
MSATS 46.98 Technical Specification

5.02 August 2021

Release series: MSATSCS291021 & 5MSMETERINGJUL2021

Important Notice

PURPOSE & AUDIENCE

This document describes the technical changes required to participant's systems for the 5MS Meter Datastream (Release). The Australian Energy Market Operator (AEMO) provides this information as a service targeting business analysts and IT staff in participant organisations. It provides guidance about the changes to their Market Management Systems under the National Electricity Rules (Rules), as at the date of publication.

HOW TO USE THIS DOCUMENT

- This document is written in plain language for easy reading. Where there is a discrepancy between the Rules and information or a term in this document, the Rules take precedence.
- If you have questions about the business aspects of these changes, please see Consultations on [AEMO's website](#).
- The references listed throughout this document are primary resources and take precedence over this document.
- **Text in this format** is a link to related information.
- **Text in this format**, indicates a reference to a document. Unless otherwise stated, you can find resources mentioned in this guide on [AEMO's website](#).
- **Text in this format** is an action to perform in the MSATS Web Portal.
- Glossary Terms are capitalised and have the meanings listed against them in the **Guide to MSATS and B2B Terms** or Glossary.
- Italicised terms are defined in the Rules. Any rules terms not in this format still have the same meaning.

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VERSION HISTORY

5.02 See Changes in this version on page 10.

DOCUMENTS MADE OBSOLETE

The release of this document changes only the version of MSATS 46.98 Technical Specification.

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FEEDBACK

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1. Introduction

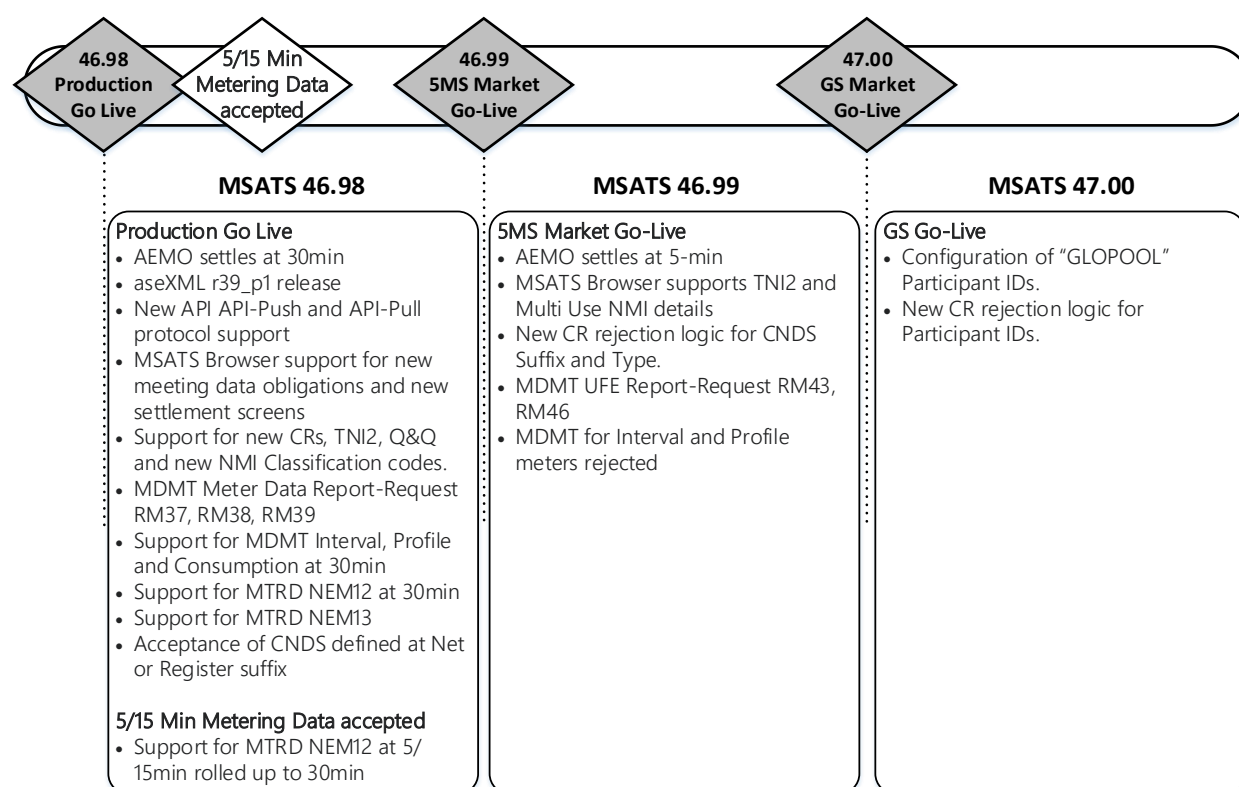
This MSATS 46.98 Technical Specification (Release) describes the projects planned by AEMO from a participant perspective and includes changes related to participants' IT systems.

1.1 Projects

1.1.1 5MS retail

The 5MS retail project has 3 separate MSATS releases:

1. MSATS 46.98 Technical Specification (this document), covers the go-live of the MDM platform ahead of 5MS market start. For more details, see MSATS 46.98 5MS functionalities on page 8.
2. MSATS 46.99 Technical Specification covers the 5MS market start where AEMO settles the market at 5-minute intervals using settlements by difference and begins reporting on UFE.
3. MSATS 47.00 Technical Specification covers the Global Settlement go-live rule change.



For 5MS project details, see <https://aemo.com.au/initiatives/major-programs/nem-five-minute-settlement-program-and-global-settlement>).

Participants can discuss the 5MS changes in this version in upcoming Industry Engagement sessions. For SWG meeting dates, see the 5MS Calendar: <https://aemo.com.au/initiatives/major-programs/nem-five-minute-Settlement-program-and-global-Settlement>.

MSATS 46.98 5MS functionalities

The 5MS MSATS 46.98 functionalities in this release are:

Settlements	AEMO settles the Market by difference at 30-minute	
B2M Schema	Release of r39_p1 schema. Participants who stay on r35 cannot access new reporting features	
Message Protocols	New B2M via API message patterns (API-Push, API-Pull) available for participants looking to transition from FTP	
MSATS Browser	Metering Data Screen: support for a register level view of metering data. Interfaces associated with the Settlement Data menu are redesigned with the functionality mostly unchanged	
Standing Data and CRs	Standing data and CR support for TNI2, Quality and Quantity levels, new NMI Classification codes, and new Datastream Type (MITC)	
Reports	Participants on the r39_p1 schema can request new reports RM37, RM38, RM39 Participants on the r35 schema can request existing reports but do not receive the X of Y message functionality assisting with multiple message results management	
Transaction Types	MTRD	MDMT
5- minute Interval Readings	From 5/15 Min Metering Data accepted date AEMO aggregates 5-minute reads to 30 minutes	No
15-minute Interval Readings	From 5/15 Min Metering Data accepted date AEMO aggregates 15-minute reads to 30 minutes	No
30-minute Interval Readings	Yes	Yes

Accumulation Readings	Yes	Yes
CNDS Data Streams for Interval Metering	Net Suffix OR Register Suffix	Net Suffix
CNDS Data Streams for Accumulation Metering	Suffix for Consumption Energy Data	Suffix for Consumption Energy Data

1.1.2 NEM customer switching

The 5MS project releases the aseXML schema r39_p1 in this MSATS Release but the changes supporting NEM Customer Switching do not become effective until the MSATS 46.99 Release. For details, see Customer switching B2M schema changes on page 36.

For more details about changes to participants' systems for the Customer Switching project, see [MSATS 46.99 Technical Specification](#).

For details about the project, see [NEM Customer Switching Consultation](#).

1.1.3 Wholesale Demand Response

The Wholesale Demand Response (WDR) project allows consumers to sell demand response in the wholesale market at any time, most likely at times of high electricity prices and electricity supply scarcity either directly or through specialist aggregators. It introduces a low-cost mechanism for transparently engaging the demand side in central dispatch.

The Wholesale Demand Response project for Retail Electricity mainly requires the creation of a Demand Response Service Provider participant role in MSATS. Other changes to MSATS as an extension of the new role creation process.

Demand Response Service Providers (DRSPs) will classify and aggregate demand response capability of large market loads for dispatch through NEM's standard bidding and scheduling processes. The DRSPs will receive payment for the dispatched response measured in MWh against a baseline estimate at the electricity spot price.

For more information, see Wholesale Demand Response MSATS Updates.

1.2 Status

Version	Status
5.02	This technical specification adds updates to MSATS as a part of the Wholesale Demand Response (WDR) project. Participants need to review the changes and send feedback to SupportHub@aemo.com.au .
4.00	This technical specification presents the system design at the time of publication. It may change as participants provide feedback and test in the staging environment. Please send feedback to 5ms@aemo.com.au or SupportHub@aemo.com.au .
3.00	Participants can commence their system builds but changes may still occur while participants are testing in the staging environment and providing feedback
2.00	Participants can commence their system builds but changes may still occur while participants are testing in the staging environment and providing feedback
1.00	Participants can commence their system builds but changes are still imminent due to participant feedback
0.17	For review only
0.12	For review only

1.3 Version numbers

Incremental version numbers such as 1.01, 2.01 and so on mean there is a minor change to the technical specification.

Major version numbers such as 1.00, 2.00 means there are substantial changes to the technical specification. Participants must carefully review these changes, detailed below.

1.4 Changes in this version

AEMO releases new versions of this document as the technical requirements are streamlined.

Adds clarification in the Reports section of the Wholesale Demand Response MSATS Updates chapter – this report is internal-only and not available to be participants. Sorry for the inconvenience.

1.5 Audience

AEMO provides this information as a service targeting business analysts and IT staff in participant organisations.

1. The primary audience is Meter Data Providers (MDPs) and API developers.
2. The secondary audience is Financial Responsible Market Participants (FRMPs) and Network Service Providers (DNSPs, TNSPs).

1.6 Objectives

The objectives of the 5MS Metering stream are:

1. Support Settlement ready Metering Data received from the Market.
2. Allow AEMO to receive and manage 5, 15, 30-minute and accumulation Meter Data Notifications in the MDFF Meter reads format when the 5MS rule becomes effective.
3. Allow AEMO to continue to receive and manage accumulation Meter Data Notifications in the MDMT Meter reads format.
4. Allow AEMO to identify when Metering Data is missing and requires MDM Substitution.
5. Minimise the impact to participant's systems and processes by aligning the existing processes participants use to generate Metering Data and manage exceptions.
6. To support UFE calculation, allowing AEMO to reliably and accurately obtain Settlement ready Metering Data at a register level.
7. Improve system and operational efficiencies across the Market by unifying the data formats across the industry:
 - a. The obligation on MDPs to maintain two separate interval data and exception management processes can result in inconsistencies in Metering Data versions.
 - b. It reduces new entrant costs and lowers barriers to entry.

1.7 Related resources

The following resources are related to this Release. They are primary resources and take precedence over this document.

Type	Detail
aseXML r39_p1 Schema	Consultation
NER Rule	Chapter 7: 10.1, 10.3, 15.5
MDM Procedures	Changes under clause 7.16.2 of the NER
MDM File Format and Load Process	Documents the changes to the MDM file load process
MSATS 46.99 Technical Specification	5MS and Customer Switching releases
MSATS 47.00 Technical Specification	Global Settlements (GS) – in progress

1.8 Schedule

For details, see the Program Timeline on [AEMO's website](#).

1.9 Approval to change

There is no approval or agreement to change required from participant change controllers for this Release as it is part of the AEMC's Five-Minute Settlement rule change.

Amendments to the Rules regarding 5-minute Settlements are published on the AEMC website: **National Electricity Amendment (Five-minute Settlement rule) 2017**
<https://www.aemc.gov.au/rule-changes/five-minute-Settlement>.

2. Milestones

2.1 Revised technical specification

Published as required with further details of the changes to assist IT staff with their own technical implementation.

2.2 Systems working group (SWG)

For details about the SWG, see <https://aemo.com.au/consultations/industry-forums-and-working-groups/list-of-industry-forums-and-working-groups/5ms-systems-working-group-swg>

For SWG meeting dates, see the 5MS Calendar: <https://aemo.com.au/initiatives/major-programs/nem-five-minute-Settlement-program-and-global-Settlement>.

2.3 5MS staging environment

Status	Details
In progress	<p>https://msats.5ms.staging.test.marketnet.net.au/msats</p> <p>AEMO implements components of the Release in stages. Participant access is not restricted; however, the data content or system availability is not guaranteed.</p> <p>For more details, see https://aemo.com.au/Electricity/National-Electricity-Market-NEM/Five-Minute-Settlement/Systems-Workstream/Staging-Environment</p>

2.4 aseXML schemas r39_p1

Details	Status
<p>Schema change submitted</p> <p>https://aemo.com.au/energy-systems/market-it-systems/asexml-standards/asexml-schema-releases</p>	In progress
ASWG review	Feb–Apr 2020
Final determination published	April 2020

AEMO development, testing, and UAT	Apr–Jul 2020
Pre-production release Schemas available from: https://aemo.com.au/energy-systems/market-it-systems/asexml-standards/asexml-schemas	Aug–Sep 2020
Production release	March 2021

2.5 Pre-production refresh

Status	Details
14 December 2020 – 21 December 2020	<p>Refresh of the pre-production system with data refreshed from the production system data of 11 December 2020</p> <p>An outage of up to five days can occur to the pre-production environment during this period. Participant access is not restricted, however, AEMO do not guarantee the pre-production data content or system availability. During the refresh, access to other AEMO systems such as EMMS, GSH, OPDMS, and STTM may be intermittently affected.</p>

2.6 Pre-production release

Status	Details
For details, see the Program Timeline on AEMO's website .	<p>Pre-production systems available to participants.</p> <p>The Readiness Working Group (RWG) provides these dates as they are confirmed.</p> <p>https://msats.preprod.nemnet.net.au/</p>

2.7 Production release

Status	Details
For details, see Program Timeline on AEMO's website .	Production systems available to participants. The Readiness Working Group (RWG), provides these dates as they are confirmed. https://msats.prod.nemnet.net.au/

3. Wholesale Demand Response MSATS Updates

The Wholesale Demand Response project for Retail Electricity mainly requires the creation of a Demand Response Service Provider participant role in MSATS. Other changes to MSATS as an extension of the new role creation process.

3.1 New role: Demand Response Service Provider

For Wholesale Demand Response Mechanism (WDRM) project, there is a new role in MSATS for Demand Response Service Provider (DRSP). This DRSP role is for participants with existing roles of FRMP, LNSP, RP and NEMM.

- The DRSP roles are enabled so they can access B2B.
- The DRSP role is discoverable using NMI discovery.
- The DRSP role can access standing data.
- The DRSP role can receive notifications for specific CRs.

3.2 Participant IDs

As a part of the participant registration process:

- A participant registered as a DRSP is assigned a new participant ID.
- A new participant ID named NOWDRU is registered as a dummy DRSP participant. MSATS does not allow for roles to be dropped from NMIs, so if the DRSP participant must be dropped, it will be replaced by the NOWDRU participant.

3.3 Reports

The DRSP variant of the RM29 report mentioned in the previous version of this technical specification is internal only and not delivered to participants. Sorry for any inconvenience.

4. Transition

For details, see [SMS Readiness Working Group](#) on AEMO's website.

The transition challenge is moving from MDMF to MDFF and ensuring Settlement ready Interval Metering Data is obtained reliably and accurately. AEMO recognises the challenges MDPs may have aligning their Metering Data delivery processes for Interval Metering Data reads.

To support MDP transition, AEMO introduces MDM functionality to identify Settlement ready Metering Data using Datastreams defined in the CNDS and registers in the MDFF NEM12 200 record. This functionality is an interim solution only, as AEMO is reliant on the quality of the MDMDataStreamIdentifier, NMIConfiguration and the NMISuffix within the MDFF file itself to construct net data.

4.1 Metering data file format transition

This section explains how MDPs transition from supplying 30-minute Settlements Meter data to supplying 5- and 15-minute Settlements Meter data for 46.98.

4.1.1 Prior to MDFF acceptance go-live 46.98

Table 1 describes what Metering Data MDMT MeterDataNotifications for Market Settlements support and what Datastreams participants can define before MDFF Acceptance go-live.

Area	MDMT Transaction Type
5- minute Interval Readings	✘
15-minute Interval Readings	✘
30-minute Interval Readings	✓
Accumulation Readings	✓
CNDS Datastreams for Interval Metering	Net Suffix AEMO Identifies Settlement ready Metering Data using Datastreams defined in CNDS

CNDS Datastreams for Accumulation Metering	Suffix for Consumption Energy Data AEMO Identifies Settlement ready Metering Data using Datastreams defined in CNDS
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4.2 Production implementation

Status	Details
1 week before the production release	AEMO implements components of the Release to production.

4.2.1 From MDFF acceptance go-live 46.98

This table describes what Metering Data MDMT and MTRD MeterDataNotifications for Market Settlements support and what Datastreams can be defined from MDFF Acceptance go-live

Data Type	MDMT Transaction Type	MTRD Transaction Type
5- minute Interval Readings	✘	✓ AEMO aggregates 5- and 15-minute reads to 30 minutes to support 30-minute Market Settlements.
15-minute Interval Readings	✘	✓ AEMO aggregates 5- and 15-minute reads to 30 minutes to support 30-minute Market Settlements.
30-minute Interval Readings	✓	✓
Accumulation Readings	✓	✓

CNDS Datastreams for Interval Metering	Net Suffix or register level Suffix AEMO Identifies Settlement ready Metering Data using Datastreams defined in CNDS	Net Suffix Initiators of MTRD must ensure that the MDFF NEM12 200 record MDMDataStreamIdentifier, NMIConfiguration and the NMISuffix is accurate. AEMO Identifies Settlement ready Metering Data using Datastreams defined in CNDS and the MDFF NEM12 200 record MDMDataStreamIdentifier, NMIConfiguration, NMISuffix and registers to derive a net. OR Register Suffix AEMO Identifies Settlement ready Metering Data using Datastreams defined in CNDS
CNDS Datastreams for Accumulation Metering	Suffix for Consumption Energy Data AEMO Identifies Settlement ready Metering Data using Datastreams defined in CNDS	Suffix for Consumption Energy Data AEMO Identifies Settlement ready Metering Data using Datastreams defined in CNDS

4.2.2 From 5MS Rule Date 46.99

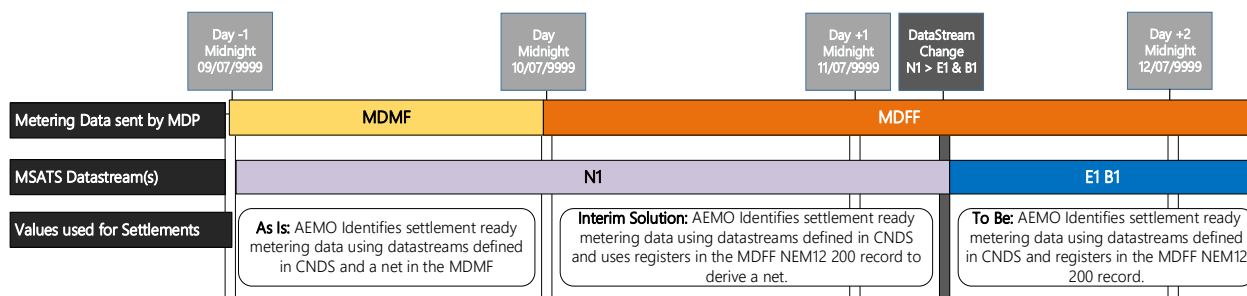
This table describes the Metering Data MDMT and MTRD Meter Data Notifications for Market Settlements support and which Datastreams can be defined from the 5MS Rule Date MSATS release 46.99.

Data Type	MDMT Transaction Type	MTRD Transaction Type
5- minute Interval Readings	✘	✓
15-minute Interval Readings	✘	✓ AEMO disaggregates received 15- and 30-minute reads to 5-minute resolution for Market Settlements

30-minute Interval Readings	<p>✘</p> <p>AEMO rejects 30-minute interval reads for Settlement dates from the 5MS Rule Date.</p> <p>AEMO accepts retrospective 30-minute interval reads for Settlement dates prior to when the 5MS rule becomes effective</p>	<p>✓</p> <p>AEMO disaggregates received 15- and 30-minute reads to 5-minute resolution for Market Settlements</p>
Accumulation Readings	✓	✓
CNDS Datastreams for Interval Metering	n/a	<p>Net Suffix</p> <p>No new net suffixes Datastreams are to be defined</p> <p>For net suffix Datastreams defined prior to the 5MS effective rule date, AEMO continues to identify Settlement ready Metering Data using Datastreams defined in CNDS and NEM12 200 record MDMDataStreamIdentifier, NMISuffix and registers in the MDFF to derive a net.</p> <p>OR</p> <p>Register Suffix</p> <p>AEMO Identifies Settlement ready Metering Data using Datastreams defined in CNDS</p>
CNDS Datastreams for Accumulation Metering	<p>Suffix for Consumption Energy Data</p> <p>AEMO Identifies Settlement ready Metering Data using Datastreams defined in CNDS</p>	<p>Suffix for Consumption Energy Data</p> <p>AEMO Identifies Settlement ready Metering Data using Datastreams defined in CNDS</p>

4.2.3 Calculation of net Datastream from MDMDataStreamIdentifier

This diagram and table describe the MDM functionality to identify Settlement ready Metering Data using Datastreams defined in the CNDS and registers in the MDFF NEM12 200 record.



Interim Solution	<p>N1 is registered in the CNDS.</p> <p>MDFF file is sent to AEMO containing CSVIntervalData for Period1 with the following Metering Data:</p> <p>A read with MDMDataStreamIdentifier = N1 and a NMISuffix = B1.</p> <p>A second read with MDMDataStreamIdentifier = N1 and a NMISuffix = E1.</p> <p>Two reactive load reads for K1 and Q1 where MDMDataStreamIdentifier is NULL.</p> <p>A sign is applied to the loaded register level reads based on the first character of the NMISuffix.</p> <p>'E1' for Period1 = (+) 10.000</p> <p>'B1' for Period1 = (-) 2.000</p> <p>A 5th N1 read is created.</p> <p>N1 is constructed from E1 and B1, reads that share the same NMI, IntervalDate and MDMDataStreamIdentifier:</p> <p>'E1' - 'B1' = 'N1'.</p> <p>(+) 10.000 + (-) 2.000 = (+) 8.000</p> <p>At Settlements the CNDS registered Datastream 'N1' is assessed.</p> <p>As 'N1' exists for Period1, 'N1' is read from the loaded Meter data.</p> <p>(+) 8.000 is used as the Settlement actual ((+) 10.000 + (-) 2.000 = (+) 8.000)</p>
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5MS Rule Date	<p>MDFF file is sent to AEMO containing CSVIntervalData for Period1 with the following reads:</p> <p>A E1 read</p> <p>A B1 read</p> <p>Two reactive load reads for K1 and Q1 where MDMDataStreamIdentifier is NULL.</p> <p>The reads in the CSVIntervalData are loaded as E1, B1, K1, Q1.</p> <p>A sign is applied to the loaded register level reads based on the first character of the NMISuffix.</p> <p>'E1' for Period1 = (+) 10.000</p> <p>'B1' for Period1 = (-) 2.000</p> <p>At Settlements the CNDS registered Datastream 'E1' and 'B1' are assessed.</p> <p>(+) 8.000 is used as the Settlement value ((+) 10.000 + (-) 2.000 = (+) 8.000)</p>
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4.3 How to transition for TUOS data

4.3.1 MDFF acceptance go-live

1. Send MDFF data to NEMMCO (not VPXP). This is the same file MDPs are currently sending to B2B Participants.

4.3.2 VIC TUOS Metering data with an active NMI Datastream Suffix of Nx

MDPs must follow these steps to transition VIC TUOS Metering Data for 5-minute Settlements:

1. Set the NMI Datastream Suffix Nx to inactive.
2. Stop sending MDMF files.
3. Set Datastream types for NMI Datastream suffix's types Ex and Bx to I.
4. Ensure all other Datastream Suffix's (Cx, Fx, Kx, Lx, Qx, Rx) are set to NMI Datastream Type N.
5. Change the Metering resolution from 15-minute to 5-minute.

4.3.3 VIC TUOS Metering data with NO active NMI Datastream Suffix of Nx

MDPs must follow these steps to transition VIC TUOS Metering Data for 5-minute Settlements:

1. Ensure all other Datastream Suffix's (B_x, C_x, E_x, F_x, K_x, L_x, Q_x, R_x) are set to NMI Datastream Type N.

2. Change the Metering resolution from 15-minute to 5-minute.

5. aseXML Schema r39_p1

The 5-Minute Settlement (5MS) Retail stream releases the B2M aseXML schema r39_p1 in this Release.

This schema upgrade is implemented independently and prior to the Customer Switching project. Changes for Customer Switching are for Retailers to align customer transfer dates to prior read dates (PRD). To obtain the PRD, participants complete a NMI Discovery 2 request.

For details about the Customer Switching project, see **MSATS 46.99 Release Schedule and Technical Specification – August 2021**.

For details about the aseXML schema release process, see [aseXML Schema Releases](#).

For details about changing your schema version in MSATS, see Participant aseXML schema on page 69.

To obtain **schemas, guidelines, whitepapers** etc, see [aseXML Standards](#) on AEMO's website>IT Systems.

5.1 Rational

The current aseXML schema version changes to r39_p1 for the following reasons:

1. To support new reports for participant reconciliations.
2. To provide the complete set of report results without the need for participants to request results to support file sizes. This enhancement removes the need to populate the last sequence number for an RM report request. The field is set to optional to enable backward compatibility.
3. To ensure participants receive all messages an x of y message numbering is introduced. Where x is the message number and y is the message total.
4. To assist LNSPs with the requirement to store a second TNI for cross-boundary NMIs.
5. To support Customer Switching changes. Release schedule and technical specification published soon.

5.2 5MS B2M schema change summary

Filename	Change	Version types updated	Affected transactions
aseXML_r39_p1.xsd	Version of schema changes from r35 to r39_p1	n/a	n/a
CATSReports_r39_p1.xsd	Update last sequence number element to optional. For consistency across reports and readiness for proposed changes to CATS reports.	CATSChangeManagementReportParameters CATSMasterReportParameters CATSNMIDiscoveryReportParameters CATSSnapshotReportParameters	ReportRequest ReportResponse
ElectricityMasterStandingData_r39_p1.xsd	Addition of new Second TNI number in NMI Standing Data to avoid creating two NMIs for a cross-boundary Connection Point AEMO populates the M value when the NSP2 value is added	ElectricityNMIMasterGroup ElectricityMasterStandingData	MeterDataVerifyRequest MeterDataMissingNotification NMIStandingDataResponse NMIDiscoveryResponse CATSChangeRequest CATSNotification CATSDataRequest ReplicationNotification ReportResponse
Events_r39_p1.xsd	Registration of r39_p1 release	n/a	n/a
MDMTReports_r39_p1.xsd	Includes RM Reports: RM37, RM38, RM39, RM43, RM46	MDMTSettlementDate Group	ReportRequest ReportResponse

	Update last sequence number element to optional as no longer required	MDMTSettlementCase Group MDMTMSPLoadAggregationErrorReportParameters MDMTPPSReportParameters MDMTHighPriorityMissingDataReportParameters MDMTDataStreamMissingDataReportParameters MDMTMismatchDataReportParameters UFEFactorValuesByLocalAreaReportParameters UFEValidationReportParameters	
Reports_r39_p1.xsd	Addition of new x of y message block for identification of missing files	CATSReports MDMDTReports	ReportResponse

5.2.1 aseXml_r39_p1.xsd

Change: Replace r35 with r39_p1.

```
<xsd:schema xmlns="urn:aseXML:r39_p1"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
targetNamespace="urn:aseXML:r39_p1" version="r39_p1"
xsi:schemaLocation="urn:aseXML:r39_p1 aseXML_r39_p1.xsd">
<xsd:include schemaLocation="MDMTReports_r39_p1.xsd">
```

5.2.2 CATSReports_r39_p1.xsd

Change: Make LastSequenceNumber optional.

```
<xsd:complexType name="CATSChangeManagementReportParameters">
<xsd:annotation>
<xsd:documentation>
Purpose - Parameters for a CATS Change Management Report
```

```

Report Name - ChangeManagement
MSATS Report - C3
</xsd:documentation>
</xsd:annotation>
<xsd:complexContent>
<xsd:extension base="BaseReportParameters">
<xsd:sequence>
<xsd:element name="FromDate" type="xsd:date"/>
<xsd:element name="ToDate" type="xsd:date"/>
<xsd:element name="AsAtDate" type="xsd:dateTime"/>
<xsd:element name="LastSequenceNumber" type="ReplicationSequenceNumber"
minOccurs="0"/>
<xsd:choice>
<xsd:element name="NMI" type="NMI"/>
<xsd:sequence>
<xsd:element name="NMIClassificationCode"
type="NMIClassificationCode"/>
<xsd:element name="JurisdictionCode" type="JurisdictionCode"/>
</xsd:sequence>
</xsd:choice>
<xsd:element name="ExcludeParticipant" type="YesNo" minOccurs="0"/>
<xsd:element name="Participant" type="PartyIdentifier"/>
<xsd:element name="ExcludeRole" type="YesNo" minOccurs="0"/>
<xsd:element name="Role" type="RoleIdentifier" minOccurs="0"/>
</xsd:sequence>
</xsd:extension>
</xsd:complexContent>
</xsd:complexType>
<xsd:complexType name="CATSMasterReportParameters">
<xsd:annotation>
<xsd:documentation>
Purpose - Parameters for a CATS Master Report
Report Name - Master
MSATS Report - C4
</xsd:documentation>
</xsd:annotation>
<xsd:complexContent>
<xsd:extension base="BaseReportParameters">
<xsd:sequence>
<xsd:element name="FromDate" type="xsd:date"/>
<xsd:element name="ToDate" type="xsd:date"/>
<xsd:element name="AsAtDate" type="xsd:date"/>
<xsd:element name="LastSequenceNumber" type="ReplicationSequenceNumber"
minOccurs="0"/>
<xsd:choice>
<xsd:element name="NMI" type="NMI"/>
<xsd:sequence>
<xsd:element name="NMIClassificationCode"
type="NMIClassificationCode"/>
<xsd:element name="JurisdictionCode" type="JurisdictionCode"/>
</xsd:sequence>
</xsd:choice>
<xsd:element name="ExcludeParticipant" type="YesNo" minOccurs="0"/>
<xsd:element name="Participant" type="PartyIdentifier"/>
<xsd:element name="ExcludeRole" type="YesNo" minOccurs="0"/>
<xsd:element name="Role" type="RoleIdentifier"/>

