

MDM FILE FORMAT AND LOAD PROCESS

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Version Control

VERSION	DATE	DETAILS
v0.10	August 2009	Draft compilation of details from numerous sources and documents to form one complete detailed process document.
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1. Introduction

1.1 Outline of Meter Data Management

Meter Data Management (MDM) is the name given to the centralised database of metering data which is a component of AEMO's Market Settlement and Transfer Solution (MSATS) system. This database receives and holds meter data from non-interval and interval metering installations. Additionally, MDM provides storage for profile shapes provided from external Profile Preparation Service (PPS), as well as those generated internally by MSATS.

Functionality within MDM allows for storage of configuration data required to generate profiles that conform to the NEM Metrology Procedure and estimate data that is missing for required time periods.

MDM is the source of data for the Wholesale Settlement process initiated by AEMO in MSATS.

1.2 Inputs Accepted by MDM

MDM accepts and stores wholesale and contestable first and second tier energy data as well as generator, and interconnector. MDM accepts interval and non-interval data that has been read, profiled, deemed (e.g. for unmetered supply), estimated or substituted for every active data stream. This data is accepted in the form of a meter data notification transaction.

The meter data notification transaction is submitted to MSATS by the Metering Data Providers (MDP) in the form of a comma separated values-wrapped aseXML file. Details regarding the creation and submission of this file are contained within section 2 of this document. There are a number of validation requirements undertaken on the meter data notification transaction before the data file is accepted by MSATS.

Data is required for all data streams defined in MSATS for any period of time where the data stream status code is set to 'A' (Active). MDM stores this data for every data stream required against a certain connection point for settlement purposes. This includes all tier 2 data, tier 1 data required for profile calculation, generator data, interconnector data, contestable customer and wholesale connection point data.

2. Process of Loading Metering Data

2.1 Outline

Once NMI and connection point information is set up in MSATS, users specifically MDPs (or external data preparation services) have the ability to upload metering data into MSATS for settlement processing. This data can be delivered to MSATS via the Browser (interactive loading) or via the Batch interface (direct loading).

- (a) **Interactive Loading** (submitting files via the Browser) – MDPs have the ability to manually load metering data using the “Participant Inbox” screen and the “Upload” action. When MDPs click on the “Upload” action, they are effectively placing the batch file into their Inbox directory on the file share on the AEMO network.

When using the Browser interface the *File Upload* Screen will be used to transfer a metering data file to the appropriate AEMO file directory (or Participant Inbox) for settlement processing.

- (b) **Direct Loading** – MDPs also have the ability to place metering data files directly into their Participant Inbox directory on the AEMO network. This is the preferred option if an MDP has a large number of files to process.

2.2 Security

In order to upload metering data interactively (i.e. via the MSATS Browser Interface) the following rules must be adhered to:

- (a) The UserID identified in the SecurityContext element of the header must be a user ID that belongs to the From Participant ID.
- (b) The User ID identified in the SecurityContext element in the XML message must be permitted to perform the batch transactions contained in the XML message (e.g. have been allocated a right that allows submission of MDM Meter Data).
- (c) If the file is being submitted via the browser, the user submitting the transaction must have a right that allows full access to the Participant Mailbox entity.
- (d) If the file is being submitted by the browser, the participant ID nominated in the From element must match the logged on user’s participant ID.

2.3 aseXML Message Format

To import metering data into MSATS the MDP systems must generate an XML-wrapped **.csv** (Comma-Separated Values) file containing all relevant metering and participant information that conforms to the applicable aseXML schema.

This file must then be zipped and uploaded into MSATS using the Browser interface, or by directly placing the file into the appropriate Participant Inbox on the AEMO fileshare.

The file itself will contain 3 main sections:

- Schema Information:** This section details the MSATS schema version information and should not be modified unless AEMO notify of an updated release through its change management process.
- Header Information:** This section contains information about the Participant who is submitting the file, its destination, and the type of transaction being submitted.
- Transaction Information:** This section contains all of the transaction-specific information, i.e. the actual metering data to be loaded.

This document has been developed using the current schema version, whilst all endeavours will be made to keep this document up to date with the schema changes, this document needs to be read in conjunction with the latest schema information available on the AEMO website.

The following is an example of an aseXML file containing the CSV payload data. The file shows the structure of a transaction containing interval data. Note the examples in this document refer to schema version r25, please refer to the latest version available from the AEMO website.

```

Schema Information {
  <?xml version="1.0"?>
  <ase:aseXML xmlns:ase="urn:aseXML:r25" xmlns:xsi="http://www.w3.org/2001/XMLSchema-
instance" xsi:schemaLocation="urn:aseXML:r25
http://www.aemo.com.au/aseXML/schemas/r25/aseXML_r25.xsd">
Header Information {
  <Header>
    <From>MDA1</From>
    <To>NEMMCO</To>
    <MessageID>MDA1-MSG-34567856</MessageID>
    <MessageDate>2009-10-31T13:20:10.100+10:00</MessageDate>
    <TransactionGroup>MDMT</TransactionGroup>
    <Priority>Low</Priority>
    <SecurityContext>zz023</SecurityContext>
    <Market>NEM</Market>
  </Header>
Transaction Information {
  <Transactions>
    <Transaction transactionID="MDA1-TNS-12343456" transactionDate="2009-10-
31T13:20:10.090+10:00">
      <MeterDataNotification version="r25">
        <CSVIntervalData
Name="Interval">NMI, Suffix, MDPVersionDate, SettlementDate, Status, Period01, Period02, Period03, Pe
riod04, Period05, Period06, Period07, Period08, Period09, Period10, Period11, Period12, Period13, Period1
4, Period15, Period16, Period17, Period18, Period19, Period20, Period21, Period22, Period23, Period24, Pe
riod25, Period26, Period27, Period28, Period29, Period30, Period31, Period32, Period33, Period34, Period3
5, Period36, Period37, Period38, Period39, Period40, Period41, Period42, Period43, Period44, Period45, Pe
riod46, Period47, Period48, DCTC
1234567890,A1,20091010143542,20090415,EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
AAAAAAAAAAAA,3.422,3.825,4.163,3.456,3.979,3.401,3.567,3.556,3.948,3.732,3.743,3.898,3.859,3.
899,3.749,3.396,3.685,3.827,3.448,3.562,3.949,3.465,3.462,3.618,3.699,3.838,3.68,4.158,3.705,4.14
9,3.633,3.514,4.022,4.077,3.916,3.501,3.429,3.796,3.645,3.695,4.079,3.36,3.962,3.432,3.852,3.965,
3.412, 4.002,COMMS</CSVIntervalData>
      </MeterDataNotification>
    </Transaction>
  </Transactions>
</ase:aseXML>

```

FIGURE: 1 XML MESSAGE FORMAT

2.4 Header Information

The table details the fields to be included in the 'Header' section of the XML-wrapped file. Take note of the 'Field Formats' to be used when creating the file. If a field entry is typed in the wrong case (i.e. not capitals) then the file may be rejected by MSATS.

TABLE 1: HEADER INFORMATION

FIELD NAME	FIELD FORMAT	EXAMPLE
<Description>	This is a free-text field that will allow the input of up to 30 characters. It is the description of the <i>Participant</i> (MDP) who is submitting the file. Can be upper or lower case	"Testing and Certification Australia MDP"
<From>	This is the <i>Participant ID</i> of the user submitting the file (MDP). This ID must be typed in uppercase (capitals). The field will allow entry of up to 8 characters.	TCAUSTM
<To>	This is the AEMO <i>Participant ID</i> (i.e. the participant you are sending the file to). Must be typed in uppercase.	NEMMCO
<MessageID>	This is a unique, participant generated identifier for the file being sent. This ID can contain up to 50 characters.	"MDA1-MSG-2466453" "TCAUSTM017746632"
<MessageDate>	Date and Time identifier to be attached to the file. This must be in the format: yyyy-mm-ddThh:mm:ss.sss+10:00	2001-12-31T08:59:11+10:00
<TransactionGroup>	This will identify the type of transaction being processed. When uploading metering data the transaction group will always be 'MDMT'. It is a 4-character string.	MDMT
<Priority>	This will identify the priority of the transaction. In turn, this priority will determine the order in which transactions are processed.	Low
<SecurityContext>	Security Context identifies to the <i>User ID</i> of the user submitting the file. The nominated user must have permission to submit this type of transaction.	USER1 JSMITH
<Market>		NEM

The following is an example of the 'Header' section of an XML file:

```
<Header>
    <From>MDA1</From>
    <To>NEMMCO</To>
    <MessageID>MDA1-MSG-34567856</MessageID>
    <MessageDate>2009-10-31T13:20:10.100+10:00</MessageDate>
    <TransactionGroup>MDMT</TransactionGroup>
    <Priority>Low</Priority>
    <SecurityContext>zz023</SecurityContext>
    <Market>NEM</Market>
</Header>
```

FIGURE: 2 XML HEADER EXAMPLE

2.5 Transaction Information

The table below details the fields to be included in the 'Transaction' section of the XML-wrapped file. Take note of the 'Field Formats' to be used when entering actual metering data.

TABLE 2: TRANSACTION INFORMATION

FIELD NAME	FIELD FORMAT	EXAMPLE
<Transactionid>	This is a free-text field that will allow the input of up to 50 characters. It is a unique identifier assigned by the Participant to the transaction.	"MDA1-TNS-1887373"
<TransactionDate>	Date and Time identifier to be attached to the transaction itself. This must be in the format: yyyy-mm-ddThh:mm:ss.sss+10:00	2001-12-31T08:59:11+10:00
<MeterDataNotificationversion>	The schema version number that is currently in use.	"r25"
CSV Data Type	<p>The participant has the choice of uploading interval data, consumption data or profile data. The prefix for each of these data types will be one of the below:</p> <ul style="list-style-type: none"> - CSVIntervalData - CSVConsumptionData - CSVProfileData (includes data for sample meters) <p>CSV Data Types must be delivered in separate transactions.</p> <p>Optionally this field can contain the name attribute as per below:</p> <ul style="list-style-type: none"> -CSVIntervalData Name="Interval" -CSVConsumptionData Name="Consumption" -CSVProfileData Name = "Profile" <p>Specific files captured for each of these CSV Data Types are detailed in the next section.</p>	<p><CSVConsumptionData></p> <p><CSVIntervalData></p> <p><CSVProfileData></p> <p>Optional Examples:</p> <p><CSVIntervalData Name="Interval"></p> <p><CSVConsumptionData Name="Consumption"></p> <p><CSVProfileData Name="Profile"></p>

2.6 CSV Consumption Data

CSVConsumptionData is used when loading metering data for data streams listed in MSATS with a type of 'C' (consumption) which is for a basic/type 6 meter installation. The meter readings are not yet broken down into the 1/2 hourly intervals (as with CSVIntervalData).

Each component of the CSVConsumptionData listed in the below table should be separated by a comma in the XML file.

For CSVConsumptionData delivered to AEMO (MSATS), the suffix detail must conform to the "National Metering Identifier Procedure (NMI)" for consumption *metering data*. The suffix identifier provided in the MDM CSVConsumptionData file must be identical to the datstream value entered into the MSATS CATS_NMI_DataStream table for the connection point identified by the NMI.

