

**Oracle Utilities Meter Data Management
Release 2.0.1**

Utility Reference Model

4.2.1.1 MDM.Upload Device Measurements

January 2014

Oracle Utilities Meter Data Management Utility Reference Model 4.2.1.1 Release 2.0.1

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Chapter 1

Overview

This chapter provides a brief description of the MDM.Upload Device Measurements business process and associated process diagrams. This includes:

- **Brief Description**
 - **Actors/Roles**

Brief Description

Business Process: 4.2.1.1 MDM.Upload Device Measurements

Process Type: Sub-Process

Parent Process: 4.2.1 MDM. Collect and Process Measurements

Sibling Processes: 4.2.1.2 MDM.Manage VEE and VEE Exceptions, 4.2.1.3 MDM. Calculate Usage

This process gets initiated when the raw meter measurements are sent from an AMI/AMR Head-End System to MDM, created manually by an authorized user using MDM or when MDM automatically creates estimated initial measurements if business practice requires this. MDM pre-processes the initial measurements and initiates Head-End System specific processing.

Actors/Roles

The MDM.Upload Device Measurements business process involves the following actors and roles.

- **MDM Authorized User:** An authorized user of the Meter Data Management application
- **MDM Application:** The Meter Data Management system

Chapter 2

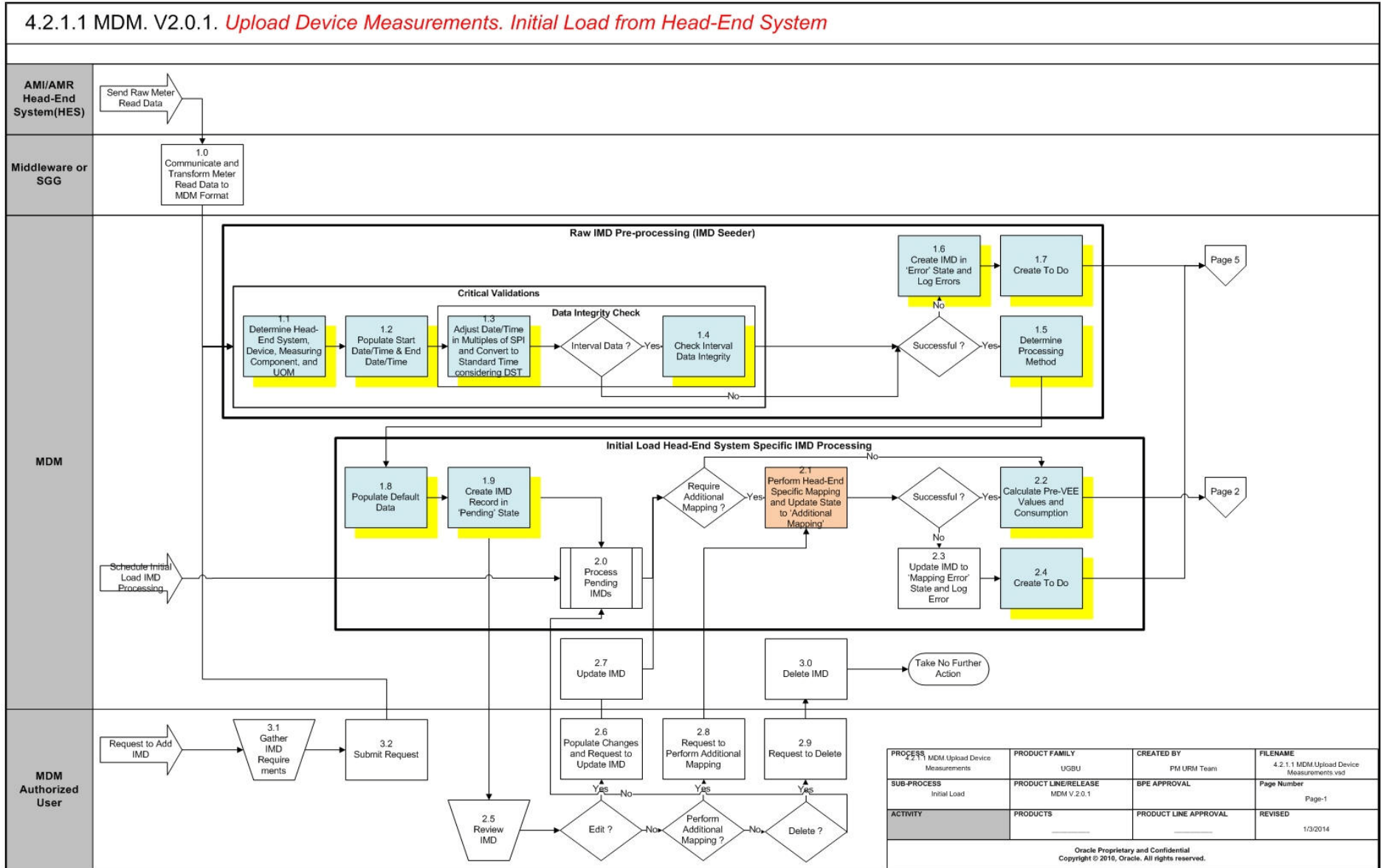
Detailed Business Process Model Description

This chapter provides a detailed description of the MDM.Upload Device Measurements business process. This includes:

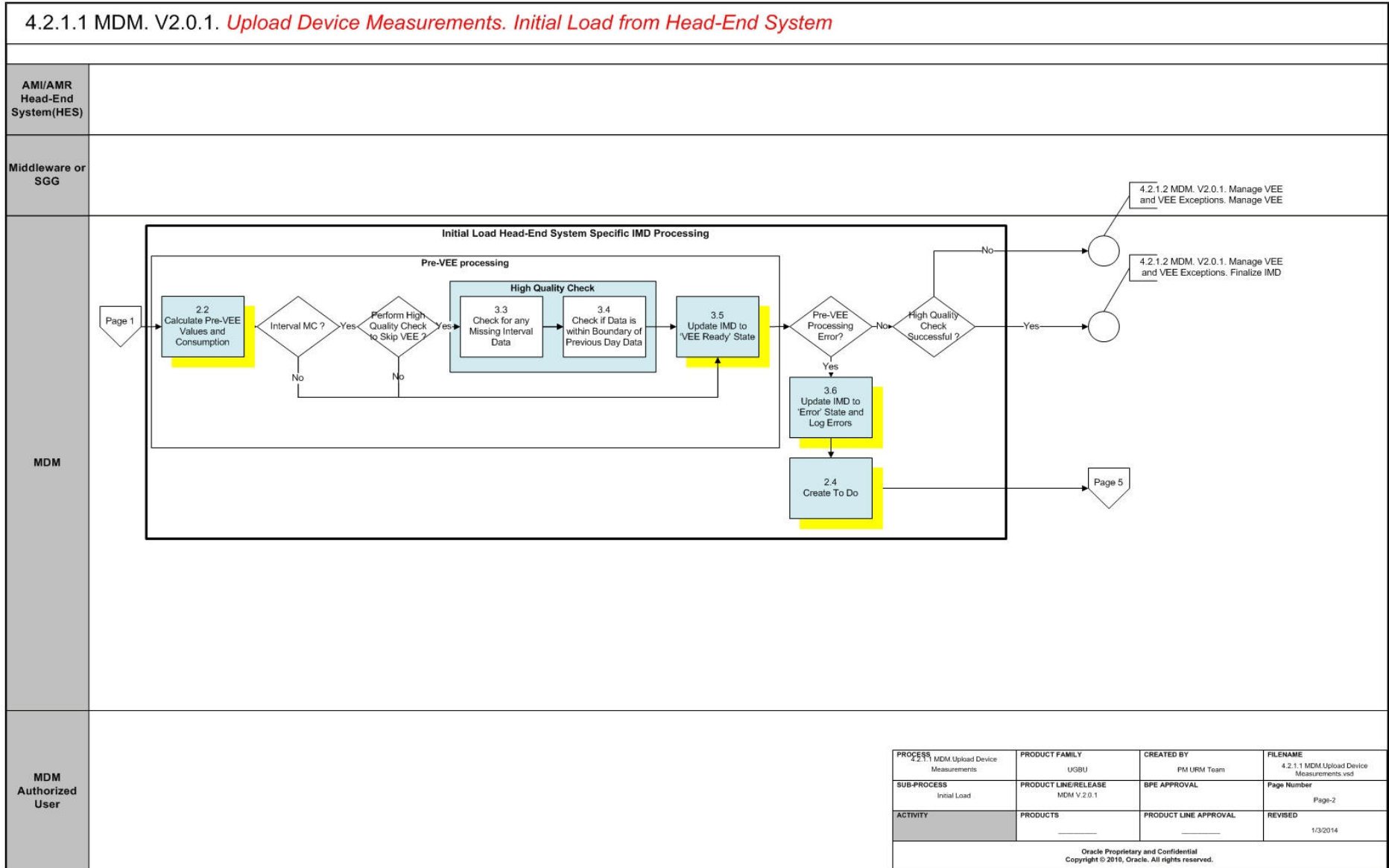
- **Business Process Diagrams**
 - MDM.Upload Device Measurements Page 1
 - MDM.Upload Device Measurements Page 2
 - MDM.Upload Device Measurements Page 3
 - MDM.Upload Device Measurements Page 4
 - MDM.Upload Device Measurements Page 5
- MDM.Upload Device Measurements Description
- **Business Objects Lifecycle**
 - D1-IMDSeeder
 - Initial Load IMD (Interval)
 - Initial Load IMD (Scalar)
 - Manual IMD (Interval)
 - Manual IMD (Scalar)
 - Estimation IMD (Interval)
 - Estimation IMD (Scalar)
- **Related Training**