```

```

<xsd:element name="ReportType">
  <xsd:simpleType>
    <xsd:restriction base="xsd:string">
      <xsd:enumeration value="Summary"/>
      <xsd:enumeration value="Detailed"/>
    </xsd:restriction>
  </xsd:simpleType>
</xsd:element>
</xsd:sequence>
</xsd:extension>
</xsd:complexContent>
</xsd:complexType>
<xsd:complexType name="CATSNMIDiscoveryReportParameters">
  <xsd:annotation>
    <xsd:documentation>
      Purpose - Parameters for a CATS NMI Discovery Report
      Report Name - NMIDiscovery
      MSATS Report - C6
      Detail - The NMI/Jurisdiction choice is ignored if a report type of
      Source and Content is selected. One of NMI/Jurisdiction should however
      be provided for a report type of Statistic.
    </xsd:documentation>
  </xsd:annotation>
  <xsd:complexContent>
    <xsd:extension base="BaseReportParameters">
      <xsd:sequence>
        <xsd:element name="FromDate" type="xsd:date"/>
        <xsd:element name="ToDate" type="xsd:date"/>
        <xsd:element name="LastSequenceNumber" type="ReplicationSequenceNumber"
          minOccurs="0"/>
        <xsd:choice minOccurs="0">
          <xsd:element name="NMI" type="NMI"/>
          <xsd:element name="JurisdictionCode" type="JurisdictionCode"/>
        </xsd:choice>
        <xsd:element name="Participant" type="PartyIdentifier"/>
        <xsd:element name="ReportType">
          <xsd:simpleType>
            <xsd:restriction base="xsd:string">
              <xsd:enumeration value="SourceContent"/>
              <xsd:enumeration value="Statistic"/>
            </xsd:restriction>
          </xsd:simpleType>
        </xsd:element>
      </xsd:sequence>
    </xsd:extension>
  </xsd:complexContent>
</xsd:complexType>
<xsd:complexType name="CATSSnapshotReportParameters">
  <xsd:annotation>
    <xsd:documentation>
      Purpose - Parameters for a CATS Snapshot Report. Report Name
      Snapshot MSATS Report
    </xsd:documentation>
  </xsd:annotation>
  <xsd:complexContent>
    <xsd:extension base="BaseReportParameters">

```

```

<xsd:sequence>
<xsd:element name="Participant" type="PartyIdentifier"/>
<xsd:element name="AsAtDateTime" type="xsd:dateTime"/>
<xsd:element name="Tables" type="Tables"/>
<xsd:element name="LastSequenceNumber" type="ReplicationSequenceNumber"
minOccurs="0"/>
</xsd:sequence>
</xsd:extension>
</xsd:complexContent>
</xsd:complexType>

```

5.2.3 ElectricityMasterStandingData_r39_p1.xsd

Change: Addition of new TransmissionNodeIdentifier2 element.

```

<xsd:group name="ElectricityNMIMasterGroup">
<xsd:annotation>
<xsd:documentation>
Purpose - Common NMI Master elements across Standing Data and Change
Requests
</xsd:documentation>
</xsd:annotation>
<xsd:sequence>
<xsd:element name="JurisdictionCode" type="JurisdictionCode"
nillable="true" minOccurs="0"/>
<xsd:element name="NMIClassificationCode" type="NMIClassificationCode"
nillable="true" minOccurs="0"/>
<xsd:element name="TransmissionNodeIdentifier"
type="TransmissionNodeIdentifier" nillable="true" minOccurs="0"/>
<xsd:element name="DistributionLossFactorCode"
type="DistributionLossFactorCode" nillable="true" minOccurs="0"/>
<xsd:element name="ParentEmbeddedNetworkIdentifier"
type="EmbeddedNetworkIdentifier" nillable="true" minOccurs="0"/>
<xsd:element name="ChildEmbeddedNetworkIdentifier"
type="EmbeddedNetworkIdentifier" nillable="true" minOccurs="0"/>
<xsd:element name="Address" type="AustralianPartialAddress"
nillable="true" minOccurs="0"/>
<xsd:element name="Aggregate" type="YesNo" nillable="true"
minOccurs="0"/>
<xsd:element name="Status" type="NMIStatusCode" nillable="true"
minOccurs="0"/>
<xsd:element name="FlatOrUnitType" type="AustralianFlatOrUnitType"
nillable="true" minOccurs="0"/>
<xsd:element name="FlatOrUnitNumber" type="AustralianFlatOrUnitNumber"
nillable="true" minOccurs="0"/>
<xsd:element name="FloorOrLevelType" type="AustralianFloorOrLevelType"
nillable="true" minOccurs="0"/>
<xsd:element name="FloorOrLevelNumber"
type="AustralianFloorOrLevelNumber" nillable="true" minOccurs="0"/>
<xsd:element name="BuildingOrPropertyName"
type="AustralianBuildingOrPropertyName" nillable="true" minOccurs="0"/>
<xsd:element name="BuildingOrPropertyName2"
type="AustralianBuildingOrPropertyName" nillable="true" minOccurs="0"/>

```

```

<xsd:element name="LocationDescriptor"
type="AustralianLocationDescriptor" nillable="true" minOccurs="0"/>
<xsd:element name="HouseNumber" type="AustralianHouseNumber"
nillable="true" minOccurs="0"/>
<xsd:element name="HouseNumberSuffix"
type="AustralianHouseNumberSuffix" nillable="true" minOccurs="0"/>
<xsd:element name="HouseNumber2" type="AustralianHouseNumber"
nillable="true" minOccurs="0"/>
<xsd:element name="HouseNumber2Suffix"
type="AustralianHouseNumberSuffix" nillable="true" minOccurs="0"/>
<xsd:element name="LotNumber" type="AustralianLotNumber"
nillable="true" minOccurs="0"/>
<xsd:element name="StreetName" type="AustralianStreetName"
nillable="true" minOccurs="0"/>
<xsd:element name="StreetType" type="AustralianStreetType"
nillable="true" minOccurs="0"/>
<xsd:element name="StreetSuffix" type="AustralianStreetSuffix"
nillable="true" minOccurs="0"/>
<xsd:element name="AddressLine1" type="AustralianAddressLine"
nillable="true" minOccurs="0"/>
<xsd:element name="AddressLine2" type="AustralianAddressLine"
nillable="true" minOccurs="0"/>
<xsd:element name="AddressLine3" type="AustralianAddressLine"
nillable="true" minOccurs="0"/>
<xsd:element name="SuburbOrPlaceOrLocality"
type="AustralianSuburbOrPlaceOrLocality" nillable="true"
minOccurs="0"/>
<xsd:element name="StateOrTerritory" type="AustralianStateOrTerritory"
nillable="true" minOccurs="0"/>
<xsd:element name="PostCode" type="AustralianPostCode" nillable="true"
minOccurs="0"/>
<xsd:element name="DeliveryPointIdentifier"
type="AustralianDeliveryPointIdentifier" nillable="true"
minOccurs="0"/>
<xsd:element name="DistanceFromSubstation"
type="DistanceFromSubstation" nillable="true" minOccurs="0"/>
<xsd:element name="VoltageType" type="VoltageType" nillable="true"
minOccurs="0"/>
<xsd:element name="PoleNumber" type="PoleNumber" nillable="true"
minOccurs="0"/>
<xsd:element name="AccessDetails" type="AccessDetail" nillable="true"
minOccurs="0"/>
<xsd:element name="FeederClass" type="FeederClass" nillable="true"
minOccurs="0"/>
<xsd:element name="CustomerClassificationCode"
type="EMSDCustomerClassificationCode" nillable="true" minOccurs="0"/>
<xsd:element name="CustomerThresholdCode"
type="EMSDCustomerThresholdCode" nillable="true" minOccurs="0"/>
<xsd:element name="TransmissionNodeIdentifier2"
type="TransmissionNodeIdentifier" nillable="true" minOccurs="0"/>
</xsd:sequence>
</xsd:group>
<xsd:complexType name="ElectricityMasterStandingData">
<xsd:annotation>
<xsd:documentation>

```

```

Purpose - container for non-repeating standing data associated with an
electricity NMI
</xsd:documentation>
</xsd:annotation>
<xsd:sequence>
<xsd:element name="JurisdictionCode" type="JurisdictionCode"
nillable="true" minOccurs="0"/>
<xsd:element name="NMIClassificationCode" type="NMIClassificationCode"
nillable="true" minOccurs="0"/>
<xsd:element name="TransmissionNodeIdentifier"
type="TransmissionNodeIdentifier" nillable="true" minOccurs="0"/>
<xsd:element name="DistributionLossFactorCode"
type="DistributionLossFactorCode" nillable="true" minOccurs="0"/>
<xsd:element name="ParentEmbeddedNetworkIdentifier"
type="EmbeddedNetworkIdentifier" nillable="true" minOccurs="0"/>
<xsd:element name="ChildEmbeddedNetworkIdentifier"
type="EmbeddedNetworkIdentifier" nillable="true" minOccurs="0"/>
<xsd:element name="Address" type="AustralianPartialAddress"
nillable="true" minOccurs="0"/>
<xsd:element name="Aggregate" type="YesNo" nillable="true"
minOccurs="0"/>
<xsd:element name="Status" type="NMIStatusCode" nillable="true"
minOccurs="0"/>
<xsd:element name="DistanceFromSubstation"
type="DistanceFromSubstation" nillable="true" minOccurs="0"/>
<xsd:element name="VoltageType" type="VoltageType" nillable="true"
minOccurs="0"/>
<xsd:element name="PoleNumber" type="PoleNumber" nillable="true"
minOccurs="0"/>
<xsd:element name="AccessDetails" type="AccessDetail" nillable="true"
minOccurs="0"/>
<xsd:element name="FeederClass" type="FeederClass" nillable="true"
minOccurs="0"/>
<xsd:element name="CustomerClassificationCode"
type="EMSDCustomerClassificationCode" nillable="true" minOccurs="0"/>
<xsd:element name="CustomerThresholdCode"
type="EMSDCustomerThresholdCode" nillable="true" minOccurs="0"/>
<xsd:element name="ControlEquipments" type="ControlEquipments"
nillable="true" minOccurs="0"/>
<xsd:element name="NetworkDevices" type="NetworkDevices"
nillable="true" minOccurs="0"/>
<xsd:element name="EnergisationStatus" type="EnergisationStatus"
nillable="true" minOccurs="0"/>
<xsd:element name="PrimaryVoltage" type="PrimaryVoltage"
nillable="true" minOccurs="0"/>
<xsd:element name="FromDate" type="xsd:date" minOccurs="0"/>
<xsd:element name="ToDate" type="xsd:date" minOccurs="0"/>
<xsd:element name="TransmissionNodeIdentifier2"
type="TransmissionNodeIdentifier" nillable="true" minOccurs="0"/>
</xsd:sequence>
</xsd:complexType>

```

5.2.4 Events_r39_p1.xsd

Change: Define new simple type, r39_p1.

```
<xsd:simpleType name="r39_p1">
  <xsd:annotation>
    <xsd:documentation>Purpose - Release r39_p1
    identifier.</xsd:documentation>
  </xsd:annotation>
  <xsd:restriction base="ReleaseIdentifier">
    <xsd:enumeration value="r39_p1"/>
  </xsd:restriction>
</xsd:simpleType>
```

5.2.5 MDMTReports_r39_p1.xsd

Change: Make LastSequenceNumber optional.

```
<xsd:group name="MDMTSettlementDateGroup">
  <xsd:annotation>
    <xsd:documentation>
    Purpose - Settlement Date Information Group
    </xsd:documentation>
  </xsd:annotation>
  <xsd:sequence>
    <xsd:element name="FromDate" type="xsd:date"/>
    <xsd:element name="ToDate" type="xsd:date"/>
    <xsd:element name="AsAtDate" type="xsd:dateTime"/>
    <xsd:element name="LastSequenceNumber" type="ReplicationSequenceNumber"
    minOccurs="0"/>
  </xsd:sequence>
</xsd:group>
<xsd:group name="MDMTSettlementCaseGroup">
  <xsd:annotation>
    <xsd:documentation>
    Purpose - Settlement Case Identifier plus date range Information Group
    </xsd:documentation>
  </xsd:annotation>
  <xsd:sequence>
    <xsd:element name="SettlementCase" type="MDMSSettlementCaseIdentifier"/>
    <xsd:element name="FromDate" type="xsd:date" minOccurs="0"/>
    <xsd:element name="ToDate" type="xsd:date" minOccurs="0"/>
    <xsd:element name="LastSequenceNumber" type="ReplicationSequenceNumber"
    minOccurs="0"/>
  </xsd:sequence>
</xsd:group>
<xsd:complexType name="MDMTMSPLoadAggregationErrorReportParameters">
  <xsd:annotation>
    <xsd:documentation>
```



```

Purpose - Parameter definition for a MSP Load Aggregation Error Report
Report Name - MSPLoadAggregationError
MSATS Report - RM10
</xsd:documentation>
</xsd:annotation>
<xsd:complexContent>
<xsd:extension base="BaseReportParameters">
<xsd:sequence>
<xsd:element name="SettlementCase" type="MDMSettlementCaseIdentifier"/>
<xsd:element name="LastSequenceNumber" type="ReplicationSequenceNumber"
minOccurs="0"/>
</xsd:sequence>
</xsd:extension>
</xsd:complexContent>
</xsd:complexType>
<xsd:complexType name="MDMTPPSReportParameters">
<xsd:annotation>
<xsd:documentation>
Purpose - Parameter definition for a PPS Report
Report Name - PPSMSATS Reports - RM20
</xsd:documentation>
</xsd:annotation>
<xsd:complexContent>
<xsd:extension base="BaseReportParameters">
<xsd:sequence>
<xsd:choice>
<xsd:element name="SettlementCase" type="MDMSettlementCaseIdentifier"/>
<xsd:element name="AsAtDate" type="xsd:dateTime"/>
</xsd:choice>
<xsd:element name="FromDate" type="xsd:date" minOccurs="0"/>
<xsd:element name="ToDate" type="xsd:date" minOccurs="0"/>
<xsd:element name="LastSequenceNumber" type="ReplicationSequenceNumber"
minOccurs="0"/>
<xsd:element name="ProfileName" type="ProfileName" minOccurs="0"/>
<xsd:element name="MDPVersion" type="xsd:string" minOccurs="0"/>
</xsd:sequence>
</xsd:extension>
</xsd:complexContent>
</xsd:complexType>
<xsd:complexType name="MDMTHighPriorityMissingDataReportParameters">
<xsd:annotation>
<xsd:documentation>
Purpose - Parameter definition for HighPriorityMissingData
Report Name - HighPriorityMissingData
MSATS Reports - RM37
</xsd:documentation>
</xsd:annotation>
<xsd:complexContent>
<xsd:extension base="BaseReportParameters">
<xsd:sequence>
<xsd:element name="FromDate" type="xsd:date"/>
<xsd:element name="ToDate" type="xsd:date"/>
<xsd:element name="AsAtDate" type="xsd:dateTime"/>
<xsd:element name="MDP" type="PartyIdentifier" minOccurs="0"/>
</xsd:sequence>
</xsd:extension>

```

```

</xsd:complexContent>
</xsd:complexType>
<xsd:complexType name="MDMTDataStreamMissingDataReportParameters">
<xsd:annotation>
<xsd:documentation>
Purpose - Parameter definition for Datastream Missing Data Report
Report Name - DataStreamMissingData
MSATS Reports - RM38
</xsd:documentation>
</xsd:annotation>
<xsd:complexContent>
<xsd:extension base="BaseReportParameters">
<xsd:sequence>
<xsd:element name="FromDate" type="xsd:date"/>
<xsd:element name="ToDate" type="xsd:date"/>
<xsd:element name="AsAtDate" type="xsd:dateTime"/>
<xsd:element name="MDP" type="PartyIdentifier" minOccurs="0"/>
<xsd:element name="NMI" type="NMIBase" minOccurs="0"/>
</xsd:sequence>
</xsd:extension>
</xsd:complexContent>
</xsd:complexType>
<xsd:complexType name="MDMTMismatchDataReportParameters">
<xsd:annotation>
<xsd:documentation>
Purpose - Parameter definition for Mismatch Data Report
Report Name - MismatchData
MSATS Reports - RM39
</xsd:documentation>
</xsd:annotation>
<xsd:complexContent>
<xsd:extension base="BaseReportParameters">
<xsd:sequence>
<xsd:element name="FromDate" type="xsd:date"/>
<xsd:element name="ToDate" type="xsd:date"/>
<xsd:element name="AsAtDate" type="xsd:dateTime"/>
<xsd:element name="MDP" type="PartyIdentifier" minOccurs="0"/>
<xsd:element name="NMI" type="NMIBase" minOccurs="0"/>
</xsd:sequence>
</xsd:extension>
</xsd:complexContent>
</xsd:complexType>
<xsd:complexType name="UFEFactorValuesByLocalAreaReportParameters">
<xsd:annotation>
<xsd:documentation>
Purpose - Parameter definition for UFE Factor Values By Local Area
Report
Report Name - UFEFactorValuesByLocalArea
MSATS Reports - RM43
</xsd:documentation>
</xsd:annotation>
<xsd:complexContent>
<xsd:extension base="BaseReportParameters">
<xsd:sequence>
<xsd:element name="SettlementCase" type="MDMSettlementCaseIdentifier"/>
<xsd:element name="LocalArea" type="ProfileName" minOccurs="0"/>

```

```

</xsd:sequence>
</xsd:extension>
</xsd:complexContent>
</xsd:complexType>
<xsd:complexType name="UFEValidationReportParameters">
<xsd:annotation>
<xsd:documentation>
Purpose - Parameter definition for UFE Validation Report
Report Name - UFEValidation
MSATS Reports - RM46
</xsd:documentation>
</xsd:annotation>
<xsd:complexContent>
<xsd:extension base="BaseReportParameters">
<xsd:sequence>
<xsd:element name="SettlementCase" type="MDMSettlementCaseIdentifier"/>
<xsd:element name="LocalArea" type="ProfileName" minOccurs="0"/>
</xsd:sequence>
</xsd:extension>
</xsd:complexContent>
</xsd:complexType>
</xsd:schema>

```

5.2.6 Reports_r39_p1.xsd

Change: Addition of results block.

```

<xsd:complexType name="ReportResponse">
<xsd:annotation>
<xsd:documentation>
Application - Reports
TransactionExchange - Report Request
TransactionGroup - CATS for CATSReportRequest, MDMT for
MDMReportRequest
Priority - Low
Purpose - Return the results of a report
Detail - This is a generic transaction that relies on the details of
the exact report format returned being determined by the xsi:type
attribute provided by the sender on the ReportParameters and
ReportResults elements. At least one Event element must be present in
the response to indicate the success or otherwise of the report.
</xsd:documentation>
</xsd:annotation>
<xsd:sequence>
<xsd:element name="ReportParameters" type="BaseReportParameters"/>
<xsd:element name="ResultBlock" type="MRBlockParameterType"
minOccurs="0"/>
<xsd:element name="ReportResults" type="BaseReportFormat"
minOccurs="0"/>
<xsd:element name="Event" type="Event" maxOccurs="unbounded"/>
</xsd:sequence>
<xsd:attribute name="version" type="r39_p1" use="optional"
default="r39_p1"/>

```

```
</xsd:complexType>
```

5.3 Customer switching B2M schema changes

Filename	Complex types	Element	Version change	Transactions
aseXML_r39_p1.xsd	*	*	NMIDataAccess_r39_p1.xsd Common_r39_p1.xsd Events_r39_p1.xsd	*
Common_r39_p1.xsd	PreviousRead Date	ReadDate ReadQuality	*	NMIStandingDataResponse
	PreviousRead Dates	PreviousRead Date Event	*	NMIStandingDataResponse
Events_r39_p1.xsd	*	*	ReleaseIdentifier r39_p1	*
NMIDataAccess_r39_p1.xsd	*	PreviousRead Dates	NMIStandingDataResponse r39_p1	NMIStandingDataResponse

5.3.1 NMI standing data response

Addition of Previous Read Dates to the NMI Standing Data Response.

LNSPs & FRMPs must transition to obtain new fields.

Figure 1 PreviousReadDates

```

</RegisterConfiguration>
</Meter>
</MeterRegister>
</NMISTandingData>
- <PreviousReadDates>
  - <PreviousReadDate>
    <ReadDate>2020-01-01</ReadDate>
    <ReadQuality>A</ReadQuality>
  </PreviousReadDate>
  - <PreviousReadDate>
    <ReadDate>2020-01-02</ReadDate>
    <ReadQuality>B</ReadQuality>
  </PreviousReadDate>
  - <PreviousReadDate>
    <ReadDate>2020-01-03</ReadDate>
    <ReadQuality>C</ReadQuality>
  </PreviousReadDate>
  - <PreviousReadDate>
    <ReadDate>2020-01-04</ReadDate>
    <ReadQuality>D</ReadQuality>
  </PreviousReadDate>
  - <PreviousReadDate>
    <ReadDate>2020-01-05</ReadDate>
    <ReadQuality>E</ReadQuality>
  </PreviousReadDate>
</PreviousReadDates>
- <Event severity="Information">
  <Code>0</Code>
</Event>
</NMISTandingDataResponse>
</Transaction>
</Transactions>
</ase:aseXML>

```

Figure 2 Meter data not available

```

</NMISTandingData>
- <PreviousReadDates>
  - <Event severity="Error">
    <Code>10</Code>
    <Explanation>Meter data is not available</Explanation>
  </Event>
</PreviousReadDates>
- <Event severity="Information">
  <Code>0</Code>
</Event>
</NMISTandingDataResponse>
</Transaction>
</Transactions>
</ase:aseXML>

```

5.3.2 NMIDataAccess_r39_p1.xsd

Add element PreviousReadDates to NMISTandingDataResponse.

```

<xsd:complexType name="NMISTandingDataResponse">
  <xsd:annotation>
  <xsd:documentation>
    Application - NMI Data Access
    TransactionExchange - NMI Standing Data
    TransactionGroup - NMID
    Priority - High
    Purpose - Provide the results of a request for the current standing data for a
    particular NMI
    Detail - Usage of the NMISTandingData type allows the transaction to carry
    variable content according to fuel and jurisdictional requirements. At least
    one Event element must be present in the response to indicate the success or
    otherwise of the search.
  </xsd:documentation>
  </xsd:annotation>
  <xsd:sequence>
  <xsd:element type="NMISTandingData" name="NMISTandingData" minOccurs="0"/>
  <xsd:element type="PreviousReadDate" name=" PreviousReadDate " minOccurs="0"/>
  <xsd:element type="Event" name="Event" maxOccurs="unbounded"/>
  </xsd:sequence>
  <xsd:attribute type="r39_p1" name="version" default="r39_p1" use="optional"/>

```

```
</xsd:complexType>
```

5.3.3 New PreviousReadDate block

A new PreviousReadDate block exists to provide:

1. Multiple read dates with the associated quality flag
2. A message when readings are unavailable.

LNSPs & FRMPs must transition to obtain new fields.

Participants can use the NMI Discovery 2 to view this information.

5.3.4 Common_r39_p1.xsd

Define new complex types:

```
<xsd:complexType name="PreviousReadDate">
  <xsd:annotation>
    <xsd:documentation>
      Purpose - Date and quality of a previous NMI
      reading</xsd:documentation>
    </xsd:annotation>
    <xsd:sequence>
      <xsd:element name="ReadDate" type="xsd:date"/>
      <xsd:element name="ReadQuality">
        <xsd:simpleType>
          <xsd:restriction base="xsd:string">
            <xsd:maxLength value="1"/>
          </xsd:restriction>
        </xsd:simpleType >
      </xsd:element>
    </xsd:sequence>
  </xsd:complexType>
<xsd:complexType name="PreviousReadDates">
  <xsd:annotation>
    <xsd:documentation>
      Purpose - List dates of previous NMI readings</xsd:documentation>
    </xsd:annotation>
    <xsd:choice>
      <xsd:element name="PreviousReadDate" type="PreviousReadDate"
      maxOccurs="unbounded"/>
      <xsd:element name="Event" type="Event" maxOccurs="1"/>
    </xsd:choice>
  </xsd:complexType>
```

5.3.5 Receive PreviousReadDate block

Receive PreviousReadDate block	Latest r39_p1	Current r39_p1	Superseded r35	Discontinued r31
From participants FTP to AEMO	✓	✓	✗	✗
To participants FTP from AEMO	✓	✓	✗	✗
From MSATS web portal to AEMO	✓	✓	✗	✗
Request and response from APIs: - NMI Discovery - NMI Detail	✓	✓	✗	✗

5.4 B2M schema r39_p1 transition

AEMO still accepts B2M requests with older B2M schemas and processes them if they pass AEMO validation.

Participants can choose to explicitly specify responses in r35 or r39_p1 for API requests.

For assistance transitioning your aseXML schema version, see **Guide to Transition of aseXML**. For help using the MSATS web portal > participant schema interface to transition, see Guide to MSATS Web Portal.

Based on your current B2M schema setting in MSATS the following applies:

Current Schema Setting	New Schema Setting	Impact	Action
LATEST (r35)	LATEST (r39_p1)	Messages received from AEMO are in r39_p1 instead of r35	At the time of the system release you must support r39_p1 to process received AEMO messages
CURRENT (r35)	SUPERSEDED (r35)	Messages received from AEMO continue in r35	You must transition to r39_p1 to send and receive the new functionality

Current Schema Setting	New Schema Setting	Impact	Action
SUPERSEDED (r31)	SUPERSEDED (r35)	Messages received from AEMO are in r35 instead of r31	At the time of the system release you must support r35 to process received AEMO messages You must transition to r39_p1 to send and receive the new functionality

5.5 B2M schema transforms

Transforms available:

- r39_p1 -> r35

5.6 Push RM new report issue

If the transform process cannot provide a new report (RM37, RM38, RM39, RM43, RM46) in the participants preferred schema (superseded), MSATS sends the report in the new schema format r39_p1. This results in a negative acknowledgement from participants and leaves them with a file they cannot automatically process.

To reduce the impact of this occurring, AEMO will not automate the publishing of new reports until after 5MS go-live. Participants can still request the new reports via the MSATS Web Portal, FTP, or API.

After 5MS go-live, the r39_p1 schema is mandatory to receive these reports.

5.7 Participant impact for aseXML schema r39_p1

5.7.1 5MS Meter Data

1. Participants remaining on the superseded schema (r35):
 - a. Cannot request or receive the new reports.
 - b. Must populate the last sequence number to be schema valid.
 - c. Must identify they received all files by the sequence number.
 - d. Do not receive the TNI2 data in any responses. But they are available in the MSATS web portal.

2. Population of the last sequence number is no longer used for report generation. AEMO recommends it is set to zero.
3. Each RM report request receives all report results.
4. AEMO recommends participants remove any automation requesting multiple reports.

5.7.2 **Customer switching**

To receive the new PreviousReadDate block, AEMO recommends participants upgrade to r39_p1 by deployment of this Release. Previous read dates

You can use NMI discovery 2 to get Previous Read Dates (PRD).

6. B2M Meter Data

6.1 Meter data file format

For more details, see [Meter Data File Format Specification NEM 12 and NEM 13 v2.0 Consultation](#).

The Meter Data File Format (MDFF) is extended to support 5- and 15-minute Metering Data along with the existing 30-minute. The use of MDFF changes from supporting Business to Business (B2B) Retail, Network and other Market Participant activities and Business to Market (B2M) Transmission Use of System (TUOS) Billing to also supporting B2M Market Settlements.

AEMO identifies Settlement ready Metering Data using Datastreams defined in CATS NMI Datastream (CNDS).

6.1.1 MDFF changes

The MDFF specification has the following changes:

1. The NEM12 format is used for Interval Metering Data. The Record 200 (IntervalLength) field is used to specify the interval length for NEM12.
2. The NEM13 format is used for Accumulated Metering Data.

MDPs use the B2B aseXML schema when using MDFF. For more details and examples, see [MDM File Format and Load Process](#)

6.2 MTRD Meter data notification

There are no changes to the aseXML message format for B2B MTRD Meter Data Notification or B2M MDMT Meter Data Notification transactions. For details, see [B2B Mapping to aseXML](#) (section 2.2).

The MTRD Meter Data Notification transaction supports the following three notifications:

1. B2M MTRD: B2M Market Settlements.
2. B2B MTRD: B2B Retail, Network and other Market Participant activities.

3. B2M Transmission Use of System (TUOS) Billing for Victoria only.

6.2.1 Identifying MTRD notifications

Market Settlements

Participants can identify an MTRD Meter Data Notification is for B2M Market Settlements by nominating:

1. NEMMCO as the To Party Identifier in the aseXML Header record. For details, see **B2B Mapping to aseXML** (section 2.2).
2. NEMMCO as the Participant ID of the intended Registered Participant in the MDFF Header record (100) ToParticipant. For help, see **MDFF Specification NEM12 and NEM13** (section 4.2, v20).

For B2M Market Settlements:

- The message patterns between the Initiating Participant and AEMO, where AEMO acts as the Recipient, mirror the process described in the **B2B Procedure Technical Delivery Specification** (section 6.4).
- AEMO sends the hub acknowledgment to the Initiator.
- The from party identifier of a Hub Acknowledgement is NEMMCO.
- AEMO acts as a B2B Recipient, validating the MTRD messages and generating an **ase:MessageAcknowledgement** according to the **B2B Procedure Technical Delivery Specification** (section 2).
- AEMO acts as a B2B Recipient, validating the MTRD messages and generating an **ase:TransactionAcknowledgement** according to the **B2B Procedure Technical Delivery Specification** (section 2).

TUOS Meter Data Delivery

Participants can identify an MTRD Meter Data Notification is for B2M TUOS Meter Data Delivery by nominating:

1. NEMMCO (currently VPXP) as the To Party Identifier in the aseXML Header record. For details, see **B2B Mapping to aseXML** (section 2.2).
2. NEMMCO (currently VPXP) as the Participant ID of the intended Registered Participant in the MDFF Header record (100) ToParticipant. For help, see **MDFF Specification NEM12 and NEM13** (section 4.2, v20).

For B2M TUOS Meter Data Delivery:

- The message patterns between the Initiating Participant and AEMO, where AEMO acts as the Recipient, mirror the process described in the **B2B Procedure Technical Delivery Specification** (section 6.4).
- AEMO sends the hub acknowledgment to the Initiator.
- The from party identifier is NEMMCO.
- AEMO acts as a B2B Recipient, validating the MTRD messages and generating an **ase:MessageAcknowledgement** according to the **B2B Procedure Technical Delivery Specification** (section 2).
- AEMO acts as a B2B Recipient, validating the MTRD messages and generating an **ase:TransactionAcknowledgement** according to the **B2B Procedure Technical Delivery Specification** (section 2).

Retail and Networking activities

Participants can identify an MTRD Meter Data Notification is for B2B Retail, Network, and other Market Participant activities by nominating:

1. A valid Participant ID other than NEMMCO as the To Party Identifier in the aseXML Header record. For details, see **B2B Mapping to aseXML** (section 2.2).
2. A valid Participant ID other than NEMMCO of the intended Registered Participant in the MDFF Header record (100) ToParticipant. For help, see **MDFF Specification NEM12 and NEM13** (section 4.2, v20).