TABLE 3: SUMMARY OF DATA DELIVERY

	DELIVERY TO ENTITLED PARTICIPANT e.g. LNSP, LR, FRMP	DELIVERY TO AEMO
Data Type	<i>NMI data stream</i> (e.g. 11, 42) Deliver <i>validated metering data</i> readings and consumption including any <i>substitutions</i> and <i>estimations</i> .	<i>NMI data stream</i> (e.g. 11, 42) Deliver <i>validated consumption metering data</i> including any <i>substitutions</i> and <i>estimations</i> .
File Format	'MDFF' Meter Data File Format.	'MDM' AEMO aseXML data file format.
Delivery Point	To the Registered Participants via <i>B2B e-Hub inbox</i>	To the <i>Metering Data Provider's</i> MSATS inbox

TABLE 4: CSV CONSUMPTION DATA

FIELD NAME	FIELD FORMAT	EXAMPLE
NMI	The <i>NMI</i> (National Metering Identifier) which identifies the connection point. It consists of 10 alphanumeric characters.	8166755454 VSSSS00001
Suffix	The NMI Suffix. This is the suffix for the data stream as defined in the MSATS Procedures.	11 42
MDPVersionDate	This is the date & time stamp the participant system has assigned to the data record. It is the date & time the metering data was loaded into the MDP's system. The date & time must be in the format: yyyymmddhhmmss	20010714083045
FromDate	The first day of the reading period, in the format of: Yyyymmdd Time is taken to be at 00:00 hours on the start day of the reading period.	20010501
ToDate	The last day of the reading period, in the format of yyyymmdd It is assumed to be taken at 23.59 hours. .	20010731

FIELD NAME	FIELD FORMAT	EXAMPLE
Status	The quality flag of the metering data which can be: A (Actual); E (Estimated); S (Substituted); or F (Final Substitutions) Refer <i>metrology procedures</i> : Part B for further detail on quality flags.	A, E, S, or F
Reading	This is the actual consumption value in kWh for the time period supplied (FromDate to the ToDate). In effect: Meter reading at (ToDate – FromDate) = Consumption Reading. All values must be inclusive of meter multipliers, therefore all consumption values and readings issued are multiplier adjusted.	1398.667

Below is an example of the Transaction Information of an aseXML file used in the loading of Consumption Data. Note the information components included next to the <CSVConsumptionData> section:

```
<?xml version="1.0" ?>
<ase:aseXML xmlns:ase="urn:aseXML:r25" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="urn:aseXML:r25
http://www.aemo.com.au/aseXML/schemas/r25/aseXML_r25.xsd">
  <Header>
    <From>MDA1</From>
    <To>NEMMCO</To>
    <MessageID>MDA1-MSG-34567856</MessageID>
    <MessageDate>2009-10-31T13:20:10.100+10:00</MessageDate>
    <TransactionGroup>MDMT</TransactionGroup>
    <Priority>Low</Priority>
    <SecurityContext>zz023</SecurityContext>
    <Market>NEM</Market>
  </Header>
  <Transactions>
    <Transaction transactionID="MDA1-TNS-12343456" transactionDate="2009-10-31T13:20:10.090+10:00">
      <MeterDataNotification version="r25">
        <CSVConsumptionData>NMI,Suffix,MDPVersionDate,FromDate,ToDate,Status,Reading
1234567890,A1,20091010143542,20090415,20090714,E,3.245
1234567890,A2,20091010143542,20090415,20090714,A,.446</CSVConsumptionData>
      </MeterDataNotification>
    </Transaction>
  </Transactions>
</ase:aseXML>
```

FIGURE 3: XML TRANSACTION INFORMATION

2.7 CSV Interval Data

CSVIntervalData is used when loading metering data for data streams listed in MSATS with a type of "I" (Interval) which is for meter installations of COMMS 1 to 4 (meter type 1 through to 4), MRIM (Manually Read Interval Meter or meter type 5) and UMCP (unmetered supply or type 7). The meter readings will be broken down into 48 intervals of 30 minute data. Each component of the CSVIntervalData listed in the following table (5) should be separated by commas in the XML file.

For CSVIntervalData delivered to AEMO (MSATS), the suffix detail must conform to AEMO's "National Metering Identifier Procedure (NMI)", for NMI for interval *metering data*. The Suffix value provided in the MDM CSVIntervalData file must be identical to the datstream value entered into the MSATS CATS_NMI_DataStream table for the connection point identified by the NMI. The suffix identifier for interval *metering data* (e.g. **N1**) is a Net value for the contributing import and export interval *metering data* flows for the interval meter concerned. The Net value for CSVIntervalData delivered to AEMO (MSATS), being as follows:

- (a) Where the *metering data* is in sub intervals of 30 minutes, the *metering data* must be aggregated to 30 minute intervals before delivery; and
- (b) Where the *metering data* collected comprises separate export and import *data streams*, the respective export and import intervals must be aggregated E – B flows to provide the NET 'N' value. (Note: the *net energy* for an active *Generator* is generally negative).

TABLE 5: SUMMARY OF DATA DELIVERY

	DELIVERY TO ENTITLED PARTICIPANT I.E. LNSP, NSP2, LR, FRMP	DELIVERY TO AEMO
Data Type	<i>NMI data stream</i> (e.g. E1, B1) Deliver <i>validated interval metering data</i> including any <i>substitutions</i> and <i>estimations</i> .	NET value NMI data stream (e.g. N1 = E1 – B1) Deliver <i>validated metering data</i> including any <i>substitutions</i> and <i>estimations</i> as <i>net energy</i> aggregated to 30 minutes.
File Format	'MDFF' Meter Data File Format.	'MDM' AEMO aseXML data file format.
Delivery Point	To the Registered Participants via <i>B2B e-Hub inbox</i>	To the <i>Metering Data Provider's</i> MSATS inbox

TABLE 6: CSV INTERVAL DATA

FIELD NAME	FIELD FORMAT	EXAMPLE
NMI	The <i>NMI</i> (National Metering Identifier) which identifies the connection point. It consists of 10 alphanumeric characters.	8105157686 8166755454 VSSSS00001
Suffix	The NMI Suffix. This is the suffix for the data stream as defined in CATS.	N1 N2
MDPVersionDate	This is the date & time stamp the participant system assigned to the data record. It is the date & time the metering data was loaded into the MDP's system. The date & time must be in the format: <i>yyyymmddhhmmss</i>	20010714083045
SettlementDate	The date which the reading relates to ie: it is the read date. This must be in the format: <i>Yyyymmdd</i>	20010724
Status	Status of the Reading. A status will need to be included for each 30 minute interval value (therefore there could be 48 'A' characters included for each data stream). Valid values are: A (Actual); E (Estimated); S (Substituted); or F (Final Substitutions) Refer <i>metrology procedures</i> : Part B for further detail on quality flags.	AAAAAAAAAAAAAAAAAAAA AAAAAAAAAAAAAAAAAAAA AAAAAAAAAAAA Or AAAAAASSSSSSSSAAAA AAAAAAAAAAAAAAAAAAAA AAAAFFFFFAA
Period 1 – 48	The consumption (in kWh) for each of the 30 minute interval reading periods, each consumption record must be separated with a comma.	P1,P2,P3,P4,P5,P6,P7,P8,P9,P10,P11,P12,P13,P14,P15,P16,P17,P18,P19,P20,P21,P22,P23,P24,P25,P26,P27,P28,P29,P30,P31,P32,P33,P34,P35,P36,P37,P38,P39,P40,P41,P42,P43,P44,P45,P46,P47,P48,
DCTC ¹	Populate with the Meter Data Collection Type Code	COMMS, MRIM, PROF, SAMPLE, UMCP

¹DCTC code to be an included part of the CSV Interval Data File from 25th November 2009 with release of version r25 schema, (part of the MSATS 46.74 build implementation). MSATS will accept MDM files complying with all schema versions up to 26 May 2010, after which MSATS will reject any MDM files not compliant to r25 schema version. Refer table 7.

The inclusion of the DCTC field within the MDM interval metering data files delivered to AEMO becomes a requirement from 25 November 2009 with the release of schema version r25. The inclusion of the DCTC field to be as follows:

1. The DCTC code shall be a maximum of eight characters in length.
2. Additional DCTC codes may be added to this list in the future to support other market developments such as Advance Metering Infrastructure (AMI).
3. AEMO system will accept MDM interval metering data files compliant to all MDM schema file versions for a period of six months post the implementation of schema version r25 as part of MSATS Build 46.74 scheduled for 25 November 2009.
4. After the 26 May 2010, all MDM interval metering files delivered to AEMO must comply with the required r25 schema syntax.
5. MSATS will not validate the DCTC field against previous file history for the NMI.

TABLE 7: SCHEMA VERSION FIELD REQUIREMENTS

For the period up to 26 May 2010, valid combinations of Schema and Transaction Versions are:				
Schema Version	Transaction Version	Interval	Profile	Consumption
r7	r4	no DCTC field required	no DCTC field required	no DCTC field required
r9	r9	no DCTC field required	no DCTC field required	no DCTC field required
r10	r9	no DCTC field required	no DCTC field required	no DCTC field required
r22	r19	no DCTC field required	no DCTC field required	no DCTC field required
r25	r25	DCTC field optional	DCTC field optional	no DCTC field required
For the period from 26 May 2010 onwards, valid combinations of Schema and Transaction Versions are:				
r25	r25	DCTC field required	DCTC field required	no DCTC field required

An example of a filename (once zipped) is shown below:

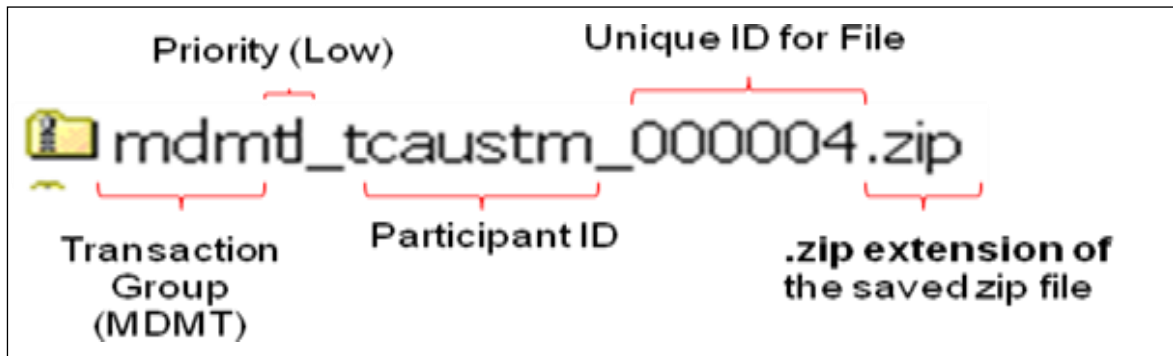


FIGURE 6: FILENAME EXAMPLE

2.11 Data Load of Metering Data Files via the Browser (Interactive Upload)

Once set up with an appropriate MSATS login ID and password, the MDP participant will then be able to import metering data using the File Upload screen (or Participant Inbox).