Business Process Diagrams

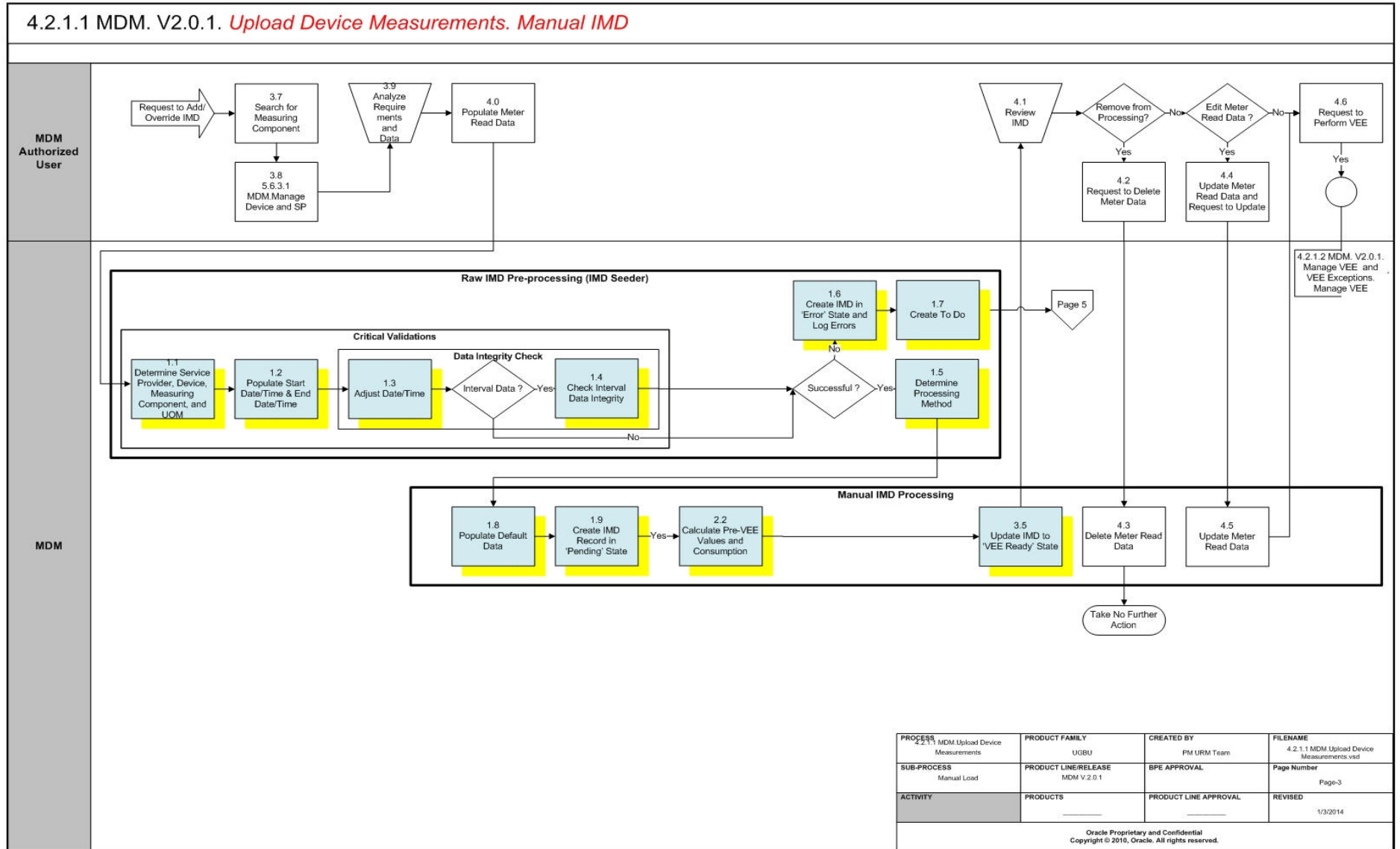
MDM.Upload Device Measurements Page 1



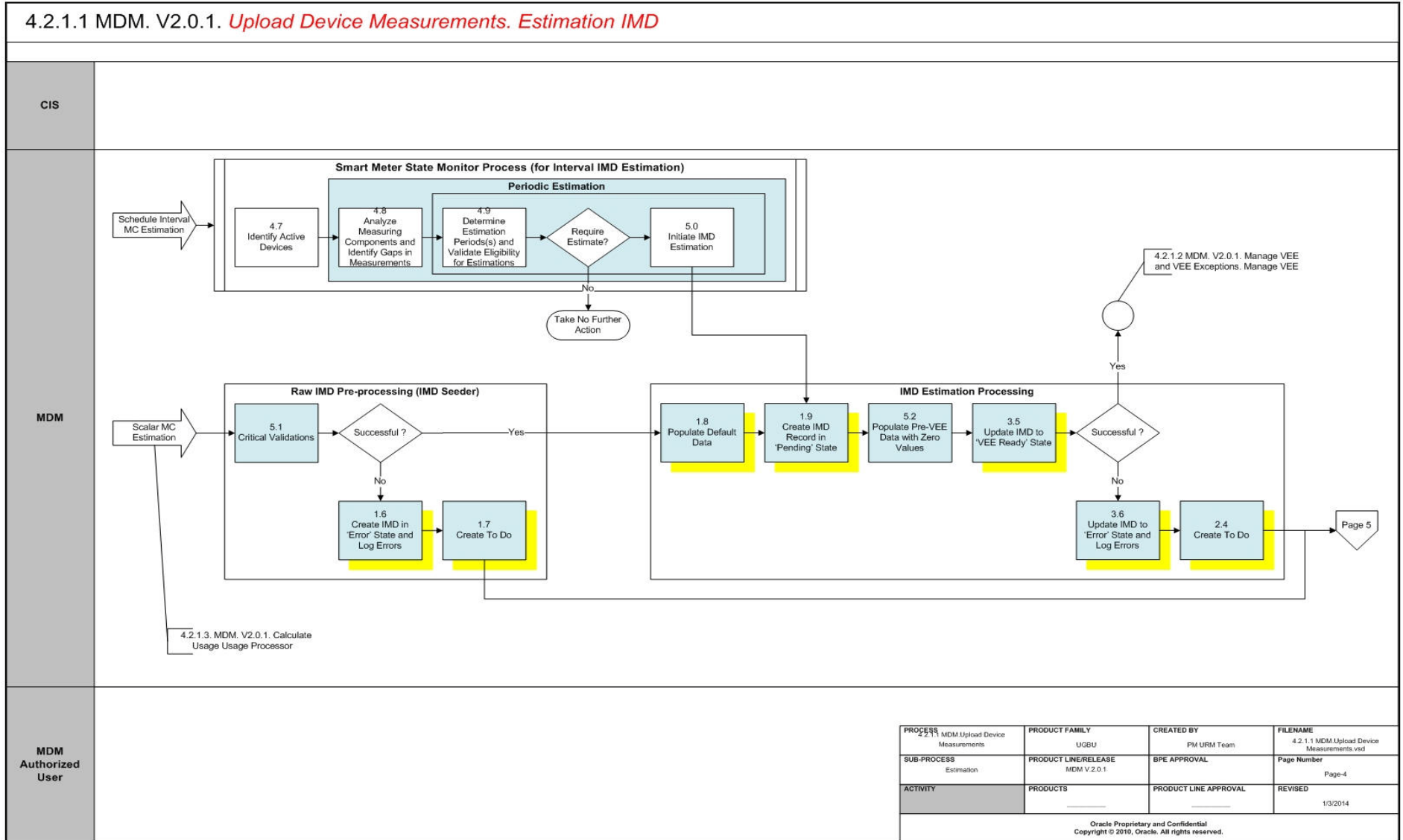
MDM.Upload Device Measurements Page 2



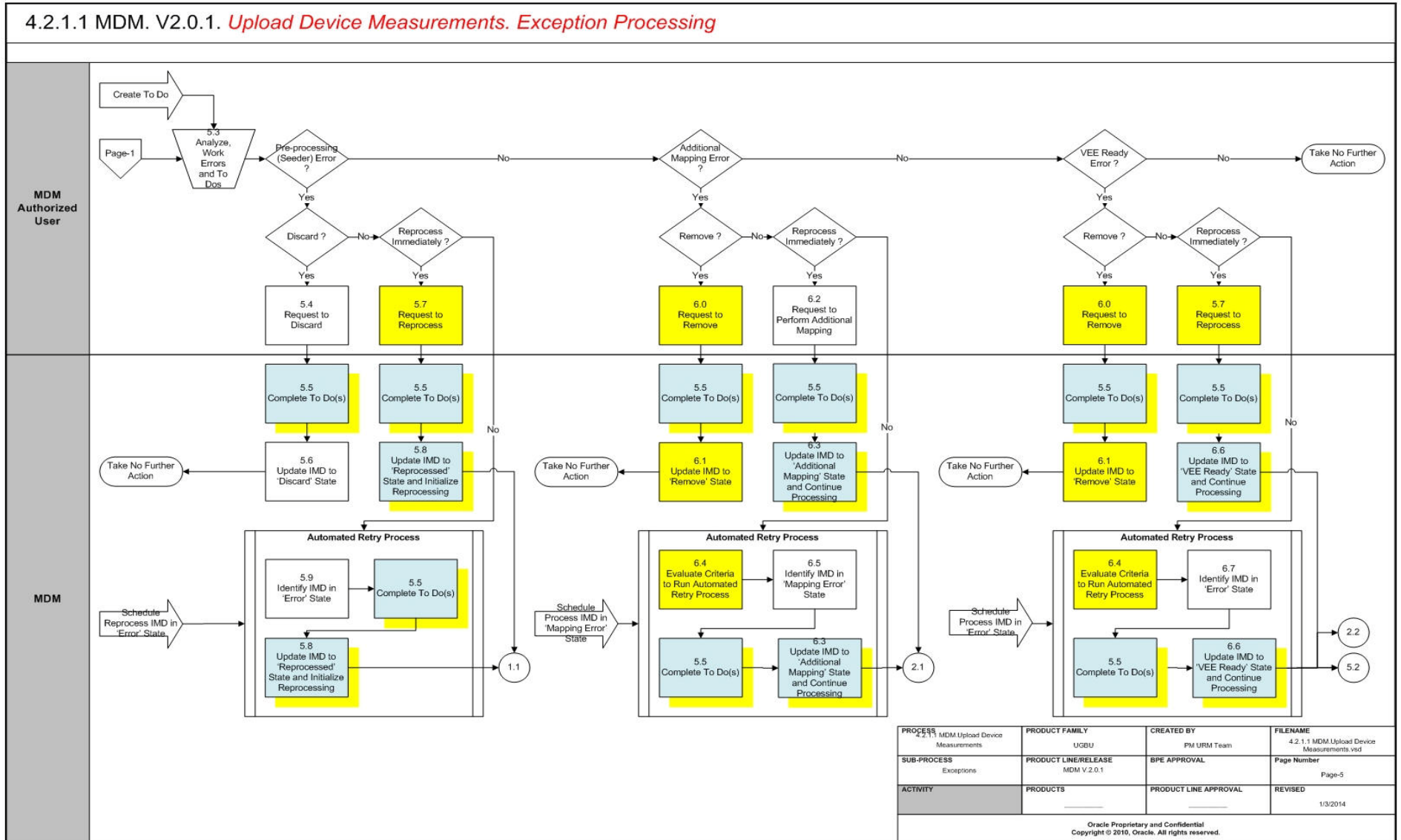
MDM.Upload Device Measurements Page 3



MDM.Upload Device Measurements Page 4



MDM.Upload Device Measurements Page 5



MDM.Upload Device Measurements Description

This section includes detailed descriptions of the steps involved in the MDM.Upload Device Measurements business process, including:

- **1.0 Communicate and Transform Meter Read Data to MDM Format**
- **1.1 Determine Head-End System, Device, Measuring Component, and UOM**
- **1.2 Populate Start Date/Time & End Date/Time**
- **1.3 Adjust Date/Time in Multiples of SPI and Convert to Standard Time considering DST**
- **1.4 Check Interval Data Integrity**
- **1.5 Determine Processing Method**
- **1.6 Create IMD in 'Error' State and Log Errors**
- **1.7 Create To Do**
- **1.8 Populate Default Data**
- **1.9 Create IMD Record in 'Pending' State**
- **2.0 Process Pending IMDs**
- **2.1 Perform Head-End Specific Mapping and Update State to 'Additional Mapping'**
- **2.2 Calculate Pre-VEE Values and Consumption**
- **2.3 Update IMD to 'Mapping Error' State and Log Error**
- **2.4 Create To Do**
- **2.5 Review IMD**
- **2.6 Populate Changes and Request to Update IMD**
- **2.7 Update IMD**
- **2.8 Request to Perform Additional Mapping**
- **2.9 Request to Delete**
- **3.0 Delete IMD**
- **3.1 Gather IMD Requirements**
- **3.2 Submit Request**
- **3.3 Check for any Missing Interval Data**
- **3.4 Check if data is within boundary of previous day data**
- **3.5 Update IMD to 'VEE Ready' State**
- **3.6 Update IMD to 'Error' State and Log Errors**
- **3.7 Search for Measuring Component**
- **3.8 5.6.3.1 Manage Device and SP**
- **3.9 Analyze Requirements and Data**
- **4.0 Populate Meter Read Data**
- **4.1 Review IMD**
- **4.2 Request to Delete Meter Data**
- **4.3 Delete Meter Read Data**

- 4.4 Update Meter Read Data and Request to Update
- 4.5 Update Meter Read Data
- 4.6 Request to Perform VEE
- 4.7 Identify Devices
- 4.8 Analyze Measuring Components and Identify Gaps in Measurements
- 4.9 Determine Estimation Period(s) and Validate eligibility for Estimations
- 5.0 Initiate IMD Estimation
- 5.1 Critical Validations
- 5.2 Populate Pre-VEE Data with Zero values
- 5.3 Analyze, Work Errors and To Do
- 5.4 Request to Discard
- 5.5 Complete To Do(s)
- 5.6 Update IMD to 'Discard' State
- 5.7 Request to Reprocess
- 5.8 Update IMD to 'Reprocessed' State and Initialize Reprocessing
- 5.9 Identify IMD in 'Error' State
- 6.0 Request to Remove
- 6.1 Update IMD to 'Remove' State
- 6.2 Request to Perform Additional Mapping
- 6.3 Update IMD to 'Additional Mapping' State and Continue Processing
- 6.4 Evaluate Criteria to Run Automated Retry Process
- 6.5 Identify IMD in 'Mapping Error' State
- 6.6 Update IMD to 'VEE Ready' State and Continue Processing
- 6.7 Identify IMD in 'Error' State

1.0 Communicate and Transform Meter Read Data to MDM Format

See **MDM.Upload Device Measurements Page 1** on page 2-2 for the business process diagram associated with this activity.

Actor/Role: Middleware or SGG

Description: The Middleware receives the raw meter data from the head-end systems, transforms it into the format compatible with the MDM. It also adds the transformed data into a JMS queue for further processing by the MDM.

