

Business Service

Exchange of measurement data volumes installation

This version of the Service Description will take effect after approval,
when
Allocatie 2.0 tranche 3 goes live.

Please note: the Dutch version is leading.

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Referenced documents

Requirements model

No.	Description	Version	Date	Author
1.	BRS Metering data and objections metering data GV	9.0	14-04-2023	MFF BAS WG C1

Design frameworks and guidelines

No.	Description	Version	Date	Author
2.	NEDU EDSN Ontwerpkeuzes	3.9	15-04-2021	NEDU/EDSN
3.	TenneT Web Services guide	N/A	April 2020	TenneT
8.	Technical Guide - Measurements & Allocations Documents	1.7	13-06-2022	TenneT

Service descriptions and data model

No.	Description	Version	Date	Author
4.	EDSN Complex Data Type Specificatie	2.4	07-06-2023	EDSN
5.	EDSN Logisch Data Type Specificatie	3.0	07-06-2023	EDSN
6.	ebIX® Code list	1.2A	May 2023	ebIX TC
7.	ISO 8601 voor datum- en tijdsnotatie	1:2019	2019	ISO
9.	UN/CEFACT 6063 Quantity type code qualifier	C	2000	UN/CEFACT

This document is a publication of EDSN for MFF BAS. In the interest of completeness and accuracy, we kindly request you to forward any comments, additions and corrections regarding this document to EDSN.

You can also contact EDSN for more information about this document in the following ways.

EDSN B.V.	Telephone 033 - 422 46 20
Van Asch van Wijckstraat 55	E-mail servicedesk@edsn.nl
3811 LP Amersfoort	Internet www.edsn.nl

1. Introduction

1.1 Service description

The service description describes the agreements on the exchange of volumes of an installation of:

- Allocation point electricity profile large consumption
- Allocation point electricity telemetry large consumption.

To give the reader a good idea of the exchange, a detailed process description is included as well as an indication of the notifications to be used. For a functional description of the process that supports this exchange, please refer to the Business Requirement Specification Metering data and objections metering data[1].

1.2 Reading guide

This document describes the following aspects, including:

- *Process Exchange metering data volumes installation*;
- These volumes are exchanged via TenneT's MMC-hub
- The syntactic validations by the MMC-hub, the confirmation/rejection by the MMC-hub
- The controls on the volumes by the consumers (TSO, DSO)
- The confirmation/rejection of the volumes by the consumers (TSO, DSO)
- XML message definitions.

For the functionality of the MMC-hub, please refer to the TenneT Web Services guide[3].

1.3 Starting points

The following principles were used when designing the service *Exchange metering data volumes installation*:

- Date/time notation in XML notifications according to NEDU EDSN *Design Choices*[2]
- The start and end date are in UTC and in accordance with the notation: YYYY-MM-DDThh:mm:ssZ;
Example start and end date **calendar day** electricity (winter time):
2020-02-08T23:00:00Z / 2020-02-09T23:00:00Z;
Example start and end date **calendar day** electricity (change winter time to summer time):
2020-03-28T23:00:00Z / 2020-03-29T22:00:00Z;
Example start and end date **calendar day** electricity (summer time):
2020-06-08T22:00:00Z / 2020-06-09T22:00:00Z;
Example start and end date **calendar day** electricity (change summer time to winter time):
2020-10-24T22:00:00Z / 2020-10-25T23:00:00Z;
- Wherever this service description refers to "large consumption", this means a large connection/allocation point or a Section 1 paragraphs 2 and 3 connection/allocation point (A1)
- Wherever this service description refers to "distribution system operator" or "DSO", one can also understand "GDS owner" in the case of large consumption electricity connections;
- Wherever this service description refers to "Connection", this refers to allocation point electricity.

1.4 Use service Exchange measurement data volumes installation

The table below indicates the type of connection for which the metering responsible party must send a separate notification to the system operator. The table also contains a reference to the relevant use cases from the BRS[1].

The frequency is monthly, except for the yearly connections (based on master data). In addition, the metering responsible party will send an update if new data has become available. In an update notification, all metering data for the relevant period will be made available again. This includes the measurement data that have not been changed.

Exchange	Measurement data provider	Consumer of measurement data			Type of connection	BRS Use case	Code ¹
ELK							
Installation volumes "allocation point electricity profile large consumption or telemetry large consumption". The notification per allocation point contains the volumes of all installations "behind" this allocation point.	MRP	TSO	DSO	-	Allocation point ELK TMT	A20.002 A20.035	N80
Installation volumes "allocation point electricity profile large consumption or telemetry large consumption". The notification per allocation point contains the volumes of all installations "behind" this allocation point.	MRP	-	DSO	-	Allocation point ELK PRF	A20.003	N80

1.5 List of abbreviations

Abbreviation	Description
A1	A connection which falls within the definition of Article 1 of the Electricity Act. This connection is treated as a large consumption, while technically the connection is a small consumption connection
EDSN	Energy Data Services Netherlands
GDS	Closed distribution system
GV	Large consumption
TSO	Transmission system operator
MMC-hub	Market-Market-Communication Hub
MRP	Metering responsible party
PRF	Profile (abbreviation used to distinguish between profiled connections/allocation points and connections/allocation points measured by telemetry).
DSO	Distribution system operator
TMT	Telemetry (abbreviation used to distinguish between connections/allocation points with allocation method PRF and connections/allocation points with allocation method TMT)

¹ See paragraph 3.5 Application ProcessTypeID.

