_7000080003	Transformer
Feeder_12223	Feeder

Electrical Physical Distribution Model



Substations



Feeders

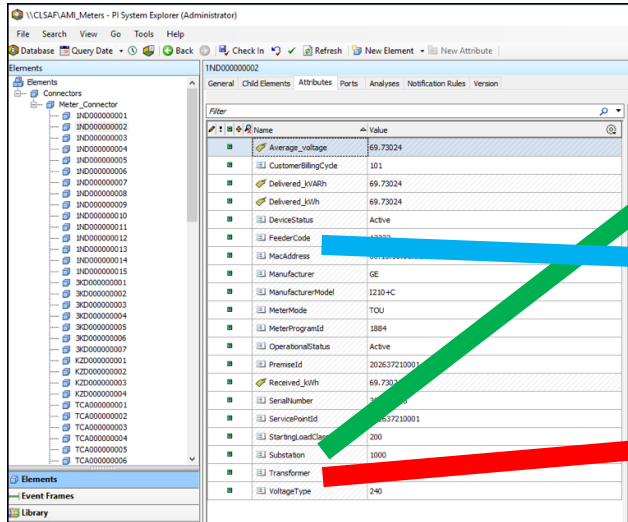


Transformers



Meters

How do we get it to look like we want?

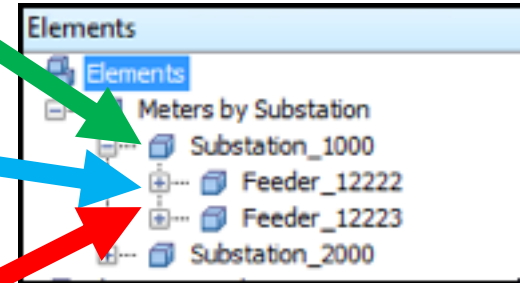


Three zoomed-in views of specific data rows from the PI System Explorer, with arrows indicating their source from the main interface:

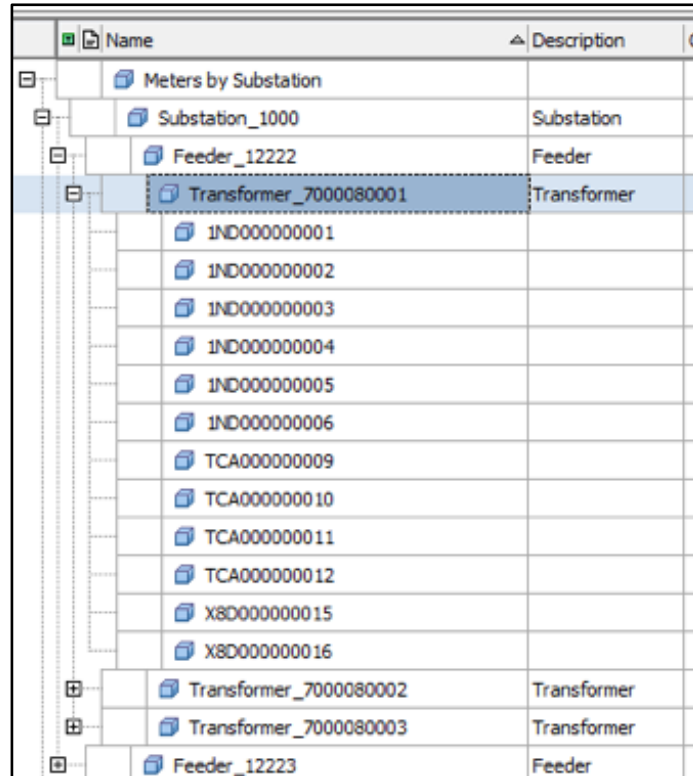
StartingLoadClass	200
Substation	1000
Transformer	7000080001

DeviceStatus	Active
FeederCode	12222
MacAddress	00:13:50:01:01:0001

Substation	1000
Transformer	7000080001
VoltageType	240



How do we get it to look like we want?



Name	Description	C
Meters by Substation		
Substation_1000	Substation	
Feeder_12222	Feeder	
Transformer_7000080001	Transformer	
1ND000000001		
1ND000000002		
1ND000000003		
1ND000000004		
1ND000000005		
1ND000000006		
TCA000000009		
TCA000000010		
TCA000000011		
TCA000000012		
X8D000000015		
X8D000000016		
Transformer_7000080002	Transformer	
Transformer_7000080003	Transformer	
Feeder_12223	Feeder	

2

Defining Your Search

Transform XML – How We Get There

- **<SearchShapes>** - Elements and attributes you're interested in from the Source PI AF asset model
 - **<ShapeElement>** - The PI AF element of interest
 - **<Attributes>** - The PI AF attributes around which the new model will be organized
- **<OutputElementShapes>** - Describes the new PI AF model hierarchy
 - **<Elements>** - Linked elements and attributes from **<SearchShapes>**, ordered by how you want them to appear in the target model

What is a shape?