Note: There is a different set of documentation to be provided for SGG.

1.1 Determine Head-End System, Device, Measuring Component, and UOM

See **MDM.Upload Device Measurements Page 1** on page 2-2 for the business process diagram associated with this activity.

Group: Raw IMD Pre-Processing (IMD Seeder)

Group: Critical Validations

Actor/Role: MDM

Description: MDM initiates pre-processing of the raw meter data by performing series of critical validations. This task is the first task among critical validations. MDM attempts to read the raw data received and determines the head-end system (Service Provider), device, measuring component, and unit of measure. Based on the identified measuring component and the Head-End System, the MDM determine the type of data received.

Entities to Configure

Measuring Component

Device

Device Configuration

Head-End System (Service Provider)

Business Objects	Available Algorithms
D1-IMDSeeder	D1-DER-SPRMC (Determine Service Provider and Measuring Component)

1.2 Populate Start Date/Time & End Date/Time

See **MDM.Upload Device Measurements Page 1** on page 2-2 for the business process diagram associated with this activity.

Group: Raw IMD Pre-Processing (IMD Seeder)

Group: Critical Validations

Actor/Role: MDM

Description: MDM populates the Start Date/Time and End Date/Time. The system performs this task for both interval and scalar types of data.

Entities to Configure

Measuring Component Type

Business Objects	Available Algorithms
D1-IMDSeeder	D1-VALDR-INP (Derive IMD Date/Time Values)

1.3 Adjust Date/Time in Multiples of SPI and Convert to Standard Time considering DST

See **MDM.Upload Device Measurements Page 1** on page 2-2 for the business process diagram associated with this activity.

Group: Raw IMD Pre-Processing (IMD Seeder)

Group: Critical Validations

Group: Data Integrity Check

Actor/Role: MDM

Description: MDM adjusts the Start Date/Time, Intervals, and End Date/Time so that they are in multiples of SPI and converts them from local to standard time considering the Daylight Savings Time (DST).

Entities to Configure
Measuring Component
Device (Incoming Data Shift)
Device Configuration
Service Point

Business Objects	Available Algorithms
D1-IMDSeeder	D1-DODTTMADJ (Perform Date/Time Adjustments and Undercount/Overcount Check)

1.4 Check Interval Data Integrity

See **MDM.Upload Device Measurements Page 1** on page 2-2 for the business process diagram associated with this activity.

Group: Raw IMD Pre-Processing (IMD Seeder)

Group: Critical Validations

Group: Data Integrity Check

Actor/Role: MDM

Description: MDM performs the over count and under count check for the interval data.

Business Objects	Available Algorithms
D1-IMDSeeder	D1-DODTTMADJ (Perform Date/Time Adjustments and Undercount/Overcount Check)

1.5 Determine Processing Method

See **MDM.Upload Device Measurements Page 1** on page 2-2 for the business process diagram associated with this activity.

Group: Raw IMD Pre-Processing (IMD Seeder)

Actor/Role: MDM

Description: MDM determines the Processing Method for the raw measurement data received. Depending on the type of data and Head End System, the Initial Load IMD or Manual IMD or Estimate IMD is instantiated.