2. Roles and responsibilities

2.1 Consumer

This service description describes how the consumers (TSO, DSO) receive the volumes.

2.2 Provider

This service description describes how the provider (MRP) offers the volumes.

2.3 RACI

The RACI below shows the roles and responsibilities for this service:

R (Responsible, NL: Verantwoordelijk)	EDSN Business Integration
A (Accountable, NL: Eindverantwoordelijk)	To be determined!
C (Consulted, NL: Raadplegen)	Notifications team MFFBAS, ebIX Technical Commission,
I (Informed, NL: Informeren)	GMM MFF, EDSN

3. BPMN Exchange measurement data volumes installation

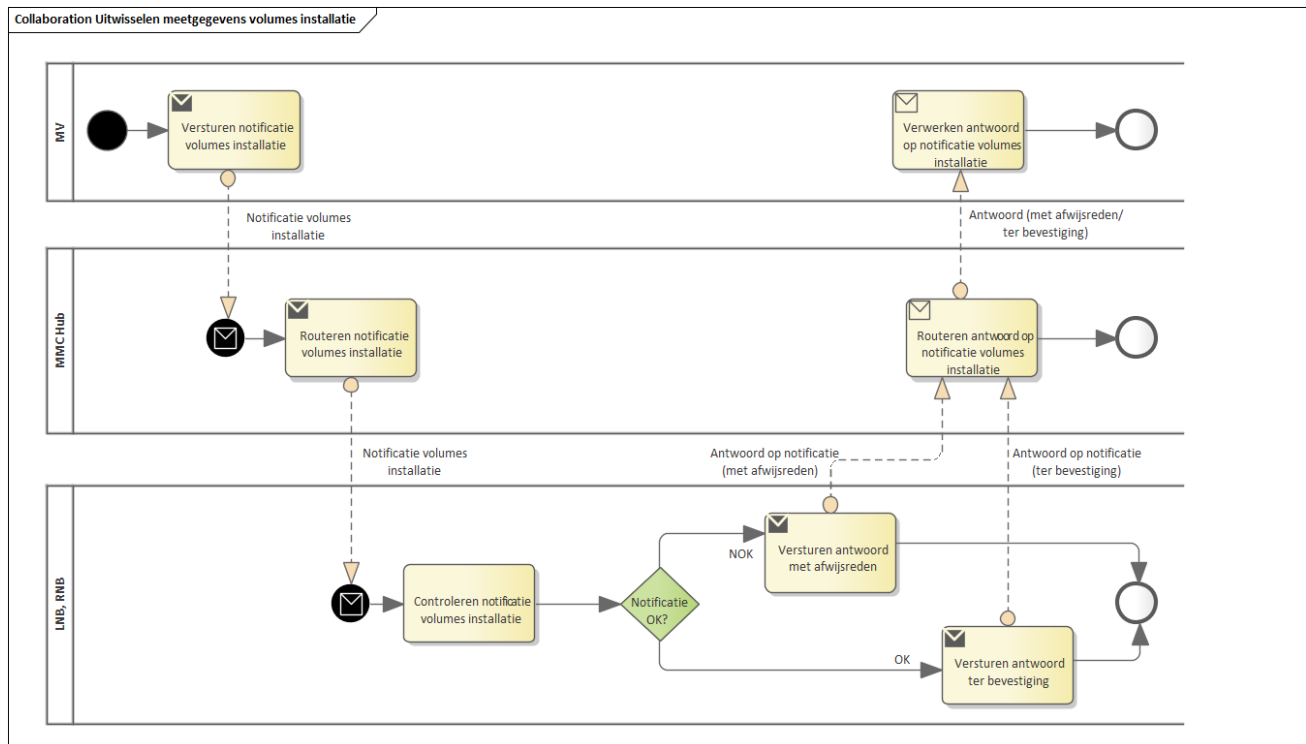


Figure 1 For detailed information on this process see BRS Metering data and objections GV[1]

3.1 Exchange of measurement data volumes installation

The process for exchanging metering data volumes installation follows the following scenario:

1. The metering responsible party sends the notification "Notification of measurement data volumes installation" to the MMC-hub
2. The MMC-hub processes² the received "Notification metering data volumes installation" notification and routes the notification to the receiver;
3. The receiver checks the notification "Notification of measurement data volumes installation"
4. The receiver sends the response "Confirmation/rejection of notification of measurement data volumes installation" to the MMC-hub:
 - a confirmation reply, or
 - an answer with one or more rejections
5. The MMC-hub processes³ the response and routes the notification to the recipient.