- A shape is a pattern for searching for data within PI System.
- Search relationships between elements and attributes.
- You can define parents, children and their relationship as part of the shape, as well as the traditional template, name, category search parameters.
- We use Shapes to find the matches <**SearchShapes**> then project them into <**OutputElementShapes**>.

```

<SearchShapes>
  <Shape ID="1003" Required="true" FilterMatchType="Any" ShapeWalkType="TopBottom">
    <ShapeElements>
      <ShapeElement ID="1" Required="true" FilterMatchType="Any" MaxDepthFromParent="1" IsEntryPoint="false">
        <Filters>
          <ElementFilter Category="" Template="UIQMeter" Name="*" />
        </Filters>
        <Attributes>
          <ShapeAttribute ID="10" Required="true" FilterMatchType="Any">
            <Filters>
              <AttributeFilter Category="" Template="" Name="Substation" />
            </Filters>
          </ShapeAttribute>
          <ShapeAttribute ID="11" Required="true" FilterMatchType="Any">
            <Filters>
              <AttributeFilter Category="" Template="" Name="FeederCode" />
            </Filters>
          </ShapeAttribute>
          <ShapeAttribute ID="12" Required="true" FilterMatchType="Any">
            <Filters>
              <AttributeFilter Category="" Template="" Name="Transformer" />
            </Filters>
          </ShapeAttribute>
        </Attributes>
      </ShapeElement>
    </ShapeElements>
  </Shape>
</SearchShapes>

```

```

<SearchShapes>
  <Shape ID="1003" Required="true" FilterMatchType="Any" ShapeWalkType="TopBottom">
    <ShapeElements>
      <ShapeElement ID="1" Required="true" FilterMatchType="Any" MaxDepthFromParent="1" IsEntryPoint="false">
        <Filters>
          <ElementFilter Category="" Template="UIQMeter" Name="*" />
        </Filters>
        <Attributes>
          <ShapeAttribute ID="10" Required="true" FilterMatchType="Any">
            <Filters>
              <AttributeFilter Category="" Template="" Name="Substation" />
            </Filters>
          </ShapeAttribute>
          <ShapeAttribute ID="11" Required="true" FilterMatchType="Any">
            <Filters>
              <AttributeFilter Category="" Template="" Name="FeederCode" />
            </Filters>
          </ShapeAttribute>
          <ShapeAttribute ID="12" Required="true" FilterMatchType="Any">
            <Filters>
              <AttributeFilter Category="" Template="" Name="Transformer" />
            </Filters>
          </ShapeAttribute>
        </Attributes>
      </ShapeElement>
    </ShapeElements>
  </Shape>
</SearchShapes>

```

```

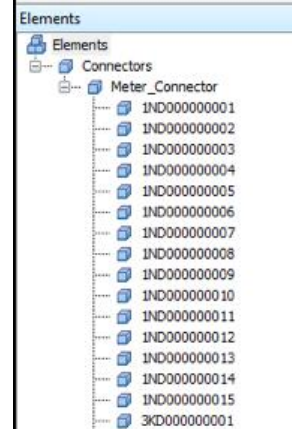
<OutputElementShapes>
  <OutputElementShape ID="1005">
    . . .
    <Elements>
      <!--Create "Meters by Substation" View in AF-->
1st level in hierarchy <Element Name="Meters by Substation" Guid="" ReadOnly="false" Template="">
      <Elements>
        <!--Organize by Substation-->
2nd level <Element Name="SubStation_[10.Value]" Guid="" Description="Substation" ReadOnly
      <Elements>
        <!--Organize by Feeder-->
3rd level <Element Name="[11.Value]" Guid="" Description="Feeder" ReadOnly="false"
      <Elements>
        <!--Organize by Transformer-->
4th level <Element Name="[12.Value]" Guid="" Description="Transformer" Re
      <Elements>
        <!--Create a Meter element-->
5th level <Element Name="[1.Name]" Guid="" ReadOnly="false" Templ

```

```

<SearchShapes>
  <Shape ID="1003" Required="true" FilterMatchType="Any" ShapeWalkType="TopBottom">
    <ShapeElements>
      <ShapeElement ID="1" Required="true" FilterMatchType="Any" MaxDepthFromParent="1" IsEntryPoint="false">
        <Filters>
          <ElementFilter Category="" Template="UIQMeter" Name="*" />
        </Filters>
        <Attributes>
          <ShapeAttribute ID="10" Required="true" FilterMatchType="Any">
            <Filters>
              <AttributeFilter Category="" Template=> Name="Substation" />
            </Filters>
          </ShapeAttribute>
          <ShapeAttribute ID="11" Required="true" FilterMatchType="Any">
            <Filters>
              <AttributeFilter Category="" Template=> Name="FeederCode" />
            </Filters>
          </ShapeAttribute>
          <ShapeAttribute ID="12" Required="true" FilterMatchType="Any">
            <Filters>
              <AttributeFilter Category="" Template=> Name="Transformer" />
            </Filters>
          </ShapeAttribute>
        </Attributes>
      </ShapeElement>
    </ShapeElements>
  </Shape>
</SearchShapes>

```



```

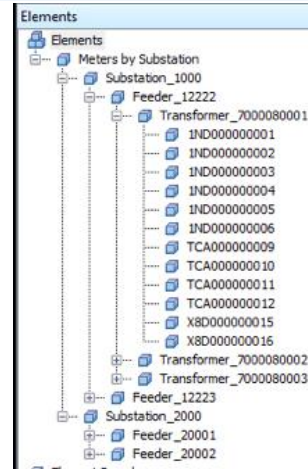
<OutputElementShapes>
  <OutputElementShape ID="1005">

