



Enterprise Gateway

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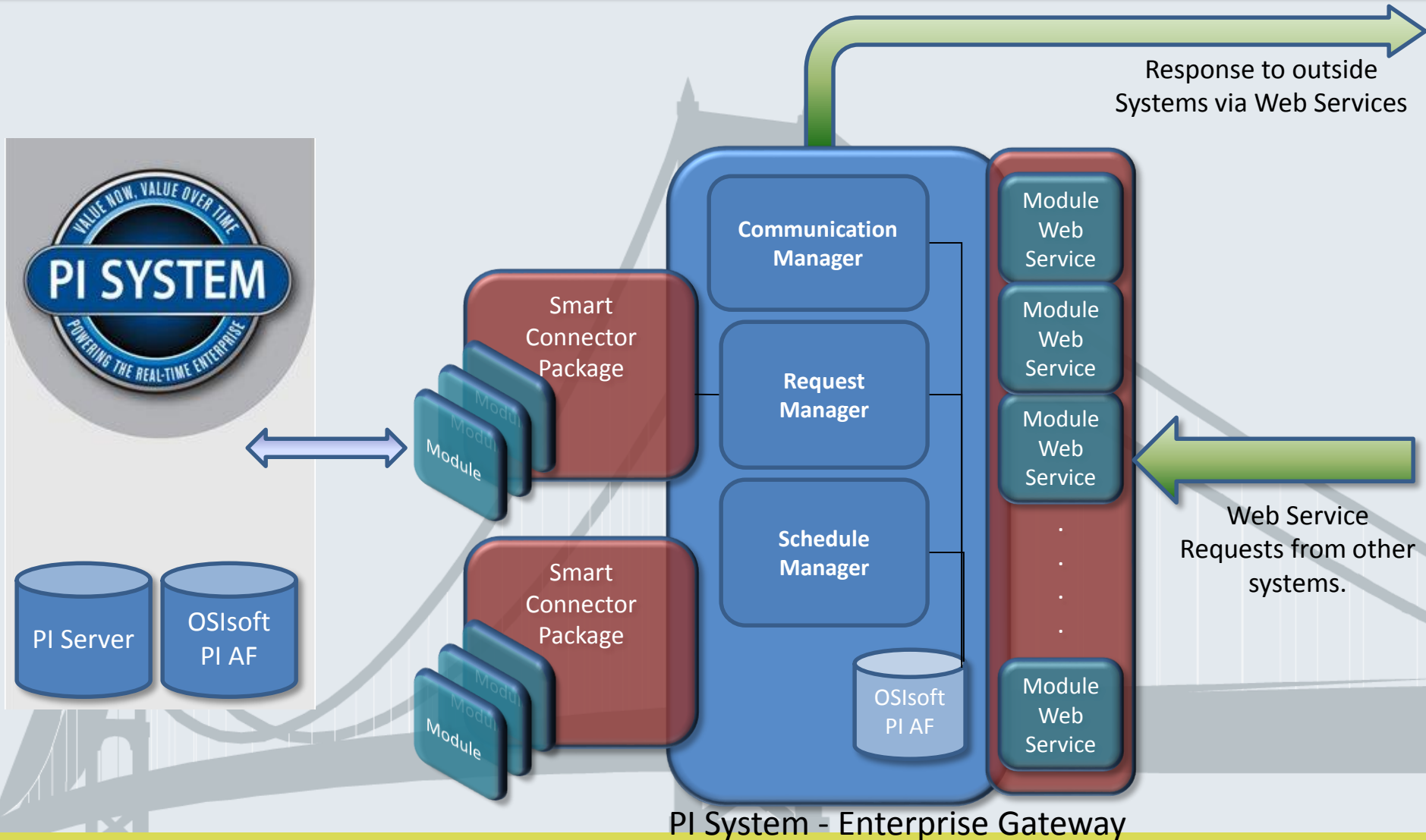
Empowering Business in Real Time
PI Infrastructure for the Enterprise

Enterprise Gateway Objectives

- Web Service based front end/entry layer for easy integration with any SOA enabled environment. For example, integrated into SAP's Enterprise Service Repository.
- Web Services for OSIsoft Products, delivering information in a business context , ie high level services.
- Tracking for all service requests including the identity and source of the request with the date and time the service was invoked. This provides an audit trail as well as recovery features.
- It uses OSIsoft's RtBaseline services to obtain data from the PI System, thus guaranteeing rapid response while handling secure connections to the PI System.
- All Configuration Requirements for setting up data requests to and from the services are defined using a Rule structure developed in AF.
- The Enterprise Gateway architecture is scalable both vertically and horizontally. Each Enterprise Gateway has the ability to be configured for specific business functions based on need, work load, and throughput.
- Services can be scheduled (single or recurring events) or responded to in an ad hoc nature.
- The Enterprise Gateway provides information accessibility and mappings. The management of business rules are decoupled from the information mapping and application data semantics.
- The Enterprise Gateway exposes coarse-grained business services for use in larger business processes such as multi-step integration and cross-functional workflows.
- The Enterprise Gateway is the catalog of offerings.
- Customer and Partner extensible
- XLST used to comply with specifics of external vendors
- The first packages to be made available will include AMI for automated metering and EAM for enterprise asset management.

PI System Enterprise Gateway

Service Enabling the PI System



Enterprise Services Interaction Scenarios

- **Web Service initiated by Business System and confirmation response is required**
- **Task scheduled to run at some frequency**
- **Bundled request multiple transactions of the same type in single request with single reply of individual replies**
- **Multiple Transactions of different types to complete business logic no confirmation**
- **Scheduled Request and confirmation returned. Results for the scheduled request are sent and confirmation returned.**
- **Synchronous call to OSIsoft**

Enterprise Gateway Queues

- Task Queue
 - Master List of all jobs
 - Serviced by the Request Manager
 - Acts as an Audit Trail of all tasks
- Schedule Queue
 - Schedule Jobs Manually created or based on Incoming Requests
 - Schedule Manager examines the queue and places tasks on the Task Queue
- Communication Queue
 - Manages all outgoing external communication to a backend system
 - Modules write results to this queue
 - Two Tables
 - Communication – Top level request
 - Communication Extensions – Sub requests
 - Serviced by the Communication Manager

Managers

- Request Manger
 - “Heart of the Engine”
 - Checks the Task Queue for Tasks that need to be serviced
 - Matches Request Type to Module Type
 - Creates new threads for each request
 - “Unserviceable” Requests remain on the Queue
- Schedule Manager
 - Checks the Schedule Queue on regular intervals
 - If a job is scheduled to run, creates a task on the Task Queue
 - Next Run Date is updated by the Module
 - Module calls SP on successful completion
- Communication Manager
 - Responsible for calling external systems
 - e.g., SAP
 - XSLT for each external system
 - Maps internal XML format to expected SOAP
 - Single Business Logic Modules
 - Multiple backend systems by replacing/adding new XSLT and change configuration of module(s)
- RPC Manager
 - Responsible for polling RPC Subsystem for task status
 - Submits jobs to RPC
- Monitor Manager
 - Responsible for querying system values/status’ and recording to PI Tags can be monitored by the NOC
 - Configurable defined in AF with Alarm Rule Table

Modules

- Encapsulates Business Logic of a specific request (eSOA)
- Web Service Front End (optional)
 - Synchronous or Asynchronous
 - XSLT applied to incoming request normalizes data throughout the system
- Enterprise Gateway does Dynamic Discovery of modules
- Module Interface
 - AF Rule Tables used for constraints/mappings/PI Tag Creation/AF Element Creation/etc.
- Modules can be Active/Inactive across multiple EGW instances
 - Scalability
 - Load Balancing

Configuration for Enterprise Gateway defined in AF

The screenshot displays the EnterpriseGateway - PI System Explorer interface, showing the configuration for the AMI module. The interface is divided into several panes:

- Left Pane (Elements):** A tree view showing the hierarchy of elements. The 'EnterpriseGateway' is expanded, showing 'EnterpriseSystems', 'AMI', 'AMBUSGW', 'AMPI', 'CE1', 'Discovery', 'EAM', 'EAM2', 'ECCUTIL', 'HU2', 'Module', 'Monitor', 'Package', 'Parameters', 'RPCServer', 'SleepConfirmationQueue', 'SleepMonitor', 'SleepProcessTaskQueue', and 'SleepScheduleQueue'.
- Top Pane (General):** A tabbed interface showing the 'General' tab for the 'AMI' module. It displays a table of attributes and their values.
- Bottom Pane (Elements):** A tree view showing the hierarchy of elements. The 'EnterpriseGateway' is expanded, showing 'EnterpriseSystems', 'AMI', 'AMBUSGW', 'AMPI', 'CE1', 'Discovery', 'EAM', 'EAM2', 'ECCUTIL', 'HU2', 'Module', 'Monitor', 'Package', 'Parameters', 'RPCServer', 'SleepConfirmationQueue', 'SleepMonitor', 'SleepProcessTaskQueue', and 'SleepScheduleQueue'.
- Right Pane (General):** A tabbed interface showing the 'General' tab for the 'AMI.UtilitiesDeviceERPSmartMeterRegisterCreateRequest' module. It displays a table of attributes and their values.

AMI Module Attributes:

| Name | Value |
|----------|---------------|
| Address | AMI3 |
| Database | AMI for Test1 |
| Name | AMI for Test1 |
| Password | |
| System | AFAMDEV |
| Type | AF |
| User | |

AMI.UtilitiesDeviceERPSmartMeterRegisterCreateRequest Module Attributes:

| Name | Value |
|-----------------------|--|
| BulkBehavior | None |
| DebugLevel | 5 |
| Description | Request Utilities Device Smart Meter Register Creation |
| IncomingRequest\SLT | UtilitiesDeviceSmartMeterRegisterCreateRequest.xml |
| Loaded | True |
| MaximumRetry | False |
| Module\Name | AMI.UtilitiesDeviceERPSmartMeterRegisterCreateRequest |
| Monitor\TableName | 0 |
| PackageName | AMI |
| PackageNo | 1 |
| Request\SLT | False |
| ResponseDirectory | False |
| ResponseForm | XML |
| ResponseName | False |
| ResponseType | ASYN |
| ResponseWSDL | False |
| Response\SLT | False |
| RuleTableName | AMI.UtilitiesDeviceERPSmartMeterRegisterCreateRequest |
| Scheduled | No |
| ScheduledMinutes | 0 |
| ScheduleRecurring | No |
| ScheduleStartDateTime | 0 |
| ServiceCodeTable | AMI.DeviceSmartMeterRegisterCodes |
| SleepTime | 0 |
| Status | Active |
| TagNamingTable | False |
| TargetERPSystem | False |
| TimeOut | 0 |
| Type | AMI.UtilitiesDeviceERPSmartMeterRegisterCreateRequest |
| Version | False |
| WaitForResponse | No |

Configuration – Rules

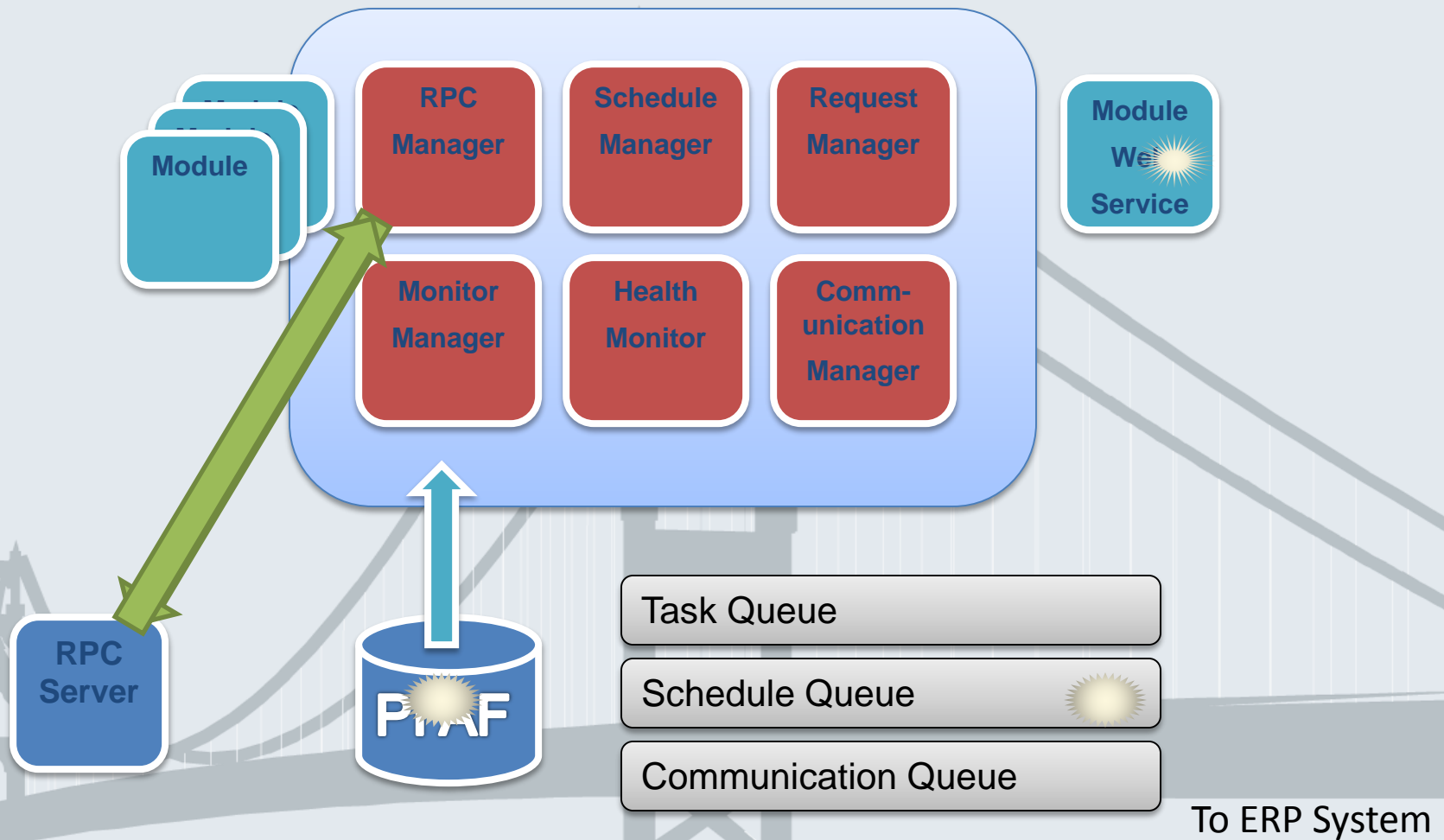
- Mapping for attribute name changes
- Template naming in AF
- Tag Naming
- Naming
- Selection
- Filtering

The screenshot displays the 'BusinessGateway - PI System Explorer' application. The left pane shows a tree view of the 'Library' with 'InstallationPointDetailRules' selected. The right pane shows the 'InstallationPointDetailRules' table with the following data:

| Module | System | RuleType | TemplateName | Attribute | Value |
|-------------------------------------|--------|-----------------|-------------------|-------------------|---------------------|
| EAMConnectorInstallationPointDetail | EAM | Selection | | HouseID | 122 |
| EAMConnectorInstallationPointDetail | EAM | Selection | | WorkCentreID | ELECMNT |
| EAMConnectorInstallationPointDetail | EAM | ElementTemplate | EquipmentTemplate | | |
| EAMConnectorInstallationPointDetail | EAM | Name | | | |
| EAMConnectorInstallationPointDetail | EAM | Mapping | | ID | InstallationPointID |
| EAMConnectorInstallationPointDetail | EAM | Mapping | | WorkCentreID | WorkCentreID |
| EAMConnectorInstallationPointDetail | EAM | Mapping | | WorkCentrePlantID | WorkCentrePlantID |
| EAMConnectorInstallationPointDetail | EAM | Mapping | | Description | Description |
| * | | | | | |

At the bottom of the window, a status bar indicates: 'InstallationPointDetailRules Modified: 7/18/2008 11:00:08 AM. Version: 1/1/1970 12:00:00 AM, Revision 5'.