Business Objects	Available Algorithms
Initial Load IMD (Interval)	D1-DER-SPRMC (Determine Service Provider and Measuring Component)
Initial Load IMD (Scalar)	
Manual IMD (Interval)	
Manual IMD (Scalar)	
Estimation IMD (Interval)	
Estimation IMD (Scalar)	

1.6 Create IMD in 'Error' State and Log Errors

See **MDM.Upload Device Measurements Page 1** on page 2-2 for the business process diagram associated with this activity.

Group: Raw IMD Pre-Processing (IMD Seeder)

Actor/Role: MDM

Description: If any error occurs during any step of IMD pre-processing, the system creates a seeder record in 'Error' state and logs an error.

Business Objects	Available Algorithms
D1-IMDSeeder	D1-LOG-SEEDR (Create Initial Measurement Data Seeder Log Entries)

1.7 Create To Do

See **MDM.Upload Device Measurements Page 1** on page 2-2 for the business process diagram associated with this activity.

Group: Raw IMD Pre-Processing (IMD Seeder)

Actor/Role: MDM

Description: If business identifies the needs to create To Dos to report preprocessing errors and system is configured accordingly, the MDM creates a To Do entry when the MDM logs the errors. It allows Authorized Users review the error and attempt to fix the problem.

Entities to Configure
To Do Type
To Do Role

Business Objects	Available Algorithms
D1-IMDSeeder	D1-CRE-SEDTD (Create To Do for IMD Seeder)

1.8 Populate Default Data

See **MDM.Upload Device Measurements Page 1** on page 2-2 for the business process diagram associated with this activity.

Group: Initial Load Head-End System Specific IMD Processing

Actor/Role: MDM

Description: MDM populates the default data such as Date/Time and Time Zone based on the details from the raw meter data received from the Head End system if they are not populated.

Business Objects	Available Algorithms
Initial Load IMD (Interval)	D1-INT-SPEC (Validate Interval Initial Measurement Data Input)
Initial Load IMD (Scalar)	
Manual IMD (Interval)	
Manual IMD (Scalar)	
Estimation IMD (Interval)	
Estimation IMD (Scalar)	

1.9 Create IMD Record in 'Pending' State

See **MDM.Upload Device Measurements Page 1** on page 2-2 for the business process diagram associated with this activity.

Group: Initial Load Head-End System Specific IMD Processing

Actor/Role: MDM

Description: MDM ensures the availability of common input data such as Measuring Component Identifier, Device Identifier, UOM and creates an IMD in the pending state.

Business Objects	Available Algorithms
Initial Load IMD (Interval)	D1-IMD-COMM (Validate Initial Measurement Data Common Input)
Initial Load IMD (Scalar)	
Manual IMD (Interval)	
Manual IMD (Scalar)	
Estimation IMD (Interval)	
Estimation IMD (Scalar)	

2.0 Process Pending IMDs

See **MDM.Upload Device Measurements Page 1** on page 2-2 for the business process diagram associated with this activity.

Group: Initial Load Head-End System Specific IMD Processing

Actor/Role: MDM

Description: System automatically initiates processing the IMD records in pending status. This step represents MDM capability to process the IMDs in batch if required due to high volume.

Business Objects	Available Algorithms
Initial Load IMD (Interval)	F1-AT-RQJ (Transition to
Initial Load IMD (Scalar)	Default Next Status)
Manual IMD (Interval)	
Manual IMD (Scalar)	
Estimation IMD (Interval)	
Estimation IMD (Scalar)	

2.1 Perform Head-End Specific Mapping and Update State to 'Additional Mapping'

See **MDM.Upload Device Measurements Page 1** on page 2-2 for the business process diagram associated with this activity.

Group: Initial Load Head-End System Specific IMD Processing

Actor/Role: MDM

Description: This step takes place only if there is a need to perform additional Head End system specific mapping. Usually this step requires customization in order to satisfy MDM and head end system specific requirements. One of the examples of such mapping is adding a prefix to a meter number to ensure it is unique.

Note: Specific algorithms that could be associated with this task are designed and developed as components of D3 and D5. (See SGG documentation for details).

Business Objects
Initial Load IMD (Interval)
Initial Load IMD (Scalar)

2.2 Calculate Pre-VEE Values and Consumption

See **MDM.Upload Device Measurements Page 1** on page 2-2 for the business process diagram associated with this activity.

Group: Initial Load Head-End System Specific IMD Processing

Actor/Role: MDM

Description: MDM calculates the Pre-VEE values and consumption and prepares data for VEE processing.

Business Objects	Available Algorithms
Initial Load IMD (Interval)	D1-PRCLINIMD (Calculate Interval Consumption and Prepare IMD)
Initial Load IMD (Scalar)	D1-PRCLSCIMD (Calculate and Prepare Scalar Consumption)
Manual IMD (Interval)	
Manual IMD (Scalar)	
Estimation IMD (Interval)	
Estimation IMD (Scalar)	

2.3 Update IMD to 'Mapping Error' State and Log Error

See **MDM.Upload Device Measurements Page 1** on page 2-2 for the business process diagram associated with this activity.

Group: Initial Load Head-End System Specific IMD Processing

Actor/Role: MDM

Description: If any error occurs during head-end specific additional mapping, MDM automatically updates IMD status to 'Mapping Error' and logs an error.

Business Objects	Available Algorithms
Initial Load IMD (Interval)	F1-AT-RQJ (Transition to Default Next Status)
Initial Load IMD (Scalar)	

2.4 Create To Do

See **MDM.Upload Device Measurements Page 1** on page 2-2 for the business process diagram associated with this activity.

Group: Initial Load Head-End System Specific IMD Processing

Actor/Role: MDM

Description: Once the MDM system logs the errors, it creates a To Do entry. Authorized users are allowed to review the problem and attempt to fix the error reported by system.

Business Objects	Available Algorithms
Initial Load IMD (Interval)	D1-CRE-TDNVE (Create IMD To Do for Error States)
Initial Load IMD (Scalar)	

2.5 Review IMD

See **MDM.Upload Device Measurements Page 1** on page 2-2 for the business process diagram associated with this activity.

Actor/Role: MDM Authorized User

Description: The MDM Authorized User reviews and analyzes the pending IMD before further processed using Review Pending State IMD page.

2.6 Populate Changes and Request to Update IMD

See **MDM.Upload Device Measurements Page 1** on page 2-2 for the business process diagram associated with this activity.

Actor/Role: MDM Authorized User

Description: If an Authorized User decides that the pending IMD requires modifications, the Authorized User makes required changes using Edit IMD Details page and requests to update the IMD record.

2.7 Update IMD

See **MDM.Upload Device Measurements Page 1** on page 2-2 for the business process diagram associated with this activity.

Actor/Role: MDM

Description: MDM updates the IMD record.

Business Objects	Available Algorithms
Initial Load IMD (Interval)	D1-AUD-QTYUE (Audit IMD
Initial Load IMD (Scalar)	Quantity Changes and Set User-
Estimation IMD (Interval)	Edited Flag)
Estimation IMD (Scalar)	

2.8 Request to Perform Additional Mapping

See **MDM.Upload Device Measurements Page 1** on page 2-2 for the business process diagram associated with this activity.

Actor/Role: MDM Authorized User

Description: If MDM Authorized User determines that pending IMD should be processed immediately and the business requires additional head end system mapping as a next step, then authorized user requests to perform additional mapping.

2.9 Request to Delete

See **MDM.Upload Device Measurements Page 1** on page 2-2 for the business process diagram associated with this activity.

Actor/Role: MDM Authorized User

Description: The MDM Authorized User requests to delete the IMD record in pending status

3.0 Delete IMD

See **MDM.Upload Device Measurements Page 1** on page 2-2 for the business process diagram associated with this activity.

Actor/Role: MDM

Description: MDM deletes the IMD Record in pending status.

Note: Once a record is deleted it is permanently removed from the system and it cannot be retrieved.

3.1 Gather IMD Requirements

See **MDM.Upload Device Measurements Page 2** on page 2-3 for the business process diagram associated with this activity.

Actor/Role: MDM Authorized User

Description: The Authorized User gathers all the required information required for adding an initial measurement.

Entities to Configure

Measuring Component

Device

Start and Stop Date and Time

Consumption for Scalar IMD

Intervals and respective data for Interval IMD

Business Objects

Initial Load IMD (Interval)

Initial Load IMD (Scalar)

3.2 Submit Request

See **MDM.Upload Device Measurements Page 2** on page 2-3 for the business process diagram associated with this activity.

Actor/Role: MDM Authorized User

Description: The MDM Authorized User adds initial measurement data (IMD) records to the MDM application by using the Initial Measurement Upload Portal or uploading an XML document using Load IMDs/Events (XML) portal. MDM performs an audit of the IMD added.

Entities to Configure

Measuring Component

Device

Start and Stop Date and Time

Consumption for Scalar IMD

Intervals and respective data for Interval IMD

Business Objects

Available Algorithms

Initial Load IMD (Interval)

Initial Load IMD (Scalar)

D1-AUD-QTYUE (Audit IMD
Quantity Changes and Set User-
Edited Flag)

3.3 Check for any Missing Interval Data

See **MDM.Upload Device Measurements Page 2** on page 2-3 for the business process diagram associated with this activity.

