MSATS CATS HISTORY MODEL

PREPARED BY: AEMO Markets
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VERSION RELEASE HISTORY

Version	Effective Date	Summary of Changes
1.0	09-April-2002	Initial Release
1.1	20-May-2002	Additional detail provided on C4 functionality. Relates to how the As At Date is interpreted and how the standing data access rules are applied.
1.2	04-March-2005	Corrected an error in Figure 7. Incorrect active records created. Re-drew figure 10 in Visio. Added reference to register_identifier (new master table). Several other formatting/grammer changes. MPC record removed from several tables showin in the C4 Complex example 3.
1.2	10 Aug 2009	Update to AEMO format.
~~1.3~~2.0	01 Dec 2017	~~Updated~~Updated to incorporate: • National Electricity Amendment (Expanding competition in metering and related services) Rule 2015. No.12; • National Electricity Amendment (Embedded Networks) Rule 2015 No. 15; and • National Electricity Amendment (Meter Replacement Processes) Rule 2016 No. 2.

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CONTENTS

1. INTRODUCTION

1.1. Purpose and scope

MSATS must support retrospective changes to *NMI Standing Data*, specifically because each ~~trading~~ *billing period* is settled some time after the week in which the *market* trades actually occurred.

This document has been prepared to explain the history model for the five key master tables that contain the CATS ~~s~~Standing ~~d~~Data stored for each *NMI*,

~~In order to meet this requirement, MSATS facilitates a complex history model.1~~

1.2. Definitions and interpretation

The Retail Electricity Market Procedures – Glossary and Framework:

(a) is incorporated into and forms part of this document; and

(b) should be read with this document.

1.3. Related documents

Title	Location
Retail Electricity Market Procedures – Glossary and Framework	http://aemo.com.au/Electricity/National-Electricity-Market-NEM/Retail-and-metering/Glossary-and-Framework
CATS Procedures	http://www.aemo.com.au/Electricity/National-Electricity-Market-NEM/Retail-and-metering/Market-Settlement-and-Transfer-Solutions
WIGS Procedures	http://www.aemo.com.au/Electricity/National-Electricity-Market-NEM/Retail-and-metering/Market-Settlement-and-Transfer-Solutions
MDM Procedures	http://www.aemo.com.au/Electricity/National-Electricity-Market-NEM/Retail-and-metering/Market-Settlement-and-Transfer-Solutions
Standing Data for MSATS	http://www.aemo.com.au/-/media/Files/PDF/AEMOStandingDataforMSATSv42.ashx
~~4~~ MSATS guides	http://www.aemo.com.au/Electricity/National-Electricity-Market-NEM/Retail-and-metering/Market-Settlement-and-Transfer-Solutions

2. BACKGROUND

These are the five key master tables that contain the standing data stored for each NMI:~~.~~

Table 1 NMI Standing Data Master Tables

TABLE	SUMMARY OF CONTENTS
CATS_NMI_DATA	Address, TNI Code, DLF Code, ~~a~~Aggregate ~~f~~Flag, ~~e~~Embedded ~~n~~Network ~~names~~IDs, Jurisdiction, NMI ~~s~~Status Code, etc.
CATS_NMI_PARTICIPANT_RELATIONS	Roles and associated Participants. Separate records are maintained for each Role / Participant relationship.
CATS_NMI_DATA_STREAM	Suffix, ADL, ~~p~~Profile ~~n~~Name, ~~d~~Datastream ~~t~~Type and ~~d~~Datastream ~~s~~Status of each MDM Datastream.
CATS_METER_REGISTER	Meter Serial ~~no~~ID, meter type, meter manufacturer, test results, etc.
CATS_REGISTER_IDENTIFIER	Meter Serial ID, ~~n~~Network Ttariff ~~c~~Code, ~~u~~Unit of ~~m~~Measure etc.

For a NMI to ~~exist~~be capable of being used in MSATS, it must have the following minimum set of data:

~~1 For more information about why a complex history model is required, refer to Appendix 1.~~

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- At least one record on the CATS_NMI_DATA Table;
- At least eight records on the CATS_NMI_PARTICIPANT_RELATIONS Table, one for each of the mandatory Role ~~IDs~~ Codes (ROLR, LNSP, LR, RP, FRMP, MDP, MPC and MPB).

It will also normally have:

- At least one record on each of the CATS_METER_REGISTER and CATS_REGISTER_IDENTIFIER (there should be at least one record for each *meter* and register associated with the *NMI*) Tables.

NMIs may or may not have:

- Records on the CATS_NMI_DATA_STREAM Table. If *metering data* is to be submitted to the MDM there must be at least one valid record on this Table.

Every time a change is made to any of the data in any of these tables, the old records are made inactive and new records are created, thus ensuring that there is a complete history of all changes.

In order to understand how the CATS security rules affect what data will be returned in a CATS report or an on-screen enquiry, it is essential to first understand how the history model works.

The information in this document will assist:

- Participants obtaining data from these tables either directly via the C1 report, or indirectly via the C4 Report. In particular, it will help explain what records they can expect to be returned depending on the report parameters they enter.
- Participants reviewing information about a *NMI* using the MSATS Browser.
- AEMO and industry staff working with MSATS

3. HOW TO USE THIS DOCUMENT

This document begins with a section called 'How is CATS history managed?', which provides an overview of the key data fields that MSATS uses to manage *NMI Standing Data* history.

This is essential for anyone who wants to be familiar with the CATS history model.

The next section 'How are the NMI master tables updated?' describes how and when the five *NMI Standing Data* master tables are updated as a result of a Participant submitting a Change Request. This section is important to understand the end-to-end process of a Change Request. It includes an explanation of the relationship between the dates supplied with a Change Request and the dates on the NMI Master Record~~s~~.

The next two sections show examples of updates to data. The first set of examples cover changes to the CATS_NMI_DATA Table. The second set covers changes to a *NMI's* FRMP.

Next, there are sections describing how the history model applies to:

- The C4 Report
- The C1 report
- The NMI Master Record online enquiry

~~1.~~4. HOW IS CATS HISTORY MANAGED?

Every record in the five *NMI Standing Data* tables contains the following key fields to manage ~~the~~ a *NMI's* history:

Table 2 Key Fields in NMI Standign Data Tables

FIELD NAME	DESCRIPTION	TYPE OF DATE
StartDate	The **start of a *billing period*** (i.e. the settlement date) for which the version of *NMI Standing Data* in this record applies. The data applies from the beginning of this date (the start of the *day*, i.e. 0:00).	Trading Date
EndDate	The **end of the *billing period*** for which the version of the *NMI Standing Data* in this record applies. The data applies until the end of this date (the end of the *day*, i.e. 23:59).	Trading Date

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FIELD NAME	DESCRIPTION	TYPE OF DATE
	In this document, the start and end dates are referred to as the 'trading dates'.	
MaintActFlg	The status of this record, either A if it is active or I if it is Inactive. Whenever a new record is created, it will be A (Active). When this record becomes redundant (because there has been a change to the data), its MAINTACTFLG is changed to I.	
MaintCreateDt	The date this record was created.	Database date
MaintUpdtDt	The date when this record was updated. When a record is created, the MaintUpdtDt date defaults to the MSATS 'high date' of '31-Dec-9999'. If the record is subsequently updated, its MaintUpdtDt is changed to the date and time the record was updated. However, the 'real' *NMI Standing Data* in a record (including its Start Date and End Date) is never changed. (Note: the value in MaintUpdtDt ID is updated as well but this information is not available to Participants.) An existing record is only ever updated if the data in that record becomes redundant, because of a change. In that case, its MaintActFlg will be changed from A to I to show it has been replaced. No other fields (apart from MaintUpdtDt and MaintActFlg can ever be changed). Thus, if a record's MaintUpdtDt is '31-Dec-9999', its MAINTACTFLG will always be A and if the record's MaintUpdtDt is any other date, its MaintActFlg will be I. If it is <> '31-Dec-9999' the record's MaintActFlg will be 'I' (Inactive).	Database date

~~2.~~5. HOW ARE THE NMI MASTER TABLES UPDATED?

~~3.1.~~5.1. Change Request Dates

To make changes to ~~a~~ *NMI's Standing Data* in any of the fields in the five NMI Master Tables the Participant who is entitled to change that data (e.g. the LNSP if it is the TNI Code or the new *retailer* if it is a change of FRMP) must submit a Change Request.

When submitting ~~the~~ a Change Request, the initiator specifies a Proposed~~d~~Date. The ProposedDate ~~PROPOSEDDATE~~ is the start of the ~~trading~~ *billing period* from when the new version of the *NMI Standing Data* **should** apply. However, the date that it will actually apply from is a date on the Change Request called the ActualChangeDate.

In some instances (e.g. Change of Retailer transaction – CR 1000 and 1030) another Participant (the MDP in these examples) will be requested to supply the ActualChangeDate (usually the date of an Actual Meter Reading). Until the MDP submits a transaction to supply that date the original Change Request cannot be completed.

If another Participant does not have to supply the ActualChangeDate MSATS inserts the date in the ProposedDate field into the ActualChangeDate field at the same time as it does its initial checks to ensure that the Change Request is valid.

The ProposedDate or ActualChangeDate can be a date in the future or a date in the past, depending on whether it is a Retrospective Change or Prospective Change. (~~On~~ A Retrospective Change~~s, it~~ can ~~also be~~use today's date.)

For some types of Retrospective Changes, it is also possible to optionally specify an ActualEndDate. If an ActualEndDate is supplied it is the date up to when this new version of the *NMI Standing Data* should apply. If an ActualEndDate is not supplied, CATS assumes this is an open-ended change (i.e. it applies into the future) and the overnight update process will populate the EndDate field on the new NMI Master Record with the high date (31-Dec-9999).

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3.2.5.2. Processing the updates to master records

Change Requests are completed and NMI Master Records updated as part of an overnight process called the BU500. The process runs some time after midnight after the end of the *day* being processed.

BU500 will complete all change requests satisfying the following three criteria:

- The Objection Logging Period has passed; and
- There are no outstanding Objections; and
- The ActualChangeDate on the Change Request has passed (e.g. if the ActualChangeDate on a Change Request is 08-Mar-2002 and the Objection Logging Period has passed, the Change Request will be completed by BU500 at about 01:00 on 09-Mar-2002).

A Change Request will never be completed **until after the ACTUALCHANGEDATE has passed**.

When BU500 updates the NMI Master Record, for any record that it makes inactive as a result of the change, it will update its MaintUpdtDt with the date and time it made the change. For any new record it creates, as a result of the change, it will make its MaintCreateDt the date and time it made the changes to the newly superseded records. Normally, the MaintCreateDt on any new records a Change Request creates will be the same as the MaintUpdtDt on the records that are being made inactive.

3.6. FIELD NAMES, BROWSER NAMES AND XML TAGS

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The field names described in Table 3 are the names used in MSATS.

However, when records are viewed using the MSATS browser or returned in a C1, C3 or C4 Report, different names are used. Table 3 shows, for each field name, the equivalent name in the MSATS browser and the equivalent XML tag:

Table 3 Field Names and XML Tags

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FIELD NAME (AEMO ONLY)	XML TAG	NAME ON MSATS BROWSER NMI MASTER SCREENS
StartDate	FromDate	Start Date
EndDate	ToDate	End Date
MaintCreateDt	CreationDate	This date is not supplied on the NMI Master screens
MaintUpdtDt	MaintenanceDate	Updated On
MaintActFlg	RowStatus	Activity Status

4.7. CHANGING DATA IN THE CATS_NMI_DATA TABLE

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The CATS_NMI_DATA table contains, amongst other things, the *NMI's* Jurisdiction, Site, TNI Code and DLF Code.

Using a subset of the data from this table, this section shows an example of how the data will be updated after the processes outlined below are complete.

Table 4

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EVENT	DATE OF EFFECT OF CHANGE	DATE THE CHANGE IS UPDATED TO COMPLETE
Create a NMI	01-Feb-2002	02-Feb-2002
Change the TNI Code	01-Mar-2002	02-Mar-2002
Change the DLF Code	01-Jul-2002	11-Jul-2002

The MSATS' assumptions are that:

- The first two transactions were entered as Change Requests for Prospective Changes and so they were processed in the overnight update for the date of effect of the change, which is about 01:00 the next day.

- The last transaction was entered retrospectively on 10-Jul-2002 and, because there are no allowable Objections for the type of Change Request used to update the DLFCode, was processed in the overnight processing for that date (i.e. about 01:00 on 11-Jul-2002).

Table 4 Example of Updates to Data

EVENT	Proposed Change Date	Date Change Request is Completed
Create a NMI	01-Feb-2002	02-Feb-2002
Change the TNI Code	01-Mar-2002	02-Mar-2002
Change the DLF Code	01-Jul-2002	11-Jul-2002

-

3.3.7.1. Step 1: Creating the NMI

The Change Request to create the NMI will include the following data:

FIELD NAME	VALUE
TNICode	VTT2
DLFCode	LELS
ActualChangeDate	01-Feb-2002
ActualEndDate	Null

In the overnight processing for 1-Feb-2002 (i.e. at approx. 01:00 on 2-Feb-2002), the record shown in Table 61, on the next page, will be created in the CATS_NMI_DATA table.

Note that:

- EndDate is the high date because this record is active into the future
- MaintActFlg is A
- MaintUpdtDt is the high date because that is what it defaults to when the record is created
- ID_ND is a unique identifier number assigned to each record.

Table 61: CATS_NMI_Data as at 2-Feb-2002

ID_ND	NMI	TNI CODE	DLF CODE	START DATE	ENDDATE	MAINTUPDTDT	MAINT ACTFLG	MAINTCREATEDT
1	XXXXXXXX24	VTT2	LELS	01-Feb-2002	31-Dec-9999	31-Dec-9999	A	02-Feb-2002 1:05

Figure 1, which follows, represents this data as a diagram.

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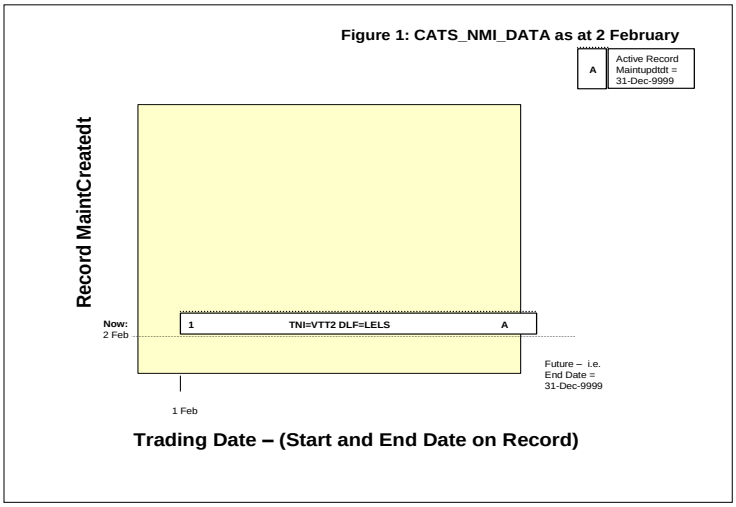


Figure 1: CATS_NMI_Data as at 2-Feb-2002

In ~~this~~ Figure 1 and the ones that follow:

- The dotted line at the top of an active record is used to indicate that the MaintUpdtDt is the high date (31-Dec-9999). Otherwise, the MaintUpdtDt is the date the record was made inactive.
- If the record extends into the future on the Trading Date axis, it means that its EndDate is the high date.