```

```

    . . .
    <Elements>
      <!--Create "Meters by Substation" View in AF-->
      <!--1st level in hierarchy-->
      <Element Name="Meters by Substation" Guid="" ReadOnly="false" Template="">
        <Elements>
          <!--Organize by Substation-->
          <!--2nd level-->
          <Element Name="SubStation_[10.Value]" Guid="" Description="Substation" ReadOnly="true">
            <Elements>
              <!--Organize by Feeder-->
              <!--3rd level-->
              <Element Name="[11.Value]" Guid="" Description="Feeder" ReadOnly="false">
                <Elements>
                  <!--Organize by Transformer-->
                  <!--4th level-->
                  <Element Name="[12.Value]" Guid="" Description="Transformer" ReadOnly="true">
                    <Elements>
                      <!--Create a Meter element-->
                      <!--5th level-->
                      <Element Name="[1.Name]" Guid="" ReadOnly="false" Template="">

```





What AF Transformer isn't

- A 1-way synchronization service
- A 2-way synchronization service
- A visual mapper



You can use automation to refresh your target AF database

3

Requirements

Prerequisites

OS/Hardware

Windows Server 2008 R2 SP1 or later

8 GB memory

2 CPU cores

Server Platforms

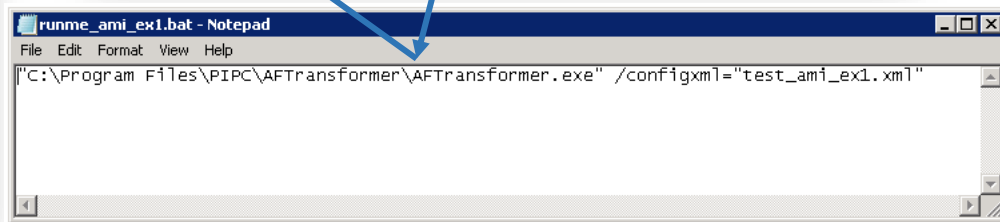
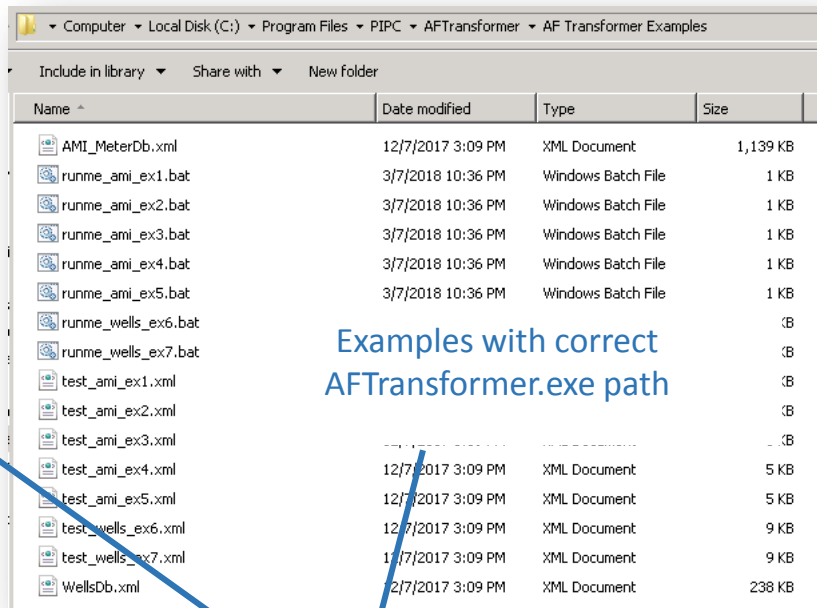
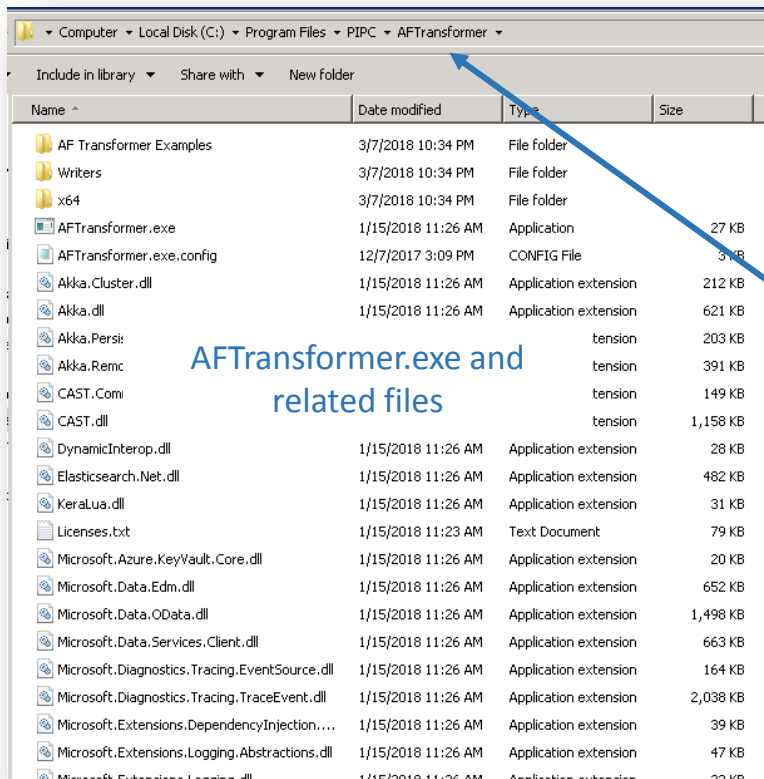
PI Asset Framework 2016 or later

Note: If you exclude additional attributes in the destination PI AF model, that are not already excluded in the source PI AF model, then you must use PI Asset Framework 2017 SP2.