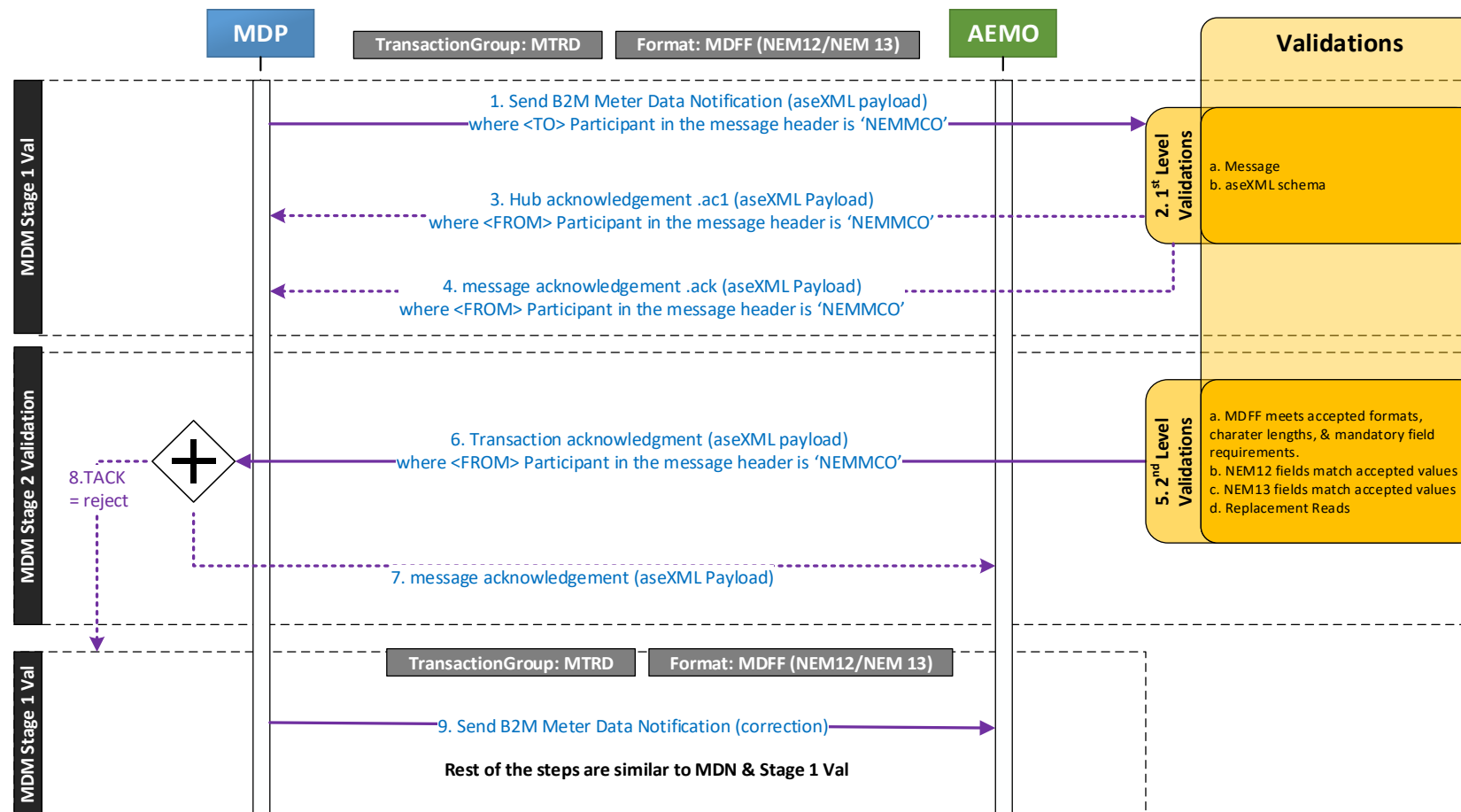
For B2B Retail, Network, and other Market Participant activities:

- The message patterns between the Participants is described in the **B2B Procedure Technical Delivery Specification** (section 6.4).

6.2.2 B2M MTRD exchange

The MTRD message exchange for B2M Market Settlements and TUOS Meter Data Delivery aligns with B2B Retail and Network processes where participants send messages to AEMO using the NEMMCO Participant ID (although AEMO is not a B2B Participant).

Figure 3 MTRD message exchange between MDPs and AEMO



6.2.3 B2M MTRD exchange steps

Step	Initiator	Example	Recipient	Details
1.	MDP	Submit B2M MTRD Meter Data Notification with Metering Data for B2M Market.	AEMO	<p>The TO participant in the message header is NEMMCO. The MDFF Header record (100) ToParticipant is NEMMCO. For details, see MDFF Specification NEM12 and NEM13 (section 4.2, v20).</p> <p>The B2B Sync API is not available for B2M MTRD Meter Data Notification submissions and is errored out if attempted.</p>
2.	AEMO	Performs level 1 validations of the message and transaction(s).	AEMO	<p>The following validations are executed:</p> <ul style="list-style-type: none"> - Message - aseXML Schema
3.	AEMO	Sends a Hub Acknowledgement.	MDP	<p>Hub Acknowledgement:</p> <ul style="list-style-type: none"> - FTP protocol = .ac1. - Webservice Protocol: ack Payload. - The Schema version is the same as the submitted B2M MTRD.
4.	AEMO	Sends a Message Acknowledgement.	MDP	<p>The FROM participant in the header of the Message Acknowledgement is NEMMCO.</p> <p>Message Acknowledgement:</p> <ul style="list-style-type: none"> - FTP protocol - .ack. - Web service Protocol – ack Payload. - Schema version is the same as the submitted B2M MTRD

5.	AEMO	Performs level 2 validations.	AEMO	<p>The following validations are executed:</p> <ul style="list-style-type: none"> - The MDFF meets accepted formats, character lengths, & mandatory field requirements. - The NEM12 & NEM13 fields match accepted values. - Replacement Reads. <p>Due to delays updating MSATS, AEMO does not reject MTRD Transactions where the MSATS Standing Data and the information provided in the MDFF file do not align at the time of receipt.</p>
6.	AEMO	Sends Transaction Acknowledgement containing the results of level 2 validations.	MDP	<p>The FROM participant in the header of the Transaction Acknowledgement is NEMMCO.</p> <p>Where the Transaction Acknowledgement is Reject, the MDP must resend the correct version of the entire transaction (and all its reads).</p> <p>Where the Transaction Acknowledgement is Partial, the MDP must resend only the corrected version of the rejected reads.</p> <p>Where the MDFF format fails structural validations, so the MDP is not required to send Acknowledgements, the Message and Transaction Acknowledgement(s) are bundled as a single Message Acknowledgement file or Payload.</p> <p>The aseXML Schema version is the version specified by the participant in the B2B Browser > Transforms and Protocol interface for the MTRD Transaction Group.</p> <p>Where the specified MTRD schema version is r_any, it stops AEMO's e-Hub applying aseXML schema transforms to B2B Transactions, so AEMO sends the MTRD in the CURRENT schema version.</p>

7.	MDP	The Initiating MDP validates ase:TransactionAcknowledgements and sends an ase:MessageAcknowledgements to AEMO.	AEMO	
8.– 9.	MDP	Where the ase:TransactionAcknowledgements generated by AEMO is a reject or partial, the MDP creates a new MTRD Meter Data Notification containing corrected Metering Data for the rejected reads only.		Corrected Metering Data must include all NMI suffixes associated with a NMI for any IntervalDate in the same transaction.

6.2.4 Submit and receive B2M MTRD transactions type

Participants can use the following options to send and receive B2M MTRD Meter Data Notifications:

1. A B2BMessagingAsync (Push-Push) API. For details, see **B2B SMP Technical Guide**.
2. A B2BMessagingPull (Push-Pull) API. For details, see Submit B2M MTRD Meter Data Notifications via API below.
3. The FTP Gateway and their Participant File Server Participant Directory Inbox. For details, see Submit B2M MTRD Meter Data Notifications via FTP below.

You cannot use the B2BMessagingSync API to submit a B2M MTRD Meter Data Notification for Market Settlements or TUOS Meter Data Delivery.

4. The MSATS Web Portal > **B2B Browser** > **Upload File** menu. For help, see **Guide to MSATS B2B**.

6.2.5 Submit B2M MTRD Meter Data Notifications via API

Participants can use the B2B Push API or B2B Pull API with the **B2BmessagingAsync/messages** or **B2BmessagingPull/messages** endpoint to submit B2M MTRD Meter Data Notifications.

For details, see **B2B SMP Technical Guide**.

The B2B Sync API is not available for B2M MTRD Meter Data Notification submissions and errors if tried.

6.2.6 Submit B2M MTRD Meter Data Notifications via FTP

Depending on your Participant File Folder structure, it is important to place your prepared B2M **MTRD** Meter Data Notifications in the correct folder. To know where to place your Notification, see the folder structure options on page 51.

/B2B/inbox setup

If you have nominated the /B2B/Inbox setup for your Participant File Folders, you **must** place your MTRD Meter Data Notifications in the **B2B/Inbox**.

Placing your notification in the /Inbox results in AEMO ignoring the file.

For the B2B/Inbox setup, AEMO **always** places acknowledgements in the **/B2B/Outbox**.

```
/B2B
/B2B/Inbox
/B2B/Outbox
/Inbox
/Outbox
/Inbox_archive
/Archive
```

/Inbox setup

If you have nominated the /Inbox setup, place your MTRD Meter Data Notifications in the **/Inbox**.

AEMO places acknowledgements in the **/Outbox**.

```
/Inbox
/Outbox
/Inbox_archive
/Archive
```

6.3 MDMT Meter data notification

6.3.1 Identifying MDMT Meter data

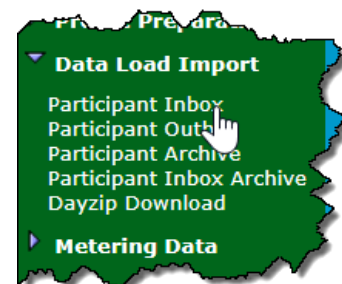
Market Settlements

Participants can identify a B2M MDMT Meter Data Notifications is for Market Settlements by nominating NEMMCO as the To Party Identifier in the aseXML Header record. For help, see **MDM File Format and Upload Process**.

6.3.2 Submit MDMT transactions

Participants can use the following options to submit MDMT Meter Data Notifications:

1. A B2MmessagingAsync (Push-Push) API. For details, see B2MmessagingAsync on page 113.
2. The FTP Gateway and their Participant File Server Participant Inbox. For details, see Submit B2M MDMT Meter Data Notifications via FTP below.
3. The MSATS Web Portal > **Data Load Import** > **Participant Inbox** > **Upload**. For help, see **Guide to MSATS Web Portal**.



6.3.3 Submit B2M MDMT Meter Data Notifications via FTP

For B2M **MDMT** Meter Data Notifications, regardless of the structure of you Participant File Folders, **always** place your transaction in the /Inbox.

AEMO **always** places acknowledgements in the /Outbox.

```

/Inbox
/Outbox
/Inbox_archive
/Archive

```

```

/B2B
/B2B/Inbox
/B2B/Outbox
/Inbox
/Outbox
/Inbox_archive
/Archive

```

6.3.4 Identifying missing and mismatched reads

RM11 report

MDPs receive scheduled RM11 reports:

- To identify missing reads.
- To identify where reads are not available for active NMI Datastream Suffixes.

Missing reads are identified and pushed to MDP's prior to each Settlement run.

New logic is included to cater for missing reads where the Metering Data is received as MTRD NEM12 csv interval data and the CNDS Datastream is defined as a net (Nx) Datastream.

Where the CNDS Datastream is defined as a net (for example, N1), if AEMO receives no reads it can use to construct the net read using the MDMDataStreamIdentifier for the Settlement date, it identifies N1 as a missing read.

RM37 report

MDPs receive a new scheduled RM37 report:

- With Missing High Priority reads.
- Identifying where reads are not available for active NMI Datastream suffixes for high priority NMIs (TNI's generators, TNSP connected loads, interconnectors and so on).

Missing reads are identified and pushed to MDPs daily.

RM38 report

MDPs receive a new scheduled RM38 report:

- With missing Datastreams.
- Identifies where an active NMI Datastream Suffix of 'N' (net) and not all contributory suffixes are received. (for example, E or B reads missing).

RM39 report

MDPs receive a new scheduled RM39 report:

- For mismatched reads.
- Identifying where an MDFF file is received with Settlement type suffixes (for example, Ex, Bx, or Nx) where there is no active CNDS Datastream suffix.

Where the Datastream suffix is Ex or Bx, check the MDMDataStreamIdentifier for a match.

Mismatched reads are identified and pushed to MDPs prior to each Settlement run.

Requesting reports with custom report parameters

- To receive RM11, RM37, and RM38 reports with participant specified report parameters, MDPs and FRMPs can submit a report request using their MSATS Participant Inbox.

6.3.5 MTRD participant role element

The B2B Procedure: Meter Data Process defines the Participant Role for a MeterDataNotification as the "Recipient's Role as published in MSATS."

In B2B this value is used to clarify the presumed role the recipient holds for the connection point. The Participant Role:

- Is mandatory from a B2B procedures perspective.
- Is not aseXML schema mandatory.
- Does not have enumerated values.

For the purpose of Market Settlements:

- AEMO's MDM does not make use of this B2B value.
- AEMO does not validate (AEMO ignores it)

- AEMO does not store it.

The Participant Role element is not required for Market Settlements, but participants may find it useful for their own market systems and exception handling processes.

For B2M activities, AEMO recommends participants set the Role value to “NEMM” allowing recognition as an AEMO Role.

```

</CSVIntervalData>
<ParticipantRole>
  <Role>NEMM</Role>
</ParticipantRole>
</MeterDataNotification>
</Transaction>

```

Figure 4 MeterDataNotification

Field	Format	Use	Definition
<i>RecipientRole</i>	VarChar(4)	M	The Recipient's Role as published in MSATS.
<i>RequestID</i>	VarChar(15)	M/N	The RequestID provided in the initiating Request. Not required when transaction sent as part of the normal Meter Data Notification Process. Mandatory when the transaction is sent to the requesting Initiator as a response to a ProvideMeterDataRequest , VerifyMeterDataRequest or RemoteServiceRequest .
<i>CSVConsumptionData</i>	CSVDATA	R	Contains embedded data in CSV format for Accumulation Meters. This is the standard file format for <i>accumulated metering data</i> -defined in a valid MDFF. Refer to 2.5.2a for details of the usage of this field.
<i>CSVIntervalData</i>	CSVDATA	R	Contains embedded data in CSV format for Interval Meters. This is the standard file format for <i>interval metering data</i> -defined in a valid MDFF. Refer to 2.5.2 a for details of the usage of this field.

6.4 File validation

For details about file validations for the following submission, see [MDM File Format and Load Process](#):

- B2M MTRD CSV Interval Data submissions.
- B2M MTRD CSV Consumption Data submissions.
- MDMT CSV Consumption Data submissions.

6.5 Error codes

For details about common Metering Data upload errors, see **Hints and Tips – CATS & NMI Discovery**.

6.6 MDP Meter data impact

6.6.1 IT systems

For transition details, see Wholesale Demand Response MSATS Updates

The Wholesale Demand Response project for Retail Electricity mainly requires the creation of a Demand Response Service Provider participant role in MSATS. Other changes to MSATS as an extension of the new role creation process.

New role: Demand Response Service Provider

For Wholesale Demand Response Mechanism (WDRM) project, there is a new role in MSATS for Demand Response Service Provider (DRSP). This DRSP role is for participants with existing roles of FRMP, LNRP, RP and NEMM.

The DRSP roles are enabled so they can access B2B.

The DRSP role is discoverable using NMI discovery.

The DRSP role can access standing data.

The DRSP role can receive notifications for specific CRs.

Participant IDs

As a part of the participant registration process:

A participant registered as a DRSP is assigned a new participant ID.

A new participant ID named NOWDRU is registered as a dummy DRSP participant. MSATS does not allow for roles to be dropped from NMIs, so if the DRSP participant must be dropped, it will be replaced by the NOWDRU participant.

Reports

The DRSP variant of the RM29 report mentioned in the previous version of this technical specification is internal only and not delivered to participants. Sorry for any inconvenience.

Transition on page 16.

MDPs must make changes in their systems to:

1. Send Interval Metering Data at 5-, 15-minute, and the existing 30-minute resolution.
2. From the MDFF Accepted Go-Live, commence the transition to sending Interval Metering Data to AEMO for Market Settlements in the MDFF format.
3. From when the 5MS rule becomes effective, cease sending Interval Metering Data to AEMO for Market Settlements in the MDMF format. AEMO continues to accept accumulation Metering Data in the MDMF NEM13 format.

4. Optionally, commence sending accumulation Metering Data to AEMO for Market Settlements in the MDFF NEM13 format.
5. Add NEMMCO as a recipient in the To Participant ID MTRD MeterDataNotifications messages with Metering Data intended for Market Settlements.
6. Add NEMMCO under the To Participant ID within the MDFF Header record (100) of MTRD MeterDataNotifications messages with Metering Data intended for Market Settlements.
7. Process the returned transaction acknowledgment from NEMMCO for interval and accumulation Metering Data sent via MDFF.
8. Handle additional MDFF and Market Settlements specific validations returned in the transaction acknowledgment.
9. Accept automated reports. For details, see Reports on page 77.
10. To validate processing with AEMO and other parties, we recommend participants take part in industry testing using AEMO's 5MS Staging and pre-production systems.

6.6.2 NMI standing data

1. When an MDP end dates the net Nx Datastream and populates the Ex and Bx streams, they can move from defining Nx to Ex and Bx in the NEM12 MDMDatastreamidentifier field.
2. MDPs can migrate CATS NMI Datastream (CNDS) data whenever they have switched to the MDFF file format.
3. It is possible MDPs may need to support MDFF for some NMIs, and MDMF for others.

6.6.3 Metering data uploading

1. MDPs deliver the same MTRD Meter Data Notification Metering Data they send to FRMPs, DNSPs, MDPs or MCs to **NEMMCO** as if AEMO is a B2B Participant. However, AEMO is not a B2B Participant so is not governed by the B2B Procedures.
2. AEMO does not send Verify Meter Data (VMD) or Provide Meter Data (PMD) transactions in response to a **NEMMCO** directed MTRD Meter Data Notification.

3. Where Metering Data has changed, the MDP must send a correcting MTRD Meter Data Notification to the **NEMMCO** participant according to the existing **NER Chapter 7** obligations and **MSATS procedures**, including the **Metrology Procedure: Part A and Part B**, and the **Service Level Procedures: Metering Provider Services**.
4. MDPs continue to use the B2B aseXML schema when they send MTRD Meter Data Notification transactions.
5. To cater for off-market Datastreams and where MDPs send Metering Data before the Meter's standing data is established. In each scenario an informational warning is generated and sent to the participant in the Transaction Acknowledgment. The following MDMF validation is relaxed for MDFF:
 - a. Metering Data for Datastreams and Meter registers not in CNDS can load.
 - b. NMIs not established in CATS NMI Data (CND) can load.
6. Additional MDFF NEM12 interval data validations are:
 - a. To apply the UOM factor, the UOM for a target must be known.
 - b. To determine the sign, the first character of the NMISuffix (E from E1, B from B1) must be known.
7. AEMO loads all validated Metering Data but does not use them for Energy allocation unless the Datastream:
 - a. Is defined for use for Settlements in CNDS.
 - a. Is type I (interval) or C (accumulation).
 - b. Type P is not used for Energy allocation but may be used to construct profiles.

7. NMI Standing Data

7.1 NMI standing data changes summary

Type	Description	Action
DCTC Code	Data Collection Type Code is replaced by the MITC codes for reporting purposes	Change
Meter data delivery	Update of meter data delivery quantity and quality levels for both remote and manual read meters	Change
Meter Installation Type Code	New NCONUML code for registering of non-contestable unmetered load meters.	New
MSATS web portal	Inclusion of hyperlinks to the NMI discovery interface to identify multi use NMI Datastreams	New
MSATS web portal	Inclusion of hyperlinks to the NMI master data interface to identify multi use NMI Data Streams	New
NMI Classification	New BULK code for a Connection point where a transmission network connects to a distribution network	New
NMI Classification	New DWHOLSAL code for distribution connection points where the energy is purchased directly for the Spot Market	New
NMI Classification	New NCONUML code for a Non-contestable unmetered load	New
NMI Classification	New NREG code for a Connection point associated with a non-registered embedded generator	New
NMI Classification	New XBOUNDRY code for a Connection point where a distribution network connects to another distribution network	New
NMI Datastream Type	New N code to register non-settled Datastreams	New
Second TNI	Inclusion of second TNI (TNI2) for Cross Boundary NMIs	New

7.2 New NMI classification codes

Code	Description
BULK	The Connection Point where a Transmission Network connects to a Distribution Network (sometimes called bulk supply point)
DWHOLSAL	The Distribution Network Connection Point where Energy is directly purchased from the Spot Market by a Market Customer
NCONUML	Non-contestable unmetered load Manually read flag = N
NREG	The Connection Point associated with a Non-Registered Embedded Generator where: <ul style="list-style-type: none"> - The Embedded Generating Unit is classified by a Market Small Generation Aggregator as a Market Generating Unit - The output of the Embedded Generating Unit is consumed by a Market Load at the same Connection Point
XBOUNDRY	The Connection Point where a Distribution Network connects to another to Distribution Network

7.3 NMI datastream type codes

N replaces codes 1, 2, 3, 4 for Vic TUOS where Datastreams are not used for Settlements.

Datastream suffixes comply with the MSATS Procedures: **National Metering Identifier Procedure.**

Datastream type	Type	Description	Datastream suffix
I	Interval	Interval Datastream included in NEM Settlements process	A, D, B, E, N
C	Basic	Consumption Datastream included in NEM Settlements process	First character is 1 to 9
P	Profile	Profile Datastream included in NEM Profile calculations (Sample Meters only)	E, N

N	NonSettlement	Interval Datastream is not included in the NEM Settlements process or NEM Profile calculations	J, P, S, K, Q, T, G, H, M, V, C, F, L, R, U, Y, W, Z, X A, D, B, E when not used for NEM Settlements (e.g. Vic TUOS)
---	---------------	---	---

7.4 NMI datastream suffixes

Vic TUoS currently records the non-settlement Meter read NMI Datastream suffix's (B, E, K, Q) using a Datastream Type Code of 1, 2, 3 or 4 and a logical Settlement NMI Datastream suffix N. With the use of the granular Meter read, Settlements Datastream suffix's for Datastream Type Codes change, see NMI datastream type codes on page 60.

7.5 Transmission node identifier 2

The Transmission Node Identifier 2 (TNI2) field is used to record the TNI code for the receiving local area. AEMO assigns it to new cross-boundary Connection Points.

Where a TNI2 code does not exist, AEMO assigns and registers the NSP2 and TNI2 values against the cross-boundary Connection Point after advice from the supplying LNSP.

LNSPs creating Connection Points in MSATS must advise AEMO of the receiving LNSP Participant Id (NSP2) and any existing receiving TNI code (TNI2).

8. Change Requests

The primary modifications to Change Requests relate to NMI Standing Data changes, see page 59.

8.1.1 Summary of CR changes

Change request	Change	Action
1000	Allow NMI Classification Code for CR	Add
1000	Changes to the Objection Rules	Update
1010	No change	n/a
1020	Allow NMI Classification Code for CR	Add
1020	Changes to the Objection Rules	Update
1030	No change	n/a
1040	No change	n/a
1080	Allow NMI Classification Code for CR	Add
1080	Changes to the Objection Rules	Update
1081	Changes to the Objection Rules	Update
1082	Allow NMI Classification Code for CR	Add
1082	Changes to the Objection Rules	Update
1083	Changes to the Objection Rules	Update
1084	Changes to the Objection Rules	Update
1500	Allow NMI Classification Code for CR	Add
1500	Changes to the Objection Rules	Update

2000	Allow NMI Classification Code for CR	Add
2000	Changes to the Objection Rules	Update
2001	Allow NMI Classification Code for CR	Add
2001	Changes to the Objection Rules	Update
2020	Allow NMI Classification Code for CR	Add
2020	Changes to the Objection Rules	Update
2021	Allow NMI Classification Code for CR	Add
2021	Changes to the Objection Rules	Update
2500	Allow NMI Classification Code for CR	Add
2501	Allow NMI Classification Code for CR	Add
2500	Changes to the Objection Rules	Update
2501	Changes to the Objection Rules	Update
3000	Allow NMI Classification Code for CR	Add
3001	Allow NMI Classification Code for CR	Add
3004	Allow NMI Classification Code for CR	Add
3005	Allow NMI Classification Code for CR	Add
3050	Allow NMI Classification Code for CR	Add
3051	Allow NMI Classification Code for CR	Add
3100	Allow NMI Classification Code for CR	Add
3101	Allow NMI Classification Code for CR	Add
4000	Allow NMI Classification Code for CR	Add

4001	Allow NMI Classification Code for CR	Add
4004	Allow NMI Classification Code for CR	Add
4005	Allow NMI Classification Code for CR	Add
4050	Allow NMI Classification Code for CR	Add
4051	Allow NMI Classification Code for CR	Add
5001	Allow NMI Classification Code for CR	Add
5001	Change to Objection Rules	Update
5021	Allow NMI Classification Code for CR	Add
5021	Change to Objection Rules	Update
5050	Allow NMI Classification Code for CR	Add
5050	Change to Objection Rules	Update
5051	Allow NMI Classification Code for CR	Add
5051	Change to Objection Rules	Update
5054	Allow NMI Classification Code for CR	Add
5055	Allow NMI Classification Code for CR	Add
5060	Allow NMI Classification Code for CR	Add
5061	Allow NMI Classification Code for CR	Add
5070	Allow NMI Classification Code for CR	Add
5071	Allow NMI Classification Code for CR	Add
5080	Allow NMI Classification Code for CR	Add
5081	Allow NMI Classification Code for CR	Add

6100	Allow NMI Classification Code for CR	Add
6100	Change to Objection Rules	Update
6110	Allow NMI Classification Code for CR	Add
6110	Change to Objection Rules	Update
6200	Allow NMI Classification Code for CR	Add
6200	Change to Objection Rules	Update
6210	Allow NMI Classification Code for CR	Add
6210	Change to Objection Rules	Update
6300	Allow NMI Classification Code for CR	Add
6300	Change to Objection Rules	Update
6301	Allow NMI Classification Code for CR	Add
6301	Change to Objection Rules	Update
6421	Allow NMI Classification Code for CR	Add
6421	Change to Objection Rules	Update
6500	Allow NMI Classification Code for CR	Add
6500	Change to Status Notification Rules	Update
6501	Allow NMI Classification Code for CR	Add
6501	Change to Status Notification Rules	Update
6700	Allow NMI Classification Code for CR	Add
6700	Change to Objection Rules	Update
6701	Allow NMI Classification Code for CR	Add

6701	Change to Status Notification Rules	Update
6800	Allow NMI Classification Code for CR	Add
6800	Change to Objection Rules	Update
6801	Allow NMI Classification Code for CR	Add
6801	Change to Objection Rules	Update
ECLR	Allow NMI Classification Code for CR	Add
EPFR	Allow NMI Classification Code for CR	Add
5100	Allow NMI Classification Code for CR	Add
5100	Addition of TNI2 field to CR	Add
5101	Allow NMI Classification Code for CR	Add
5101	Addition of TNI2 field to CR	Add
BCxx	Allow NMI Classification Code for CR	Add
BCxx	Addition of TNI2 field to CR	Add

8.2 NMI classification codes

Changes to NMI Classification Codes are released with the MDM technical go live.

The new NMI Classification codes (see page 60) are assigned to Change Requests as documented in the **MSATS Procedures: CATS and WIGS**.

To support the use of non-net Datastreams for Settlements and the update of Participant IDs, there is new rejection logic for the following Change Requests:

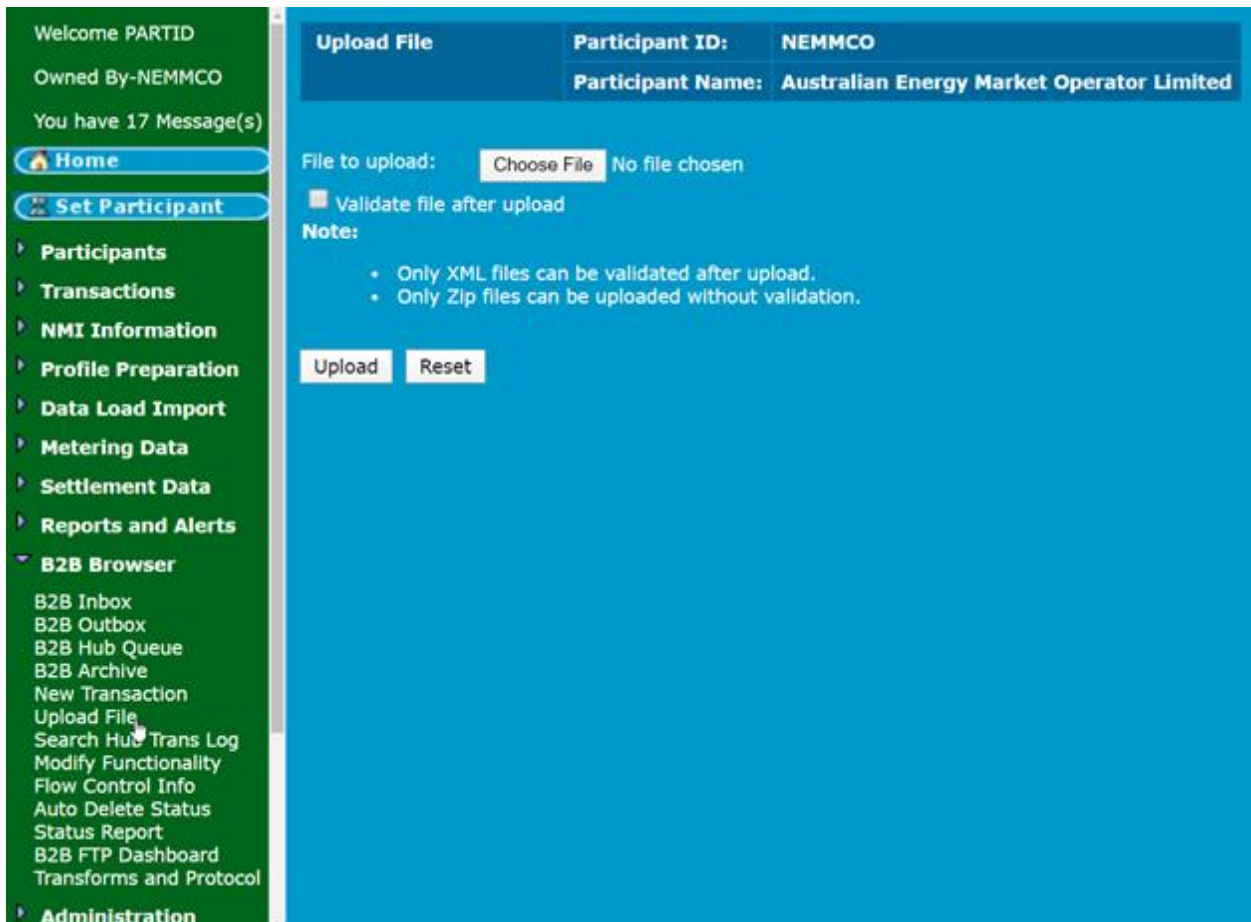
Change request	2521	4001
1000	3080	4004
1020	3081	4005
2500	3090	4050
2501	3091	4051
2520	4000	

8.3 MSATS Web Portal

There are changes to the MSATS Web Portal, allowing participants to upload and submit MTRD Meter Data Notification transactions to the NEMMCO Participant User ID.