~~3.4.7.2.~~ Step 2: Changing the TNI code

The Change Request to change the TNI will include the following data:

Table 7

Field Name	Value
TNICode	VHTS
ActualChangeDate	01-Mar-2002
ActualEndDate	Null

In the overnight processing for 1-Mar-2002 (i.e. at approx. 01:00 on 2-Mar-2002), the following will happen:

- The existing record on the CATS_NMI_DATA Table, which has been made redundant by this change, will be made Inactive and its MaintUpdtDt will be updated with the system date and time. Remember that the data in an existing MSATS record, including its start date and end date, can never be changed. Once the data is superseded by an update, the original record is made inactive.
- Two new active records will be created, one for the period up to the *day* before the ActualChangeDate on the Change Request, which will contain the old version of the data, and one for the period starting from the actual change date.

The CATS_NMI_DATA Table will now contain the records shown in Table ~~28~~. Note that:

- The original record, where ID_ND = 1, has had MaintActFlg changed to I and had its MaintUpdtDt changed to 02-Mar-2002 1:02:00 AM.
- Two new records with a MaintActFlg = A have been created.
- The first new record, where ID_ND = 2, contains all the original standing data and its EndDate is the day before the ActualChangeDate. This will become the active record covering the period from the *NMI* record's start date until 28-Feb-2002. Note that its MaintUpdtDt is 31-Dec-9999, because this is the value inserted into this field whenever a new record is created.

- The second new record, where ID_ND = 3, contains all standing data after the update (note the new TNICode). Its StartDate is the ActualChangeDate and its EndDate is the high date because this is the active record into the future. This will become the active record covering the period from 01-Mar-2002 into the future. Note that its MaintUpdtDt is also 31-Dec-9999.

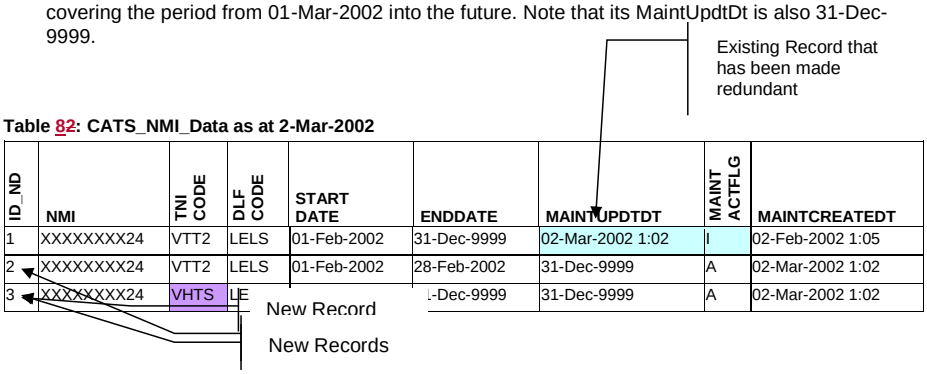


Table 82: CATS_NMI_Data as at 2-Mar-2002

ID_ND	NMI	TNI CODE	DLF CODE	START DATE	ENDDATE	MAINTUPDTDT	MAINT ACTFLG	MAINTCREATEDT
1	XXXXXXXX24	VTT2	LELS	01-Feb-2002	31-Dec-9999	02-Mar-2002 1:02	I	02-Feb-2002 1:05
2	XXXXXXXX24	VTT2	LELS	01-Feb-2002	28-Feb-2002	31-Dec-9999	A	02-Mar-2002 1:02
3	XXXXXXXX24	VHTS	LE		-Dec-9999	31-Dec-9999	A	02-Mar-2002 1:02

- In Table 8 and the subsequent tables in this section, the light blue shading represents fields that were updated on an existing record. The lavender shading represents the data ~~item~~ that was been changed, which led to the creation of the two new records.
- Record 1 is no longer correct (its EndDate is wrong). However, the data in Record 1, **including its EndDate**, cannot be changed. The record has to be made redundant. This is done by changing its MaintActFlg to I and its MaintUpdtDt to the date this was done.
- A record for the changed data is clearly needed, starting from 01-Mar-2002. That's Record 3. It has the new TNI Code and an End Date into the future (the high date). **However, when active records are made redundant, new active records must be created covering the *billing period* that the original records covered.** Record 1 covered 01-Feb-2002 to 31-Dec-9999. Record 3 covers 01-Mar-2002 to 31-Dec-9999 so there is a need for another new active record covering 01-Feb-2002 to 28-Feb-2002. That's Record 2 and it is a copy of what was in Record 1, apart from its End Date.
- Figure 2 represents this data as a diagram.

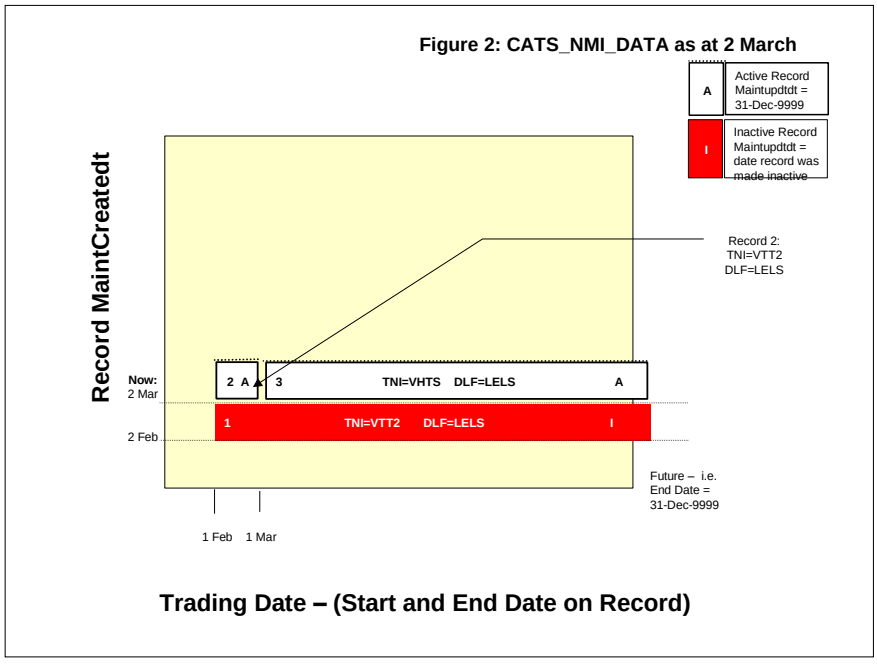


Figure 2: CATS_NMI_Data as at 2-Mar-2002

In Figure 2, Record 2 is the active record covering the *billing period* 01-Feb-2002 until 28-Feb-2002. It will be used for any future *settlements* runs for *billing periods* that fall in that period. Record 3 is the active record covering the period from 01-Mar-2002 into to the future. Record 1 is now inactive so it

would only be needed for *settlements* if there was an "as at" settlements run for ~~the~~any billing period before 02-Mar-2002.

~~3.5.7.~~3. Step 3: Changing the DLF code

The Change Request to change the DLF Code will include the following data:

~~**Table 9:**~~

Field Name	Value
DLFCode	LRLS
ActualChangeDate	01-Jul-2002
ActualEndDate	Null

In the overnight processing for 10-Jul-2002 (i.e. at approx. 01:00 on 11-Jul-2002) the following will happen:

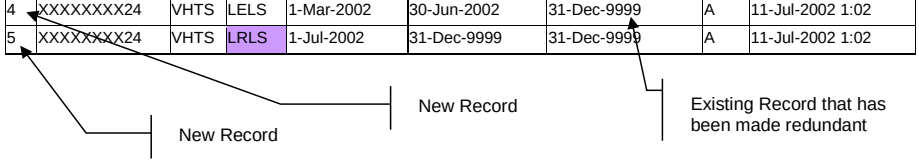
- The record where ID_ND = 3 will be made inactive and its MaintUpdtDt will be updated with the system time and date.
- Two new active records will be created, one for the period prior to the ActualChangeDate on the Change Request, which will contain the old version of the data in Record 3, and one for the period starting from the Actual Change Date.

The CATS_NMI_DATA Table will now contain the records shown in Table 10~~3~~.

Figure 3, which follows ~~the t~~Table 10, represents this data as a diagram.

Table 10~~3~~: CATS_NMI_Data as at 11-Jul-2002

ID_ND	NMI	TNI CODE	DLF CODE	START DATE	ENDDATE	MAINTUPDTDT	MAINT ACTFLG	MAINTCREATEDT
1	XXXXXXXX24	VTT2	LELS	1-Feb-2002	31-Dec-9999	2-Mar-2002 1:02	I	2-Feb-2002 1:05
2	XXXXXXXX24	VTT2	LELS	1-Feb-2002	28-Feb-2002	31-Dec-9999	A	2-Mar-2002 1:02
3	XXXXXXXX24	VHTS	LELS	1-Mar-2002	31-Dec-9999	11-Jul-2002 1:02	I	2-Mar-2002 1:02
4	XXXXXXXX24	VHTS	LELS	1-Mar-2002	30-Jun-2002	31-Dec-9999	A	11-Jul-2002 1:02
5	XXXXXXXX24	VHTS	LRLS	1-Jul-2002	31-Dec-9999	31-Dec-9999	A	11-Jul-2002 1:02



Remember, the data in an existing record, including its End Date, cannot be changed. Record 3 is now no longer correct (because from 1 July onwards, the DLF Code is different so its End Date is now wrong). Therefore, it has been made redundant by changing its MaintActFlg to I and updating its MaintUpdtDt. Record 5 is the new record that has the new version of the data (the new DLF Code). It starts from 01-Jul-2002. Another new record (Record 4) is needed to cover the rest of the period that

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was originally covered by Record 3 (from 01-Mar-2002 until 30-Jun-2002). It contains the same data that was originally in Record 3 apart from a new End Date.

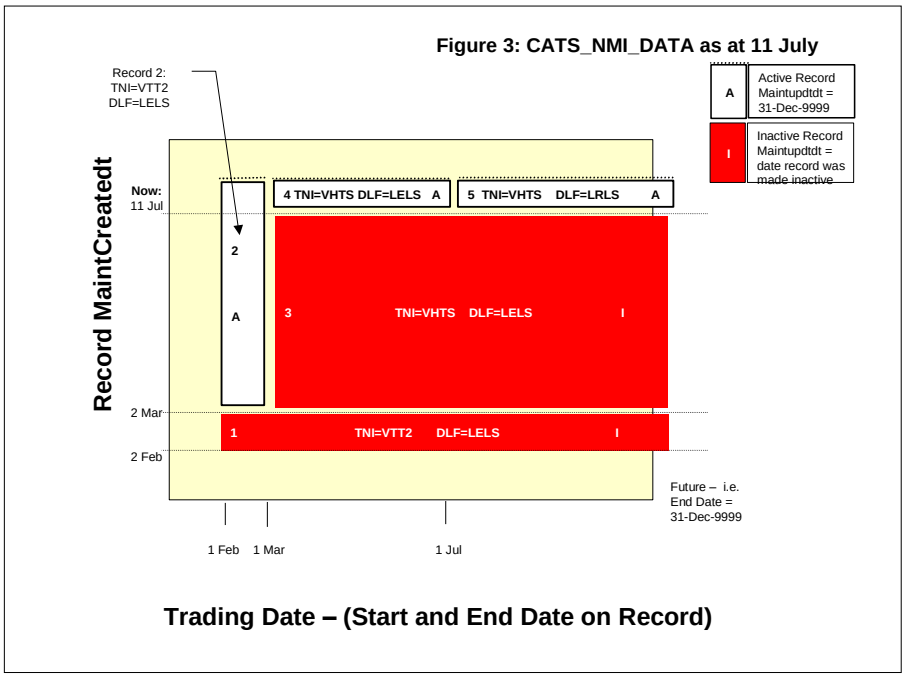

Figure 3: CATS_NMI_Data as at 11-Jul-2002

~~3.6.7.4.~~ Step 4: A retrospective change to the TNI with an end date

In the previous set of examples, the Change Requests submitted to change the TNI Code and then the DLF Code were to change the data from the nominated date into the future.

This example looks at what would happen if a Change Request with a StartDate and EndDate was submitted ~~you supply a from date and an *end* date~~. In this example, another Change Request is submitted to change the TNI to VER2 for the period 01-May-2002 to 31-Aug-2002.

After this change was complete, the *NMI's* active TNI Code, looked at over time, will be:

Table 11:

START DATE	END DATE	TNI
01-Feb-2002	28-Feb-2002	VTT2
01-Mar-2002	30-Apr-2002	VHTS
01-May-2002	31-Aug-2002	VER2 (New)
01-Sep-2002	31-Dec-9999	VHTS

The Change Request to change the TNI to VER2 will include the following data:

Table 12:

FIELD NAME	VALUE
TNICode	VER2
ActualChangeDate	01-May-2002
ActualEndDate	31-Aug-2002

It was submitted on 12-Sep-2002.

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In the overnight processing for 12-Sep-2002 (i.e. at approx. 01:00 on 13-Sep-2002), ~~then~~ the following will happen:

- The two existing active records (Nos. 4 and 5) will be made inactive.
- Four new active records will be created with the following start and end dates:

Table 13:

Start Date	End Date
01-Mar-2002	30-Apr-2002
01-May-2002	30-Jun-2002
01-Jul-2002	31-Aug-2002
01-Sep-2002	31-Dec-9999

These are in addition to the active record covering the period 01-Feb-2002 to 28-Feb-2002, which is not affected by this change.

The CATS_NMI_DATA Table will now contain the records shown in Table 14.

Figure 4, which follows Table 14, represents this data as a diagram.