Group: Initial Load Head-End System Specific IMD Processing

Group: High Quality Check

Actor/Role: MDM

Description: MDM checks if there are any missing intervals in the current IMD in process.

Business Objects	Available Algorithms
Initial Load IMD (Interval)	D1-HIGHQUALV (High Quality Check - Vector Band Based)

3.4 Check if data is within boundary of previous day data

See **MDM.Upload Device Measurements Page 2** on page 2-3 for the business process diagram associated with this activity.

Group: Initial Load Head-End System Specific IMD Processing

Group: High Quality Check

Actor/Role: MDM

Description: MDM checks if the Interval data is within a pre-defined quantity tolerance boundary (pre-defined tolerance levels) of the previous day's corresponding interval data.

Entities to Configure

High Tolerance

Low Tolerance

Business Objects	Available Algorithms
Initial Load IMD (Interval)	D1-HIGHQUALV (High Quality Check - Vector Band Based)

3.5 Update IMD to 'VEE Ready' State

See **MDM.Upload Device Measurements Page 2** on page 2-3 for the business process diagram associated with this activity.

Group: Initial Load Head-End System Specific IMD Processing

Actor/Role: MDM

Description: MDM updates the IMD status to VEE Ready.

Note: If the High Quality Check has been successful, VEE process is skipped and the IMD transitions to normalization and finalization steps. If the High Quality Check fails, the IMD transitions to VEE Processing.

Business Objects	Available Algorithms
Initial Load IMD (Interval)	F1-AT-RQJ (Transition to Default Next Status)
Initial Load IMD (Scalar)	
Manual IMD (Interval)	
Manual IMD (Scalar)	
Estimation IMD (Interval)	
Estimation IMD (Scalar)	

3.6 Update IMD to 'Error' State and Log Errors

See **MDM.Upload Device Measurements Page 2** on page 2-3 for the business process diagram associated with this activity.

Group: Initial Load Head-End System Specific IMD Processing

Actor/Role: MDM

Description: If any error occurs while MDM prepares data for VEE, MDM updates IMD status to 'Error' state and logs an error.

Business Objects	Available Algorithms
Initial Load IMD (Interval)	F1-AT-RQJ (Transition to Default Next Status)
Initial Load IMD (Scalar)	
Manual IMD (Interval)	
Manual IMD (Scalar)	
Estimation IMD (Interval)	
Estimation IMD (Scalar)	

3.7 Search for Measuring Component

See **MDM.Upload Device Measurements Page 3** on page 2-4 for the business process diagram associated with this activity.

Actor/Role: MDM Authorized User

Description: This is the first task that MDM Authorized User performs when there is a need to create IMD manually. MDM Authorized User searches for the Measuring Component to create a Manual IMD using Measuring Component Portal.

Entities to Configure

Measuring Component

Device

3.8 5.6.3.1 Manage Device and SP

See **MDM.Upload Device Measurements Page 3** on page 2-4 for the business process diagram associated with this activity.

Actor/Role: MDM User

Description: If required, the Authorized User creates or updates the device and service point data in this step. Please refer to process 5.6.3.1 Manage Device SP for details.

3.9 Analyze Requirements and Data

See **MDM.Upload Device Measurements Page 3** on page 2-4 for the business process diagram associated with this activity.

Actor/Role: MDM Authorized User

Description: Sometimes the Authorized User needs to create a new IMD manually. The MDM Authorized User analyzes the requirements and various data before creating a new IMD manually.

4.0 Populate Meter Read Data

See **MDM.Upload Device Measurements Page 3** on page 2-4 for the business process diagram associated with this activity.

Actor/Role: MDM Authorized User

Description: The MDM Authorized User populates the meter data.

Entities to Configure
Measuring Component
Start and End Date and Time
Consumption
Condition (E.g. Office Estimate)
Conversion Method (E.g. Use Straight Line)
Profile Factor

4.1 Review IMD

See **MDM.Upload Device Measurements Page 3** on page 2-4 for the business process diagram associated with this activity.

Actor/Role: MDM Authorized User

Description: The MDM Authorized User reviews and analyzes the IMD before further processing using the Review IMD in VEE Ready State page.

4.2 Request to Delete Meter Data

See **MDM.Upload Device Measurements Page 3** on page 2-4 for the business process diagram associated with this activity.

Actor/Role: MDM Authorized User

Description: An Authorized User requests to delete the IMD record.

4.3 Delete Meter Read Data

See **MDM.Upload Device Measurements Page 3** on page 2-4 for the business process diagram associated with this activity.

Group: Manual IMD Processing

Actor/Role: MDM

Description: MDM deletes the IMD Record in 'VEE Ready' state based on the MDM Authorized User request

Note: Once a record is deleted it is permanently removed from the system and it cannot be retrieved.

4.4 Update Meter Read Data and Request to Update

See **MDM.Upload Device Measurements Page 3** on page 2-4 for the business process diagram associated with this activity.

Actor/Role: MDM Authorized User

Description: The Authorized User makes required modifications and requests to update the IMD record.

4.5 Update Meter Read Data

See **MDM.Upload Device Measurements Page 3** on page 2-4 for the business process diagram associated with this activity.

Group: Manual IMD Processing

Actor/Role: MDM

Description: MDM updates the IMD Record

4.6 Request to Perform VEE

See **MDM.Upload Device Measurements Page 3** on page 2-4 for the business process diagram associated with this activity.

Actor/Role: MDM Authorized User

Description: The Authorized User requests perform VEE.

4.7 Identify Devices

See **MDM.Upload Device Measurements Page 4** on page 2-5 for the business process diagram associated with this activity.

Group: Smart Meter State Monitor Process (for Interval IMD Estimations)

Actor/Role: MDM

Description: This task is the first step of Interval estimations automated process. MDM identifies all active devices for further processing.

Customizable Processes
D1-SMMTR

Business Objects
D1-SmartMeter

4.8 Analyze Measuring Components and Identify Gaps in Measurements

See **MDM.Upload Device Measurements Page 4** on page 2-5 for the business process diagram associated with this activity.

Group: Smart Meter State Monitor Process (for Interval IMD Estimations)

Group: Periodic Estimation

Actor/Role: MDM

Description: Process identifies all the measuring components associated with active device(s) and checks for gaps in measurements

Business Objects	Available Algorithms
D1-SmartMeter	D1-PERESTM (Periodic Estimation)

4.9 Determine Estimation Period(s) and Validate eligibility for Estimations

See **MDM.Upload Device Measurements Page 4** on page 2-5 for the business process diagram associated with this activity.

Group: Smart Meter State Monitor Process (for Interval IMD Estimations)

Group: Periodic Estimation

Actor/Role: MDM

Description: MDM application determines boundaries of missing periods and applies business rules to decide if estimated IMD should be created for identified periods.

Business Objects	Available Algorithms
D1-IntervalChannel	D1-CRIMTODO (for Periodic Estimation)

5.0 Initiate IMD Estimation

See **MDM.Upload Device Measurements Page 4** on page 2-5 for the business process diagram associated with this activity.

Group: Smart Meter State Monitor Process (for Interval IMD Estimations)

Group: Periodic Estimation

Actor/Role: MDM

Description: In this step MDM initiates creation of estimated IMD(s) for periods identified in previous step.

Business Objects	Available Algorithms
D1-IntervalChannel	D1-CRIMTODO (for Periodic Estimation)

5.1 Critical Validations

See **MDM.Upload Device Measurements Page 4** on page 2-5 for the business process diagram associated with this activity.

Group: Raw IMD Pre-processing (IMD Seeder)

Actor/Role: MDM

Description: MDM performs the critical validations for the estimate scalar IMD as part of seeder pre-processing.

Note: Unlike the Initial Load IMD Seeder pre-processing, this is not a full fledge pre-processing.

Business Objects
D1-IMDSeeder

5.2 Populate Pre-VEE Data with Zero values

See **MDM.Upload Device Measurements Page 4** on page 2-5 for the business process diagram associated with this activity.

Group: IMD Estimation Processing

Actor/Role: MDM

Description: MDM populates Pre-VEE data for the Interval(s) with 'Zero' values. The actual values would be estimated during the VEE processing.

Business Objects	Available Algorithms
Estimation IMD (Interval)	D1-CRMIIMDPR (Populate
Estimation IMD (Scalar)	IMD Pre-VEE / Post-VEE group with 0 Value Intervals)

5.3 Analyze, Work Errors and To Do

See **MDM.Upload Device Measurements Page 5** on page 2-6 for the business process diagram associated with this activity.

Actor/Role: MDM Authorized User

Description: MDM Authorized User analyzes the error logged and respective To Do created. Following instructions and business procedures the MDM Authorized User makes required changes to correct the problem.

5.4 Request to Discard

See **MDM.Upload Device Measurements Page 5** on page 2-6 for the business process diagram associated with this activity.

Actor/Role: MDM Authorized User

Description: The MDM Authorized User the user requests to discard IMD record in “Error” state.

5.5 Complete To Do(s)

See **MDM.Upload Device Measurements Page 5** on page 2-6 for the business process diagram associated with this activity.

Actor/Role: MDM

Description: Application automatically completes To Do entries before reprocessing.

Business Objects	Available Algorithms
D1-IMDSeeder Initial Load IMD (Interval) Initial Load IMD (Scalar) Estimation IMD (Interval) Estimation IMD (Scalar)	D1-COMP-TD (Complete To Do Entries for Initial Measurement Data)

5.6 Update IMD to 'Discard' State

See **MDM.Upload Device Measurements Page 5** on page 2-6 for the business process diagram associated with this activity.