8.4 B2B browser > upload file

- For Market Settlements and TUOS Metering Data delivery, participants submit B2M MTRD Meter Data Notifications in the **B2B Browser > Upload File** menu.
- The message acknowledgment status and filename display on the **Upload File** interface.

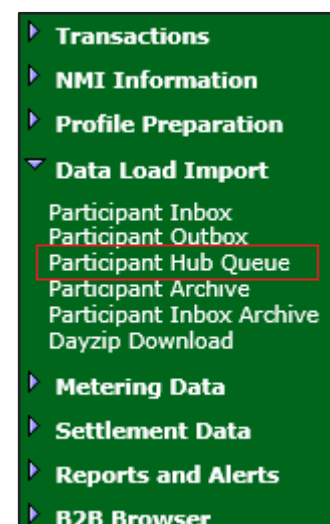


8.5 Participant hub queue

In the **Data Load Import > Participant Hub Queue**, participants who opted for API PULL as their delivery protocol can:

In the **Data Load Import > Participant Hub Queue**, participants can:

- View and sort a total of 100 unacknowledged transaction messages where the API protocol was used.
- Download messages: Click the **File Name** or **Download** in the **Action** column.
- Accept messages: Click **Accept** in the **Action** column.
- Reject messages. Click **Reject** in the **Action** column.
- After accepting or rejecting, see message acknowledgements.
- See the message's age using the create date.



- Manage CATS, NMID and MDMT messages in the Participant Hub Queue interface.



Participant Hub Queue						Participant ID:	NEMMCO
						Participant Name:	Australian United
Hub Queue Contents							
File Name	MessageID	Message Type	Transaction Group	Priority	Date Created	Action	
catsl_nemmcobatch_706568996.zip	939084340846-SOMW-4	Transaction Message	CATS	Low	Tue Feb 12 10:58:35 AEDT 2019	Download Accept Reject	
catsl_nemmcobatch_706569341.zip	939084340846-SOMW-4	Transaction Message	CATS	Low	Tue Feb 12 10:58:35 AEDT 2019	Download Accept Reject	
catsl_nemmcobatch_706569686.zip	939084340846-SOMW-4	Transaction Message	CATS	Low	Tue Feb 12 10:58:35 AEDT 2019	Download Accept Reject	
catsl_nemmcobatch_706570031.zip	939084340846-SOMW-4	Transaction Message	CATS	Low	Tue Feb 12 10:58:35 AEDT 2019	Download Accept Reject	
mdmtm_nemmco_satheesh_1.ack	939084340846-SOMW-4	Transaction Message	MDMT	Medium	Tue Mar 19 15:37:55 AEDT 2019	Download	
mdmtm_vpxpbatch_706570345.zip	939084340846-SOMW-4	Transaction Message	MDMT	Medium	Tue Feb 12 10:58:35 AEDT 2019	Download Accept Reject	
mdmtm_vpxpbatch_706570346.zip	939084340846-SOMW-4	Transaction Message	MDMT	Medium	Tue Feb 12 10:58:35 AEDT 2019	Download Accept Reject	
mdmtm_vpxpbatch_706570347.zip	939084340846-SOMW-4	Transaction Message	MDMT	Medium	Tue Feb 12 10:58:35 AEDT 2019	Download Accept Reject	
mdmtm_vpxpbatch_706570348.zip	939084340846-SOMW-4	Transaction Message	MDMT	Medium	Tue Feb 12 10:58:35 AEDT 2019	Download Accept Reject	
mdmtm_vpxpbatch_706570349.zip	939084340846-SOMW-4	Transaction Message	MDMT	Medium	Tue Feb 12 10:58:35 AEDT 2019	Download Accept Reject	
mdmtm_vpxpbatch_706570350.zip	939084340846-SOMW-4	Transaction Message	MDMT	Medium	Tue Feb 12 10:58:35 AEDT 2019	Download Accept Reject	

8.6 Participant aseXML schema

The existing **Participants > Participant Schema** interface changes to support the following schema and delivery protocol changes to B2M Transaction Groups:

- View or change your current B2M aseXML schema version: Current, Superseded, or Latest.
- Set different Participant Outbox protocols for different CATS, NMID, or MDMT Transaction Groups: FTP, API-Pull, API-Push.
- View your outstanding **Messages** and **ACKS**.
- Change a B2B **aseXML schema version** or **Protocol**. See Figure 5 on page 70.

Participant aseXML Schema				
B2B transaction group	Receiving schema version	Receiving protocol	Outbox	
			Messages	ACKS
CATS	Latest	FTP	0	0
NMID	Current	FTP	0	0
MDMT	Latest	FTP	0	0

Start change Cancel change Refresh Complete change

aseXML schema version		Transforms applied	Notes
Superseded	r31	r35 to r31	Superseded aseXML schema version
Current or Latest	r35	No transform	Current aseXML schema version

Figure 5 Schema or protocol change

Participant aseXML Schema						Participant ID:	NE
						Participant Name:	Au
You have 30 minutes to complete your change.							
B2B transaction group	Receiving schema version	Change to version	Receiving protocol	Change to Protocol	Outbox		
					Messages	ACKS	
CATS	Latest	Latest	FTP	FTP	0	0	
NMID	Current	Current	FTP	FTP	0	0	
MDMT	Superseded	Superseded	FTP	FTP	0	0	

Start change Cancel change Refresh Complete change

aseXML schema version		Transforms applied	Notes
Superseded	r31	r35 to r31	Superseded aseXML schema version
Current or Latest	r35	No transform	Current aseXML schema version

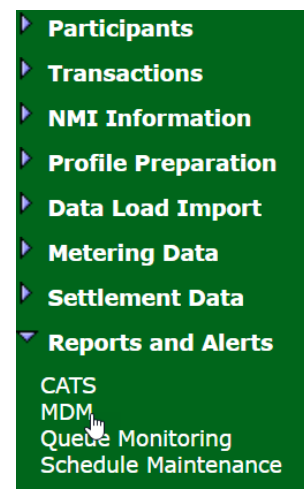
8.7 MDM reports

Participants can access new MDM reports from the **Reports and Alerts > MDM** menu. For report details, see New MDM reports on page 89.

8.8 Metering data

Participants can retrieve Metering Data received from MDPs from the **Metering Data – Data Search** interface. Interval Metering Data is provided in the same interval length sent by MDPs. The existing pages are modified to:

- Allow registered participants to query, at maximum, 7 Days of Interval Metering Data.
- Allow registered participants to query, at maximum, 12 months of consumption Metering Data.
- Display Metering Data in the resolution it was delivered (5-, 15-, 30-minute)
- Support an export to csv function for query results.
- Restructure displayed query results to support readability and consistency across the Interval and Consumption Metering Data results interfaces.
- Display Metering Data for any suffixes defined in the CNDS table, such as net data (Nx) streams, active (Ex, Bx) or reactive (Kx, Qx) suffixes.



- Display Metering Data sent to AEMO regardless of the format (MDMF or MDFF) from the initiating participant.

For help, see Appendix 2 - Interpreting Interval Time on page 158.

8.8.1 Metering data – search

Modelled on the existing **Metering Data – Search** interface used to set query parameters and execute a Metering Data search.

The screenshot displays the 'Metering Data - Search' interface. On the left is a green navigation sidebar with options like Home, Set Participant, Participants, Transactions, NMI Information, Profile Preparation, Data Load Import, Metering Data (selected), Settlement Data, Reports and Alerts, B2B Browser, Administration, User Profile, User Guides, User Suggestions, Training Course - Understanding MSATS, and Logout. The main content area has a blue header with 'Participant ID: NEMMCO' and 'Participant Name: Australian Energy Market Operator Limited'. Below the header, there are search criteria: NMI (*), Data Stream (*), Data Stream Type (*), Meter Data (*), Start Date (*), and End Date (*). The Data Stream Type is set to 'Interval'. The Start Date is '17-Mar-2020' and the End Date is '23-Mar-2020'. There are 'Search' and 'Clear' buttons at the bottom of the search form.

8.8.2 Metering data – results (interval)

This interface displays the first 5000 Interval read results for a Metering Data – Search query. To retrieve all results, click the Export all results to csv.

This interface is redesigned :

- To display the first 5000 Interval reads for the Metering Data – Search results.
- To retrieve all results, click **Export all results to csv**.
- For the different time resolutions: 5-, 15-, and 30-minutes of participants submitted Metering Data.
- To display an **Interval Time** results column.
- To display a **Substitution type** column (where applicable).
- To display a row per interval per suffix.
- To display an **Interval Value** and **Status** per row.

Figure 6 Metering Data – Results (interval) originating MTRD/MDMT

Metering Data - Result		Participant ID:						
		Participant Name:	Australian Energy Market Operator Limited					
1,500 Result(s) Match Search Criteria								
Export all results to csv								
NMI: FFFDRLK02								
Suffix	Settlement Date	Interval Time	Interval Value (kWh for active energy)	Status	Substitution Type	MDP Version Date	Load Date	A/H
N1	14-Aug-2020	00:05:00	111.11	A		15-Aug-2020 13:20:57	16-Aug-2020 03:08:34	Active
N1	14-Aug-2020	00:10:00	-222.22	A		15-Aug-2020 13:20:57	16-Aug-2020 03:08:34	Active
N1	14-Aug-2020	00:15:00	333.33	S		15-Aug-2020 13:20:57	16-Aug-2020 03:08:34	Active
N1	14-Aug-2020	00:20:00	-444.44	S	12	15-Aug-2020 13:20:57	16-Aug-2020 03:08:34	Active
N1	14-Aug-2020	00:25:00	555.55	S	12	15-Aug-2020 13:20:57	16-Aug-2020 03:08:34	Active

Figure 7 Metering Data – Results (interval) originating MTRD

Metering Data - Result		Participant ID:						
		Participant Name:	Australian Energy Market Operator Limited					
1,500 Result(s) Match Search Criteria								
Export all results to csv								
NMI: FFFDRLK02								
Suffix	Settlement Date	Interval Time	Interval Value (kWh for active energy)	Status	Substitution Type	MDP Version Date	Load Date	A/H
E1	14-Aug-2020	00:05:00	111.11	A		15-Aug-2020 13:20:57	16-Aug-2020 03:08:34	Active
E1	14-Aug-2020	00:10:00	222.22	A		15-Aug-2020 13:20:57	16-Aug-2020 03:08:34	Active
E1	14-Aug-2020	00:15:00	333.33	S	12	15-Aug-2020 13:20:57	16-Aug-2020 03:08:34	Active
E1	14-Aug-2020	00:20:00	444.44	A		15-Aug-2020 13:20:57	16-Aug-2020 03:08:34	Active
E1	14-Aug-2020	00:25:00	555.55	A		15-Aug-2020 13:20:57	16-Aug-2020 03:08:34	Active
E1	14-Aug-2020	00:30:00	666.66	S	12	15-Aug-2020 13:20:57	16-Aug-2020 03:08:34	Active
E1	14-Aug-2020	00:35:00	777.77	S	12	15-Aug-2020 13:20:57	16-Aug-2020 03:08:34	Active

8.8.3 Metering data – results (consumption)

This interface displays the returned **Metering Data – Search** query results. This interface is redesigned to accommodate:

- A reordering of results columns to match the redesigned **Metering Data – Results (interval)** interface.
- An export to csv function.

Figure 8 Metering Data – Results (consumption) originating MTRD/MDMT

Metering Data - Result		Participant ID:	NEMMCO					
		Participant Name:	Australian Energy Market Operator Limited					
1,500 Result(s) Match Search Criteria								
Export all results to csv								
NMI: FFFDRLK02								
Suffix	From Date	To Date	Value (kWh)	Status	Substitution Type	MDP Version Date	Load Date	A/H
11	14-Aug-2020	26-Aug-2020	111.11	A		16-Aug-2020 09:36:00	28-Aug-2020 09:36:00	Active
11	10-Sep-2020	22-Sep-2020	222.22	A		12-Sep-2020 12:00:00	24-Sep-2020 12:00:00	Active
11	07-Oct-2020	19-Oct-2020	333.33	A		09-Oct-2020 14:24:00	21-Oct-2020 14:24:00	Active
11	03-Nov-2020	15-Nov-2020	444.44	S	12	05-Nov-2020 16:48:00	17-Nov-2020 16:48:00	Active
22	30-Nov-2020	12-Dec-2020	555.55	S	12	02-Dec-2020 19:12:00	14-Dec-2020 19:12:00	Active
22	27-Dec-2020	09-Jan-2021	666.66	A		29-Dec-2020 21:36:00	10-Jan-2021 21:36:00	Active

8.9 NMI discovery

A new field in the NMI Discovery **Obtain Standing Data – Results** interface in the **General Information** section displays where a second TNI is assigned.

To identify where a NMI contains a NMI Datastream having multi-purpose, there is a new **VIC TUOS** link in the **Go To:** section on the **Obtain Standing Data – Results** interface, identifying where the NMI is used in Vic TUOS calculations.

Obtain Standing Data - Results		Participant ID:	NEMMCO
		Participant Name:	Australian Energy Market Operator Limited
Go to: View Data Streams View Participant Relationships View Meter Registers			
General Information:			
NMI:	VILAWTR1XX VicTuos NMI	Jurisdiction:	VIC
Classification Code:	WHOLESALE	Aggregate Flag:	Y
Embedded Network ID (Parent):		TNI Code:	VJLA
Embedded Network ID (Child):		TNI2 Code:	
Start Date:	28-Jun-2001	DLF Code:	UNIT
NMI Status Code:	A	End Date:	31-Dec-9999
		Updated On:	31-Dec-9999

8.10 NMI master data

A new field in NMI Master **NMI Master - View** interface in the **General Information** section displays where a second TNI is assigned.

To identify where a NMI contains a NMI Datastream used for Vic TUOS calculations there is a new **VIC TUOS** link in the **Go To:** section on the **NMI Master – View**.

NMI Master - View		Participant ID:	NEMMCO
		Participant Name:	Australian Energy Market Operator Limited
General Information:			
NMI:	VILAWTR1XX VicTuos NMI	Jurisdiction:	VIC
Classification Code:	WHOLESALE	Aggregate Flag:	Y
Embedded Network ID (Parent):		TNI Code:	VJLA
Embedded Network ID (Child):		TNI2 Code:	
Start Date:	28-Jun-2001	DLF Code:	UNIT
Status Code:	A	End Date:	31-Dec-9999
Activity Status:	A	Updated On:	31-Dec-9999 00:00:00
		Created On:	9-Jan-2002 01:29:25

Point In Time NMI Master Summary		Participant ID:	NEMMCO
		Participant Name:	Australian Energy Market Operator Limited
Search Criteria			
NMI (*):	VJLAWTR1XX		
Business Date (*) (dd-mmm-yyyy):	13-Aug-2020	As At Date (*) (dd-mmm-yyyy):	13-Aug-2020
Report Type (*):	<input type="radio"/> Summary <input checked="" type="radio"/> Partial NMI Data <input type="radio"/> Complete NMI Data		
<input type="button" value="Search"/> <input type="button" value="Clear"/>			
NMI Data Items			
General Information:			
NMI:	VJLAWTR1XX Victuos NMI	Jurisdiction:	VIC
Classification Code:	WHOLESALE	Aggregate Flag:	Y
Embedded Network ID (Parent):		TNI Code:	VJLA
Embedded Network ID (Child):		TNI2 Code:	UNIT
Start Date:	28-Jun-2001	DLF Code:	
Status Code:	A	End Date:	31-Dec-9999
Activity Status:	A	Updated On:	31-Dec-9999 00:00:00
		Created On:	9-Jan-2002 01:29:25

8.11 Queue monitoring

In the existing **Reports and Alerts > Queue Monitoring** interface participants manage their message flow control for messages submitted by B2M APIs or to their B2M Inbox in the Participant File Server.

Welcome PARTID

Owned By-NEMMCO

You have 17 Message(s)

[Home](#)

[Set Participant](#)

- ▶ [Participants](#)
- ▶ [Transactions](#)
- ▶ [NMI Information](#)
- ▶ [Profile Preparation](#)
- ▶ [Data Load Import](#)
- ▶ [Metering Data](#)
- ▶ [Settlement Data](#)
- ▼ [Reports and Alerts](#)

CATS

MDM

Queue Monitoring

Schedule Maintenance

Queue Monitoring

- [Outbound Message Queue](#)
- [Next Scheduled Read Date Change Request Queue](#)
- [Report Scheduler Queue](#)
- [Outbound Notifications Queue](#)
- [Change Request Queue](#)

8.11.1 Outbound message queue

View the current daily count of unacknowledged Participant Hub Queue and Participant File Share Outbox messages and see if you have any Outbound Stop Files.

The interface changes to inform participants if they have exceeded the limit of queue and are stopped. If the batch handler is stopped, the reason and the resolution display.

Participant limits for Outbound Messages		
Participant ID	Current	Upper Limit
Participant ID - NEMMCO	26	5000

Current Outbound Messages - NEMMCO		
Transaction Group	Priority	Count
CATS	L	4
HDMT	M	22
Total		26

Stop File Status - NEMMCO	
Reason :	Number of MSTAS .zip files which have not been acknowledged in participant outbox is over the allowed limit.
Resolution :	Please acknowledge MSATS .zip files in participant outbox.

8.11.2 Next schedule read date change request queue

View the daily count of CATS Change Requests with the Change Reason Code 5071 and see if you have any NSRD Notification Stop Files.

8.11.3 Report scheduler queue

View the daily count of unprocessed reports and see if you have any Report Stop Files. This report is still in design. AEMO will provide further details as they are defined.

8.11.4 Outbound notifications queue

View the daily estimate of CATS Change Request Notifications and see if you have any Change Request Notification Stop Files.

8.11.5 Change request queue

View the daily estimate of CATS Change Requests and see if any Change Request Stop Files exist against your Participant ID.

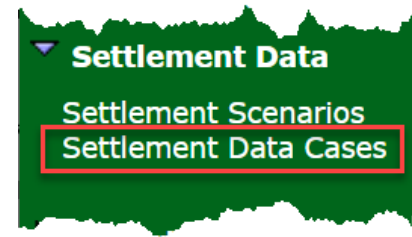
8.12 Settlement data

In the Settlement Data menu, the **Uncommitted Data Cases** and **Committed Data Cases** change to one menu: **Settlement Data Cases**.



8.12.1 New Settlement Data interface

Settlement Data has the following new interface and menu item.



Welcome MEMRCO
 Owned By: MEMRCO

MSATS / Settlement Data / Settlement Scenarios Create Scenario

Settlement Scenario Name Scenario Type Use Frozen profile NSLP Calculation

Type Name Select Type Yes Yes Q Reset filters

Rows per page: 10

Scenario Name	Type	Use Frozen Profile	NSLP Calculation	Created On	Created By	Updated On	Updated By	Cases	Action
FINAL01	Final	Y	Y	01/06/2020 10:18:17		01/06/2020 10:19:03		Completed	...
FINAL1234	Initial	Y	Y	25/05/2020 17:51:02		27/05/2020 12:40:06		Completed	...
FREEST2	Final	Y	Y	12/06/2020 14:28:19	SMISHRA1			Completed	...
FREESTEST	Final	Y	Y	10/06/2020 10:22:00	SMISHRA1			Completed	...
INITIAL02	Initial	Y	Y	02/06/2020 10:56:28				Completed	...
PRELIMS021	Preliminary	Y	Y	21/05/2020 10:11:11				Completed	...
RETEST064	Preliminary	Y	Y	28/05/2020 10:38:52				Completed	...
RETEST06408	Preliminary	Y	Y	28/05/2020 10:59:59				Completed	...
RETEST096	Initial	Y	Y	09/06/2020 10:04:48	SMISHRA1			Completed	...
REVISION126	Revision 1	Y	Y	24/05/2020 16:05:58				Completed	...

Showing 1 to 10 of 19 rows

8.13 Participant impact for the MSATS web portal

- For access to the new web portal functions, PAs need to provide Participant Users with access rights. For help, see User Rights Access on page 135.

9. Reports

9.1 Report availability

Many reports are restricted to participant role types, for example: MDP, LNSP, FRMP, and so on.

9.2 Report requests

Participants obtain reports using the following methods:

1. An MDMT Report Request transaction (initiated by participants) from the **MSATS Web Portal > Reports and Alerts > MDM menu**. The report request:
 - Is for immediate compilation and delivery.
 - Is scheduled to run as a one-off for a choice of reports with an option to specify a run date and time.
2. Using FTP to the Participant File Server, participants can place MDMT report messages directly into their Participant Directory Inbox. The report request can be:
 - For immediate compilation and delivery.
3. Using an API to AEMO's e-Hub. Participants can place MDMT report messages using the AEMO B2M e-Hub Asynchronous Push-Push or Push-Pull APIs. The report request can be:
 - For Immediate compilation and delivery.
4. An AEMO system generated report created by AEMO and sent to participants. These are triggered by:
 - The schedule calendar, for example weekly or monthly.
 - An AEMO system process, for example: Settlements.

9.3 Report delivery

Participants receive reports according to their preferred protocol, either:

1. An FTP response. The report is placed in your Participant File Server Outbox to retrieve.
2. An API response:
 - For Push the report is delivered to your Participant API Gateway.
 - For Pull the report is delivered to your Participant Hub Queue.

9.4 Report formats

Reports are delivered as a csv Payload with the standard Market aseXML wrapper. To ensure report Payloads do not exceed the aseXML file limits the results of each report csv Payload is restricted to several rows.

9.5 Report sequencing

To ensure participants receive all report data, a sequence number is included as the last column to many reports.

To restrict a report from exceeding the file size limit, a row limit is applied to each report response. For example, the RM9 Actual Verses Estimate Data Report has a row limit of 10000.

Where an RM report content exceeds the row limit, the Payload is separated into multiple responses. So, if an RM9 report produced 19000 rows, the Payload is separated into the following separate files:

1. File 1: The Payload includes sequence numbers 1 to 10000.
2. File 2: The Payload includes sequence numbers 10001 to 19000.

AEMO includes the message number and total number of messages in the aseXML response:

```
<ResultBlock>
  <TotalBlockNumber>5</TotalBlockNumber>
  <CurrentBlockNumber>1</CurrentBlockNumber>
</ResultBlock>
```

To support backwards compatibility, the Report Last Sequence Number is optional in the aseXML schema. AEMO no longer uses this field to restrict the RM report results so any value passed in this field is ignored. There are no changes to CATS reports.

9.6 aseXML report message format

To request an MDMT report, the participants system must generate a request that conforms to the applicable aseXML Schema.

Participants zip the aseXML document and upload it into MDM using the MSATS Browser interface, placing the file into your Participant Inbox on the Participant File Server or sending it as an aseXML Payload using AEMO's Market facing e-Hub APIs.

The aseXML document has three sections:

1. **Schema Information:** Details the aseXML schema version information and must not be modified unless AEMO releases an update.
2. **Header Information:** Contains information about the participant submitting the file, its destination, and the MDM reporting transaction group, MDMT.
3. **Transaction Information:** Contains transaction-specific information such as, the report type and report parameters.

These examples refer to schema version r31. For details about the current aseXML schema, see [aseXML Standards](#) on AEMO's website.

Figure 9 on page 80 is an example of an aseXML file for an RM11 Missing Data report. The Payload shows the structure of a transaction containing report parameters.

Figure 9 MDMT aseXML Message Format

```

<?xml:version="1.0" ?>
<ase:aseXML xmlns:ase="urn:aseXML:r31" xmlns:xsi="
http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="urn:aseXML:r31
http://www.nemmco.com.au/aseXML/schemas/r31/aseXML_r31.xsd">
  <<Header>
    <<From>PART1234</From>
    <<To description="Australian Energy Market Operator Limited">NEMMCO</To>
    <<MessageID>NEMMCO-MSG-608170170</MessageID>
    <<MessageDate>2017-03-01T13:33:56+10:00</MessageDate>
    <<TransactionGroup>MDMT</TransactionGroup>
    <<Priority>Medium</Priority>
    <<SecurityContext>PART1234</SecurityContext>
    <<Market>NEM</Market>
  <</Header>
  <<Transactions>
    <<Transaction transactionID="MDMT-608170170" transactionDate=
      "2017-03-01T13:33:56+10:00" initiatingTransactionID="22816831">
      <<<ReportRequest version="r10">
        <<<ReportParameters xsi:type="ase:MDMTMissingDataReportParameters">
          <<<ReportName>MissingData</ReportName>
          <<<FromDate>2010-10-26</FromDate>
          <<<ToDate>2010-11-01</ToDate>
          <<<AsAtDate>2017-03-01T00:00:00+10:00</AsAtDate>
          <<<LastSequenceNumber>0</LastSequenceNumber>
          <<<MDP>PART1234</MDP>
          <<<DataType>Consumption</DataType>
          <<<NMISelection>AllNMIs</NMISelection>
        <<</ReportParameters>
      <<</ReportRequest>
    <<</Transaction>
  <<</Transactions>
</ase:aseXML>
  
```

9.6.1 Header information

Table 1 on page 81 describes the fields for the Header section of the aseXML file. The format is important when creating your aseXML file. If a field entry is entered incorrectly, for example, not capitals when it should be, MDM may reject the file. See also, Header Information in Figure 9 above.

An aseXML file with the Transaction Group of MDMT:

- Supports transactions of the type Meter Data Notification, Meter Data Response, Report Request, Report Response.
- Supports MDMT Report Request transactions for multiple RM report types.
- Cannot have both MDMT Meter Data Notifications and Report Request transactions.
- Cannot have transactions belonging to other Transaction Groups (for example, CATS reports types).

Table 1 Header information

Field Name	Description	Format	Example
<From>	The Participant ID of the participant submitting the file (MDP)	Must be upper case Maximum 8 characters	PART1234
<To>	The AEMO Participant ID	Must be upper case	NEMMCO
<Description>	Free-text field with the description of the submitted request	Upper or lower case Maximum 30 characters	Australian Energy Market Operator Limited
<MessageID>	Unique participant-generated identifier for the file	Maximum 50 characters	NEMMCO-MSG-608170170'
<MessageDate>	Date and time identifier	yyyy-mm-ddThh:mm:ss.sss+10:00	2019-04-10T05:55:27.000+10:00
<TransactionGroup>	Identifies the type of transaction processed	For the RM Metering Data reports the transaction group is always MDMT. This applies to Metering Data supplied through MDFF.	MDMT
<Priority>	Identifies the priority of the transaction and determines the order the transactions are processed		Medium
<SecurityContext>	Identifies the User ID of the Participant User submitting the file		USER1 JSMITH
<Market>	Identifies the Market		NEM

9.6.2 Transaction information

Figure 10 on page 83 is an example of an aseXML file for an MDMT Report Response with csv Payload data.

The transaction information within an MDMT Report Response has:

- **transactionID:** An MDM System generated transaction ID for the MDMT ReportResponse.
- **transactionDate:** The date time that the MDMT Report Response report transaction was generated.
- **initiatingTransactionID:** The transaction ID of the initiating MDMT ReportRequest message.
- **ReportResponse:** The compiled report Payload.
- **ReportParameters:** Parameters used within the request.
- **ReportResults:** The CSVData Response Payload(s).
- **Event:** A standard aseXML element to report errors consistently.

Figure 10 MTRD aseXML Message Response

```

<?xml version="1.0"?>
<ase:aseXML xmlns:ase="urn:aseXML:r39" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="urn:aseXML:r39
http://www.nemmco.com.au/aseXML/schemas/r39/aseXML_r39.xsd">
  <Header>
    <From description="Australian Energy Market Operator Limited">NEMMCO</From>
    <To description="Power Network - MDP">MDP123</To>
    <MessageID>NEMMCO-MSG-999999999</MessageID>
    <MessageDate>2020-04-18T11:22:33+10:00</MessageDate>
    <TransactionGroup>MDMT</TransactionGroup>
    <Priority>Medium</Priority>
    <SecurityContext>NEMMCOBATCH</SecurityContext>
    <Market>NEM</Market>
  </Header>
  <Transactions>
    <Transaction transactionID="MDMT-999999999" transactionDate="2020-04-18T11:22:33+10:00" initiatingTransactionID="12345678">
      <ReportResponse version="r39">
        <ReportParameters xsi:type="ase:MDMTHighPriorityMissingDataReportParameters">
          <ReportName>HighPriorityMissingData</ReportName>
          <FromDate>2020-04-12</FromDate>
          <ToDate>2020-04-18</ToDate>
          <AsAtDate>2020-04-18T00:00:00+10:00</AsAtDate>
          <MDP>MDP123</MDP>
        </ReportParameters>
        <ResultBlock>
          <TotalBlockNumber>5</TotalBlockNumber>
          <CurrentBlockNumber>1</CurrentBlockNumber>
        </ResultBlock>
        <ReportResults xsi:type="ase:CSVReportFormat">
          <CSVData>MDP, SettlementDate, NHI, Suffix, SeqNo
          MDP123, 2020/04/12, XXXX006316, N1, 1
          MDP123, 2020/04/13, XXXX006316, N1, 2
          MDP123, 2020/04/14, XXXX006316, N1, 3
          MDP123, 2020/04/15, XXXX006316, N1, 4
          MDP123, 2020/04/16, XXXX006316, N1, 5
          MDP123, 2020/04/17, XXXX006316, N1, 6
          MDP123, 2020/04/18, XXXX006316, N1, 7
          MDP123, 2020/04/12, XXXX006424, E1, 8
          MDP123, 2020/04/13, XXXX006424, E1, 9
          MDP123, 2020/04/14, XXXX006424, E1, 10
          MDP123, 2020/04/15, XXXX006424, E1, 11
          MDP123, 2020/04/16, XXXX006424, E1, 12
          MDP123, 2020/04/17, XXXX006424, E1, 13
          MDP123, 2020/04/18, XXXX006424, E1, 14
          MDP123, 2020/04/12, XXXX006424, B1, 15
          MDP123, 2020/04/13, XXXX006424, B1, 16
          MDP123, 2020/04/14, XXXX006424, B1, 17
          MDP123, 2020/04/15, XXXX006424, B1, 18
          MDP123, 2020/04/16, XXXX006424, B1, 19
          MDP123, 2020/04/17, XXXX006424, B1, 20
          MDP123, 2020/04/18, XXXX006424, B1, 21
          MDP123, 2020/04/12, XXXX008037, E1, 22
          MDP123, 2020/04/13, XXXX008037, E1, 23
          MDP123, 2020/04/14, XXXX008037, E1, 24
          MDP123, 2020/04/15, XXXX008037, E1, 25
          MDP123, 2020/04/16, XXXX008037, E1, 26
          MDP123, 2020/04/17, XXXX008037, E1, 27
          MDP123, 2020/04/18, XXXX008037, E1, 28
          MDP123, 2020/04/12, XXXX008037, B1, 29
          MDP123, 2020/04/13, XXXX008037, B1, 30
          MDP123, 2020/04/14, XXXX008037, B1, 31
          MDP123, 2020/04/15, XXXX008037, B1, 32
          MDP123, 2020/04/16, XXXX008037, B1, 33
          MDP123, 2020/04/17, XXXX008037, B1, 34
          MDP123, 2020/04/18, XXXX008037, B1, 35
          MDP123, 2020/04/12, XXXX008037, Q1, 36
          MDP123, 2020/04/13, XXXX008037, Q1, 37
          MDP123, 2020/04/14, XXXX008037, Q1, 38
          MDP123, 2020/04/15, XXXX008037, Q1, 39
          MDP123, 2020/04/16, XXXX008037, Q1, 40
          MDP123, 2020/04/17, XXXX008037, Q1, 41
          MDP123, 2020/04/18, XXXX008037, Q1, 42
          MDP123, 2020/04/12, XXXX008037, K1, 43
          MDP123, 2020/04/13, XXXX008037, K1, 44
          MDP123, 2020/04/14, XXXX008037, K1, 45
          MDP123, 2020/04/15, XXXX008037, K1, 46
          MDP123, 2020/04/16, XXXX008037, K1, 47
          MDP123, 2020/04/17, XXXX008037, K1, 48
          MDP123, 2020/04/18, XXXX008037, K1, 49</CSVData>
        </ReportResults>
        <Event severity="Information">
          <Code>0</Code>
          <Explanation>Success.</Explanation>
        </Event>
      </ReportResponse>
    </Transaction>
  </Transactions>
</ase:aseXML>

```

9.7 Multiple payload schemas

Previously, we announced the addition of multiple csv Payloads in one RM13 NMI Datastream History Report. This design is changed so when a report has reads with different Interval resolutions a separate report is created for each Interval granularity.