Table 14: CATS_NMI_Data as at 13 September 2002

ID_ND	NMI	TNI CODE	DLF CODE	STARTDATE	ENDDATE	MAINTUPDTDT	MAINT ACTFLG	MAINTCREATEDT
1	XXXXXXXX24	VTT2	LELS	1-Feb-2002	31-Dec-9999	2-Mar-2002 1:02	I	2-Feb-2002 1:05
2	XXXXXXXX24	VTT2	LELS	1-Feb-2002	28-Feb-2002	31-Dec-9999	A	2-Mar-2002 1:02
3	XXXXXXXX24	VHTS	LELS	1-Mar-2002	31-Dec-9999	11-Jul-2002 1:02	I	2-Mar-2002 1:02
4	XXXXXXXX24	VHTS	LELS	1-Mar-2002	30-Jun-2002	13-Sep-2002 1:02	I	11-Jul-2002 1:02
5	XXXXXXXX24	VHTS	LRLS	1-Jul-2002	31-Dec-9999	13-Sep-2002 1:02	I	11-Jul-2002 1:02
6	XXXXXXXX24	VHTS	LELS	1-Mar-2002	30-Apr-2002	31-Dec-9999	A	13-Sep-2002 1:02
7	XXXXXXXX24	VER2	LELS	1-May-2002	30-Jun-2002	31-Dec-9999	A	13-Sep-2002 1:02
8	XXXXXXXX24	VER2	LRLS	1-Jul-2002	31-Aug-2002	31-Dec-9999	A	13-Sep-2002 1:02
9	XXXXXXXX24	VHTS	LRLS	1-Sep-2002	31-Dec-9999	31-Dec-9999	A	13-Sep-2002 1:02

This is more complicated. In this case, because the period covered by the Change Request overlapped two existing active records (Records 4 and 5), both of them have to be made redundant.

Remember, when any records are made redundant, new active records must be created that cover the entire ~~trading~~ *billing period* that was covered by the original redundant records.

In making Record 4 redundant, Record 6 and Record 7 are created. Notice that, between them, they cover the ~~trading~~ *billing period* originally covered by Record 4. Similarly, Records 8 and 9 cover the period that was originally covered by Record 5.

Figure 4: CATS_NMI_DATA as at 13 September

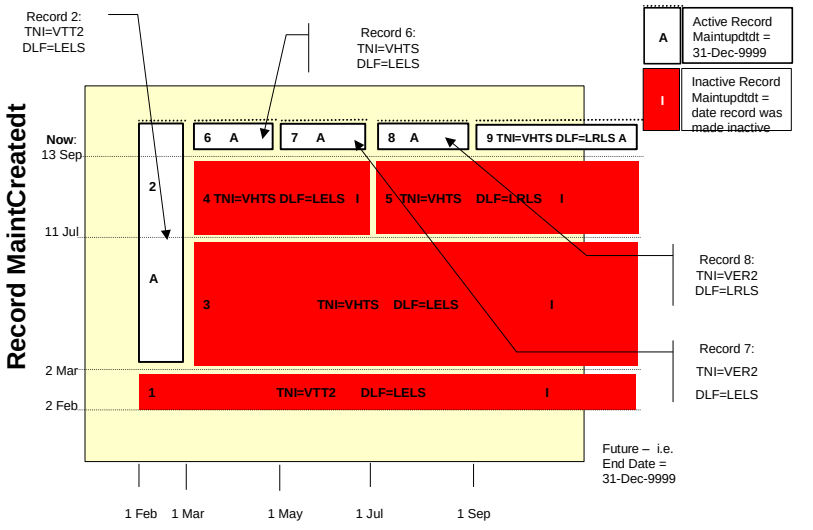

Figure 4: CATS_NMI_Data as at 13 September 2002

~~5.~~8. CHANGING A NMI'S FRMP

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The CATS_NMI_PARTICIPANT_RELATIONS Table has additional significance because it is the basis of the process that determines which records from any of the five tables a Participant is entitled to view.

~~3.7.~~8.1. Step 1: Creating the NMI

Part of the process of creating a *NMI* record includes specifying the mandatory Role ~~IDs~~ Codes (LR, FRMP, LNSP, MDP, MPB, ROLR, MPC and RP).

The example in Table 15 shows what the CATS_NMI_PARTICIPANT_RELATIONS Table would look like when the *NMI* record was created as a First Tier NMI. Notice that Table 15 has the same key fields as CATS_NMI_DATA: StartDate, EndDate, MaintActFlg, MaintCreateDt and MaintUpdtDt.

Table 15: CATS_ CATS_NMI_Participant_Relations Table as at 2-Feb-2002

PARTICIPANTID	NMI	ROLE ID	STARTDATE	ENDDATE	MAINT ACTFLG	MAINTUPDTDT	MAINTCREATEDT
RETSOUTH	XXXXXXXX24	FRMP	1-Feb-2002	31-Dec-9999	A	31-Dec-9999	2-Feb-2002 1:44
NETSOUTH	XXXXXXXX24	LNSP	1-Feb-2002	31-Dec-9999	A	31-Dec-9999	2-Feb-2002 1:44
RETSOUTH	XXXXXXXX24	LR	1-Feb-2002	31-Dec-9999	A	31-Dec-9999	2-Feb-2002 1:44
MDPSOUTH	XXXXXXXX24	MDP	1-Feb-2002	31-Dec-9999	A	31-Dec-9999	2-Feb-2002 1:44
MPSOUTH	XXXXXXXX24	MPB	1-Feb-2002	31-Dec-9999	A	31-Dec-9999	2-Feb-2002 1:44
RETSOUTH	XXXXXXXX24	ROLR	1-Feb-2002	31-Dec-9999	A	31-Dec-9999	2-Feb-2002 1:44
MCSOUTH	XXXXXXXX24	RP	1-Feb-2002	31-Dec-9999	A	31-Dec-9999	2-Feb-2002 1:44
RETSOUTH	XXXXXXXX24	MPC	1-Feb-2002	31-Dec-9999	A	31-Dec-9999	2-Feb-2002 1:44

At the start of the life of the *NMI* record, the record for the FRMP would look like Figure 5.

Figure 5: CATS_NMI_PARTICIPANT_RELATIONS (FRMP only) as at 2 April

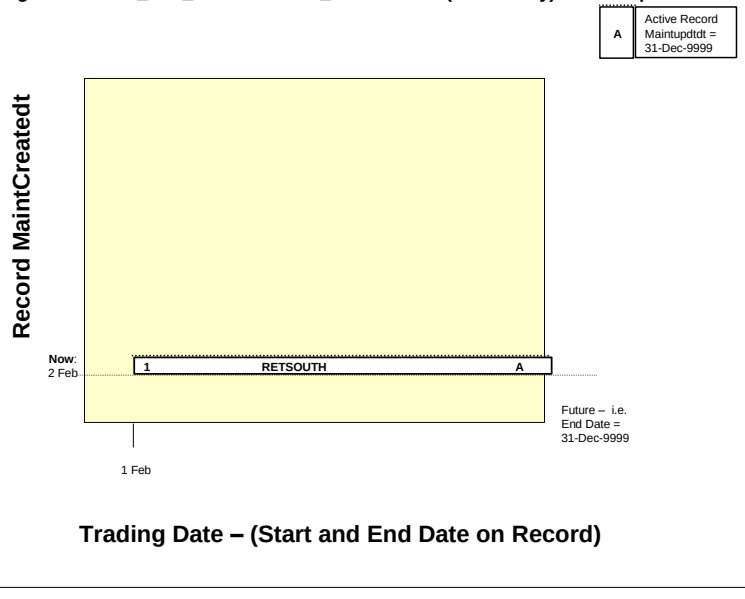

Figure 5: CATS_NMI_Participant_Relations as at 2-Feb-2002

We will trace the effect of two changes to this *NMI's* FRMP during 2002.

~~3.8.8.2.~~ Step 2: A prospective change to the NMI's FRMP

In this example, a ~~change request~~ CR1000 was submitted by RETEAST to change the *NMI's* FRMP with a ProposedDate of 30-Mar-2002.

After reading the *meter* on 01-Apr-2002, the MDP submitted a transaction on 02-Apr-2002 to update the original Change Request with an ActualChangeDate of 01-Apr-2002.

This means that in the overnight processing for 02-Apr-2002 (i.e. at approx. 01:00 on 03-Apr-2002) the change of *retailer* transaction will be processed, with an ActualChangeDate of 01-Apr-2002.

At this point, the records on the CATS_NMI_PARTICIPANT_RELATIONS Table where the RoleID is FRMP will look like the records in Table 16.

Figure 6, which follows Table 16, represents this in a diagram.

Table 16: CATS_NMI_Participant_Relations (FRMP only) as at 3 April, 2002

ID_NPR	PARTICIPANTID	NMI	ROLE ID	START DATE	ENDDATE	MAINT ACTFLG	MAINTUPDTDT	MAINTCREATEDT
1	RETSOUTH	XXXXXXXX24	FRMP	1-Feb-2002	31-Dec-9999	I	03-Apr-2002 1:04	2-Feb-2002 1:44
2	RETSOUTH	XXXXXXXX24	FRMP	1-Feb-2002	31-Mar-2002	A	31-Dec-9999	3-Apr-2002 1:04
3	RETEAST	XXXXXXXX24	FRMP	1-Apr-2002	31-Dec-9999	A	31-Dec-9999	3-Apr-2002 1:04

Note that other Roles exist ~~on this~~in Table 16 but, for simplicity, only the FRMP is shown in the example.

Figure 6: CATS_NMI_PARTICIPANT_RELATIONS (FRMP only) as at 3 April

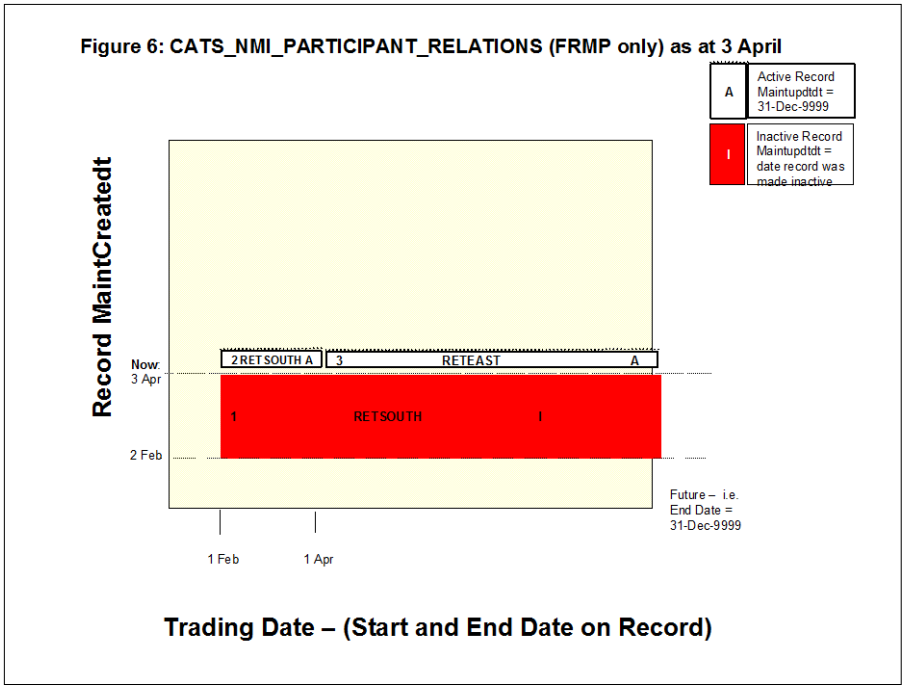

Figure 6: CATS_NMI_Participant_Relations (FRMP only) as at 3 April, 2002

~~3.9.8.3.~~ Step 3: A retrospective change to a NMI's FRMP to correct an error

In the final example for this *NMI*, a Retrospective Change is submitted to correct an error. There was a period where the *NMI* was with another FRMP but this was not recorded in MSATS. The affected *retailers* have agreed to fix the problem on-market. A CR1020 is submitted by RETWEST on Friday, 01-Nov-2002 to change the *NMI's* FRMP for the *billing period* from 01-Mar-2002 to 15-Aug-2002.

The Change Request is submitted with a ProposedDate of 01-Mar-2002 and an ActualEndDate of 15-Aug-2002. No Data Request is required to be sent to the MDP for the ActualChangeDate for this type of Change Request so the ProposedDate of 01-Mar-2002 will become the ActualChangeDate.

The night this transaction will be processed depends on the Objection Logging Period allowed for CR1020~~this Change Reason Code / Jurisdiction and NMI Classification~~.

Assuming that there is a five~~-~~day Objection Logging Period and that there are no Objections, this transaction will be processed after five full *business days* have elapsed, which means it will be completed in the overnight processing for 08-Nov-2002 (i.e. at approx. 01:00 on 09-Nov-2002) with an ActualChangeDate of 01-Mar-2002. At this point the records in the CATS_NMI_PARTICIPANT_RELATIONS Table where the RoleID is FRMP will look like the data in Table 17:

Table 17: CATS_NMI_Participant_Relations (FRMP only) as at 9 Nov, 2002

ID_NPR	PARTICIPANTID	NMI	ROLEID	START DATE	ENDDATE	MAINT ACTFLG	MAINTUPDTDT	MAINTCREATEDT
1	RETSOUTH	XXXXXXXX24	FRMP	1-Feb-2002	31-Dec-9999	I	03-Apr-2002 1:04	2-Feb-2002 1:44
2	RETSOUTH	XXXXXXXX24	FRMP	1-Feb-2002	31-Mar-2002	I	9-Nov-2002 1:20	2-Feb-2002 1:44
3	RETEAST	XXXXXXXX24	FRMP	1-Apr-2002	31-Dec-9999	I	9-Nov-2002 1:20	3-Apr-2002 1:04
4	RETSOUTH	XXXXXXXX24	FRMP	1-Feb-2002	28-Feb-2002	A	31-Dec-9999	9-Nov-2002 1:20
5	RETWEST	XXXXXXXX24	FRMP	1-Mar-2002	31-Mar-2002	A	31-Dec-9999	9-Nov-2002 1:20
6	RETWEST	XXXXXXXX24	FRMP	1-Apr-2002	15-Aug-2002	A	31-Dec-9999	9-Nov-2002 1:20
7	RETEAST	XXXXXXXX24	FRMP	16-Aug-2002	31-Dec-9999	A	31-Dec-9999	9-Nov-2002 1:20

Each previously active record is treated individually and split up as required. Hence, Record 2 is split in two and Record 3 is split in two.

Figure 7 represents this in a diagram.