² A non-valid notification will be rejected by the MMC-hub, see paragraph 3.2.

³ A non-valid notification will be rejected by the MMC-hub, see paragraph 3.2.

3.2 Validations MMC-hub

Following the received notification "Notification of measurement data volumes installation" and received notification "Confirmation/rejection of notification of measurement data volumes installation" the MMC-hub performs the following validations:

Validation	Error notification
XSD Validation: The notification shall comply to the XSD rules	TEN-500001: [Error detail]
Unreadable notification: The notification shall be a valid XML layout	TEN-500001: [Error detail]
Others: All other faults	TEN-999999: Unhandled exception

If a notification is rejected by the MMC-hub, the MMC-hub sends the error code and text to the submitter of the notification concerned. For the functionality of the MMC-hub, please refer to the TennenT Web Services guide[3].

3.3 Checks on receiver

After receiving the notification "Notification metering data volumes installation" and the notification "Confirmation/rejection notification metering data volumes installation", the receiver can perform the following validations⁴:

Validation	Error notification in the SOAP response
The received XML notification complies with the W3C XML 'well-formedness' specification.	TEN-500001: [Error detail]
The received XML notification complies with the XML schema definition (XSD) of the receiver.	TEN-500001: [Error detail]

Following the received notification "Notification metering data volumes installation" the receiver performs the following checks:

Validation	Error notification in the Acknowledgement
The integrity and/or confidentiality of the XML notification is guaranteed (signing check).	Error code: 999 Error notification: TEN-500021 – Incorrect notification signing
The technicalNotificationId in the SOAP header is unique.	Error code: 999 Error notification: TEN-500023 – Unique identifier not unique or already processed

⁴ These validations are always carried out by the MMC-hub. It is recommended that recipients also perform these validations themselves.

3.4 Checks recipient for notification “Notification measurement data volumes installation”

The following checks and error notifications are available to the receiver in response to the notification "Notification of measurement data volumes installation" and shall be carried out insofar as they are mandatory or relevant for the processing by the receiver:

Control	Error notification	Role	Code
Connection/grid area			
The EAN code-18 of the connection is a valid EAN code.	EAN code-18 is not valid.	SO	650
The EAN code-18 of the grid area is a valid EAN code.	EAN code-18 is not valid .	SO	651
The EAN code-18 of the connection is registered with the system operator during the entire notification period.	The connection does not appear in the records of the system operator.	SO	652
The EAN code-18 of the grid area is administered by the system operator.	The grid area does not appear in the records of the system operator.	SO	687
According to the connection register, the MRP is registered as MRP on the connection during the entire notification period.	The MRP is not registered as an MRP on the connection.	SO	655
The connection was not demolished during the entire period covered by the notice.	The connection has been demolished.	SO	657
The connection is a GV connection throughout the period to which the notification relates.	The connection is not a GV connection.	SO	658
The connection is an electricity allocation point.	The connection is not an electricity allocation point.	SO	740
The product type in the notification corresponds to the product type of the connection in the connection register.	The product type does not correspond to the product type of the connection.	SO	659
The period to which the notification relates lies at least 1 (gas) day in the past.	The measurement data are (partly) related to the future.	SO	660
The start date of the period is before the end date of the period.	Invalid time period.	SO	661
The period covered by the notification does not overlap with the date of a Supplier-switch, a move-in, a move-out and/or an end of delivery.	Period overlaps a SVEL event.	SO	702
The EAN code-18 of the installation is an installation administered by the EAN code-18 of the connection.	The installation in combination with the connection does not appear in the records of the system operator.	SO	688
For all connections (excl. annual connections), the notification period is a maximum of 1 (gas) month.	The period to which the notification refers is not correct.	SO	716
The period covered by the notification is whole days.	The period is not a whole day.	SO	707
The connection is measured according to the connection register.	The connection is unmetered according to the connection register.	SO	742
A newer version of the notification has not yet been received when processing the notification.	Notification not processed because a newer version of the notification has been received.	SO	760
The reference in the notification is unique.	A notification with this reference has been received in the past.	SO	670
Volume			
All products match the product type.	One or more products do not fit the product type.	SO	667
All energy units match the products.	One or more energy units do not fit the product(s).	SO	668
The volume does not exceed the maximum number of agreed decimal places.	Volume has an incorrect number of decimal places.	SO	677
All volumes in the notification are positive numbers (or zero).	Volume with negative value.	SO	686
The period covered by the volumes in the notification is within the notification period.	Invalid time period.	SO	729
The start date of the period to which the volume relates is before the end date of the relevant period.	Invalid time period.	SO	741
The volume per installation in combination with energy direction appears at most once in the notification.	Multiple delivery of volume per installation.	SO	710
Notification header			