Typical EGW Scenario – Create Device



EGW Monitoring Tool

- PI AF Plugin
- Central Location for all Monitoring and Troubleshooting of the EGW
- Queue Status
- Job Status
- Performance Counters / Alarms
- Logging
- Drill Down
- Filtering

Performance Counters

EnterpriseGateway - PI System Explorer

File View Go Help

Database Query Date Back Check In

Enterprise Gateway Monitoring

- Activity Monitors
 - Activity Monitors Report
 - Alarm Summaries
- Error Log
- Modules
- Queues
- Gateway
- Troubleshoot

Activity Monitors Report

Auto Refresh

| Name | Value | Last Counted Time |
|-----------------------------|----------|----------------------------|
| TaskQueueCompleteSmart... | 0 | 3/9/2009 6:14:54 PM |
| TaskQueueConfirmationRe... | 0 | 3/9/2009 6:14:54 PM |
| TaskQueueErrorBaseline | 0 | 3/9/2009 6:14:54 PM |
| TaskQueueErrorGateway | 7 | 3/9/2009 6:14:54 PM |
| TaskQueueErrorSmartCon... | 0 | 3/9/2009 6:14:54 PM |
| TaskQueueErrorsTotal | 7 | 3/9/2009 6:14:54 PM |
| TaskQueueExecutingForRe... | 0 | 3/9/2009 6:14:54 PM |
| TaskQueueItems | 149 | 3/9/2009 6:14:54 PM |
| TaskQueueItemsCompleted | 124 | 3/9/2009 6:14:54 PM |
| TaskQueueItemsProcessing | 0 | 3/9/2009 6:14:54 PM |
| TaskQueueProcessingResp... | 0 | 3/9/2009 6:14:54 PM |

EnterpriseGateway - PI System Explorer

File Edit View Go Help

Database Query Date Back Check In New Element New Attribute

Elements

- TaskQueueConfirmationResc...
- TaskQueueErrorBaseline
- TaskQueueErrorGateway
- TaskQueueErrorSmartConne...
- TaskQueueErrorsTotal
- TaskQueueExecutingForResc...
- TaskQueueItems
- TaskQueueItemsCompleted
- TaskQueueItemsProcessing
- TaskQueueProcessingResp...
- TaskQueueRetryBaseline
- TaskQueueRetryGateway
- TaskQueueRetrySmartConne...
- TaskQueueWaitingCommuni...
- TaskQueueWaitingSmartCor...

Package Parameters Module

TaskQueueWaitingGateway

General Child Elements Attributes Ports Version

TaskQueueWaitingGateway

Search

| Name | Value |
|-------------|---|
| Active | Yes |
| AlarmList | TaskQueueItemsWaitingGatewayHIGH |
| Class | SQL |
| Description | Task Queue Waiting for Gateway |
| LastCounted | 3/9/2009 2:14:54 PM |
| Name | TaskQueueWaitingGateway |
| Query | SELECT COUNT(*) FROM EGWTsk_Queue WHERE Status='WG' |
| Type | Task Queue |
| Value | 18 |

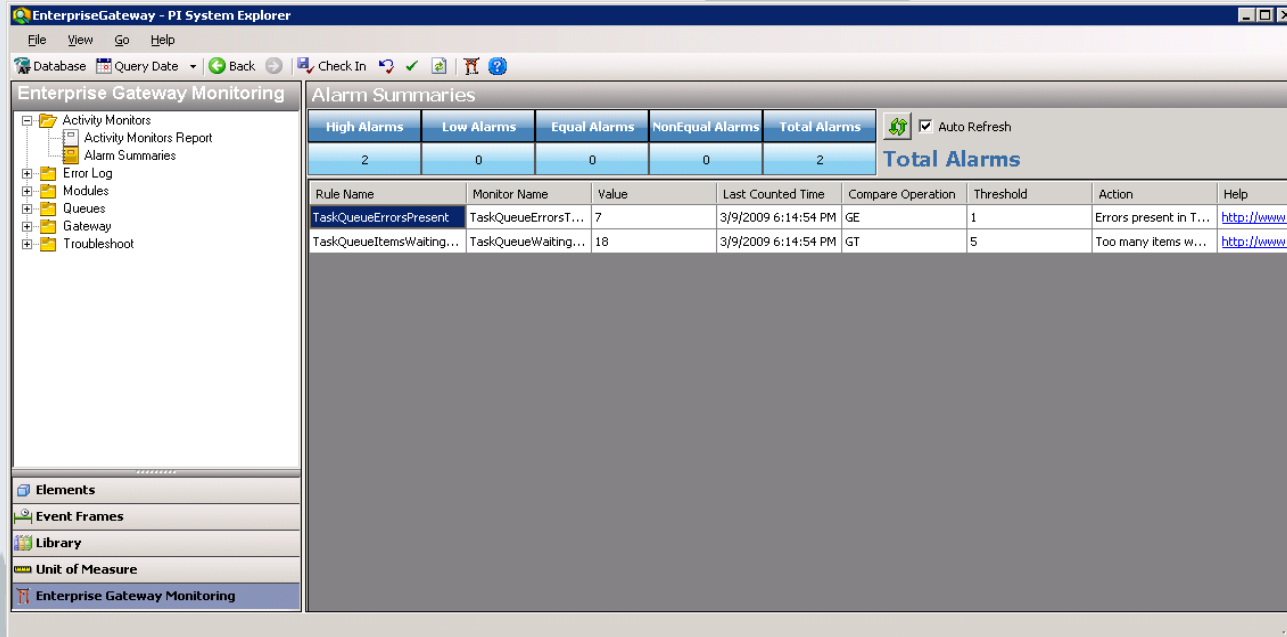
Enterprise Gateway Monitoring

Refresh Monitors

TaskQueueWaitingGateway Modified:3/9/2009 2:15:03 PM. Version: 1/1/1970 12:00:00 AM, Revision 518

a7f46bda-267a-4b4b-9de7-9112699a74f8

Alarm Summary with recommended action



The screenshot displays the 'EnterpriseGateway - PI System Explorer' application window. The left sidebar shows a tree view with 'Enterprise Gateway Monitoring' expanded, containing sub-items like 'Activity Monitors', 'Error Log', 'Modules', 'Queues', 'Gateway', and 'Troubleshoot'. The main pane is titled 'Alarm Summaries' and features a summary table and a detailed table.