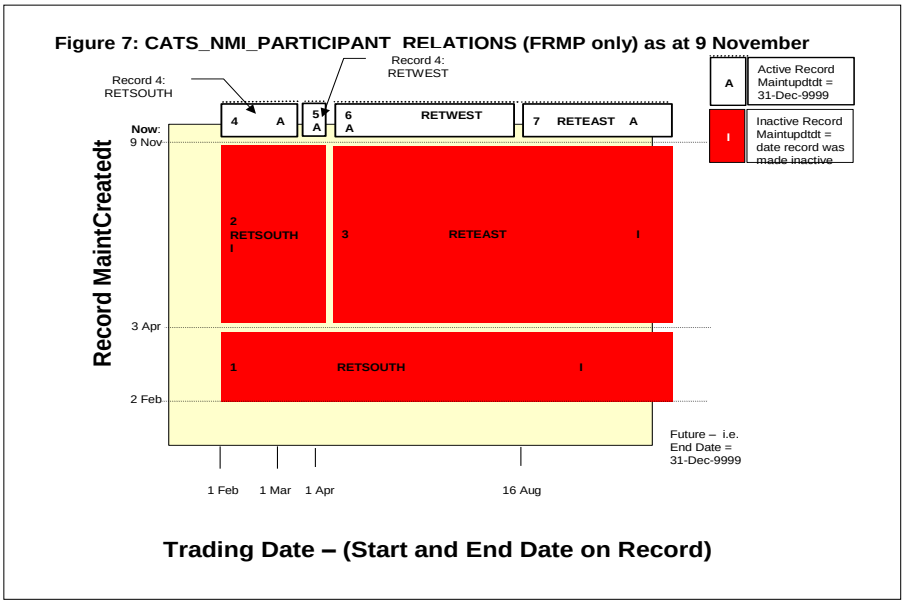

Figure 7: CATS_NMI_Participant_Relations (FRMP only) as at 09 Nov, 2002

~~6.~~9. WHAT DATA IS RETURNED IN A C4 ~~(MASTER)~~ REPORT?

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~~3.10.~~9.1. Report parameters

The C4 Report (called the 'Master Report' in the MSATS browser) is a snapshot report. It allows ~~you a~~ Participant to obtain, for a nominated ~~trading~~ *billing period*, as at a nominated date, what the data for a single *NMI* or a group of *NMIs* looked like.

The MSATS C4 Report returns records from each of the five master tables.

- CATS_NMI_DATA
- CATS_NMI_PARTICIPANT_RELATIONS
- CATS_NMI_DATA_STREAM
- CATS_METER_REGISTER
- CATS_REGISTER_IDENTIFIER

~~When you~~Three dates must be specified to run a~~n~~ ~~MSATS~~ C4 Report, ~~you specify~~ three dates:

- Report Start Date (for *trading day*)
- Report End Date (for *trading day*)
- Report As At Date

For a record to be available to be returned:

- The period of time it covers (the time between its Start Date and End Date must overlap at least part of the period covered by the C4 Report Start Date and End Date parameters; and
- It must have existed during the report As At Date.
- The participant must have the right to see the record.

For example, if the Start Date and End Date on a record are 01-Feb-2002 and 28-Feb-2002 respectively and it was created on 02-Mar-2002, the record would be available to be returned if the report StartDate and End Dates were 15-Feb-2002 to 15-Mar-2002 and the report As At Date was 01-Apr-2002. If the report StartDates and End Dates were 15-Jan-2002 to 20-Feb-2002 and the report As At Date was 21-Feb-2002, it would not be returned.

All records that meet these criteria are part of a superset of records that can potentially be returned. ~~This superset can contain records from each of the five tables, including CATS_NMI_PARTICIPANT_RELATIONS.~~

Then there has to be a check against each record in the superset to see if the Participant requesting the report is entitled to it.

For each record in the superset, there must be, within the CATS_NMI_PARTICIPANT_ RELATIONS records from the superset, a record for the ParticipantID with:

- A report end date that is after the start date of the record to be provided.
- A report start date that is before the end date of the record to be provided.

The test to obtain the superset of data applies the following four principles:

- The record's StartDate is <= the report's End Date.
- The record's EndDate is >= the report's Start Date.
- The record's MaintCreateDt is <= the report's As At Date.
- The record's MaintUpdtDt is >= the report's As At Date.

In the detailed example that follows, the exact criteria used to apply these four principles are explained in more detail.

These four tests identify which records should be returned. There is then an additional test to identify which columns in each record (i.e. which fields) a Participant is entitled to see. This is the process of applying the standing data access rules.

Note: The nature of the CATS_NMI_PARTICIPANT_RELATIONS Table, where the only two data fields are RoleID and ParticipantID, means that, in effect, application of the standing data access rules determines not just what columns are returned, but whether the record is returned. For example, if a Participant is the LR, and not entitled to see the FRMP, the record for the FRMP will not be returned. This is different from, for example, the CATS_METER_REGISTER Table where, if a Participant is the LR, the record is returned but the Participant will only see the fields it is entitled to.

The standing data access rules are applied based on the Roles ~~the~~ a Participant has that overlap the record that it is proposed to provide, not just the Roles that overlap the report period.

This means that if, for example, a Participant had a relationship with a *NMI* as the LR during the report period and as a FRMP for a period outside the report period and there is a *meter* record that overlaps

both the report period and the period when the Participant was FRMP, the data returned on the *meter* record will be both the data the FRMP is entitled to see and the data the LR is entitled to see.

Figure 11, below, illustrates this principle.

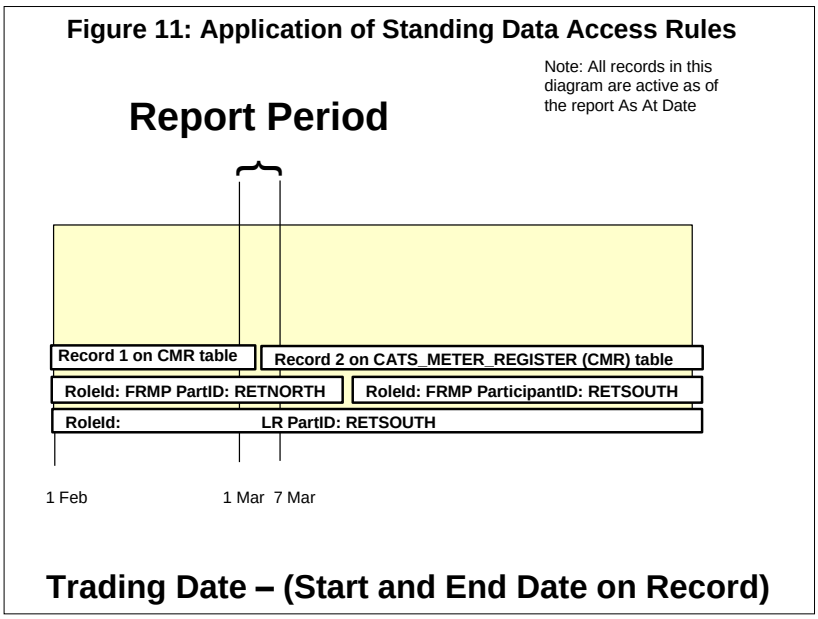

Figure 11: Application of Standing Data Access Rules

The records that can potentially be returned for this reporting period are the LR record, the FRMP record for RETNORTH and the two records from the CATS_METER_ REGISTER Table. These are the only ones that overlap the report period.

If RETSOUTH runs this report ~~they~~ it will:

- Receive the LR record. RETSOUTH has a LR relationship record (i.e. this record).
- Not receive the FRMP record for RETNORTH because the only relationship record RETSOUTH has that overlaps the FRMP record is a LR record and the LR is not entitled to see the FRMP.
- Receive Record 1 on the CATS_METER_REGISTER Table but only receive the fields the LR is entitled to. This is because the only relationship record RETSOUTH has that overlaps this meter~~ing~~ record is a LR record and the LR is not entitled to see all the fields on this Table.
- Receive Record 2 on the CATS_METER_REGISTER Table and receive the fields that the FRMP and LR are entitled to see. This is because, even though RETSOUTH is not a FRMP during the reporting period, it has a FRMP and LR relationship record that overlap the meter~~ing~~ record.

Thus, in the example above, even though no record will be returned indicating that RETSOUTH is the FRMP, ~~they~~ it will see the additional fields that the FRMP can see on the second meter~~ing~~ record.

The report has other mandatory and optional parameters that also further filter the data that can be returned. For example, the report is limited to:

- A single *NMI* or only *NMIs* in a nominated Jurisdiction with a nominated NMI Classification Code~~;~~ and then it can also be filtered for:
- *NMIs* where a nominated ParticipantID does or does not exist.
- *NMIs* where a nominated ParticipantID does or does not exist in a specified Role.

Overriding all this is a report row limit, ~~which is currently 500 for the C4 Report. This is~~ a parameter that determines the maximum number of records that can be returned in each report. Only the first 500 CATS_NMI_Data records that are selected will be included in a C4 Report.

Following are some examples based on the sample set of data used in this document to demonstrate what records would be returned based on the parameters entered in Start Date, End Date and As At Date.

The first example works through the process of applying the tests in detail and the remainder simply give the report parameters and the outcome.

3.11.9.2. C4 Report - detailed example with simple sample data

This example works through, in detail, what records would be returned if Participant RETEAST ran the report with the following parameters:

Parameter	Value
Report Start Date	30-Jun-2002
Report End Date	6-Jul-2002
Report As At Date	8-Nov-2002

We'll work through the example in two steps.

- **Step 1** works out which data in the CATS_NMI_DATA Table matches the report parameters.
- **Step 2** then applies the security rules to work out which of that superset of records RETEAST is entitled to see.

The sample data for the CATS_NMI_DATA Table looks like this:

Table 18: Sample data for the CATS_NMI_DATA Table:

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ID_ND	NMI	TNI CODE	DLF CODE	START DATE	ENDDATE	MAINTUPDTDT	MAINT ACTFLG	MAINTCREATEDT
1	XXXXXXXX24	VTT2	LELS	1-Feb-2002	31-Dec-9999	2-Mar-2002 1:02	I	2-Feb-2002 1:05
2	XXXXXXXX24	VTT2	LELS	1-Feb-2002	28-Feb-2002	31-Dec-9999	A	2-Mar-2002 1:02
3	XXXXXXXX24	VHTS	LELS	1-Mar-2002	31-Dec-9999	11-Jul-2002 1:02	I	2-Mar-2002 1:02
4	XXXXXXXX24	VHTS	LELS	1-Mar-2002	30-Jun-2002	13-Sep-2002 1:02	I	11-Jul-2002 1:02
5	XXXXXXXX24	VHTS	LRLS	1-Jul-2002	31-Dec-9999	13-Sep-2002 1:02	I	11-Jul-2002 1:02
6	XXXXXXXX24	VHTS	LELS	1-Mar-2002	30-Apr-2002	31-Dec-9999	A	13-Sep-2002 1:02
7	XXXXXXXX24	VER2	LELS	1-May-2002	30-Jun-2002	31-Dec-9999	A	13-Sep-2002 1:02
8	XXXXXXXX24	VER2	LRLS	1-Jul-2002	31-Aug-2002	31-Dec-9999	A	13-Sep-2002 1:02
9	XXXXXXXX24	VHTS	LRLS	1-Sep-2002	31-Dec-9999	31-Dec-9999	A	13-Sep-2002 1:02

Figure 8 represents the report parameters, as they apply to the CATS_NMI_DATA Table.

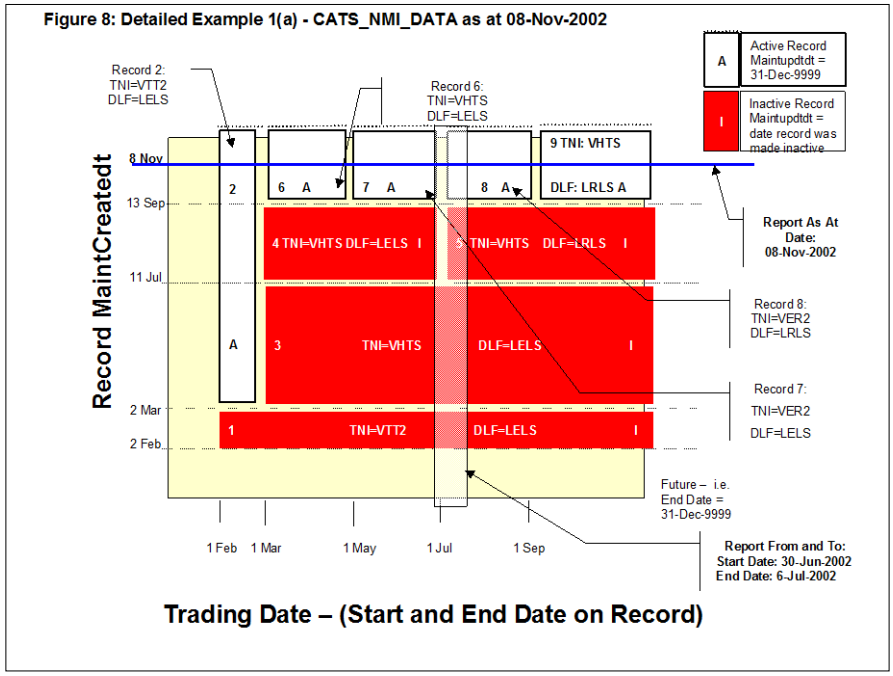


Figure 8: Detailed Example 1(a) - CATS_NMI_DATA as at 08-Nov-2002

Step 1: Identify the superset of data matching the report parameters

~~Remember, i~~If the record is active, the MaintUpdtDt is 31-Dec-9999. If the record is inactive, the MaintUpdtDt is the date it was made inactive. For example, for record ID 1, the MaintCreateDt is 2-Feb-2002 and the MaintUpdtDt is 2-Mar-2002. You can work out the MaintUpdtDt for an inactive record in ~~the~~ Figure 8. It is the date on the Record MaintCreatedt axis immediately above where the record ends. For example, for Record 3, it will be 11-Jul-2002.

There are four rules that a record must pass if it is to potentially be included. ~~Using these rules, we can work out which of the nine records are candidates.~~

The rules are:

1. The record's StartDate must be <= the report's End Date (i.e. its StartDate must be on or before 6-Jul-2002)
2. The record's EndDate must be >= the report's Start Date (i.e. its EndDate must be on or after 30-Jun-2002)
3. The record's MaintCreateDt must be <= the report's As At Date.. The exact criterion used is that the MaintCreateDt must be <= 00:00:00 hours on the As At Date + 1. For example, if the As At Date is 8-Nov-2002, a Participant can receive records created up until 00:00:00 on 9-Nov-2002. This means that any record created during the 8-Nov-2002, i.e. those created during the BU500 processing on that date, will be included in the report.
4. The record's MaintUpdtDt must be >= the report's As At Date. The exact criterion used is that the MaintUpdtDt must be >= 00:00:00 on the As At Date + 1. For example, if the AsAtDate is 8-Nov-2002, a Participant will **not** receive records where the MaintUpdtDt is any date up and including 00:00:00 on 9-Nov-2002. This means that any record that became inactive during the BU500 processing for 8-Nov-2002 will be excluded from the report.

Applying these rules:

RECORD NO	PASS RULE 1?	PASS RULE 2?	PASS RULE 3?	PASS RULE 4?	INCLUDE?
1	☑	☑	☑	☒	NO
2	☑	☒			NO
3	☑	☑	☑	☒	NO
4	☑	☑	☑	☒	NO
5	☑	☑	☑	☒	NO
6	☑	☒			NO
7	☑	☑	☑	☑	YES
8	☑	☑	☑	☑	YES
9	☒				NO

This means that, of the nine records, only the two records shown in Table ~~8~~ 19 could potentially be returned, subject to whether the requesting Participant is entitled to the record.