For details about report sequencing, see page 78.

For example, if a Meter changes over time from 48 intervals (30-minute) to 96 intervals (15-minute), then to 288 intervals (5-minute) and an RM13 NMI Datastream History Report is requested for all Interval types, you receive 3 reports, one for each Interval length with its own csv Payload.

9.7.1 RM13 report example

```
<?xml version="1.0" encoding="UTF-8"?>
<ase:aseXML xsi:schemaLocation="urn:aseXML:r39_p1
http://www.nemmco.com.au/aseXML/schemas/r39_p1/aseXML_r39_p1.xsd"
xmlns:ase="urn:aseXML:r39_p1"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <Header>
    <From>NEMMCO</From>
    <To>POWERCOR</To>
    <MessageID>NEMMCO_MSG_20201217112900457_221723</MessageID>
    <MessageDate>2020-12-17T11:31:39+10:00</MessageDate>
    <TransactionGroup>MDMT</TransactionGroup>
    <Priority>Medium</Priority>
    <SecurityContext>NEMMCOBATCH</SecurityContext>
    <Market>NEM</Market>
  </Header>
  <Transactions>
    <Transaction initiatingTransactionID="e60dc045-5a0a-402c-a6c9-
b97fe2eb4c38" transactionID="MDMT-20201217112900457-315604"
transactionDate="2020-12-17T11:31:39+10:00">
      <ReportResponse version="r39">
        <ReportParameters
xsi:type="ase:MDMTNMIDataStreamsHistoryReportParameters">
          <ReportName>NMIDataStreamsHistory</ReportName>
          <FromDate>2020-07-20</FromDate>
          <ToDate>2020-07-25</ToDate>
          <AsAtDate>2020-12-17T00:00:00+10:00</AsAtDate>
          <LastSequenceNumber>0</LastSequenceNumber>
          <NMI>6203227048</NMI>
          <DataType>Interval</DataType>
        </ReportParameters>
        <ReportResults xsi:type="ase:CSVReportFormat">
          <CSVData>SettlementDate,NMI,Suffix,LoadDT,MDPVersionDT,MDP,Period01,Per
iod02,Period03,Period04,Period05,Period06,Period07,Period08,Period09,Pe
riod10,Period11,Period12,Period13,Period14,Period15,Period16,Period17,P
eriod18,Period19,Period20,Period21,Period22,Period23,Period24,Period25,
```

Period26, Period27, Period28, Period29, Period30, Period31, Period32, Period33, Period34, Period35, Period36, Period37, Period38, Period39, Period40, Period41, Period42, Period43, Period44, Period45, Period46, Period47, Period48, Period49, Period50, Period51, Period52, Period53, Period54, Period55, Period56, Period57, Period58, Period59, Period60, Period61, Period62, Period63, Period64, Period65, Period66, Period67, Period68, Period69, Period70, Period71, Period72, Period73, Period74, Period75, Period76, Period77, Period78, Period79, Period80, Period81, Period82, Period83, Period84, Period85, Period86, Period87, Period88, Period89, Period90, Period91, Period92, Period93, Period94, Period95, Period96, Period97, Period98, Period99, Period100, Period101, Period102, Period103, Period104, Period105, Period106, Period107, Period108, Period109, Period110, Period111, Period112, Period113, Period114, Period115, Period116, Period117, Period118, Period119, Period120, Period121, Period122, Period123, Period124, Period125, Period126, Period127, Period128, Period129, Period130, Period131, Period132, Period133, Period134, Period135, Period136, Period137, Period138, Period139, Period140, Period141, Period142, Period143, Period144, Period145, Period146, Period147, Period148, Period149, Period150, Period151, Period152, Period153, Period154, Period155, Period156, Period157, Period158, Period159, Period160, Period161, Period162, Period163, Period164, Period165, Period166, Period167, Period168, Period169, Period170, Period171, Period172, Period173, Period174, Period175, Period176, Period177, Period178, Period179, Period180, Period181, Period182, Period183, Period184, Period185, Period186, Period187, Period188, Period189, Period190, Period191, Period192, Period193, Period194, Period195, Period196, Period197, Period198, Period199, Period200, Period201, Period202, Period203, Period204, Period205, Period206, Period207, Period208, Period209, Period210, Period211, Period212, Period213, Period214, Period215, Period216, Period217, Period218, Period219, Period220, Period221, Period222, Period223, Period224, Period225, Period226, Period227, Period228, Period229, Period230, Period231, Period232, Period233, Period234, Period235, Period236, Period237, Period238, Period239, Period240, Period241, Period242, Period243, Period244, Period245, Period246, Period247, Period248, Period249, Period250, Period251, Period252, Period253, Period254, Period255, Period256, Period257, Period258, Period259, Period260, Period261, Period262, Period263, Period264, Period265, Period266, Period267, Period268, Period269, Period270, Period271, Period272, Period273, Period274, Period275, Period276, Period277, Period278, Period279, Period280, Period281, Period282, Period283, Period284, Period285, Period286, Period287, Period288, StatusFlags, SeqNo, A_H
 2020/07/21, 6203227048, N1, 2020/07/22 05:41:03, 2020/07/22
 03:31:02, POWERMDP, 0.0430, 0.0960, 0.0980, 0.0330, 0.1590, 0.0800, 0.0440, 0.1350, 0.0550, 0.0920, 0.1210, 0.1120, 0.1180, 0.1390, 0.2560, 0.2320, 0.1180, 0.1260, 0.3950, 0.1320, 0.1880, 0.1670, 0.1760, 0.1720, 0.7840, 0.1900, 0.4940, 0.2680, 0.1160, 0.1310, 0.2840, 0.1740, 0.1560, 0.1130, 0.2840, 0.2500, 0.3420, 0.4280, 0.4320, 0.3940, 0.3290, 0.3480, 0.2660, 0.4650, 0.4780, 0.2500, 0.2920, 0.3100, 0.0430, 0.0960, 0.0980, 0.0330, 0.1590, 0.0800, 0.0440, 0.1350, 0.0550, 0.0920, 0.1210, 0.1120, 0.1180, 0.1390, 0.2560, 0.2320, 0.1180, 0.1260, 0.3950, 0.1320, 0.1880, 0.1670, 0.1760, 0.1720, 0.7840, 0.1900, 0.4940, 0.2680, 0.1160, 0.1310, 0.2840, 0.1740, 0.1560, 0.1130, 0.2840, 0.2500, 0.3420, 0.4280, 0.4320, 0.3940, 0.3290, 0.3480, 0.2660, 0.4650, 0.4780, 0.2500, 0.2920, 0.3100, 0.0430, 0.0960, 0.0980, 0.0330, 0.1590, 0.0800, 0.0440, 0.1350, 0.0550, 0.0920, 0.1210, 0.1120, 0.1180, 0.1390, 0.2560, 0.2320, 0.1180, 0.1260, 0.3950, 0.1320, 0.1880, 0.1670, 0.1760, 0.1720, 0.7840, 0.1900, 0.4940, 0.2680, 0.1160, 0.1310, 0.2840, 0.1740, 0.1560, 0.1130, 0.2840, 0.2500,

```

0.3420,0.4280,0.4320,0.3940,0.3290,0.3480,0.2660,0.4650,0.4780,0.2500,0
.2920,0.3100,0.0430,0.0960,0.0980,0.0330,0.1590,0.0800,0.0440,0.1350,0.
0550,0.0920,0.1210,0.1120,0.1180,0.1390,0.2560,0.2320,0.1180,0.1260,0.3
950,0.1320,0.1880,0.1670,0.1760,0.1720,0.7840,0.1900,0.4940,0.2680,0.11
60,0.1310,0.2840,0.1740,0.1560,0.1130,0.2840,0.2500,0.3420,0.4280,0.432
0,0.3940,0.3290,0.3480,0.2660,0.4650,0.4780,0.2500,0.2920,0.3100,0.0430
,0.0960,0.0980,0.0330,0.1590,0.0800,0.0440,0.1350,0.0550,0.0920,0.1210,
0.1120,0.1180,0.1390,0.2560,0.2320,0.1180,0.1260,0.3950,0.1320,0.1880,0
.1670,0.1760,0.1720,0.7840,0.1900,0.4940,0.2680,0.1160,0.1310,0.2840,0.
1740,0.1560,0.1130,0.2840,0.2500,0.3420,0.4280,0.4320,0.3940,0.3290,0.3
480,0.2660,0.4650,0.4780,0.2500,0.2920,0.3100,FFFFFFFFFFFFFFFFFAAAAAAAA
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA,1,A
etc.</CSVData>
    </ReportResults>
  <Event severity="Information">
    <Code>0</Code>
    <Explanation>Success.</Explanation>
  </Event>
</ReportResponse>
</Transaction>
</Transactions>
</ase:aseXML>

```

9.8 Existing MDM report changes

The following reports are impacted as part of the 5MS changes.

9.8.1 RM11 – MDM missing data report

This report supports Settlements by listing all NMI Datastreams without data loaded, identifying missing data for all active NMI Datastream Suffixes.

New logic excludes the reporting of missing Net reads where the Metering Data is received as Ex and Bx with a corresponding MDM Datastream Identifier to the active Net Datastream.

The report includes all Datastreams having an active suffix in the CATS NMI Datastream.

The report is automated to become a push report to MDP participants scheduled prior to each Settlement run based on the **MDP Data Delivery Calendar**.

Type	Code	Settlement schedule	Report schedule	Run time
Prelim	P	Tuesday for trading week	Monday (Schedule -1 Day)	09:00
Final	F	Thursday for trading week	Wednesday (Schedule -1 Day)	09:00
Revision 1	R1	Wednesday for trading week	Tuesday (Schedule -1 Day)	09:00
Revision 2	R2	Thursday for trading week	Wednesday (Schedule -1 Day)	09:00

9.8.2 RM13 – NMI datastream history report

Allows participants to retrieve the history of a NMI DataStream's Metering Data for a specified period.

Changes include:

1. Multiple messages to support different Interval granularities.
2. Inclusion of multiple Datastreams on receipt of MDFF files.
3. To support MDFF reads, interval decimal places are increased to four.

9.8.3 RM16 – Level 1 Settlement reconciliation

Provides level 1 reconciliation for aggregated interval data and has a csv Payload to support the Settlement time interval.

9.8.4 RM17 – Level 3 Settlement reconciliation

Provides interval data for all suffixes of a particular NMI used during a Settlements run.

Changes include:

1. A csv Payload to support the Settlement time interval.
2. Inclusion of multiple Datastreams on receipt of MDFF files.
3. The MDP version date/time added resulting from a Market Participant change request.
4. The latest version date/time used in Settlements for the reported Settlement Day.
5. The MDPVersionDT in the csv field immediately prior to the SeqNo.

6. Where AEMO calculate a substitute reading for Settlement calculations, the reading type flag:
 - For interval Meters changes from **P** to **Z**.
 - For accumulation Meters changes to **E**.
7. For Consumption Meters, where the MDP provided Meter reads, changes from **P** to **A**.

9.8.5 **RM20 – Profile shape data report**

Provides profile shape data for each Local Profile Area within a Settlement period and has a csv Payload to support the Settlement time interval.

Changes include:

1. If requested by CaseID, provides all profile data including two weeks of frozen profile data.
2. Provides the profile data for each date and each included case ID between the start and end date (maximum of seven Days).

9.8.6 **RM21 – Level 2 settlement reconciliation report**

Provides the daily totals of Load data for each NMI with the supplied TNI.

Changes include:

1. Participant subscription is via the RM27 report.
2. The MDP version date/time added resulting from a Market Participant change request.
3. The latest version date/time used in Settlements for the reported Settlement Day.
4. The MDPVersionDT in the csv field immediately prior to the SeqNo.

9.8.7 **RM22 – Data estimate report**

Details of Settlement data estimated by AEMO during the Settlement run with:

1. A csv Payload to support the Settlement time interval
2. Each active NMI Datastream suffix used for Settlements

9.8.8 RM26 – MDP substitution and estimation report

Provides details of substitutions and estimations still current for a Settlement week with:

1. A flag field increased to support the Settlement time interval.
2. Each active NMI Datastream suffix used for Settlements.

9.9 New MDM reports

The following new MDM reports are added for this Release.

9.9.1 RM37 - High priority missing data report

Purpose	Allows identification of missing Meter readings for NMI Classification codes: INTERCON, GENERATR, WHOLSAL, BULK, XBOUNDRY and DWHOLSAL
Content	A list of Connection Point Suffixes having missing data for each Settlement Day.
Context Type	HighPriorityMissingDataReportParameters
Roles	MDP, FRMP
Created	Pushed to MDPs each Day after the completion of the Meter read load process.
Delivery	Participant's preferred method. For details, see Report delivery on page 78.
Manual request	Pulled using a request method. For details, see Report requests on page 77.
Format	csv wrapped within the Market standard aseXML.
User rights entity	RM37 HIGH PRIORITY MISSING DATA

RM37 Report parameters

Figure 11 below is an example of the report parameters.

Field Name	Description	Example	Requirement
ReportName	Name of Report	HighPriorityMissingData	Mandatory
FromDate	Start date of data	2010-10-26	Mandatory
ToDate	End date of data	2010-11-01	Mandatory
AsAtDate	Reading load prior to date	2017-03-01t00:00:00+10:00	Mandatory
MDP	MDP for readings	PART1234	Optional

Figure 11 Example of RM37 report parameters

```
<ReportParameters xsi:type="ase:HighPriorityMissingDataReportParameters">
  <ReportName>HighPriorityMissingData</ReportName>
  <FromDate>2019-05-19</FromDate>
  <ToDate>2019-05-25</ToDate>
  <AsAtDate>2019-05-27T00:00:00+10:00</AsAtDate>
  <MDP>PART1234</MDP>
</ReportParameters>
```

RM37 Output

Field	Description	Example
MDP	MDP Participant Code	PART1234
SettlementDate	Date of missing reading data	2019/05/19
NMI	NMI number of missing data	XXXX006316
Suffix	Datastream suffix ID	B1
SeqNo	Row count	1

	A	B	C	D	E
1					
2	MDP	SettlementDate	NMI	Suffix	SeqNo
3	MDP123	12/04/2017	XXXX006316	N1	1
4	MDP123	13/04/2017	XXXX006316	N1	2
5	MDP123	14/04/2017	XXXX006316	N1	3
6	MDP123	15/04/2017	XXXX006316	N1	4
7	MDP123	16/04/2017	XXXX006316	N1	5
8	MDP123	17/04/2017	XXXX006316	N1	6
9	MDP123	18/04/2017	XXXX006316	N1	7
10	MDP123	12/04/2017	XXXX006424	E1	8
11	MDP123	13/04/2017	XXXX006424	E1	9
12	MDP123	14/04/2017	XXXX006424	E1	10
13	MDP123	15/04/2017	XXXX006424	E1	11
14	MDP123	16/04/2017	XXXX006424	E1	12

9.9.2 RM38 - Datastream missing data report

Purpose	Allows identification of missing Datastream readings required to create a net Datastream for the Settlement week.
Content	<p>A list of NMIs and Suffixes having missing data for each Settlement Day during the specified period.</p> <p>Checks if:</p> <ul style="list-style-type: none"> - Datastream 'Nx' is active in the CATS NMI Datastream table. - NMIConfiguration in the MDF file includes either: Ex, Bx, Dx, or Ax suffix - NMISuffix records are provided for each Ex, Bx, Dx, or Ax suffix.
Context Type	DatastreamMissingDataReportParameters

Role	MDP, FRMP
Created	Pushed to MDPs 1 business Day prior to each Settlement type run.
Delivery	Participants preferred method. For details, see Report delivery on page 78.
Manual request	Pulled using a request method. For details, see Report requests on page 77.
Format	csv wrapped within the Market standard aseXML.
User rights entity	RM38 DATASTREAM MISSING DATA

Figure 12 below is an example of the reporting parameters.

Figure 12 Example of RM38 reporting parameters

```
<ReportParameters xsi:type="ase:DataStreamMissingDataReportParameters">
  <ReportName>DatastreamMissingData</ReportName>
  <FromDate>2019-05-19</FromDate>
  <ToDate>2019-05-25</ToDate>
  <AsAtDate>2019-05-27T00:00:00+10:00</AsAtDate>
  <MDP>PART1234</MDP>
</ReportParameters>
```

RM38 Report parameters

Field Name	Description	Example	Requirement
ReportName	Name of Report	DatastreamMissingData	Mandatory
FromDate	Start date of data	2010-10-26	Mandatory
ToDate	End date of data	2010-11-01	Mandatory
AsAtDate	Reading load prior to date	2017-03-01t00:00:00+10:00	Mandatory
MDP	MDP for readings	PART1234	Optional

RM38 Output

Field	Description	Example
MDP	MDP participant code	MDP123
SettlementDate	Date of missing reading data	2018/04/18
NMI	NMI of missing data	XXXX006316
Suffix	Datastream suffix	B1
SeqNo	Row count	1

	A	B	C	D	E
1					
2	MDP	SettlementDate	NMI	Suffix	SeqNo
3	MDP123	12/04/2017	XXXX006316	E1	1
4	MDP123	13/04/2017	XXXX006316	E1	2
5	MDP123	14/04/2017	XXXX006316	E1	3
6	MDP123	15/04/2017	XXXX006316	E1	4
7	MDP123	16/04/2017	XXXX006316	E1	5
8	MDP123	17/04/2017	XXXX006316	E1	6
9	MDP123	18/04/2017	XXXX006316	E1	7
10	MDP123	12/04/2017	XXXX006424	E1	8
11	MDP123	13/04/2017	XXXX006424	E1	9
12	MDP123	14/04/2017	XXXX006424	E1	10
13	MDP123	15/04/2017	XXXX006424	E1	11
14	MDP123	16/04/2017	XXXX006424	E1	12
15	MDP123	17/04/2017	XXXX006424	E1	13
16	MDP123	18/04/2017	XXXX006424	E1	14

9.9.3 **RM39 - Mismatch data report**

Purpose	Allows Identification of Datastream readings provided within a Settlement week not having related NMI Standing Data.
Content	A list of kWh and kVarh Datastream reads received, not having a corresponding NMI Standing Data record for the reading period. kVarh Datastreams are excluded where an Nx (Net) Datastream has supporting readings.
Context Type	MismatchDataReportParameters
Roles	MDP, FRMP

Created	Pushed to MDPs 1 business Day prior to each Settlement type run.
Delivery	Participants preferred method. For details, see Report delivery on page 78.
Manual request	Pulled using a requested method. For details, see Report requests on page 77.
Format	csv wrapped within the Market standard aseXML.
User rights entity	RM39 MISMATCH DATA

RM39 Report parameters

Figure 13 below is an example of the reporting parameters.

Field	Description	Example	Requirement
ReportName	Name of Report	MismatchData	Mandatory
FromDate	Start date of data	2010-10-26	Mandatory
ToDate	End date of data	2010-11-01	Mandatory
AsAtDate	Reading load prior to date	2017-03-01t00:00:00+10:00	Mandatory
MDP	MDP for readings	PART1234	Optional

Figure 13 Example of RM39 Reporting Parameters

```
<ReportParameters xsi:type="ase:MismatchDataReportParameters">
  <ReportName>MismatchData</ReportName>
  <FromDate>2019-05-19</FromDate>
  <ToDate>2019-05-25</ToDate>
  <MDP>PART1234</MDP>
</ReportParameters>
```

RM39 Output

Field Name	Description	Example Data
MDP	MDP participant code	MDP123
SettlementDate	Date of missing reading data	2018/04/18
NMI	NMI number of missing data	VCCC006316
MeterSerialNumber	Meter number	METSER123
Suffix	Datastream suffix	B1
MDPVerionDT	Date/Time reading taken by MDP	
Error Type	NMI or Datastream	
SeqNo	Row count	1

	A	B	C	D	E	F	G
1							
2	MDP	SettlementDate	NMI	MeterSerialNumber	Suffix	SeqNo	
3	MDP123	12/04/2017	XXXX123958	MET98765	N1	1	
4	MDP123	13/04/2017	XXXX123958	MET98765	N1	2	
5	MDP123	14/04/2017	XXXX123958	MET98765	N1	3	
6	MDP123	15/04/2017	XXXX123958	MET98765	N1	4	
7	MDP123	16/04/2017	XXXX123958	MET98765	N1	5	
8	MDP123	17/04/2017	XXXX123958	MET98765	N1	6	
9	MDP123	18/04/2017	XXXX123958	MET98765	N1	7	
10	MDP123	12/04/2017	XXXX125873	MET5648A	E1	8	
11	MDP123	13/04/2017	XXXX125873	MET5648A	E1	9	
12	MDP123	14/04/2017	XXXX125873	MET5648A	E1	10	
13	MDP123	15/04/2017	XXXX125873	MET5648A	E1	11	
14	MDP123	16/04/2017	XXXX125873	MET5648A	E1	12	
15	MDP123	17/04/2017	XXXX125873	MET5648A	E1	13	
16	MDP123	18/04/2017	XXXX125873	MET5648A	E1	14	
17	MDP123	12/04/2017	XXXX256981	9865META	B1	15	

9.10 Retired MDM reports

The Metering working group approved the retirement of the following participant MDM reports:

Report	Description	Requested by
RM7	MDP Data Delivery	AEMO
RM8	Date BMP PPS Generated Report	Participants
RM10	Load Aggregation Error Report	AEMO
RM12	Wholesale Maximum Value Report	AEMO
RM14	MDP Data Version Comparison Report	Participants

RM15	Multiple Versions Report	Participants
RM18	Electricity Interval Data Report	Participants
RM19	Aggregated Actual vs Estimate Report	AEMO

9.11 Existing CATS report changes

Report	Change
C1 Data Replication Resynchronisation Report	The Transmission Node Identifier 2 field (TNI2) is included at the end of the ElectricityNMIMaster replication block when populated For details, see ElectricityMasterStandingData_r39_p1.xsd
C4 NMI Master Report	
C7 New Participant Data Access Report	
C11 Monthly Retail Statistics Report	To support the existing graph, the report includes a table with the Total Number of NMI's quantity

9.12 Existing PMS report changes

Participant role	Service level reporting change	Change
LNSP	LRERR - Local Retailer Participant ID Error	Remove at Global Settlement go-live
	NMIST3 - NMI Status not updated to N within 5 Business Days error	Remove as off-market child NMIs are not relevant for LNSPs
ENM	ADWNAN_INTERVAL2 - Active Datastream with a non-active NMI and Metering Data received is not zero	Addition of new service level check
	CTCERR2 - List of NMIs not having a Customer Threshold Code assigned	Addition of new service level check
FRMP	HIGHREAD2 - Type 6, MRIM, and VICAMI NMIs exceeding Meter installation capacity	Addition of new service level check

MC	HIGHREADS - Type 6, MRIM, and VICAMI NMIs exceeding Meter installation capacity	Addition of new service level check
MPB	METDET - Meter installation details not updated within 5 Business Days	Addition of new service level check
MDP	DANDS - Duplicate active Datastreams	Updated to include duplicate active Basic or Interval Datastreams or Basic and Interval datastream during the same period
	DAIDS - Duplicate active interval Datastreams	Remove include in DANDS
	IREFER - Interval Datastream with incorrect profile	Remove once CR logic included to restrict errors
	ISUFER - Interval Datastream with incorrect suffix	Remove once CR logic included to restrict errors
	MDPERR - Possible incorrect MDP assigned	Updated to reflect Global Settlement changes
	NADL - Null ADL entry	Removed as ADL is a mandatory CR field
	NIPREFER - Non-Interval Datastream with incorrect profile	Remove once CR logic included to restrict errors
	NISUFER - Non-Interval Datastream with incorrect suffix	Remove once CR logic included to restrict errors

9.13 Participant impact for reports

Report logic may not be available at MDM go live. AEMO will provide a separate schedule advising the release dates into production.

For other impacts due to the aseXML schema change r39_p1, see Push RM new report issue on page 41.

10. Energy Profiling and Aggregation

A change in profiling methodology means Retailers and Distribution companies may need to change their reconciliation processes or checks. The changes to the profile shapes are published in:

1. **LOAD PROFILES:** <https://www.aemo.com.au/Electricity/National-Electricity-Market-NEM/Data/Metering/Load-Profiles>
2. **METERING PACKAGE 1: METERING DATA:**
<https://www.aemo.com.au/Electricity/National-Electricity-Market-NEM/Five-Minute-Settlement/Procedures-Workstream/Metering-package-1---Metering-data>

11.APIs

The Guide to NEM Retail APIs replaces the API details in this section.

11.1 API types

The following APIs are available for participants to manage their retail B2M communications:

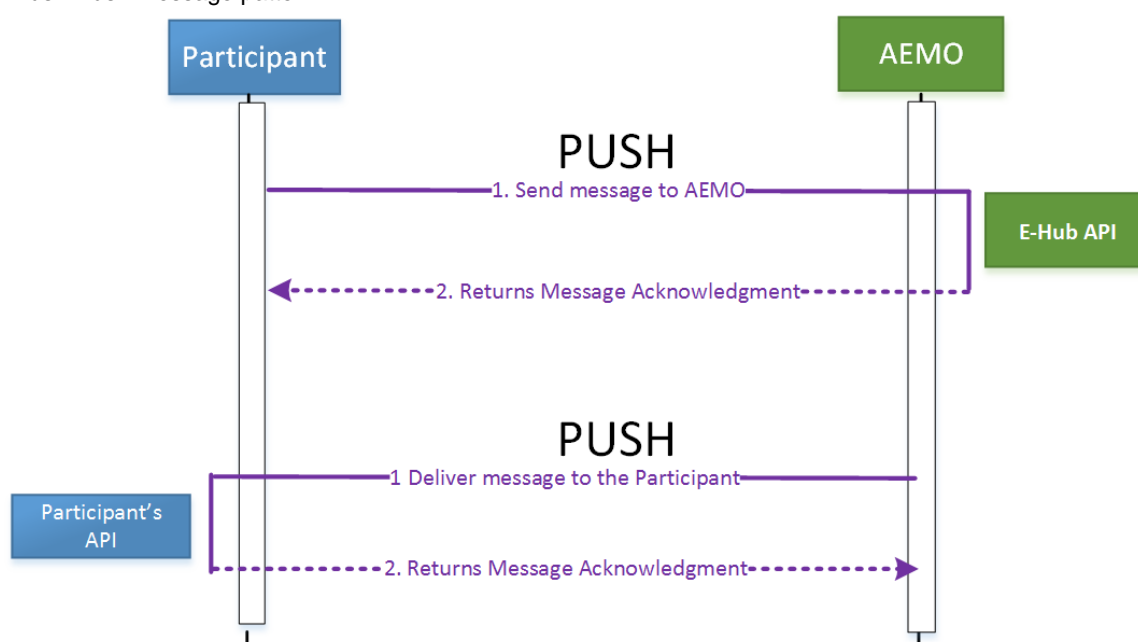
1. MSATS Web Services, for details, see Guide to Web Services.
2. A new set of APIs supporting an inbound Push protocol.
3. A new set of APIs supporting either an outbound Push or Pull protocol.
4. A new set of APIs supporting B2M message management.