The NotificationID in the SOAP header is unique.	A previous notification has already been received with the same NotificationID.	SO	669
The ProcessTypeID in the header of the notification matches the content of the notification.	ProcessTypeID does not match the content of the notification.	SO	681
No notification with a more recent creation date/time stamp has been received.	A notification has already been received with a more recent creation date/time stamp.	SO	704
The senderID in de SOAP Header equals the SenderID in the Business Document Header.	senderID in de SOAP Header does not equal SenderID in de Business Document Header.	SO	701
The receiverID in de SOAP Header equals the ReceiverID in the Business Document Header.	receiverID in de SOAP Header does not equal the ReceiverID in the Business Document Header.	SO	745
The EAN 13 of the market party that compiled the data is the same as the SenderID in the Business Document Header.	EAN 13 of the market party that produced the data does not match the SenderID in the Business Document Header.	SO	778
The contentType ⁵ in the SOAP Header is in keeping with the ProcessTypeID in the Business Document Header.	contentType in the SOAP is not consistent with ProcessTypeID in the Business Document Header.	SO	754
The Correlation ID in the Business Document Header, if filled in, is the same as the Correlation ID in the SOAP Header.	The Correlation ID in the Business Document Header is not the same as the Correlation ID in the SOAP Header.	SO	780
Entire notification			
Notification is complete, correct and directed to the correct recipient ⁶ .	[free text field] ⁷	SO	999

3.5 Application ProcessTypeID for exchange of measurement data volumes installation

As described in *the BRS Metering data and contested metering data GV[1]*, the schedule for volumes installation can be used for various applications. In the EDSNBusinessDocumentHeader (functional header) in the notification, the application should be specified under ProcessTypeID. Further explanation about the use of the EDSNBusinessDocumentHeader is included in the NEDU EDSN Design Choices[2].

Application	Code
Installation volumes "allocation point electricity profile large consumption or telemetry large consumption".	N80

⁵ See Technical Guide - Measurements & Allocations Documents[8] for further information how to fill the contentType.

⁶ Check and error notification if a received notification is not correct or not intended for that recipient and cannot be caught by one of the above checks.

⁷ An explanation for error code 999 should be entered in this text field.

4. Functional parameters

4.1 Notification Exchange measurement data volumes installation

The following functional parameters are used for *Exchange metering data volumes installation*:

Given	Gas	Elec	1/n	Note	XML code
Notification Reference	N/A	V	1	A UUID as a unique identifier of the notification.	
EAN code connection	N/A	V	1	EAN 18 electricity allocation point.	
EAN code metering responsible party	N/A	V	1	EAN 13 of the metering responsible party	
Market role	N/A	V	1	Role of the metering responsible party.	MDR
EAN code grid area	N/A	V	1	EAN 18 of the grid area.	
Product type	N/A	V	1	Allowed values (from ebIX Code list[6] and including a leading zero): Electricity	023
Start date period	N/A	V	1	A periodic notification is sent for each consecutive period that a party is active on a connection. Start date time is in UTC and in accordance with ISO 8601 notation[7]: YYYY-MM-DDThh:mm:ssZ	
End date period	N/A	V	1	End date time is in UTC and in accordance with ISO 8601 notation[7]: YYYY-MM-DDThh:mm:ssZ	
Volume installation			n		
Installation identification	N/A	V	1	EAN 18 of the installation (or an identification determined by the MRP).	
Volume	N/A	V	1	Volume in whole numbers.	
Product ID	N/A	V	1	Allowable values for electricity (from ebIX Code list[6]): Active energy	8716867000030
Energy direction	N/A	V	1	Allowable values for installation (from UN/CEFACT Code list[9]): - Own consumption by installation - Gross generation by installation	208 141
Energy unit	N/A	V	1	Permissible values of active energy: kWh	KWH
Start date/time period (for volume installation)	N/A	V	1	Start date and time of the period to which the volume relates. Start date time is in UTC and in accordance with ISO 8601 notation[7]: YYYY-MM-DDThh:mm:ssZ	
End date/time period (for volume installation)	N/A	V	1	End date and time of the period to which the volume relates. End date time is in UTC and in accordance with ISO 8601 notation[7]: YYYY-MM-DDThh:mm:ssZ	

Mandatory fields (V) are always filled; optional fields (O) or dependent fields (A) if required for the context of the related measurement data notification.

4.2 Response Exchange measurement data volumes installation

The response consists of an acknowledgement or a rejection:

Given	Gas	Elec	1/n	Note	XML code
Reference response notification	N/A	V	1	A UUID as a unique identifier of the notification.	
Notification reference	N/A	A ⁸	1	A UUID as unique identifier for the acknowledged or rejected notification ⁹ .	
Date/time response notification	N/A	V	1	Date time is in UTC and in accordance with ISO 8601 notation[7]: YYYY-MM-DDThh:mm:ssZ	
Confirmation/rejection code	N/A	V	n	If confirmed (not rejected!), code "000" must be returned in the response. If rejected, at least one code for rejection must be returned in the response (see section 3.3 and 3.4).	Code for rejection: see section 3.3 and 3.4
Explanation of the rejection	N/A	O	n	Optional explanation of the rejection.	

Mandatory fields (V) are always filled; optional fields (O) or dependent fields (A) if required for the context of the related measurement data notification.