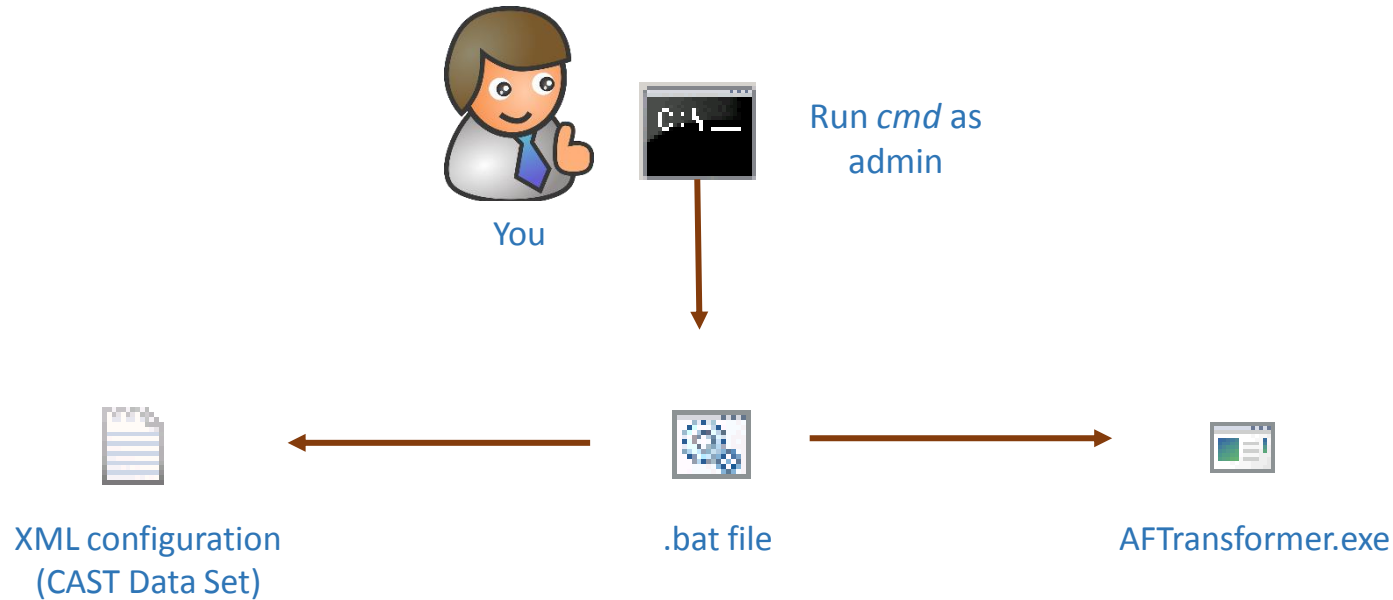
PI Data Archive 2010 or later

PI AF SDK 2.9.5 or later

What is installed



How to run AF Transformer?



XML Pattern

Process Properties

Tasks (put together DS, Writer, Search and Output shapes)

Data Sources (source AF)

Writer (target AF)

Search Shape (search pattern)

Output Shape
(transformed AF structure pattern)

```

1  <?xml version="1.0" encoding="utf-8"?>
2  <CASTDataSet xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
3    <LogFilePath>C:\Program Files\PIPC\AFTransformer\AF Transformer E
4    <ReportFilePath>C:\Program Files\PIPC\AFTransformer\AF Transform
5    <ReportLevel>PerShapeWithTags</ReportLevel>
6
7    <StatInfo>
8    </StatInfo>
9
10   <ProcessProperties>
11
12
13
14
15   <HealthMonitor> <!-- If defined, monitor runs in a separate thr
16
17
18
19
20
21
22
23
24
25   <Tasks>
26
27
28
29
30
31
32
33
34
35   <DataSources>
36
37
38
39
40
41
42
43
44
45   <Writers>
46
47
48
49
50
51
52
53
54
55   <SearchShapes>
56
57
58
59
60
61
62
63
64
65   <OutputElementShapes>
66
67
68
69
70
71
72
73
74
75   </CASTDataSet>
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92

```

Data Source and Writer

```
<DataSources>
  <DataSource MEFClass="AF" HighID="0" ID="1004">
    <Properties>
      <Properties Key="Host" Value="PISRV1" />
      <Properties Key="Database" Value="MeterDb" />
      <Properties Key="UserName" Value="" />
      <Properties Key="Password" Value="" />
      <Properties Key="DefaultPIServer" Value="" />
    </Properties>
  </DataSource>
</DataSources>
```

*Default PI Server N/A

```
<Writers>
  <Writer MEFClass="AF" Enabled="true" Encoding="UTF8" ID="1006">
    <Properties>
      <Properties Key="Host" Value="PISRV1" />
      <Properties Key="Database" Value="MeterMap1" />
    </Properties>
  </Writer>
</Writers>
```