Table ~~8~~19: Detailed Example 1(a) Records that could be returned from CATS_NMI_DATA

ID_ND	NMI	TNI CODE	DLF CODE	START DATE	ENDDATE	MAINTUPDTDT	MAINT ACTFLG	MAINTCREATEDT
7	XXXXXXXX24	VER2	LELS	1-May-2002	30-Jun-2002	31-Dec-9999	A	13-Sep-2002 1:02
8	XXXXXXXX24	VER2	LRLS	1-Jun-2002	31-Aug-2002	31-Dec-9999	A	13-Sep-2002 1:02

Step 2: Applying the security to work out which records (if any) RETEAST is entitled to

~~We now need to~~MSATS will now apply the security to see if Participant RETEAST is entitled to see any of these records.

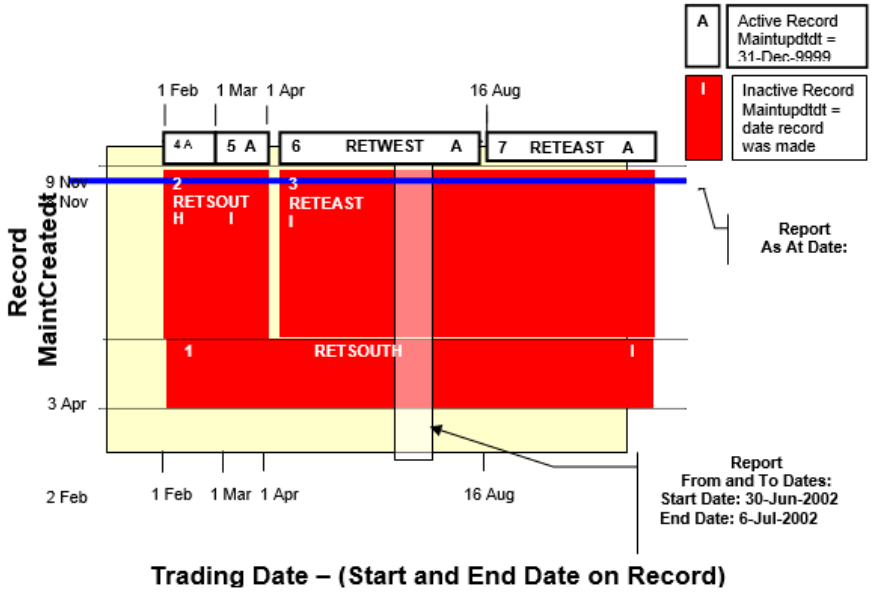
The data on the CATS_NMI_PARTICIPANT_RELATIONS Table looks like this:

ID_NPR	PARTICIPANTID	NMI	ROLEID	START DATE	ENDDATE		MAINTUPDTDT	MAINTCREATE-DT

						MAINT		
1	RETSOUTH	XXXXXXXX24	FRMP	01-Feb-02	31-Dec-99	I	03-Apr-2002 1:04	02-Feb-2002 1:44
2	RETSOUTH	XXXXXXXX24	FRMP	01-Feb-02	31-Mar-02	I	09-Nov-2002 1:20	03-Apr-2002 1:04
3	RETEAST	XXXXXXXX24	FRMP	01-Apr-02	31-Dec-99	I	09-Nov-2002 1:20	03-Apr-2002 1:04
4	RETSOUTH	XXXXXXXX24	FRMP	01-Feb-02	28-Feb-02	A	31-Dec-99	09-Nov-2002 1:20
5	RETWEST	XXXXXXXX25	FRMP	01-Mar-02	31-Mar-02	A	31-Dec-99	09-Nov-2002 1:20
6	RETWEST	XXXXXXXX24	FRMP	01-Apr-02	15-Aug-02	A	31-Dec-99	09-Nov-2002 1:20
7	RETEAST	XXXXXXXX24	FRMP	16-Aug-02	31-Dec-99	A	31-Dec-99	09-Nov-2002 1:20

Figure 9 represents the CATS_NMI_PARTICIPANT_RELATIONS table with the report parameters.

Figure 9: Detailed Example1(b) CATS_NMI_PARTICIPANT_RELATIONS as at 08-Nov-2002



Applying the same four rules as we did with the CATS_NMI_DATA table we see the following:

RECORD NO	PASS RULE 1?	PASS RULE 2?	PASS RULE 3?	PASS RULE 4?	INCLUDE?
1	☑	☑	☑	☒	NO
2	☑	☒			NO
3	☑	☑	☑	☑	YES
4	☑	☒			NO

RECORD NO	PASS RULE 1?	PASS RULE 2?	PASS RULE 3?	PASS RULE 4?	INCLUDE?
5	☑	☒			NO
6	☑	☑	☒		NO
7	☒	☑	☒		NO

Of the seven records, only Record 3, which is shown in Table ~~9~~20 matches the report parameters.

Table 20~~9~~: Detailed Example 1(b) – FRMP records returned from CATS_NMI_PARTICIPANT_RELATIONS

ID_NPR	PARTICIPANTID	NMI	ROLEID	START DATE	ENDDATE	MAINT ACTFLG	MAINTUPDTDT	MAINTCREATEDT
3	RETEAST	XXXXXXXX24	FRMP	1-Apr-2002	31-Dec-9999	I	9-Nov-2002	3-Apr-2002 1:04

This means that RETEAST is potentially entitled to see the records from the CATS_NMI_DATA Table shown in Table ~~8~~19. If any other FRMP that has had an association with this *NMI* was to run this report with the same parameters they would not receive any data.

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To test if RETEAST is able to see all of the potentially available records we need to check that, for each of them, the record in CATS_NMI_PARTICIPANT_ RELATIONS for RETEAST:

- Has an EndDate that is after the StartDate of the record.
- Has a StartDate that is before the EndDate of the record.

Applying this principle, both Record 7 and Record 8 will be returned because their StartDates are before the EndDate of the record on CATS_NMI_PARTICIPANT_ RELATIONS and their EndDates are after the StartDate of that record.

Applying the standing data access rules, it can be seen that RETEAST has a relationship record where they were the FRMP as at the report as at date so it is entitled to see the fields in this record that the FRMP is entitled to see.

~~3.12.~~9.3. C4 Report - brief examples with simple sample data

~~3.12.1.~~9.3.1. C4 Brief Example 1

REPORT PARAMETER	VALUE
Report Start Date	31-Mar-2002
Report End Date	6-Apr-2002
Report As At Date	1-Jul-2002

Data that could be returned from CATS_NMI_DATA:

ID_ND	NMI	TNI CODE	DLF CODE	START DATE	ENDDATE	MAINTUPDTDT	MAINT ACTFLG	MAINTCREATEDT
3	XXXXXXXX24	VHTS	LELS	1-Mar-2002	31-Dec-9999	11-Jul-2002 1:02	I	2-Mar-2002 1:02

FRMP records that could be returned from CATS_NMI_PARTICIPANT_RELATIONS

ID_NPR	PARTICIPANTID	NMI	ROLEID	START DATE	ENDDATE	MAINT ACTFLG	MAINTUPDTDT	MAINTCREATEDT
2	RETSOUTH	XXXXXXXX24	FRMP	1-Feb-2002	31-Mar-2002	A	9-Nov-2002 1:20	2-Feb-2002 1:44

3	RETEAST	XXXXXXXX24	FRMP	1-Apr-2002	31-Dec-9999	A	9-Nov-2002 1:20	3-Apr-2002 1:04

Both RETSOUTH and RETEAST can obtain the record from the CATS_NMI_DATA Table.

However, if RETSOUTH were to run the report, assuming that it does not have a relationship with this *NMI* in any other Role that is not shown here, it will only see Record 2 from the CATS_NMI_PARTICIPANT_RELATIONS Table. It won't receive Record 3 because its StartDate is after the EndDate on RETSOUTH's relationship record.

Similarly, if RETEAST ran it and had no other relationship records in other Roles, it would only receive Record 3. It won't receive Record 2 because its EndDate is before the StartDate of the RETEAST's relationship record.

~~3.12.2.~~9.3.2. C4 Brief Example 2

REPORT PARAMETER	VALUE
Report Start Date	30-Aug-2002
Report End Date	30-Aug-2002
Report As At Date	11-Nov-2002

Data that would returned from CATS_NMI_DATA

ID_ND	NMI	TNI CODE	DLF CODE	START DATE	ENDDATE	MAINTUPDTDT	MAINT ACTFLG	MAINTCREATEDT
8	XXXXXXXX24	VER2	LRLS	1-Jun-2002	31-Aug-2002	31-Dec-9999	A	13-Sep-2002 1:02

Data returned from CATS_NMI_PARTICIPANT_RELATIONS:

ID_NPR	PART ICIPANTID	NMI	ROLEID	START DATE	ENDDATE	MAINT ACTFLG	MAINT UPDTDT	MAINTCREATEDT
6	RETEAST	XXXXXXXX24	FRMP	16-Aug-2002	31-Dec-9999	A	31-Dec-9999	9-Nov-2002 1:20

This means that with these parameters, there is only one record that can be returned from the CATS_NMI_DATA Table and only one FRMP record from CATS_NMI_ PARTICIPANT_RELATIONS. RETEAST is the only FRMP that has been associated with this *NMI* that could run this report with these parameters and obtain any data. It would receive both these records and would see all the fields that the FRMP is entitled to see.

~~3.12.3.~~9.3.3. C4 Brief Example 3

REPORT PARAMETER	VALUE
Report Start Date	1-Feb-2002
Report End Date	30-Jun-2002
Report As At Date	11-Nov-2002

Data that could be returned from the CATS_NMI_DATA Table.

ID_ND	NMI	TNI CODE	DLF CODE	START DATE	ENDDATE	MAINTUPDTDT	MAINT ACTFLG	MAINTCREATEDT
2	XXXXXXXX24	VTT2	LELS	1-Feb-2002	28-Feb-2002	31-Dec-9999	A	2-Mar-2002 1:02
6	XXXXXXXX24	VHTS	LELS	1-Mar-2002	30-Apr-2002	31-Dec-9999	A	13-Sep-2002 1:02
7	XXXXXXXX24	VER2	LELS	1-May-2002	30-Jun-2002	31-Dec-9999	A	13-Sep-2002 1:02

Data that could be from CATS_NMI_PARTICIPANT_RELATIONS.

ID_NPR	PART ICIPANTID	NMI	ROLEID	START DATE	ENDDATE	MAINT ACTFLG	MAINT UPDTDT	MAINT CREATEDT
4	RETSOUTH	XXXXXXXX24	FRMP	1-Feb-2002	28-Feb-2002	A	31-Dec-9999	9-Nov-2002 1:20
5	RETWEST	XXXXXXXX24	FRMP	1-Mar-2002	15-Aug-2002	A	31-Dec-9999	9-Nov-2002 1:20

RETSOUTH would see Record 2 from CATS_NMI_DATA and record 4 from CATS_NMI_PARTICIPANT_RELATIONS.

RETWEST would see Records 6 and 7 from CATS_NMI_DATA and Record 5 from CATS_NMI_PARTICIPANT_RELATIONS.

In both cases they will see the data that the FRMP is entitled to see.

C4 Report - complex examples using data from four of the five CATS standing data tables

The sample data

The earlier examples have only included the CATS_NMI_DATA Table and the FRMP records from the CATS_NMI_PARTICIPANT_RELATIONS Table.

Following is a set of sample data from four of the five standing data tables and with all mandatory Roles.

To facilitate the display of information from the CATS_NMI_DATA and CATS_METER_REGISTER Tables in this document not all fields have been reproduced.

This data is then used as the basis for some additional examples.

In this set of examples, the standing data access rules are also applied.

