Advanced Metering Infrastructure
SAP AMI Integration for Utilities
Global AMI Webcast
September 18th, 2008

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Functional Enhancements – EhP 4

Planned Developments after EhP 4
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Functional Enhancements – Device Management I

1. Enhancement of Device Category and Device
   - Qualification as Smart Meter
   - AMI Capabilities of the Meter and of the Advanced Metering System (AMS)
   - Relation to the MDUS/AMS

2. Enhancement of
   - Business Warehouse Content of Device Category/Device
   - Business Object repository (Device) to enable Business Workflow for AMI-related processes
   - Master Data Generator and Migration Workbench (Device/Installation/Removal/Replacement)
### Change View “Advanced Meter Capabilities”: Overview

#### Dialog Structure

<table>
<thead>
<tr>
<th>TreeNode</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advanced Meter Capabilities</td>
<td></td>
</tr>
<tr>
<td>Capability Group of Advanced Metering System</td>
<td></td>
</tr>
<tr>
<td>Capabilities of Advanced Metering System</td>
<td></td>
</tr>
<tr>
<td>Meter Data Unification &amp; Synchronization</td>
<td></td>
</tr>
<tr>
<td>Advanced Metering System</td>
<td></td>
</tr>
<tr>
<td>Advanced Metering System Determination Group</td>
<td></td>
</tr>
<tr>
<td>Capability Group of a Determination Group</td>
<td></td>
</tr>
<tr>
<td>Advanced Metering System of a Determination Group</td>
<td></td>
</tr>
<tr>
<td>Capabilities of Device</td>
<td></td>
</tr>
<tr>
<td>Capability Group of Device</td>
<td></td>
</tr>
<tr>
<td>Capabilities of Device</td>
<td></td>
</tr>
<tr>
<td>Determination Group of Adv. Meter Capability Group</td>
<td></td>
</tr>
<tr>
<td>Adv. Meter Capability Group of a Determination Group</td>
<td></td>
</tr>
</tbody>
</table>

#### Advanced Meter Capabilities

<table>
<thead>
<tr>
<th>AMI Cap.</th>
<th>TML AMI Cap.</th>
<th>AMG-Rel.</th>
<th>AMCG-Rel.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0000</td>
<td>Remote disconnection</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>0001</td>
<td>Remote reconnection</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>0002</td>
<td>Remote meter reading</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>0003</td>
<td>Manual meter reading</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>0004</td>
<td>On-demand meter reading</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>0005</td>
<td>Test entry</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>0006</td>
<td>Annexe AMI Capability</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>0007</td>
<td>Annexe second AMI Capability</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>0008</td>
<td>Text for BYV</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>0009</td>
<td>AT-Test 2008 capability</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>0010</td>
<td>AT-Test 2008 capability mod generation</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>0011</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
</tbody>
</table>
3 Regional Structure and Grid: allocation of an Advanced Metering System

- Assigned to Division
- Availability for Default, Search Help and Checks (e.g. for installation process)
- Optional Maintenance
- Assignment on City or Street Level (Regional Structure)
Enterprise Services – Technical Master Data Exchange I

1) SAP Process Integration
Enterprise Services – Change of Devices

1) SAP Process Integration
1 Meter Reading Document – New Fields

- Advanced Metering System (AMS); transmission status (TRANSSTAT);
  transmission date (TRANSDATE) and time (TRANSTIME)

2 Sending of Meter Reading Orders

- Creation of MR Orders → XML Message → PI and update of status
- Possibility to save transaction without meter reading results
- BAdI: General decision whether an XML message should be created / sent directly
  - Meter Reading Unit → NO (Performance)
  - Contract, Installation, Devices → YES
- Possibility to store confirmation from sending of a meter reading request
Functional Enhancements – Meter Reading II

- Device: 10149
- Equipment: 10610459
- Registration: 1

Entity-Specific Data:
- Entry number: 2
- Check number: 32
- Scheduled MR category: 01
- Meter reader: 0001
- Meter reading result: 0
- Meter reading status: 0
- AMR System: AMR1
- Transfer date: 19.09.2009
- Transfer status: SRRC
- Validation class: R001
- Control Group: 0
- WOE number: 0
- Meter reading active: 1
- On-Demand Meter Reading: Not Specified

Portion:
- ISU001
- Annual Billing Jan
- Yearly meter reading Jan
- Roman Herzog / Castle Drive 9955 / 56196 Wa