MDPs that have a limited amount of files to process can elect to use the Browser interface; however it is highly recommended that larger MDPs implement automated batch interface processes. The browser interface should also be considered as an emergency option for delivery of metering data in the event of a batch processing system failure.

The browser interface allows an MDP to interactively manage their file transfer activities. MDPs will be able to view, upload, and delete files from their Participant Inbox, and read any acknowledgments from their Participant Outbox.

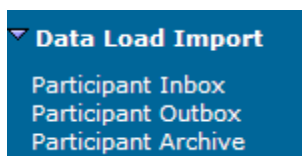
Important Note:

In order for an MDP to use the Browser interface to deliver metering data into the MSATS database, they must be set up with the following access rights in the system:

- (a) Active Participant ID
- (b) Full access to the Participant Mailbox entity (Inbox, Outbox and Archive)
- (c) Active User ID & Password
- (d) Ensure that the UserID identified in the SecurityContext has been assigned a Right that will allow access to the appropriate MSATS batch procedures.

To import metering data interactively using the Browser Interface:

1. Log onto the MSATS Browser with appropriate access rights.
2. From the Data Load Import menu select the Participant Inbox submenu option on the MSATS menu bar.



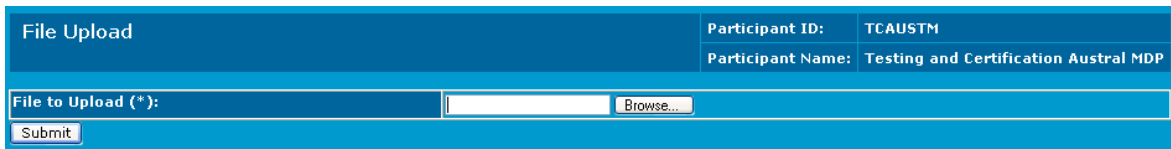
3. The following screen will display in the main window.



4. To import data into MSATS click on the Upload hyperlink above the File Size column.

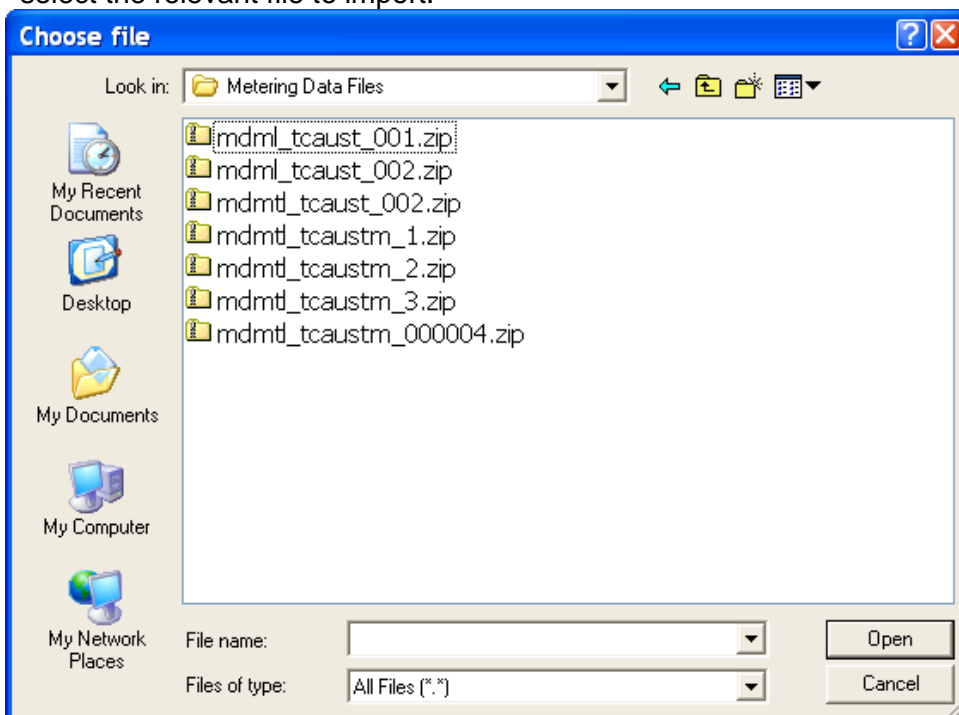


5. The following screen will display in the main window.



File Upload

- (a) • Using this screen the MDP will have the ability to select one of their data files to import into the MSATS database.
 - (b) • The user can either enter the path to the file directly in the text field, or use the BROWSE button to open the standard navigator type interface.
6. To select a file to import click on the **Browse...** button. A **CHOOSE FILE** window should now appear.
7. The **CHOOSE FILE** window will allow the user to browse through their local network to select the relevant file to import.



- (a) Once you have found the file you wish to import, highlight it in the window and click on the button. (Alternatively you can double click on the file to attach.)
 - (b) Ensure you select the zipped version of your data file. The MSATS batch handlers that pickup and process these files will only identify those files with a '.zip' extension.
8. The File Upload screen will now appear, and the File to Upload field will be populated with the location details of the file you just selected.

File Upload	
Participant ID:	TCAUSTM
Participant Name:	Testing and Certification Austral MDP
File to Upload (*):	C:\NEMMCO\MSATS Dc <input type="button" value="Browse..."/>
<input type="button" value="Submit"/>	

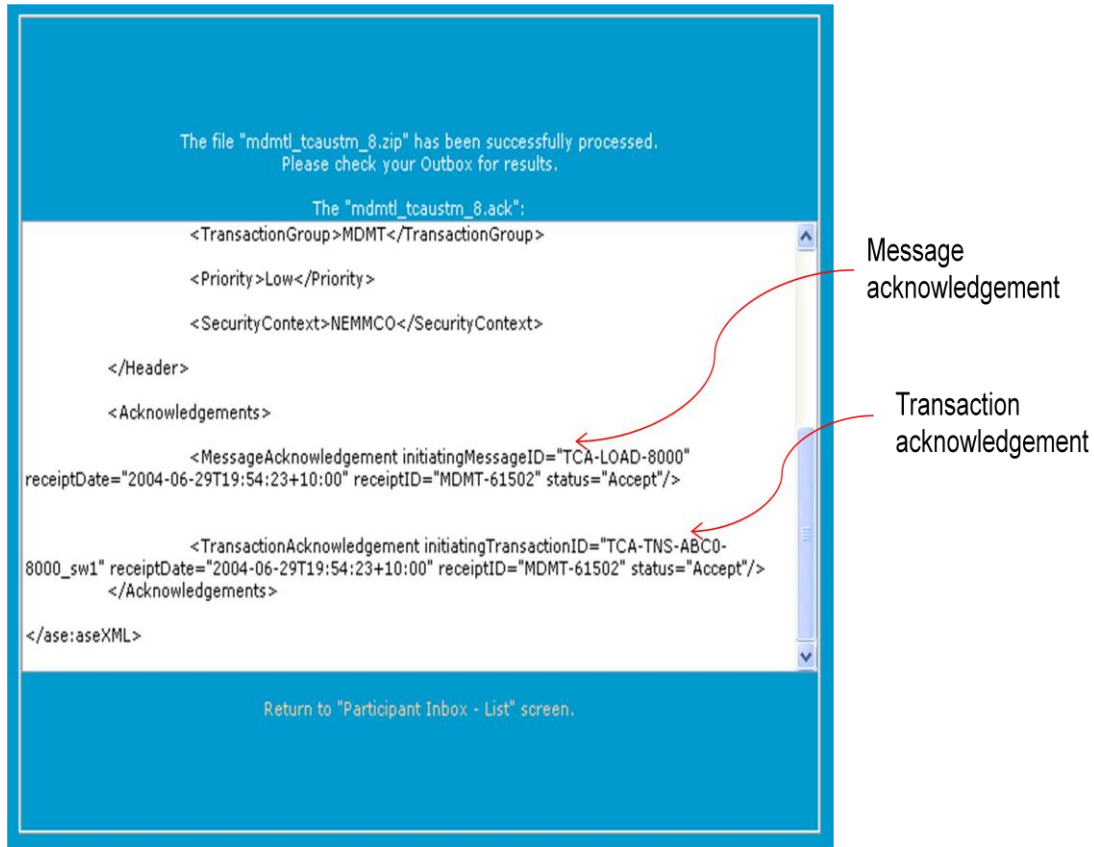
9. To import the file click on the button. MSATS will now attempt to upload the file.
- (a) The time taken to upload a file will vary depending on the size of the file, and the speed of the connection.
 - (b) When uploading via the Browser interface the size of the file to be uploaded (before compression into a .zip file) is limited to a maximum of 1MB.
 - (c) The action of clicking **Submit** will place the .zip file into the *Participant Inbox* directory.
 - (d) MSATS will then process the .zip file and create an acknowledgment file in the Participant Outbox.
10. During this initial upload MSATS will perform 1st level validation on the aseXML file. MSATS will ensure that the following information is correct:
- (a) ensure the UserID nominated in the SecurityContext element of the message is permitted to perform the type of batch transaction being submitted (MDM Meter Data batch entity).
 - (b) ensure that the XML is well formed (i.e. that it meets the rules defined for writing XML).
 - (c) ensure that the file is valid according to the rules specified in the aseXML schema.
 - (d) ensure that the schema and transaction versions are supported by MSATS.
 - (e) ensure that the TransactionID has not previously been submitted.
 - (f) ensure that the file size does not exceed the 1MB unzipped limit.

After completing first level validation, MSATS will display the submitted information and the results of the validation in the form of an acknowledgement or .ack file.

If the validation can be completed immediately, the message is displayed on the screen.

If MSATS is able to load the data in the message, the acknowledgment screen will display an XML transaction that acknowledges the status of the message as a whole and of the transaction in the message.

An example of the acknowledgement is as follows:



The screenshot shows a blue-themed interface with a white central area displaying XML data. At the top, a message states: "The file 'mdmtl_tcaustrm_8.zip' has been successfully processed. Please check your Outbox for results." Below this, the XML for the acknowledgment is shown. The XML includes a header with transaction group, priority, and security context. The acknowledgements section contains two entries: a message acknowledgement and a transaction acknowledgement, both with a status of 'Accept'. Red arrows on the right side of the screen point to the message acknowledgement and transaction acknowledgement tags in the XML. At the bottom of the screen, there is a button labeled "Return to 'Participant Inbox - List' screen."

```
The "mdmtl_tcaustrm_8.zip" has been successfully processed.
Please check your Outbox for results.

The "mdmtl_tcaustrm_8.ack":
<TransactionGroup>MDMT</TransactionGroup>
<Priority>Low</Priority>
<SecurityContext>NEMMCO</SecurityContext>
</Header>
<Acknowledgements>
  <MessageAcknowledgement initiatingMessageID="TCA-LOAD-8000"
receiptDate="2004-06-29T19:54:23+10:00" receiptID="MDMT-61502" status="Accept"/>
  <TransactionAcknowledgement initiatingTransactionID="TCA-TNS-ABC0-
8000_sw1" receiptDate="2004-06-29T19:54:23+10:00" receiptID="MDMT-61502" status="Accept"/>
</Acknowledgements>
</ase:aseXML>
```

Message acknowledgement

Transaction acknowledgement

Return to "Participant Inbox - List" screen.