11.1.1 Asynchronous API push-push

The Push-Push API requires API implementation at:

1. The AEMO e-Hub (API Gateway and API Portal).
2. The Participant API Gateway.

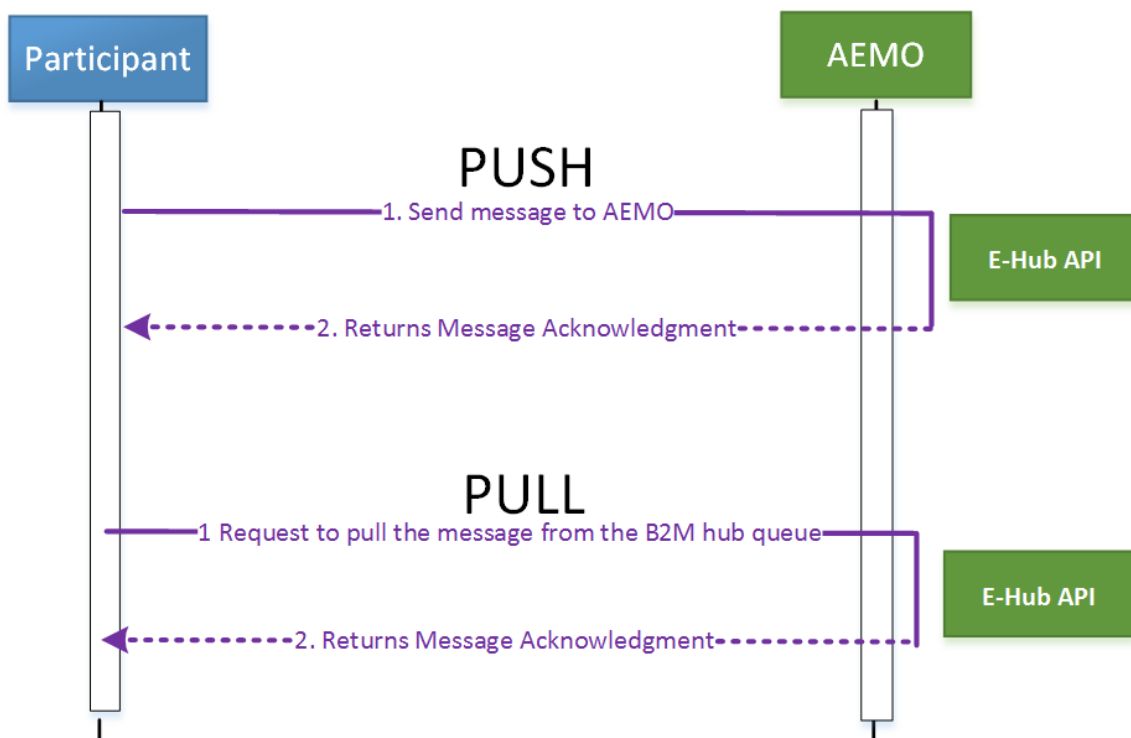
Figure 14 Push-Push message pattern



11.1.2 Asynchronous API push-pull

The Push-Pull API requires implementation only at the AEMO e-Hub.

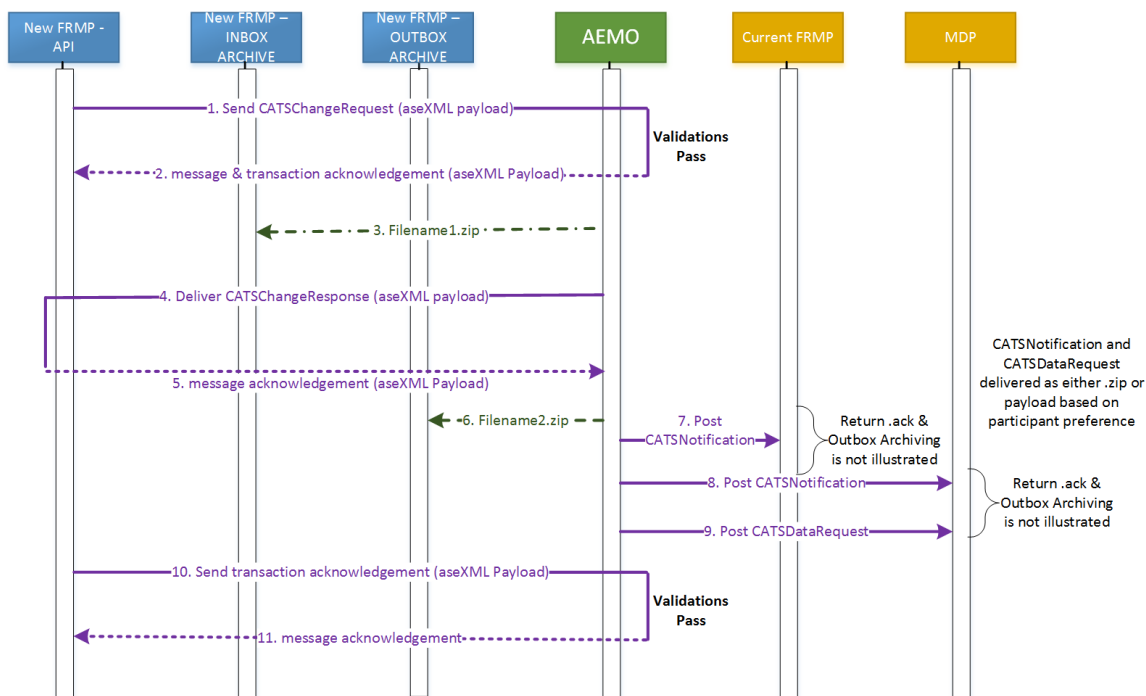
Figure 15 Push-Pull message pattern



11.1.3 Submission API push > receipt API push

This diagram describes the common message and transaction exchange processes for B2M transactions when participants submit an API and invoke a second API to receive messages (Asynchronous API Push-Push).

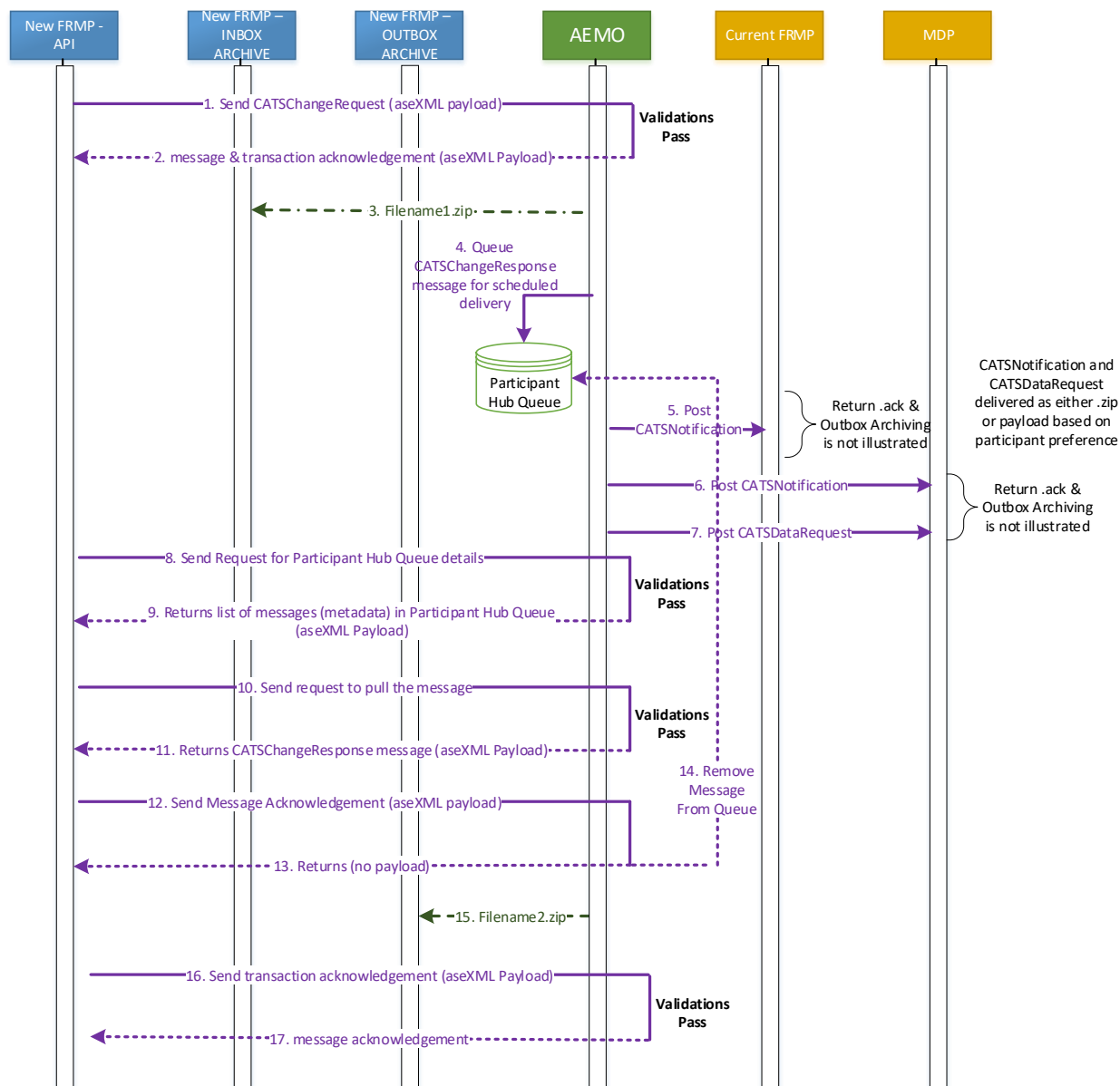
Figure 16 Submission API Push-Push – Receipt API Push-Push



11.1.4 Submission API push > receipt API pull

This diagram describes the common message and transaction exchange processes for B2M transactions when participants submit an API and invoke a second API to receive messages (Asynchronous API Push-Pull).

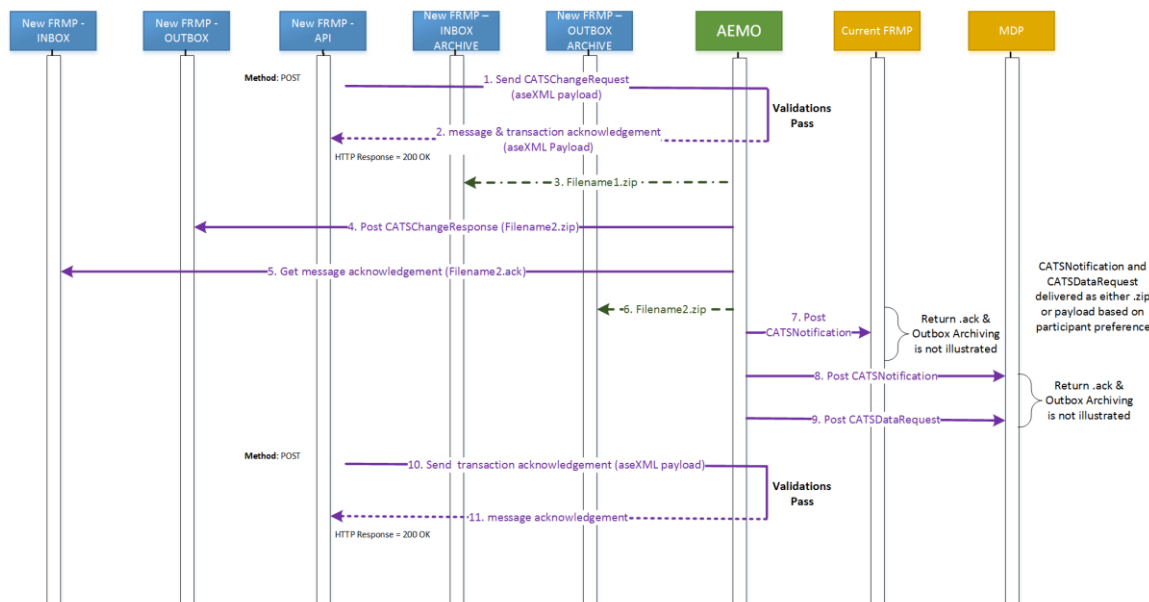
Figure 17 Submission API Push > Receipt API Pull



11.1.5 Submission API push > receipt FTP participant file server

This diagram describes the common message exchange protocol for all B2M transactions when participants submit an API and receive by FTP Participant File Server.

Figure 18 INBOX API Push > OUTBOX FTP Participant File Server



11.1.6 Submission API push > receipt API pull/push or FTP process

Step	Initiator	Action	Recipient	Receipt API Push	Receipt API Pull	Receipt FTP
1.	New FRMP	Sends CATSChangeRequest API	AEMO			
2.	AEMO	Validates and sends message and transaction acknowledgement Determines the protocol preference for B2M messaging	New FRMP	HTTP Response	HTTP Response	HTTP Response
3.	AEMO	Sends the CATSChangeResponse	New FRMP	API	Participant Hub Queue	Participant File Server Outbox
4.	FRMP	Validates the CATSChangeResponse, sends a message and then a transaction acknowledgement	AEMO			

5.	AEMO	Sends CATSNotification	Current FRMP and all participant assigned to a role on the change request (except new FRMP)	API	Participant Hub Queue	Participant File Server Inbox
6.	AEMO	Sends CATSDataRequest for the Actual Change Date	MDP	API	Participant Hub Queue	Participant File Server Inbox
7.	New FRMP	Sends request for Participant Hub Queue details	AEMO	n/a	API to Participant Hub Queue	n/a
8.	AEMO	Returns list (metadata) of messages	New FRMP	n/a	API	n/a
9.	New FRMP	Send request to pull a message	AEMO	n/a	API	n/a
10.	AEMO	Sends CATSChangeResponse	New FRMP	API	API to Participant Hub queue.	Participant File Server Inbox
11.	New FRMP	Sends transaction acknowledgment.	AEMO	API	API to Participant Hub Queue.	Participant File Server Inbox
12.	AEMO	Validates the incoming message and sends a message acknowledgment.	New FRMP	HTTP response	HTTP response	Participant File Server Outbox

11.2 B2MmessagingSync

Participants can use this API to retrieve the following resources:

1. generateC4Report
2. NMIDiscovery

3. getMeterData
4. getMSATSLimits
5. getNMIdetail
6. getParticipantSystemStatus

11.2.1 API parameters

Parameter	Description
Content Type	text/xml
Accept	text/xml
Authorization	Two-way SSL and Basic Auth
System	MSATS/CATS

11.2.2 generateC4Report

Description	Method	URL
Provides a single NMI Master (C4) report	GET	NEMRetail/B2MmessagingSync/v2/generateC4Report/report

Header parameters

Parameter	Required	Description/Format
X-initiatingParticipantID	Yes	Participant ID
X-market	Yes	NEM
transactionId	Yes	
NMI	Yes	

fromDate	Yes	YYYY-MM-DD
toDate	Yes	YYYY-MM-DD
asatDate	Yes	YYYY-MM-DD
roleld	No	e.g. FRMP
inittransid	No	string

Response

Response code	Payload
200 OK	aseXML NMI discovery response
500	No Payload

11.2.3 NMIDiscovery

Description	Method	URL
Provides a list of NMIs matching the search criteria for the 3 types of NMI Discovery search: <ol style="list-style-type: none"> 1. Delivery point identifier (DPID) 2. Meter serial 3. Address 	GET	NEMRetail/B2MmessagingSync/v2/NMIDiscovery/

Header parameters

Parameter	Required	Description/Format
X-initiatingParticipantID	Yes	Participant ID
X-market	Yes	NEM

transactionId	Yes	
jurisdictionCode	Yes	
deliveryPointIdentifier	No	Mandatory if searching by DPID
MeterSerialNumber	No	Mandatory if searching by Meter serial number
buildingOrPropertyName	No	
locationDescriptor	No	
lotNumber	No	
flatOrUnitType	No	
flatOrUnitNumber	No	
floorOrLevelType	No	
floorOrLevelNumber	No	
houseNumber	No	
houseNumberSuffix	No	
streetName	No	
streetSuffix	No	
streetType	No	
suburbOrPlaceOrLocality	No	
postcode	No	
stateOrTerritory		Mandatory if searching by address

Response

Response code	Payload
200 OK	report response transaction
500	No Payload

11.2.4 getMSATSLimits

Description	Method	URL
Provides the current status of MSATS Limits. If the participant is a member of a group then the limits are the group limits, otherwise they are the participant limits	GET	NEMRetail/B2MmessagingSync/v2/getMSATSLimits/

Header parameters

Parameter	Required	Description/Format
X-initiatingParticipantID	Yes	Participant ID
X-market	Yes	NEM
transactionId	Yes	

Response

Response code	Payload
200 OK	MSATS report response transaction
500	No Payload

11.2.5 getNMIDetail

Description	Method	URL
Provides details of a specified NMI. Based on the input parameters returns the NMI Detail or Role Data	GET	NEMRetail/B2MmessagingSync/v2/getNMIDetail/

Header parameters

Parameter	Required	Description/Format
X-initiatingParticipantID	Yes	Participant ID
X-market	Yes	NEM
transactionId	Yes	
nmi	Yes	
checksum	Yes	
type	No	
reason	No	

Response

Response code	Payload
200 OK	MSATS NMI Standing Data response
500	No Payload

11.2.6 **getParticipantSystemStatus**

Description	Method	URL
Provides the current participant system status	GET	NEMRetail/B2MmessagingSync/v2/getParticipantSystemStatus

Header parameters

Parameter	Required	Description/Format
X-initiatingParticipantID	Yes	Participant ID
X-market	Yes	NEM
transactionId	Yes	

Response

Response code	Payload
200 OK	report response transaction
500	No Payload

11.3 **B2MmessagingAsync**

Participants can use this API to submit and retrieve the following B2M resources:

1. submitMessages
2. submitMessageAcknowledgements
3. getQueueMetaData

11.3.1 API parameters

Parameter	Description
Content Type	Application/xml
Accept	Application/xml
Authorization	Two-way SSL and Basic Auth
Transaction Groups	CATS, HMGT, MDMT, NMID,

11.3.2 submitMessages

Description	Method	URL
Submit messages and transaction acknowledgements to AEMO's Market Management Systems	POST	NEMRetail/B2MmessagingAsync/v1/submitMessages

Header parameters

Parameter	Required	Description/Format
messageContextID	Yes	[TransactionGroup 0-9_a-z]{1,4} + [Priority h m l] + "_" + [FromParticipantID]{1,10} + "_" + [0-9_a-z]{1,18}
X-initiatingParticipantID	Yes	Participant ID
X-market	Yes	NEM

Response

Response code	Payload
200 OK	aseXML Message Acknowledgment (with optional TACK)
500	No Payload

11.3.3 submitMessageAcknowledgements

Description	Method	URL
Submit messages acknowledgements to AEMO's Market Management Systems	POST	NEMRetail/B2MmessagingAsync/v1/submitMessageAcknowledgements

Header parameters

Parameter	Required	Description/Format
messageContextID	Yes	[TransactionGroup 0-9_a-z]{1,4} + [Priority h m l] + "_" + [FromParticipantID]{1,10} + "_" + [0-9_a-z]{1,18}
X-initiatingParticipantID	Yes	Participant ID
X-market	Yes	NEM

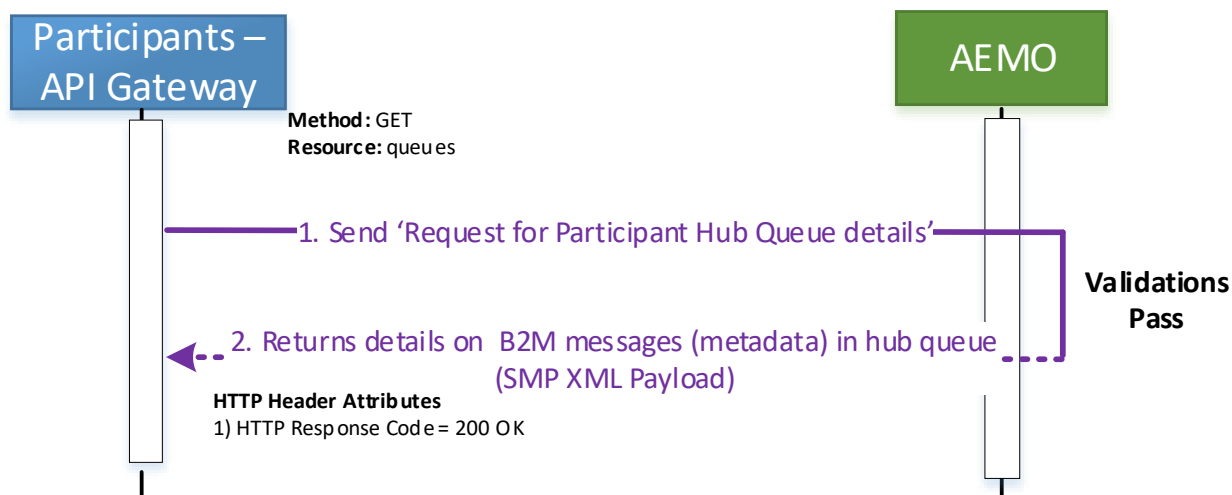
Response

Response code	Payload
200 OK	No Payload
500	No Payload

11.3.4 getQueueMetaData

This is a new API allowing participants to query the Participant Hub Queue for metadata for messages stored in the Participant Hub Queue (maximum 100 messages).

Description	Method	URL
View details of messages queued in the Participant Hub Queue	GET	NEMRetail/B2MmessagingAsync/v1/getQueueMetaData



Step	initiator	Process Step Definition	Recipient
1.	Participant Gateway	Retrieve details of the messages queued in the Participant Hub Queue	AEMO e-Hub
2.	AEMO e-Hub	Sends the metadata of the messages in the Participant Hub Queue in the aseXML Payload (HTTP response Payload) using the HubQueueReport transaction type.	Participant Gateway

Header parameters

Parameter	Required	Description/Format
X-initiatingParticipantID	Yes	Participant ID
X-market	Yes	NEM

Response

Response code	Payload
200 OK	aseXML Transaction Payload – Transaction Type: HubQueueReport.
500	No Payload

Response example – success http code 200

```
<?xml version="1.0" ?>
<ase:aseXML xsi:schemaLocation="urn:aseXML:r37
http://www.nemmco.com.au/aseXML/schemas/r37/aseXML_r37.xsd"
xmlns:ase="urn:aseXML:r37" xmlns:xsi="http://www.w3.org/2001/XMLSchema-
instance">
  <Header>
    <From description="National Electricity Market Management
Company">NEMMCO</From>
    <To description="RECIPIENT Pty Ltd">RECIPIENT</To>
    <MessageID>B2B-180319103024920-b28a8b8d92ce4d6c</MessageID>
    <MessageDate>2019-03-18T10:30:24.920+10:00</MessageDate>
    <TransactionGroup>HMG</TransactionGroup>
    <Priority>Low</Priority>
    <Market>NEM</Market>
  </Header>
  <Transactions>
    <Transaction transactionID="B2B-180319103024920-b28a8b8d92ce4d6c"
ransactionDate="2019-03-18T10:30:24.920+10:00">
      <HubQueueReport version="r37">
        <ResultCount>2</ResultCount>
        <MessageDetails>
          <MessageMetaData>
            <TransactionGroup>CATS</TransactionGroup>
            <Priority>Medium</Priority>
            <FromParticipantID>NEMMCO</FromParticipantID>
            <MessageID>939084340846-SOMW-4</MessageID>
            <MessageType>Transaction Message</MessageType>
          </MessageMetaData>
        </MessageDetails>
      </HubQueueReport>
    </Transaction>
  </Transactions>
</ase:aseXML>
```

```

<MessageContextID>catsm_RECIPIENT_730393109</MessageContextID>
  <ReceivedDateTime>2019-02-
20T15:37:50</ReceivedDateTime>
  </MessageMetaData>
  <MessageMetaData>
    <TransactionGroup>NMID</TransactionGroup>
    <Priority>Medium</Priority>
    <FromParticipantID>NEMMCO</FromParticipantID>
    <MessageID>939084340846-SOMW-4</MessageID>
    <MessageType>Transaction
Acknowledgement</MessageType>

<MessageContextID>catsl_RECIPIENT_730391291</MessageContextID>
  <ReceivedDateTime>2019-02-
20T15:37:50</ReceivedDateTime>
  </MessageMetaData>
  </MessageDetails>
  </HubQueueReport>
  </Transaction>
</Transactions>
</ase:aseXML>

```

11.3.5 Participant implementation

The API push participants implement an API the e-Hub consumes to send the requests via API. Participants can define their URL and the API name. The e-Hub only registers the API name of the participant. Participants are required to implement the following resources and methods on their APIs to accept the messages or message acknowledgements from the e-Hub.

Resource	Method	Description	Mandatory header parameters
submitMessages	POST	Accept aseXML Payload Respond with a 200 OK and a mandatory aseXML MACK Payload If the response code is not 200, the message is delivered again	messageContextID

11.4 B2MmessagingPull

Participants can use this API to submit and retrieve the following B2M resources:

1. submitMessages
2. submitMessageAcknowledgements
3. getMessages
4. getQueueMetaData

11.4.1 API parameters

Parameter	Description
Content Type	Application/xml
Accept	Application/xml
Authorization	Two-way SSL and Basic Auth
Transaction Groups	CATS, HMGT, MDMT, NMID

11.4.2 submitMessages

Description	Method	URL
Submit messages and transaction acknowledgements to AEMO's Market Management Systems	POST	NEMRetail/B2MmessagingPull/v1/submitMessages

Header parameters

Parameter	Required	Description/Format
messageContextID	Yes	[TransactionGroup 0-9_a-z]{1,4} + [Priority h m l] + "_" + [FromParticipantID]{1,10} + "_" + [0-9_a-z]{1,18}
X-initiatingParticipantID	Yes	Participant ID

X-market	Yes	NEM
----------	-----	-----

Response

Response code	Payload
200 OK	Message Acknowledgment (with optional TACK)
500	No Payload

11.4.3 submitMessageAcknowledgements

Description	Method	URL
Submit messages acknowledgements to AEMO's Market Management Systems	POST	NEMRetail/B2MmessagingPull/v1/submitMessageAcknowledgements

Header parameters

Parameter	Required	Description/Format
messageContextID	Yes	[TransactionGroup 0-9_a-z]{1,4} + [Priority h m] + "_" + [FromParticipantID]{1,10} + "_" + [0-9_a-z]{1,18}
X-initiatingParticipantID	Yes	Participant ID
X-market	Yes	NEM

Response

Response code	Payload
200 OK	No Payload
500	No Payload

11.4.4 getMessages

Description	Method	URL
Retrieve queued messages	GET	NEMRetail/B2MmessagingPull/v1/getMessages

Header parameters

Parameter	Required	Description/Format
messageContextID	No	[TransactionGroup 0-9_a-z]{1,4} + [Priority h m l] + "_" + [FromParticipantID]{1,10} + "_" + [0-9_a-z]{1,18} If not provided TransactionGroup must be provided and the oldest message in the queue (FIFO) is retrieved
X-initiatingParticipantID	Yes	Participant ID
X-market	Yes	NEM
transactionGroup	No	Valid values are: CATS, MDMT, NMID If messageContextID is not provided this parameter is conditionally mandatory. Where messageContextID is not provided and TransactionGroup is populated the resource pulls the message(s) matching the TransactionGroup providing the oldest message in the queue (FIFO) If an invalid TransactionGroup is passed, the API sends a HTTP response code of 500 stating the transaction group is invalid

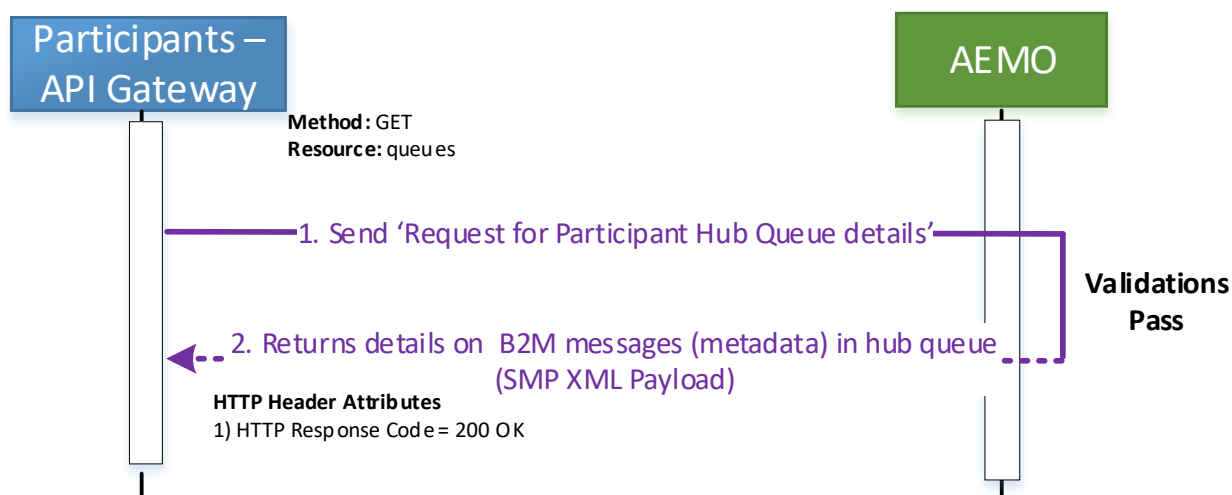
Response

Response code	Payload
200 OK	Message Acknowledgment (with optional TACK)
500	No Payload

11.4.5 getQueueMetaData

This is a new API allowing participants to query the Participant Hub Queue for metadata for messages stored in the Participant Hub Queue. The maximum number of messages the service can return is configurable by AEMO and is initially set to 100.

Description	Method	URL
View details of messages queued in the Participant Hub Queue	GET	NEMRetail/B2MmessagingPull/v1/getQueueMetaData



Step	initiator	Process Step Definition	Recipient
1.	Participant Gateway	Retrieve details of the messages queued in the Participant Hub Queue	AEMO e-Hub

2.	AEMO e-Hub	Sends the metadata of the messages in the Participant Hub Queue in the aseXML Payload (HTTP response Payload) using the HubQueueReport transaction type.	Participant Gateway
----	------------	--	---------------------

Header parameters

Parameter	Required	Description/Format
X-initiatingParticipantID	Yes	Participant ID
X-market	Yes	NEM
transactionGroup	No	CATS, MDMT, NMID If an invalid TransactionGroup is passed, the API sends a HTTP response code of 500 stating the transaction group is invalid

Response

Response code	Payload
200 OK	aseXML Transaction Payload – Transaction Type: HubQueueReport.
500	No Payload

Response example – success http code 200

```
<?xml version="1.0" ?>
<ase:aseXML xsi:schemaLocation="urn:aseXML:r37
http://www.nemmco.com.au/aseXML/schemas/r37/aseXML_r37.xsd"
xmlns:ase="urn:aseXML:r37"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <Header>
    <From description="National Electricity Market Management
Company">NEMMCO</From>
    <To description="RECIPIENT Pty Ltd">RECIPIENT</To>
    <MessageID>B2B-180319103024920-b28a8b8d92ce4d6c</MessageID>
    <MessageDate>2019-03-18T10:30:24.920+10:00</MessageDate>
    <TransactionGroup>HMGT</TransactionGroup>
```

```

    <Priority>Low</Priority>
    <Market>NEM</Market>
  </Header>
  <Transactions>
    <Transaction transactionID="B2B-180319103024920-
b28a8b8d92ce4d6c" transactionDate="2019-03-18T10:30:24.920+10:00">
      <HubQueueReport version="r37">
        <ResultCount>2</ResultCount>
        <MessageDetails>
          <MessageMetaData>
            <TransactionGroup>CATS</TransactionGroup>
            <Priority>Medium</Priority>
            <FromParticipantID>NEMMCO</FromParticipantID>
            <MessageID>939084340846-SOMW-4</MessageID>
            <MessageType>Transaction Message</MessageType>
          </MessageMetaData>
          <MessageContextID>catsm_RECIPIENT_730393109</MessageContextID>
          <ReceivedDateTime>2019-02-
20T15:37:50</ReceivedDateTime>
        </MessageMetaData>
        <MessageMetaData>
          <TransactionGroup>NMID</TransactionGroup>
          <Priority>Medium</Priority>
          <FromParticipantID>NEMMCO</FromParticipantID>
          <MessageID>939084340846-SOMW-4</MessageID>
          <MessageType>Transaction
Acknowledgement</MessageType>
        </MessageMetaData>
        <MessageContextID>catsl_RECIPIENT_730391291</MessageContextID>
        <ReceivedDateTime>2019-02-
20T15:37:50</ReceivedDateTime>
      </MessageMetaData>
    </MessageDetails>
  </HubQueueReport>
</Transaction>
</Transactions>
</ase:aseXML>

```

11.5 HubMessageManagement

Participants can use this API to receive B2B and B2M stop file and message acknowledgment payload validation failure alerts.