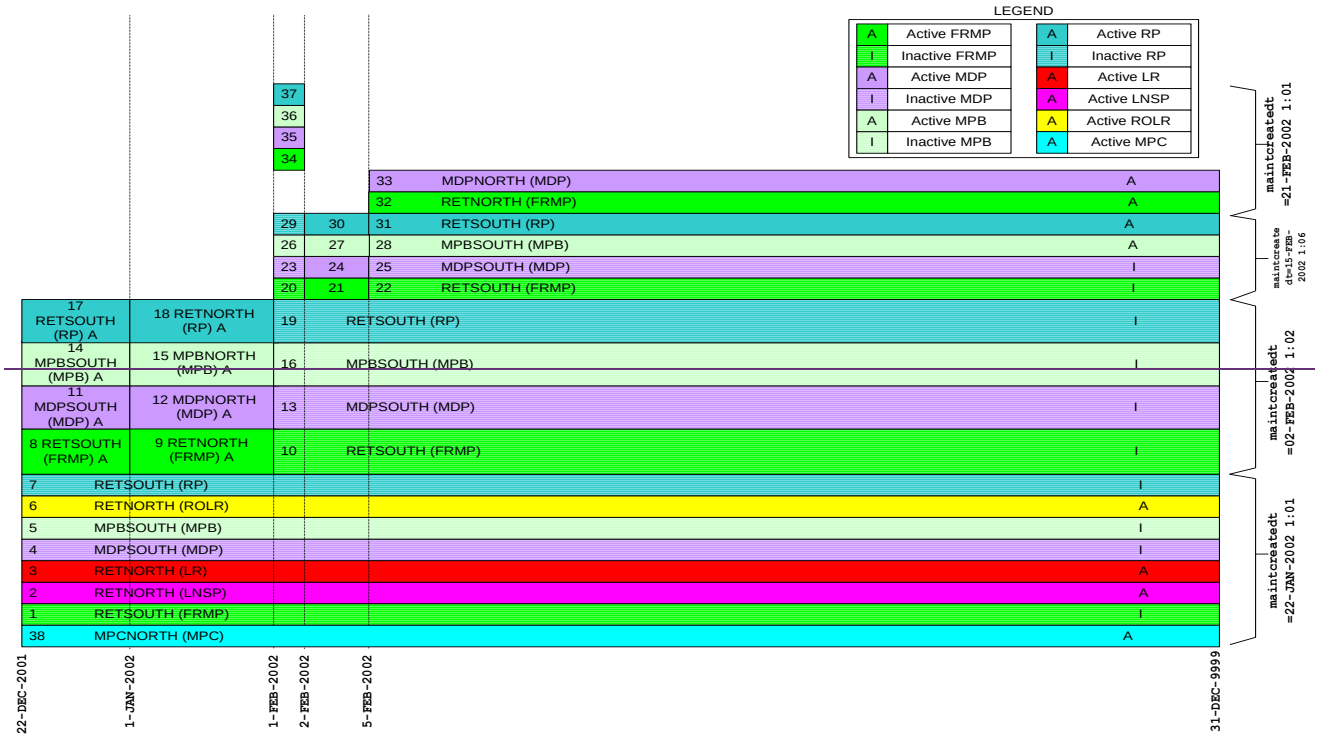
CATS_NMI_PARTICIPANT_RELATIONS

ID_NPR	PARTICIPANTID	NMI	ROLEID	STARTDATE	ENDDATE	MAINTACTFLG	MAINTCREATEDT	MAINTUPDTDT
1	RETSOUTH	XXXXXXXX50	FRMP	22-Dec-2017	31-Dec-9999	I	22-Jan-2018 1:01	2-Feb-2018 1:02
2	NETNORTH	XXXXXXXX50	LNSP	22-Dec-2017	31-Dec-9999	A	22-Jan-2018 1:01	31-Dec-9999
3	RETNORTH	XXXXXXXX50	LR	22-Dec-2017	31-Dec-9999	A	22-Jan-2018 1:01	31-Dec-9999
4	MDPSOUTH	XXXXXXXX50	MDP	22-Dec-2017	31-Dec-9999	I	22-Jan-2018 1:01	2-Feb-2018 1:02
5	MPBSOUTH	XXXXXXXX50	MPB	22-Dec-2017	31-Dec-9999	I	22-Jan-2018 1:01	2-Feb-2018 1:02
6	RETNORTH	XXXXXXXX50	ROLR	22-Dec-2017	31-Dec-9999	A	22-Jan-2018 1:01	31-Dec-9999
7	MCSOUTH	XXXXXXXX50	RP	22-Dec-2017	31-Dec-9999	I	22-Jan-2018 1:01	2-Feb-2018 1:02
8	RETSOUTH	XXXXXXXX50	FRMP	22-Dec-2017	31-Dec-2017	A	2-Feb-2018 1:02	31-Dec-9999
9	RETNORTH	XXXXXXXX50	FRMP	1-Jan-2017	31-Jan-2018	A	2-Feb-2018 1:02	31-Dec-9999
10	RETSOUTH	XXXXXXXX50	FRMP	1-Feb-2017	31-Dec-9999	I	2-Feb-2018 1:02	15-Feb-2018 1:06
11	MDPSOUTH	XXXXXXXX50	MDP	22-Dec-2017	31-Dec-2017	A	2-Feb-2018 1:02	31-Dec-9999
12	MDPNORTH	XXXXXXXX50	MDP	1-Jan-2018	31-Jan-2018	A	2-Feb-2018 1:02	31-Dec-9999
13	MDPSOUTH	XXXXXXXX50	MDP	1-Feb-2018	31-Dec-9999	I	2-Feb-2018 1:02	15-Feb-2018 1:06
14	MPBSOUTH	XXXXXXXX50	MPB	22-Dec-2017	31-Dec-2017	A	2-Feb-2018 1:02	31-Dec-9999
15	MPBNORTH	XXXXXXXX50	MPB	1-Jan-2018	31-Jan-2018	A	2-Feb-2018 1:02	31-Dec-9999
16	MPBSOUTH	XXXXXXXX50	MPB	1-Feb-2018	31-Dec-9999	I	2-Feb-2018 1:02	15-Feb-2018 1:06
17	MCSOUTH	XXXXXXXX50	RP	22-Dec-2017	31-Dec-2017	A	2-Feb-2018 1:02	31-Dec-9999
18	MCNORTH	XXXXXXXX50	RP	1-Jan-2018	31-Jan-2018	A	2-Feb-2018 1:02	31-Dec-9999
19	MCNORTH	XXXXXXXX50	RP	1-Feb-2018	31-Dec-9999	I	2-Feb-2018 1:02	15-Feb-2018 1:06
20	RETSOUTH	XXXXXXXX50	FRMP	1-Feb-2018	1-Feb-2018	I	15-Feb-2018 1:06	21-Feb-2018 1:01
21	RETNORTH	XXXXXXXX50	FRMP	2-Feb-2018	4-Feb-2018	A	15-Feb-2018 1:06	31-Dec-9999
22	RETSOUTH	XXXXXXXX50	FRMP	5-Feb-2018	31-Dec-9999	I	15-Feb-2018 1:06	21-Feb-2018 1:00
23	MDPSOUTH	XXXXXXXX50	MDP	1-Feb-2018	1-Feb-2018	I	15-Feb-2018 1:06	21-Feb-2018 1:01
24	MDPNORTH	XXXXXXXX50	MDP	2-Feb-2018	4-Feb-2018	A	15-Feb-2018 1:06	31-Dec-9999
25	MDPSOUTH	XXXXXXXX50	MDP	5-Feb-2018	31-Dec-9999	I	15-Feb-2018 1:06	21-Feb-2018 1:00
26	MPBSOUTH	XXXXXXXX50	MPB	1-Feb-2018	1-Feb-2018	I	15-Feb-2018 1:06	21-Feb-2018 1:01
27	MPBNORTH	XXXXXXXX50	MPB	2-Feb-2018	4-Feb-2018	A	15-Feb-2018 1:06	31-Dec-9999
28	MPBSOUTH	XXXXXXXX50	MPB	5-Feb-2018	31-Dec-9999	A	15-Feb-2018 1:06	31-Dec-9999
29	MCSOUTH	XXXXXXXX50	RP	1-Feb-2018	1-Feb-2018	I	15-Feb-2018 1:06	21-Feb-2018 1:01
30	MCNORTH	XXXXXXXX50	RP	2-Feb-2018	4-Feb-2018	A	15-Feb-2018 1:06	31-Dec-9999
31	MCSOUTH	XXXXXXXX50	RP	5-Feb-2018	31-Dec-9999	A	15-Feb-2018 1:06	31-Dec-9999
32	RETNORTH	XXXXXXXX50	FRMP	5-Feb-2018	31-Dec-9999	A	21-Feb-2018 1:00	31-Dec-9999
33	MDPNORTH	XXXXXXXX50	MDP	5-Feb-2018	31-Dec-9999	A	21-Feb-2018 1:00	31-Dec-9999
34	RETNORTH	XXXXXXXX50	FRMP	1-Feb-2018	1-Feb-2018	A	21-Feb-2018 1:01	31-Dec-9999

ID_NPR	PARTICIPANTID	NMI	ROLEID	STARTDATE	ENDDATE	MAINTACTFLG	MAINTCREATEDT	MAINTUPDTDT
35	MDPNORTH	XXXXXXXX50	MDP	1-Feb-2018	1-Feb-2018	A	21-Feb-2018 1:01	31-Dec-9999
36	MPBNORTH	XXXXXXXX50	MPB	1-Feb-2018	1-Feb-2018	A	21-Feb-2018 1:01	31-Dec-9999
37	MCNORTH	XXXXXXXX50	RP	1-Feb-2018	1-Feb-2018	A	21-Feb-2018 1:01	31-Dec-9999
38	MPCNORTH	XXXXXXXX50	MPC	22-Dec-2017	31-Dec-9999	A	22-Jan-2018 1:01	31-Dec-9999

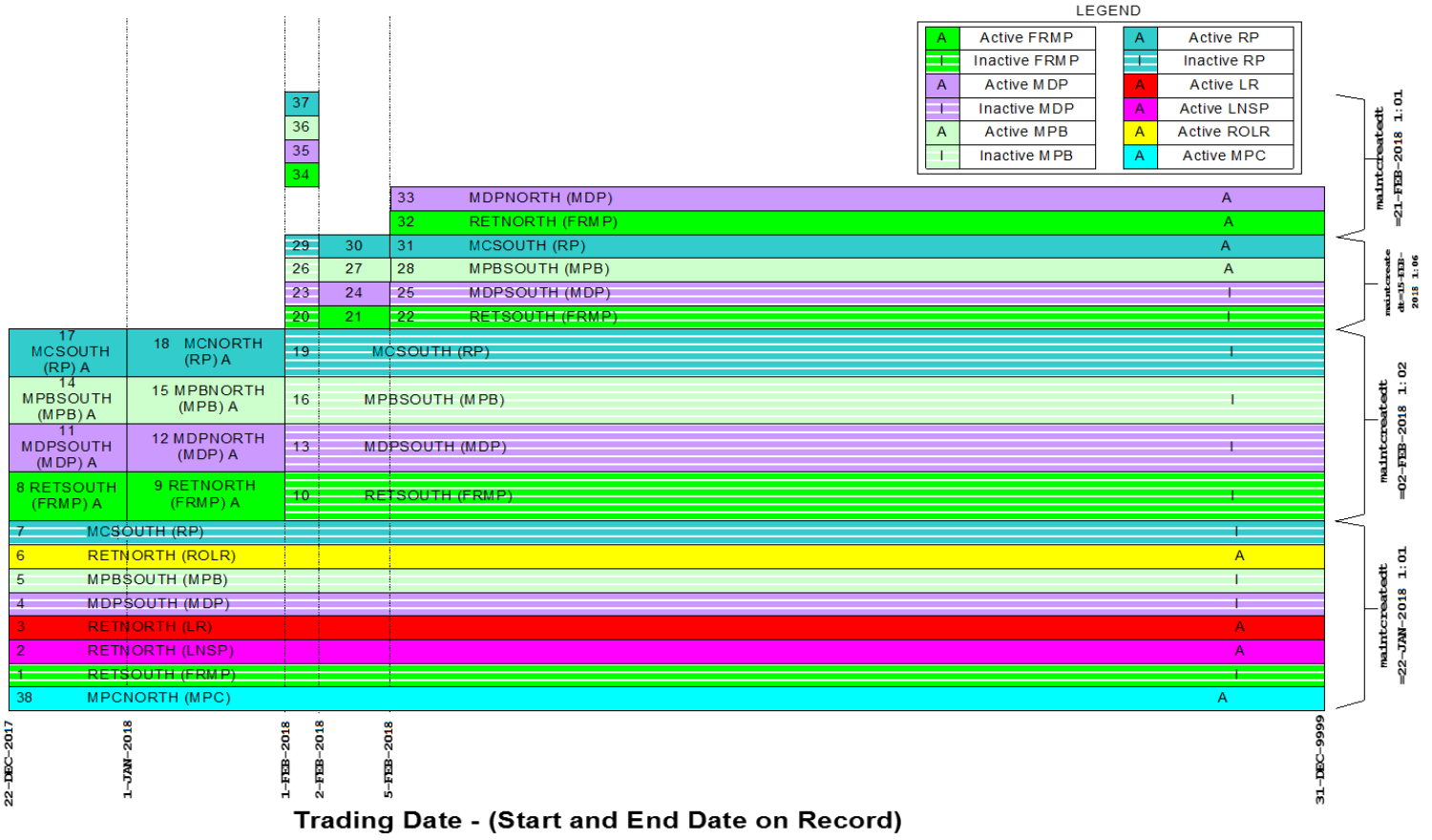
Because there are so many records in this Table, which makes it very difficult to read, it has also been represented as a diagram:

Figure 10: CATS_NMI_PARTICIPANT_RELATIONS (showing all Roles)



Trading Date - (Start and End Date on Record)

Figure 10: CATS_NMI_PARTICIPANT_RELATIONS (showing all Roles)



CATS_NMI_DATA

ID_ND	NMI	HOUSENUM	STREETNAME	STREET TYPE	LOCALITY	STATE	POSTCODE	TNICODE	DLFCODE	AGGFLAG	STARTDATE	NMISTATUSCODE	NMICLASS CODE	JURISDICTION CODE	ENDDATE	MAINT UPDTDT	MAINT ACTFLG	MAINT CREATEDT
1	XXXXXXXX50	1	SAMPLE	ST	SYDNEY	NSW	2000	TNI1	DLF1	Y	22-Dec-~~2001~~2017	A	LARGE	NSW	31-Dec-9999	2-Feb-~~2002~~2018 1:02	I	22-Jan-~~2002~~2018 1:01
2	XXXXXXXX50	1	SAMPLE	ST	SYDNEY	NSW	2000	TNI1	DLF1	Y	22-Dec-~~2001~~2017	A	LARGE	NSW	31-Jan-~~2002~~2018	31-Dec-9999	A	2-Feb-~~2002~~2018 1:02
3	XXXXXXXX50	1	SAMPLE	ST	SYDNEY	NSW	2000	TNI2	DLF1	Y	1-Feb-~~2002~~2018	A	LARGE	NSW	31-Dec-9999	31-Dec-9999	A	2-Feb-~~2002~~2018 1:02

CATS_NMI_DATA_STREAM

ID_NDS	NMI	SUFFIX	PROFILE NAME	AVERAGE DAILYLOAD	STREAM STATUS CODE	DATA STREAM TYPE	START DATE	END DATE	MAINT UPDTDT	MAINT ACTFLG	MAINT CREATEDT
1	XXXXXXXX50	N1	NOPROF	76742	A	I	22-Dec-2017	31-Dec-9999	7-Feb-2018 1:07	I	22-Jan-2018 1:01
2	XXXXXXXX50	N1	NOPROF	76742	A	I	22-Dec-2017	31-Dec-2017	31-Dec-9999	A	7-Feb-2018 1:07
3	XXXXXXXX50	N1	NOPROF	76742	I	I	1-Jan-2018	31-Dec-9999	31-Dec-9999	A	7-Feb-2018 1:07

CATS_METER_REGISTER

ID_MR	NMI	SITENAME	METER SERIAL	NEXTSCHR EADDATE	METER INSTALL CODE	METERS TATUS	START DATE	END DATE	MAINT UPDTDT	MAINT CREATEDT	MAINT ACTFLG
1	XXXXXXXX50		1		COMMS3	C	22-Dec-2017	31-Dec-9999	31-Dec-9999	22-Jan-2018 1:01	A

Note that the CATS_REGISTER_IDENTIFIER Table has been left out of the following examples to avoid over complication.

~~3.12.4.9.3.4.~~ C4 Complex Example 1

Report Parameter	Value
Initiator	RETNORTH
Report Start Date	06-Jan-2018
Report End Date	12-Jan-2018
Report As At Date	1-Apr-2018

This is the data that can potentially be returned from CATS_NMI_PARTICIPANT _RELATIONS. This is determined by selecting records with a StartDate <= 12-Jan-2010 and EndDate >=6-Jan-2018 and MaintCreateDt<1-Apr-2018 and MaintUpdtDt>1-Apr-2018.