Note:

- That there is both a message acknowledgement and a transaction acknowledgement.
- There is only ever one message acknowledgement per batch file.
- Depending on the number of transactions in the message there could be multiple transaction acknowledgements.
- For this transaction group, there will only be one transaction in a message, but the message can consist of many rows.
- A transaction can contain consumption or interval .csv data, but not both.

Messages and transactions that pass the validation have a status of 'Accept'. Messages and transactions that fail the validations have a status of 'Reject'.

It is possible that the message may be accepted but not the transaction. This would be the case if, for example, the message is well formed, the header details are correct but the nominated user did not have the rights to perform this specific transaction within the Transactions element.

Once the .zip file message (data file) has been uploaded it will remain in the Participant Inbox until MSATS has processed it. Once processed, an .ack file will be placed in the corresponding Participant Outbox. Once the .ack file has been read and processed by the MDP's system, the original .zip file will need to be deleted from the Participant Inbox following which MSATS will delete the .ack file.

11. If metering data that was successfully loaded from the .xml file (i.e. the transaction had an Accept message), the .csv data will undergo a 2nd level functional validation. Once this 2nd level processing is complete MSATS will generate a message containing a **Meter Data Response** transaction and place it into the MDP's Participant Outbox in a .zip file.

The second level validation consists of the following:

- (a) the MDP (Participant ID) submitting the data is correct based on the MDP of record in MSATS for all NMIs and all intervals and periods of metering data submitted;
- (b) the NMI data stream, as identified by the suffix has a Data stream Status Code of 'A' (Active) for the period of data provided; and
- (c) that the start and end dates of the data record being validated do not overlap any existing records in such a way that the new record would replace only part of the period covered by an existing record. (See section 3 on validation).

Note:

If a consumption data file contains multiple reads for the same NMI and suffix they will be validated to see if they would form a 'virtual single read' or 'meta-read'. The file is checked to see if all data periods considered together will represent a continuous period of time – i.e. one read's end date must be the day before the next one's start date). Multiple reads that form a 'meta read' are, for the remainder of the validations, treated as a single read. If the meta-read fails any of the other validations, the group of reads are not loaded. Each of the individual reads, however, are then validated independently and loaded if they pass the validation. If the meta-read passes all of the other validations, then each of the individual reads that make the virtual read will be loaded as separate records.

12. Navigate to the Participant Outbox – List screen.

There is one **Meter Data Response**, in the form of an .xml message in a .zip file, for each Meter Data Notification transaction in the original file. Given that currently MSATS only allows one Meter Data Notification transaction per file, this means that there will be one Meter Data Response file for each file that was loaded. Each response file will appear in the **Participant Outbox**.

The filename of the response appears in the format of:

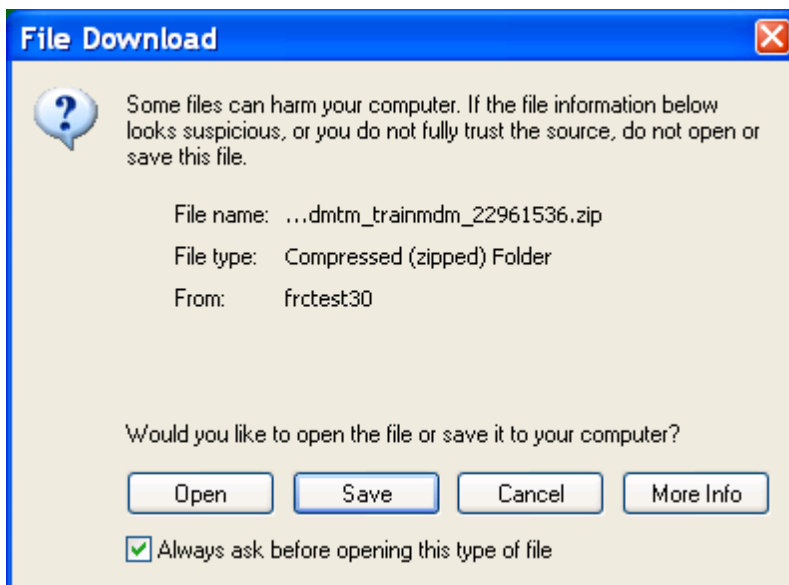
- (a) Transaction Group & Priority = mdmtl
- (b) Underscore = _
- (c) User ID = <participantid>batch
- (d) Underscore = _
- (e) Unique Message ID = e.g. 22899696

<input type="checkbox"/>	mdmtm_tcaustmbatch_22926493.zip	Tue Jun 29 19:39:40 EST 2004	12550
<input type="checkbox"/>	mdmtm_tcaustmbatch_22926497.zip	Tue Jun 29 19:39:40 EST 2004	13297
<input type="checkbox"/>	mdmtm_tcaustmbatch_22926498.zip	Tue Jun 29 19:39:41 EST 2004	13302
<input type="checkbox"/>	mdmtm_trainmdm_22926533.zip	Tue Jun 29 19:41:16 EST 2004	748
<input type="checkbox"/>	mdmtm_trainmdm_22961536.zip	Tue Jun 29 22:20:16 EST 2004	660


Acknowledge Selected Select All De-select All

Participants can then click on the **File Name** hyperlink to view the meter data response file, which contains details of 2nd level processing.

13. To view the Meter Data Response message, click on the File Name hyperlink. You may then be asked if you wish to “Open the file” or “Save it to your computer”.



Select the option that best suits the needs of your organisation. (This message may or may not appear depending on your Windows settings for opening files with a .zip extension.)

14. You should save the file if you wish to keep a permanent copy. However, you may want to open it first, the process which is described in these steps. Click the  button to open the .zip file.
You will now be able to see the .xml file inside the .zip file.
15. Once the .zip file is opened (either immediately or later after you’ve downloaded it), you then need to open the .xml file contained in the .zip file so you can read its contents.

Depending on the application you use to open compressed files and your Windows settings, either single-click the file name (if it's underlined) or double-click the file name to open it. The file will be opened in whatever application you have associated with .xml files. In the examples in this documentation, it is Internet Explorer.

Following is an example of a Meter Data Response message:

```
<?xml version="1.0" ?>
<ase:aseXML xmlns:ase="urn:aseXML:r25" xmlns:xsi="http://www.w3.org/2001/XMLSchema-
instance" xsi:schemaLocation="urn:aseXML:r25
http://www.aemo.com.au/aseXML/schemas/r25/aseXML_r25.xsd">
  <Header>
    <From>MDA1</From>
    <To>NEMMCO</To>
    <MessageID>MDA1-MSG-34567856</MessageID>
    <MessageDate>2009-10-31T13:20:10.100+10:00</MessageDate>
    <TransactionGroup>MDMT</TransactionGroup>
    <Priority>Medium</Priority>
    <SecurityContext>zz023</SecurityContext>
    <Market>NEM</Market>
  </Header>
  <Transactions>
    <Transaction transactionID="MDMT-TNS-12343456" transactionDate="2009-10-
31T13:20:10.090+10:00"
    initiatingTransactionID="MDA1-TNS-12343456">
      <MeterDataResponse version="r6">
        <ActivityID>67856</ActivityID>
        <AcceptedCount>1</AcceptedCount>
        <LoadDate>2009-11-29T19:52:50+10:00</LoadDate>
      </MeterDataResponse>
    </Transaction>
  </Transactions>
</ase:aseXML>
```

FIGURE 7: XML RESPONSE MESSAGE FORMAT

Note: version "r6" is correct for this response report under the r25 schema

The ActivityID is a unique ID assigned by MSATS which is used for internal MDM processing.

The numeric part of the MessageID and the TransactionID matches the numeric part of the .zip file name.

The end of the first line in the Transactions element contains the initiating TransactionID.

This is the TransactionID that was supplied by the MDP in the MeterDataNotification transaction. This identifier is the key piece of information for identifying which original transaction this response refers to.

The value in the AcceptedCount element is the number of rows that were accepted (i.e. loaded) and LoadDate is the date and time MSATS loaded the accepted data.

The code within the Event element(s) contains the outcome of the validations.

A code of '0' means that all of the data was successfully loaded.

If any errors are encountered, then summary information about each failed read is displayed in an Event element (i.e. one Event element for each failed read). Thus, the AcceptedCount plus the number of error events should equal the number of reads submitted.

In the example that follows, there are two rejected reads.

```
<Event severity="Error">
  <Code>1089</Code>
  <KeyInfo>2</KeyInfo>
  <Context>RIP0000510,11,26-SEP-02,30-DEC-02 11:22:39</Context>
</Event>
<Event severity="Error">
  <Code>1099</Code>
  <KeyInfo>3</KeyInfo>
  <Context>RIP0000510,11,04-OCT-02,10-OCT-02 11:22:39</Context>
</Event>
</MeterDataResponse>
</Transaction>
</Transactions>
</ase:aseXML>
```

The four digit code in the Code element is an error code. Error code 1089 represents the error 'There is a record in the system that overlaps this record with a Version Date that is after or equal to the Version Date of this record.' Error code 1099 represents the error 'Read failed as part of Meta-read'.

A full list of error codes and descriptions are available from MSATS. The list of error codes is found under Administration/Codes Maintenance/Error Codes or via a C1 report the on Error Codes table.

The KeyInfo element contains the row number. Note that the first row number that contains metering data is row 2. Row 1 contains the column headings.

The Context element contains each of the following, separated by commas.

- (a) NMI
- (b) Data stream
- (c) Start Date
- (d) MDP Version Date Time.

2.12 Data Load of Metering Data Files via the Batch Process (Direct Loading)

MDPs will also have the ability to deliver data files into MSATS using the batch process. This would involve placing the aseXML data file directly into the Participant Inbox directory on the appropriate AEMO network location.

The information to be included in the aseXML file is identical to that which is detailed at the beginning of section 2 – Process of Loading Metering Data.

To load data directly:

1. Create the aseXML metering data file and save it as a zip file (ensure the file is saved according to AEMO aseXML standards and that the file is under 1MB before it is compressed into a .zip file)).
2. The file should be loaded into the appropriate Participant Inbox with an extension of .tmp (this is to ensure the system does not attempt to process a partially loaded file).
3. Once loaded rename the file to have its correct extension (i.e. change the name from XXX.tmp to XXX.zip).
4. The MSATS batch handlers will detect this .zip file in the INBOX directory and perform 1st Level validation.
 - (a) MSATS will produce an acknowledgment file (.ack) and will place it in the OUTBOX directory.
 - (b) This .ack file will contain the results of 1st Level validation.
 - (c) Having received the .ack file, you need to delete the .zip file from your Inbox.
 - (d) MSATS will detect that the .zip file has been deleted and delete the .ack file from the Outbox.
5. Assuming that the acknowledgment indicated that the transaction passed the 1st level validations, the data loaded from the file will now undergo 2nd level validation processing.
On completion of 2nd level validation processing, a message containing a Meter Data Response transaction (in a .zip file) will appear in the MDP's Participant Outbox directory.
6. This file is identical to the one you would receive if you submitted the file containing the meter data using the Browser. You can either:
 - (a) Follow the steps for "Data Load of Metering Data Files via the Browser (Interactive Upload)", beginning at step 12 to view and acknowledge the message using the Browser; or
 - (b) Copy the file from the Participant Outbox folder to your own system and then write an .ack file in your Participant Inbox folder to acknowledge its receipt. MSATS will then delete the original.