4.2.1 Explanation of the correlation of the response to the notification

Correlation on the following levels:

1. CorrelationID in de EDSNBusinessDocumentHeader shows the technical correlation between Notification and Acknowledgement if entered into the Notification by the provider¹⁰;
2. Via the notification attribute (both UUID), the obligatory process correlation between Notification and Acknowledgement is established

Additionally, a correlation may apply on the level of the SOAP header, see the document MMC Technical Guide – Measurements & Allocations Documents [8].

⁸ If the integrity and/or confidentiality of the XML notification cannot be guaranteed, the recipient must be able to send a rejection to the sender of the corresponding notification without the reference of the received notification. Due to compromised integrity or confidentiality there is no proper way to retrieve this information.

⁹ Is the VolumeInstallation_Series.mRID for the VolumeInstallationSeriesNotification notification.

¹⁰ CorrelationID can be filled by the supplier of volumes installation (provider). If filled, the receiving party (consumer) must specify this CorrelationID in the response to the provider. See Design Choices[2] for an explanation of the use of CorrelationID.

5. Sequence Diagram

5.1 Note

The sequence diagram shows the parties and services as an object with a so-called "lifeline". The interaction between these objects is shown by arrows as one or more notifications between objects. The notifications in the sequence diagram are explained in more detail in the chapter Information Model. Further details about notification standards and application methods are described in NEDU EDSN Design Choices[2].

5.2 Exchange of measurement data volumes installation

The following sequence diagram refers to the supply of *Exchange metering data volumes installation* by the metering responsible party to the MMC-hub. The MMC-hub takes care of routing, preparing and forwarding the relevant measurement data to the receiver.

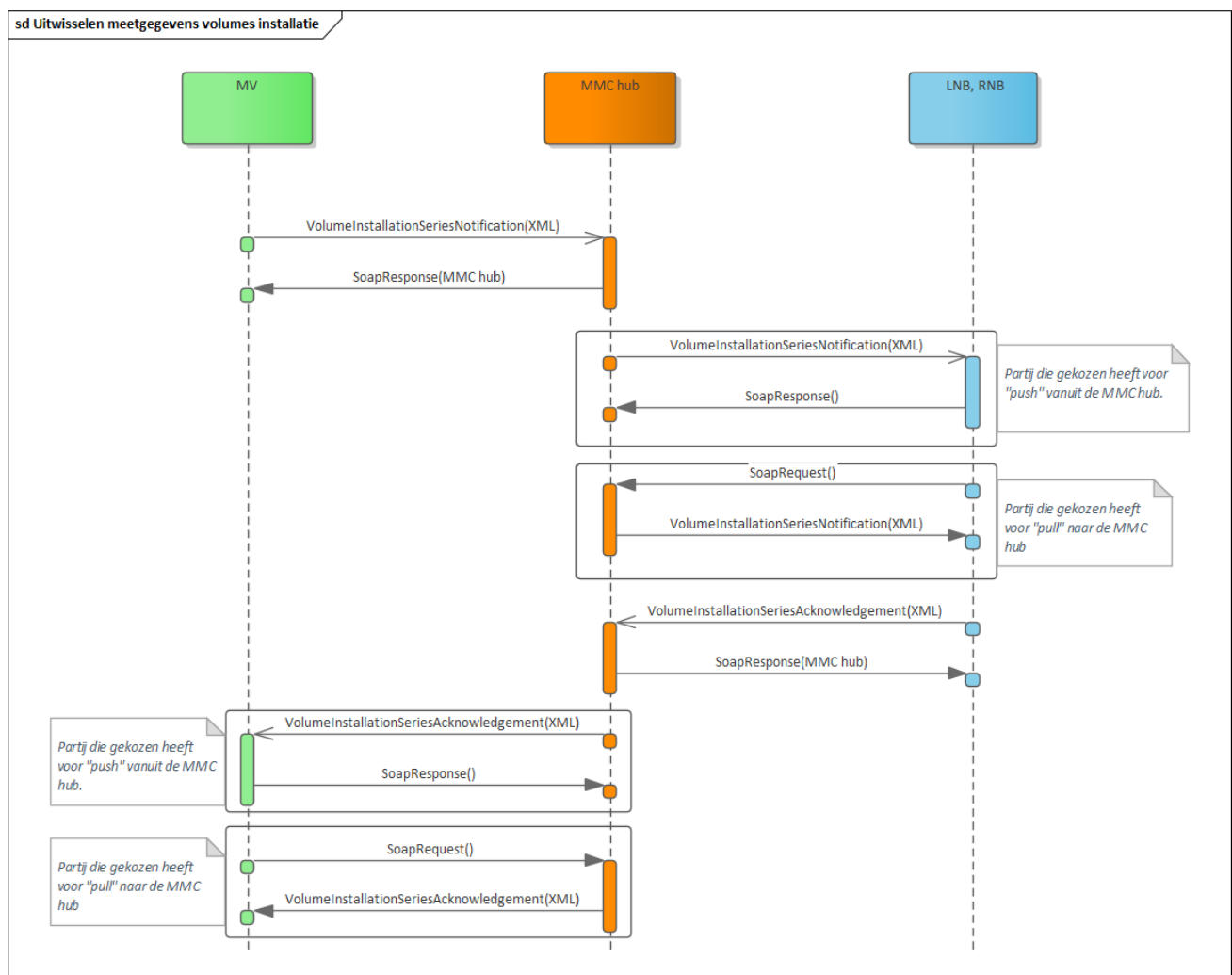


Figure 2 The sequence diagram for exchanging Metering data volumes Installation MRP, TSO and DSO via the MMC-hub

