

**Oracle® Utilities Meter Data Management Integration
to SAP for Meter Data Unification and
Synchronization**

Release 11.1 Media Pack

Release Notes

Oracle Utilities Meter Data Management v2.0.1.6

SAP for Meter Data Unification and Synchronization v 6.0 EHP5

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Table of Contents

- Value Proposition 1
 - Notifying the Oracle Utilities Meter Data Management System of Device Installations and Configurations 2
 - Notifying the Oracle Utilities Meter Data Management System of Measurement Profiles for Devices 3
 - Requesting Aggregated Usage from Time Series Interval Measurement Profiles 3
 - Initiating Device Commands Based on Customer Service Requests 4
 - Certification on the Latest Application Releases 4
- Additional Resources 6

Value Proposition

Oracle Utilities Meter Data Management Integration to SAP for Meter Data Unification and Synchronization Release 11.1 Media Pack represents significant business value for our utility customers, who must turn increasing volumes of usage data into valuable business information and take advantage of operational efficiencies with their Smart Grid initiatives.

Many utilities choose Oracle Utilities Meter Data Management (MDM) to support the loading, validation, editing, and estimation of meter data - from meter installation and configuration, to meter read and usage loading and validation, to bill determinant and other forms of usage calculations. Our customers value the product's packaged functionality, configurability for custom business rules, and high performance with large volumes of data from smart meters.

These utilities also require sophisticated enterprise integration between their Oracle Utilities Meter Data Management and billing applications to realize desired revenue targets and cost savings from their automated infrastructure. Implementing and maintaining these interfaces can be expensive and risky, however, especially between applications from different vendors.

Now, utilities that use SAP for customer relations and billing can leverage the advanced capabilities of Oracle Utilities Meter Data Management by implementing it along with Oracle's new pre-packaged integration between these utilities enterprise applications. This integration conforms to open documented enterprise services that are made available by SAP for integration with Oracle Utilities Meter Data Management software vendors. The published interface for Meter Data Unification and Synchronization (MDUS) enables SAP systems to access usage data and Advanced Metering Infrastructure (AMI) capabilities from a unified Oracle Utilities Meter Data Management system. The initial release of this integration covers the primary data exchanges that are required for meter operations, billing, customer relations, and demand management.

The productized Oracle integration allows our customers to:

- Manage usage data from multiple metering systems in a unified repository
- Request summarized usage calculations from interval meter data for billing
- Issue commands to smart meters (device operational status check, connect, disconnect) in a simplified manner, where the Oracle Utilities Meter Data Management system can communicate with each different meter network, and
- Limit data duplication and unnecessary synchronization, which should reduce implementation complexity and cost while increasing performance

Leveraging Oracle Application Integration Architecture, the product provides what utilities need to implement sustainable, Services Oriented Architecture based integrations. By delivering a new interface adapter within the Oracle Utilities Meter Data Management and utilizing best-in-class Oracle Fusion Middleware, Oracle delivers an adaptable end-to-end solution for meter data unification and synchronization with SAP.

This document describes new functionality in the 11.1 Media Pack release of the Oracle Utilities Meter Data Management Integration to SAP for Meter Data Unification and Synchronization. For a comprehensive description of the product functionality, refer to the Implementation Guide.

Oracle Utilities Meter Data Management Integration to SAP for Meter Data Unification and Synchronization Release 11.1 Media Pack is focused on the following key interfaces:

- Notifying the Oracle Utilities Meter Data Management system of device installations and configurations
- Notifying the Oracle Utilities Meter Data Management system of measurement profiles for devices
- Requesting aggregated usage from time series interval measurement profiles
- Initiating device commands based on customer service requests
- Certification on the latest application releases

Notifying the Oracle Utilities Meter Data Management System of Device Installations and Configurations

In an integrated scenario, SAP is considered the master system of record for meters and meter configurations. This first area of focus of the integration enables SAP to notify Oracle Utilities Meter Data Management about those details. The Oracle Utilities Meter Data Management system must be aware of the devices to issue automated meter commands and gather usage data once they are installed and operational.

Creating and Updating Meter Process

Once a meter, which is considered to be a smart-meter, is created or modified in the SAP system, this action will initiate the request for a smart meter to be created or modified in Oracle Utilities Meter Data Management. This creates or updates a record for the device itself, but does not include any configuration or measurement details. Once the record is processed successfully in Oracle Utilities Meter Data Management, the system sends a confirmation message back to SAP.

Installing Meter Process

After a physical meter installation is recorded in SAP, the smart meter register configuration and location details are sent to Oracle Utilities Meter Data Management. The smart meter register creation results in a composite synchronization of the device configuration, measuring components and installation event in Oracle Utilities Meter Data Management. Meanwhile, the location details are used to synchronize the service point and initiate an activity to enable service for the device at the service point. Oracle Utilities Meter Data Management takes all steps to enable service by issuing AMI commands to get the status of the device connected. Once the processing is complete, Oracle Utilities Meter Data Management initiates a smart meter registration activity and sends this notification back to SAP.

Exchanging Meter Process

After a physical meter exchange is recorded in SAP, the smart meter changes are sent to Oracle Utilities Meter Data Management for both the old and new meters. The processing of these messages results in a combination of the removal of the old meter by updating of the installation event with the removal date, and then a configuration and installation of the new meter. If the previous meter installation involved a relationship to equipment, the same relationship is maintained with the same installation constant on the new meter installation event. Oracle Utilities Meter Data Management also takes all required steps to enable the service for the new meter by issuing AMI commands to get the status of the device connected. Once the processing is complete, Oracle Utilities Meter Data Management initiates a smart meter registration activity for the new meter and sends this notification back to SAP.