3. FILE VALIDATION

3.1 Principles

Validation of single reads is based on alignment with overlapping start and end dates of existing records as well as on the MDP Version date and time. Exceptions are where the existing overlapping read is a forward estimate.

Initial validations undertaken in CATS (before it is accepted by the MDMs):

- (a) Data streams are active. For non interval this includes for the duration of the read.
- (b) The MDP must be the 'current/active' MDP on the To Date for a non interval read and the Read Date if it is interval/profile data.
- (c) The TNI is assigned to a profile area.
- (d) There are no duplicate reads within the input file (NMI, data stream, start date, or read date if interval date) If there is a duplicate record the first record is accepted and following records are rejected.
- (e) Validation of start (1000 days from submit date) and end date (1000 days from submit date) for a non interval read. For an interval/profile read the read date must be no more than 1000 days before the submit date or 1000 days into the future.

3.2 Validation of MDPVersionDT

For Interval and non-interval reads:

- (a) The load of any new meter data records into MSATS, which are to replace existing meter data records for a NMI / datastream, will be validated for MDPVersionDT where the MDP participant ID is the same for both reads supplied. The MDPVersionDT for the new data record must be greater than, the MDPVersionDT of the existing record in MDM.
- (b) The load of new data records into MSATS which are to replace existing meter data records for a NMI / datastream where the existing data record was supplied by a different MDP participant ID will be accepted. No validation is undertaken against MDPVersionDT in this situation.

A separate error code exists for the situation where the MDPVersionDT is the same – to distinguish from those where the MDPVersionDT is less than the record existing in MDM.

For meta-reads, the maximum MDPVersionDT of the meta-read is used (i.e. the maximum of the MDPVersionDT of all the individual records that make up the meta-read). This is then compared with the maximum MDPVersionDT of all of the overlapping existing records in MDM in the meta-read start and end date range. This could allow some of the rows in the meta-read to replace records in MDM that have a later MDPVersionDT, but as the incoming meter data file is created from the MDPs metering data base, then all the records in the incoming file should be the latest, if one or more of them has a later MDPVersionDT than that exists in MDM.

3.3 Validation of Start and End dates of reads (Including meta-reads)

The process of the validation of start and end dates of basic meter read records in a single transaction will be as follows:

- (a) Sort the reads in start date order.
- (b) Create a meta-read which consist of all records that align with each other, and use the start date and the end date of the meta-read for validation (e.g. two reads – one 1/3 to

- 31/3, one 1/4 to 30/4, meta-read 1/3 to 30/4) (Overlapped new reads will not form meta-reads since their dates do not align and will be validated as single reads, each in turn).
- (c) The start and end dates of the meta-read (which may be a single read) must either align with existing valid current reads or fall in periods where there is no current read – this allows the new meta-read to fill in gaps in reads.
 - (d) Forward Estimate Test: Existing forward estimates (read type flag = 'E') are not considered in the start and end date validation process of new reads (regardless of whether the new read is a forward estimate or not).
 - (e) Data stream Inactive Test: Existing reads that span periods that the data stream is now inactive (due to retrospective changes) are also not considered in the start and end date validation process of new reads (these existing reads are now effectively invalid due to the read spanning an inactive period).
 - (f) If a meta-read fails validation, then each component read of the meta-read is considered separately with the above validations.
 - (g) NB the Forward Estimate Test and the data stream Inactive Test are performed against existing reads to determine whether these existing reads are eligible for use in the start and end date tests. MDPVersionDT validation is still undertaken.

3.4 MSATS Data File Validations

All submitted Meter Data Notification data files must pass the following MSATS validations before they are accepted and loaded into the MSATS system.

3.4.1 Interval Data

TABLE 9: INTERVAL DATA INFORMATION

TERM	DESCRIPTION
Submitting MDP	MDP is the MDP for the read date for that NMI in CATS. MDP is active in CATS.
NMI, NMI SUFFIX	NMI and NMI suffix must exist in CATS
Period (Readings)	48 numeric values within string (47 commas) String should contain no Alpha characters (i.e. 0-9, ", " and "." only)
	No blank fields and no double commas
Status	Length of string is 48. String can only contain "A" – Actuals, "S" – Substitute, "F" – Final Substitute and "E" – Estimates.
Settlement Date	Valid date format
MDPVersionDT	Valid date format

3.4.2 Consumption Data

TABLE 10: CONSUMPTION DATA INFORMATION

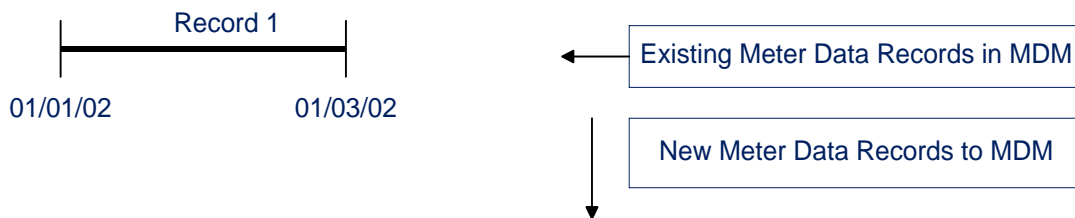
TERM	DESCRIPTION
Submitting MDP	MDP is the MDP for that NMI in CATS for read period. MDP is active in CATS.
NMI, NMI SUFFIX	NMI and NMI suffix must exist in CATS
Reading	Only 1 value within string (0 commas) String should contain no Alpha characters (i.e. 0-9, ", " and "." only)
Status	Length of String is 1. Can only contain "A" – Actuals, "S" – Substitute, "F" – Final Substitute and "E" – Estimates.

TERM	DESCRIPTION
From Date	Must be in valid date format and be between Start date and End Date of the NMI Suffix in CATS.
To Date	Must be in valid data format and be between Start date and End Date of the NMI Suffix in CATS.
	No blank reads and no double commas
MDP Version Date	Valid date format

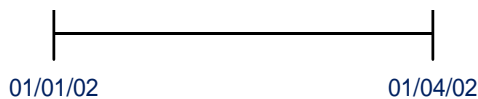
3.4.3 Consumption Meter Data Record date relationship examples

A. One existing meter data record loaded into MDM

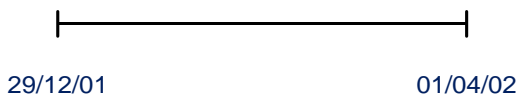
The following examples assume that the data stream is active for the entire period.



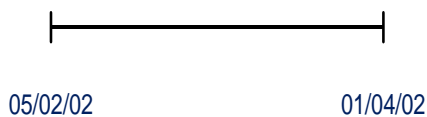
Scenarios in relation to Record Above



1. This record **will load**, - existing record archived to history.



2. This record **will load**, - existing record 1 archived to history. In this case start date of new record is before start date of existing record and the end date of new record is after the end date of the existing record.



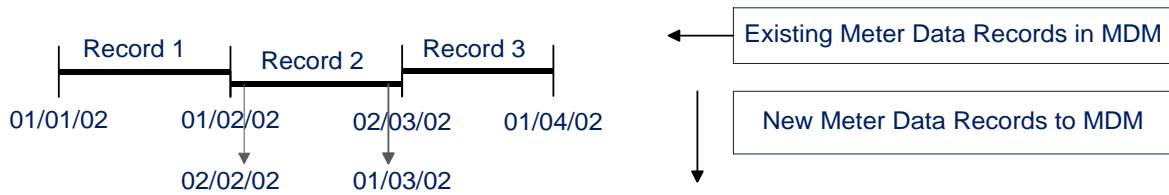
3. This record **will not load** unless record 1 is a forward estimate. In this case the start date of new record is after the start date of the existing record and therefore will fail the validation.



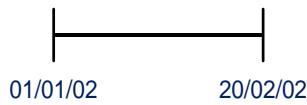
4. This record **will not load** unless record 1 is a forward estimate. In this example the start date of the new record is after the start date of existing record, the end date of the new record is before end date of existing record, and therefore will fail the validation.

B. Three existing meter data records loaded into MDM

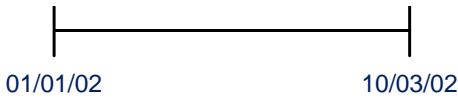
The following examples assume that the data stream is active for the entire period.



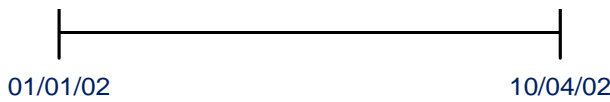
Scenarios in relation to Records Above



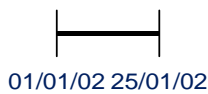
5. This record **will not load** unless record 2 is a forward estimate; - there is no date continuity to record 3. Data gap would result 21/2/02 – 1/3/02



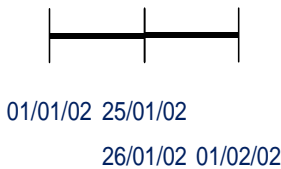
6. This record **will only load** if record 3 is a forward estimate (Record 3's read_type_flag = 'E'). If record 3 is forward estimate, then new record replaces previous records 1,2 and 3.



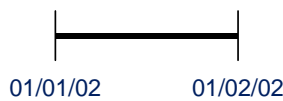
7. This record **will load**, - replaces previous records 1, 2 and 3.



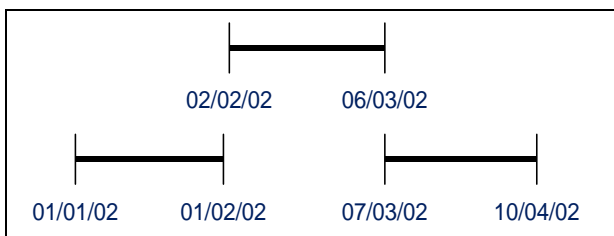
8. This record **will not load** unless record 1 is a forward estimate; - there is no date alignment with Record 1. Data gap would result 26/1/02 – 1/2/02



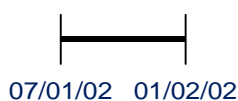
9. These records **will load**. If the meta-read validation fails, then each record of the meta-read will be validated separately – these 2 will fail as they do not align with existing records (unless record 1 is a forward estimate – then both records will load).