6. Properties service Exchange measurement data volumes installation

Exchange metering data volumes Installation (VolumeInstallationSeries)	
Service	VolumeInstallationSeries – Exchange metering data volumes installation
DSO Service ID	BSCMF0062
Description	Exchange of measurement data volumes installation between MRP (provider) and TSO, DSO (consumer)
Service transaction pattern	Notification/Acknowledgement
Precondition(s)	<i>Notification Exchange metering data volumes installation</i> is submitted by a party that is authorised and authenticated to do so.
Trigger	Party offer <i>Notification Exchange metering data volumes installation</i> to MMC-hub.
Post condition(s)	<i>Notification Exchange metering data volumes installation</i> rejected; - or <i>Notification Exchange metering data volumes installation</i> carried out.
Service use ¹¹	
Pattern of use	N/a.
Average load	N/a.
Peak load	N/a.
Period peak load	N/a.
Period of inactivity	N/a.
Max. consumer response time	95% of the incoming Notifications must be answered by the consumer by means of an Acknowledgement within 60 minutes.
Max. response time Soap response MMC-hub	See MMC Technical Guide - Measurements & Allocations Documents[8].
Time-out	See MMC Technical Guide - Measurements & Allocations Documents[8].
Retry	The sender (provider of the measurement data) only performs a 'retry' if he did not receive a positive HTTP response from de MMC-hub. If the recipient (consumer of the measurement data) after the max. response time still did not receive a response, we advise to contact the recipient to find out the reason behind. If necessary after that the administrator of the MMC-hub can be contacted. After coordination, a resend of the Notification can be chosen as a follow-up action.
Web service	
WSDL	See MMC Technical Guide - Measurements & Allocations Documents[8].
Version	See MMC Technical Guide - Measurements & Allocations Documents[8].
Date	See MMC Technical Guide - Measurements & Allocations Documents[8].
Soap address	See MMC Technical Guide - Measurements & Allocations Documents[8].

¹¹ To be agreed with TenneT.

Operation		
User		MRP-er
Function		Submit <i>Notification Exchange metering data volumes installation</i>
Soap action		See WSDL
	Input notification	VolumeInstallationSeriesNotification
	XSD	VolumeInstallationSeriesNotification_1p0
	Output notification	VolumeInstallationSeriesAcknowledgement
	XSD	VolumeInstallationSeriesAcknowledgement_1p1

7. Information model

7.1 Note

The information model is shown as a class diagram. Each class diagram is followed by a table with the description of the elements, except for the class diagrams of "empty" notifications exchanged for acknowledgement.

Multiplicities are indicated with the elements. Notation 0..1 means that the element optionally occurs once, 1..1 means that the element occurs once (mandatory). Notation 0...* means that the element may optionally occur more than once. Notation 1..* means that the element may occur one or more times (mandatory).

Data types determine which type of value an element can contain. The data types are subdivided into:

- **Composite data types** (CDT): a composition of several (fixed) elements, which are reused more often (e.g. address)[4].
- **Logical data types** (LDT): a defined set of properties of the element such as minimum length, maximum length, pattern[5].