Actor/Role: MDM

Description: MDM transitions the IMD seeder to 'Discard' status indicating that it cannot be used further.

Business Objects
D1-IMDSeeder

5.7 Request to Reprocess

See **MDM.Upload Device Measurements Page 5** on page 2-6 for the business process diagram associated with this activity.

Actor/Role: MDM Authorized User

Description: After the problem is resolved and required changes are made MDM Authorized User requests to reprocess the raw data

5.8 Update IMD to 'Reprocessed' State and Initialize Reprocessing

See **MDM.Upload Device Measurements Page 5** on page 2-6 for the business process diagram associated with this activity.

Actor/Role: MDM

Description: MDM transitions the seeder to 'Reprocessed' state and initializes reprocessing.

Business Objects	Available Algorithms
D1-IMDSeeder	D1-CRE-IMDSD (Attempt to Reprocess Seeder Initial Measurement)

5.9 Identify IMD in 'Error' State

See **MDM.Upload Device Measurements Page 5** on page 2-6 for the business process diagram associated with this activity.

Group: Automated Retry Process

Actor/Role: MDM

Description: This task is the first task of automated seeder retry process. MDM identifies the IMD seeder records in 'Error' state.

Customizable process
Generic IMD Monitor - IMD Seeder (D1-GNIMD)

Business Objects	Available Algorithms
D1-IMDSeeder	DM_IMD (IMD Monitor - Standard AutoTransition)

6.0 Request to Remove

See **MDM.Upload Device Measurements Page 5** on page 2-6 for the business process diagram associated with this activity.

Actor/Role: MDM Authorized User

Description: MDM Authorized User requests to remove IMD record using Initial Measurement page

Business Objects
Initial Load IMD (Interval)
Initial Load IMD (Scalar)
Manual IMD (Inteval)
Manual IMD (Scalar)

6.1 Update IMD to 'Remove' State

See **MDM.Upload Device Measurements Page 5** on page 2-6 for the business process diagram associated with this activity.

Actor/Role: MDM

Description: MDM updates the IMD to 'Remove' state.

Business Objects	Available Algorithms
Initial Load IMD (Interval)	F1-AT-RQJ (Transition to Default Next Status)
Initial Load IMD (Scalar)	
Manual IMD (Inteval)	
Manual IMD (Scalar)	

6.2 Request to Perform Additional Mapping

See **MDM.Upload Device Measurements Page 5** on page 2-6 for the business process diagram associated with this activity.

Actor/Role: MDM

Description: If business process requires to perform Additional Mapping, the MDM Authorized User requests to perform additional mapping using Initial Measurement page.

Business Objects

Initial Load IMD (Interval)
Initial Load IMD (Scalar)

6.3 Update IMD to 'Additional Mapping' State and Continue Processing

See **MDM.Upload Device Measurements Page 5** on page 2-6 for the business process diagram associated with this activity.

Actor/Role: MDM

Description: MDM transitions the IMD to 'Additional Mapping' state and initiates re-processing steps associated with additional mapping.

Business Objects

Initial Load IMD (Interval)
Initial Load IMD (Scalar)

Available Algorithms

F1-AT-RQJ (Transition to
Default Next Status)

6.4 Evaluate Criteria to Run Automated Retry Process

See **MDM.Upload Device Measurements Page 5** on page 2-6 for the business process diagram associated with this activity.

Group: Automated Retry Process

Actor/Role: MDM

Description: This task is the first task of an automated retry process. Application determines necessity to re-initiate:

- additional mapping for IMDs in "Additional mapping Error" state based on one or more specific criteria (e.g. number of errors to be processed before run terminates)
- VEE ready processing for IMDs in VEE Ready Error " state based on one of more specific criteria (e.g. number of errors to be processed before run terminates)

Customizable process

D1-IMD - IMD Monitor - Physical Devices

Business Objects	Available Algorithms
Initial Load IMD (Interval) Initial Load IMD (Scalar)	D1-IMD-RETRY- Retry Initial Measurement Data Processing

6.5 Identify IMD in 'Mapping Error' State

See **MDM.Upload Device Measurements Page 5** on page 2-6 for the business process diagram associated with this activity.

Group: Automated Retry Process

Actor/Role: MDM

Description: Application identifies IMD record in 'Mapping Error'.

Customizable process

D1-IMD - IMD Monitor - Physical Devices

Business Objects	Available Algorithms
Initial Load IMD (Interval) Initial Load IMD (Scalar)	D1-IMD-RETRY- Retry Initial Measurement Data Processing

6.6 Update IMD to 'VEE Ready' State and Continue Processing

See **MDM.Upload Device Measurements Page 5** on page 2-6 for the business process diagram associated with this activity.

Actor/Role: MDM

Description: MDM transition the IMD in an 'Error' state to 'VEE Ready' and initiates re-processing.

Customizable process

D1-IMD - IMD Monitor - Physical Devices

Business Objects	Available Algorithms
Initial Load IMD (Interval) Initial Load IMD (Scalar)	F1-AT-RQJ (Transition to Default Next Status)
Manual IMD (Inteval) Manual IMD (Scalar)	D1-IMD-RETRY (Retry Initial Measurement Data Processing)

6.7 Identify IMD in 'Error' State

See **MDM.Upload Device Measurements Page 5** on page 2-6 for the business process diagram associated with this activity.

Group: Automated Retry Process

Actor/Role: MDM

Description: Application identifies IMD record in 'Error' state and initiates re-processing.

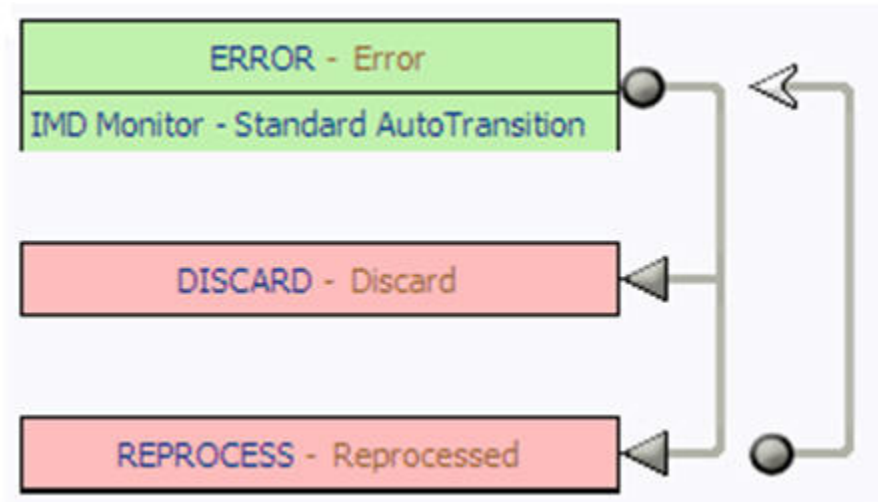
Customizable process

D1-IMD - IMD Monitor - Physical Devices

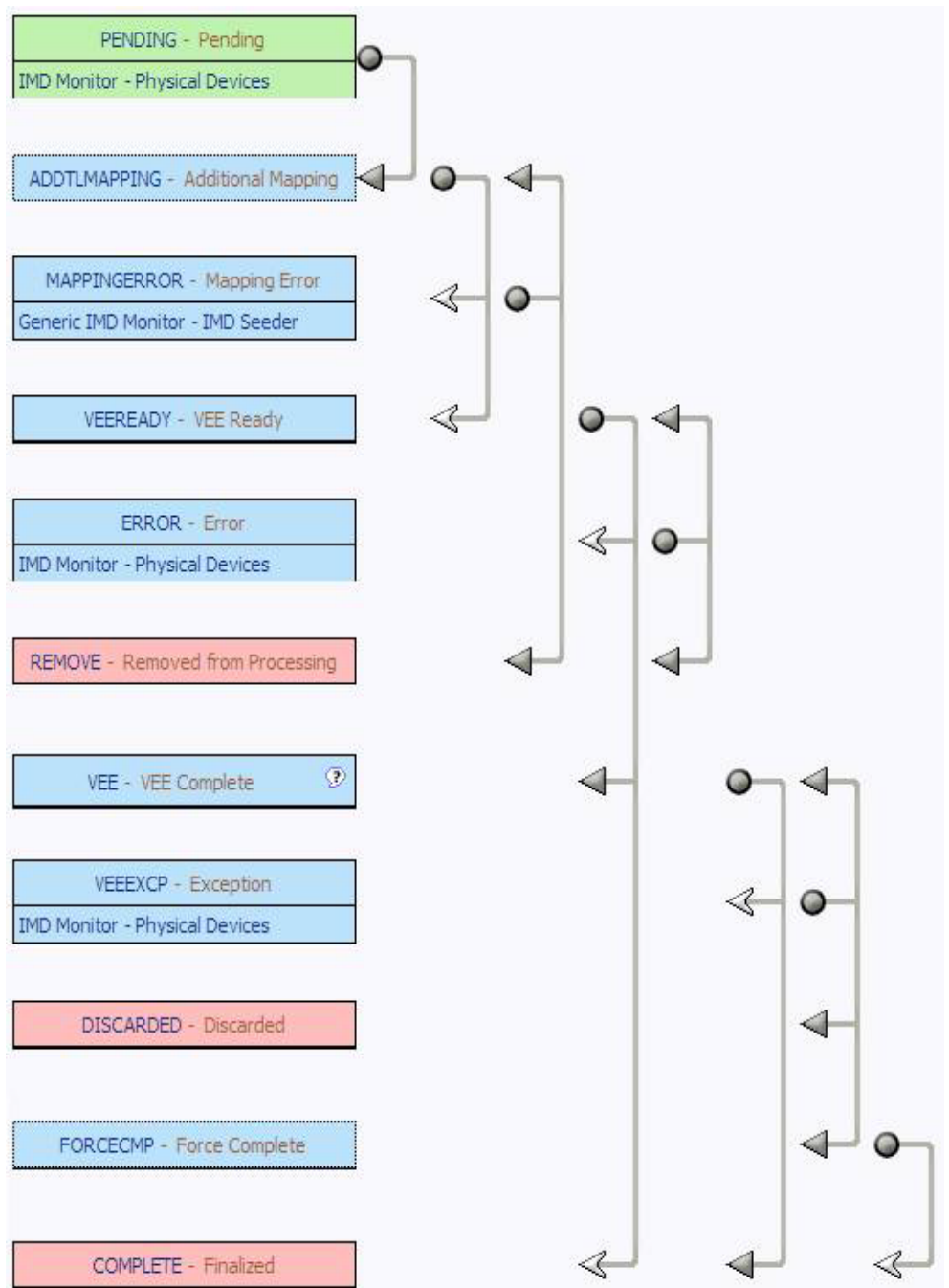
Business Objects	Available Algorithms
Initial Load IMD (Interval)	D1-IMD-RETRY- Retry Initial Measurement Data Processing
Initial Load IMD (Scalar)	
Manual IMD (Inteval)	
Manual IMD (Scalar)	