Tasks

```

<Tasks>
  <Task Id="1000"
    <SearchShapes>
      <SearchShape Id="1003" ReaderId="1004" FilterMatchType="Any" >
        <DataFilters>
        </DataFilters>
      </SearchShape>
    </SearchShapes>
    <OutputElementShapes>
      <OutputElement Id="1005" />
    </OutputElementShapes>
    <TaskWriters>
      <TaskWriter Id="1006" />
    </TaskWriters>
  </Task>
</Tasks>

```

```

<SearchShapes>
  <Shape ID="1003" Required="true" FilterM
    <ShapeElements>
  </Shape>
</SearchShapes>

```

```

<DataSources>
  <DataSource MEFCClass="AF" HighID="0" ID="1004">
    <Properties>
      <Properties Key="Host" Value="AK-VM1" />
      <Properties Key="Database" Value="Equipment_source" />
      <Properties Key="UserName" Value="" />
      <Properties Key="Password" Value="" />
      <Properties Key="DefaultPIServer" Value="AK-VM1" />
    </Properties>
  </DataSource>
</DataSources>

```

```

<OutputElementShapes>
  <OutputElementShape ID="1005">
  </OutputElementShape>
</OutputElementShapes>

```

```

<Writers>
  <Writer MEFCClass="AF" Enabled="true" Encoding="UTF8" ID="1006">
    <Properties>
      <Properties Key="Host" Value="AK-VM1" />
      <Properties Key="Database" Value="Equipment_target" />
    </Properties>
  </Writer>
</Writers>

```



Run AF Transformer

```
C:\Program Files\PIPC\AFTransformer\AF Transformer Examples>runme_ani_ex1.bat
C:\Program Files\PIPC\AFTransformer\AF Transformer Examples>"C:\Program Files\PIPC\AFTransformer\AFTransformer.exe" /configxml="test_ani_ex1.xml"
Load Application settings...
Load Application settings - Completed.
Starting Asset Mapping service interactively...
3/8/2018 4:10:11 PM > | CASTDataSet::Initialize: Mode = <Once>
3/8/2018 4:10:11 PM > | CASTDataSet::Initialize: Behavior = <Push>
3/8/2018 4:10:13 PM > | AFReader::Open: AF Server='PISRV1' - Connected.
3/8/2018 4:10:14 PM > | AFReader::Open: AF Database='MeterDb' - Found.
3/8/2018 4:10:14 PM > | AFReader::Init: Delete On Destination: [Disabled]
3/8/2018 4:10:14 PM > | AFReader::Close: Reader ID=[10041] - AF Server='PISRV1' -
Disconnected.
3/8/2018 4:10:14 PM > | AFReader::Init: Initialization Completed Successfully.
CASTDataSet::Initialize: Initializing writer container
CASTDataSet::InitContainer: Composing container parts
CASTDataSet::InitContainer: Finished composing container parts
CASTDataSet::InitContainer: Init container successful.
CastDataSet::Initialize: Initializing writers
CastDataSet::Initialize: Writer AF found
3/8/2018 4:10:14 PM > | AFWriter::Init: AF Server='PISRV1' - Connected.
3/8/2018 4:10:14 PM > | AFWriter::Init: AF Database='MeterMap1' - Loaded.
3/8/2018 4:10:14 PM > | AFWriter::Init: AF Database CheckIn retry max count: 5
3/8/2018 4:10:14 PM > | AFWriter::Init: AF Database CheckIn retry delay: 60 sec.
3/8/2018 4:10:14 PM > | ExecutionEngine::LoadPIPoints: Searching for [0] PIPoint
3/8/2018 4:10:14 PM > | ExecutionEngine::LoadPIPoints: Found [0] PIPoints in 0.0
47 sec. Errors [0]
3/8/2018 4:10:14 PM > | AFReader::Open: AF Server='PISRV1' - Connected.
3/8/2018 4:10:14 PM > | AFReader::Open: AF Database='MeterDb' - Found.
3/8/2018 4:10:16 PM > | AFReader::Close: Reader ID=[10041] - AF Server='PISRV1' -
Disconnected.
3/8/2018 4:10:17 PM > | ReportStats::WriteToXmlFile: Directory='C:\Program File
s\PIPC\AFTransformer\AF Transformer Examples\Reports' - Found.
3/8/2018 4:10:17 PM > | ReportStats::WriteToXmlFile: File='C:\Program Files\PIPC
\AFTransformer\AF Transformer Examples\Reports\myreport <1000>_20180308161017.xml
' - Created.
3/8/2018 4:10:17 PM > | AMService::AssetMappingRun: AssetMapping - Execution com
pleted.
3/8/2018 4:10:17 PM > | AFWriter::Clean: AF Server='PISRV1' - Disconnected
CAST service stopped.
```

CAST DataSet Initialization according to
<ProcessProperties>

AF Reader Initialization according to <DataSources>

AF Writer Initialization according to <Writers>

Execution

Process Properties

Behavior - Only “Push” behavior of the Engine is supported in the current release.

RunMode – Only “Once” is supported in the current release.

DebugLevel - CAST Engine debug level.

Level 0 – report errors and important messages.

Level 1 – detailed statistics

ElementPageSize - (1000) Defines the page size for the PI AF element search related to entry point ShapeElement in SearchShape.