11.5.1 API parameters

Parameter	Description
Content Type	Application/xml

Accept	Application/xml
Authorization	Two-way SSL and API Key
alertType	B2BstopFile B2MstopFile

11.5.2 getAlerts

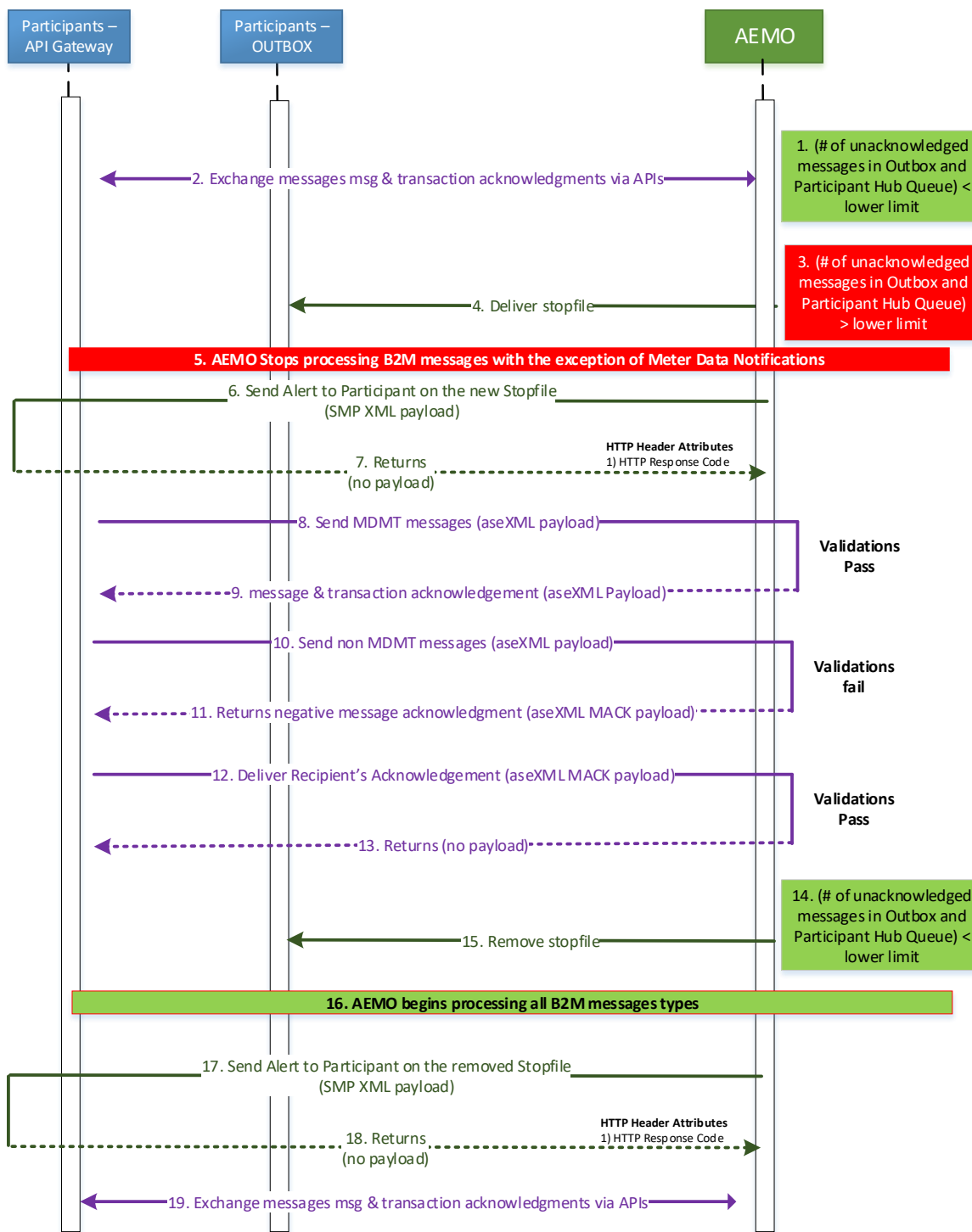
Description	Method	URL
The API gateway determines the endpoint depending on the alertType header parameter.	GET	NEMRetail/HubMessageManagement/v2/getAlerts

11.5.3 Flow control stop notification

For participants receiving B2M communications through the FTP Participant File Server, the Stop File process remains unchanged.

This diagram describes the new Stop File process for participants using APIs with a scenario, where:

1. A response Payload sent by a participant fails validation.
2. The message acknowledgment was submitted using an asynchronous API.
3. The validation failure is notified to the participant using a getAlerts API resource.



11.5.4 API stop file process

Step	Initiator	Action	Recipient
1.	Participant	Same as steps 1—2 in Submission API push > receipt API push on page 104	AEMO
2.	Participant	Unacknowledged messages in the B2M Outbox and the Participant Hub Queue exceed the lower limit As participants can nominate the outbound protocol for B2M messages by transaction group, it is possible to have unacknowledged messages in the Participant Hub Queue and the B2M Outbox.	AEMO
3.	AEMO	Delivers a Stop File to the B2M Outbox	Participant
4.	AEMO	Does not process any messages except Meter Data Notifications	Participant
5.	AEMO	Issues an API alert notification indicating a stop file is issued using the Transaction type – HubFlowControlAlertNotification	Participant
6.	AEMO	Continues processing Meter Data Notifications to the API interface (and the B2M Outbox)	Participant
7.	AEMO	Does not process B2M messages other than Meter Data Notification B2M messages submitted using API or FTP result in a negative acknowledgment detailing the type of B2M stop file placed	Participant
8.	Participant	Progressively acknowledges the non-Meter Data Notification messages in their Participant Hub Queue and/or B2M Outbox. Participants can nominate the outbound protocol B2M messages by transaction group, so acknowledged messages can be in the Participant Hub Queue and the B2M Outbox	AEMO
9.	AEMO	Removes the stop file from the B2M Outbox because the number of unacknowledged messages in the Participant Hub Queue and/or B2M Outbox fall below the lower limit defined	Participant
10.	AEMO	Resumes processing of all B2M messages	Participant
11.	AEMO	Issues an API alert notification indicating the stop file is lifted using the HubFlowControlAlertNotification transaction type	Participant
12.	AEMO	Returns no Payload	Participant

13.	Participant	Resumes normal B2M communications using APIs	AEMO
-----	-------------	--	------

Header parameters

Parameter	Required	Description/Format
initiatingParticipantID	Yes	Participant ID
alertType	No	Values: - B2BstopFile - B2MstopFile The default value is B2BstopFile.
queryParticipantID	No	Used for B2B alerts. If provided, the alerts for the Participant ID are returned.
x-eHub-APIKey	Yes	AEMO-supplied API key.

Response

Response code	Payload
200 OK	Message Acknowledgment or NO Payload
500	No Payload

Response example – success http code 200

```
<?xml version="1.0"?>
<ase:aseXML xsi:schemaLocation="urn:aseXML:r37
http://www.nemmco.com.au/aseXML/schemas/r37/aseXML\_r37.xsd"
xsi:schemaLocation="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:ase="urn:aseXML:r37">
  <Header>
    <To description="RECIPIENT Pty Ltd">RECIPIENT</To>
    <From description="National Electricity Market Management
Company">NEMMCO</From>
    <MessageID>B2M-170419093023143-4379b71c84da487c</MessageID>
    <MessageDate>2019-04-17T09:30:23.144+10:00</MessageDate>
    <TransactionGroup>HMGT</TransactionGroup>
```



```

    <Priority>Low</Priority>
    <Market>NEM</Market>
  </Header>
  <Transactions>
    <Transaction transactionID="B2B-170419093023143-4379b71c84da487c"
transactionDate ransactionDate="2019-04-17T09:30:23.144+10:00">
      <HubFlowControlReport version="r37">
        <RequestParameters>
          <Parameter>
            <Name>initiatingParticipantID</Name>
            <Value>RECIPIENT</Value>
          </Parameter>
        </RequestParameters>
        <ResultCount>32</ResultCount>
        <FlowControlStandingData>
          <FlowControlAlert>
            <AlertType>B2MstopFile</AlertType>
            <ParticipantID>RECIPIENT</ParticipantID>
            <StopfileName>HOLDINP.STP</StopfileName>
            <Cause>CR NOTIFICATION</Cause>
            <StopDateTime>2018-08-17T09:42:37.304+10:00</StopDateTime>
          </FlowControlAlert>
          <FlowControlAlert>
            <AlertType>B2MstopFile</AlertType>
            <ParticipantID>RECIPIENT</ParticipantID>
            <StopfileName>HOLDINP.STP</StopfileName>
            <Cause>OUTBOX FILE</Cause>
            <StopDateTime>2018-02-20T15:25:13.120+10:00</StopDateTime>
          </FlowControlAlert>
          <FlowControlAlert>
            <AlertType>B2MstopFile</AlertType>
            <ParticipantID>RECIPIENT</ParticipantID>
            <StopfileName>HOLDINP.STP</StopfileName>
            <Cause>NSRD RESPONSE</Cause>
            <StopDateTime>2018-02-20T15:24:49.111+10:00</StopDateTime>
          </FlowControlAlert>
        </FlowControlStandingData>
      </HubFlowControlReport>
    </Transaction>
  </Transactions>
</ase:aseXML>

```

Participant Implementation

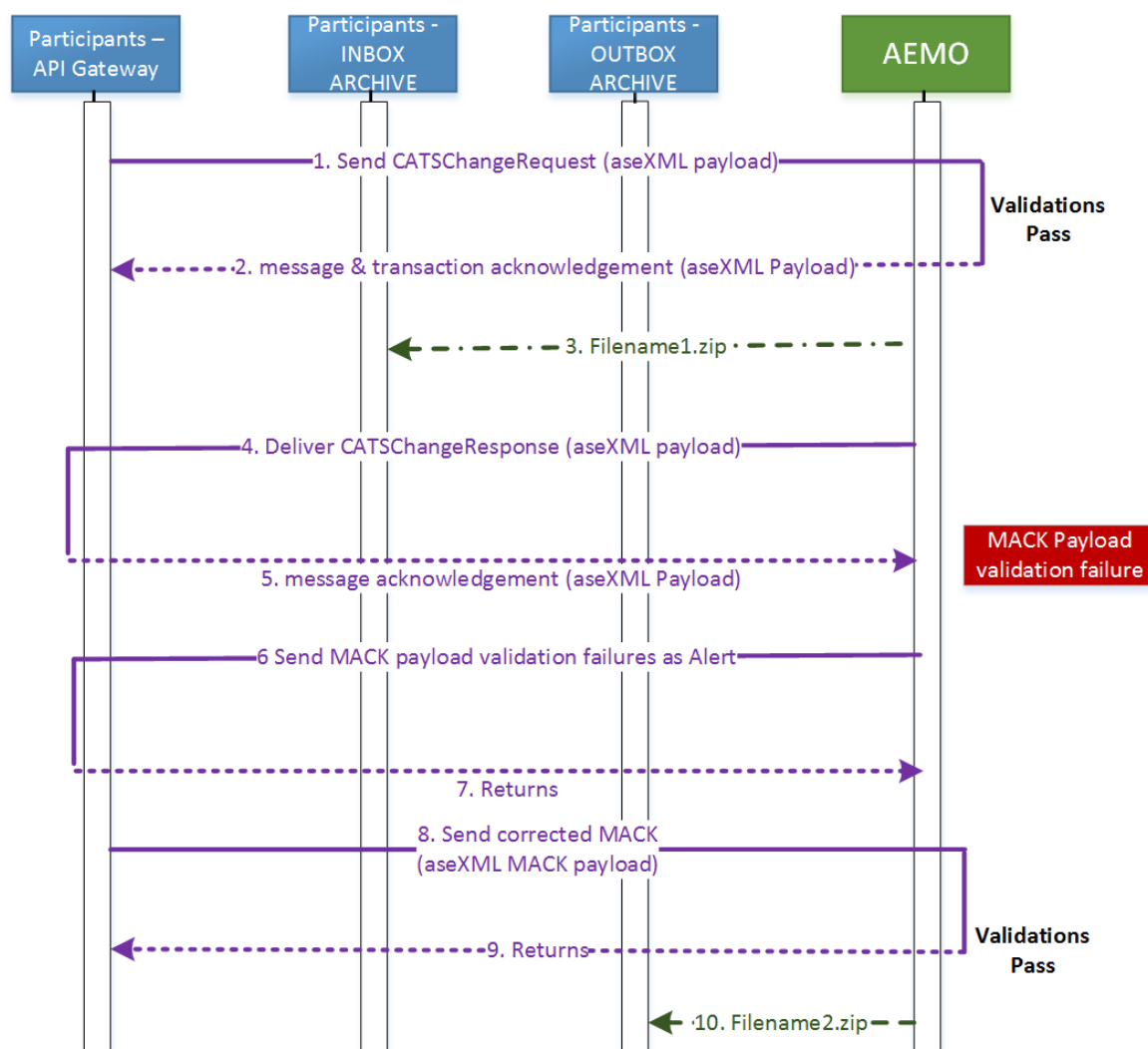
All API participants must implement an API the e-Hub can consume to send the requests via API. Participants can define their URL and the API name. The e-Hub only registers the API name of the participant. Participants are required to implement the following resources and methods on their APIs to accept the messages from the e-Hub.

The HMGT transaction group for HubMessageManagement alerts is supported in the r37 and later aseXML schema. To receive getAlerts payloads, participants must transition to at least the r37 aseXML schema.

For B2B API participants, this is an existing implementation.

Resource	Method	Description	Mandatory Header parameters
getAlerts	POST	Accept aseXML Payload. Respond with a 200 OK. If the response code is not 200, the message is delivered again	n/a

This diagram describes a scenario where the message acknowledgment was submitted using an API and the response Payload sent by the participant fails validation. The validation failure is notified to the participant using the getAlerts API resource.



11.5.5 Validation process

Step	initiator	Process Step Definition	Recipient
1.	Participant	Same as steps 1—2 in Submission API push > receipt API push on page 104	AEMO
2.	AEMO	Sends a CATSChangeResponse to the New FRMP’s B2M Outbox.	New FRMP
3.	New FRMP	Validates the message, accepts the Payload, and creates a message acknowledgement as the response	AEMO

4.	AEMO	Identifies a validation failure and issues an API PayloadExceptionAlert	New FRMP
5.	New FRMP	Resends a valid message acknowledgement allowing archiving of the CATSChangeResponse in the B2M Outbox Archive Directory.	AEMO

11.6 B2B APIs

The GET/queues resource in the B2BmessagingPull and B2BmessagingAsync APIs has a new optional query string parameter to retrieve MTRD messages.

The resource returns the metadata of aseXML messages queued for delivery to the Recipient (initiator of the API).

The parameter is a string array with the values:

1. 0 (B2B)
2. 1 (B2M)

Leaving the parameter empty, retrieves B2B and B2M messages.

11.6.1 B2BmessagingPull

For API specification details, see the API e-Hub:

<https://dev.preprod.aemo.com.au/docs/b2bmessagingpull/1/routes/queues/get>

Header parameters

Parameter	Required	Description/Format
initiatingParticipantID	Yes	Participant ID
maxResults	No	1
messageContextID	No	[TransactionGroup 0-9_a-z]{1,4} + [Priority h m l] + "_" + [FromParticipantID]{1,10} + "_" + [0-9_a-z]{1,18}
transactionGroup	No	MTRD, MRSR, SORD, CUST, SITE, OWNP, OWNX, NPNX, PTPE
Priority	No	Low, Medium, or High

x-eHub-APIKey	Yes	AEMO-supplied API key String
B2M	No	Used to retrieve MTRD messages where the recipientParticipantID is NEMMCO Available values: - 0 (B2B) - 1 (B2M) Leaving the parameter empty, retrieves B2B and B2M messages

11.6.2 B2BmessagingAsync

For API specification details, see the API e-Hub:

<https://apis.preprod.aemo.com.au:9319/ws/B2BMessagingAsync/1.0/queues>

Header parameters

Parameter	Required	Description/Format
X-initiatingParticipantID	Yes	Participant ID
x-eHub-APIKey	Yes	AEMO-supplied API key String
B2M	No	Used to retrieve MTRD messages where the recipientParticipantID is NEMMCO Available values: - 0 (B2B) - 1 (B2M) Leaving the parameter empty, retrieves B2B and B2M messages

11.7 Participant impact for APIs

1. Register with AEMO to use Push-Push APIs.
2. Participants having a valid AEMO e-Hub SSL certificate can already access the following Push-Pull APIs:

- a. API Flow Control Stop Notification.
3. Set up your participant API Gateway.
4. Build the APIs needing implementation at the Participant API Gateway according to AEMO specifications.
5. Participant Administrators (PAs) use the MSATS Web Portal to grant the required Participant User access to the User ID accessing the AEMO APIs. For details, see User Rights Access on page 135.

For help, see [Guide to AEMO's e-Hub APIs](#).

11.8 FAQs

Question	B2MmessagingAsync, B2MmessagingPull and B2MmessagingSync	HubMessageManagement
Do I need an API Key to use AEMO's APIs?	No	Yes
Do I have to gain accreditation from AEMO before I can use APIs?	No	No
Do I need a certificate for each API?	No You can have 1 certificate for many APIs	No You can have 1 certificate for many APIs
Can I have 1 certificate for many Participant IDs?	Yes, the choice is yours, see see Guide to AEMO's e-Hub APIs, 'Decide how to use certificates'	Yes, the choice is yours, see see Guide to AEMO's e-Hub APIs, 'Decide how to use certificates'
Can I have 1 certificate for each Participant ID?	Yes, the choice is yours, see see Guide to AEMO's e-Hub APIs, 'Decide how to use certificates'	Yes, the choice is yours, see see Guide to AEMO's e-Hub APIs, 'Decide how to use certificates'

12. User Rights Access

For help with participant administration, see [Guide to User Rights Management \(URM\)](#).

This section explains the entities Participant Administrators (PA) use in the MSATS Web Portal to control Participant User access to the new functionalities.

12.1 APIs

Function	Entity
Get Flow Control Status	Web Service Get Flow Control Status
Get Messages	Web Service Get Messages
Get Queue Meta Data	Web Service Get Queue Meta Data
Submit Messages	Web Service Submit Messages
Submit Message Acknowledgements	Web Service Message Acknowledgements

12.2 B2M participant aseXML schema

Entity	Type
Participant aseXML Schema	Interactive

12.3 B2M outbox protocol

Entity	Type
Participant Mailbox All	Interactive

12.4 MDM reports

Interface	Entity	Type
API	MDM Reports Batch	Batch
FTP to the Participant File Server	MDM Reports Batch	Batch
MSATS Web Portal > Reports and Alerts > MDM	MDM Reports	Interactive

12.5 New RM reports

Report	Entity	Type
RM37 - High priority missing data report	RM37 HIGH PRIORITY MISSING DATA	Interactive
RM38 - Datastream missing data report	RM38 DATASTREAM MISSING DATA	Interactive
RM39 - Mismatch data report	RM39 MISMATCH DATA	Interactive

12.6 Meter data enquiry

Entity	Type
Metering Data	Interactive
MDM Meter Data	Batch

12.7 Participant aseXML schema

Entity	Type
Participant aseXML Schema	Interactive

12.8 Participant hub queue

Entity	Type
Data Load Import (Participant Inbox & Participant Outbox)	Interactive

12.9 Queue monitoring

Entity	Type
Participant Queue Monitoring	Interactive

12.10 Participant system status

Entity	Type
Participant System Status	Interactive

12.11 Upload Meter data

For access to upload B2M MTRD, B2B MTRD Metering Data, Participant Administrators (PA) use the following entities:

Interface	Entity	Type
API	MDM Meter Data	Batch
FTP to Participant File Server Inbox	MDM Meter Data	Batch
MSATS Web Portal > B2B Browser > Upload File	B2B Directory Inbox	Interactive

12.12 APIs

The following API entities are changed from Retrieve to Get:

Function	Entity
Get Flow Control Status	Web Service Get Flow Control Status
Get Messages	Web Service Get Messages
Get Queue Meta Data	Web Service Get Queue Meta Data

13. Implementation

For more details, see, [Participant Implementation](#).

13.1 Implications

To maintain systems in-line with AEMO's Market Management Systems, participants need to:

- Review and assess the impact on their Market Management Systems with respect to the changes implemented as part of this Release.
- Change their systems prior to the implementation of this Release.
- Schedule staff and resources to upgrade their Market Management Systems for the production implementation of this Release.

13.2 Risks

- No critical impacts to participants identified.

13.3 Upgrade options

From a technical perspective, the key is usually the aseXML release(s) each participant can support.

13.3.1 Option 1

- Update local processes and technical interfaces to suit the changes.

13.3.2 Option 2

- If changes are irrelevant to participant business processes and technical interfaces, ignore this release.
- Schedule staff and resources to upgrade their Market Management Systems from the implementation of this Release. To maintain systems in-line with AEMO's Market Management Systems, AEMO recommends upgrading within six months of the implementation date.
- Change their systems prior to the deployment of this Release to ensure they are current.

- AEMO encourages participants to make use of the four-week pre-production period, to assess and test any impact to their Market Management Systems and business processes.
Participants using data replication products critical to their business are strongly advised to participate in the pre-production rollout and testing period.

14. References

14.1 Rules

National Electricity Amendment (Five-minute Settlement rule) 2017

<https://www.aemc.gov.au/rule-changes/five-minute-Settlement>.

National Electricity Rules: <https://www.aemc.gov.au/regulation/energy-rules/national-electricity-rules/current>.

14.2 AEMO's website

5MS Systems High-Level Impact Assessment: Provides a high-level assessment of the changes required to AEMO market systems to support the 5-minute and global Settlement rule changes.

aseXML Standards: Standard developed by Australian Energy industries to facilitate the exchange of information between participants of the Energy industries using XML. The aseXML Standards Working Group (ASWG) is responsible for the development and maintenance of the aseXML standard.

B2B Mapping to aseXML: Maps the Electricity B2B Business Documents and Signals to their aseXML Transactions and acknowledgements.

B2B Procedure: Meter Data Process: Published by AEMO in accordance with clause 7.17.3 of the NER and specifies the standard MDFF data request and Remote Service request processes.

B2B Procedure: Technical Delivery Specification: Specifies the technical requirements for the delivery of B2B Transactions using the B2B e-Hub.

B2B SMP Technical Guide: Provides the technical specifications for the delivery of B2B Transactions using the B2B e-Hub APIs.

Five Minute Settlement: Amendments to the Rules regarding 5-minute Settlements.

Five-Minute Settlement: High Level Design: High-level design to support the AEMC draft determination.

Five-Minute Settlement and Global Settlement web page: Provides information, fact sheets, and work packages for the Five-Minute Settlement rule change.

Guide to AEMO's e-Hub APIs: Provides details about using aemo's e-hub as an Interface to communicate information with aemo. It assists electricity and gas participants developing their own APIs.

Guide to User Rights Management: Assists Participant Administrators (PA) to use the user rights management functions in the MSATS Web Portal.

Guide to Electricity Retail Market Procedures: Assists participants of the Retail Electricity Market to understand the overall framework. It also contains a list of terms used in the Retail Electricity Market Procedures and a full list of NEM procedures, guidelines, and documents.

Guide to MSATS and B2B Terms: Assists participants of the Retail National Electricity Market (NEM) to understand the terms used in the retail market procedures and the Market Settlement and Transfer Solution (MSATS) participant IT system.

Guide to MSATS B2B: Provides information about the B2B e-Hub functions available in the Market Settlement and Transfer System (MSATS).

Guide to MSATS Web Portal: Assists retail Energy participants to use the MSATS Web Portal functions.

Guide to Transition of aseXML: Provides information for participants transitioning to another B2M or B2B aseXML schema.

Guide to Web Services: Explains AEMO's available web services and the parameters required to access them.

Hints and Tips – CATS & NMI Discovery: contains information about CATS transactions, common errors, rejections, reports, and answers to NMI Discovery Search issues.

Introduction to MSATS: An introduction to using the Market Settlement and Transfer Solutions (MSATS) web portal and batch interfaces.

LOAD PROFILES: <https://www.aemo.com.au/Electricity/National-Electricity-Market-NEM/Data/Metering/Load-Profiles>

MDM File Format and Load Process: Documents the Meter Data Management (MDM) file load process. Published as part of the **Metering Package 2: Metering Data:** <https://aemo.com.au/-/media/files/electricity/nem/5ms/systems-workstream/2020/mdm-file-format-and-load-process.pdf?la=en&hash=27FA623BB0606D5F77219E8FCF824998>.

MDFF Specification NEM12 and NEM13: Specifies the Meter Data File Format (MDFF) used by MDPs for the provision of Metering Data to MDPs, ENMs, and Registered Participants.

MDP Data Delivery Calendar: Advises when MDPs deliver Metering Data to AEMO.

Meter Data File Format Specification Nem12 and Nem13 Consultation: Information about the final stage of consultation.

METERING PACKAGE 1: METERING DATA:

<https://www.aemo.com.au/Electricity/National-Electricity-Market-NEM/Five-Minute-Settlement/Procedures-Workstream/Metering-package-1---Metering-data>

Metrology Procedures: Part A: minimum services specification procedures, emergency priority procedures, network device procedures, and Meter churn procedures.

Metrology Procedures: Part B: Addresses the validation, substitution, and estimation of Metering Data.

MSATS Procedures : CATS Procedure Principles and Obligations: Applicable to National Metering Identifier (NMI) small and large classifications.

MSATS Procedures – MDM Procedures: Documents the MSATS Procedures – MDM Procedures under clause 7.16.2 of the National Electricity Rule.

MSATS Procedures: National Metering Identifier Procedure: Sets out the structure for NMIs used in the NEM, details Datastreams for each category of Metering installation, and addresses the matters contemplated in clauses 7.8.2(d)(2), and 7.8.2(ea) (eb) & (ec) of the NER.

MSATS Procedures: Procedure for the Management of WIGS NMIs: Procedure for the management of wholesale, interconnector, generator and sample (WIGS) NMIs.

National Metering Identifier Procedure: Sets out the structure for National Metering Identifiers (NMIs) used in National Electricity Market (NEM), detailing Metering Datastreams for each category of installation.

Participant Implementation: Assists Market Participants to identify the high-level changes to implement 5MS and, where relevant, GS.

Service Level Procedure: Metering Data Providers: Details the service level obligation for Metering Data Providers.

15. Rules and Procedure Terms

You can find the following terms defined in the National Electricity Rules (NER), National Energy Retail Rules, and Retail Market Procedures:

<https://www.aemc.gov.au/regulation/energy-rules/national-electricity-rules/current>

Term	Market Customer	NMI Discovery Search 1
Accumulated Metering Data	Market Generating Unit	NMI Discovery Search 2
AEMO	Market Load	NMI Discovery Search 3
B2B Participant	Market Management Systems	NMI Standing Data
Connection Point(s)	Market Participants	Non-registered Embedded Generator
Distribution Network	Market Settlement and Transfer Solution	RDAT
Electricity Procedures	Market Settlements	Registered Participant
Embedded Generating Unit	Market Small Generation Aggregator	Retail Market Procedures
Embedded Network Child	Meter	Settlements
Energy	Metering Data	Spot Market
Interval Metering Data	NEM	Spot Price
Load	NERR	Transmission Network
Local Area	NMI	Transmission Use of System
Local Retailers		TUOS

16. Glossary

You can find other abbreviations and terms in the **Guide to MSATS and B2B Terms**.

Abbreviation/term	Explanation
5MS	Five-Minute Settlement
5MS Rule Date	When the 5MS Rule becomes effective. See https://aemo.com.au/initiatives/major-programs/nem-five-minute-settlement-program-and-global-settlement
AEMO API Gateway	The gateway on AEMO's side providing participant communication options, accessible over the internet or MarketNet. It uses resources and methods to push messages to Participants' API Gateways.
AEST	Australian Eastern Standard Time
API	Application Programming Interface. A set of clearly defined methods of communication between various software components.
API Web Portal	Where you can view available APIs, view, and manage your API Keys, and obtain OAS files.
aseXML	A standard for Energy transactions in XML. A set of schemas and usage guidelines that define how data is exchanged under FRC in the gas and electricity industries in Australia.
Asynchronous API	An API where the response to a submitted request is a message acknowledgement. For details see Guide to AEMO's e-Hub APIs .
B2B	Participant to participant
B2M	AEMO to participant
B2M Participant Inbox	Participant Inbox for B2M transactions on the Participant File Server.
B2M Participant Outbox	Participant Outbox for B2M transactions on the Participant File Server.
B2M Synchronous Web Services	AEMO's B2M RESTful Web Services. For details, see Guide to Web Services .