Business Objects Lifecycle

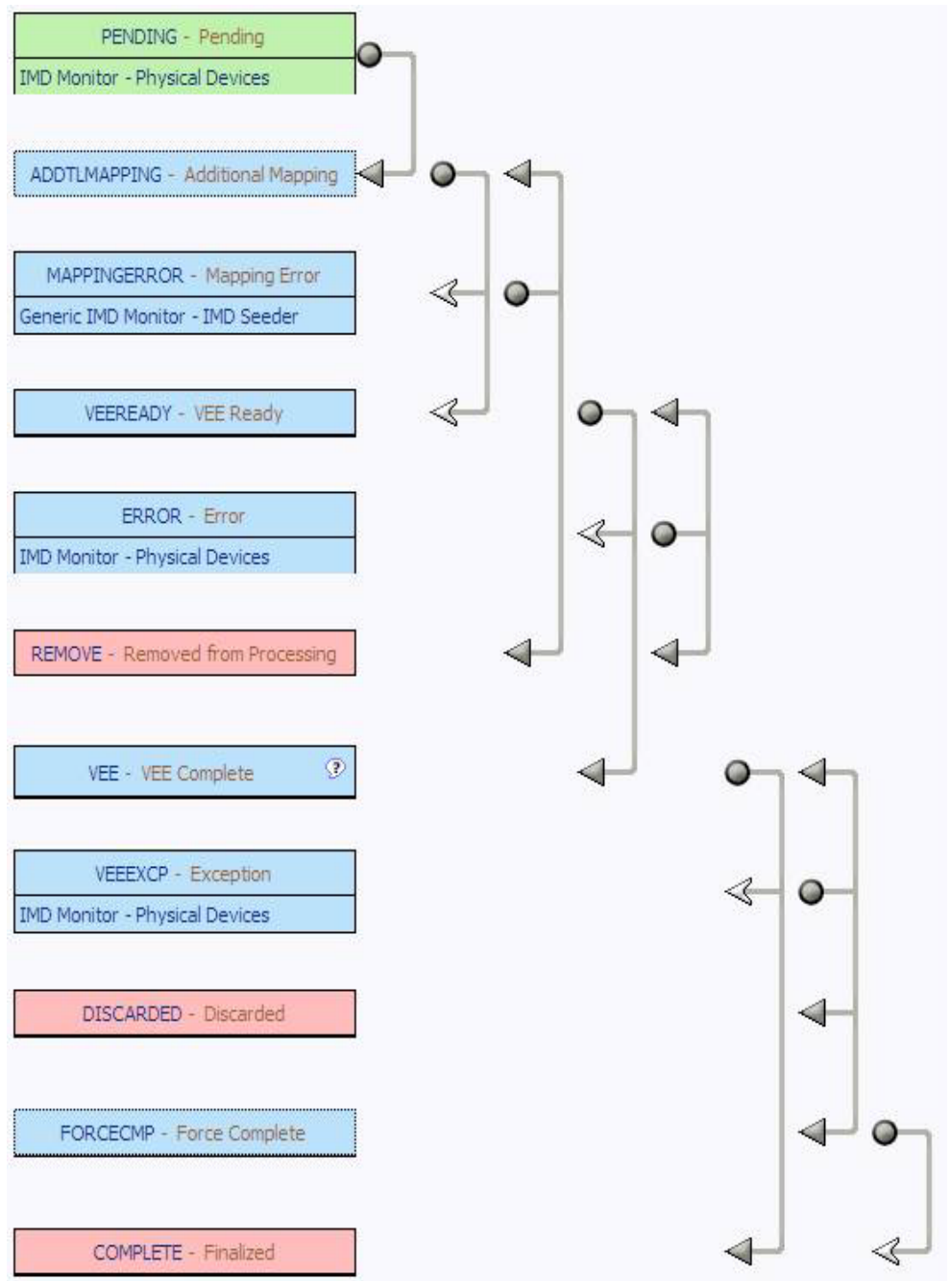
D1-IMDSeeder



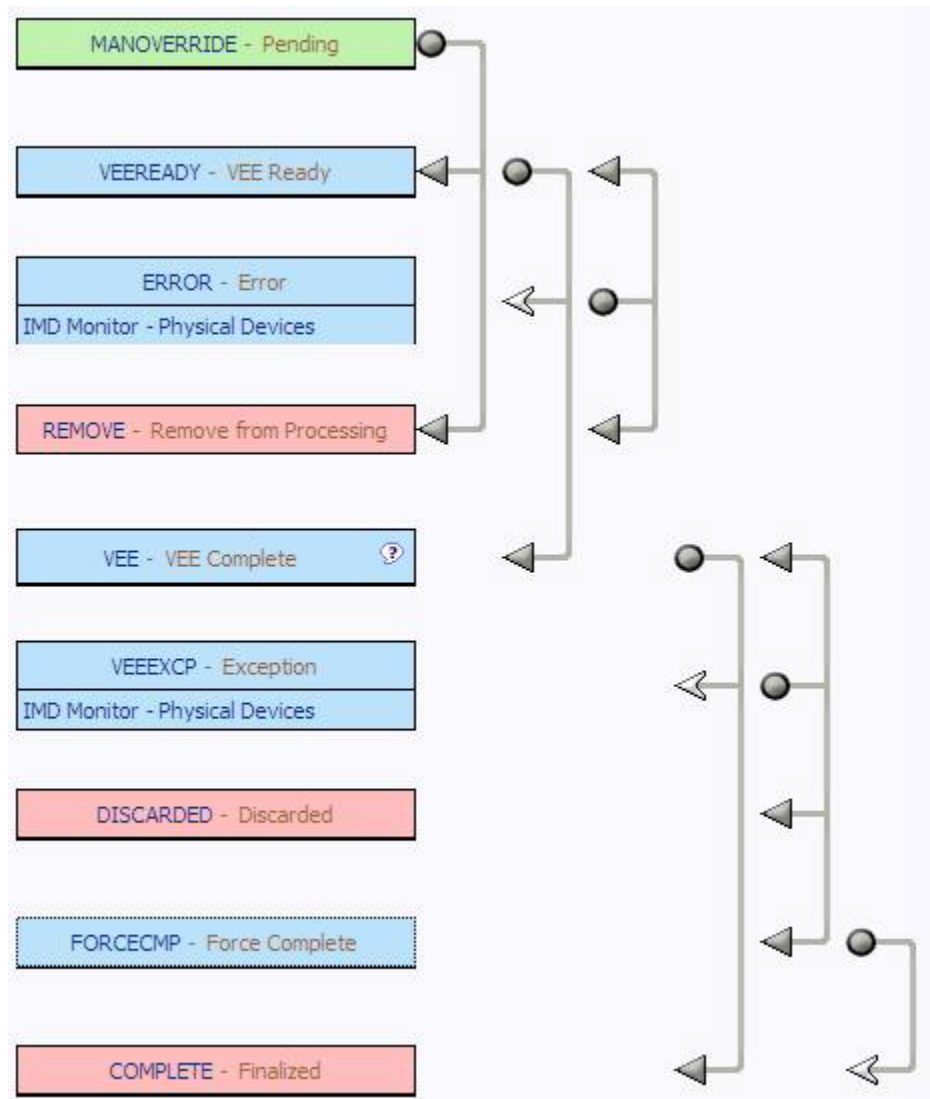
Initial Load IMD (Interval)