ID_NPR	PARTICIPANT ID	NMI	ROLEID	START DATE	ENDDATE	MAINT ACTFLG	MAINTCREATEDT	MAINTUPDTDT
2	NETNORTH	XXXXXXXX50	LNSP	22-Dec-2017	31-Dec-9999	A	22-Jan-2018 1:01	31-Dec-9999
3	RETNORTH	XXXXXXXX50	LR	22-Dec-2017	31-Dec-9999	A	22-Jan-2018 1:01	31-Dec-9999
6	RETNORTH	XXXXXXXX50	ROLR	22-Dec-2017	31-Dec-9999	A	22-Jan-2018 1:01	31-Dec-9999
9	RETNORTH	XXXXXXXX50	FRMP	1-Jan-2018	31-Jan-2018	A	2-Feb-2018 1:02	31-Dec-9999
12	MDPNORTH	XXXXXXXX50	MDP	1-Jan-2018	31-Jan-2018	A	2-Feb-2018 1:02	31-Dec-9999
15	MPBNORTH	XXXXXXXX50	MPB	1-Jan-2018	31-Jan-2018	A	2-Feb-2018 1:02	31-Dec-9999
18	MCNORTH	XXXXXXXX50	RP	1-Jan-2018	31-Jan-2018	A	2-Feb-2018 1:02	31-Dec-9999
38	MPCNORTH	XXXXXXXX50	MPC	22-Dec-2017	31-Dec-9999	A	22-Jan-2018 1:01	31-Dec-9999

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There are three records where RETNORTH has a Role in the superset of available records that fit the report parameters. Their StartDates and EndDates are:

RECORD No	ROLE	START DATE	END DATE
3	LR	22-Dec-2017	31-Dec-9999
6	ROLR	22-Dec-2017	31-Dec-9999
9	FRMP	1-Jan-2018	31-Jan-2018

Between all three records, their relationship covers the entire period of the report so RETNORTH will be entitled to the entire set of records that fall within the reporting period. The actual fields it will see in each record (and on the CATS_NMI_PARTICIPANT_RELATIONS Table, what records it sees) will depend on what relationship records overlap the record being returned.

Of the eight records that are potentially available on the CATS_NMI_PARTICIPANT_RELATIONS Table, ~~to determine whether RETNORTH can see them, you need to~~MSATS checks which of the RETNORTH relationship records overlap ~~them~~to determine whether RETNORTH can see them,. ~~We can~~MSATS ignores the three records where RETNORTH is the Participant because ~~they~~ it obviously satisfy~~ies~~ the general security requirement and all standing data access rules allow a Role to see itself. They will therefore all be returned.

To apply the standing data access rules, ~~you~~ MSATS does~~n~~'t just look at which valid (i.e. active as at the report As-At ~~d~~Date) RETNORTH records overlap the report period. ~~You also need to~~It also checks any other RETNORTH records that might overlap the record.

The total number of valid RETNORTH records are:

RECORD No	ROLE	START DATE	END DATE
3	LR	22-Dec-2017	31-Dec-9999
6	ROLR	22-Dec-2017	31-Dec-9999
9	FRMP	1-Jan-2018	31-Jan-2018
21	FRMP	2-Feb-2018	4-Feb-2018
32	FRMP	5-Feb-2018	31-Dec-9999
34	FRMP	1-Feb-2018	1-Feb-2018

The records in question that may or may not be returned depending on the standing data access rules are Records 2, 12 and 15.

Record 2, which is a record for the LNSP, is overlapped by all of RETNORTH's active records and so is returned. The FRMP, LR, RP and ROLR are all entitled to see the LNSP so any of these records would satisfy the requirements for the return of Record 2.

Record 12, which is a record for the MDP, is overlapped by Records 3 (LR), 6 (ROLR), 9 (FRMP) and 18 (RP). The FRMP, LR, and RP are all entitled to see the MDP so any of these records would satisfy the requirements for the return of Record 12.

Record 15, which is a record for the MPB, is overlapped by Records 3 (LR), 6 (ROLR), 9 (FRMP) and 18 (RP). The FRMP and RP are all entitled to see the MPB so any of these records would satisfy the requirements for the return of Record 15.

Data that will be returned from CATS_NMI_DATA

ID_ND	NMI	TNICODE	DLFCODE	AGGFLAG	STARTDATE	NMISTATUS CODE	ENDDATE	MAINT UPDTDT	MAINT ACTFLG	MAINT CREATEDT
2	XXXXXXXX50	TNI1	DLF1	Y	22-Dec-2017	A	31-Jan-2018	31-Dec-9999	A	2-Feb-2018 1:02

This record is overlapped by Records 3 (LR), 6 (ROLR), 9 (FRMP), 38 (MPC) and 18 (RP). The data returned will be the superset of data that LR, ROLR, FRMP and RP are entitled to see.

Data that will be returned from CATS_NMI_DATA_STREAM

ID_NDS	NMI	SUFFIX	PROFILE NAME	AVERAGE DAILYLOAD	STREAM STATUS CODE	DATASTREAMTYPE	START DATE	END DATE	MAINT UPDTDT	MAINT ACTFLG	MAINT CREATEDT
3	XXXXXXXX50	N1	NOPROF	76742	I	I	1-Jan-2018	31-Dec-9999	31-Dec-9999	A	7-Feb-20181:07

This record is overlapped by all RETNORTH's records. All data will be returned.

Data that will be returned from CATS_METER_REGISTER

ID_MR	NMI	SITENAME	METER SERIAL	NEXTSCHREADDATE	METERINSTALLCODE	METERSTATUS	START DATE	END DATE	MAINT UPDTDT	MAINT CREATEDT	MAINT ACTFLG
1	XXXXXXXX50		1		COMMS3	C	22-Dec-2017	31-Dec-9999	31-Dec-9999	22-Jan-2018 1:01	A

This record is overlapped by all RETNORTH's records. All data will be returned.

~~3.12.5.~~9.3.5. C4 Complex Example 2

REPORT PARAMETER	VALUE
Initiator	RETNORTH
Start Date	23-Dec-2017
End Date	12-Jan-2018
As At Date	1-Apr-2018

This is the total set of records that can potentially be returned from CATS_NMI_ PARTICIPANT_RELATIONS.

ID_NPR	PARTICIPANT ID	NMI	ROLEID	START DATE	ENDDATE	MAINTACT FLG	MAINTCREATEDT	MAINTUPDTDT
2	NETNORTH	XXXXXXXX50	LNSP	22-Dec-2017	31-Dec-9999	A	22-Jan-2018 1:01	31-Dec-9999
3	RETNORTH	XXXXXXXX50	LR	22-Dec-2017	31-Dec-9999	A	22-Jan-2018 1:01	31-Dec-9999
6	RETNORTH	XXXXXXXX50	ROLR	22-Dec-2017	31-Dec-9999	A	22-Jan-2018 1:01	31-Dec-9999
8	RETSOUTH	XXXXXXXX50	FRMP	22-Dec-2017	31-Dec-2017	A	2-Feb-2018 1:02	31-Dec-9999
9	RETNORTH	XXXXXXXX50	FRMP	1-Jan-2018	31-Jan-2018	A	2-Feb-2018 1:02	31-Dec-9999
11	MDPSOUTH	XXXXXXXX50	MDP	22-Dec-2017	31-Dec-2017	A	2-Feb-2018 1:02	31-Dec-9999
12	MDPNORTH	XXXXXXXX50	MDP	1-Jan-2018	31-Jan-2018	A	2-Feb-2018 1:02	31-Dec-9999
14	MPBSOUTH	XXXXXXXX50	MPB	22-Dec-2017	31-Dec-2017	A	2-Feb-2018 1:02	31-Dec-9999
15	MPBNORTH	XXXXXXXX50	MPB	1-Jan-2018	31-Jan-2018	A	2-Feb-2018 1:02	31-Dec-9999
17	MCSOUTH	XXXXXXXX50	RP	22-Dec-2017	31-Dec-2017	A	2-Feb-2018 1:02	31-Dec-9999
18	MCNORTH	XXXXXXXX50	RP	1-Jan-2018	31-Jan-2018	A	2-Feb-2018 1:02	31-Dec-9999
38	MPCNORTH	XXXXXXXX50	MPC	22-Dec-2017	31-Dec-9999	A	22-Jan-2018 1:01	31-Dec-9999

The total number of valid RETNORTH roles are:

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RECORD NO	ROLE	START DATE	END DATE
3	LR	22-Dec-2017	31-Dec-9999
6	ROLR	22-Dec-2017	31-Dec-9999
9	FRMP	1-Jan-2018	31-Jan-2018
21	FRMP	2-Feb-2018	4-Feb-2018
32	FRMP	5-Feb-2018	31-Dec-9999
34	FRMP	1-Feb-2018	1-Feb-2018

From the CATS_NMI_PARTICIPANT _RELATIONS Table they can see all of the these records shown above but on the following basis:

RECORD NO	ROLES IN WHICH PARTICIPANT IS ACTING DURING RECORD PERIOD	COMMENTS
2 (LNSP)	LR, ROLR, FRMP, RP	Will see the LNSP because this information is available to the LR, FRMP and RP
3 (LR)	LR, ROLR, FRMP, RP	Will see the LR because this information is available to the LR, FRMP and RP
6 (ROLR)	LR, ROLR, FRMP, RP	Will see the ROLR because this information is available to the LR, FRMP, RP and ROLR
8 (FRMP)	LR and ROLR	Will not see this record because FRMP not available to LR and ROLR
9 (FRMP)	LR, ROLR, FRMP, RP	Will see the FRMP because this information is available to the FRMP, and RP
11 (MDP)	LR and ROLR	Will see the MDP because this information is available to the LR
12 (MDP)	LR, ROLR, FRMP, RP	Will see the MDP because this information is available to the LR, FRMP, and RP
14 (MPB)	LR and ROLR	Will not see this record because MPB not available to LR and ROLR
15 (MPB)	LR, ROLR, FRMP, RP	Will see the MPB because this information is available to the FRMP, and RP
17 (RP)	LR and ROLR	Will see the RP because this information is available to the LR
18 (RP)	LR, ROLR, FRMP, RP	Will see the LR because this information is available to the LR, FRMP, and RP
38 (MPC)	LR, ROLR, FRMP, RP	Will see the MPC because this information is available to the RP and FRMP

There is only one record that will be returned from CATS_NMI_DATA.

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ID_ND	NMI	TNICODE	DLFCODE	AGGFLAG	STARTDATE	NMISTATUS CODE	ENDDATE	MAINT UPDTDT	MAINT ACTFLG	MAINT CREATEDT
2	XXXXXXXX50	TNI1	DLF1	Y	22-Dec-2017	A	31-Jan-2018	31-Dec-9999	A	2-Feb-2018 1:02

Overlapping this period (i.e. 22-Dec-2018 to 31-Jan-2018) RETNORTH was an LR, ROLR, and FRMP so it will see all the data in this record that the LR, ROLR, and FRMP can see.

This is the data that will be returned from the CATS_NMI_DATA_STREAM table.

ID_NDS	NMI	SUFFIX	PROFILE NAME	AVERAGE DAILYLOAD	STREAM STATUSCODE	DATASTREAM TYPE	START DATE	END DATE	MAINT UPDTDT	MAINT ACTFLG	MAINT CREATEDT
2	XXXXXXXX50	N1	NOPROF	76742	A	I	22-Dec-2017	31-Dec-2017	31-Dec-9999	A	7-Feb-2018 1:07
3	XXXXXXXX50	N1	NOPROF	76742	I	I	1-Jan-2018	31-Dec-9999	31-Dec-9999	A	7-Feb-2018 1:07

RETNORTH is entitled to the data in Record 2 that is available to the LR or the ROLR, as defined in the standing data access rules.

It is entitled to the data in Record 3 that is available to the LR, ROLR, and FRMP as defined in the Standing data Access Rules.

Data that will be returned from the CATS_METER_REGISTER Table.

ID_MR	NMI	SITENAME	METER SERIAL	NEXTSCHREADDATE	METERINSTALLCODE	METERSTATUS	START DATE	END DATE	MAINT UPDTDT	MAINT CREATEDT	MAINT ACTFLG
1	XXXXXXXX50		1		COMMS3	C	22-DEC-2017	31-DEC-9999	31-DEC-9999	22-JAN-2018 1:01	A

Overlapping this period (i.e. 22-Dec-2018 to 31-Jan-2018) RETNORTH was an LR, ROLR, and FRMP so it will see all the data in this record that the LR, ROLR, and FRMP can see.

~~3.12.6.~~9.3.6. C4 Complex Example 3

REPORT PARAMETER	VALUE
Initiator	RETSOUTH
Start Date	1-Feb-2018
End Date	5-Feb-2018
As At Date	14-Feb-2018

This is the total set of records that can potentially be returned from CATS_NMI_ PARTICIPANT_RELATIONS,

ID_NPR	PARTICIPANT ID	NMI	ROLEID	START DATE	ENDDATE	MAINTACT FLG	MAINTCREATEDT	MAINTUPDTDT
2	NETNORTH	XXXXXXXX50	LNSP	22-Dec-2017	31-Dec-9999	A	22-Jan-2018 1:01	31-Dec-9999
3	RETNORTH	XXXXXXXX50	LR	22-Dec-2017	31-Dec-9999	A	22-Jan-2018 1:01	31-Dec-9999
6	RETNORTH	XXXXXXXX50	ROLR	22-Dec-2017	31-Dec-9999	A	22-Jan-2018 1:01	31-Dec-9999
10	RETSOUTH	XXXXXXXX50	FRMP	1-Feb-2018	31-Dec-9999	I	2-Feb-2018 1:02	15-Feb-2018 1:06
13	MDPSOUTH	XXXXXXXX50	MDP	1-Feb-2018	31-Dec-9999	I	2-Feb-2018 1:02	15-Feb-2018 1:06
16	MPBSOUTH	XXXXXXXX50	MPB	1-Feb-2018	31-Dec-9999	I	2-Feb-2018 1:02	15-Feb-2018 1:06
19	RPSOUTH	XXXXXXXX50	RP	1-Feb-2018	31-Dec-9999	I	2-Feb-2018 1:02	15-Feb-2018 1:06
38	MPCNORTH	XXXXXXXX50	MPC	22-Dec-2017	31-Dec-9999	A	22-Jan-2018 1:01	31-Dec-9999

Note that both of the records for RETSOUTH have a MaintActFlg of I. They are no longer active records but they were as of 14-Feb-~~2002~~2018. This shows that there has been a subsequent retrospective

change to the roles acting as FRMP ~~and RP~~. The MaintUpdtDt of 15-Feb-~~2002~~2018 1:06 tells the Participant viewing this information when the record became inactive.

RETSOUTH is entitled to view all of the available data that the FRMP is entitled to see for the period they were the FRMP provided that those records existed as at the time the record was active.

~~The~~ It will be able to view the following records from the CATS_NMI_ PARTICIPANT_RELATIONS Table.