PublicationPageSize – (100) Defines the page size for shape instances to be processed.

ScanFrequency – (5 min by default) Defines the CAST engine’s data retrieval frequency. (N/A)

ThreadCount – (1 by default) Defines the number of threads used for processing. (N/A, used with CAST).

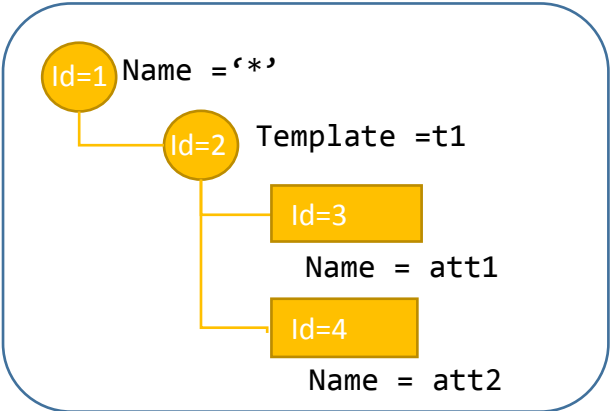
<https://techsupport.osisoft.com/Downloads/File/502c675b-df54-49b4-81a0-dbe3449e863d>

4

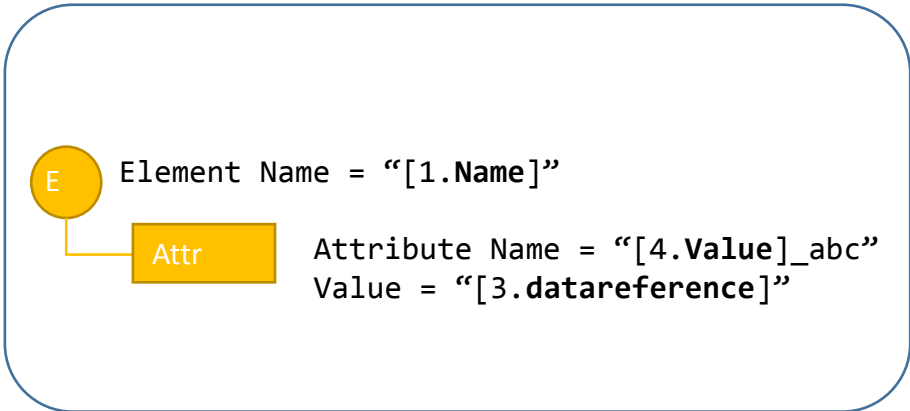
Transforming Your Model

Using IDs to Transform AF models

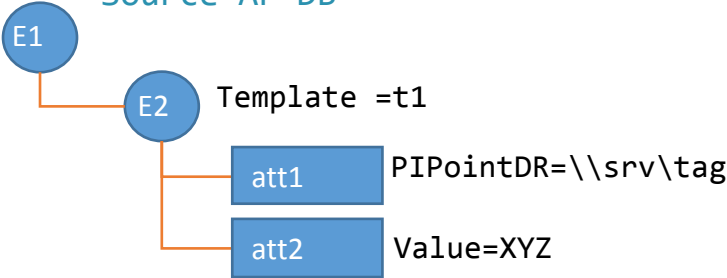
Search Shape



Output Shape



Source AF DB



Target AF DB



OutputElementShape

ID

Templates
(can clone them)

Elements
(can clone them)

Attributes
(can clone them)

```
<OutputElementShapes>
  <OutputElementShape ID="1005">
    <Templates>
      <!-- Create a template and name it IW template -->
      <Template Name="[13.Value] template">
        <Attributes>
          <CloneAttribute SourceID="1" MaxDepth="2" >
          </CloneAttribute>
        </CloneAttributes>
      </Template>
    </Templates>
    <Elements>
      <Element Name="Regions" Guid="" ReadOnly="false" Template="">
        <Elements>
          <!-- Create an element with the Basin name -->
          <Element Name="[10.Value]" Guid="" ReadOnly="false" Template="">
            <Elements>
              <!-- Create an element with the Site name -->
              <Element Name="[11.Value]" Guid="" ReadOnly="false" Template="">
                <Elements>
                  <!-- Create an element with the type of asset (IW for Injection Wells)-->
                  <Element Name="[13.Value]" Guid="" ReadOnly="false" Template="" >
                    <Elements>
                      <!-- Create a Well element -->
                      <Element Name="[12.Value]" Guid="" ReadOnly="false" Template="[13.Value] temp">
                        <Attributes>
                          <!-- Copy the data references for the attributes from the source shape -->
                          <Attribute Name="[23.Value]" Value="[20.datareference]" Excluded="false">
                          <Attributes Name="[21.Name]" Value="[21.datareference]" Excluded="false">
                          </Attributes>
                        <CloneAttributes>
                          <!-- Copy all attributes from the search shape element with ID=2. -->
                          <CloneAttribute SourceID="2" MaxDepth="2" Excluded="false">
                          </CloneAttribute>
                        </CloneAttributes>
                        <DiscardFilters>
                          <AttributeFilter Category="" Name="Value" />
                          <AttributeFilter Category="" Name="facilityid" />
                          <AttributeFilter Category="" Name="description" />
                        </DiscardFilters>
                      </Element>
                    </Elements>
                  </Element>
                </Elements>
              </Element>
            </Elements>
          </Element>
        </Elements>
      </Element>
    </Elements>
  </OutputElementShape>
</OutputElementShapes>
```