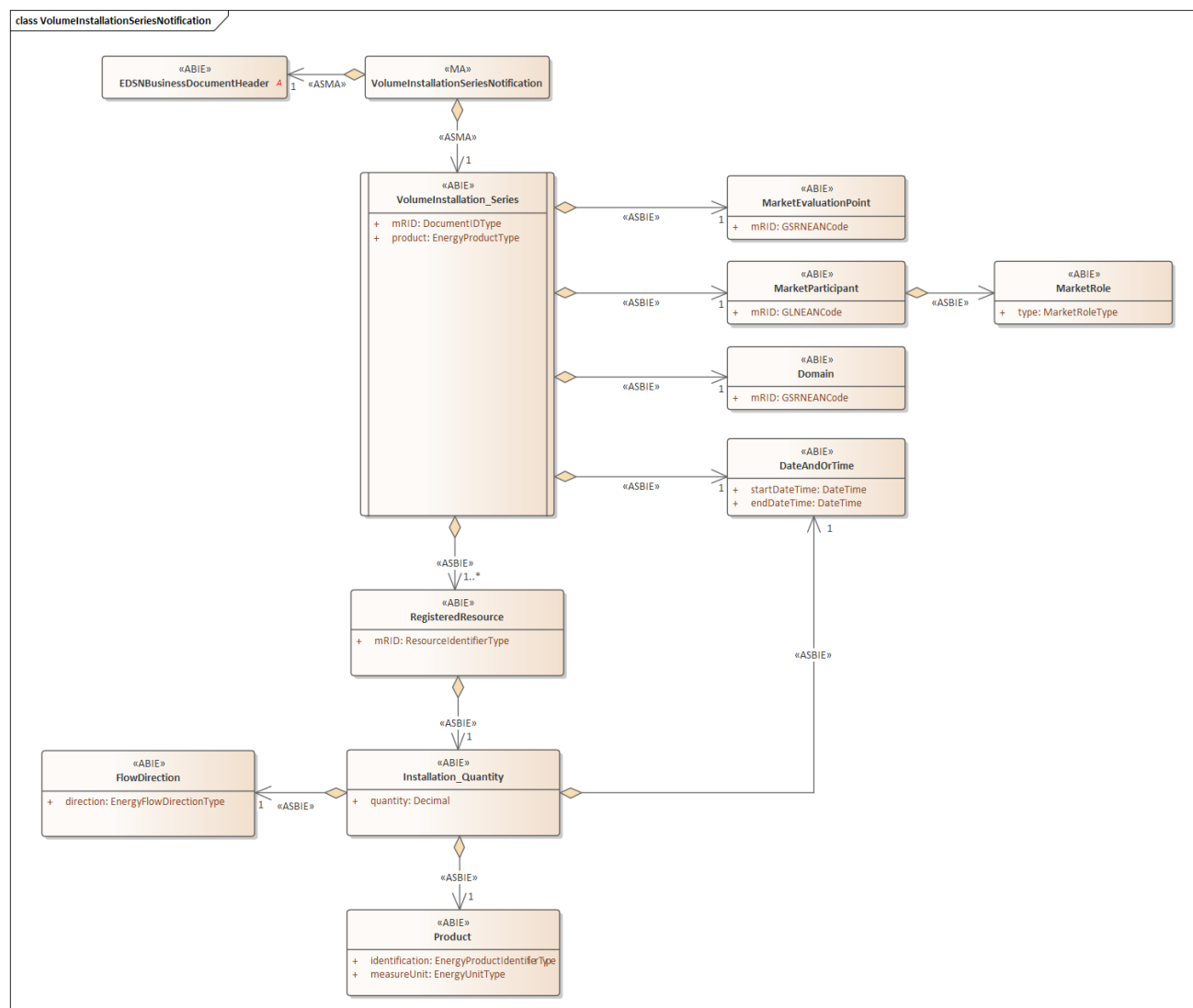
For more information on data types, please refer to NEDU EDSN Design Choices[2].

Detailed information on the values of the data types is available as a PDF document on mijnEDSN:

- EDSN Complex Data Type Specification (CDT).
- EDSN Logical Data Type Specification (LDT).

These documents also describe the values of the data types used in other information models.

7.2 Notification Exchange metering data volumes installation (VolumeInstallationSeriesNotification)



DateAndOrTime

XML element	Data type	Multiplicity	Description	Functional parameter
startDateTime	DateTime	1..1	Start date/time of the period as per ISO 8601 YYYY-MM-DDThh:mm:ssZ.	Start date period
endDateTime	DateTime	1..1	End date/time of the period as per ISO 8601 YYYY-MM-DDThh:mm:ssZ.	End date period

Domain

XML element	Data type	Multiplicity	Description	Functional parameter
mRID	GSRNEANCode	1..1	The unique identification of the domain.	EAN code grid area

FlowDirection

XML element	Data type	Multiplicity	Description	Functional parameter
direction	EnergyFlowDirectionType	1..1	The identification of the direction.	Energy direction

Installation_Quantity

XML element	Data type	Multiplicity	Description	Functional parameter
quantity	Decimal	1..1	The quantity value. The association role provides the information about what is expressed.	Volume installation

MarketEvaluationPoint

XML element	Data type	Multiplicity	Description	Functional parameter
mRID	GSRNEANCode	1..1	The identification of the evaluation point.	EAN code connection

MarketParticipant

XML element	Data type	Multiplicity	Description	Functional parameter
mRID	GLNEANCode	1..1	The identification of a party in the energy market.	EAN code metering responsible party

MarketRole

XML element	Data type	Multiplicity	Description	Functional parameter
type	MarketRoleType	1..1	The identification of the role played by a market player.	Market role

Product

XML element	Data type	Multiplicity	Description	Functional parameter
identification	EnergyProductIdentifierType	1..1	The unique identification of the product.	Product ID
measureUnit	EnergyUnitType	1..1	The identification of the measure unit.	Energy unit