Alarm Summaries Summary Table:

| High Alarms | Low Alarms | Equal Alarms | NonEqual Alarms | Total Alarms |
|-------------|------------|--------------|-----------------|--------------|
| 2 | 0 | 0 | 0 | 2 |

Total Alarms (with Auto Refresh checkbox checked)

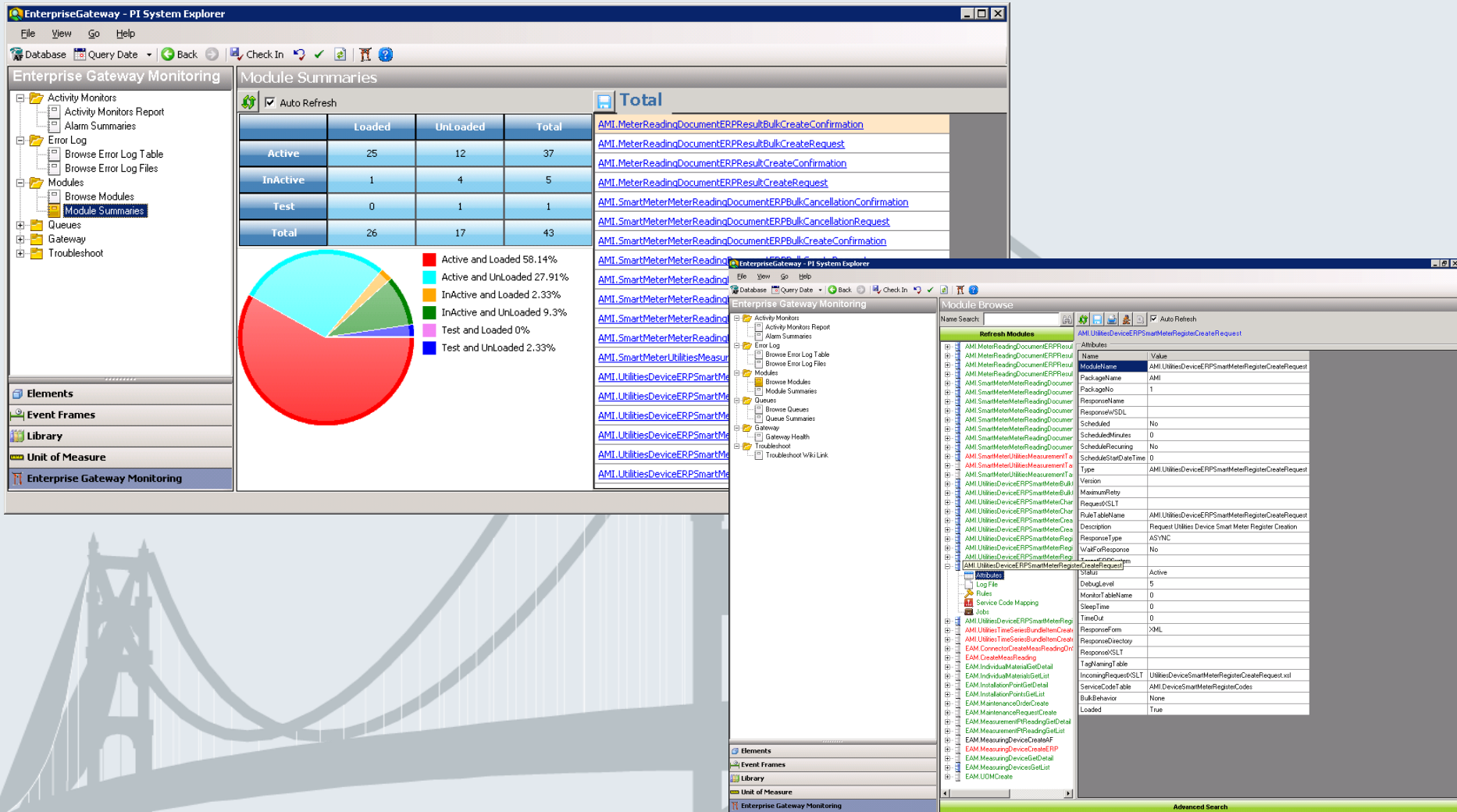
Alarm Details Table:

| Rule Name | Monitor Name | Value | Last Counted Time | Compare Operation | Threshold | Action | Help |
|--------------------------|---------------------|-------|---------------------|-------------------|-----------|------------------------|---|
| TaskQueueErrorsPresent | TaskQueueErrorsT... | 7 | 3/9/2009 6:14:54 PM | GE | 1 | Errors present in T... | http://www.g... |
| TaskQueueItemsWaiting... | TaskQueueWaiting... | 18 | 3/9/2009 6:14:54 PM | GT | 5 | Too many items w... | http://www.g... |

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The screenshot displays the 'Enterprise Gateway Monitoring' application. The left-hand navigation pane includes sections for 'Activity Monitors' (with sub-items like Activity Monitors Report, Alarm Summaries, Error Log, and Browse Error Log Table), 'Modules' (with sub-items like Queues, Gateway, and Troubleshoot), 'Elements', 'Event Frames', 'Library', and 'Unit of Measure'. The main window is titled 'Error Log Files' and features a search bar and a table of log entries. The table has three columns: 'Name', 'Size', and 'Modified Date'. The entries are listed in descending order of modification date, all from 3/9/2009. The log entries include various modules such as ANTLUtilities, EAM.Connec..., EAM.Individ..., EAM.Install..., EAM.Mainten..., EAM.Measur..., EAM.UOMC..., and EAMConnect... The 'Size' column shows values like 0KB, 1638KB, and 1638KB. A 'Refresh Log Files' button is located at the bottom center of the main window.

Enterprise Gateway Monitor



Queue Monitor

EnterpriseGateway - PI System Explorer

File View Go Help

Database Query Date Back Check In

Enterprise Gateway Monitoring

- Activity Monitors
 - Activity Monitors Report
 - Alarm Summaries
- Error Log
 - Browse Error Log Table
 - Browse Error Log Files
- Modules
 - Browse Modules
 - Module Summaries
- Queues
 - Browse Queues
 - Queue Summaries
- Gateway
 - Gateway Health
- Troubleshoot
 - Troubleshoot Wiki Link

Queue Browse

Task Queue

Auto Refresh Read Only

| | Request No | Date Requested | Time Requested | Status |
|---|---|----------------|----------------|--------|
| 1 | AMIBUSGW_AMI.MeterReadingDocumentERPResultBulkCreateRequest_AMI_20090303_164021:417_1 | 20090203 | 000001 | CG |
| 2 | AMIBUSGW_AMI.MeterReadingDocumentERPResultBulkCreateRequest_AMI_20090303_164021:417_0 | 20090203 | 000001 | CG |
| 3 | AMIBUSGW_AMI.MeterReadingDocumentERPResultBulkCreateRequest_AMI_20090303_154425:167_1 | 20090202 | 000001 | CG |
| 4 | AMIBUSGW_AMI.MeterReadingDocumentERPResultBulkCreateRequest_AMI_20090303_154425:167_0 | 20090202 | 000001 | CG |
| 5 | AMIBUSGW_AMI.MeterReadingDocumentERPResultBulkCreateRequest_AMI_20090303_150821:261_1 | 20090204 | 000000 | CG |
| 6 | AMIBUSGW_AMI.MeterReadingDocumentERPResultBulkCreateRequest_AMI_20090303_150821:261_0 | 20090204 | 000000 | CG |

Task

Date Requested

From

To

Status

Status Set At

From

To

Request Type

AMI.MeterReadingDocumentERP

External UUID

Request No

Communication Extension Queue

| | Request No | Run Date | Run Time | Run At | Status | Status Set At | Original Request |
|---|------------------|----------|----------|-------------------|--------|------------------|-------------------|
| 1 | AMIBUSGW_AMI.... | 20090203 | 000001 | 2/3/2009 12:00 AM | SH | 3/9/2009 5:49 PM | <MessageHeader... |

Schedule Queue

| | Request No | Sent At | Status | ID | Unique ID | Request Type | Response XML |
|--|------------|---------|--------|----|-----------|--------------|--------------|
|--|------------|---------|--------|----|-----------|--------------|--------------|

Task Queue

| | Request No | Order No | Sent At | Status | ID | Unique ID | Communication XML |
|--|------------|----------|---------|--------|----|-----------|-------------------|
|--|------------|----------|---------|--------|----|-----------|-------------------|

Elements

Event Frames

Library

Unit of Measure

Enterprise Gateway Monitoring

Gateway Health

EnterpriseGateway - PI System Explorer


File View Go Help


Database Query Date Back Check In

Enterprise Gateway Monitoring

- Activity Monitors
 - Activity Monitors Report
 - Alarm Summaries
- Error Log
 - Browse Error Log Table
 - Browse Error Log Files
- Modules
 - Browse Modules
 - Module Summaries
- Queues
 - Browse Queues
 - Queue Summaries
- Gateway
 - Gateway Health**
 - Troubleshoot