Batch Handlers	FTP exchange capabilities for the NEM Retail Electricity Market where participants submit data to AEMO's Participant File Server.
CATS	MSATS Consumer Administration and Transfer Solution. Manages customer transfers and site configuration changes in the NEM Retail Electricity Market.
CATS Standing Data	Data stored for each NMI.
Change Request	Transactions submitted to MSATS by participants when they want to create, or update data held within MSATS. Change Requests have numbers and are commonly referred to as CR [number].
Change Request Notification	A notification generated by MSATS and provided to one or more participants due to a change of status of a Change Request.
CND	CATS NMI Data
CNDS	CATS NMI Datastream
CNPR	CATS NMI Participant Relationship
CR	Change Request
Datastream	A measurement of Energy on a Connection Point.
DLF	Distribution Loss Factors
e-Hub	Consists of AEMO's API Web Portal and AEMO's API Gateway.
Enterprise MDM	A new CATS MDM system implemented as part of the 5MS program. This system is not part of MSATS.
FCAS	frequency control ancillary services
Five-Minute Settlement (5MS)	Changes the Settlement period for the electricity Spot Price from 30 minutes to five minutes, providing a better price signal for investment in fast response technologies, such as batteries, new generation gas peaker plants and demand response.
FRMP	Financially Responsible Market Participant

Global Settlement (GS)	An AEMC rule change for the demand side of the wholesale electricity Market. Meaning, AEMO treats all retailers equally by allocating a share of UFE to all retailers in a distribution area, allowing them to fully reconcile the Market.
GS	Global Settlements
HMTG	A Hub Management Transaction Group introduced to support message exchange between the e-Hub and participants related to the API protocol for example, participants requesting the e-Hub to send the list of current B2M stop files.
Hokey-pokey protocol	AEMO FTP protocol
JSON	JavaScript Object Notation
LNSP	Local Network Service Provider
Lower Limit	The Upper Limit at the start of the Day.
MACK	Message Acknowledgment. Participants receiving a message must ensure an ase:MessageAcknowledgement is generated for every aseXML Message received.
MarketNet	AEMO's private data network connection.
MDFF	Meter Data File Format offering a richer level of accumulation and interval Meter data.
MDM	Meter Data Management The provider of Meter Data Management services for the NEM Retail Electricity Market.
MDMF	Meter Data Management file format used by MDPs to send Metering Data to AEMO for Settlements. It has a singular purpose, allowing MDPs to deliver AEMO Settlement ready Metering Data including any substitutions and forward estimations. Missing Metering Data is identified at the time of Settlement when a Datastream identified in the CATS Datastream (CNDS) is not provided.
MDMT	B2M Meter Data Management Transaction Group
MDP	Meter Data Provider

MSATS	Market Settlement and Transfer Solution for retail electricity
MSATS Procedures	Incorporates the following procedures: CATS Procedures, WIGS Procedures, MDM Procedures, NMI Standing Data Schedule, NMI Procedure and Part A of the NEM ROLR Processes. For more details, see Guide to Electricity Retail Market Procedures .
MW	Megawatt
NER	National Electricity Rules
NMID	B2M NMI Discovery Transaction Group
OAS	OpenAPI Specification
Participant	A company or organisation with a Participant ID to sign into AEMO's Market Management Systems.
Participant API Gateway	The interface implemented by participants where AEMO's pushes API messages.
Participant File Server	<p>The publishing point from AEMO systems to participant systems. Each participant is allocated an account and access to private and public areas. AEMO's production and pre-production environments are independently operated, so each environment has its own IP address.</p> <p>Participants are responsible for interfacing with the Participant File Server. If uncollected, files are moved to the archive folder after a couple of Days and kept for approximately six months.</p>
Participant Hub Queue	An MSATS-based queue of Participant Outbox messages.
Payload	The data sent by a POST request. The Payload sections sits after the header.
Procedures Working Group	A consultative forum to discuss the procedures impacts.
Retail, Network, and other Market Participant activities	Use of Metering Data for purposes other than <i>Market Settlements</i> . Retail and Networking activities includes customer billing, network billing, networking Settlements, and other Market Participant activities.
Role	The role a company or organisation has with a Connection Point in CATS. A single company or organisation can have more than one role associated with a NMI.

Shared Market Protocol	SMP defines a standard for communications between AEMO and participants for B2B communications.
SMP	Shared Market Protocol
Software Working Group	A consultative forum to discuss technical impacts.
Stop File	Created when the number of files within a queue exceeds the upper or lower limit. Once imposed no more processing on inbound transactions can occur until the number of files falls below the lower limit. Where a participant belongs to a group, the limits apply to the group not to the individual.
Supply Point	A transmission, distribution, or consumer's supply point.
TACK	Transaction Acknowledgment. Participants receiving a transaction must ensure an ase:TransactionAcknowledgement is generated for every Business Document that passed validations associated with generating an ase:MessageAcknowledgement. For details, see B2B Mapping to aseXML .
TNI	Transmission Node Identifier
Transaction Group	A procedure grouping similar B2B or B2M transactions.
Transaction Protocol	API or FTP
TUOS	Transmission Use of System charge. Recovers the cost of installing and maintaining the transmission system for the NEM. AEMO is required by NER (Chapter 6A) to calculate TUOS prices and charges by 15 May each year.
UFE	Unaccounted for Energy
UOM	Unit of measure data
Upper Limit	The Upper Limit may increase near the end of the Day due to Change Request limits relaxing.
XML	Extensible Markup Language

17. Appendix 1 - MDM Missing and Mismatched Reads Report Scenarios

Scenario 1a: successful load

NMI	XXXX006316
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MDP MDP123

Settlement data	2020/07/13
Standing data (CNDS)	Active N1 Datastream
Stored reads	The MTRD transaction is stored containing reads for E1 and B1 each with a MDMDataStreamIdentifier of N1

Stored Read

CSV format	NMISuffix	MDMDataStreamIdentifier	NMIConfiguration	MDP version date
MDFF	B1	N1	E1B1	15-Aug-2020 13:20:57
MDFF	E1	N1	E1B1	15-Aug-2020 13:20:57

RM11/37 output	No missing reads reported for the Settlement date 2020/07/13 as the N1 has readings to satisfy Settlements
RM38 output	No missing Datastreams identified
RM39	No mismatched reads identified

Scenario 1b: successful load

NMI	XXXX006316
MDP	MDP123
Settlement data	2020/07/13
Standing data (CNDS)	Active E1 and B1 Datastreams
Stored reads	The MTRD transaction is stored containing reads for E1 and B1 each with a MDMDataStreamIdentifier of N1

Stored Read

csv format	NMISuffix	MDMDataStreamIdentifier	NMIConfiguration	MDP version date
MDFB	B1	N1	E1B1	15-Aug-2020 13:20:57
MDFB	E1	N1	E1B1	15-Aug-2020 13:20:57

RM11/37 Output	No missing reads reported for the Settlement date 2020/07/13 as the readings are available for E1 and B1 NMI Suffixes Note: N1 is not required in the MDMDataStreamIdentifier field for this scenario.
RM38 Output	No missing Datastreams identified
RM39	No mismatched reads identified

Scenario 2a: missing data and mismatched reads

NMI	XXXX006316
MDP	MDP123
Settlement data	2020/07/13
Standing data (CNDS)	Active N1 Datastream
Stored reads	The MTRD transaction is stored containing reads for E1 and B1

Stored Read

csv format	NMISuffix	MDMDataStreamIdentifier	NMIConfiguration	MDP version date
MDFP	B1		E1B1	15-Aug-2020 13:20:57
MDFP	E1		E1B1	15-Aug-2020 13:20:57

RM11/37 output MDP,SettlementDate,NMI,Suffix,SeqNo MDP123,2020/07/13,XXXX006316,N1,1	No reads received to support the N1 Datastream, therefore the N1 Datastream is reported as missing
RM38 output	No Missing Datastreams identified
RM39 MDP,SettlementDate,NMI,MeterSerialNumber,Suffix,SeqNo MDP123,2020/07/13,XXXX006316,METER123,B1,1 MDP123,2020/07/13,XXXX006316,METER123,E1,2	Reads for B1 and E1 Datastreams received and not assigned to a NMI Datastream, so both registers are reported as mismatched

Scenario 2b: missing data

NMI	XXXX006316
MDP	MDP123
Settlement data	2020/07/13
Standing data (CNDS)	Active E1, B1, Q1, K1 Datastream
Stored reads	The MTRD transaction is stored containing reads for E1 and B1

Stored Read

csv format	NMISuffix	MDMDataStreamIdentifier	NMIConfiguration	MDP version date
MDFF	B1		E1B1Q1K1	15-Aug-2020 13:20:57
MDFF	E1		E1B1Q1K1	15-Aug-2020 13:20:57

RM11/37 output MDP,SettlementDate,NMI,Suffix,SeqNo MDP123,2020/07/13,XXXX006316,Q1,1 MDP123,2020/07/13,XXXX006316,K1,1	No missing reads received for the Q1 and K1 Datastreams, so the Q1 and K1 Datastreams are reported as missing Note: Q1 and K1 will not impact Settlement calculations as the E1 and B1 Datastreams satisfy Settlements. However, Q1 and K1 missing data reflects on the data quantity and quality reports
RM38 output	No missing Datastreams identified
RM39	No mismatched reads identified

Scenario 3a: Datastream missing data

NMI	XXXX006316
MDP	MDP123
Settlement data	2020/07/13
Standing data (CNDS)	Active N1 Datastream
Stored reads	The MTRD transaction stored reads with an MDMDataStreamIdentifier of N1

Stored Read

csv format	NMISuffix	MDMDataStreamIdentifier	NMIConfiguration	MDP version date
MDFP	E1	N1	E1B1	15-Aug-2020 13:20:57

RM11/37 output	No missing reads reported for the Settlement date 2020/07/13 as the N1 readings satisfy Settlements
RM38 output MDP,SettlementDate,NMI,Suffix,SeqNo MDP123,2020/07/13,XXXX006316,B1,1	NMIConfiguration contains the E1 and B1 suffix, no reads for B1, so the B1 is reported as missing
RM39	No mismatched reads identified

Scenario 3b: Datastream missing data

NMI	XXXX006316
MDP	MDP123
Settlement data	2020/07/13
Standing data (CNDS)	Active N1 and N2 Datastreams

Stored reads	The MTRD transaction is stored containing reads for E1 and B1 each with a MDMDataStreamIdentifier of N1
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E2 with an MDMDataStreamIdentifier of N2

Stored Read

csv format	NMISuffix	MDMDataStreamIdentifier	NMIConfiguration	MDP version date
MDFF	E1	N1	E1B1E2B2	15-Aug-2020 13:20:57
MDFF	B1	N1	E1B1E2B2	15-Aug-2020 13:20:57
MDFF	E2	N2	E1B1E2B2	15-Aug-2020 13:20:57

RM11/37 output	No missing reads reported for the Settlement date 2020/07/13
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RM38 output
MDP123,2020/07/13,XXXX006316,B2,1 NMIConfiguration contains the E1, B1, E2, and B2 suffix, no reads received for B2, so the B2 is reported as missing

RM39	No mismatched reads identified
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Scenario 3c: Datastream missing data

NMI	XXXX006316
MDP	MDP123
Settlement data	2020/07/13
Standing data (CNDS)	Active N1 Datastreams
Stored reads	The MTRD transaction is stored containing reads for E1 and B1 each with an MDMDataStreamIdentifier of N1

Stored Read

csv format	NMISuffix	MDMDataStreamIdentifier	NMIConfiguration	MDP version date
MDF	E1	N1	E1B1E2B2	15-Aug-2020 13:20:57
MDF	B1	N1	E1B1E2B2	15-Aug-2020 13:20:57

RM11/37 output	No missing reads reported for the Settlement date 2020/07/13			
RM38 Output NMIConfiguration contains the E1	B1	E2 and B2 suffix	No reads received for E2 and B2	
MDP123	2020/07/13	XXXX006316	E2	1
MDP123	2020/07/13	XXXX006316	B2	2
RM39	No mismatched reads identified			

Scenario 4: mismatched reads

NMI	XXXX006316
MDP	MDP123
Settlement data	2020/07/13
Standing data (CNDS)	no data
Stored reads	The MTRD transaction is stored containing reads for E1 and B1, each with an MDMDataStreamIdentifier of N1

Stored Read

csv format	NMISuffix	MDMDataStreamIdentifier	NMIConfiguration	MDP Version Date
MDFF	E1	N1	E1B1E2B2	15-Aug-2020 13:20:57
MDFF	B1	N1	E1B1E2B2	15-Aug-2020 13:20:57

RM11/37 output

No missing reads reported for the Settlement date 2020/07/13

RM38 output

No missing Datastreams identified

RM39

MDP,SettlementDate,NMI,MeterSerialNumber,Suffix,SeqNo
 MDP123,2020/07/13,XXXX006316,METER123,B1,1
 MDP123,2020/07/13,XXXX006316,METER123,E1,2

Reads for B1 and E1 Datastreams received and not assigned to a NMI Datastream, so both registers are reported as mismatched

18. Appendix 2 - Interpreting Interval Time

18.1 Interpreting intervalTime for interval Meters

For a 30-minute Interval Meter, for each Settlement date there are 48 readings. The first interval starts at midnight 00:00:00 and ends at 00:30:00.

NMI: FFDRLK02								
suffi x	SettlementD ate	intervalTi me	intervalVal ue	stat us	substitutionT ype	MDPVersionD ate	loadDate	recStat us
N1	2019-10-03	00:30:00	111.11	A		2019-10-03 13:20:57	2020-01-30 09:58:42.046	Active
N1	2019-10-03	01:00:00	222.22	A		2019-10-03 13:20:57	2020-01-30 09:58:42.046	Active
N1	2019-10-03	01:30:00	333.33	A		2019-10-03 13:20:57	2020-01-30 09:58:42.046	Active
N1	2019-10-03	02:00:00	444.44	A		2019-10-03 13:20:57	2020-01-30 09:58:42.046	Active
N1	2019-10-03	02:30:00	555.55	A		2019-10-03 13:20:57	2020-01-30 09:58:42.046	Active
N1	2019-10-03	03:00:00	666.66	A		2019-10-03 13:20:57	2020-01-30 09:58:42.046	Active
N1	2019-10-03	03:30:00	777.77	A		2019-10-03 13:20:57	2020-01-30 09:58:42.046	Active
N1	2019-10-03	04:00:00	888.88	A		2019-10-03 13:20:57	2020-01-30 09:58:42.046	Active
N1	2019-10-03	04:30:00	999.99	A		2019-10-03 13:20:57	2020-01-30 09:58:42.046	Active
N1	2019-10-03	05:00:00	111.11	A		2019-10-03 13:20:57	2020-01-30 09:58:42.046	Active

For a 5-minute Interval Meter, for each Settlement date there are 288 readings. The first interval starts at midnight 00:00:00 and ends at 00:05:00.

NMI: FFDRLK02								
suffi x	SettlementD ate	intervalTi me	intervalVa lue	stat us	substitutionT ype	MDPVersionDa te	loadDate	recStat us
N1	2019-10-03	00:05:00	222.22	A		2019-10-03 13:20:57	2020-01-30 09:58:42.046	Active
N1	2019-10-03	00:10:00	333.33	A		2019-10-03 13:20:57	2020-01-30 09:58:42.046	Active
N1	2019-10-03	00:15:00	444.44	A		2019-10-03 13:20:57	2020-01-30 09:58:42.046	Active
N1	2019-10-03	00:20:00	555.55	A		2019-10-03 13:20:57	2020-01-30 09:58:42.046	Active
N1	2019-10-03	00:25:00	666.66	A		2019-10-03 13:20:57	2020-01-30 09:58:42.046	Active
N1	2019-10-03	00:30:00	777.77	A		2019-10-03 13:20:57	2020-01-30 09:58:42.046	Active
N1	2019-10-03	00:35:00	888.88	A		2019-10-03 13:20:57	2020-01-30 09:58:42.046	Active
N1	2019-10-03	00:40:00	999.99	A		2019-10-03 13:20:57	2020-01-30 09:58:42.046	Active
N1	2019-10-03	00:45:00	111.11	A		2019-10-03 13:20:57	2020-01-30 09:58:42.046	Active
N1	2019-10-03	00:50:00	222.22	A		2019-10-03 13:20:57	2020-01-30 09:58:42.046	Active
N1	2019-10-03	00:55:00	333.33	A		2019-10-03 13:20:57	2020-01-30 09:58:42.046	Active
N1	2019-10-03	01:00:00	444.44	A		2019-10-03 13:20:57	2020-01-30 09:58:42.046	Active

The same principle applies for a 15-minute Interval Meter, for each Settlement date there will be 96 readings, with the first interval starting at midnight 00:00:00 and ending at 00:15:00.

18.2 Interpreting retrieved results for interval Meters

Metering Data is retrieved based on the Datastream suffixes defined in the CNDS table, for example, net (Nx) or register level suffixes (Ex, Bx, Kx, Qx, etc).

The following scenarios define which Interval Metering Data is retrieved based on:

- Whether the MDM stored Metering data was received as an MDMT transaction.
- Whether the MDM stored Metering data was received as an MTRD transaction.
- Whether the Datastream defined in the CNDS table is at a net or register level.

18.2.1 Scenario 1: MDM stored metering data received as an MDMT transaction

The Datastream defined the CNDS table is at a net.

Standing Data		Stored Read			
CNDS Suffix	CSV format	NMISuffix	MDMDataStreamIdentifier	NMIConfiguration	MDP Version Date
N1	MDMF	N1	n/a	n/a	15-Aug-2020 13:20:57

As a read exists in the MDM database with a NMI Suffix equal to the CNDS Suffix, this read is retrieved.

Suffix	Settlement Date	Interval Time	Interval Value (kWh for active energy)	Status	MDP Version Date	Load Date	A/H
N1	14-Aug-2020	00:30:00	111.11	A	15-Aug-2020 13:20:57	16-Aug-2020 03:08:34	Active

18.2.2 Scenario 2: MDM stored metering data received as an MTRD transaction

The transaction contained a single E1 Metering read. The Datastream defined the CNDS table is at a register level with both the E1 defined.

Standing Data		Stored Read			
CNDS Suffix	CSV format	NMISuffix	MDMDataStreamIdentifier	NMIConfiguration	MDP Version Date
E1	MDFF	E1	N1	E1	15-Aug-2020 13:20:57

As a E1 read exists in the MDM database with a NMI Suffix equal to the CNDS Suffix, this read is retrieved.

Suffix	Settlement Date	Interval Time	Interval Value (kWh for active energy)	Status	MDP Version Date	Load Date	A/H
E1	14-Aug-2020	00:05:00	111.11	A	15-Aug-2020 13:20:57	16-Aug-2020 03:08:34	Active

18.2.3 Scenario 3: MDM stored metering data received as an MTRD transaction

The transaction contains reads for E1, B1, E2 and a B2. Except for the B2 these registers have been defined in the NEM12 file's NMIConfiguration string 'B1E1E2'. The Datastreams defined the CNDS table are a net level N1 and N2.

Standing Data		Stored Read			
CNDS Suffix	CSV format	NMISuffix	MDMDataStreamIdentifier	NMIConfiguration	MDP Version Date
N1	MDFF	E1	N1	B1E1E2	15-Aug-2020 13:20:57
N1	MDFF	B1	N1	B1E1E2	15-Aug-2020 13:20:57
N2	MDFF	E2	N2	B1E1E2	15-Aug-2020 13:20:57

N2	MDFF	B2	N2	B1E1E2	15-Aug-2020 13:20:57
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As a read exists in the MDM database with a MDMDataStreamIdentifier equal to the CNDS Suffix, the reads listed in NMIConfiguration are retrieved. As the NMIConfiguration of N2 contains only E2, the B2 read is not retrieved.

Suffix	Settlement Date	Interval Time	Interval Value (kWh for active energy)	Status	MDP Version Date	Load Date	A/H
B1	14-Aug-2020	00:05:00	-222.22	A	15-Aug-2020 13:20:57	16-Aug-2020 03:08:34	Active
E1	14-Aug-2020	00:05:00	111.11	A	15-Aug-2020 13:20:57	16-Aug-2020 03:08:34	Active
E2	14-Aug-2020	00:05:00	111.11	A	15-Aug-2020 13:20:57	16-Aug-2020 03:08:34	Active

18.2.4 Scenario 4: MDM stored metering data received as an MTRD transaction

The Datastream defined the CNDS table is a net with reactive energy (Kx and Qx) also defined.

Standing Data		Stored Read			
CNDS Suffix	CSV format	NMISuffix	MDMDataStreamIdentifier	NMIConfiguration	MDP Version Date
E1	MDFF	E1	N1	E1K1Q1	15-Aug-2020 13:20:57
K1	MDFF	K1	N1	E1K1Q1	15-Aug-2020 13:20:57
Q1	MDFF	Q1	N1	E1K1Q1	15-Aug-2020 13:20:57

As active energy read exists in the MDM database with a NMI Suffix equal to the CNDS Suffix, the following reads are retrieved.

As reactive energy read exists in the MDM database with a NMI Suffix equal to the CNDS Suffix, these reads are retrieved.

Suffix	Settlement Date	Interval Time	Interval Value (kWh for active energy)	Status	MDP Version Date	Load Date	A/H
E1	14-Aug-2020	00:05:00	111.11	A	15-Aug-2020 13:20:57	16-Aug-2020 03:08:34	Active
K1	14-Aug-2020	00:05:00	-222.22	A	15-Aug-2020 13:20:57	16-Aug-2020 03:08:34	Active
Q2	14-Aug-2020	00:05:00	111.11	A	15-Aug-2020 13:20:57	16-Aug-2020 03:08:34	Active

18.2.5 Scenario 5: MDM stored metering data received as an MTRD transaction

The Datastream defined the CNDS table is a net with reactive energy (Kx and Qx) also defined.

Standing Data		Stored Read			
CNDS Suffix	CSV format	NMISuffix	MDMDataStreamIdentifier	NMIConfiguration	MDP Version Date
N1	MDFF	E1	N1	E1B1K1Q1E2 B2	15-Aug-2020 13:20:57
N1	MDFF	B1	N1	E1B1K1Q1E2B2	15-Aug-2020 13:20:57
N1	MDFF	K1	N1	E1B1K1Q1E2 B2	15-Aug-2020 13:20:57
N1	MDFF	Q1	N1	E1B1K1Q1E2 B2	15-Aug-2020 13:20:57
N2	MDFF	E2	N2	E1B1K1Q1E2 B2	15-Aug-2020 13:20:57
N2	MDFF	B2	N2	E1B1K1Q1E2 B2	15-Aug-2020 13:20:57

As a read exists in the MDM database with a MDMDataStreamIdentifier equal to the CNDS Suffix, the reads that are listed in NMIConfiguration are retrieved. As reactive energy read exists in the MDM database with a NMI Suffix equal to the CNDS Suffix, these reads are retrieved.

Suffix	Settlement Date	Interval Time	Interval Value (kWh for active energy)	Status	MDP Version Date	Load Date	A/H
B1	14-Aug-2020	00:05:00	-222.22	A	15-Aug-2020 13:20:57	16-Aug-2020 03:08:34	Active
B2	14-Aug-2020	00:05:00	-222.22	A	15-Aug-2020 13:20:57	16-Aug-2020 03:08:34	Active
E1	14-Aug-2020	00:05:00	111.11	A	15-Aug-2020 13:20:57	16-Aug-2020 03:08:34	Active
E2	14-Aug-2020	00:05:00	111.11	A	15-Aug-2020 13:20:57	16-Aug-2020 03:08:34	Active
K1	14-Aug-2020	00:05:00	-222.22	A	15-Aug-2020 13:20:57	16-Aug-2020 03:08:34	Active
Q2	14-Aug-2020	00:05:00	111.11	A	15-Aug-2020 13:20:57	16-Aug-2020 03:08:34	Active

18.2.6 Scenario 6: MDM stored metering data received as an MTRD transaction

The Datastream defined the CNDS table was a net but is now defined at a register level for the E1, B1, K1 and Q1 Datastreams only. The N2 Datastream is set to inactive with no defined replacement register level (E2, B2) CNDS.

Standing Data		Stored Read			
CNDS Suffix	CSV format	NMISuffix	MDMDataStreamIdentifier	NMIConfiguration	MDP Version Date
N1 (Inactive) E1 (active)	MDFF	E1	N1	E1B1K1Q1E2B2	15-Aug-2020 13:20:57
N1 (Inactive) B1 (active)	MDFF	B1	N1	E1B1K1Q1E2B2	15-Aug-2020 13:20:57
N2 (Inactive)	MDFF	E2	N2	E1B1K1Q1E2B2	15-Aug-2020 13:20:57
N2 (Inactive)	MDFF	B2	N2	E1B1K1Q1E2B2	15-Aug-2020 13:20:57
N1 (Inactive) K1 (active)	MDFF	K1	N1	E1B1K1Q1E2B2	15-Aug-2020 13:20:57

N1 (Inactive) Q1 (active)	MDFF	Q1	N1	E1B1K1Q1E2B2	15-Aug-2020 13:20:57
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The participant has nominated to retrieve all reads "Active within the date range"

Suffix	Settlement Date	Interval Time	Interval Value (kWh for active energy)	Status	MDP Version Date	Load Date	A/H
B1	14-Aug-2020	00:05:00	-222.22	A	15-Aug-2020 13:20:57	16-Aug-2020 03:08:34	Active
E1	14-Aug-2020	00:05:00	111.11	A	15-Aug-2020 13:20:57	16-Aug-2020 03:08:34	Active
K1	14-Aug-2020	00:05:00	-222.22	A	15-Aug-2020 13:20:57	16-Aug-2020 03:08:34	Active
N2	14-Aug-2020	00:05:00	111.11	I	15-Aug-2020 13:20:57	16-Aug-2020 03:08:34	Active
Q1	14-Aug-2020	00:05:00	111.11	A	15-Aug-2020 13:20:57	16-Aug-2020 03:08:34	Active

The participant has nominated to retrieve all reads "Active at some stage"

Suffix	Settlement Date	Interval Time	Interval Value (kWh for active energy)	Status	MDP Version Date	Load Date	A/H
B1	14-Aug-2020	00:05:00	-222.22	A	15-Aug-2020 13:20:57	16-Aug-2020 03:08:34	Active
E1	14-Aug-2020	00:05:00	111.11	A	15-Aug-2020 13:20:57	16-Aug-2020 03:08:34	Active
K1	14-Aug-2020	00:05:00	-222.22	A	15-Aug-2020 13:20:57	16-Aug-2020 03:08:34	Active
Q1	14-Aug-2020	00:05:00	111.11	A	15-Aug-2020 13:20:57	16-Aug-2020 03:08:34	Active

19. Appendix 3 - Version History

19.1 v 5.01

Provides more details in the Reports section in the Wholesale Demand Response MSATS Updates chapter based on the feedback by participants. See 3.3 in the Wholesale Demand Response MSATS Updates chapter.

19.2 v 5.00

1. Adds MSATS updates for the Wholesale Demand Response project, see Wholesale Demand Response MSATS Updates.
2. Updated B2M schema r39_p1 transition on page 40.
3. The B2M aseXML schema changes from r35 to r39_p1 (not r38 to r39_p1).
4. In Receive PreviousReadDate block, clarified the PreviousReadDate is sent from AEMO to participants in NMI Detail responses. The PreviousReadDate is not sent to AEMO by participants.

19.3 v 4.00

1. The following items are moved to the MSATS 46.99 and 46.99n Technical Specifications to reflect their deployment in those releases:
 - a. Some Change Requests and supporting information.
 - b. Some NMI Standing Data changes.
 - c. Some reporting changes.
 - d. UFE calculation.
2. Additional information for the **Metering data – results (interval)** interface where the interface displays the first 5000 Interval read results for a Metering Data – Search query. To retrieve all results, click the **Export all results to csv** (see page 71).
3. Previously, we announced the addition of multiple csv Payloads in one RM13 NMI Datastream History Report. This design is changed so when a report has reads with different Interval resolutions a separate report is created for each Interval granularity. For details, see page 84.

19.4 v 3.00

1. The version number changes to 46.98 to incorporate the B2M via API release (46.96) and the MDM release (46.98).
2. Mentions of the previous effective 5MS Rule Date: 1 July 2021 are changed to 5MS Rule Date (see: <https://aemo.com.au/initiatives/major-programs/nem-five-minute-settlement-program-and-global-settlement>).
3. Removed application/zip from the API parameters as it is not supported.
4. Added pre-production refresh dates on page 14.
5. Further information about the aseXML schema version r39_p1 transition on page 36.
6. Information about new RM report schema transforms, see page 41.
7. Added clarity around where to place your B2M MTRD Meter Data Notifications via FTP on page 50.
8. Information about Standing Data changes on page 59.
9. Information about Change Requests changes on page 62.
10. For B2M MTRD exchange steps, added more information about transforms in step 6 on page 47.
11. Example of the updates to Obtain Standing Data – Results interface on page 73.
12. Example of the updates to NMI Master – View interface on page 73.
13. Changes to Multiple payload schemas on page 84.
14. Information about Existing MDM report changes on page 86.
15. For RM20 – Profile shape data report on page 88 added: The 5MLP profile allows Participants to profile 15/30-minute Metering Data to 5-minute Trading Intervals using the System Load Profile via the Percentage Profiling method works, described in the Metrology Procedure: Part B 12.4.
16. Information about Existing CATS report changes on page 98.
17. Information about Existing PMS report changes on page 98.

18. Added clarity for purpose and changes to the RM25- Settlement profile shape data on page **Error! Bookmark not defined..**
19. The HubMessageManagement API name and version on page 125 changes to getAlerts and v2: NEMRetail/HubMessageManagement/v2/getAlerts. Including additional information about the schema version for participant implementation.
20. Information on page 132 about the new B2M parameter in the B2BMessagingPull API used to retrieve MTRD messages.
21. Inclusion of user rights entities for new RM Reports on page 136.
22. On page 138, some API names and URM entities are changed from Retrieve to Get.

19.5 v 2.00

- Removed **How to transition for TUOS data**. The Readiness Team will provide this information closer to the Release date. For details, see **5MS Readiness Working Group** on AEMO's website.
- Added a section **Error! Bookmark not defined.** indicating the status of this version. For example, whether it is for participant review or stable enough for participants to complete their own systems builds.
- Added a Milestones section on page 13 with further details about environments and obtaining aseXML schemas.
- Information about the aseXML Schema r39_p1 changes on page 24.
- Added details about submitting MTRD transactions via FTP and API, see page 50.
- Added details about submitting MDMT transactions via FTP, see page 52.
- Added information about the MTRD participant role element on page 54.
- Removed "Metering Data sent by a participant not in the CATS NMI Participants Relationships (CNPR) role can load" from Metering data uploading on page 57.
- Removed FTP System Status from MSATS Web Portal on page 67 because it is not being implemented in the Release.
- Removed B2B Hub Queue, see details on page 68.
- Updated MSATS web portal screenshots. to Reports on page 77.
- Updates to Report scheduler queue on page 75.
- Updates to RM17 – Level 3 Settlement reconciliation on page 87.
- Last sequence number made optional in New MDM reports on page 89.
- Inclusion of new RM46 UFE validation report **Error! Bookmark not defined..**

- Updates to **Error! Bookmark not defined..**
- Updated diagrams in **Error! Bookmark not defined..**
- Added a section on page 144 with the Rules and Procedure terms used throughout this document.
- Added details about Appendix 2 - Interpreting Interval Time on page 158.
- Added details about changes to each version in this Release series: MSATSCS291021 & 5MSMETERINGJUL2021 in Appendix 3 - Version History on page 166.
- Updates to Scenario 6: MDM stored metering data received as an MTRD transaction on page 164
- In References, added a link to the new **Participant Implementation** web page on AEMO's website.

19.6 v 1.00

- Removal of the proposed timeline until the dates are confirmed by the Readiness Working Group (SWG).
- Transitional information on page 16.
- Additional and changed Push RM new report issue on page 16.
- Updates in Reports on page 77.
- Information about **Error! Bookmark not defined..**
- User Rights Access for APIs on page 135.

19.7 v 0.17

1. Additional information for changes to the MSATS Web Portal on page 67.
2. Additional information for Reports on page 77.
3. Updates to User Rights Access on page 135.

19.8 v 0.12

First design published to participants for review.

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