OutputElementShape - Elements

Element Definition :

*Name (GUID, persist),

Category,

Template,

Description,

ID,

IsReference,

ReferenceID

+

Attributes,

CloneAttributes

Elements

CloneElements

```
<!-- Create a Well element -->
<Element Name="[12.Value]" Guid="" ReadOnly="false" Template="[13.Value] template">
  <Attributes>
    <!-- Copy the data references for the attributes from the source shape, optionally sp
    <Attribute Name="[23.Value]" Value="[20.datareference]" Excluded="false" >
      <Attributes Name="[21.Name]" Value="[21.datareference]" Excluded="false" />
    <CloneAttributes>
  </Attribute>
</Attributes>
<CloneAttributes>
<!-- Copy all attributes from the search shape element with ID=1 -->
  <CloneAttribute SourceID="1" MaxDepth="2" >
  </CloneAttribute>
</CloneAttributes>
</Element>
</Elements>
```

*Only one of the three properties, Name, Guid, or Persist, is required for each element.

Full list:

<https://techsupport.osisoft.com/Downloads/File/502c675b-df54-49b4-81a0-dbe3449e863d>

Types of Filters

Filters

SearchShape

- **ElementFilter**
- **AttributeFilter**
- **Attribute ValueFilter**

OutputShape

- Clone **DiscardFilters**

Task

- SearchShape **DataFilters**

Filters: Task SearchShape Data Filter

SQL - alike syntax

```
<Task Id="333" PublicationTableId="3015" ReaderId="5002">
  <SearchShapes>
    <SearchShape Id="555" ReaderId="5001" FilterMatchType="Any">
      <DataFilters>
        <Filter Expression="[1.Name] == 'a1'" />
        <Filter Expression="[22.Value]!=null"/>
        <Filter Expression="[2.Name]== '*POC*'" />
        <Filter Expression="[2.Name]== '*QGASD*'" />
      </DataFilters>
    </SearchShape>
  </SearchShapes>
  ...
</Task>
```

4.1.1.1 FilterMatch Enumeration

Member Name	Value	Description
Any	0	One matched condition is sufficient. Produces a single match result.
All	1	Engine attempts to match all conditions and produces multiple match results.

4.1.1.2 Filter Definition

Name	XML Type	Required	Data Type	Default	Description
Expression	Attribute	Yes*	String	null	Defines boolean expression. Similar to the SQL where clause.
LuaExpression	Attribute	Yes*	String	null	Defines Lua expression. Lua expression must return "true" or "false."

* Note: At least one of the expressions must be defined. If both expressions are defined, LuaExpression takes precedence.

5

AF Transformer troubleshooting

Statistics

```
<LogFilePath>C:\...\Logs\execution.log</LogFilePath>
```

```
<ProcessProperties>
```

```
<DebugLevel>1</DebugLevel>
```

```
</ProcessProperties>
```

3/8/2018 11:06:12 PM > | ShapeWalker::FindShapeMatches: Searching for shape matches as user: OSI\AKrivososova

3/8/2018 11:07:01 PM > | **Entry Point Search: Found: [29] in 0.782 sec., cached: 48.647 sec.**

Entry Points search and cache results

3/8/2018 11:07:04 PM > | **Shape Match Write : Sync: [100] in 0.828 sec., total: [100]**

...

3/8/2018 11:07:58 PM > | Shape Match Write : Sync: [100] in 0.323 sec., total: [12300]

Current page publication to the target AF

3/8/2018 11:07:58 PM > | **Shape Match Result: Found: [12316/(29 + 12287)] in 17.815 sec., total: [12316]**

Entry Points + other elements found in # sec

3/8/2018 11:07:58 PM > | Results: -----

3/8/2018 11:07:58 PM > | Results: Total Shapes Found: 12316 (100.00 %) Rate: 267.74 sh/sec.

3/8/2018 11:07:58 PM > | Results: Total Shapes Skipped: 0 (0.00 %)

3/8/2018 11:07:58 PM > | Results: Total Processing time: 106.390 sec.

3/8/2018 11:07:58 PM > | Results: Total Entry Search time: 0.782 sec. (0.74 %)

3/8/2018 11:07:58 PM > | Results: Total Entry Cache time: 48.647 sec. (45.72 %)

3/8/2018 11:07:59 PM > | Results: Total Shape Match time: 17.815 sec. (16.74 %)

Entry Point search on the source AF
+ further searches/requests

3/8/2018 11:07:59 PM > | Results: Total ExternalProc time: 39.115 sec. (36.77 %)

Publication to the target AF

3/8/2018 11:07:59 PM > | Results: P.Page Entry Search time: [0.782 < 0.782 < 0.782] sec.

3/8/2018 11:07:59 PM > | Results: P.Page Entry Cache time: [48.647 < 48.647 < 48.647] sec.

3/8/2018 11:07:59 PM > | Results: P.Page Shape Match time: [17.815 < 17.815 < 17.815] sec.

3/8/2018 11:07:59 PM > | Results: P.Page ExternalProc time: [39.115 < 39.115 < 39.115] sec.

3/8/2018 11:07:59 PM > | Results: P.Page Entry Search rate: [37.08 < 37.08 < 37.08] sh/sec.