Gateway Health

 **Enterprise Gateway is running.**

 ☐ Auto Refresh

| C | Process ID | Process Name | Has Exited | Start Time | Responding |
|--------------------------|------------|--|------------|---------------------|------------|
| <input type="checkbox"/> | 1244 | AMI.MReadingDocumentERPResultB... | False | 3/4/2009 4:26:36 PM | True |
| <input type="checkbox"/> | 1640 | AMI.SMUtilitiesMeasurementTaskER... | False | 3/4/2009 4:30:37 PM | True |
| <input type="checkbox"/> | 2236 | AMI.UtilitiesDeviceERPSmartMeterCr... | False | 3/4/2009 4:40:39 PM | True |
| <input type="checkbox"/> | 4704 | AMI.UtilitiesDeviceERPSmartMeterR... | False | 3/4/2009 4:43:21 PM | True |
| <input type="checkbox"/> | 4708 | AMI.SMMeterReadingDocumentERP... | False | 3/4/2009 4:35:38 PM | True |
| <input type="checkbox"/> | 5220 | AMI.SMMeterReadingDocumentERP... | False | 3/4/2009 4:31:50 PM | True |
| <input type="checkbox"/> | 5288 | AMI.SMMeterReadingDocumentERP... | False | 3/4/2009 4:33:59 PM | True |
| <input type="checkbox"/> | 5408 | AMI.UtilitiesTimeSeriesBundleItemCr... | False | 3/6/2009 6:32:02 PM | True |
| <input type="checkbox"/> | 6764 | AMI.UtilitiesDeviceERPSmartMeterC... | False | 3/4/2009 4:43:24 PM | True |
| <input type="checkbox"/> | 6960 | AMI.SmartMeterMeterReadingDocu... | False | 3/4/2009 4:28:00 PM | True |
| <input type="checkbox"/> | 8156 | AMI.SMUMTERPPointOfDeliveryAssi... | False | 3/4/2009 4:37:11 PM | True |
| <input type="checkbox"/> | 8308 | egwengine | False | 3/9/2009 1:48:58 PM | True |
| <input type="checkbox"/> | 9604 | AMI.UtilitiesDeviceERPSmartMeterR... | False | 3/4/2009 4:42:25 PM | True |
| <input type="checkbox"/> | 9628 | AMIClientSharp.vshost | False | 3/9/2009 1:48:59 PM | True |
| <input type="checkbox"/> | 9704 | AMI.UtilitiesDeviceERPSmartMeterBu... | False | 3/4/2009 4:38:25 PM | True |
| <input type="checkbox"/> | 10016 | AMI.MeterReadingDocumentERPRes... | False | 3/4/2009 4:24:58 PM | True |