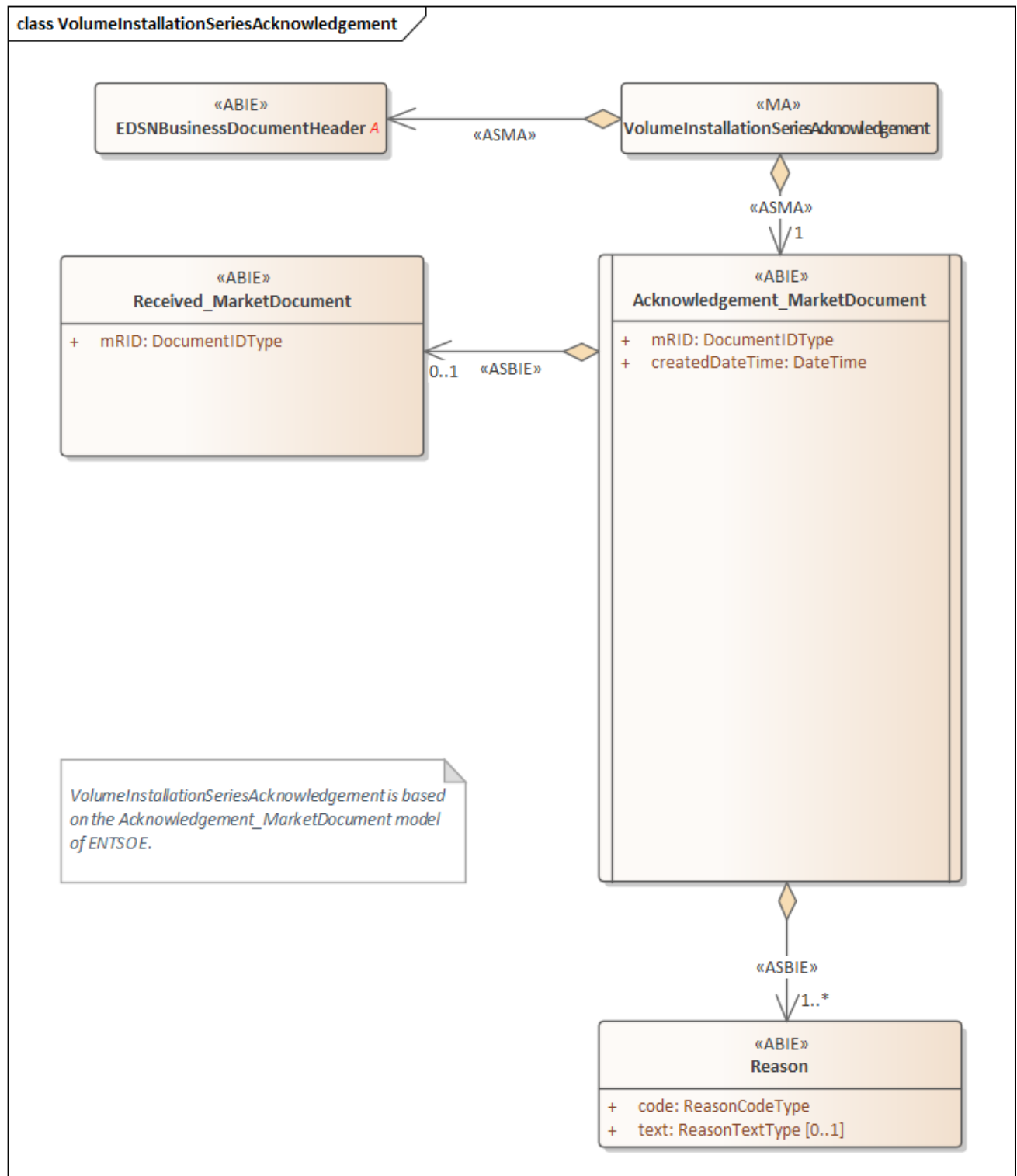
RegisteredResource

XML element	Data type	Multiplicity	Description	Functional parameter
mRID	ResourceIdentifierType	1..1	The unique identification of a resource.	Installation identification

VolumeInstallation_Series

XML element	Data type	Multiplicity	Description	Functional parameter
mRID	DocumentIDType	1..1	A unique identification of the time series.	Notification Identifier (UUID)
product	EnergyProductType	1..1	The identification of the energy product (electricity, gas etc.)	Product type

7.3 Confirmation/rejection notification metering data volumes installation (VolumeInstallationSeriesAcknowledgment)



Acknowledgement_MarketDocument

XML element	Data type	Multiplicity	Description	Functional parameter
mRID	DocumentIDType	1..1	The unique identification of the document being exchanged within a business process flow.	Notification Identifier (UUID)

XML element	Data type	Multiplicity	Description	Functional parameter
createdDateTime	DateTime	1..1	The date and time of the creation of the document.	Date/time notification

Reason

XML element	Data type	Multiplicity	Description	Functional parameter
code	ReasonCodeType	1..1	The motivation of an act in coded form.	Confirmation/rejection code
text	ReasonTextType	0..1	The textual explanation corresponding to the reason code.	Explanation of the rejection

Received_MarketDocument

XML element	Data type	Multiplicity	Description	Functional parameter
mRID	DocumentIDType	1..1	The unique identification of the document being exchanged within a business process flow.	Notification identifier (UUID)