Removing Meter Process

After a physical meter removal is recorded in SAP, the smart meter register changes are sent to Oracle Utilities Meter Data Management. When the change indicates a removal, the installation event for the meter is updated to process the removal and Oracle Utilities Meter Data Management sends a confirmation message back to SAP.

Synchronizing Data for Smart Meter Equipment Relationships

In SAP, other types of devices, such as breakers, transformers, or AMI communication modules, can be tracked and related to the meter device installation. The devices can be allocated to a meter or register in SAP. The integration to Oracle Utilities Meter Data Management updates the device installation event constant so that any factors that are applied to raw usage from the meter are known, in order to calculate proper billing determinants.

Notifying the Oracle Utilities Meter Data Management System of Measurement Profiles for Devices

The second major driver behind the integration is related to billing.

In SAP, smart meter registers that measure time series interval data are assigned to a profile. The profile to which a register is assigned in SAP is synchronized to Oracle Utilities Meter Data Management and the SAP profile ID is captured as an identifier on the measuring component. Once this update is processed, a confirmation message is sent back to SAP. Synchronizing measurement profiles between the applications allows Oracle Utilities Meter Data Management to respond appropriately to billing related time series calculation requests from SAP. Further, coordinating the billing business process across the applications reduces data storage and processing requirements in SAP, since interval usage data is first loaded into and then aggregated within Oracle Utilities Meter Data Management.

Requesting Aggregated Usage from Time Series Interval Measurement Profiles

The third area of focus for the integration is also related to billing.

When a billing process runs in SAP, the system creates requests for time series calculations from the Oracle Utilities Meter Data Management system. These requests are sent as a bulk message from SAP. The integration layer creates individual usage requests for each individual billing order in the bulk message, as well as creates a response activity that later collates the bulk response to SAP. Each of the individual usage transactions and the response activity captures the bulk message ID so that everything is linked together in the response to SAP.

There is a new usage transaction business object to capture additional input parameters that are supplied by SAP, and also to allow for an override usage group, which is dynamically determined. A new calculation algorithm looks for the override usage group on the requests from SAP rather than the static usage group on the usage subscription. This is because SAP does not synchronize the type of bill determinants that are required for a given billing contract.

As part of the implementation of the Oracle Utilities Meter Data Management system to operate with SAP billing, a time of use (TOU) map template is configured to correspond with each TOU interface that is defined in the SAP system. To aid the system administrator in this configuration, the new TOU map template in the Oracle Utilities Meter Data Management system is designed to be set up in a similar way as the TOU interface definition in SAP. Each time slice in the SAP TOU interface requires a distinct TOU code in Oracle Utilities Meter Data Management. A formula in SAP can only be used by one TOU interface (to aid Oracle Utilities Meter Data Management in identifying the proper TOU map template to use).

Finally, the activity response business object builds the bulk response from Oracle Utilities Meter Data Management to send back to SAP to complete the billing calculation interface process.

Initiating Device Commands Based on Customer Service Requests

The fourth major business process included in this integration is enabling AMI commands to be initiated for customer service requests. The commands included with this release consist of the following:

Query Meter Operational Status (Ping)

The Oracle Utilities Meter Data Management system uses the Oracle Utilities Smart Grid Gateway for standard interfaces to AMI vendors' software to operate with smart AMI meters. For meters that support electronic commands to check the current status of the device, a Smart Grid Gateway activity is available. This integration with SAP allows a new inbound service to map to the standard type of activity.

Remote Meter Connect

The Oracle Utilities Smart Grid Gateway also provides standard activities to enable service. The gateway can receive remote connect requests to enable service through standard interfaces and then manage the process to issue the appropriate commands to the AMI vendor's software and update the connection status of the device. When this activity is complete, a confirmation message is sent back to SAP.

Remote Meter Disconnect

The Oracle Utilities Smart Grid Gateway also provides standard activities to disable service. The gateway can receive remote disconnect requests to disable service through standard interfaces and then manages the process to issue the appropriate commands to the AMI vendor's software and update the connection status of the device. Once this activity is complete, a confirmation message is sent back to SAP.

Certification on the Latest Application Releases

In order to enable your business to leverage the most current application versions and benefit from the latest innovations, Oracle has certified the Oracle Utilities Meter Data Management Integration to SAP for Meter Data Unification and Synchronization Release 11.1 Media Pack on the following latest application releases.

Oracle Utilities Meter Data Management 2.0.1.6 (plus SAP Meter Data Unification and Synchronization Integration Adapter)

New business objects, batch processes, algorithms, and inbound/outbound messages have been delivered within the Oracle Utilities Meter Data Management application to enable this integration with SAP. A Business Process Assistant script is also provided to aid in the setup of Oracle Utilities Meter Data Management in synchronization processing. These additions should greatly reduce the configuration and custom design work that would normally be associated with a complex integration of this type.

These integration adapter components are packaged with the integration product, rather than with the base Oracle Utilities Meter Data Management product.

SAP for Utilities 6.0.5 with AMI 2.0 Enterprise Services

The integration is built to the current release of SAP for Utilities with the updated Meter Data Unification and Synchronization AMI 2.0 enterprise service bundle, which adds capabilities for data synchronization, summarized bill determinants, events processing, initiating remote commands, and sending text.

For specific edge application patch levels and other details, refer to the Installation Guide.

Additional Resources

There are additional resources that can help your organization learn more about this release.

Resource	Navigation
Installation Guide	http://edelivery.oracle.com/
Implementation Guide	http://edelivery.oracle.com/

- Visit the [My Oracle Support website](#) frequently to keep apprised of ongoing changes.
- For other sources of documentation, visit [Oracle Technology Network: Oracle Documentation](#).
- For training opportunities, visit [Oracle University](#).