Elements

Event Frames

Library

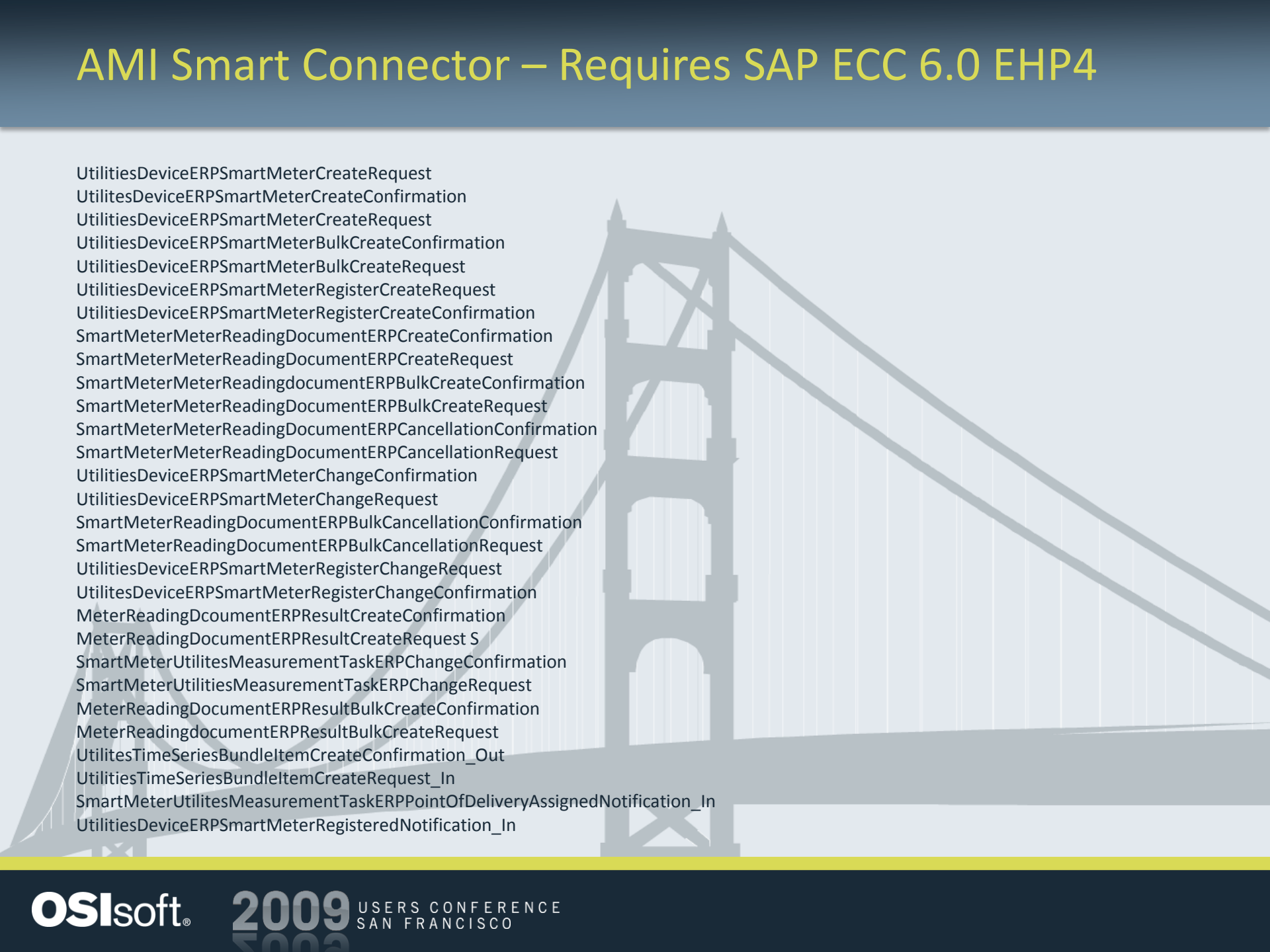
Unit of Measure

Enterprise Gateway Monitoring

AMI Smart Connector Package

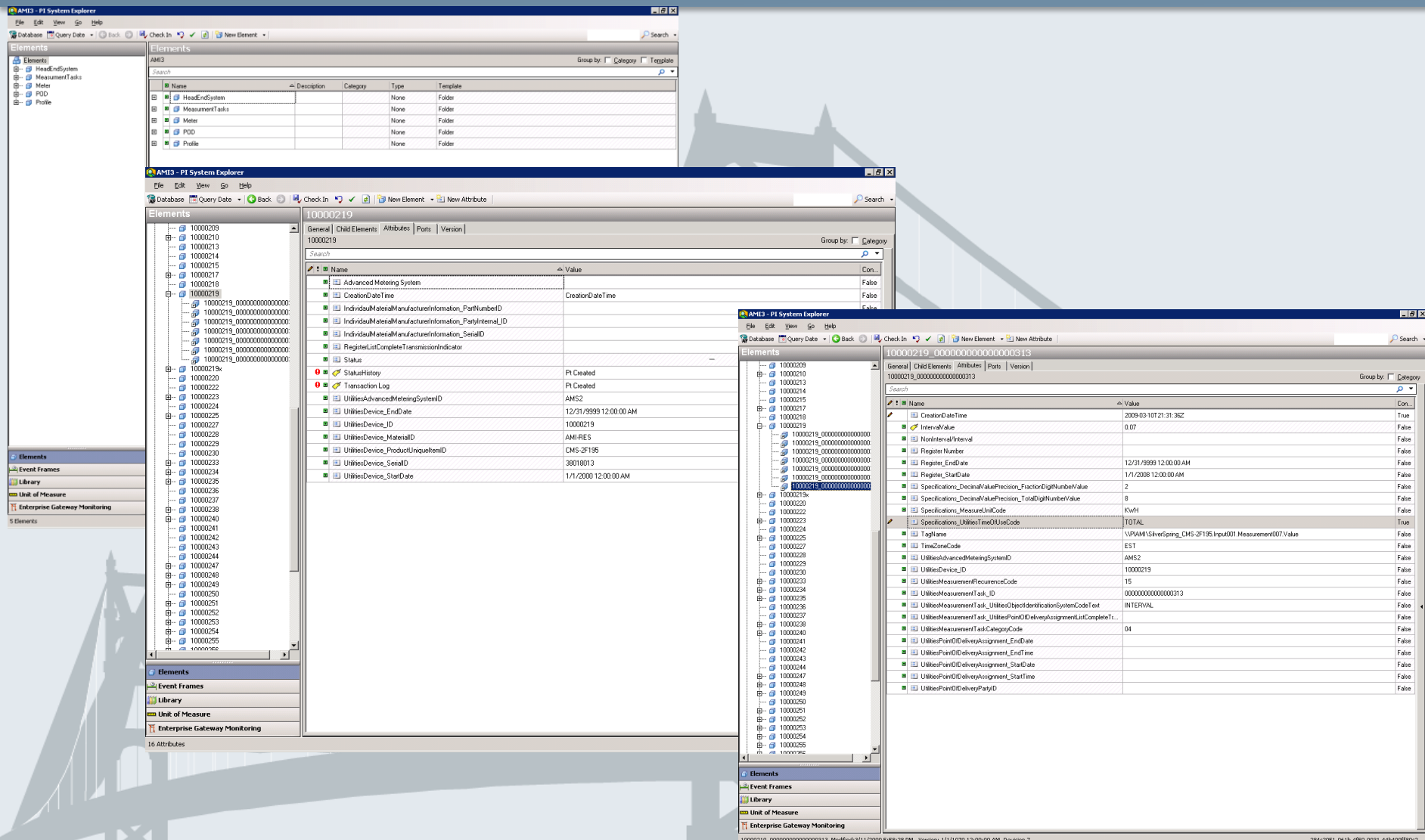
- Manage the creation and change of devices
- Manage the creation and change of registers/ measurement tasks
- Receive requests for measurement values and respond with the value
- Schedule routine measurement readings and report to the ERP system

AMI Smart Connector – Requires SAP ECC 6.0 EHP4



UtilitiesDeviceERPSmartMeterCreateRequest
UtilitesDeviceERPSmartMeterCreateConfirmation
UtilitiesDeviceERPSmartMeterCreateRequest
UtilitiesDeviceERPSmartMeterBulkCreateConfirmation
UtilitiesDeviceERPSmartMeterBulkCreateRequest
UtilitiesDeviceERPSmartMeterRegisterCreateRequest
UtilitiesDeviceERPSmartMeterRegisterCreateConfirmation
SmartMeterMeterReadingDocumentERPCreateConfirmation
SmartMeterMeterReadingDocumentERPCreateRequest
SmartMeterMeterReadingdocumentERPBulkCreateConfirmation
SmartMeterMeterReadingDocumentERPBulkCreateRequest
SmartMeterMeterReadingDocumentERPCancellationConfirmation
SmartMeterMeterReadingDocumentERPCancellationRequest
UtilitiesDeviceERPSmartMeterChangeConfirmation
UtilitiesDeviceERPSmartMeterChangeRequest
SmartMeterReadingDocumentERPBulkCancellationConfirmation
SmartMeterReadingDocumentERPBulkCancellationRequest
UtilitiesDeviceERPSmartMeterRegisterChangeRequest
UtilitesDeviceERPSmartMeterRegisterChangeConfirmation
MeterReadingDcoumentERPResultCreateConfirmation
MeterReadingDocumentERPResultCreateRequest S
SmartMeterUtilitesMeasurementTaskERPChangeConfirmation
SmartMeterUtilitiesMeasurementTaskERPChangeRequest
MeterReadingDocumentERPResultBulkCreateConfirmation
MeterReadingdocumentERPResultBulkCreateRequest
UtilitesTimeSeriesBundleItemCreateConfirmation_Out
UtilitiesTimeSeriesBundleItemCreateRequest_In
SmartMeterUtilitesMeasurementTaskERPPointOfDeliveryAssignedNotification_In
UtilitiesDeviceERPSmartMeterRegisteredNotification_In

AF Model Built Automatically and linked to SmartConnector Model



EAM Smart Connector Package

- Synchronize Assets between external ERP system and AF
 - Functional Locations
 - Equipment
 - Measurement Points
- Publish measurement values in the external system or receive external values
 - Notification
 - Order
 - Measurement value

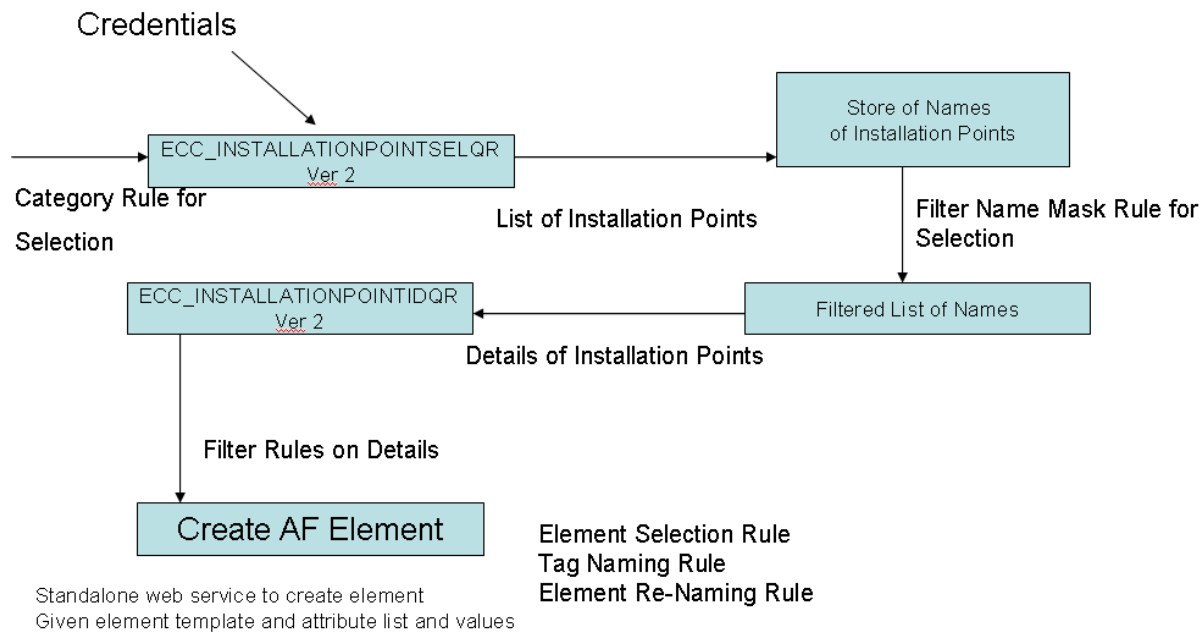
EAM Smart Connector Package – Requires SAP ECC 6.0 EhP3