10. This record **will load**, - replaces previous record 1, if the version date is greater than existing record.

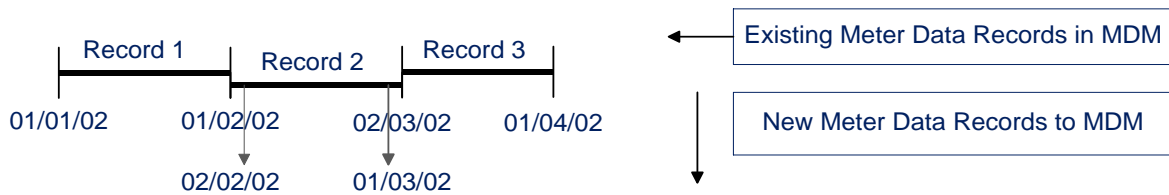


11. All of these records **will load**. New records will replace existing records 1,2 and 3. If the meta-read validation fails, then each record of the meta-read will be validated separately – record 1 will load if it passes the MDPVersionDT test, records 2 and 3 will fail as they do not align with existing records (unless records 2 & 3 are forward estimates).

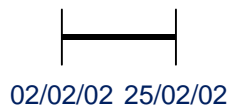


12. This record **will NOT load** unless record 1 is a forward estimate – there is no start date alignment with record 1

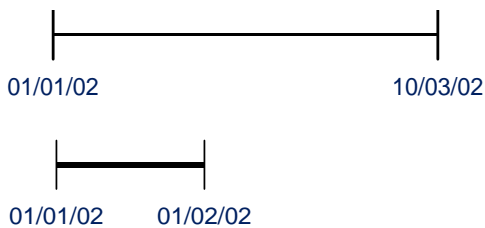
C. Overlapping reads in a transaction



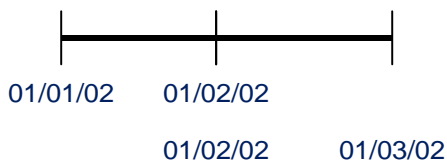
Scenarios in relation to Existing Records Above



13. This record **will NOT load** unless record 2 is a forward estimate – there is no data continuity to replace record 2.
Data gap would result 26/2/02 – 1/3/02.



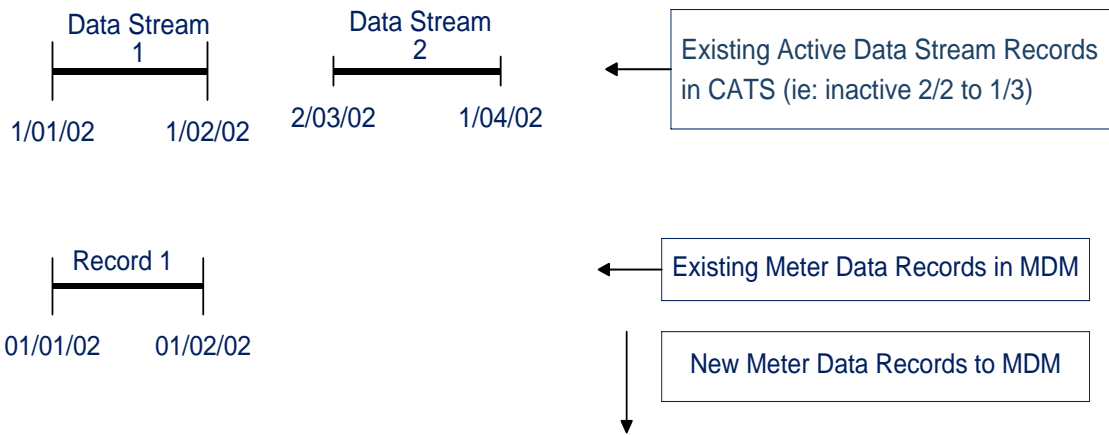
14. This first record **will only load** if record 3 is a forward estimate (read_type_flag = 'E') and its MDPVersionDT is greater than the max of MDPVersionDT of the first 2 existing records. Record 2 will **not** load as it is a duplicate record in the file, (see 3.1 Principles).



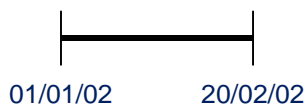
15. The first record **will load**, and the second record **will not load**, unless the first new read is a forward estimate and has an MDP Version ID that is less than the second record. Start and end dates are INCLUSIVE, meaning that the start of a subsequent record must be 1 day after the end date of the previous record.

D. One existing meter data record loaded into MDM (example 1)

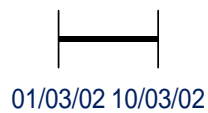
The following examples assume that the data stream is not active for the entire period.



Scenarios in relation to Records Above



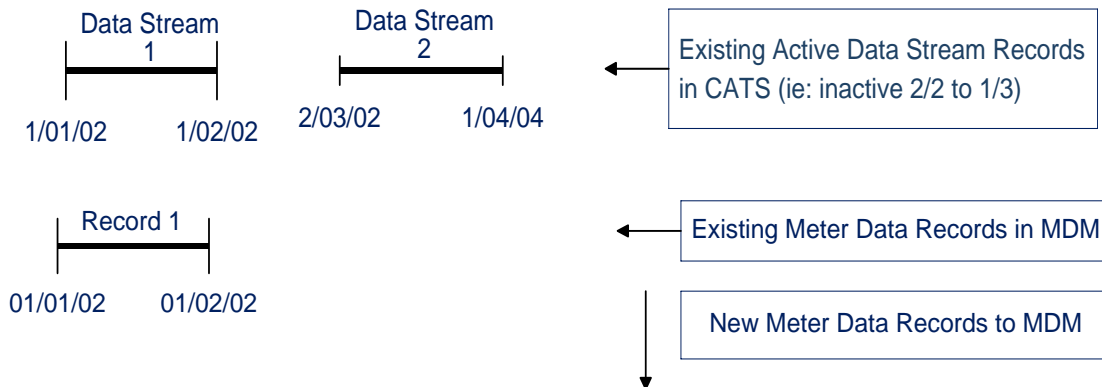
16. This record **will not load**, - as data stream is not active at end date.



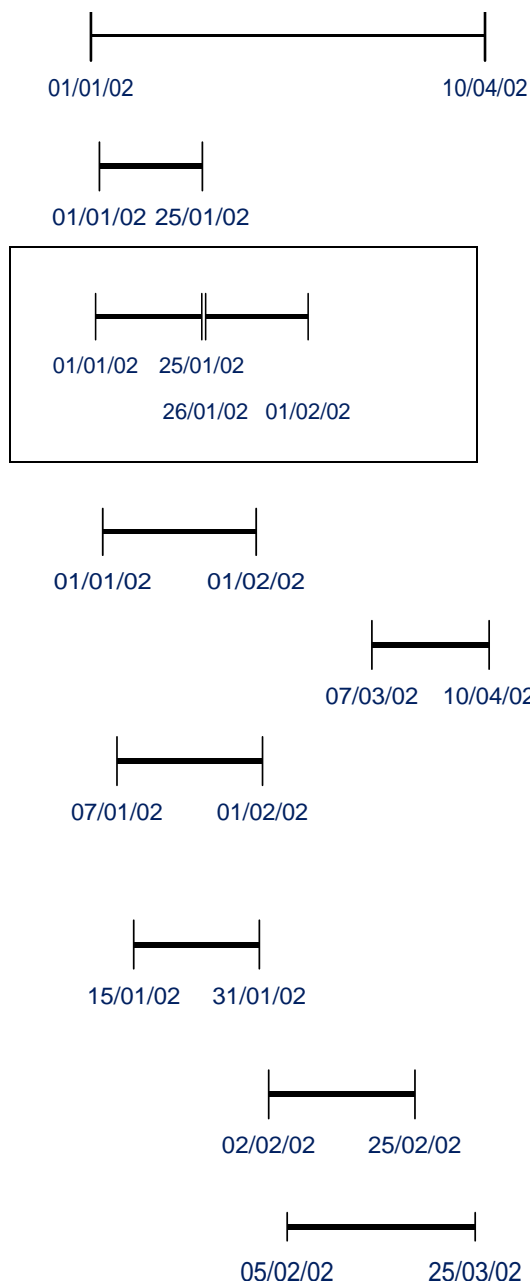
17. This record **will not load**, - as it spans period where data stream is not active (data stream not active at start date of record).

E. One existing meter data record loaded into MDM (example 2)

The following examples assume that the data stream is not active for the entire period.



Scenarios in relation to Records Above



18. This record **will not load**, - as it spans period where data stream is not active

19. This record **will load** if the existing record is a forward estimate (read_type_flag = 'E').

20. These 2 records **will load**. New records will replace the existing record. If the meta-read validation fails, then the individual records of the meta-read will be validated separately –records **will not load** as they do not align with existing meter record.

21. This record **will load**, - replaces existing record 1 if the version date is greater than existing record.

22. This record **will load** – as new record does not overlap any existing record. There will be a gap in the meter data for period where data stream is inactive and also up to 6/3/02.

23. This record **will not load** unless record 1 is a forward estimate as new record does not align with the start date of the existing record.

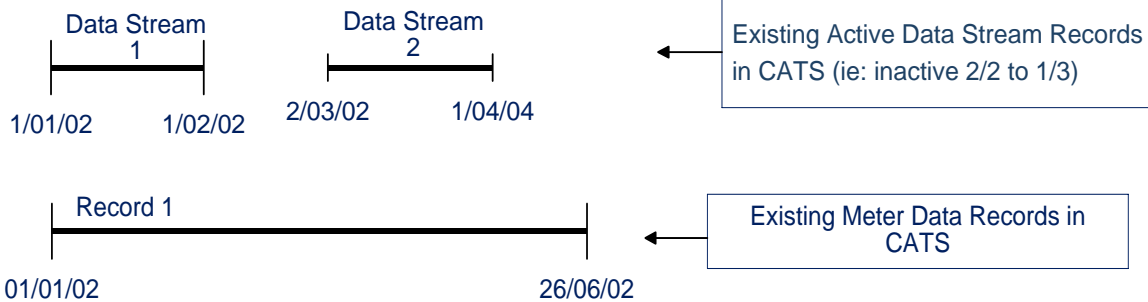
24. This record **will not load** unless record 1 is a forward estimate as new record does not align with the start date of the existing record.

25. This record **will not load** – spans period where data stream is inactive

26. This record **will not load** – spans period where data stream is inactive.

F. One existing meter data record loaded into MDM which now spans period of inactive data stream

The following examples assume that the data stream is not active for the entire period.



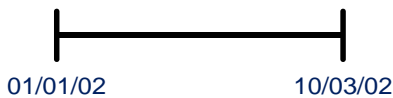
Note: As record 1 spans a period where the data stream is now inactive, it is viewed as an invalid read, and therefore is not included in any validation and will have the same impact on any new record loading result as if the record did not exist.

New Meter Data Records to MDM

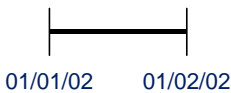
Scenarios in relation to Records Above



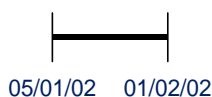
27. This record **will not load**, - as data stream is not active at end date.



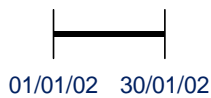
28. This record **will not load**, - as it spans period where data stream is not active



29. This record **will load**, existing record spanning 1/1 to 26/6 archived to history table.



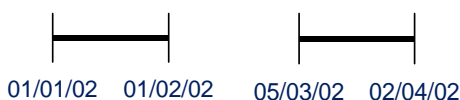
30. This record **will load** - existing record is not validated against as it is an invalid record (spans period where data stream is inactive).