3/8/2018 11:07:59 PM > | Results: P.Page Entry Cache rate: [0.60 < 0.60 < 0.60] sh/sec.

3/8/2018 11:07:59 PM > | Results: P.Page Shape Match rate: [691.33 < 691.33 < 691.33] sh/sec.

3/8/2018 11:07:59 PM > | Results: P.Page ExternalProc rate: [314.87 < 314.87 < 314.87] sh/sec.

3/8/2018 11:07:59 PM > | Results: -----

3/8/2018 11:07:59 PM > | Shape Match Write : Sync: [16] in 0 sec., total: [12316]

3/8/2018 11:07:59 PM > | AFReader::Close: Reader ID=[1004] - AF Server='IntegratorTest4' - Disconnected.]

} Similar Stats per page
(Element Page/Publication page)

Health monitor – creates tags

```
<HealthMonitor> <!-- If defined, monitor runs in a separate thread -->
  <ID>15</ID><!-- This ID will be appended to Tag name. This is ID of the CAST instance -->
  <Host>pisrv1</Host>
  <ScanFrequency>30s</ScanFrequency>
  <PointSource>CAST</PointSource>
  <HealthZones>
    <HealthZone Name="HeartBeat"/>
    <HealthZone Name="DeviceStatus"/>
    <HealthZone Name="EntryPointSearch" Metrics="Duration, Count, Rate" Aggregate="false"/>
  <!-- Metrics are not provided, default is: Rate -->
    <HealthZone Name="EntryPointCache" Metrics="Duration, Count, Rate" Aggregate="false"/>
    <HealthZone Name="MatchShapeWrite" Metrics="Duration, Count, Rate" Aggregate="false"/>
    <HealthZone Name="MatchShapeSearch" Metrics="Duration, Count, Rate" Aggregate="false"/>
  </HealthZones>
</HealthMonitor>
```

Health monitor – creates tags

execution.log

```
C:\Program Files\PIPC\AFTransformer\AF Transformer Examples>"C:\Program Files\PIPC\AFTransformer\AFTransformer.exe" /configxml="test_ami_ex1.xml"
Load Application settings...
Load Application settings - Completed.
Starting Asset Mapping service interactively...
3/8/2018 11:54:53 PM > | HealthMonitor::Init: PI Server='pisrv1' - found.
3/8/2018 11:54:53 PM > | HealthMonitor::Init: Scan Frequency: 30s
3/8/2018 11:55:05 PM > | HealthMonitor::GetPIPoint: PIPoint = 'CAST_HeartBeat_15' - Added.
3/8/2018 11:55:05 PM > | HealthMonitor::GetPIPoint: PIPoint = 'CAST_DeviceStatus_15' - Added.
3/8/2018 11:55:05 PM > | HealthMonitor::GetPIPoint: PIPoint = 'CAST_EntryPointSearch_Duration_15' - Added.
3/8/2018 11:55:05 PM > | HealthMonitor::GetPIPoint: PIPoint = 'CAST_EntryPointSearch_Count_15' - Added.
3/8/2018 11:55:05 PM > | HealthMonitor::GetPIPoint: PIPoint = 'CAST_EntryPointSearch_Rate_15' - Added.
3/8/2018 11:55:05 PM > | HealthMonitor::GetPIPoint: PIPoint = 'CAST_EntryPointCache_Duration_15' - Added.
3/8/2018 11:55:05 PM > | HealthMonitor::GetPIPoint: PIPoint = 'CAST_EntryPointCache_Count_15' - Added.
3/8/2018 11:55:05 PM > | HealthMonitor::GetPIPoint: PIPoint = 'CAST_EntryPointCache_Rate_15' - Added.
3/8/2018 11:55:05 PM > | HealthMonitor::GetPIPoint: PIPoint = 'CAST_MatchShapeWrite_Duration_15' - Added.
3/8/2018 11:55:05 PM > | HealthMonitor::GetPIPoint: PIPoint = 'CAST_MatchShapeWrite_Count_15' - Added.
3/8/2018 11:55:05 PM > | HealthMonitor::GetPIPoint: PIPoint = 'CAST_MatchShapeWrite_Rate_15' - Added.
3/8/2018 11:55:05 PM > | HealthMonitor::GetPIPoint: PIPoint = 'CAST_MatchShapeSearch_Duration_15' - Added.
3/8/2018 11:55:05 PM > | HealthMonitor::GetPIPoint: PIPoint = 'CAST_MatchShapeSearch_Count_15' - Added.
3/8/2018 11:55:05 PM > | HealthMonitor::GetPIPoint: PIPoint = 'CAST_MatchShapeSearch_Rate_15' - Added.
3/8/2018 11:55:05 PM > | HealthMonitor::MonitorRun: Health Monitoring - StartedSuccessfully.
```

Questions

Please wait for the **microphone** before asking your questions

State your **name & company**



Please remember to...

Complete the Online Survey for this session



Download the Conference App for OSISOFT Users Conference 2017

- View the latest agenda and create your own
- Meet and connect with other attendees



search **OSISOFT** in the app store

Merci

谢谢

Спасибо

Danke

Gracias

Thank You

감사합니다

ありがとう

Grazie

Obrigado

Optional: Click to add a takeaway you wish the audience to leave with.