- IndividualMaterialByIDQueryResponse_In – ECC_INDIVIDUALMATERIALIDQR
- IndividualMaterialsimpleByElementsQueryResponse_In – ECC_INDIVIDUALMATERIALSELQR
- InstallationPointByIDQueryResponse_In – ECC_INSTALLATIONPOINTIDQR
- InstallationPointSimpleByElementsQueryResponse_In – ECC_INSTALLATIONPOINTSELQR
- MaintenanceOrderCreateRequestConfirmation_in – ECC_MAINTENANCEORDERCRTRC
- MaintenanceRequestCreateRequestConfirmation_In – ECC_MAINTENANCEREQUESTCRTRC
- MeasurmentReadingERPCreateRequestConfirmation_In – ECC_MEASURMENTREADINGCREATE
- MeasuringDeviceERPSimpleByElementsQueryResponse_In – ECC_MEASURINGDEVICE001QR
- MeasuringDeviceERPByIDQueryResponse_In – ECC_MEASUREINGDEVICEIDQR
- MeasurmentReadingERPSimpleByElementsQueryResponse_In – ECC_MSMTRDNG001QR
- ParentIndividualMaterialERPSimpleByIndividualMaterialQueryResponse_In – ECC_PARINDIVMATL004QR
- MeasuringDeviceERPCreateRequestConfirmation_In – ECCMSRGDVCECRTRC
- SubordinateIndividualMaterialERPByIndividualMaterialQueryResponse_In – ECC_SUBORDINDIVMATL004QR
- UnitOfMeasureByDimensionQueryResponse_In – ECC_UNITOFMEASUREBYDIMQR

Installation Points or Functional Locations

1

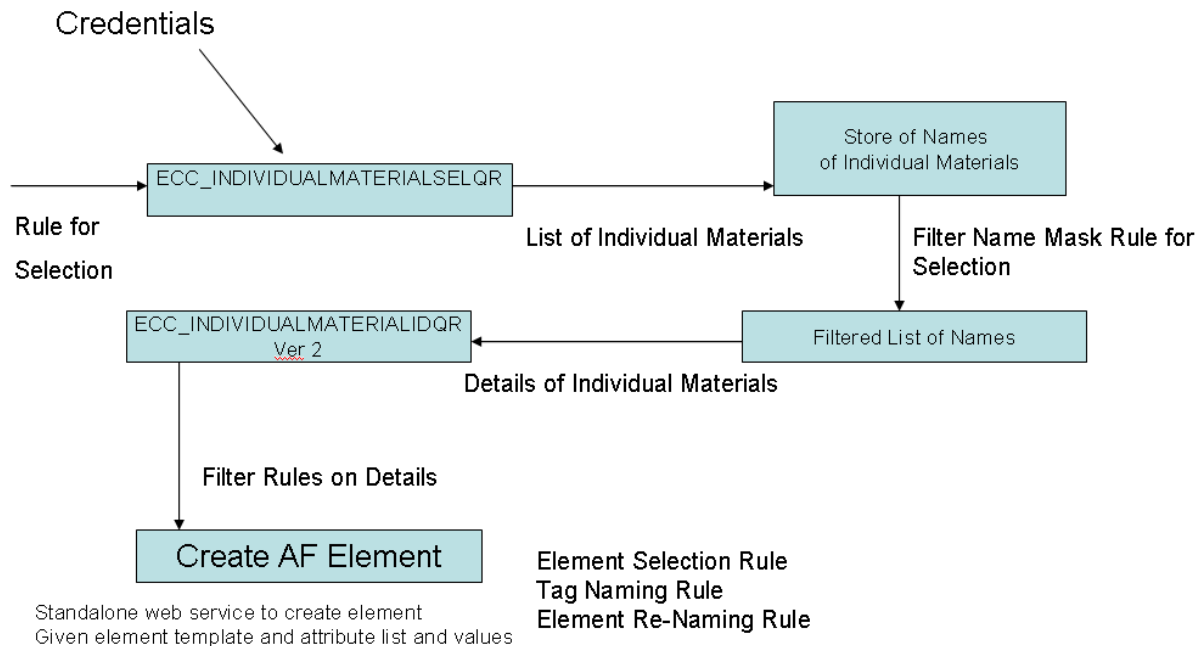
Installation Points (Alias Functional Locations)



Individual Materials or Equipment

2

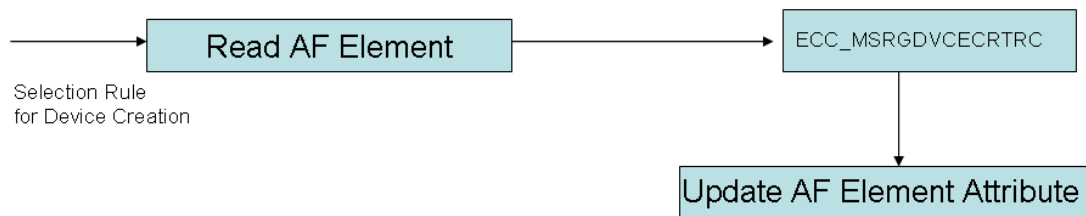
Individual Materials (Alias Equipment)