31. This record **will load**, existing record spanning 1/1 to 26/6 archived to history table. Existing record not validated against since existing read is invalid.



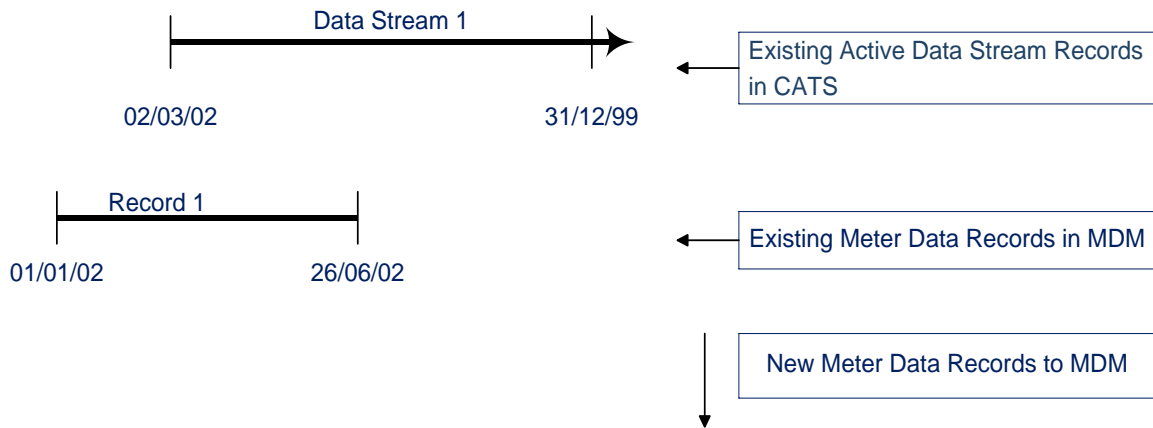
32. Both Records **will load** even though gap exists between 25/1 and 1/2; existing record spanning 1/1 to 26/6 archived to history table. In the future may be different MDPs for these two active data stream periods. Existing read is invalid so it is NOT validated against



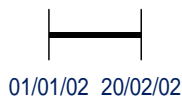
33. Both these records **will load**. Existing record spanning 1/1 to 26/6 archived to history table.

G. One existing meter data record loaded into MDM which now spans period of inactive data stream

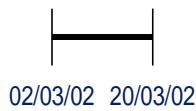
The following examples assume that the data stream is now not active for the entire period, but has no gaps.



Scenarios in relation to Records Above



34. This record **will not load**, - as data stream is not active at start or end date.

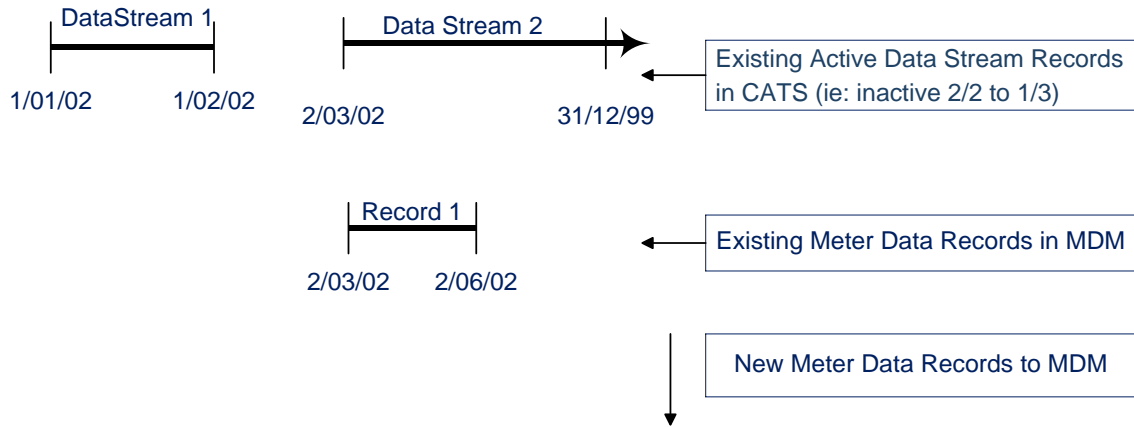


35. This record **will load**, - existing record spanning 1/1 to 26/6 archived to history table. Existing read is invalid so it is NOT validated against.

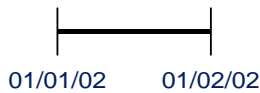
H. Data load in first period of active data stream where existing meter data record loaded into MDM for second period of active data stream

The following examples assume that the data stream is not active for the entire period.

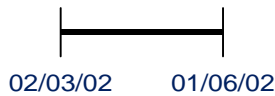
Example 1:



Scenarios in relation to Records Above

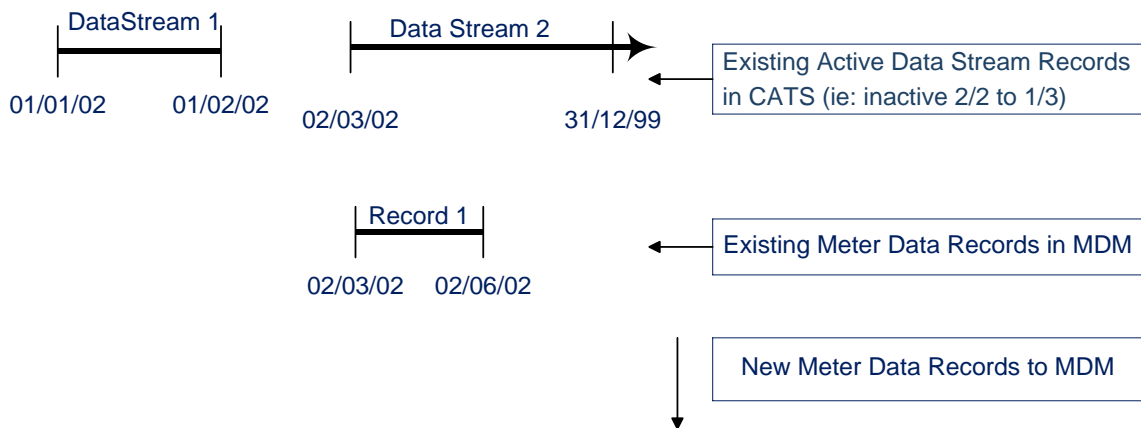


36. This record **will load**, data date range within data stream active range.



37. This record **will only load** if the existing record is a forward estimate (read_type_flag = 'E').

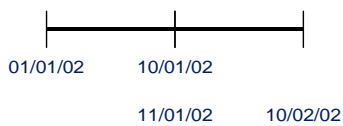
Example 2:



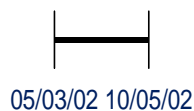
Scenarios in relation to Record Above



38. This record **will not load**, as data stream is inactive at the end date.



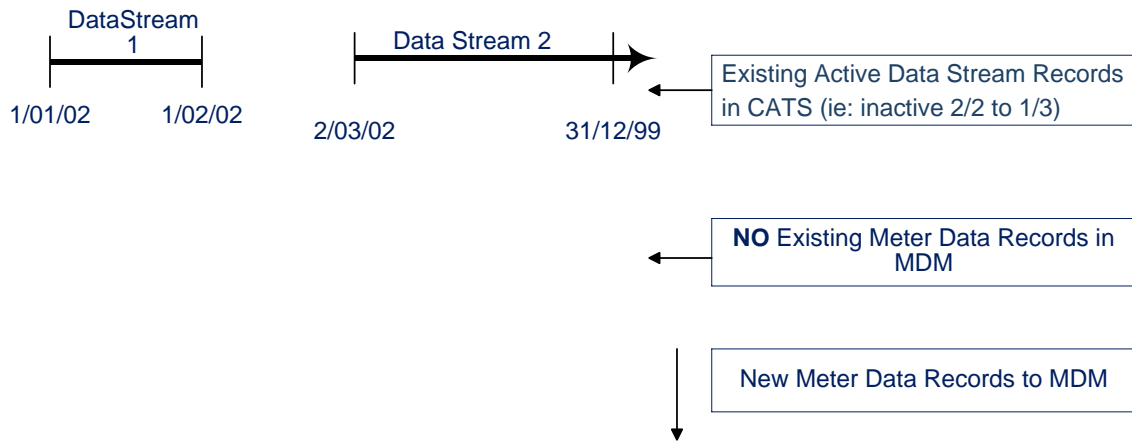
39. First record **will load**. Second record **will NOT load** as data stream is inactive at the reading end date.



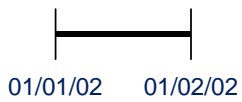
40. This record **will not load** unless the existing read is a forward estimate. New record start date does not align with overlapping existing record start date.

- I. Data load in first period of active data stream where no existing meter data record loaded into MDM

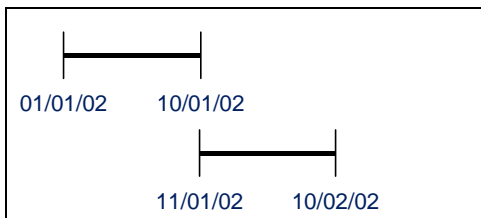
The following examples assume that the data stream is not active for the entire period.



Scenarios in relation to Records Above



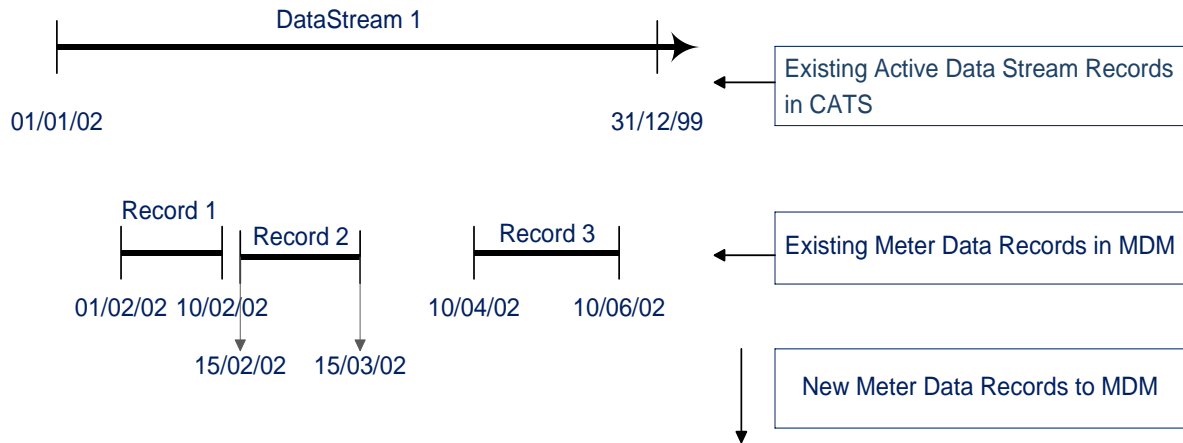
41. This record **will load**.