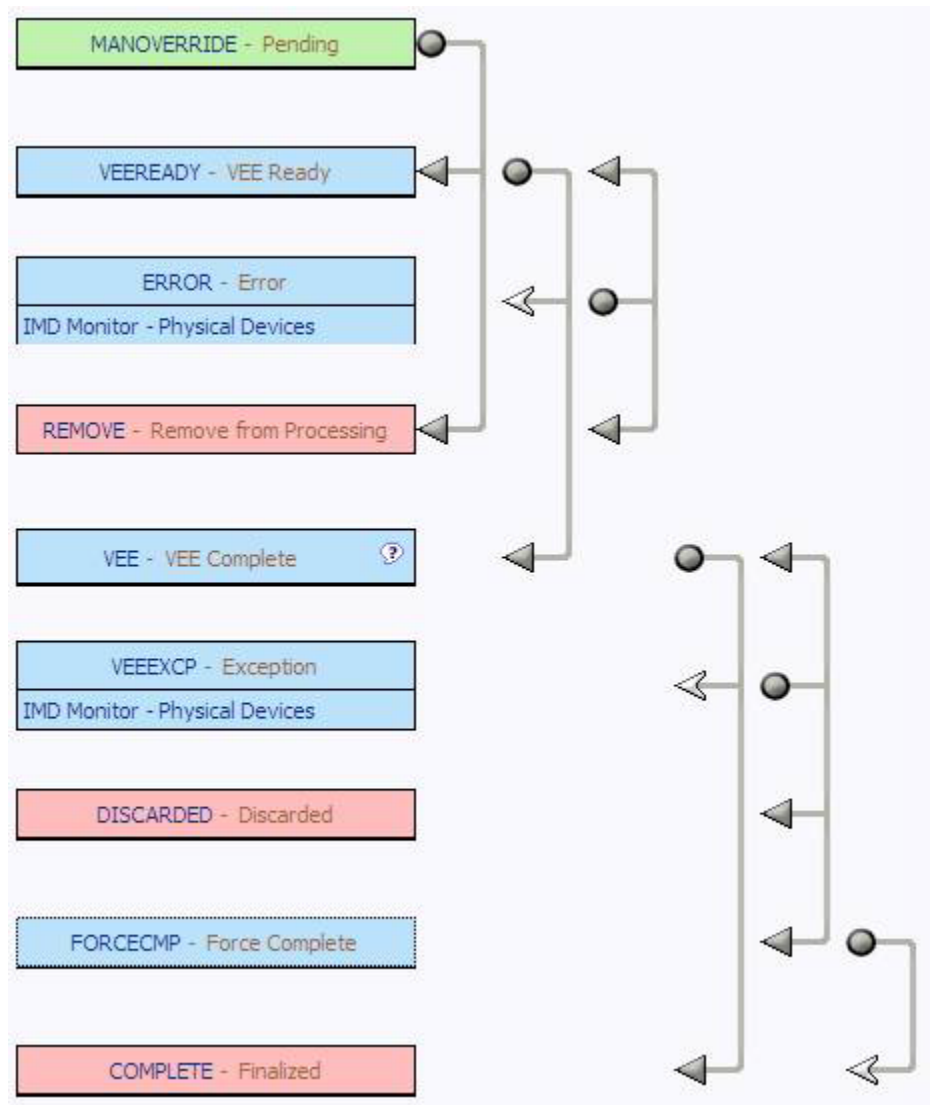
Initial Load IMD (Scalar)



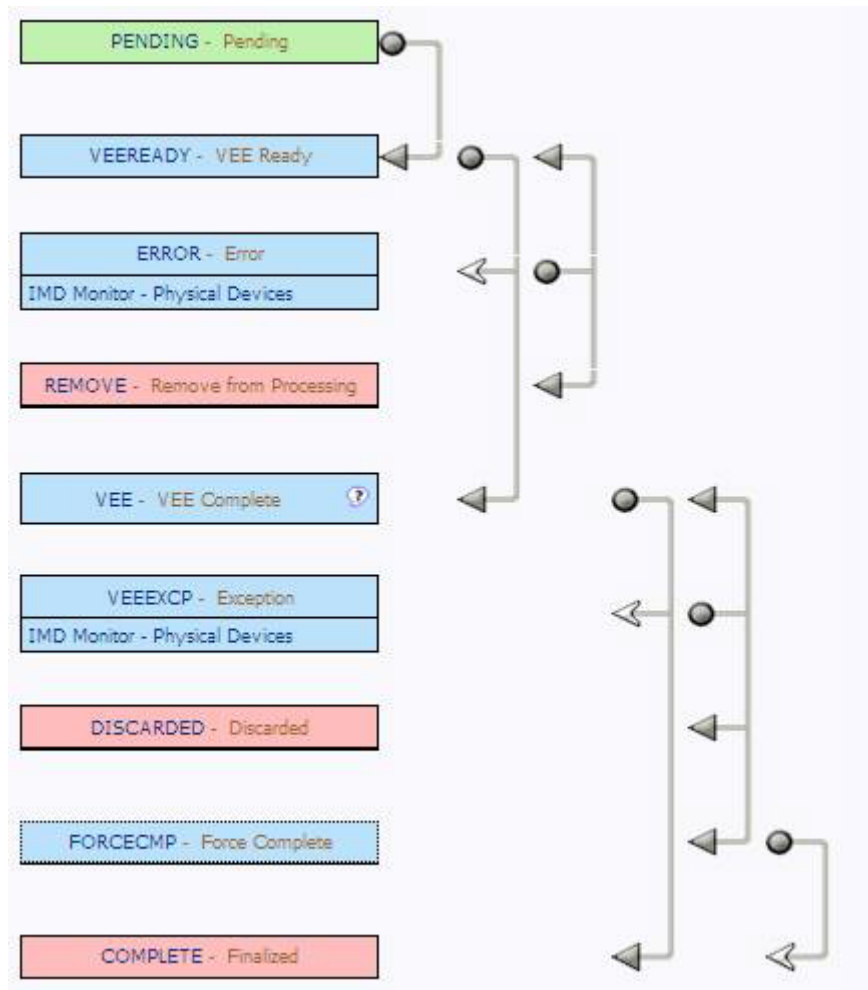
Manual IMD (Inteval)



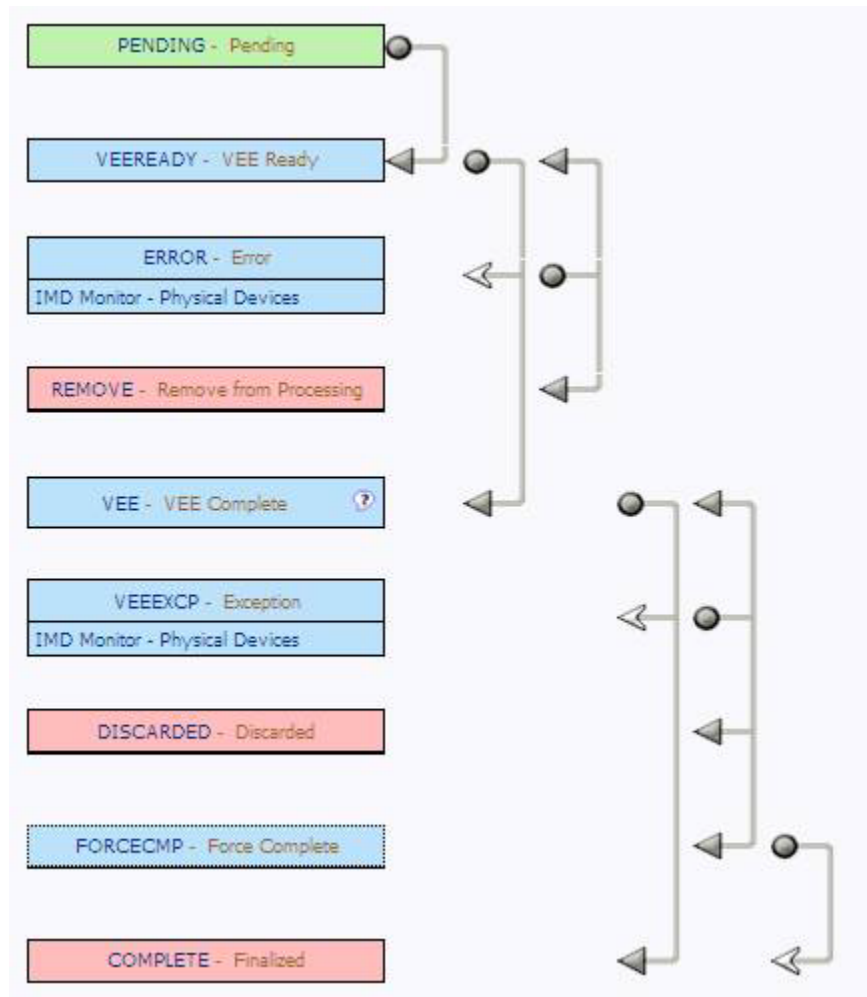
Manual IMD (Scalar)



Estimation IMD (Interval)



Estimation IMD (Scalar)



Related Training

The following User Productivity Kit (UPK) modules provide training related to this business process:

- Oracle Utilities UPK for Meter Data Management Administrative Setup
- Oracle Utilities UPK for Meter Data Management User Tasks
- Oracle Utilities UPK for Meter Data Management VEE and Usage Rules
- Oracle Utilities UPK for Meter Data Management Working with Measurement Data