Table:

<table>
<thead>
<tr>
<th>Device</th>
<th>Reg.</th>
<th>MP date</th>
<th>RR</th>
<th>MA</th>
<th>MT</th>
<th>PS</th>
<th>MR rel.</th>
<th>AMS</th>
<th>Transfer Date</th>
<th>TntnTime</th>
<th>Text for Transfer Status</th>
<th>Source System</th>
</tr>
</thead>
<tbody>
<tr>
<td>10149</td>
<td>1</td>
<td>21.01.2005</td>
<td>01</td>
<td>D1</td>
<td>T1</td>
<td>1</td>
<td>403.000</td>
<td>AMR1</td>
<td>10.09.2008</td>
<td>17:28:48</td>
<td>Receipt of MR Confirmed</td>
<td>Not Specified</td>
</tr>
<tr>
<td>10149</td>
<td>1</td>
<td>01.05.2005</td>
<td>06</td>
<td>X</td>
<td>D1</td>
<td>1</td>
<td>0.00000</td>
<td>AMR1</td>
<td>26.08.2008</td>
<td>09:31:26</td>
<td>Receipt of MR Confirmed</td>
<td>Not Specified</td>
</tr>
</tbody>
</table>
Functional Enhancements – Meter Reading III

3 Receiving of Meter Reading Results (triggered from SAP)
- Receive and storage of meter reading results
- Update of status in meter reading document

4 Receiving of Meter Reading Results (pushed by AMS)
- Automatic creation of meter reading orders (technical reasons)
- Handling of different scenarios, e.g. update of meter reading results, etc.
- Confirmation is sent to AMS

5 Triggering of on-Demand Meter Reading
Enterprise Services – Meter Reading Process

1) SAP Process Integration
Functional Enhancements – Meter Reading IV

6. Enhancement of Monitoring for Meter Reading Results
   - Additional selection criteria for Advanced Metering System, transmission status and transmission date + time

7. Cancellation of Meter Reading Orders
   - Cancellation message is sent to AMS
   - A Previously sent meter reading request results in a cancellation

8. General Enhancements for Transactions Using MR Results
   When using a smart meter, fields are grayed-out
   - Visibility of fields AMS, transmission status and date + time
Functional Enhancements – Customer Service (Call Center) I

Device information in IC WebClient

- Display Information of AMI-Device and traditional Device
- AMI-Device data and capabilities on PoD level
Functional Enhancements – Customer Service (Call Center) II

2 on-Demand Meter Read

- Trigger on-Demand Read from IC WebClient (MDUS or AMI Meter/Device)

- Display of meter reading values/interval data
3 Disconnection/Reconnection

- Trigger a Disconnection/Reconnection from IC WebClient (Customer Request)
- Trigger a Disconnection/Reconnection from ERP
- Information about Connection Status for Meter/PoD (ERP and IC WebClient)
4 **Product Selection**

- Consideration of available AMI capabilities during product selection in the sales process

5 **Service order**

Support of 'smart products' related to ToU

Trigger service order out of IC WebClient - (Though the BOL layer will be developed, no UI)
Utilities

Check Out the new "Reduced VAT for Archive and Gas Consumption" Area in the Wiki

The new wiki area presents an approach for implementing the recent tax, which the Italian authorities levy on gas consumption, in the Utilities solution in SAP's EPM 6.0. We invite you to share your thoughts and experiences to this area within the wiki. 06/10/2009

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Learn more about round tables

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Industry Value Network
Learn more about industry value networks

Enterprise Services Community
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Knowledge Center

Welcome to the SAP Community for Utilities
Getting Started with Utilities

Key Topics
Standards and serviceability for Utilities

Solution Maps
Utilities: generation
Utilities: Transmission and Distribution
Utilities: Water and Gas

SAP Best Practices
Utilities

Water Utilities

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Advanced Metering Infrastructure (AMI)

Summary

The intention of this WIKI page is a collection of AMI relevant information and gives you the possibility to enrich with own content.

- AMI Blogs
- AMI Webcasts
- Enterprise SOA for AMI

2 Children  
Show Children | View in Hierarchy | Add Child Page
### Use Case 1: Device Initialization Process

Before a smart meter can be used, it must be initialized to set up a bidirectional communication between the smart meter, the MDUS, and SAP for Utilities.

[...]