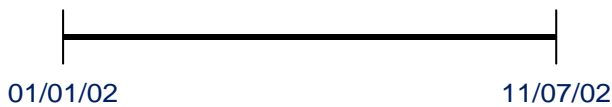
42. The first record **will load**. The second record **will not load** as the data stream is not active at the end date of the record.

J. Three existing meter data records loaded into MDM

The following examples assume that the data stream is active for the entire period.



Scenarios in relation to Records Above



43. This record **will load**. The three existing records will be archived to history. As start date and end date of new record does not overlap any existing records, there is no requirement for alignment of dates.



44. This record **will load**. The three existing records will be archived to history. As new record start date overlaps first existing record, there is a requirement for alignment of start dates.



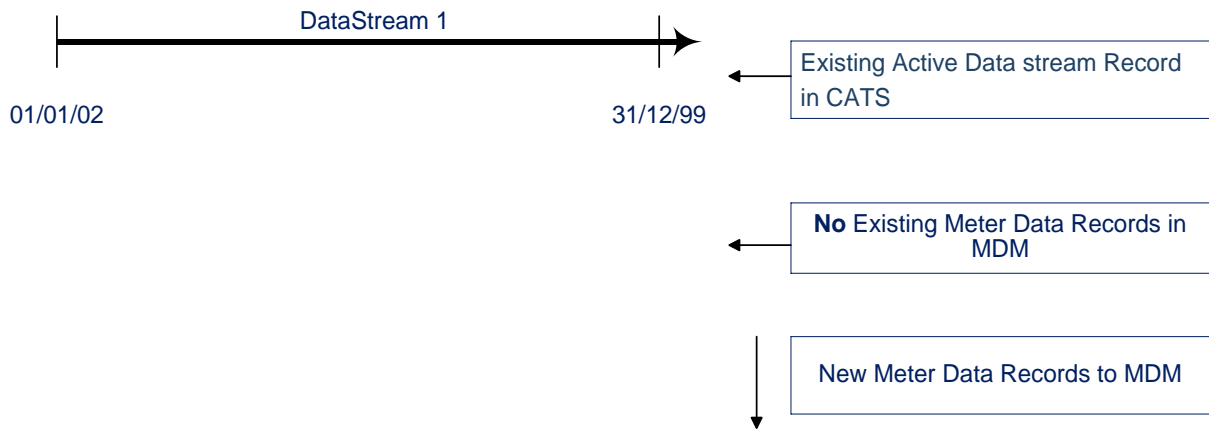
45. This record **will only load** if record 3 is a forward estimate as the end date of the new record overlaps existing record 3 (forward estimate means read_type_flag = 'E'). If record 3 is a forward estimate, then new record replaces previous records 1, 2 and 3.



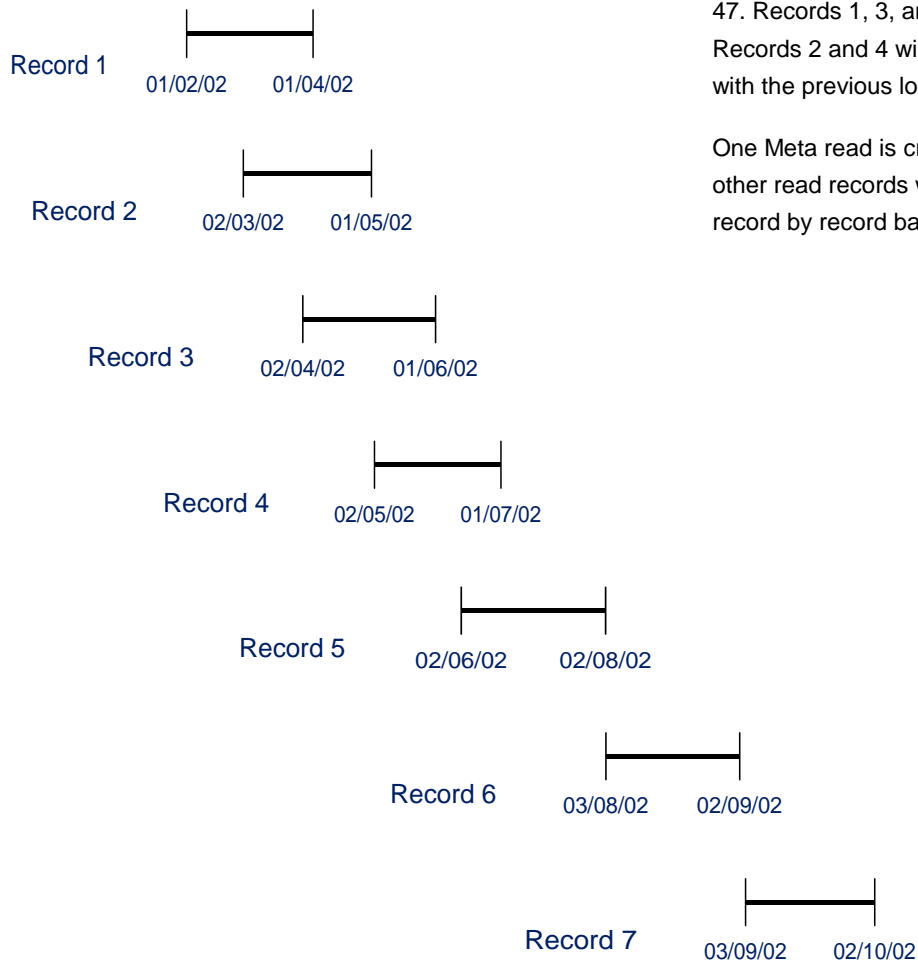
46. This record **will not load** unless Record1 is a forward estimate, as the new record does not align with start date of overlapping first existing record.

K. No existing meter data records loaded into MDM

The following examples assume that the data stream is active for the entire period.



Note: all of the following records are in the one meter data file.

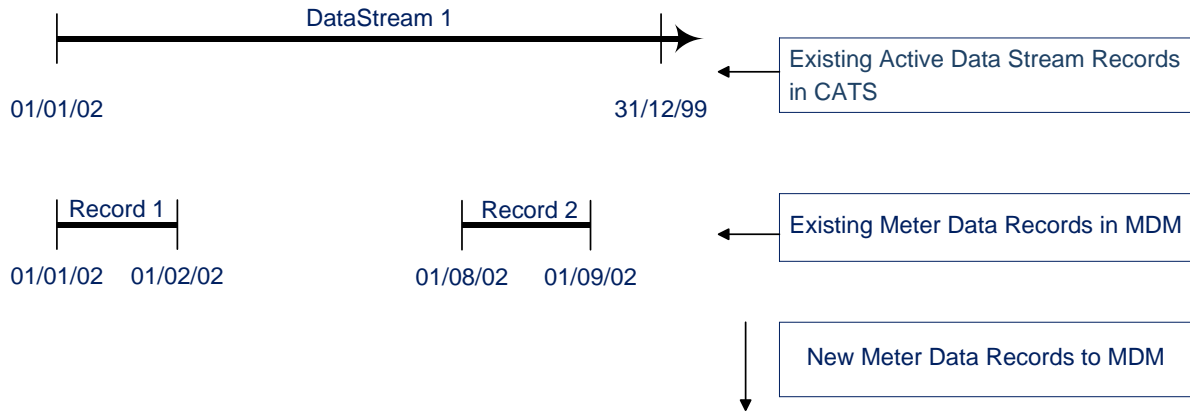


47. Records 1, 3, and 5, 6 and 7 **will load**.
Records 2 and 4 will fail as they do not align with the previous loaded record.

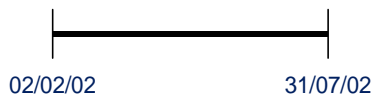
One Meta read is created (records 5, 6 & 7) – other read records will be processed on a record by record basis.

L. Existing meter data records loaded into MDM

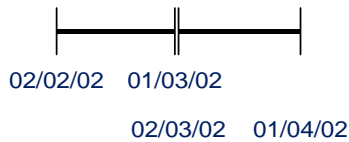
The following examples assume that the data stream is active for the entire period.



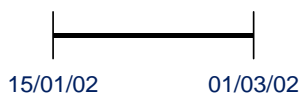
Note: Existing records are not forward estimates



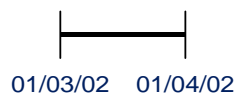
48. Record **will load**.



49. Both records **will load**. Data gap still exists between 2/4/02 and 31/7/02.



50. Record **will not load**. New record does not align with existing record, and record 1 is not a forward estimate.



51. Record **will load**. Data gap still exists between 2/2/02 and 28/2/02, and 2/4/02 and 31/7/02.

4. MSATS Error Codes (MDM)

All submitted Meter Data Notification data files that do not pass MSATS validations prior to data load will create an error. See the CATS Hints and Tips for more detail on the common error codes found on the AEMO web site.

4.1 Validation Failure Error Codes (MDM)

All error codes relating to validation failures of MDM meter data files are tabulated in MSATS. This listing is located under Administration > Codes Maintenance > Error Codes.

5. Glossary

Terms which are defined in the National Electricity Rules are deemed to have the same meaning under these Procedures. See also the MSATS Procedures for further definition of terms.

TABLE 11: GLOSSARY

TERM	DESCRIPTION
ase XML	A Standard for Energy eXtensible Markup Language
CATS	The Consumer Administration and Transfer Solution.
Data stream	A stream of metering data associated with a connection point, as represented by a NMI. A NMI can have multiple data streams (from multiple meters or from multiple channels or registers that comprise a single meter). Each data stream is identified by a suffix which is associated with the NMI to which it belongs.
DCTC	Data Collection Type Code (refer R25 Schema changes)
Interval meter	Is a meter that is capable of providing energy data for Trading Intervals (see National Electricity Rules). Classified in MSATS as COMMS 1 to 4, MRIM or UMCP.
MDM	The part of the MSATS system which is known as 'meter data management'.
MDM data stream	The term used to represent a NMI suffix, as distinct from a meter suffix. The NMI suffix is required by MDM to enable the metering data associated with a NMI to be correctly identified.
MDP	See Metering Data Provider
Metering Data Provider (MDP)	The person responsible for the collection, processing and transfer of energy data from the meter or data logger to AEMO. The MDP consists of two accredited service provider groups: The Metering Data Agent, who is responsible for the type 1, type 2, type 3 and type 4 metering installations; and The Metering Provider Category D, who is responsible for the type 5, type 6 and type 7 metering installations.
MSATS	The Market Settlements and Transfer Solution
MSATS system	The centralised computer system which is managed by AEMO for MSATS.
National Electricity Rules	The legal instrument formed under the National Electricity Law. The National Electricity Rules is available from AEMC.
AEMO	Australian Energy Market Operator Limited as defined in the National Electricity Rules.
NMI	National Metering Identifier as defined in the National Electricity Rules.
Profile name	Is the code that identifies the algorithmically derived shape of consumption that will be used to determine trading intervals for Basic Meter readings?
SAMPLE	The NMI classification code which is used to define a metering installation that forms part of the sample of metering data for use in a non NSLP profile shape application.
TNI	Transmission Node identifier means the unique identifier assigned by AEMO to each node in the transmission system.