ID_NPR	PARTICIPANT ID	NMI	ROLEID	START DATE	ENDDATE	MAINTACT FLG	MAINTCREATEDT	MAINTUPDTDT
2	NETNORTH	XXXXXXXX50	LNSP	22-Dec-2017	31-Dec-9999	A	22-Jan-2018 1:01	31-Dec-9999
3	RETNORTH	XXXXXXXX50	LR	22-Dec-2017	31-Dec-9999	A	22-Jan-2018 1:01	31-Dec-9999
6	RETNORTH	XXXXXXXX50	ROLR	22-Dec-2017	31-Dec-9999	A	22-Jan-2018 1:01	31-Dec-9999
10	RETSOUTH	XXXXXXXX50	FRMP	1-Feb-2018	31-Dec-9999	I	2-Feb-2018 1:02	15-Feb-2018 1:06
13	MDPSOUTH	XXXXXXXX50	MDP	1-Feb-2018	31-Dec-9999	I	2-Feb-2018 1:02	15-Feb-2018 1:06
16	MPBSOUTH	XXXXXXXX50	MPB	1-Feb-2018	31-Dec-9999	I	2-Feb-2018 1:02	15-Feb-2018 1:06
19	MCSOUTH	XXXXXXXX50	RP	1-Feb-2018	31-Dec-9999	I	2-Feb-2018 1:02	15-Feb-2018 1:06
38	MPCNORTH	XXXXXXXX50	MPC	22-Dec-2017	31-Dec-9999	A	22-Jan-2018 1:01	31-Dec-9999

RETSOUTH is entitled to see all of these records because in every case it has records where it is the FRMP that overlap them and both Roles are entitled to see all of these Roles.

Data that will be returned from CATS_NMI_DATA

ID_ND	NMI	TNICODE	DLFCODE	AGGFLAG	STARTDATE	NMISTATUS CODE	ENDDATE	MAINT UPDTDT	MAINT ACTFLG	MAINT CREATEDT
3	XXXXXXXX50	TNI2	DLF1	Y	1-Feb-2018	A	31-Dec-9999	31-Dec-9999	A	2-Feb-2018 1:02

The Participant will be able to see the data fields available to the FRMP because their FRMP relationships overlap this record.

Data that will be returned from CATS_NMI_DATA_STREAM

ID_NDS	NMI	SUFFIX	PROFILE NAME	AVERAGE DAILYLOAD	STREAM STATUS CODE	DATASTREAMTYPE	START DATE	END DATE	MAINT UPDTDT	MAINT ACTFLG	MAINT CREATEDT
3	XXXXXXXX50	N1	NOPROF	60000	I	I	1-Jan-2018	31-Dec-9999	31-Dec-9999	A	7-Feb-2018 1:07

The Participant will be able to see the data fields available to the FRMP because their FRMP relationships overlap this record.

The one record in CATS_METER_REGISTER will be available.

ID_MR	NMI	SITENAME	METER SERIAL	NEXTSCHREADDATE	METERINSTALLCODE	METERSTATUS	START DATE	END DATE	MAINT UPDTDT	MAINT CREATEDT	MAINT ACTFLG
1	XXXXXXXX50		1		COMMS3	C	22-Dec-2017	31-Dec-9999	31-Dec-9999	22-Jan-2018 1:01	A

The participant will be able to see the data fields available to the FRMP because their FRMP relationships overlap this record.

~~7.~~10. C1 REPORT

The C1 report is a synchronisation report that's designed to allow ~~you~~ a Participant to replicate data ~~should you lose~~if access to MSATS is lost for a short period and did not receive all notifications. It should not be seen as a full synchronisation report because the size of the database and the row limit on the report output make it impractical for such a purpose.

The C1 report returns records from a single table at a time. Included ~~in the tables you can report on, one at a time,~~ are the following tables:

- CATS_NMI_DATA
- CATS_NMI_PARTICIPANT_RELATIONS
- CATS_NMI_DATA_STREAM
- CATS_METER_REGISTER
- CATS_REGISTER_IDENTIFIER

~~It's important to note that b~~Because these reports are run one table at a time, unlike the C4 Report, there is no way ~~you~~ a Participant can ensure that ~~when you run a report for each table you~~it will receive data for the same *NMIs* in each case.

When ~~you~~ a Participant runs a~~n~~ ~~MSATS~~ C1 report ~~you~~ it must specify dates and times:

- Start~~-~~Date
- End~~-~~Date
- Start~~-~~Time
- End~~-~~Time

For most tables, for a record to be available to be returned, its ~~:~~

MaintCreateDt or MaintUpdtDt must be between the report StartDate and EndDate.

~~OR Its MaintUpdtDt must be between the report start date and end date.~~

There are additional rules applied for tables that have a security requirement.

If the table is one of the five NMI master tables, in addition to the general requirement that its MaintCreateDt or MaintUpdtDt must be between the report StartDate and EndDate, it also checks, for each record that matches the basic criteria, whether the Participant had a relationship with the *NMI*.

It does that by checking that:

- The StartDate on the record to be provided is <= the EndDate on a CATS_NMI_PARTICIPANT_RELATIONS record for this *NMI*; and
- The EndDate on the record to be provided is >= the StartDate on a CATS_NMI_PARTICIPANT_RELATIONS record for this *NMI*.

For the **INBOUND** tables, i.e.:

- CATS_INBOUND_CHANGE_REQUEST

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- CATS_INBOUND_ROLES
- CATS_INBOUND_NMI_DATA
- CATS_INBOUND_METER_REGISTER
- CATS_INBOUND_STREAMS
- CATS_INBOUND_OBJECTIONS
- CATS_INBOUND_REGISTER_IDENTIFIER,

the Participant running the report must either exist on the CATS_INBOUND_ROLES Table for the RequestID being selected or must have a record on the CATS_NMI_PARTICIPANT_RELATIONS Table that overlaps the report StartDate and EndDate range.

For most outbound tables, only the records where the Participant running the report is identified in the ParticipantID field on the outbound record are available to be returned. This applies to:

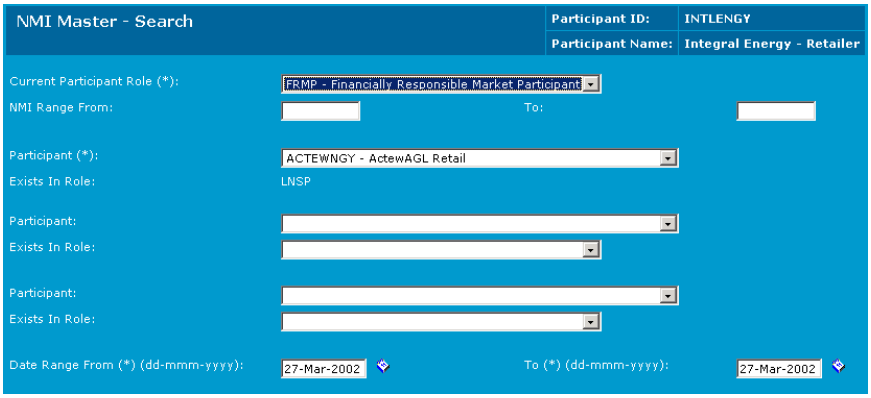
- CATS_OUTBOUND_OBJECTIONS
- CATS_OUTBOUND_CHANGE_REQUESTS
- CATS_OUTBOUND_REQUESTS
- CATS_OUTBOUND_NOTIFICATIONS

For the CATS_OUTBOUND_ERRORS Table, which does not have a ParticipantID associated with each record on the Table, the Participant running the report must be the ParticipantID identified on either the CATS_OUTBOUND_CHANGE_REQUESTS Table or the CATS_OUTBOUND_OBJECTIONS Table as the Participant that submitted the Change Request or Objection that this entry on the CATS_OUTBOUND_ERRORS Table relates to.

When each record is returned in a C1 Report the standing data access rules that apply represent the sum total of the data the Participant is entitled to based on all of the Role records for this Participant that overlap the record SstartDate and Eend dDate.

~~8.~~11. NMI MASTER ENQUIRY

The 'NMI Master Enquiry' screen looks like this:



To use this screen, you must specify:

- The Role in which you are searching (this must be a valid Role ~~which is valid~~ for the ParticipantID you are logged on as)
- The Participant that is acting in the role of LNSP
- The enquiry SstartDate and Eend dDate. ~~These are trading dates.~~ The allowable date range is seven days.

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You can also specify a *NMI* range, as well as other filters. For the purpose of this ~~discussion~~section, it's assumed that a NMI range was entered which selected a single NMI.

Handy Hint: Inserting the *NMI* into the LHS NMI range box only will return all active records (i.e. Date range does not apply).

Having entered the report parameters, there is an initial check to establish whether you have a relationship with the *NMI* in the selected Role within the ~~trading~~ date range specified. If you do not have a relationship during that period, no data will be returned.

To have a relationship with the *NMI* in the period, there must be a record on the CATS_NMI_PARTICIPANT_RELATIONS Table where:

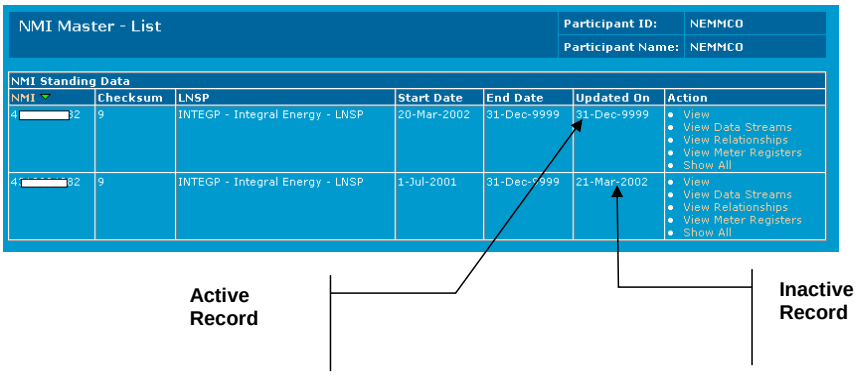
- The RoleID is the Role you've nominated~~;~~
- You are the nominated ParticipantID~~;~~
- The record's StartDate is <= the report's End~~-~~Date~~;~~
- The record's EndDate is >= the report's Start~~-~~Date~~;~~ and
- The MaintActFlg = A

(Note: This means that this screen only looks to see if you ~~currently~~ had a relationship during the period. If you did, ~~have a relationship during the period~~ but it has since been superseded by another Participant with a Retrospective Change you won't see any data on this screen.)

Assuming there is at least one record on the CATS_NMI_PARTICIPANT_ RELATIONS Table that matches those criteria, you will then be presented with the NMI Master – List screen, which lists all the records on the CATS_NMI_DATA Table where:

- The record's StartDate is <= the enquiry's End~~-~~Date;
- The record's EndDate is >= the enquiry's Start~~-~~Date;
- The record's StartDate is <= the End~~-~~Date of a relationship record you have with this *NMI*; and
- The record's EndDate is >= the Start~~-~~Date of a relationship record you have with this *NMI*.

The 'NMI Master List' screen looks like this:



This screen will include all active and inactive records matching the criteria.

The screen does not include the activity flag (MaintActFlg) so it's not obvious which are the inactive records and which are active records.

However, based on your knowledge of the history model you can work this out.

The date in the Updated~~-~~On column is the MaintUpdtDt. This means that:

IF THE UPDATED ON DATE IS	~~THEN~~ THE ACTIVITY STATUS (MAINTACTFLG) IS
The high date – 31-Dec-9999	**Active**

Any other date	**Inactive**

Clicking on Show All will show ~~you~~ all records on the CATS_NMI_DATA Table you are entitled to view, not just the ones that matched the initial ~~trading~~ date parameters (i.e. it shows all records that overlap your Participant relationship record(s)). In Show All view, you can see the Activity Status (MaintActFlg) for all selected records.

NMI Standing Data: 4[redacted]2

Checksum	LNSP	Start Date	End Date	Activity Status	Updated On	Action
9	INTEGP-Integral Energy - LNSP	1-Jul-2001	4-Feb-2002	A	31-Dec-9999	• View
9	INTEGP-Integral Energy - LNSP	5-Feb-2002	19-Mar-2002	A	31-Dec-9999	• View
9	INTEGP-Integral Energy - LNSP	20-Mar-2002	31-Dec-9999	A	31-Dec-9999	• View
9	INTEGP-Integral Energy - LNSP	1-Jul-2001	31-Dec-9999	I	21-Mar-2002	• View

Clicking on 'View Datastreams', 'View Relationships' or 'View Meter Registers' will show you a 'List' screen with each of the records from the relevant table that overlap the report date parameters and the Participant relationship record(s). You can use the 'Updated' date on any of those screens to work out which record is active and which one is inactive.

For any selected record on the 'NMI Master List' and 'Show All' screens or the 'Meter Register List' or 'Show All' screens, you can also click on the 'View' to see the remainder of the data in the record.

~~9.~~12. EXCEPTION – NEXT SCHEDULED READ DATE

Updates to the Next Scheduled Read Date submitted by batch (i.e. CR~~Code~~s 5070 or 5071) do not obey this history model.

If a *meter's* ~~next scheduled read date~~NSRD is updated by this method the current active record on the CATS_METER_REGISTER Table for the MeterSerial supplied on the Change Request will be updated. This is the record for this MeterSerial where the MaintActFlg = 'A' and the EndDate = '31-Dec-9999'. Its MaintUpdtDt will also be '31-Dec-9999'.

This existing record will be updated with the new next scheduled read date but the MaintUpdtDt will not be changed from the high date.

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~~10.~~APPENDIX A. ~~APPENDIX 1:~~ WHY THE NEED FOR A COMPLEX HISTORY MODEL?

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~~The National Electricity Market (NEM) s~~*S*~~ettlement~~s ~~process requires that each~~occur on a weekly basis, but a *billing period* ~~market week~~ is settled at least four times over a period of approximately 30 weeks (called: Preliminary, Final, Revision 1 and Revision 2). When, for example, a Revision 2 settlement is run, 30 weeks after the *settlement*s week, as well as using the latest available *meter*ing ~~read~~ *data*, ~~it~~ AEMO's systems also use~~s~~ the version of the *NMI~~'s~~ Standing Data* for the period being settled as at the date the settlement run is initiated. If, for example, between the Final Settlement and Revision 1, there has been a retrospective change to ~~the~~ a *NMI's* TNI or DLF, ~~then~~ Revision 1~~the revised settlement run~~ will use the new version of the~~at~~ data.

MSATS must be able ~~to~~ facilitate *settlements* any ~~market week~~ *billing period* not just using the data as it is now for that period, but as it was at any nominated date in the past. This may be necessary ~~if~~, for example, if there was a dispute.

The history model needs to be sufficiently complex to be able to identify:

- As of today, what the *NMI Standing Data* has looked like over time.
- As of any date in the past, what the *NMI Standing Data* looked like on that date and on any date prior to that.

For example, MSATS has to be able to work out the following for any *NMI*:

- As of today, what is the *NMI~~'s~~ Standing Data* for today.
- As of today, what is the *NMI Standing Data* for Settlement Week 1.
- As of 31-Jan-2002, what **did** the *NMI Standing Data* for Settlement Week 1 look like (i.e. ignore all changes that have been made since 31-Jan-2002 to the *NMI~~'s~~ Standing Data* for the period that cover Settlement week 1).

For MSATS to be able to answer such questions a complex history model is required.