The following table summarizes the steps in this use case and the associated enterprise services.

<table>
<thead>
<tr>
<th>Step</th>
<th>Enterprise Service Operation Invoked</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1: Purchase smart meter</td>
<td>(No enterprise service is invoked in this step)</td>
</tr>
<tr>
<td>Step 2: Book goods receipt for smart meter within SAP for Utilities, which sends a message to MDUS</td>
<td>Request Utilities Device Smart Meter Creation</td>
</tr>
<tr>
<td>Step 3: MDUS sends back a confirmation message</td>
<td>Change Based on Utilities Device Smart Meter Creation Confirmation</td>
</tr>
<tr>
<td>Step 4: Install smart meter at the customer’s site, after which MDUS sends a message about the registration of the meter</td>
<td>Change based on Utilities Device Smart Meter Registered Notification</td>
</tr>
<tr>
<td>Step 5: Install smart meter technically in SAP for Utilities, which sends a message to MDUS</td>
<td>Request Utilities Device Smart Meter Register Creation</td>
</tr>
<tr>
<td>Step 6: MDUS sends back a confirmation message</td>
<td>Change based on Utilities Device Smart Meter Register Creation Confirmation</td>
</tr>
<tr>
<td>Step 7: Set up smart meter billing in SAP for Utilities</td>
<td>Notify of Smart Meter Utilities Measurement Task Point Of Delivery Assigned</td>
</tr>
</tbody>
</table>
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Functional Enhancements – EhP 4

Planned Developments after EhP 4
Topic Overview - Functional Gaps

- Joint Energy Data Management
- Remote Disconnection/Reconnection
- Device Management
**Planned Developments AMI Release 2.0**

**Joint Energy Data Management**

**Topic 1: Integration of MDUS into SAP**

**Subtopic 1: Integration of MDUS into SAP**

- Tight integration of MDUS with SAP for Utilities
- Transfer aggregation rules dynamically to the MDUS
- Support of the various billing scenarios in particular for residential customer
- based on a dynamic call to MDUS during billing, values stored in MDUS

**Subtopic 2: Consumption Storage**

- Storage of Consumption for billing purposes
Planned Developments AMI Release 2.0
Remote Disconnection/Reconnection

Topic 1: Finalize Developments started in Enhancement Package 4

Subtopic 1: AMI: Dis/Reconnection ERP
- Reversal processing with regard to MDUS
- Triggering approval process
- Scheduling Process (i.e. changing of planned dis/reconnection date)
- Status Handling
- Monitoring of Message Flow

Subtopic 2: AMI: Disconnection/Reconnection CRM
- Process Customer Approval in IC WebClient

Subtopic 3: Enterprise Services for AMI Disconnection/Reconnection
- Services for remote disconnection/reconnection
Planned Developments AMI Release 2.0
Device Management

Topic 1: **Enhancement of Device Management for AMI Part II (Master)**
- Round off enhancements done EhP4
- Handling of Gas/Water Meters/Devices as AMI Devices
- Handling of separate disconnect/reconnect units

Topic 2: **Enterprise Services for Enhancement of the Device Management for AMI Part II (Master)**
- enterprise Services for Device Master Data Exchange with MDUS

Topic 3: **On-Demand Request for AMI-Meter/Device status ERP (Master)**
- Enhancement of Device Screens (e.g. Display Device, Device Modification etc.) in order to trigger an on Demand Status request
- Display the status information

Topic 4: **On-Demand Request for AMI-Meter/Device status CRM (Sub)**
- Enhancement of Device View in IC WebClient in order to trigger an on Demand Status request
- Display the status information
- Alert functionality

Topic 5: **Enterprise Services for on-Demand Request for AMI-Meter/Device status (Sub )**
- Querry service for the Business Object Utilities Device
**Topic 6: AMI-Monitoring of Data Exchange between SAP for Utilities and MDUS**

- Monitoring of data exchange between an MDUS/MDM system enterprise Services for Device Master Data Exchange with MDUS
- New transaction for AMI Data Exchange Monitoring,
- UI changes for branching from ISU transactions to transaction for AMI Data Exchange Monitoring
- Linking visually in- and outbound messages belonging to the same object.
Topic Overview - Functional Gaps

- Management of non-Energy Data
- Remote Load Reduction
- Prepayment
- Demand Response
- Forecasting and Analytics
- Outage Management
- Fraud and Theft Detection
Thank you!