Measuring Devices

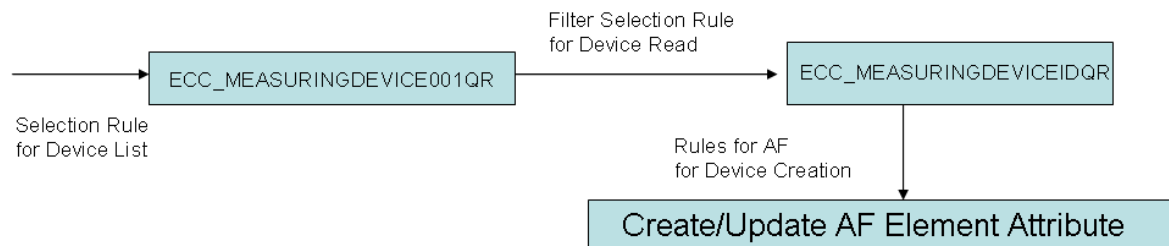
3

Measurement Devices – Create in SAP from AF



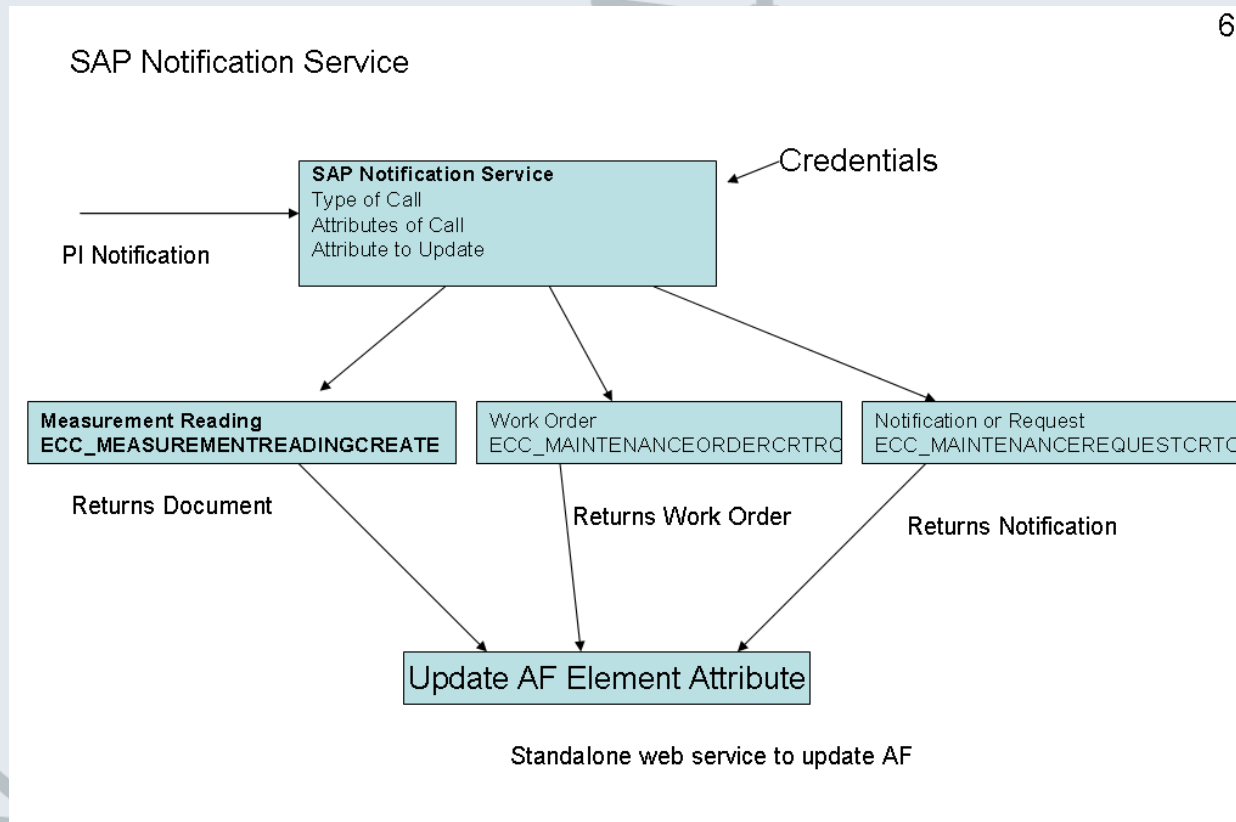
4

Measurement Devices Create in AF from SAP



Notifications

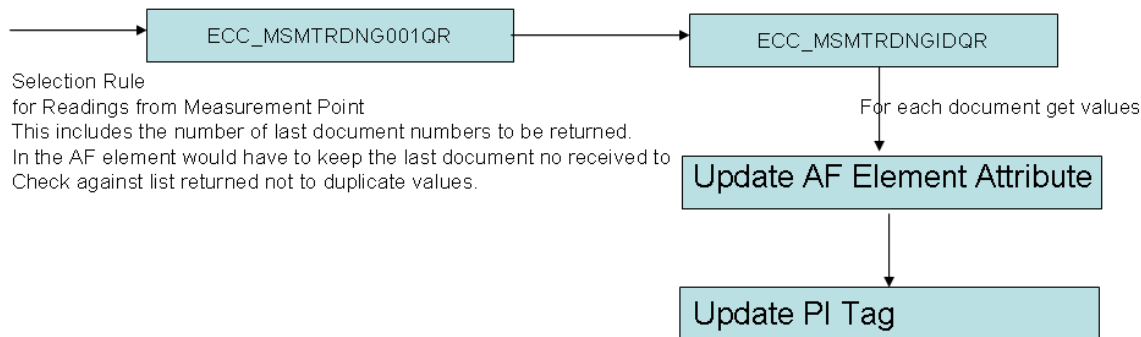
6a



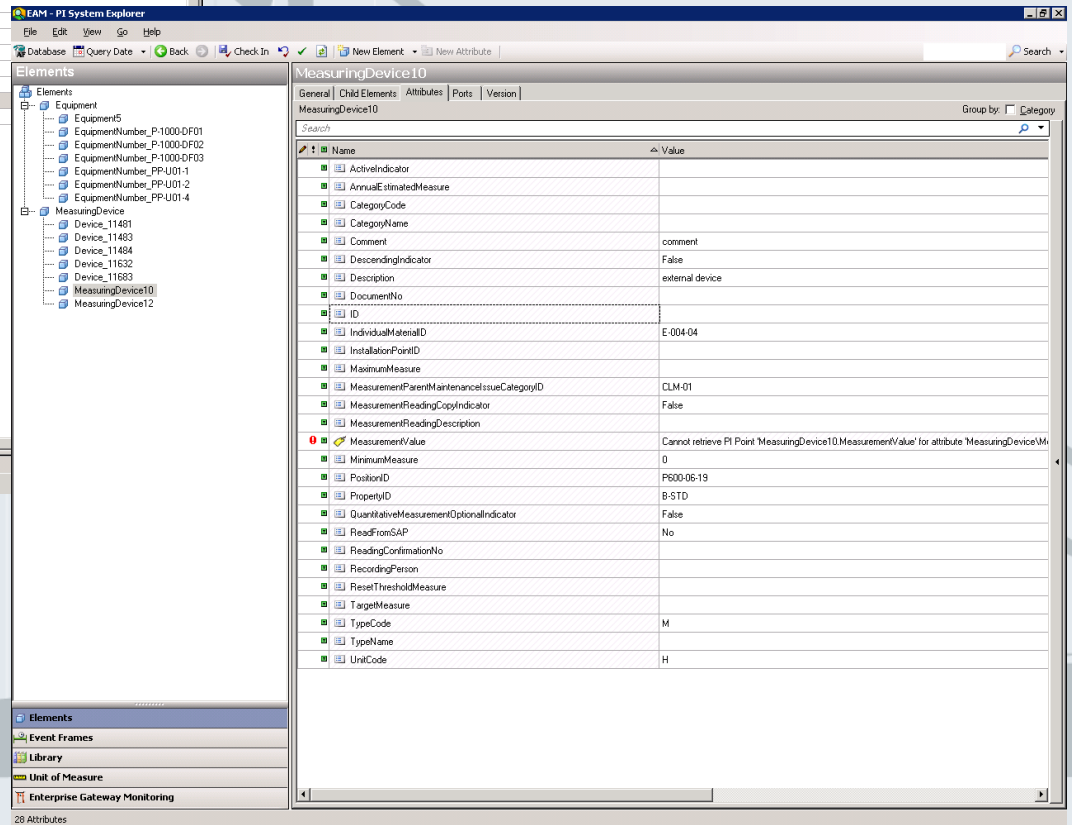
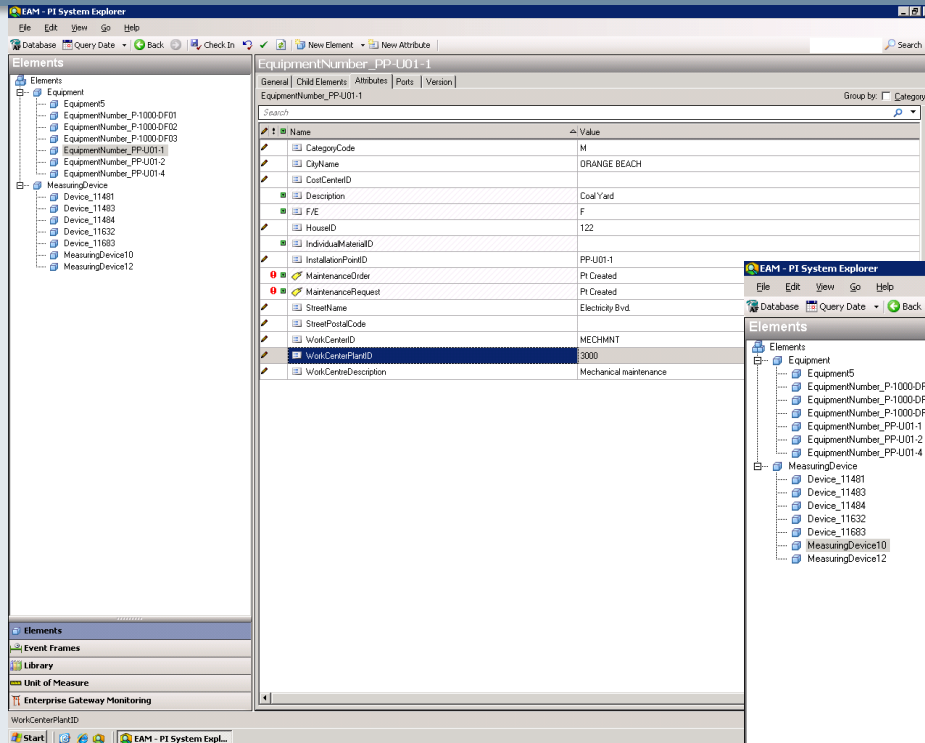
Retrieve measurement Readings from external system into PI System

Measurement Point Readings

7



AF Model Automatically built



Additional Information

- AMI Presentation
- EGW Pod
- AMI Pod

